1994 Scott Street

Transportation Impact Assessment (TIA) Report

FINAL

April 2026

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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1994 Scott Street

Transportation Impact Assessment (TIA) Report

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TRANSPORTATION IMPACT ASSESSMENT

Parsons has been retained by Park River to prepare a Transportation Impact Assessment Report in support of a Zoning By-Law Amendment (ZBLA) Application for a proposed multi-phase mixed-use development at 1994 Scott Street. This document follows the TIA process as outlined in the City of Ottawa Transportation Impact Assessment (TIA) Guidelines (2017) and subsequent revision (2023). The following report represents Step 4 – Transportation Impact Assessment Report.

1.0 SCREENING FORM

The Screening Form has been provided in **Appendix A**. The Screening Form confirmed the need for a TIA Report based on the Trip Generation and Safety triggers. The Trip Generation trigger was met as the development is anticipated to generate more than 60 person trips during peak hours. The Safety Trigger was met as the development is located within 150 m of a signalized intersection (Scott/Tweedsmuir and Scott/Athlone) and there may be potential traffic operations or safety concerns may be within 500m of the development (to be verified through analysis).

2.0 SCOPING REPORT

2.1. Existing and Planned Conditions

2.1.1. Proposed Development

The proposed development is located in Ottawa, at the municipal addresses of 1994 Scott St, 324 and 335 Tweedsmuir Ave and 330 Athlone Ave. As per the City of Ottawa Official Plan Schedule B3, the development site is located in an evolving neighbourhood and along a mainstreet corridor (Scott St). The site is currently zoned as a Traditional Mainstreet (TM[102]) zone at the corner of the Scott/Tweedsmuir intersection and as a Residential Fourth Density (R4UB) zone for the remaining majority of the site. This report will review the three-phases of the development in support of rezoning. The local site context is illustrated in **Figure 1**, while the Site Plan is illustrated in **Figure 2** (high quality plan provided in **Appendix A**).

In total, the proposed development will consist of four high-rise residential buildings with 1,206 apartment units and 789 m^2 (8,488 ft^2) of first floor commercial space. All buildings will provide underground parking garages with ramps accessed at the respective boundary roads.

Phase 1 (Buildings A1 and A2) will consist of two high-rise residential buildings that are 40 and 4-storey high, replacing 9 existing residential units and a commercial unit. The existing access to Scott Street will be removed. Building A1 will provide 555 apartment units and a 467 m^2 (5,023 ft^2) first-floor commercial space, while Building A2 will provide 43 apartment units and no commercial space. The two buildings will be bounded primarily by Tweedsmuir Ave to the east, with Building A-1 also bounded by Scott St to the north. As part of Phase 1, an internal east-west pedestrian connection will be provided on the south side of Building A2, connecting Tweedsmuir Ave and Athlone Ave. A vehicle access to underground parking garage will be provided via Tweedsmuir Ave. The buildout year of Phase 1 is assumed to be 2028.

Phase 2 (Building B) will replace 3 existing residential units with a 29-storey high-rise residential building consisting of 290 apartment units and 322 m^2 (3,465 ft^2) first-floor commercial space. Building B is bounded by Athlone Ave on the east side with vehicular access proposed via an underground parking garage ramp. Phase 3 (Building C) will replace 6 existing residential units with a 29-storey high-rise residential building consisting of 318 apartment units and no commercial space. A parkland dedication with a 780 m^2 (8,400 ft^2) area will be located south of Building C. The building will be bounded by Tweedsmuir Ave on the west side, with vehicular access proposed via an underground parking garage ramp. A concurrent buildout year for Phases 2 and 3 is assumed to occur by 2031.

Figure 1: Local Context

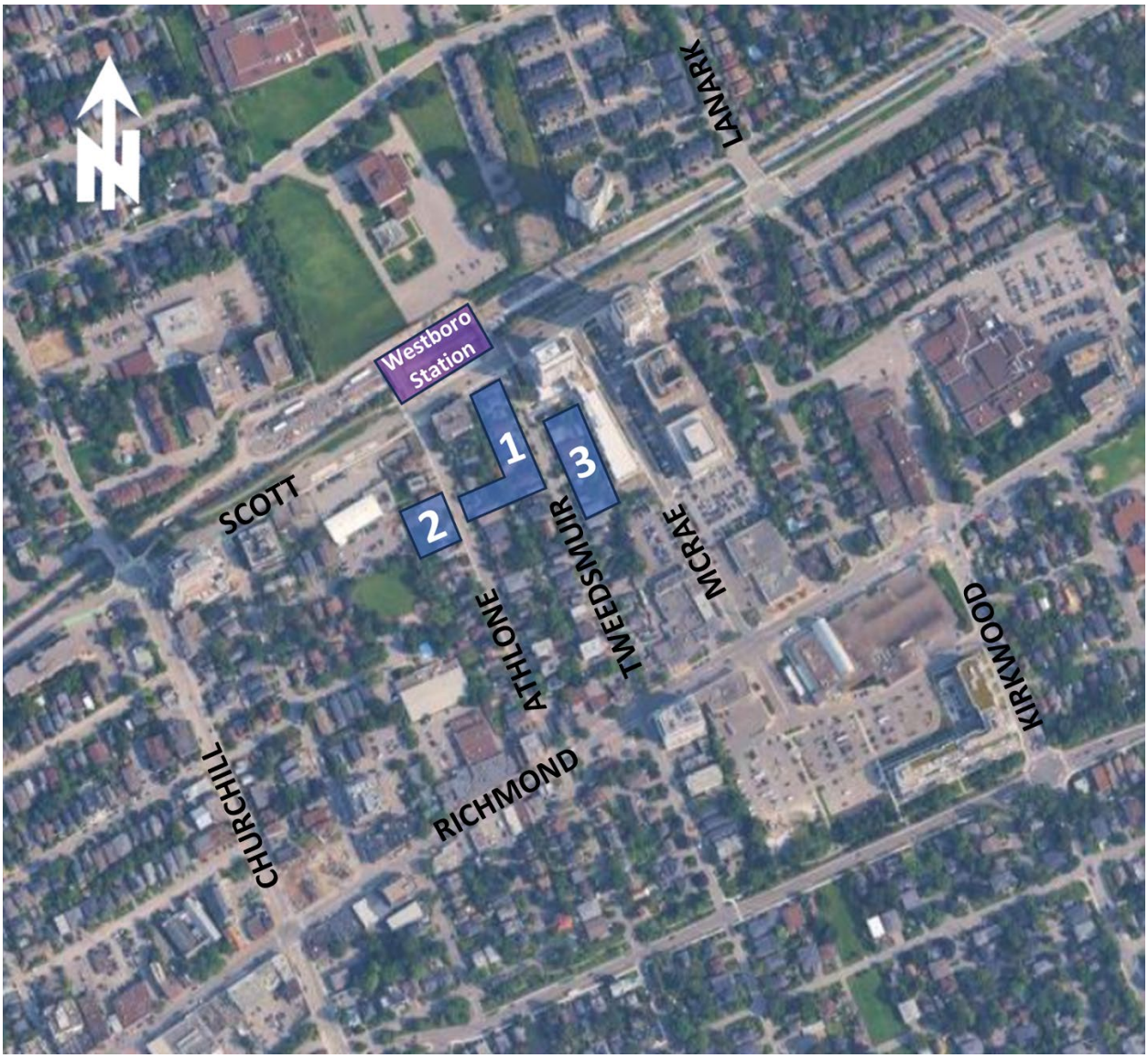
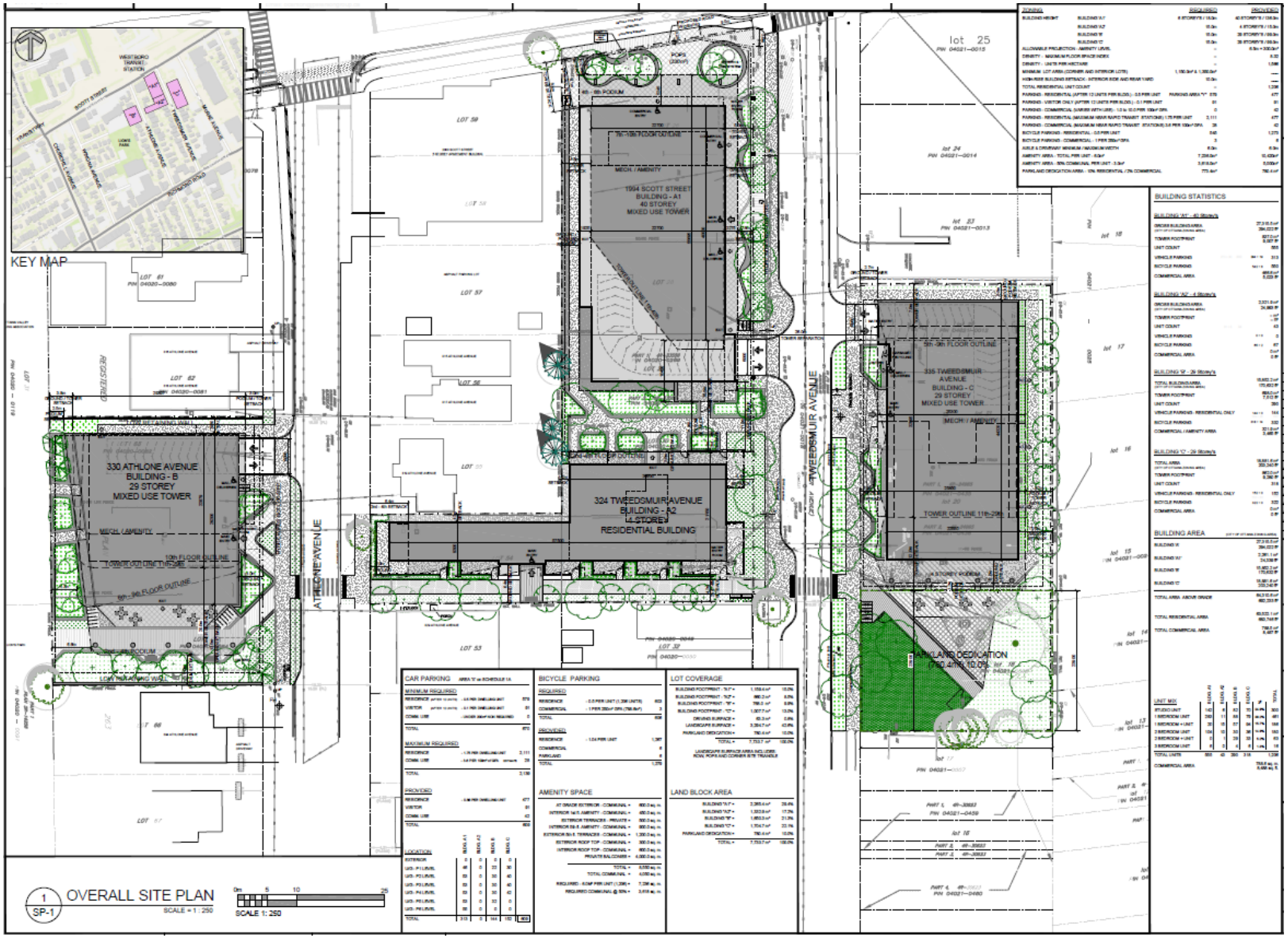


Figure 2: Proposed Site Plan (July 2025)



2.1.2. Existing Conditions

Area Road Network

Description of the roads included in the TIA Report is provided below.

Scott St is an east-west municipal arterial roadway, which extends from Churchill Ave in the west to Bayview Rd in the east, where it continues as Albert St into Ottawa's downtown area. Within the study area, Scott St provides a cross-section consisting of a single travel lane in each direction, with auxiliary turn lanes at some signalized intersections. The posted speed limit is 50 km/h, with a cycle track and sidewalk provided on the south side and a Multi-Use Pathway (MUP) provided on the north side. Based on the Official Plan Schedule C16, Scott St has a protected Right-of-Way (ROW) of 26 m.

Churchill Ave is a north-south major collector roadway south of Richmond Road, an arterial roadway between Richmond Road and Scott Street and a collector roadway north of Scott Street. Within the study area, its cross-section consists of a single travel lane in each direction with on-street parking bays and sidewalks provided along both sides of the roadway. The unposted speed limit is assumed to be 50 km/h.

Richmond Rd is an east-west municipal arterial road that extends from Baseline Rd in the west (where it continues west as Robertson Rd) to Island Park Dr in the east (where it continues east as Wellington St W). Within the study area, the roadway consists of a two-lane cross-section, with on-street parking bays and sidewalks on both sides of the road. The unposted speed limit is assumed to be 50 km/h.

Kirkwood Ave is a north-south municipal road that extends from Wilber Ave in the north to Merivale Rd in the south. The road is classified mostly as an arterial, with local road classification for the short segment between Richmond Rd and Wilber Ave. Within the study area, it consists of a two-lane cross-section and parking spaces on both sides north of Richmond Rd, and a four-lane cross-section with sidewalks on both sides south of thereof. The posted speed limit is 50 km/h.

Athlone Ave is a north-south local municipal roadway that extends from Scott St in the north to 285m south of Wesley Ave. Within the study area, the roadway consists of a two-lane cross-section with sidewalks on the west side and on-street parking permitted on both sides, where parking on the west side is restricted during winter months (December 1st to March 31st). The unposted speed limit is assumed to be 50 km/h.

Tweedsmuir Ave is a north-south municipal local roadway that extends from Scott St in the north to 70m south of Currell Ave. Within the study area, the roadway consists of a two-lane cross-section with sidewalks on the east side and on-street parking permitted on the west side. The unposted speed limit is assumed to be 50 km/h.

McRae Ave is a north-south municipal local road that extends from Scott St in the north to Richmond Road in the south. Within the study area, the roadway consists of a two-lane cross-section and sidewalks on both sides. The unposted speed limit is assumed to be 50 km/h.

Lanark Ave is a municipal collector road that extends from Churchill Ave in the northwest to Scott St in the southeast, where it continues south of the intersection as ***W Village Priv***. The speed limit is 25 km/h south of Scott St and 50 km/h north of thereof.

Existing Study Area Intersections

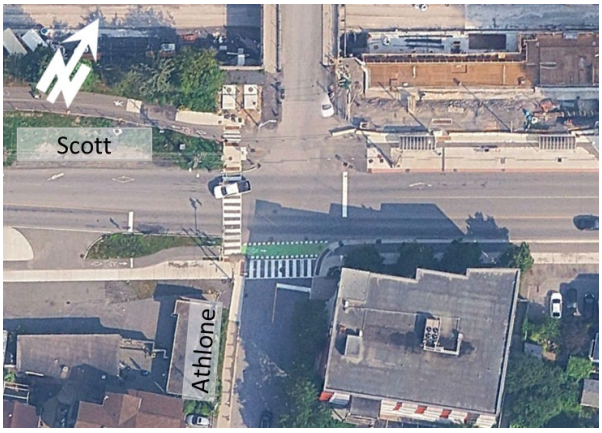
Scott/Churchill

The Scott/Churchill intersection is a four-legged signalized intersection. The northbound approach consists of a shared through/left-turn lane and an auxiliary right-turn lane. The southbound and eastbound approaches consist of an all-movement lane. The westbound approach consists of a shared through/right-turn lane and an auxiliary left-turn lane. Zebra crosswalks and painted bike crossings with bike signals are provided on all approaches. Eastbound left-turns and northbound right-turns on red are not permitted. The west leg extends to form part of the new transitway alignment to Scott St.



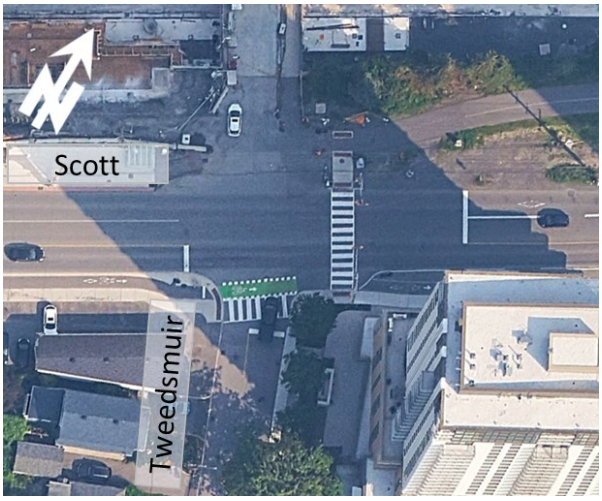
Scott/Athlone

The Scott/Athlone intersection is a four-legged unsignalized intersection, with a pedestrian crossing signal on the west side for east/west through movements and stop control on the south approach; the north leg to Westboro Station is currently closed due to construction. The south and west legs consist of a single all-movement lane, while the east leg consists of a single all movement lane. It is noted that the westbound bus queue jump lane has been removed from service. Zebra crosswalks are provided on the west and south sides with a painted bike crossing on the south side. Trucks are not permitted to enter Athlone Ave.



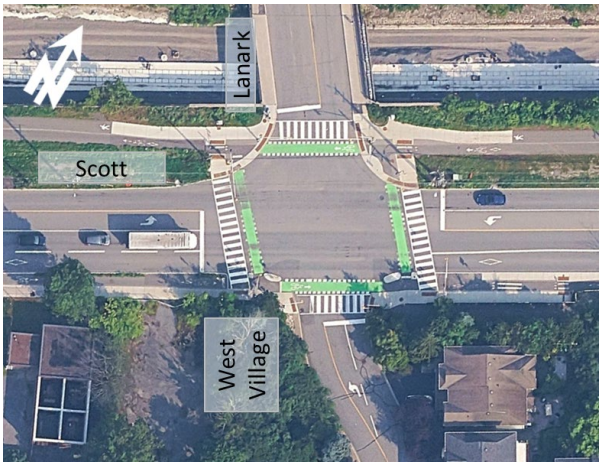
Scott/Tweedsmuir

The Scott/Tweedsmuir intersection is a four-legged unsignalized intersection, with a pedestrian crossing signal on the east side for east/west through movements and stop control on the south approach; the north leg to Westboro Station is currently closed due to construction. The south and west legs consist of a single all-movement lane, while the east leg consists of a single all movement lane. It is noted that the westbound bus queue jump lane has been removed from service. Zebra crosswalks are provided on the east and south sides with a painted bike crossing on the south side. Trucks are not permitted to enter Tweedsmuir Ave.



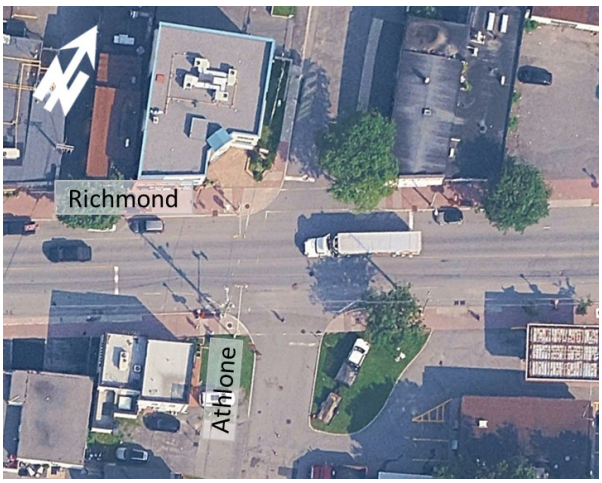
Scott/Lanark/W Village

The Scott/Lanark/W Village intersection is a four-legged signalized intersection. The north, south and west approaches consist of a shared through/right-turn lane and an auxiliary left-turn lane, while the east approach consists of a through lane, an auxiliary left-turn lane and a shared transit/right-turn lane. Zebra crosswalks and painted bike crossings with bike signals are provided on all approaches. There are no restricted movements at this intersection.



Richmond/Athlone

The Richmond/Athlone intersection is a four-legged unsignalized intersection, with a pedestrian crossing signal on the west side for east/west through movements and stop control on the north and south approaches. All legs consist of a single all-movement lane and crosswalks are provided on the north, south and west legs. Trucks are not permitted to enter the north leg.



Richmond/Tweedsmuir

The Richmond/Tweedsmuir intersection is a four-legged unsignalized intersection with stop control on the north and south legs. The north, south and west legs consist of a single all-movement lane, while the east leg consists of a shared through/left-turn lane and a right-turn/parking lane. Trucks are not permitted to enter the north leg.



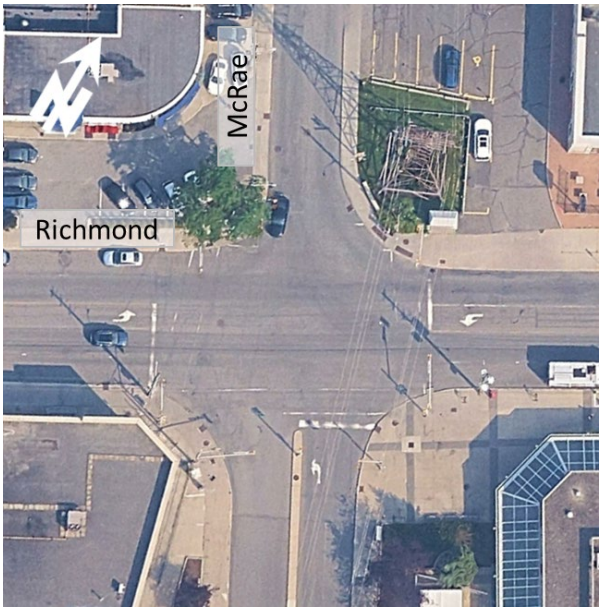
Richmond/Churchill

The Richmond/Churchill intersection is a four-legged signalized intersection. The south, east and west legs consist of an auxiliary left-turn lane and a shared through/right-turn lane, while the north leg consists of an all-movement lane. Zebra crosswalks are provided on all approaches. The southbound left-turn is prohibited on weekdays between 3:30 and 5:30 pm.



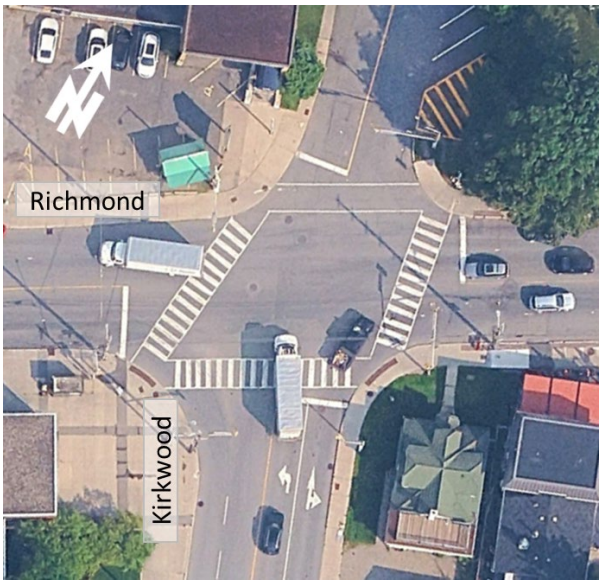
Richmond/McRae

The Richmond/McRae intersection is a four-legged signalized intersection. The east and south legs consist of a shared through/right-turn lane and an auxiliary left-turn lane, while the north leg consists of a single all-movement lane and the west leg consists of a through lane, a shared through/right-turn lane and an auxiliary left-turn lane. Pedestrian crossings are provided on all legs of the intersection. There are no prohibited movements at the intersection.



Richmond/Kirkwood

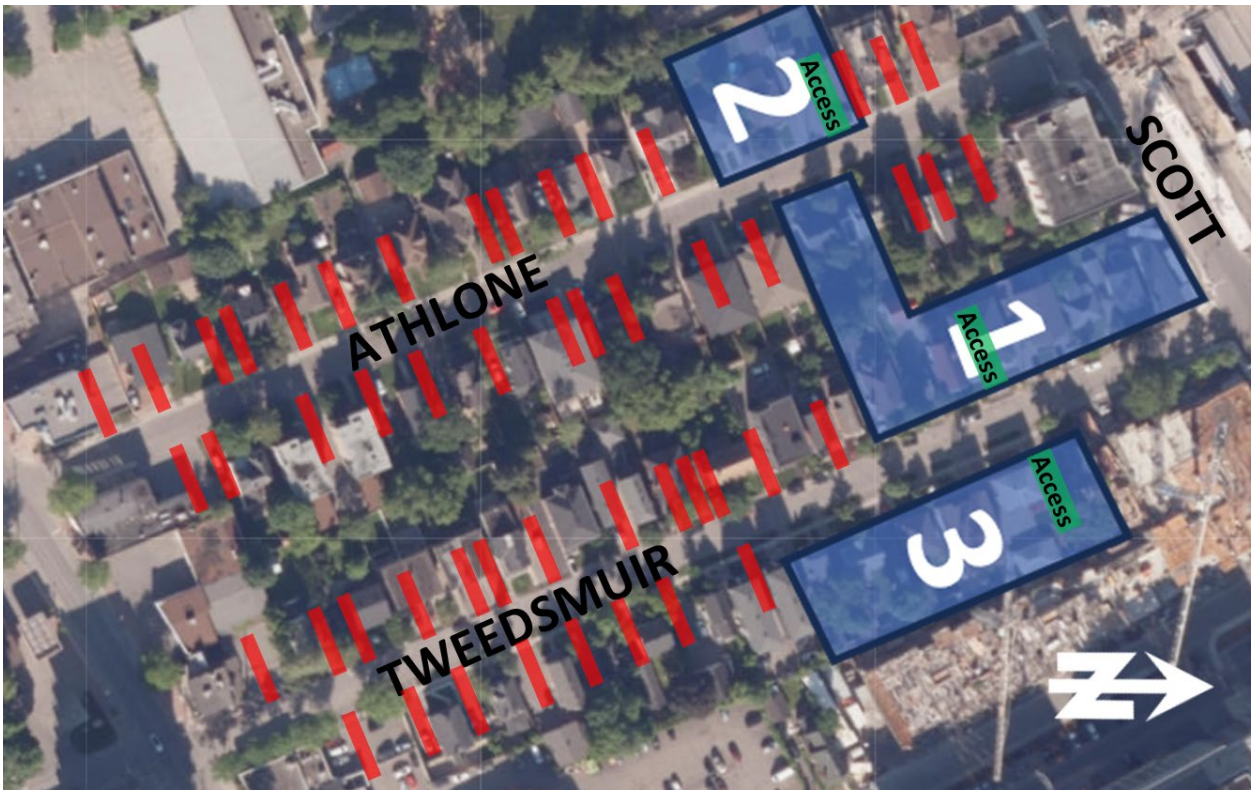
The Richmond/Kirkwood intersection is a four-legged signalized intersection. The east and west legs consist of a shared through/right-turn lane and a through/left-turn lane, while the south leg consists of a shared through/right-turn lane and an auxiliary left-turn lane and the north leg consists of a single all-movement lane. Pedestrian crossings are provided on all legs of the intersection with zebra markings on the east, west and south legs. There are no prohibited movements at the intersection.



Existing Driveways to Adjacent Developments

Within 200m of the proposed development accesses, there are approximately 21 existing accesses along Tweedsmuir Ave and 29 existing accesses along Athlone Ave. Nearly all accesses are for single or townhome residential units, with some accesses to businesses and restaurants fronting Richmond Rd to the south. Access to a five-storey apartment building is also located along the east side of Athlone Ave, at the Scott St intersection.

Figure 3: Adjacent Driveways within 200m of Site Accesses



Existing Area Traffic Management Measures

Existing area traffic management measures within the study area include:

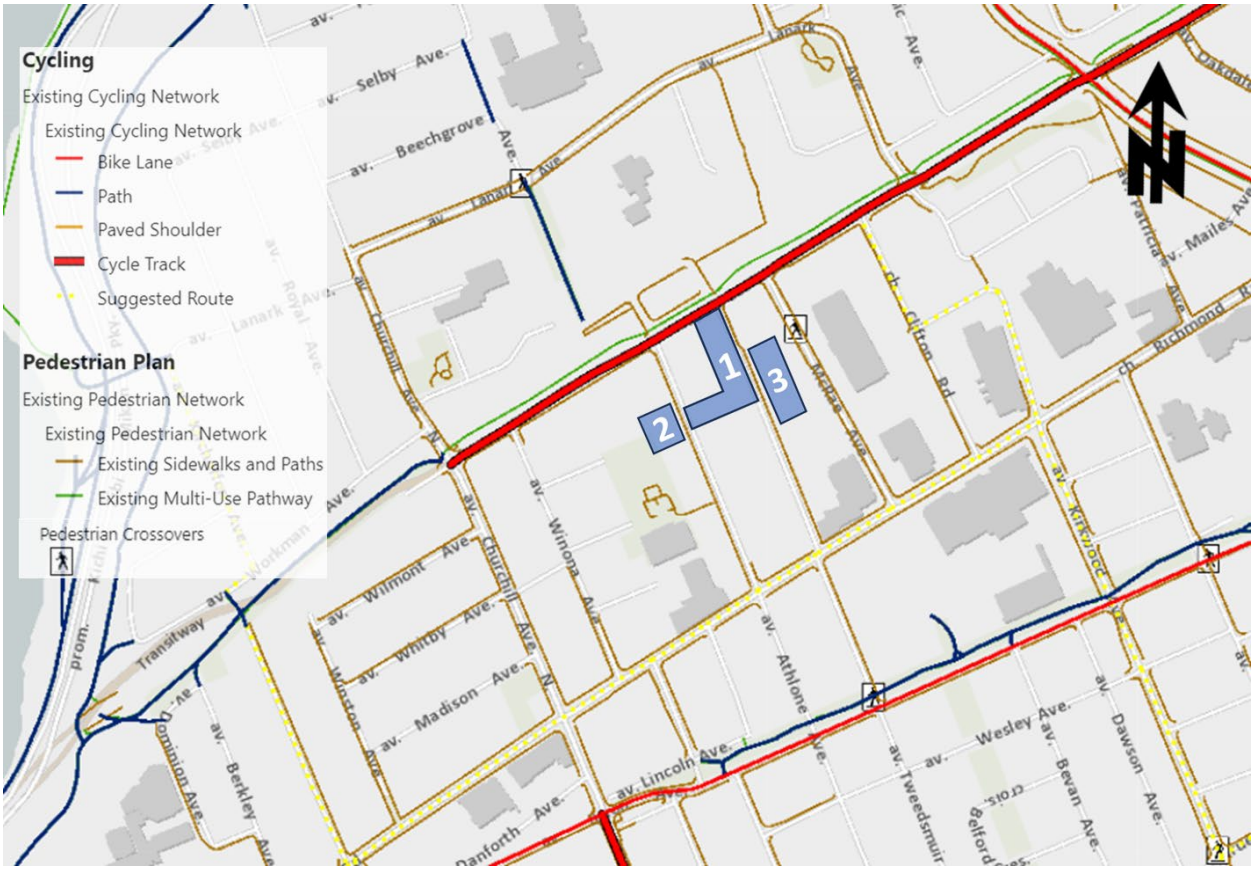
- Pedestrian crossovers (PXO) at some locations (locations identified in next section);
- Pedestrian crossing signals at the intersections of Scott/Athlone, Scott/Tweedsmuir and Richmond/Athlone;
- Zebra crosswalks and painted bike crossings at intersections along Scott St;
- MUP and Cycle tracks along Scott St to separate cyclists from traffic;
- Bike signals at intersections along Scott St;
- No right turn on red and fully protected right-turn signal for the NB movement at the intersection of Scott/Churchill; and,
- Stop bar set back for the NB through/left-turn lane at the intersection of Scott/Churchill providing additional space for truck turns.
- Speed humps and curb extensions are provided at several locations along Lanark Ave.
- Curb extensions are provided at several locations along Churchill Ave and Richmond Road, resulting in narrowed roads that reduce speeds, frame on-street parking and provide space for bus platforms.

Existing Pedestrian/Cycling Network

Figure 4 illustrates the existing active transportation (pedestrian and cyclist) facilities in the study area based on the latest information available from GeoOttawa. Active transport facilities are provided as follows:

- Along Scott St, a MUP is provided on the north side and a cycle track and sidewalks on the south side. The MUP on the north side is separated into two halves via tactile delineation, where the northern half is reserved for pedestrians and the southern half is reserved for westbound cycling. At Churchill Ave, the MUP and cycle track connect to a major MUP network that extend to western and eastern locations and connect to a wider MUP network in the City. Note that the City of Ottawa's updated 2023 Active Transportation Network maps illustrate Scott St as a Crosstown Bikeway route.
- Along Richmond Rd, sidewalks are provided on both sides of the road and it is designated as a suggested cycling route.
- Along Lanark Ave, sidewalks are provided on both sides of the road, with a pedestrian crossover (PXO) approximately 200m east of Churchill Ave. A MUP connection is provided between the PXO and Westboro Station.
- Along Churchill Ave, sidewalks are provided on both sides of the road.
- Along McRae Ave, sidewalks are provided on both sides of the road, with a pedestrian crossover approximately 165m south of Scott St.
- Along Athlone Ave, sidewalks are provided on the west side of the road.
- Along Tweedsmuir Ave, sidewalks are provided on the east side of the road.

Figure 4: Existing Study Area Pedestrian and Cycling Facilities (GeoOttawa)



Transit Network

The transit network for the study area is illustrated in **Figure 5** and the transit route maps are provided in **Appendix B**. As illustrated in the figure, since Westboro Station and the existing transitway are currently being reconstructed as part of the new LRT Confederation Corridor (Line 1) west extension, bus routes previously operating along the closed section of the transitway have been rerouted to Scott St via a new alignment, where they will continue to operate until the LRT west extension is completed. A dedicated eastbound bus lane has been provided along Scott St from west of Lanark Ave to east of Island Park Dr.

Given the proximity of the development site to the transitway and Westboro Station, many bus routes previously operated and currently operate at the site frontage on Scott St, including the following:

- **Frequent bus routes (service every 15 minutes or less on weekdays, 7 days a week):** Bus routes 57, 61, 62, 63, 74, 75 and 87.
- **Local bus routes (custom routing to local destinations):** Bus routes 58, 60, 66, 67, 73, and 82.
- **Connexion bus routes (quick connections from home to LRT Line 1, during rush hours only):** Bus routes 256, 261, 262, 263, 265, 266, 275, 277, and 279.

In addition to the above bus routes, bus route #81 operates on McRae Ave, Scott St and Churchill Ave, and bus route #11 operates on Richmond Rd. It is also important to note that the LRT Line 1's existing western limit is at Tunney's Pasture Station, which is located along Scott St approximately 1.5km east of the development site.

Figure 6 illustrates the existing bus stop locations. Nearest bus stops to the site include Scott St and McRae Ave within 100m radius of the site and along Richmond Rd within 350m of the site.

Figure 5: Area Transit Network

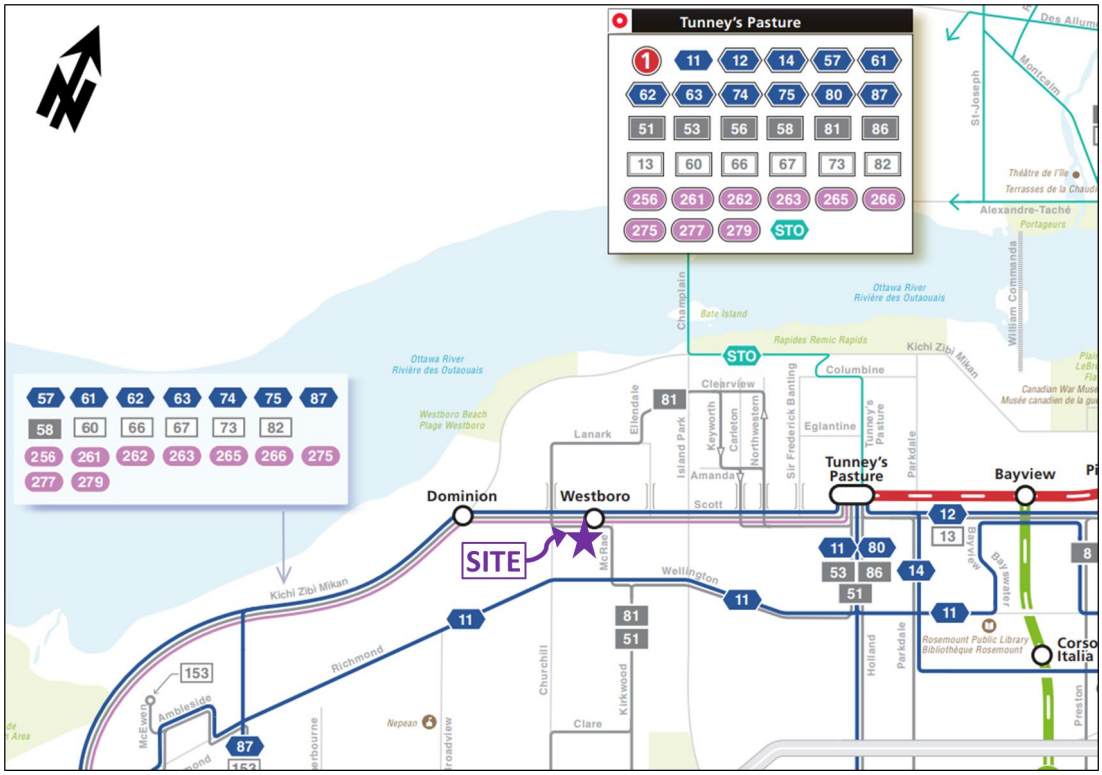
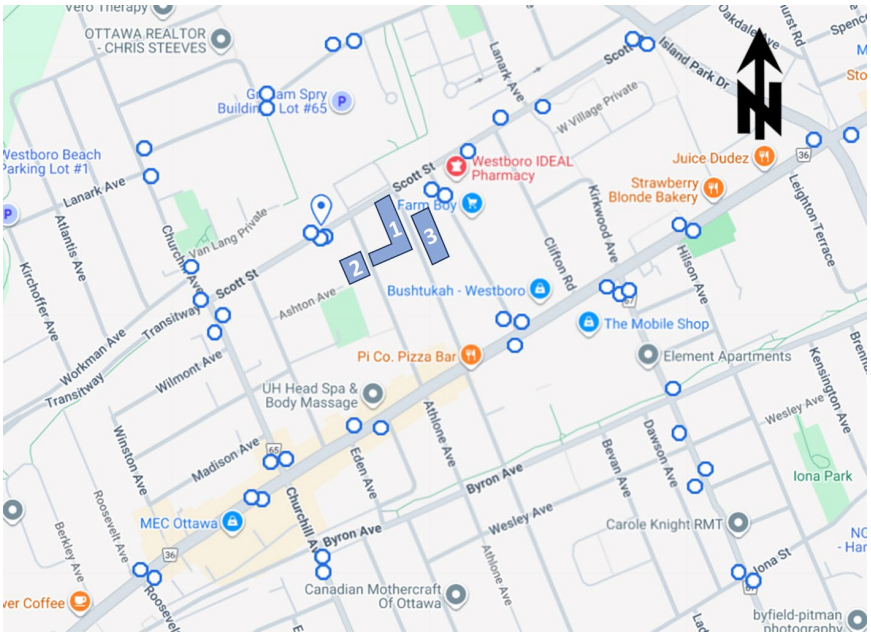


Figure 6: Bus Stop Locations



Peak Hour Travel Demands

The existing peak hour traffic and pedestrian volumes within the study area were obtained for the following intersections:

- Scott/Churchill – conducted by the City of Ottawa on Thursday, November 30th, 2023.
- Scott/Athlone – conducted by the City of Ottawa on Wednesday, November 22nd, 2017.
- Scott/Tweedsmuir – conducted by the City of Ottawa on Tuesday, March 28th, 2017.
- Scott/Lanark/West Village – conducted by the City of Ottawa on Thursday, November 30th, 2023.
- Richmond/Athlone – conducted by the City of Ottawa on Thursday, July 7th, 2022.
- Richmond/Tweedsmuir – conducted by Parsons on Tuesday, December 12th, 2023.
- Richmond/Churchill – conducted by the City of Ottawa on Thursday, January 23rd, 2020.
- Richmond/McRae – conducted by the City of Ottawa on Thursday, January 23rd, 2020.
- Richmond/Kirkwood – conducted by the City of Ottawa on Wednesday, December 20th, 2023.

Traffic volumes at the intersections of Scott/Churchill, Scott/Lanark/West Village and Richmond/Tweedsmuir are relatively recent counts conducted in November and December of 2023. These counts reflect post-COVID conditions where general traffic behaviors have shifted to a higher work from home percentage and Scott St construction had been completed for several months. Therefore, counts at these locations will be used as the baseline conditions and traffic volumes along Scott St will be adjusted accordingly. At the Scott/Athlone and Scott/Tweedsmuir intersections, east/west through volumes were balanced down based on the Scott/Churchill volumes and the heavy vehicle percentage is assumed to be higher due to transitway detour. Difference between volumes at Scott/Lanark/West Village and the intersections to the west is attributed to a number of new developments along McRae Ave, which includes residential towers and a commercial building. East/west through volumes along Richmond Rd were conservatively balanced to the higher volume between the two intersections.

The balanced existing traffic volumes at study area intersections are illustrated in **Figure 7**, with raw traffic count data provided in **Appendix C**. Existing active transportations volumes at intersections have been provided in **Figure 8**. Note that counts conducted during winter months typically record lower pedestrian and cyclist volumes, however, cyclist volumes along Richmond Road were balanced based on volumes at the Richmond/Athlone intersection, which was conducted in July.

Given that counts conducted at the Westboro Station accesses (Scott/Athlone and Scott/Tweedsmuir) were prior to closure of the station for construction, the recorded active transport volumes are reflective of the transit usage by pedestrians and cyclists. Additionally, note that low volumes of pedestrians were recorded crossing at locations where no crosswalks are provided, such as east leg of Scott/Athlone, west leg of Scott/Tweedsmuir, east leg of Richmond/Athlone and east and west legs of Richmond/Tweedsmuir.

It is acknowledged that the traffic count data at the intersections of Scott/Athlone and Scott/Tweedsmuir may be considered outdated. However, for the purpose of this report, conducting new traffic counts at the two intersections is not considered essential for the following reasons:

- The count at the Scott/Churchill intersection was conducted relatively recently (November 30, 2023). The through volumes at the Scott/Athlone and Scott/Tweedsmuir intersections were balanced using the volumes of the Scott/Churchill intersection.
- Both Athlone Ave and Tweedsmuir Ave are local roads with no new accesses to new developments since the traffic counts were conducted. Therefore, no major changes are expected from inbound/outbound traffic volumes along the two roads.
- The TIA Report is also accounting for any recently constructed developments generating traffic along Scott St and through the Athlone Ave and Tweedsmuir Ave intersections, which should account for any potential difference in traffic volumes.
- Considering the ongoing construction surrounding the two intersections, pedestrian and cyclist volumes may be reduced and new counts may not necessarily reflect higher volumes.
- Current traffic volumes at many locations in the City indicate that traffic levels are similar to 2019 (pre-COVID), suggesting that traffic volumes at these intersections may also be similar.

Figure 7: Existing Peak Hour Traffic Volumes

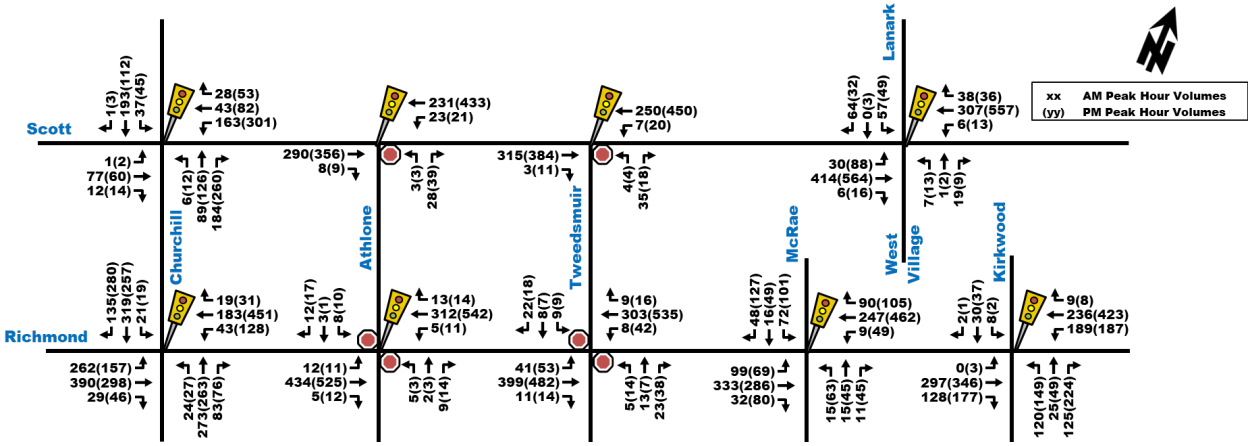
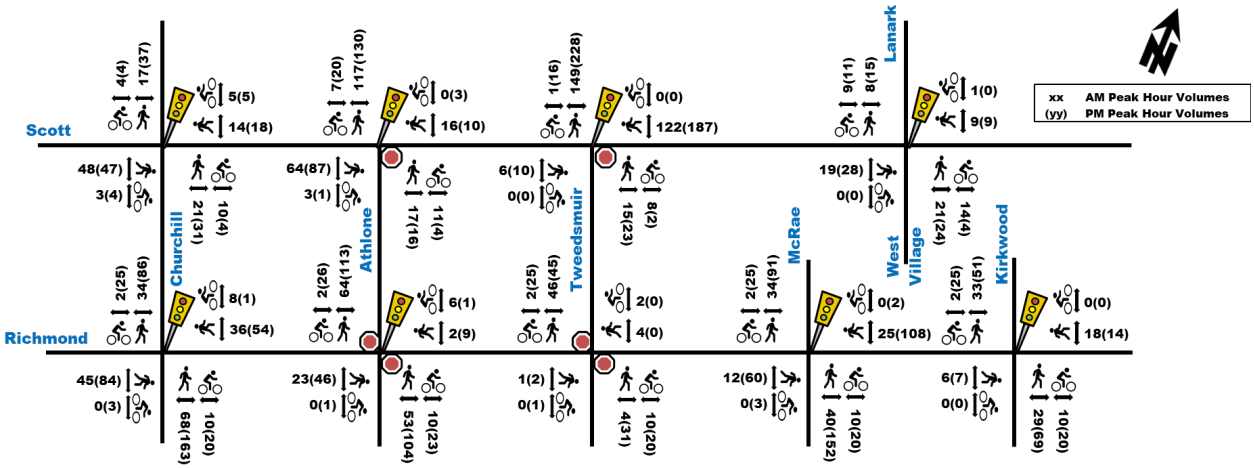


Figure 8: Existing Pedestrian and Cyclists Peak Hour Volumes



Existing Road Safety Conditions

A five-year collision history data (2017-2021, inclusive) was obtained from the City of Ottawa for all study area intersections and road segments on boundary streets (i.e. Scott St, Athlone Ave and Tweedsmuir Ave). Upon review of the collision data, it was determined that a total of 35 collisions have occurred within the five-year period. Of the reported collisions, 11 (31%) single vehicle unattended collisions, 10 (29%) were from angled collisions, 6 (17%) from vehicle (other), 3 (9%) from rear ends, 3 (9%) from sideswipes, and 2 (6%) from turning movements. Furthermore, 25 (71%) collisions resulted in property damage only and 10 (29%) resulted in non-fatal injuries. The detailed collision analysis results have been provided in **Appendix D**.

As per the City of Ottawa TIA Guidelines, a collision pattern exists at a given location when more than 6 collisions occur for any one type of impact completing a maneuver in a particular travel direction. Within the study area, the number of collisions that occurred at study area intersections and midblock segments are as follows:

Intersections

- Scott/Churchill: 4
- Scott/Athlone: 2
- Scott/Lanark/West Village: 2
- Richmond/Athlone: 6
- Richmond/Tweedsmuir: 4

Midblock Segments

- Richmond Rd, between Athlone and Tweedsmuir: 3, (75m)
- Scott St, between Clifton and Lanark: 1, (45m)
- Scott St, between transitway and McRae: 2, (140m)
- Scott St, between Winona and transitway: 1, (180m)
- Athlone Ave, between Scott and Richmond: 6, (300m)
- Tweedsmuir Ave, between transitway and Richmond: 4, (300m)

Based on the five-year collisions data, there are no identifiable collision patterns and the number of collisions documented at the study area intersections and roads are fairly low. With regards to active transportation, the 35 total collisions included the following:

- Two bicycle collisions at the intersection of Scott/Lanar/W Village, which occurred in 2020 and 2021. Note that these collisions were prior to the new cycle track and cycling intersection crossings that have are currently provided along Scott St and at the intersection.
- Four pedestrian collisions, where 2 occurred at the intersection of Scott/Churchill, 1 at Scott/Athlone and 1 along Athlone Ave. The collisions at the Scott St intersections occurred prior to the recent redesign and construction of the road.

2.1.3. Planned Conditions

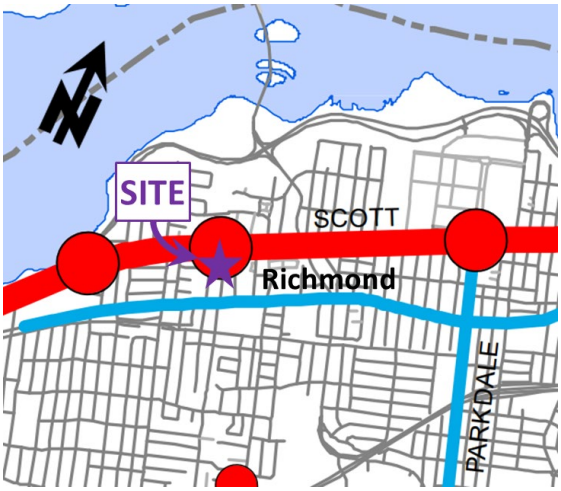
Future Transportation Network Changes

City of Ottawa Transportation Master Plan (TMP)

Within the Updated Active Transportation Projects Lists released as part of the new Transportation Master Plan Update (2023), a feasibility study is expected for the addition of cycling facilities along Churchill Ave, between Byron Ave and Scott St. The timeline for this project is unknown and the project implementation will be based on city funding availability.

Within Schedule C2 Transit Network – Ultimate map of the new Transportation Master Plan, the city has identified Richmond Rd as a transit priority corridor within the study area, as illustrated by the solid blue line in **Figure 9**. The map also illustrates the future LRT with red line and circles to indicate stations.

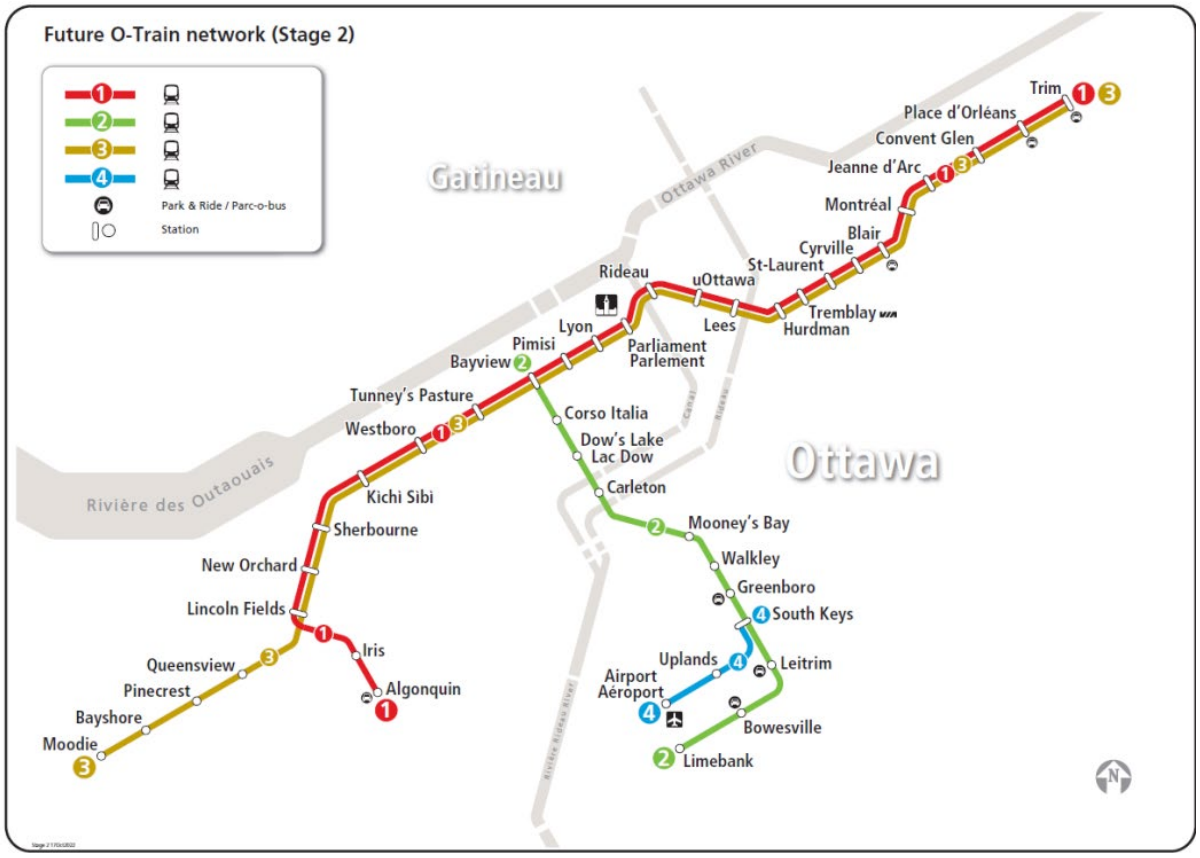
Figure 9: TMP Ultimate Transit Network Map - Schedule C2



Stage 2 LRT Extensions

The Light Rail Transit (LRT) in the City of Ottawa has entered Stage 2 of its development, which will include the extending of the LRT corridor in the west, east and south directions. The west extension will be from Tunney's Pasture to Moodie and will include a new LRT stop at the existing Westboro Station, which is located within 150m walking distance of the proposed development site. The west extension is expected to be completed by 2026 and will result in significant increase to transit usage in the area. **Figure 10** below illustrates the full expansion of the LRT Stage 2 system.

Figure 10: Stage 2 LRT Network Map



Scott Street Reconstruction (Post LRT)

Scott St was reconstructed in recent years to provide a cycle track on the south side of the road, provide a new alignment for the transitway to detour bus routes onto Scott St, and modify the existing intersections to provide cycling treatments and additional capacities. Intersection modifications also included signalizing the intersection of Scott/Churchill and providing additional turn lanes on the east and south approaches. Both the Scott/Churchill and Scott/Lanark/West Village intersections have been redesigned as protected intersections. A dedicated eastbound bus lane was also provided on Scott St from west of Lanark Ave to east of Island Park Dr.

These modifications have all been completed for several months at the time of writing this report. However, as part of the LRT Stage 2 construction, it is expected that some additional construction work will be completed, which is not anticipated to impact the capacities of most of the recently reconstructed road and intersections. The additional construction work will be completed following revenue service of the Stage 2 LRT west extension project. The expected modifications include:

- Removal of the EB bus lane pavement markings on Scott St. Removing the EB bus lane will reduce capacity of Scott St at the Lanark Ave intersection due to removing the dedicated eastbound right-turn lane for general traffic.
- Minor improvements to the north side Scott Street pedestrian and cycling facilities will be made as part of the Stage 2 'Remaining Works' package.
- Once the LRT Stage 2 west extension is completed, some of the detoured bus operations along Scott St may be stopped.

Richmond Road/Westboro CDP and Secondary Plan

The Richmond Rd/Westboro Community Design Plan (CDP) and Secondary Plan area is bounded by the Ottawa River to the north, Island Park Dr to the east, Byron Ave to the south and Courtenay Ave to the west. The purpose of the two plans is to guide the long-term design and development of the area, taking into account existing land use, urban design, zoning, transportation and streetscape factors, as well as future development and vision for the area. Many improvements in the study area have already taken place which include improvements associated with the public realm and improvements to transit facilities, in support of the ongoing LRT work. The area is expected to continue to evolve and improve pedestrian and cycling facilities in the area, as well as streetscape on Scott St and Richmond Rd and capitalize on the future transit network improvements.

Athlone Ave

Athlone Ave is undergoing an integrated renewal plan, which involves reconstructing sanitary sewers and watermains and redesigning the road. The road will be redesigned to local street standards with speeds of 30km/h and traffic calming measures to be provided, which may include speed humps and curb extensions. A sidewalk is anticipated to be constructed on the east side of the road. Based on City construction and infrastructure projects, the construction is expected in 2-3 years, prior to the full buildout of the proposed development. Additionally, note that the proposed development is not expected to impact the future design of Athlone Ave.

Other Area Developments

A number of adjacent developments have either been recently constructed, are under construction or have an ongoing development application for a future buildout. All these developments have been identified in **Figure 11**. Some of the developments that have been recently constructed are expected to already be accounted for in the 2023 intersection traffic volumes. As such, they are identified in this section for fulsome discussion purposes only.

1 – 2026 Scott Street (future development)

Morley Hoppner is proposing two 40-storey residential buildings with 856 total units. The TIA (prepared by Novatech, 2023) in support of Site Plan Application estimated site generated two-way vehicle trips to be minimal given the trip generation of the existing land use, resulting in up to 20 new vehicle trips in the morning peak hour and no new trips in the afternoon peak hour. Traffic generated by this development will be accounted for in the future background traffic volumes of the study area. The development is assumed to be fully constructed prior to Phase 1 of the 1994 Scott St site.

2 – 2050 Scott Street (future development)

Surface Developments is proposing 30-storey residential development with 341 dwelling units. The TIA (prepared by Parsons, 2021) in support of Site Plan Application estimated site generated two-way vehicle trips to be a total of 35 veh/h during peak hours. Traffic generated by this development will be accounted for in the future background traffic volumes of the study area. The development is assumed to be fully constructed prior to Phase 1 of the 1994 Scott St site.

3 – 2070 Scott Street (recently constructed)

Azure Urban Developments constructed a 23-storey residential development with 241 dwelling units. The TIA (prepared by Stantec, 2019) in support of Site Plan Application estimated site generated two-way vehicle trips to be up to a total of 38 veh/h during peak hours. Traffic generated by this development will be accounted for in the future background traffic volumes of the study area. The development is expected to be fully constructed prior to Phase 1 of the 1994 Scott St site.

4 – 320 McRae Avenue, 1976 Scott Street & 315 Tweedsmuir Avenue (recently constructed)

Construction of this development was completed in 2023 and is expected to be already accounted for in the 2023 traffic counts used in this report. The development features a 26-storey and 6-storey residential buildings with approximately 318 and 100 dwelling units with commercial space.

5 – 1950 Scott Street (future development)

EBC is proposing a 20-storey residential development consisting of approximately 141 residential dwelling units. The Transportation Impact Assessment Study (prepared by Parsons, 2019) projected approximately 50 veh/h in the morning and afternoon peak hours. While the current status of this development is unknown, traffic generated by this development will be accounted for in the future background traffic volumes of the study area. The development is assumed to be fully constructed prior to Phase 1 of the 1994 Scott St site.

6 – 1946 Scott Street (future development)

Surface Developments is proposing 12-storey residential development with 48 dwelling units. While the current status of this development is unknown, the Transportation Impact Assessment Study (prepared by Parsons, 2017) anticipated low trip generation given the development does not meet the trip generation trigger of the TIA Guidelines. The development is assumed to be fully constructed prior to Phase 1 of the 1994 Scott St site and is expected to result in minimal difference to traffic volumes within the study area.

7 – 249-255 Richmond Road & 372 Tweedsmuir Avenue (future development)

Young Steet Capital is proposing a 9-storey residential development with 127 dwelling units. The TIA (prepared by Novatech, 2023) in support of Site Plan Application estimated site generated two-way vehicle trips to be minimal given the trip generation of the existing land use, resulting in up to 20 new vehicle trips in the morning peak hour and no new trips in the afternoon peak hour. Traffic generated by this development will be accounted for in the future background traffic volumes of the study area. The development is assumed to be fully constructed prior to Phase 1 of the 1994 Scott St site.

8 – 175 Richmond Road (future development)

Claridge Homes is proposing a 9-storey residential development with 241 dwelling units. The Transportation Brief (prepared by Novatech, 2011) in support of Site Plan Application estimated site generated two-way vehicle trips to be minimal given the trip generation of the existing land use, resulting in up to 40 new vehicle trips in the morning peak hour and 23 new vehicle trips in the afternoon peak hour. The application file seems to be pending and has been on hold since 2012. Given the unknown status of the development, the estimated site generated trips by this development will be excluded from the future background traffic volumes.

9 – 300-306 Elmgrove Avenue (under construction)

A development application to permit the addition of four more units to four low rise apartment dwellings. The units are currently under construction and will result in minimal difference to traffic volumes within the study area.

10 – 378 and 381 Winona Avenue (recently construction)

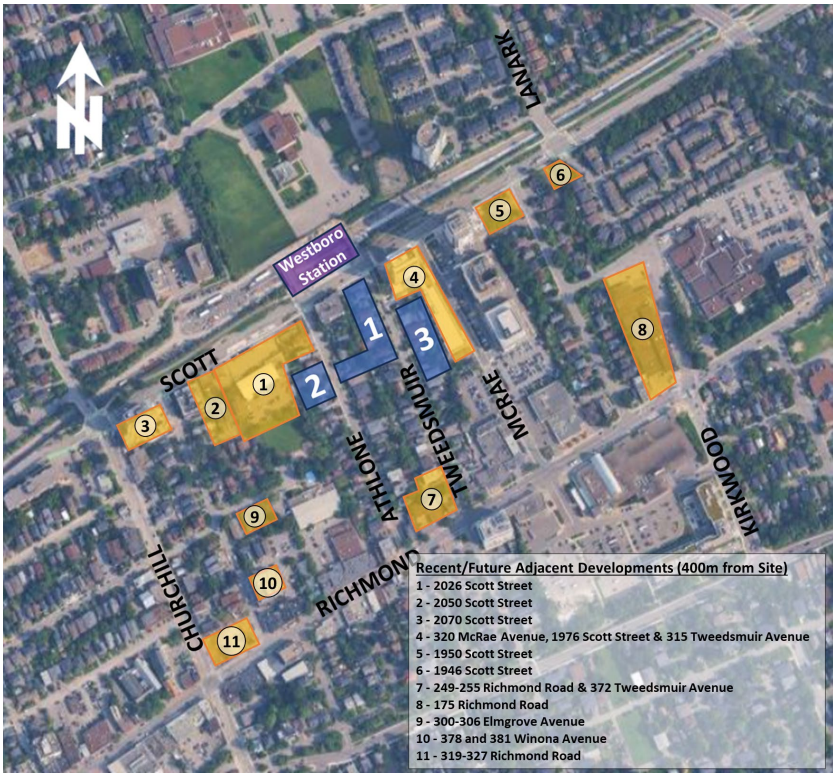
Azure Winona is proposing a 6-storey residential building with 60 units. A TIA Report was not required for this site given a low number of person trips is anticipated. The number of vehicle trips generated by the development are considered negligible for the purpose of this report and will result in minimal difference to traffic volumes within the study area.

11 – 319 – 327 Richmond Road (future development)

Richmond Churchill Limited Partnership is proposing a 9-storey residential building with 184 dwelling units. The TIA Report (prepared by CGH, 2020) in support of Zoning Bylaw Amendment and Site Plan Control Applications

estimated site-generated traffic two-way vehicle trips to be up to 21 new vehicle trips in the morning peak hour and 30 new vehicle trips in the afternoon peak hour. Traffic generated by this development will be accounted for in the future background traffic volumes of the study area. The development is assumed to be fully constructed prior to Phase 1 of the 1994 Scott St site.

Figure 11: Other Area Developments

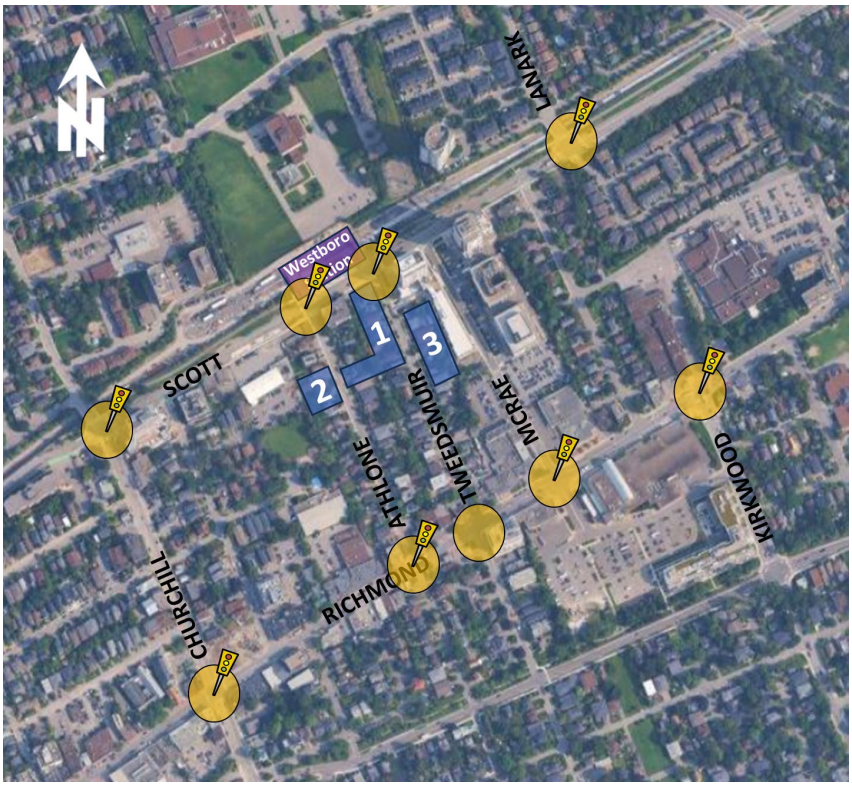


2.2. Study Area and Time Periods

The development is expected to be constructed in multiple phases. Phase 1 is assumed to be constructed by 2028, while Phases 2 and 3 are assumed to be constructed by 2031. Therefore, the 2028 and 2031 horizon years will be analyzed in addition to horizon year 2036 (five-years after full buildout) as per the requirements of the TIA Guidelines. Time periods analyzed will be the morning and afternoon peak hours. The proposed study area intersections that will be analyzed are identified below and illustrated in **Figure 12**.

- Scott/Churchill
- Scott/Athlone
- Scott/Tweedsmuir
- Scott/Lanark/W Village
- Site Accesses
- Richmond/McRae
- Richmond/Athlone
- Richmond/Tweedsmuir
- Richmond/Churchill
- Richmond/Kirkwood

Figure 12: Proposed Study Area



3.0 FORECASTING

3.1. Development Generated Travel Demand

3.1.1. Trip Generation and mode shares

Trip Generation Rates

The proposed development will be constructed in multiple phases. Phase 1 is assumed to be constructed by 2028 and consists of two high-rise buildings with 555 units and 5,023 ft² first-floor commercial in Building A1 and 43 units in Building A2. Phases 2 and 3 are assumed to be constructed by 2031, with Phase 2 consisting of 290 units and 3,465 ft² first-floor commercial space in high-rise Building B and Phase 3 consisting of 318 units in high-rise Building C. These timeline assumptions have been made for the purposes of this TIA analysis only. The trip rates for the land uses are summarized in **Table 1** below.

The appropriate trip generation rates for high-rise apartment units were obtained from the 2020 TRANS Trip Generation Manual. The Manual provides person-trip rates during the peak AM and PM periods (i.e. 7am-9:30am and 3:30pm-6pm). The peak hour trip generation rates for the non-residential land uses were obtained from the ITE Trip Generation Manual (11th edition), assuming the "Retail Strip Plaza (less than 40,000 ft² GFA)" land use for the total retail area.

Table 1: Proposed Development Vehicle Trip Rates – AM and PM Peak Hours

Land Use	ITE/TRANS Designation	Data Source	Trip Rates	
			AM Peak	PM Peak
Residential	"High-Rise Apartments"	TRANS	T = 0.8(du);	T = 0.9(du);
Commercial	"Retail Strip Plaza"	ITE 822	T = 0.66Ln(x) + 1.84	T = 0.71Ln(x) + 2.72

Notes: *T = Average Vehicle Trip Ends*
du = Dwelling unit
x = Gross Floor Area (1,000 ft²)

Mode Shares

Mode shares for the residential land uses are obtained from the City of Ottawa's 2020 TRANS Trip Generation Manual. Based on the manual, the development site is located in the "Ottawa West" district, which averages mode shares for the different travel modes as provided in **Table 2**. Also provided in the table is rationale for alternative proposed travel modes percentages. The alternative percentages take into account the significant availability of transit at the site frontage, as well as the future extension of the LRT to include Westboro Station. The alternative mode shares would be applied to both AM and PM peak hours.

Table 2: Residential Mode Shares for the Proposed Development– AM and PM Peak Hours

Travel Mode	Residential Mode Shares			Rationale
	TRANS Manual		Proposed Mode Shares	
	AM	PM		
Auto Driver	28%	33%	15%	This is reduced based on the expected increases in the alternative travel modes.
Auto Passenger	11%	11%	3%	As per typical travel patterns, an average vehicle occupancy of around 1.2 is maintained.
Transit	41%	26%	60%	The Development site is located within a short 150m radius of Westboro Station, which is expected to provide LRT service by 2026. Additionally, a large number of bus routes have been detoured from the transitway to Scott St, where they currently operate at site frontage. The high availability of transit services in the area results in significantly more transit usage.
Biking	3%	7%	7%	The study area and the Ottawa West District in general are well developed and provide sidewalks, bike lanes, cycle tracks, and connections to major MUP networks throughout the region. Additionally, the Tunney's Pasture complex is the largest employment generator in the area and is located within a 1.5km walking distance from the development site. Trips are expected to make use of the sidewalk facilities along Scott St and the Crosstown Bikeway designation and facilities along Scott St to access the nearby employment locations.
Walking	16%	23%	15%	

With regards to the first-floor commercial usage of the proposed residential buildings, it is expected that the commercial spaces will mainly provide ancillary use to the local community and will not be major retail destinations. Therefore, the majority of trips will be generated either internally by the residents of the proposed buildings, or by surrounding community through walking and cycling. As such, a small percentage of trips is assumed to be from auto driver, passengers and transit. For the internal trips, a reduction of approximately 60% will be applied to the total commercial person trips prior to applying the mode share breakdown of the different travel modes. **Table 3** below indicates the assumed mode share breakdown percentages.

Table 3: Commercial Space Mode Shares for the Proposed Development

Travel Mode	Assumed Commercial Space Mode Shares
Auto Driver	15%
Auto Passenger	5%
Transit	15%
Cycling	25%
Walking	40%

Residential Trip Generation

Using the respective trip rates in **Table 1**, the total number of peak period person trips generated by the proposed residential land uses of the development are calculated for the morning and afternoon peak periods, as shown below in **Table 4**.

Table 4: Residential Units Peak Period Person Trip Generation

Horizon Year	Building	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
2028	Phase 1 Building A1	555	444	500
	Phase 1 Building A2	43	34	39
2031	Phase 2 Building B	290	232	261
	Phase 3 Building C	318	254	286
	Total	**1,206**	**964**	**1,086**

The proposed development is anticipated to generate a total of approximately 964 and 1,086 person trips during the morning and afternoon peak periods, respectively. The total peak period person trips in **Table 4** are then divided into different travel modes using the alternative mode share percentages provided in **Table 2**. **Table 5** and **Table 6** provide the travel mode breakdown for the proposed high-rise apartments at each phase and horizon year, respectively.

Table 5: Phase 1 (2028) Peak Period Residential Mode Share Breakdown

Travel Mode	Mode Share	AM Peak Period Person Trip	PM Peak Period Person Trips
Phase 1 – Building A1			
Auto Driver	15%	67	75
Auto Passenger	3%	13	15
Transit	60%	266	300
Cycling	7%	31	35
Walking	15%	67	75
Total Person Trips	**100%**	**444**	**500**
Phase 1 – Building A2			
Auto Driver	15%	5	6
Auto Passenger	3%	1	1
Transit	60%	20	23
Cycling	7%	2	3
Walking	15%	5	6
Total Person Trips	**100%**	**34**	**39**

Table 6: Phase 2 and 3 (2031) Peak Period Residential Mode Share Breakdown

Travel Mode	Mode Share	AM Peak Period Person Trip	PM Peak Period Person Trips
Phase 2 – Building B			
Auto Driver	15%	35	39
Auto Passenger	3%	7	8
Transit	60%	139	157
Cycling	7%	16	18
Walking	15%	35	39
Total Person Trips	**100%**	**232**	**261**
Phase 3 – Building C			
Auto Driver	15%	38	43
Auto Passenger	3%	8	9
Transit	60%	152	172
Cycling	7%	18	20
Walking	15%	38	43
Total Person Trips	**100%**	**254**	**286**

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent the most critical times during the weekdays. The 2020 TRANS Manual provides conversions rates from peak

period to peak hours for different mode shares. The conversion rates for both AM and PM are provided in **Table 7** below.

Table 7: Peak Period to Peak Hour Conversion Factors (2020 TRANS Manual)

Travel Mode	Peak Period to Peak Hour Conversion Factors	
	AM	PM
Auto Driver & Auto Passenger	0.48	0.44
Transit	0.55	0.47
Cycling	0.58	0.48
Walking	0.58	0.52

Using the conversion rates in **Table 7** and the peak period person trips for different travel modes in **Table 5** and **Table 6**, the peak hour trips for different travel modes can be calculated for each land use as shown below in **Table 8** and **Table 9**. The total site generated trips from both phases are shown in **Table 10**. Note that inbound and outbound percentages are provided by the TRANS Manual, where 31% are inbound and 69% are outbound during the morning peak hour and 58% are inbound and 42% are outbound during the afternoon peak hour.

Table 8: Phase 1 (2028) Peak Hour Residential Trip Generation– AM and PM Peak Hours

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Phase 1 – Building A1						
Auto Driver	10	22	32	19	14	33
Auto Passenger	2	4	6	4	3	7
Transit	45	101	146	82	59	141
Cycling	6	12	18	10	7	17
Walking	12	27	39	23	16	39
Total Person Trips	**75**	**166**	**241**	**138**	**99**	**237**
Phase 1 – Building A2						
Auto Driver	1	1	2	2	1	3
Auto Passenger	0	0	0	0	0	0
Transit	3	8	11	6	5	11
Cycling	0	1	1	1	0	1
Walking	1	2	3	2	1	3
Total Person Trips	**5**	**12**	**17**	**11**	**7**	**18**

Table 9: Phase 2 and 3 (2031) Peak Hour Residential Trip Generation

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Phase 2 – Building B						
Auto Driver	5	12	17	10	7	17
Auto Passenger	1	2	3	2	2	4
Transit	24	52	76	43	31	74
Cycling	3	6	9	5	4	9
Walking	6	14	20	12	8	20
Total Person Trips	**39**	**86**	**125**	**72**	**52**	**124**
Phase 3 – Building C						
Auto Driver	6	12	18	11	8	19
Auto Passenger	1	3	4	2	2	4
Transit	26	58	84	47	34	81
Cycling	3	7	10	6	4	10
Walking	7	15	22	13	9	22
Total Person Trips	**43**	**95**	**138**	**79**	**57**	**136**

Table 10: Total Site Generated Residential Trips– AM and PM Peak Hours

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Phase 1 (2028)						
Auto Driver	11	23	34	21	15	36
Auto Passenger	2	4	6	4	3	7
Transit	48	109	157	88	64	152
Cycling	6	13	19	11	7	18
Walking	13	29	42	25	17	42
Total Person Trips	**80**	**178**	**258**	**149**	**106**	**255**
Phase 2 and 3 (2031)						
Auto Driver	11	24	35	21	15	36
Auto Passenger	2	5	7	4	4	8
Transit	50	110	160	90	65	155
Cycling	6	13	19	11	8	19
Walking	13	29	42	25	17	42
Total Person Trips	**82**	**181**	**263**	**151**	**109**	**260**
Total						
Auto Driver	22	47	69	42	30	72
Auto Passenger	4	9	13	8	7	15
Transit	98	219	317	178	129	307
Cycling	12	26	38	22	15	37
Walking	26	58	84	50	34	84
Total Person Trips	**162**	**359**	**521**	**300**	**215**	**515**

As shown in **Table 10**, the proposed residential uses are anticipated to generate a total person trips of approximately 255 to 258 at Phase 1 and 260 to 263 at Phases 2 and 3. Vehicle trips are anticipated to generate approximately up to 72 total site trips during the peak hours. Transit trips are anticipated to generate approximately up to 317 total site trips during the peak hours. Active transportation (cycling and walking) trips are anticipated to generate approximately up to 121 total site trips during the peak hours.

Commercial Trip Generation

Using the respective trip rates in **Table 1**, the total number of peak period person trips generated by the proposed commercial land uses of the development are calculated for the morning and afternoon peak periods, as shown below in **Table 11**. Commercial spaces are anticipated to be provided within Buildings A1 and B. As mentioned previously and shown in the table, the total person trips are assumed to be reduced by 60% to account for the internal trip generation of the residential buildings.

Table 11: First-Floor Commercial Peak Hour Person Trips– AM and PM Peak Hours

Phase		AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In (60%)	Out (40%)	Total	In (50%)	Out (50%)	Total
Phase 1 – Building A1							
First-Floor Commercial	5,023 ft²	13	10	23	30	31	61
60% Internal Trip Reduction		-8	-6	-14	-18	-19	-37
External Trips Generated by the Retail		5	4	9	12	12	24
Phase 2 – Building B							
First-Floor Commercial	3,465 ft²	10	8	18	23	24	47
60% Internal Trip Reduction		-6	-5	-11	-14	-14	-28
External Trips Generated by the Retail		4	3	7	9	10	19
Total External Person Trips		**9**	**7**	**16**	**21**	**22**	**43**

Using the proposed commercial mode shares in **Table 3** and the calculated external commercial person trips in **Table 11**, the commercial trips breakdown by travel mode for each building are provided in **Table 12** for Phase 1 and **Table 13** for Phases 2, with the total commercial trip generation of the buildings provided in **Table 14**.

Table 12: Phase 1 (2028) Peak Hour Commercial Trip Generation– AM and PM Peak Hours

Travel Mode	Mode Share	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In (60%)	Out (40%)	Total	In (50%)	Out (50%)	Total
Phase 1 – Building A1							
Auto Driver	15%	1	0	1	2	2	4
Auto Passenger	5%	0	0	0	1	0	1
Transit	15%	1	0	1	2	2	4
Cycling	25%	1	1	2	3	3	6
Walking	40%	2	1	3	4	5	9
Total Person Trips	**100%**	**5**	**4**	**9**	**12**	**12**	**24**

Table 13: Phase 2 and 3 (2031) Peak Hour Commercial Trip Generation– AM and PM Peak Hours

Travel Mode	Mode Share	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In (60%)	Out (40%)	Total	In (50%)	Out (50%)	Total
Phase 2 – Building B							
Auto Driver	15%	0	1	1	1	2	3
Auto Passenger	5%	0	0	0	0	1	1
Transit	15%	1	0	1	1	2	3
Cycling	25%	1	1	2	3	2	5
Walking	40%	2	1	3	4	3	7
Total Person Trips	**100%**	**4**	**3**	**7**	**9**	**10**	**19**

Table 14: Total Site Generated Commercial Trips– AM and PM Peak Hours

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (60%)	Out (40%)	Total	In (50%)	Out (50%)	Total
Auto Driver	1	1	2	3	4	7
Auto Passenger	0	0	0	1	1	2
Transit	1	1	2	3	4	7
Cycling	3	2	5	6	5	11
Walking	4	3	7	8	8	16
Total Person Trips	**9**	**7**	**16**	**21**	**22**	**43**

As shown in the tables above, the proposed commercial uses are anticipated to generate a total person trips of approximately 9 to 24 at Phase 1 and 7 to 19 at Phase 2. Vehicle trips are anticipated to generate approximately up to 7 total site trips during the peak hours. Transit trips are anticipated to generate approximately up to 7 total site trips during the peak hours. Active transportation (cycling and walking) trips are anticipated to generate approximately up to 27 total site trips during the peak hours.

Total Trips Generated

The total site generated trips with the residential and commercial land uses combined are provided in **Table 15** for each building and in **Table 16** for each phase.

Table 15: Total Residential and Commercial Site Generated Trips by Building– AM and PM Peak Hours

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In	Out	Total	In	Out	Total
Phase 1 – Building A1						
Auto Driver	11	22	33	21	16	37
Auto Passenger	2	4	6	5	3	8
Transit	45	102	147	84	61	145
Cycling	8	13	21	13	10	23
Walking	14	29	43	27	21	48
Total Person Trips	**80**	**170**	**250**	**150**	**111**	**261**
Phase 1 – Building A2						
Auto Driver	1	1	2	2	1	3
Auto Passenger	0	0	0	0	0	0
Transit	3	8	11	6	5	11
Cycling	0	1	1	1	0	1
Walking	1	2	3	2	1	3
Total Person Trips	**5**	**12**	**17**	**11**	**7**	**18**
Phase 2 – Building B						
Auto Driver	5	13	18	11	9	20
Auto Passenger	1	2	3	2	3	5
Transit	25	52	77	44	33	77
Cycling	4	7	11	8	6	14
Walking	8	15	23	16	11	27
Total Person Trips	**43**	**89**	**132**	**81**	**62**	**143**
Phase 3 – Building C						
Auto Driver	6	12	18	11	8	19
Auto Passenger	1	3	4	2	2	4
Transit	26	58	84	47	34	81
Cycling	3	7	10	6	4	10
Walking	7	15	22	13	9	22
Total Person Trips	**43**	**95**	**138**	**79**	**57**	**136**

Table 16: Total Residential and Commercial Site Generated Trips by Phase

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In	Out	Total	In	Out	Total
Phase 1 (2028)						
Auto Driver	12	23	35	23	17	40
Auto Passenger	2	4	6	5	3	8
Transit	48	110	158	90	66	156
Cycling	8	14	22	14	10	24
Walking	15	31	46	29	22	51
Total Person Trips	**85**	**182**	**267**	**161**	**118**	**279**
Phase 2 and 3 (2031)						
Auto Driver	11	25	36	22	17	39
Auto Passenger	2	5	7	4	5	9
Transit	51	110	161	91	67	158
Cycling	7	14	21	14	10	24
Walking	15	30	45	29	20	49
Total Person Trips	**86**	**184**	**270**	**160**	**119**	**279**
Total						
Auto Driver	23	48	71	45	34	79
Auto Passenger	4	9	13	9	8	17
Transit	99	220	319	181	133	314
Cycling	15	28	43	28	20	48
Walking	30	61	91	58	42	100
Total Person Trips	**171**	**366**	**537**	**321**	**237**	**558**

Based on the above, Building A1 is expected to generate up to 261 person trips, while Building A2 is expected to generate up to 18 person trips, for a total of 279 person trips at Phase 1 (2028). Building B is expected to generate up to 143 person trips, while Building C is expected to generate up to 138 person trips, for a total of

279 person trips at Phases 2 and 3 (2031). Ultimately, the site would generate up to 558 person trips, including up to 79 vehicle trips, 17 auto passenger trips, 319 transit trips and 148 active transport trips.

3.1.2. Trip Distribution and Assignment

Based on the 2011 OD Survey (Ottawa West district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as shown in **Figure 13**. The site generated trips were then assigned to the road network as shown in **Figure 14** for Phase 1 and **Figure 15** for the ultimate site buildout.

Figure 13: Site Generated Traffic Percent Distribution



Figure 14: Phase 1 Site-Generated Traffic– AM (PM) Peak Hours

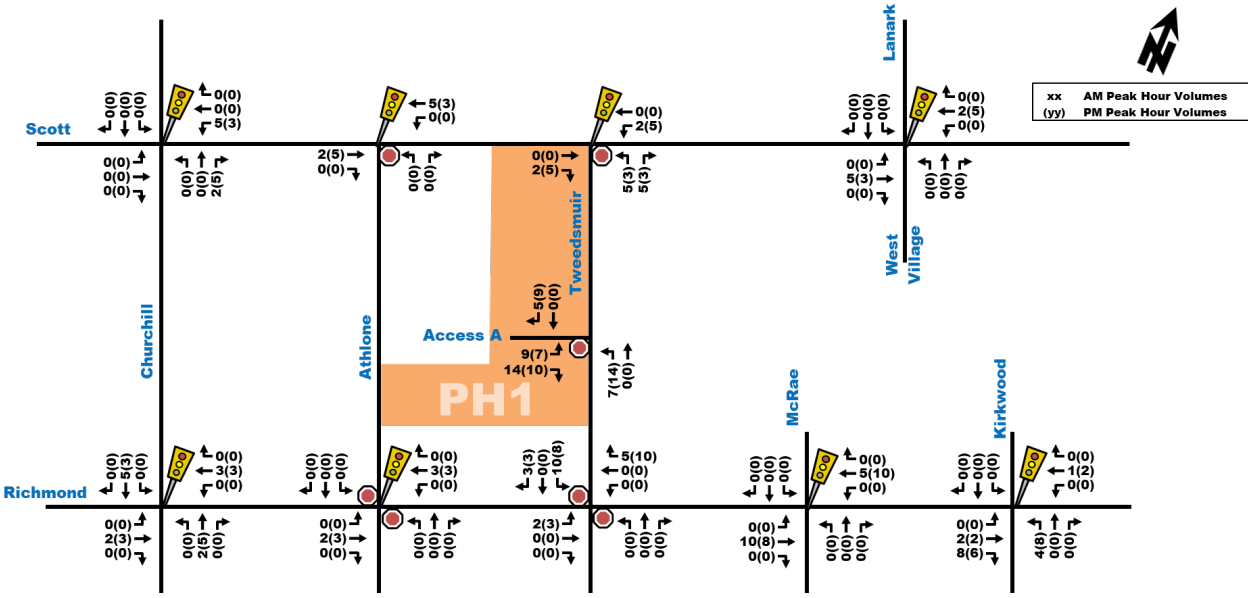
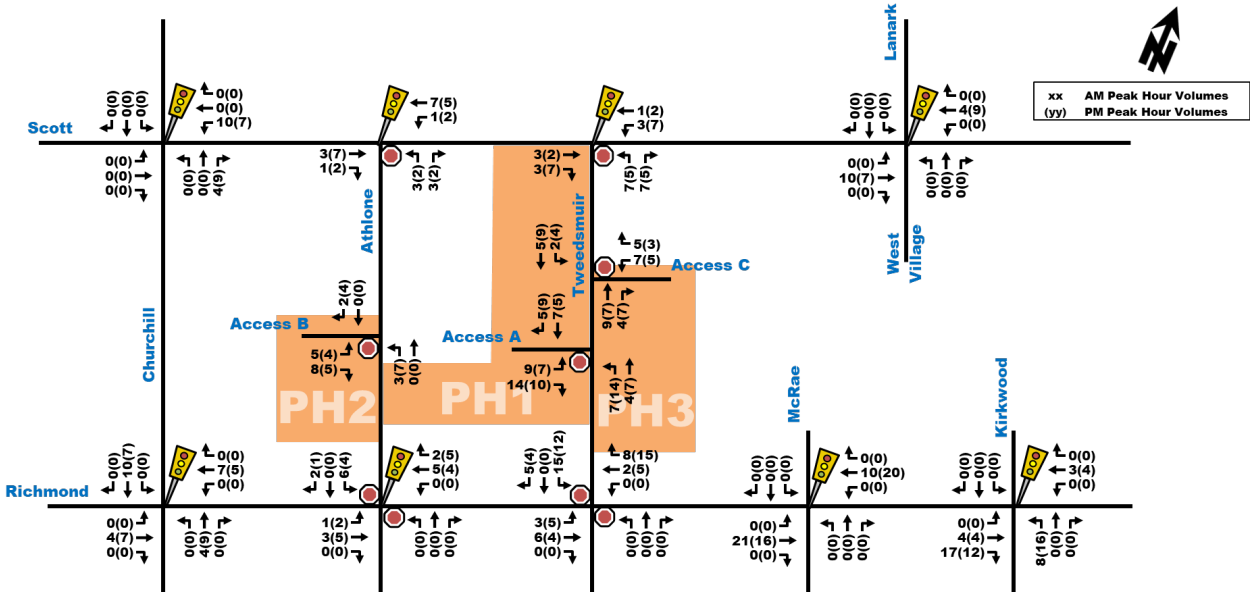


Figure 15: Ultimate Site-Generated Trips– AM (PM) Peak Hours



3.2. Exemption Review

The following modules/elements of the TIA process provided in **Table 17** are recommended to be exempt in the subsequent steps of the TIA process, based on the City's TIA guidelines and the subject site:

Table 17: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Street Networks	Only required for plans of subdivision.
4.4 Access Intersections Design	All elements	As per 2023 TIA Guidelines update, this section is removed and combined with Section 4.9.

3.3. Background Network Traffic

3.3.1. Transportation Network Plans

As discussed in detail in **Section 2.1.3 Planned Conditions**, major future network plans include the construction of the LRT Stage 2, which is expected to result in higher transit usage in the area.

Scott Street improvements will also result in improved pedestrian and cyclist facilities that will incentivize a higher active transport travel mode. These improvements are currently ongoing (2026).

3.3.2. Background Growth

A linear regression analysis of historical traffic counts was reviewed at the intersections of Scott/Churchill (using 2013, 2019, 2023 counts) and Richmond/Kirkwood (using 2011, 2015, 2023 counts), ,with the analysis sheets provided in **Appendix E**. The analysis revealed a decline in traffic volumes on most legs at the Scott/Churchill intersection across all time periods, with the exception of the west leg which shows increase in volumes, likely due to bus volumes being temporarily rerouted from the transitway to Scott St. The Richmond/Kirkwood intersection revealed a decline on all legs during the AM peak hour and an increase of around 1 to 2% during the 8-hour counts and the respective PM peak hours.

As the LRT Stage 2 construction completion is expected by 2026, prior to construction of Phase 1 of the proposed development in 2028, traffic volumes along study area roads are expected to begin decreasing along the major

study area roads in favor of transit trips. Improvements within the study area to pedestrian and cyclist facilities, particularly along Scott St will also result in a shift to higher active transport trips.

The TIA already explicitly accounts for the anticipated traffic volumes of currently known future adjacent developments. The site-generated traffic from six specific developments (2026 Scott St, 2050 Scott St, 2070 Scott St, 1950 Scott St, 249-255 Richmond Road & 372 Tweedsmuir Avenue, and 319-327 Richmond Road) was extracted from their respective TIAs and manually added to the future background network volumes. Applying a blanket growth rate on top of explicitly layering these developments would result in double-counting future traffic volumes.

Given the aforementioned reasons, a future background growth rate of 0% per year along study area roads is considered appropriate.

3.3.3. Other Developments

Detailed description of the proposed future adjacent developments in the study area was provided in **Section 2.1.3 Planned Conditions**. Based on available data and the anticipated future developments, traffic volumes from the following six future developments will be accounted for:

- 2026 Scott St,
- 2050 Scott St,
- 2070 Scott St,
- 1950 Scott St, and
- 249-255 Richmond Road & 372 Tweedsmuir Avenue
- 319-327 Richmond Road

The site-generated traffic volumes of these developments were taken from the respective TIA Report for each development, which have been provided in **Appendix F**. The other area development volumes were then added to the existing volumes in **Figure 7** to create the future background traffic volumes at horizon years 2028 and 2031, as illustrated in **Figure 16** and **Figure 17**, respectively. Note that the difference in volumes between 2028 and 2031 is minimal as the only difference is a slight increase in volumes from the future development at 2026 Scott St. Future background 2036 volumes are assumed to be similar to future background 2031 volumes as no background growth rate has been applied.

Figure 16: Future Background 2028 Traffic Volumes

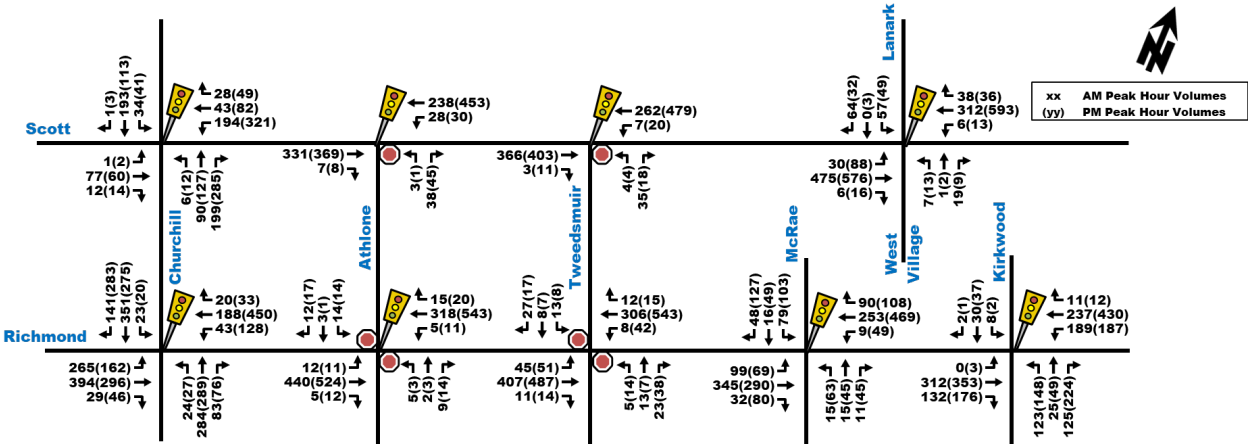
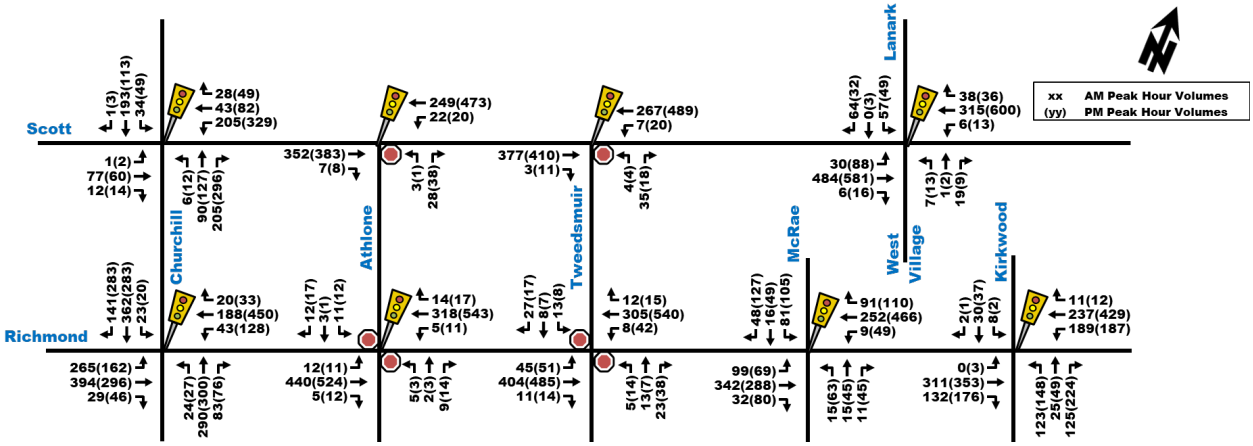


Figure 17: Future Background 2031/2036 Traffic Volumes



3.4. Demand Rationalization

The following section indicates factors that may be used to rationalize the future travel demands in the study area and determine if there are potential capacity limitations and how they may be addressed.

The total projected 2028 (Phase 1) and 2031 (Phases 2 and 3) traffic volumes can be calculated by superimposing the site-generated traffic in **Figure 14** and **Figure 15**, onto the future background traffic in **Figure 16** and **Figure 17**. The total projected 2028 and 2031 traffic volumes are illustrated in **Figure 18** and **Figure 19**, respectively. As mentioned previously, the 2036 (full buildout + 5 years) traffic volumes are assumed to be similar to 2031 as no background growth rate was applied.

The combination of long-term transportation network changes of the study area and broader City of Ottawa investments in transit and active transportation (as discussed in **Section 2.1.3**), are expected to gradually discourage auto use in the Inner Urban Transect (as designated in the City Official Plan). The Richmond Rd/Westboro CDP and Secondary Plan, the Scott St reconstruction and the Athlone Ave integrated renewal plan are all examples of planned and recently implemented transportation improvements for different travel modes. The proposed site proposes to improve active transport facilities as well with wider sidewalks, traffic calming measures such as curb extensions, pedestrian street crossing treatments, an active transport connection between Athlone Ave and Tweedsmuir Ave, and a bike parking ratio exceeding 1 space per dwelling unit. Vehicular usage may be more limited due to consolidated parking garage accesses and reduced parking spaces.

Additionally, the City of Ottawa LRT project is underway, where Stage 1 has already been constructed and in use as of 2019, while Stage 2 is under construction and includes further expansions of the LRT corridor in different directions. Westboro LRT Station will be located along Scott St, within a short radius of approximately 150m from the proposed development site. The LRT is expected to result in significant reductions in background traffic volumes, influencing the area as a whole by promoting increased reliance on transit. The expected completion date of the LRT extensions is 2026, which coincides with assumed construction date of Phase 1 of the proposed development.

Figure 18: Total Projected 2028 Traffic Volumes

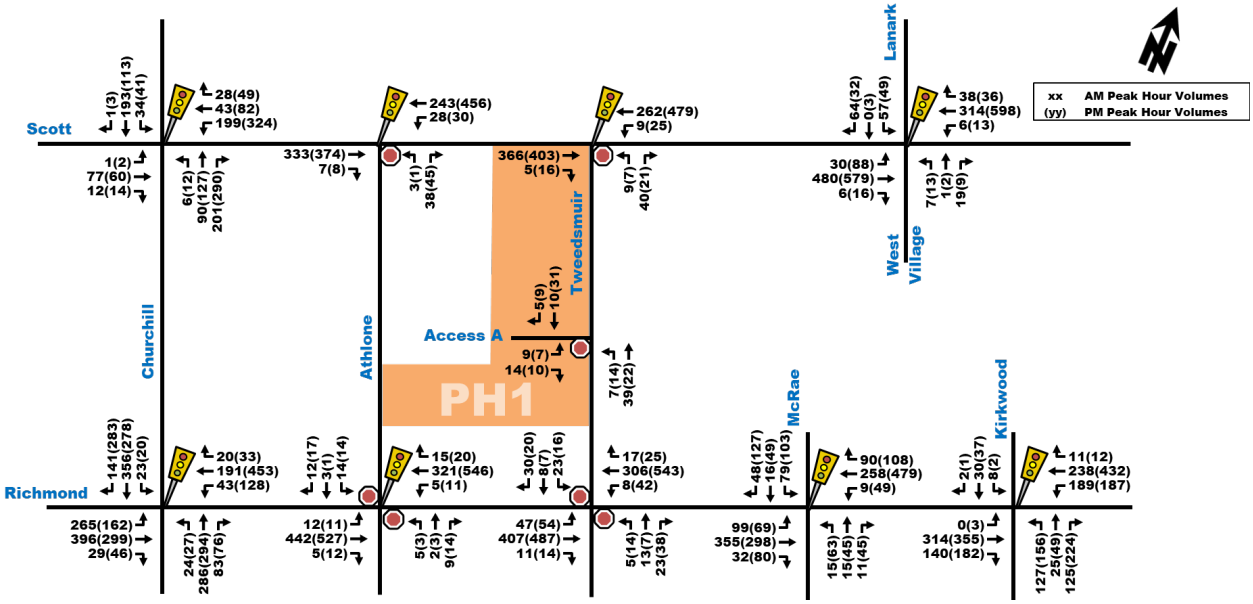
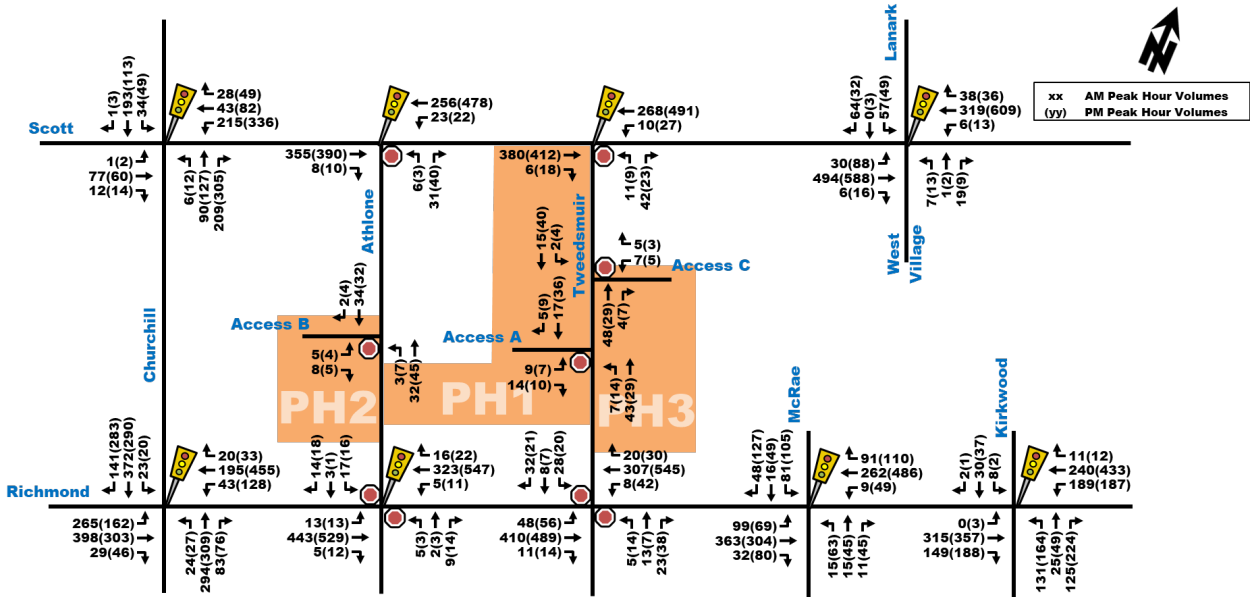


Figure 19: Total Projected 2031/2036 Traffic Volumes



4.0 ANALYSIS

4.1. Development Design

As this development is currently at the zoning application stage, a brief description regarding design elements of the site has been provided. However, a more detailed description will be discussed and confirmed in future Site Plan Control Applications.

The development is expected to provide internal walkways for pedestrians within and surrounding the proposed buildings, including providing wide sidewalks (greater than 2.0m) along the public street frontages. As part of Phase 1, the development is also proposing to provide an east-west active transport connection between Athlone Ave and Tweedsmuir Ave, just below Building A2, and continuing west to Lion's Park on the south side of Building

B as part of Phase 2. This connection is to be privately owned. This would form a complete east-west connection for people walking and biking through the community.

The development accesses Tweedsmuir Ave and Athlone Ave. Traffic calming measures have been proposed along each frontage, which include three curb extensions on the west side of Tweedsmuir Ave, which is expected to narrow the road to 6m, and pedestrian crossing treatments on both Tweedsmuir Ave and Athlone Ave. There is an opportunity for these crosswalks to be raised. These traffic calming measures are meant to enforce the developer's commitment to improving safety on the local streets by reducing vehicular speeds. Design details are to be confirmed through RMA/functional design at Site Plan Control.

The proposed development is well served by the future Stage 2 Westboro LRT station. All buildings are located within a 200m walking distance of the LRT. They connect to the LRT and bus routes on Scott Street via sidewalks on Tweedsmuir Ave and Athlone Ave. Route #11 is also accessible on Richmond Road to the south, which is less than a 300m walk to the nearest bus stops.

For vehicles, underground parking lots are proposed to be provided for the buildings, with ramp connections to the respective boundary streets. All vehicle parking spaces are expected to be underground. An on-street layby area for drop-off/pick-up is expected to be provided at the frontage of Building A2 on Tweedsmuir Ave. Vehicle access to Buildings A1 and A2 will be via a single ramp on the west side of Tweedsmuir Ave, while access to Building B will be via a ramp on the west side of Athlone Ave and access to Building C will be via a ramp on the east side of Tweedsmuir Ave.

There are no bus routes along Athlone Ave or Tweedsmuir Ave that may be impacted by the proposed development. As per the Official Plan, the required ROW protection of 26m on Scott St will be provided by conveying the portion needed from the site to the City.

The City of Ottawa's TDM-Supportive Development Design and Infrastructure has been provided in **Appendix G** and discussed in more detail in **Section 4.5**.

4.2. Parking

4.2.1. Parking Supply

Based on City of Ottawa Parking Provisions, Schedule 1A, the proposed development is located in "Area X". As such, the required number of parking spaces will be calculated based on the rates set out for this area. The proposed development will locate all vehicle and bicycle parking spaces in the underground parking garage of each building. **Table 18** provides a summary of the required and the proposed parking rates for vehicles and **Table 19** for bicycles. It is important to note that the required number of spaces are calculated based on the parking rates in the current zoning by-law, however, these numbers will no longer be applicable once the new by-law comes into effect.

Table 18: Required and Proposed Vehicle Parking Spaces

Land Use	Size	Zoning By-Law Parking Rates		Required Spaces			Proposed Spaces		
		Base	Visitor/Retail	Base	Visitor/ Retail	Total	Base	Visitor/ Retail	Total
Phase 1 (Building A1 and A2)									
High-Rise Residential	598 Units	0.5 per unit, excluding first 12 units. Reduce required by the lesser of 10 per cent or 20 spaces.	0.1 per unit, excluding first 12 units, 30 spaces max per building	267	33	300	313		
Retail*	467 m²	-	1.25 per 100 m²	-	6	6			
			Phase 1 Total	**267**	**39**	**306**	**313**		
Phase 2 (Building B)									
High-Rise Residential	290 Units	0.5 per unit, excluding first 12 units per building. Reduce required by the lesser of 10 per cent or 20 spaces.	0.1 per unit, excluding first 12 units, 30 spaces max per building	125	28	153	144		
Retail*	322 m²	-	1.25 per 100 m²	-	4	4			
			Phase 2 Total	**125**	**32**	**157**			
Phase 3 (Building C)									
High-Rise Residential	318 Units	0.5 per unit, excluding first 12 units per building. Reduce required by the lesser of 10 per cent or 20 spaces.	0.1 per unit, excluding first 12 units, 30 spaces max per building	138	30	168	152		
			Phase 3 Total	**138**	**30**	**168**			
Full Buildout Total				**530**	**101**	**631**	**609**		

**Retail units with an area less than 200 m² do not require off-street vehicle parking to be provided, as per the Parking Provisions.*

As shown in **Table 18**, the development intends to provide fewer vehicle parking spaces than the minimum requirements of the current zoning by-law by approximately 22 residential parking spaces. While the amount of parking proposed is slightly below the current zoning by-law minimum requirements, it is expected to adhere to the requirements of the updated zoning by-law once it comes into effect. Additionally, the site is well served by transit such that achieving less parking promotes alternative modes than autos.

Table 19: Required and Proposed Bicycle Parking Spaces

Land Use	Size	Zoning By-Law Parking Rates	Required Spaces	Proposed Spaces
		Bicycle	Bicycle	Bicycle
Phase 1 (Building A1 and A2)				
High-Rise Residential	598 Units	0.5 per unit	299	617
Retail	467 m²	1.0 per 250 m²	2	
		Phase 1 Total	**301**	
Phase 2 (Building B)				
High-Rise Residential	290 Units	0.5 per unit	145	332
Retail	322 m²	1.0 per 250 m²	2	
		Phase 2 Total	**147**	
Phase 3 (Building C)				
High-Rise Residential	318 Units	0.5 per unit	159	322
		Phase 3 Total	**159**	
		Full Buildout Total	**607**	**1,271**

The proposed number of bicycle parking spaces exceed the required minimum by more than double the number of spaces, which is expected to help promote cycling use. The majority of bicycle parking is expected to be located indoors, with easy access to elevators and the outside.

4.3. Boundary Street Design

MMLOS analysis for boundary streets to be provided as part of future Site Plan Applications for the proposed development.

4.4. Access Intersection Design

Exempt – refer to **Table 17.**

4.5. Transportation Demand Management

4.5.1. Context for TDM

Given the proposed land-use of the development as a residential building, it is assumed that most trips generated will be from residents leaving the site in the AM peak to go to work and returning to the site in the PM peak. **Sections 3.1.1** and **3.1.2** describe how many trips are anticipated per travel mode and anticipates the likely locations that they will travel to and from based on the 2011 Origin-Destination Survey for Ottawa.

The development is proposing to provide four high-rise residential buildings with 1,206 apartment units and 789 m^2 (8,488 ft^2) of first floor commercial space. Phase 1 (Buildings A1 and A2), with an assumed buildout of 2028, will consist of two buildings with 598 apartment units and a 467 m^2 (5,023 ft^2) total first-floor commercial space. Phases 2 and 3, with an assumed buildout of 2031, will consist of two buildings with 608 apartment units and 322 m^2 (3,465 ft^2) total first-floor commercial space.

The property is owned and will be managed by the property developer, Park River.

4.5.2. Need and Opportunity

The proposed development is located in a well-developed area of the City of Ottawa with multimodal travel options available, with a significantly high volume of OC Transpo bus routes and the availability of both cycling and pedestrian facilities and infrastructure to support active transportation. The future Confederation Line LRT extension will also be operating within a very short 150m from the development buildings and is expected to be highly utilized by the future residents. Transportation Demand Management (TDM) measures, as detailed in **Section 4.5.3** below, will need to be utilized as needed to help support the available alternative travel modes.

4.5.3. TDM Program

The TDM Infrastructure and TDM Measures Checklists have been provided in **Appendix G**. The proposed measures in each respective checklist are identified below. Note that preliminary measures are currently indicated, however, additional measures may be considered by the proponent during the future Site Plan Applications.

<u>Proposed measures identified in the TDM-supportive Development Design and Infrastructure Checklist are:</u>

- Ten (10) out of the ten (10) “Required” measures are expected to be satisfied.
- Seven (7) out of fourteen (14) “Basic” measures related to Walking and Cycling and Parking have been satisfied, namely:
    - Locating building close to the street.
    - Locating building entrances to minimize walk distance to sidewalks and transit.
    - Locating building doors and windows to ensure visibility of pedestrians.
    - Providing safe, direct and attractive walking routes to transit.
    - Ensuring walking routes are secure, visible, and lighted.
    - Providing lighting, landscaping and benches along walking and cycling routes.
    - Providing a designated are for drop-off or pick-up.

Proposed measures identified in the TDM Measures Checklist are:

- Four (4) out of seven (7) "Basic" measures related to Walking and Cycling, Transit, Parking and TDM Marketing have been satisfied. Two (2) of those, which have been designated by an asterisk (*), are considered by TDM Measures to be some of the most dependably effective tools to encourage sustainable travel modes. This includes:
  - Display walking and cycling information at major entrances.
  - Display transit information at major entrances.
  - * Unbundle parking costs from monthly rent.
  - * Provide multi-modal travel information package to new residents.

4.6. Neighbourhood Traffic Calming (NTC)

The proposed development does not meet the NTC module's threshold. The TIA Guideline 2023 Revisions provide the following criteria, all of which must be met to trigger the NTC Module:

1. Access to Collector or Local **-> Met since Athlone Ave and Tweedsmuir Ave are both local roads.**
2. "Significant sensitive land use presence" exists, where there is at least two of the following adjacent to the subject street segment: **-> Met as Lion's Park is adjacent to (but not directly fronting) Athlone Ave and both Athlone and Tweedsmuir consist primarily of residential land uses.**
   - School (within 250m walking distance).
   - Park;
   - Retirement / Older Adult Facility (i.e. long-term care and retirement homes);
   - Licenced Child Care Centre; Community Centre; or
   - 50%, or greater, of adjacent property along the route(s) is occupied by residential lands and a minimum of 10 occupied residential units are present on the route.
3. Application is for Zoning By-Law Amendment or Draft Plan of Subdivision **-> Met**
4. At least 75 site-generated auto trips **-> Met, see Table 16.**
5. Site Trip Infiltration is expected. Site traffic will increase peak hour vehicle volumes along the route by 50% or more **-> Not Met, see Table 20 below.**

Site-generated traffic of the proposed development is expected to use local roads Athlone Ave and Tweedsmuir Ave as part of their access route to/from the proposed development. Using the total projected 2031/2036 traffic volumes in **Figure 19**, future two-way traffic volumes along both roads were compared to existing volumes as shown in **Table 20**.

Table 20: Local Roads Existing and Future Two-Way Volumes

Roadway	Classification	Section	Peak Hour Two-Way Volumes AM (PM)		Traffic Volume Percent Increase AM(PM)
			Existing	Projected	
Athlone Ave	Local	Between Richmond and Scott	62 (72)	77 (89)	24%(24%)
Tweedsmuir Ave	Local	Between Richmond and Scott	102 (110)	149 (141)	46%(28%)

As shown in **Table 20**, the projected volumes by the development are not expected to result in an increase of 50% or more along either road. It is worth noting that Athlone Ave is anticipated to be renewed within 2-3 years, which includes a plan to provide traffic calming measures along the road. While the volumes are not excessive, the traffic calming measures can provide additional mitigations for any traffic concerns.

In regard to Tweedsmuir Ave, for the purpose of mitigating any potential safety concerns, the development is proposing to provide traffic calming measures including three curb extensions and pedestrian crossing treatment on Tweedsmuir Ave.

Intersection traffic operations are modeled and assessed in detail as part of **Section 4.9**.

4.7. Transit

As shown in **Table 16**, the proposed development is anticipated to generate up to 319 total new transit trips during peak hours. These trips will have access to the future LRT at Westboro Station. At this time, it is unclear if the existing bus routes will continue to operate within the study area in the future, once the LRT Stage 2 construction is complete.

It is also noted that as of April 2025, the OC Transpo transit network has been modified as bus routes were altered throughout the city. For the purpose of this report's assessment, the data analyzed reflects ridership data of existing bus routes that was in effect prior to the April 2025 updates, which consisted of the following:

- Previous OC Transpo ridership data was obtained for bus routes 11, 81, 57, 61, 62, 63, 66, 67, 73, 74, 75, 82, 87, 256, 261, 262, 263, and 265.

The transit ridership data was obtained from OC Transpo for six bus stops near the proposed development site, as shown in **Figure 20**. The data, as provided in **Table 21**, is a summary of average bus boarding, alighting and occupancy information for bus routes at each of the respective stop numbers, during morning and afternoon peak hours.

Figure 20: Transit Ridership Data Bus Stop Locations

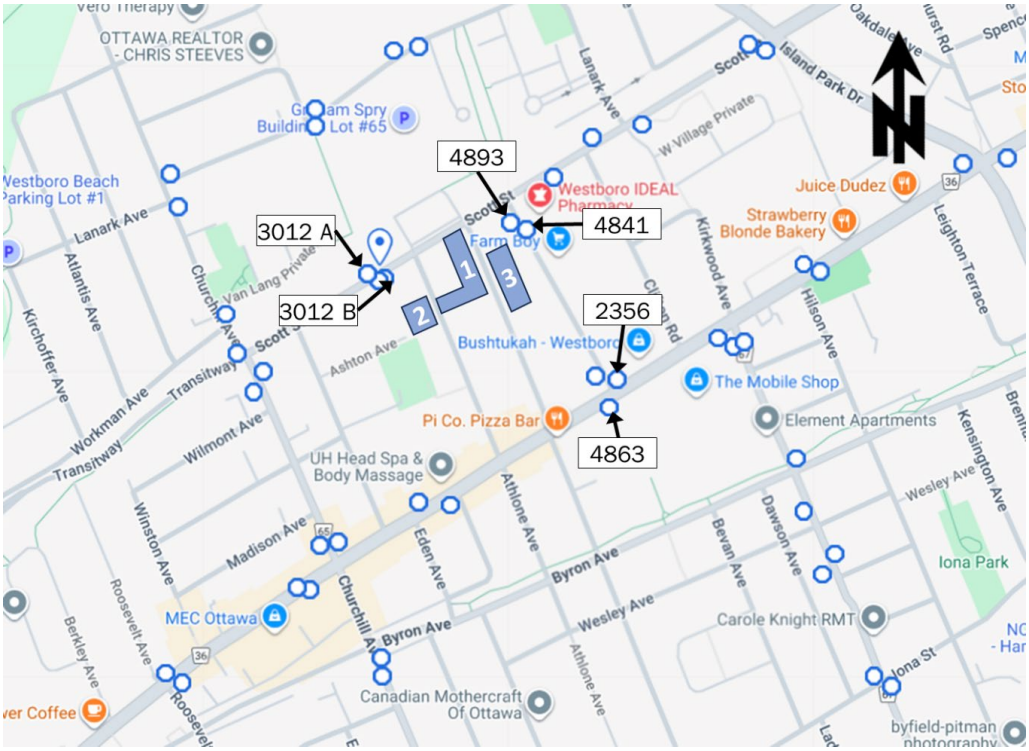


Table 21: Transit Ridership Data (Sep 5, 2023 – Dec 19, 2023)

Stop No.	Location	Route	Direction	AM (06:00-09:00)			PM (15:00-18:00)		
				Boarding	Alighting	Avg. Load at Depart.	Boarding	Alighting	Avg. Load at Depart.
2356	Richmond / McRae	11	WB	9	20	10	28	47	21
		81	EB	0	6	9	7	9	6
3012	Westboro A	57	WB	5	9	8	6	14	22
		61	WB	3	2	12	21	23	23
		62	WB	4	1	14	6	11	20
		63	WB	9	7	10	4	29	23
		66	WB	8	9	16	-	-	-
		67	SB	-	-	-	13	3	20
		73	SB	3	0	7	-	-	-
		74	SB	6	1	10	12	1	24
		75	SB	8	4	14	26	13	32
		82	WB	2	0	5	2	0	7
		87	NB	5	0	4	11	4	14
		256	OB	-	-	-	1	1	20
		261	OB	-	-	-	1	2	17
		262	OB	-	-	-	1	2	15
		263	OB	-	-	-	0	4	13
		265	OB	-	-	-	1	0	6
3012	Westboro B	57	EB	10	10	20	7	14	18
		61	EB	18	1	15	4	6	20
		62	EB	2	0	16	1	6	19
		63	EB	9	0	17	8	6	16
		66	EB	-	-	-	6	4	18
		67	NB	5	2	23	-	-	-
		73	NB	-	-	-	4	6	12
		74	NB	5	10	22	16	14	18
		75	NB	17	8	29	9	13	22
		82	EB	6	5	21	3	3	12
		87	SB	8	2	12	11	10	10
4841	McRae / Scott	81	EB	0	0	9	0	0	6
4863	Richmond / McRae	11	EB	11	9	15	44	13	16
4893	McRae / Scott	81	WB	0	0	4	0	0	14

As shown in **Table 21**, the average load of each bus route at its respective bus stop ranges from about 0 to 32 persons during the peak hours. It should be noted that these bus routes serve their respective stops several times during peak hours, as a number of routes are rapid or frequent routes operating every 15 minutes or less, while local routes operate every 30 minutes or less during the peak hours. the future LRT would be expected at a very frequent schedule of every 5 minutes during peak hours.

Based on information obtained from the OC Transpo website, the person capacity of OC Transpo vehicles, which includes the number of seats on the bus plus the standing capacity, ranges from approximately 57 occupants in its smallest vehicles to approximately 110 occupants in its largest vehicles. The LRT has a significantly higher frequency and ample capacity of up to 420 occupants.

Therefore, based on the current average bus loads and the future Stage 2 LRT extension, the estimated 319 site generated transit trips during the peak hour periods are expected to be adequately accommodated by transit service at full buildout.

4.8. Review of Network Concept

Based on the TRANS Screenline System map, there are no official planning screenlines within or in close proximity of the study area. Screenline analysis typically includes the use of imaginary lines drawn on a road network map, where the line crosses one or more roads with the same travel direction to identify the total road capacity available across the respective screenline. For the purpose of completing this analysis, three nonformal screenlines have been established on the map in **Figure 21** as dashed blue lines.

To determine and compare the baseline and projected traffic volumes at the crossing points, the TRANS Regional Model was requested and obtained from the City of Ottawa for years 2011 (base) and 2031 (projected) during the morning peak hour (TRANS models provided in **Appendix H**). During the morning peak hour, the development generates more outbound trips than inbound. As shown by the orange arrows in **Figure 21**, the outbound travel directions (away from development) from the TRANS model will be included in the screenline analysis, depicting a worst-case scenario from the added development traffic.

Table 22 provides a summary of the analysis, which includes an evaluation of the v/c ratio across the selected screenlines, where the morning peak hour volumes in the TRANS model are divided by respective lane capacities of the roads. Lane capacities were selected for each of the respective roads based on engineering judgement and accepted industry guidelines. For collector roads, lane capacity of 600 veh/h/lane was selected, while for arterial roads, a lane capacity of 800-1,000 veh/h/lane was used depending on the road. Note the following analysis summary:

- The analysis indicates that no v/c ratios exceed 1.0 during the peak hours, both for the individual roads and the total screenline.
- Screenline 1: While Scott St has a near critical v/c ratio with 0.88 based on 2011 volumes, the volumes are expected to decrease based on the TRANS model, decreasing the v/c ratio to 0.77 in 2031. The decrease in volumes is attributed to the LRT reducing traffic in favor of transit trips.
- Screenline 2: Byron Ave indicates very negligible volumes in both years, which is potentially due to an error in the TRANS model. Nonetheless, the overall v/c ratio across the screenline is low, even if Byron Ave is excluded.
- Screenline 3: Island Park Dr v/c ratio increases from 0.81 in 2011 to 0.91 in 2031. However, the average v/c ratio across the screenline is 0.52 in 2031, indicating that ample capacity is available along alternative parallel roads.

Figure 21: Screenlines Map

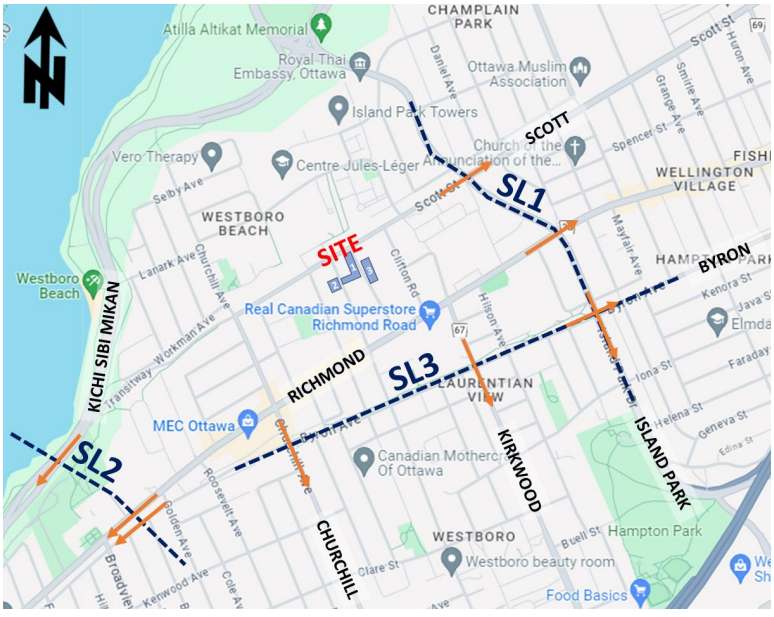


Table 22: Screenline Analysis

Screen-line	Crossing Street	Class	Lane Capacity (vphpl)	# of Lanes	Outbound Direction Capacity	AM Peak Hour Outbound Volume		V/C Ratio	
						2011 Baseline	2031 Projected	2011 Baseline	2031 Projected
SL1: East	Scott	Arterial	800	1	800	701	618	0.88	0.77
	Richmond	Arterial	800	1	800	270	318	0.34	0.40
	Byron	Collector	600	1	600	173	288	0.29	0.48
Total or Average				**3**	**2,200**	**1,144**	**1,224**	**0.50**	**0.55**
SL2: West	Kichi Zibi Mikan	Arterial	1,000	2	2,000	906	1234	0.45	0.62
	Richmond	Arterial	800	1	800	58	70	0.07	0.09
	Byron	Collector	600	1	600	2	2	0.00	0.00
Total or Average				**4**	**3,400**	**966**	**1,306**	**0.18**	**0.24**
SL3: South	Churchill	Collector	600	1	600	188	227	0.31	0.38
	Kirkwood	Arterial	800	1	800	155	225	0.19	0.28
	Island Park	Arterial	800	1	800	651	729	0.81	0.91
Total or Average				**3**	**2,200**	**994**	**1,181**	**0.44**	**0.52**

4.9. Intersection Design

4.9.1. Intersection Control

Stop or Yield control may be considered for traffic exiting the underground parking garage. All other off-site intersection controls in the study area will continue to operate as per existing conditions.

As part of the proposed development, all parking spaces will be provided in underground parking garages. Buildings A1 and A2 garage ramp will be along the west side of Tweedsmuir Ave, located 55m south of Scott St. Building B ramp will be located along the west side of Athlone Ave, 55m south of Scott St. Building C ramp will be located along the east side of Tweedsmuir Ave, 62m south of Scott St. An east-west pedestrian/bike pathway will be provided south of Building A2, between Athlone Ave and Tweedsmuir Ave, as part of the Phase 1 (Buildings A1 and A2) construction and would continue west to Lion's Park on the south side of Building B as part of Phase 2 construction. A more detailed discussion related to the design of the accesses and municipal truck activities will be provided at the time of the future Site Plan Applications for the proposed development.

4.9.2. Intersection Design

Synchro 11 Trafficware was used to analyze intersection performance of intersections within the study area. Critical movements at each of the intersections were assessed based on either the movement with the highest volume-to-capacity ratio (for signalized intersections), or the movement experiencing the highest average delay (for unsignalized intersections). It should be noted that, as per the TIA Guidelines, the Peak Hour Factor (PHF) used for analysis was 0.90 in existing conditions and 1.0 in all future scenario conditions. All Synchro report outputs for existing and future conditions have been provided in **Appendix I**.

It should be noted that pedestrian and cyclist volumes were appropriately increased in Synchro for all future scenarios to account for the anticipated increase in active transport and transit usage which is assumed to be brought upon by the planned network changes.

MMLOS Analysis for Signalized Intersections

MMLOS analysis for signalized intersections to be provided as part of future Site Plan Applications for the proposed development.

Existing Conditions Intersection Performance

Table 23 below summarizes the intersection performance of study area intersections, based on existing conditions traffic volumes illustrated in **Figure 7**.

Table 23: Existing Conditions Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Signalized Intersections						
Scott/Churchill (S)	C(C)	0.80(0.79)	SBT(NBR)	33.6(27.0)	A(A)	0.48(0.54)
Scott/Lanark/West Village (S)	A(B)	0.50(0.64)	EBT(WBT)	11.6(14.4)	A(A)	0.44(0.56)
Richmond/Churchill (S)	F(F)	1.21(1.37)	SBT(SBT)	57.8(84.5)	D(F)	0.89(1.07)
Richmond/McRae (S)	B(D)	0.62(0.85)	SBT(SBT)	11.2(20.9)	A(B)	0.38(0.69)
Richmond/Kirkwood (S)	F(F)	1.17(1.66)	WBT(WBT)	53.7(133.7)	E(F)	0.92(1.05)
Scott/Athlone Pedestrian Crossing (S)[1]	A(A)	0.29(0.43)	EBT(WBT)	4.7(4.2)	A(A)	0.29(0.43)
Scott/Tweedsmuir Pedestrian Crossing (S)[1]	A(A)	0.31(0.45)	EBT(WBT)	5.4(6.5)	A(A)	0.31(0.45)
Richmond/Athlone Pedestrian Crossing (S)[1]	A(A)	0.36(0.44)	EBT(WBT)	7.2(7.4)	A(A)	0.36(0.44)
Unsignalized Intersections						
Scott/Athlone (U)[2]	B(B)	11(12)	NB(NB)	1(1)	A(A)	-
Scott/Tweedsmuir (U)[2]	B(C)	13(16)	NB(NB)	1(1)	A(A)	-
Richmond/Athlone (U)[2]	C(D)	18(31)	NB(SB)	1(1)	A(A)	-
Richmond/Tweedsmuir (U)	C(D)	17(35)	SB(SB)	2(3)	A(A)	-

Note: Analysis assumes a PHF of 0.9 and a saturation flow rate of 1800 veh/h/lane.
(S) – Signalized intersection, movement with highest v/c ratio identified as critical movement.
(U) – Unsignalized intersection, movement with highest average delay identified as critical movement.
1. Analysis of pedestrian crossings with traffic signal control for the east-west movement.
2. Analysis of intersections with stop control on minor north-south roads and free-flow on east-west roads.

As shown in **Table 23**, the signalized intersections 'as a whole' operate at a LOS 'D' or better, with critical movements also operating at LOS 'D' or better during the morning and afternoon peak hours. The exceptions are the intersections of Richmond/Churchill and Richmond/Kirkwood, which currently operate at capacity with LOS 'F' during the afternoon peak hour, with the respective critical movements also operating at LOS 'F' during both the morning and afternoon peak hours, respectively.

The unsignalized intersections operate acceptably with critical movements operating at LOS 'D' or better during peak hours.

Future Background 2028 Intersection Performance

Table 24 below summarizes the intersection performance of study area intersections, based on future background 2028 traffic volumes illustrated in **Figure 16**.

Table 24: Future Background 2028 Conditions Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Signalized Intersections						
Scott/Churchill (S)	C(C)	0.71(0.76)	NBR(NBR)	28.9(26.2)	A(A)	0.45(0.53)
Scott/Lanark/West Village (S)	A(B)	0.53(0.62)	EBT(WBT)	12.6(13.8)	A(A)	0.47(0.54)
Richmond/Churchill (S)	E(F)	0.98(1.08)	SBT(SBT)	36.7(60.9)	C(F)	0.77(1.00)
Richmond/McRae (S)	A(C)	0.60(0.74)	SBT(SBT)	10.9(20.7)	A(B)	0.34(0.63)
Richmond/Kirkwood (S)	C(E)	0.76(0.91)	WBT(WBT)	18.0(23.3)	B(B)	0.65(0.67)
Scott/Athlone Pedestrian Crossing (S)[1]	A(A)	0.34(0.46)	EBT(WBT)	5.8(5.0)	A(A)	0.34(0.46)
Scott/Tweedsmuir Pedestrian Crossing (S)[1]	A(A)	0.37(0.48)	EBT(WBT)	6.5(7.8)	A(A)	0.37(0.48)
Richmond/Athlone Pedestrian Crossing (S)[1]	A(A)	0.33(0.40)	EBT(WBT)	7.4(7.5)	A(A)	0.33(0.40)
Unsignalized Intersections						
Scott/Athlone (U)[2]	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Scott/Tweedsmuir (U)[2]	C(C)	17(20)	NB(NB)	1(1)	A(A)	-
Richmond/Athlone (U)[2]	C(D)	18(30)	SB(SB)	1(1)	A(A)	-
Richmond/Tweedsmuir (U)	C(D)	17(28)	SB(SB)	2(3)	A(A)	-

Note: Analysis assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
(S) – Signalized intersection, movement with highest v/c ratio identified as critical movement.
(U) – Unsignalized intersection, movement with highest average delay identified as critical movement.
1. Analysis of pedestrian crossings with traffic signal control for the east-west movement.
2. Analysis of intersections with stop control on minor north-south roads and free-flow on east-west roads.

As shown in **Table 24** both signalized and unsignalized intersections are projected to operate similar or better than existing conditions. In general, future developments in the area are not expected to result in a significant number of new trips and results show improvements due to increasing the PHF to 1.00 compared to existing PHF of 0.90 as per TIA Guidelines. Operations at signalized intersections were improved by optimizing signal phase times in Synchro, which is expected to result in notable improvements particularly for the Richmond/Churchill and Richmond/Kirkwood intersections.

Future Background 2031/2036 Intersection Performance

Table 25 below summarizes the intersection performance of study area intersections, based on future background 2031/2036 traffic volumes illustrated in **Figure 17**.

Table 25: Future Background 2031 Conditions Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Signalized Intersections						
Scott/Churchill (S)	C(C)	0.71(0.77)	NBR(NBR)	28.8(26.8)	A(A)	0.46(0.54)
Scott/Lanark/West Village (S)	A(B)	0.54(0.62)	EBT(WBT)	12.7(13.9)	A(A)	0.48(0.54)
Richmond/Churchill (S)	F(F)	1.03(1.08)	SBT(SBT)	39.9(62.4)	C(F)	0.79(1.01)
Richmond/McRae (S)	B(C)	0.61(0.72)	SBT(SBT)	11.4(21.0)	A(B)	0.36(0.64)
Richmond/Kirkwood (S)	C(E)	0.76(0.91)	WBT(WBT)	17.9(23.2)	B(B)	0.65(0.67)
Scott/Athlone Pedestrian Crossing (S)[1]	A(A)	0.36(0.47)	EBT(WBT)	6.0(5.1)	A(A)	0.36(0.47)
Scott/Tweedsmuir Pedestrian Crossing (S)[1]	A(A)	0.38(0.49)	EBT(WBT)	6.5(7.8)	A(A)	0.38(0.49)
Richmond/Athlone Pedestrian Crossing (S)[1]	A(A)	0.33(0.40)	EBT(WBT)	7.4(7.5)	A(A)	0.33(0.40)
Unsignalized Intersections						
Scott/Athlone (U)[2]	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Scott/Tweedsmuir (U)[2]	C(C)	17(20)	NB(NB)	1(1)	A(A)	-
Richmond/Athlone (U)[2]	C(D)	18(29)	NB(SB)	1(1)	A(A)	-
Richmond/Tweedsmuir (U)	C(D)	17(28)	SB(SB)	2(3)	A(A)	-

Note: Analysis assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
(S) – Signalized intersection, movement with highest v/c ratio identified as critical movement.
(U) – Unsignalized intersection, movement with highest average delay identified as critical movement.
1. Analysis of pedestrian crossings with traffic signal control for the east-west movement.
2. Analysis of intersections with stop control on minor north-south roads and free-flow on east-west roads.

As shown in **Table 25**, traffic operations are anticipated to be similar to the future background 2028 conditions, with minor increases to delays or v/c ratios.

Total Projected 2028 Intersection Performance

Table 26 below summarizes the intersection performance of study area intersections, based on total projected 2028 traffic volumes illustrated in **Figure 18**.

Table 26: Total Projected 2028 Conditions Intersection Performance – Phase 1

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Signalized Intersections						
Scott/Churchill (S)	C(C)	0.71(0.77)	NBR(NBR)	28.6(26.5)	A(A)	0.46(0.55)
Scott/Lanark/West Village (S)	A(B)	0.54(0.62)	EBT(WBT)	12.7(13.9)	A(A)	0.48(0.54)
Richmond/Churchill (S)	F(F)	1.03(1.08)	SBT(SBT)	40.0(64.1)	C(F)	0.79(1.02)
Richmond/McRae (S)	A(C)	0.59(0.74)	SBT(SBT)	11.0(20.9)	A(B)	0.34(0.65)
Richmond/Kirkwood (S)	C(E)	0.76(0.92)	WBT(WBT)	18.2(24.1)	B(B)	0.65(0.69)
Scott/Athlone Pedestrian Crossing (S)[1]	A(A)	0.34(0.47)	EBT(WBT)	5.2(5.1)	A(A)	0.34(0.47)
Scott/Tweedsmuir Pedestrian Crossing (S)[1]	A(A)	0.37(0.48)	EBT(WBT)	7.2(7.8)	A(A)	0.37(0.48)
Richmond/Athlone Pedestrian Crossing (S)[1]	A(A)	0.33(0.48)	EBT(WBT)	7.4(10.5)	A(A)	0.33(0.48)
Unsignalized Intersections						
Scott/Athlone (U)[2]	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Scott/Tweedsmuir (U)[2]	C(C)	19(20)	NB(NB)	2(1)	A(A)	-
Richmond/Athlone (U)[2]	C(D)	19(31)	SB(SB)	1(1)	A(A)	-
Richmond/Tweedsmuir (U)	C(E)	19(35)	SB(SB)	3(3)	A(A)	-
Tweedsmuir/Phase 1 Site Access (U)	B(B)	10(10)	EB(EB)	3(3)	A(A)	-

Note: Analysis assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
(S) – Signalized intersection, movement with highest v/c ratio identified as critical movement.
(U) – Unsignalized intersection, movement with highest average delay identified as critical movement.
1. Analysis of pedestrian crossings with traffic signal control for the east-west movement.
2. Analysis of intersections with stop control on minor north-south roads and free-flow on east-west roads.

As shown in **Table 26**, the intersections are expected to operate similar to future background conditions with minor changes to delays or v/c ratios. The site access to Buildings A1 and A2 is also expected to operate acceptably with LOS 'A' during both peak hours. The analysis results indicate that Phase 1 will result in minimal impacts to study area intersections.

Total Projected 2031/2036 Intersection Performance

Table 27 below summarizes the intersection performance of study area intersections, based on total projected 2031/2036 traffic volumes illustrated in **Figure 19**.

Table 27: Future Projected 2031/2036 Intersection Performance – Full Buildout

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Signalized Intersections						
Scott/Churchill (S)	C(C)	0.72(0.78)	NBR(NBR)	28.8(26.9)	A(A)	0.48(0.56)
Scott/Lanark/West Village (S)	A(B)	0.55(0.64)	EBT(WBT)	12.9(14.2)	A(A)	0.49(0.56)
Richmond/Churchill (S)	F(F)	1.07(1.13)	SBT(SBT)	43.9(68.0)	D(F)	0.82(1.04)
Richmond/McRae (S)	B(C)	0.61(0.77)	SBT(SBT)	11.5(21.5)	A(B)	0.38(0.66)
Richmond/Kirkwood (S)	C(E)	0.77(0.92)	WBT(WBT)	18.3(25.0)	B(B)	0.67(0.69)
Scott/Athlone Pedestrian Crossing (S)[1]	A(A)	0.36(0.48)	EBT(WBT)	5.3(5.2)	A(A)	0.36(0.48)
Scott/Tweedsmuir Pedestrian Crossing (S)[1]	A(A)	0.38(0.50)	EBT(WBT)	7.2(7.9)	A(A)	0.38(0.50)
Richmond/Athlone Pedestrian Crossing (S)[1]	A(A)	0.34(0.48)	EBT(WBT)	7.4(10.4)	A(A)	0.34(0.48)
Unsignalized Intersections						
Scott/Athlone (U)[2]	C(C)	15(15)	NB(NB)	1(1)	A(A)	-
Scott/Tweedsmuir (U)[2]	C(C)	21(23)	NB(NB)	2(1)	A(A)	-
Richmond/Athlone (U)[2]	C(D)	20(34)	SB(SB)	1(2)	A(A)	-
Richmond/Tweedsmuir (U)	C(E)	21(41)	SB(SB)	3(4)	A(A)	-
Tweedsmuir/Phase 1 Site Access (U)	B(A)	10(9)	EB(EB)	3(2)	A(A)	-
Athlone/Phase 2 Site Access (U)	B(B)	10(11)	EB(EB)	2(2)	A(A)	-
Tweedsmuir/Phase 3 Site Access (U)	B(B)	10(10)	WB(WB)	2(1)	A(A)	-

Note: Analysis assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
(S) – Signalized intersection, movement with highest v/c ratio identified as critical movement.
(U) – Unsignalized intersection, movement with highest average delay identified as critical movement.
1. Analysis of pedestrian crossings with traffic signal control for the east-west movement.
2. Analysis of intersections with stop control on minor north-south roads and free-flow on east-west roads.

As shown in **Table 27**, the intersections are expected to operate similar to the total projected 2028 conditions with slight increases to delays or v/c ratios. The three vehicular site accesses are also expected to operate acceptably with LOS 'B' or better during both peak hours. The analysis results indicate that trips generated at full buildout of the development will result in minimal impacts to study area intersections. It is noted that, similar to existing conditions, the intersection of Richmond/Churchill is anticipated to continue operating at capacity in the future, particularly during the afternoon peak hour.

All unsignalized study area intersections are expected to continue to operate acceptably in the future. Considering the projected traffic operations at Scott Street and Richmond Road intersections with both Athlone Avenue and Tweedsmuir Avenue, traffic signals are considered to be not warranted at these intersections. On Scott Street, the existing pedestrian signals at each of Athlone Ave and Tweedsmuir Ave are considered to be sufficient for pedestrian crossings. On Richmond Road, the existing Richmond/McRae traffic signal is less than 200 m away from the Athlone Ave and Tweedsmuir Ave intersections, making them unfeasible locations for traffic signals.

5.0 FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Based on the results summarized herein, the following transportation related conclusions are offered:

Existing Conditions

- The site is located at the municipal addresses of 1994 Scott St, 324 and 335 Tweedsmuir Ave and 330 Athlone Ave.
- The site is currently occupied by a mix of low-rise residential and small commercial properties, accessed from Tweedsmuir Avenue and Athlone Avenue.
- The study area has a well-developed pedestrian and cycling network, including recently reconstructed sections of Scott Street with protected intersections at Churchill and Lanark/West Village.

- Significant transit service is available in the study area, with multiple bus routes and the future Westboro LRT Station located within approximately 150 m of the site.
- Collision analysis over a five-year period indicates low overall frequency, with no repeating collision patterns identified on the boundary streets (i.e. Scott St, Tweedsmuir Ave and Athlone Ave).
- Intersection analysis confirms that existing operations are acceptable at most study area intersections, with overall LOS 'D' or better. The exception is the Richmond/Churchill and Richmond/Kirkwood intersections, which currently operate at capacity during the afternoon peak hour.

Proposed Development

- The proposal consists of four high-rise residential buildings with 1,206 dwelling units total and 8,488 ft² of ground-floor commercial space. The development is multi-phases, where Phase 1, consisting of Buildings A1 and A2) is assumed to be constructed by 2028, followed by concurrent construction of Phases 2 and 3 (Buildings B and C) assumed by 2031. Site statistics are as follows:
    - Phase 1 (2028): Buildings A1 (555 units + 5,023 ft² retail) and A2 (43 units), with access from Tweedsmuir Avenue.
    - Phase 2 (2031): Building B (290 units + 3,465 ft² retail), accessed from Athlone Avenue.
    - Phase 3 (2031): Building C (318 units), accessed from Tweedsmuir Avenue, with new parkland dedication to the south.
- All parking will be provided in underground garages, with ramps from Athlone and Tweedsmuir. Vehicle laybys on Tweedsmuir Ave will provide short-term pick-up and drop-off activity. The proposed vehicle parking supply (609 spaces) is slightly below current zoning by-law requirements (631 spaces) but would adhere to the requirements of the new by-law once it comes into effect. Significant bike parking is proposed (1,271 spaces) at a rate greater than 1 space per unit.
- A new east–west pedestrian connection will be provided between Athlone and Tweedsmuir as part of Phase 1, which will extend west to Lion's Park as part of Phase 2.
- Traffic calming measures are proposed on boundary streets, including three curb extensions on west side of Tweedsmuir Ave, which narrow the road to 6m, along with pedestrian crossing treatments on each of Tweedsmuir Ave and Athlone Ave.
- At full buildout in 2031, the site is expected to generate approximately up to 558 person trips during peak hours, including up to 79 vehicle trips, up to 319 transit trips, and up to 148 active transportation trips.
- An extensive list of TDM measures have been proposed for this development, including unbundled parking costs, multimodal travel information for residents and site design elements.

Future Conditions

- Planned projects in the study area will have notable impacts on the study area network:
    - LRT Stage 2 is anticipated to be complete in 2026 for the west extensions, including Westboro Station.
    - Scott Street Reconstruction (Post-LRT): includes removal of bus lanes, improved pedestrian and cycling facilities, and protected intersections.
    - Athlone Avenue Integrated Renewal: will reconstruct sanitary/water infrastructure and redesign the road to 30 km/h local street standards with new sidewalks and traffic calming.
    - Richmond/Westboro CDP and Secondary Plan: sets out long-term improvements for streetscape, public realm, and active transportation along Scott and Richmond Road.

  - A number of adjacent site developments that are recently constructed, currently under construction, or proposed in the future, have been accounted for in the future background traffic growth of the study area. This includes Scott St projects at 2026, 2050, 2070, and 1950, as well as sites along Richmond Road.

- Most study area intersections are projected to continue operating at LOS 'D' or better overall, with the Richmond/Churchill intersection operating at capacity during the afternoon peak hour. No concerns are expected for site access operations with stop control for outbound traffic.
- Traffic volumes on Athlone Avenue remain below the City's 120 veh/h threshold for local roads, indicating limited neighbourhood traffic impact. On Tweedsmuir Ave, traffic volumes are projected to exceed the threshold by almost 30 veh/h during the peak hours. Based on the Synchro intersection operations analysis and the provision of traffic calming measures on Tweedsmuir Ave by the proposed development, no major concerns are anticipated.
- Screenline analysis using City of Ottawa TRANS model data indicates there is sufficient capacity in the external road network to accommodate the projected traffic volumes as v/c ratios do not exceed 1.0.
- Study area intersections and facilities, as well as the future transit services are expected to well accommodate the number of trips expected to be generated by the proposed development with minimal impacts.

Based on the foregoing findings, the proposed development can be supported by the surrounding road network and is recommended from a transportation perspective. Design details will be further discussed as part of future Site Plan Control application.

Prepared By:



Basel Ansari, P.Eng
Transportation Engineer

Reviewed By:



Jake Berube, P.Eng. RSP$_1$
Senior Transportation Engineer

Appendix A:

TIA Screening Form and Site Plan

Office: +1 613.738.4160
1223 Michael Street, Suite 100|Ottawa, ON K1J 7T2

City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	2-Sep-25
Project	1994 Scott Street TIA
Project Number	478956-01000

Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	Yes
Development Satisfies the Location Trigger	No
Development Satisfies the Safety Trigger	Yes

Module 1.1 - Description of Proposed Development	
Municipal Address	1994 Scott St, Ottawa, ON K1Z 6T2, Canada
Description of location	Along Tweedsmuir Ave and Athlone Ave south of Scott St
Land Use	Four high-rise residential buildings and a park
Development Size	1,206 total apartment units, 8,488 sqft total commercial space
Number of Accesses and Locations	Two along Tweedsmuir Ave, one along Athlone Ave
Development Phasing	Three phases
Buildout Year	Assumed 2028 for Phase 1, 2031 for Phases 2 and 3
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Multi-High Rise Res (3+ Storeys)	
Development Size	1206	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers		
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority Network, Rapid Transit network or Cross-Town Bikeways?	No	
Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)?	No	
Location Trigger Met?	No	

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No	
A proposed driveway is 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) or within auxiliary lanes of an intersection?	Yes	Signal at Tweedsmuir Ave intersections at Scott St
Does the proposed driveway make use of an existing median break that serves an existing site?	No	
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	Yes	Richmond Rd and Scott St intersections may be congested
Does the development include a drive-thru facility?	No	
Safety Trigger Met?	Yes	

LEGAL DESCRIPTION	SURVEYOR	GEOTECHNICAL ENGINEER	TRANSPORTATION	LANDSCAPE ARCHITECT	CIVIL ENGINEER	URBAN PLANNER	PROJECT DEVELOPER
TOPOGRAPHIC SKETCH OF **LOTS 18 TO 22 & LOTS 26 TO 31, LOT 54 & LOTS 63 TO 65** **REGISTERED PLAN 263** (GEOGRAPHIC TOWNSHIP OF) CITY OF OTTAWA	**Stantec** 1331 Clyde Avenue, Suite 400 Ottawa ON K2C 3G4 Phone: (613) 724-4096 Cell: (613) 229-7644 E-Mail: Reid.Hall@stantec.com	**Paterson Group** 154 Colonnade Road South Ottawa, Ontario K2E 7J5 Tel: 613.226-7381 Email: rdelerry@patersongroup.ca	**Parsons** 1223 Michael Street, Suite 100, Ottawa, ON K1J 7T2 Tel: (613) 601-1528 Cell: (343) 996-5362 Email: Jake.Berube@parsons.com	**Urbantypology Inc.** 45 Spencer Street, Unit 101 Ottoaw ON K1Y 2P5 Tel: (4613) 867-3042 Email: ____@urbantypology.com	**Stantec** 300 - 1331 Clyde Avenue Ottawa, ON K2C 3G4 Tel: (613) 297-0571 Cell: (587) 721-1241 Email: Alyssa.Gladish@stantec.com	**Stantec** 1331 Clyde Avenue, Suite 400 Ottawa ON K2C 3G4 Phone: (613) 724-4096 Cell: (613) ___-____ Email: barrett.wagar@stantec.com	**PARK RIVER PROPERTIES** 3200 Highway 7 Vaughan, Ontario, L4K 5Z8 E-Mail: kevin@parkriver.ca

PROJECT INFORMATION

Zoning By-law: 2008-250 Consolidation	TM [102] R4UB	SITE AREA: 1994 SCOTT ST.	2,265.4 m² 24,385 ft²
		SITE AREA: 324 TWEEDSMUIR AVE.	1,332.9 m² 14,347 ft²
SITE AREA: TOTAL ALL PARCELS	0.77 ha. 7,733.7 m² 83,245 ft²	SITE AREA: 330 ATHLONE AVE.	1,650.3 m² 17,764 ft²
		SITE AREA: 335 TWEEDSMUIR AVE.	2,485.1 m² 26,749 ft²

ZONING		REQUIRED	PROVIDED
BUILDING HEIGHT	BUILDING 'A1'	6 STOREY'S / 18.0m	40 STOREY'S / 136.0m
	BUILDING 'A2'	15.0m	4 STOREY'S / 15.0m
	BUILDING 'B'	15.0m	29 STOREY'S / 99.0m
	BUILDING 'C'	15.0m	29 STOREY'S / 99.0m
ALLOWABLE PROJECTION - AMENITY LEVEL		--	6.5m = 300.0m²
DENSITY - MAXIMUM FLOOR SPACE INDEX		--	8.32
DENSITY - UNITS PER HECTARE		--	1,566
MINIMUM LOT AREA (CORNER AND INTERIOR LOTS)		1,150.0m² & 1,350.0m²	____
HIGH-RISE BUILDING SETBACK - INTERIOR SIDE AND REAR YARD		10.0m	____
TOTAL RESIDENTIAL UNIT COUNT		--	1,206
PARKING - RESIDENTIAL (AFTER 12 UNITS PER BLDG.) - 0.5 PER UNIT	PARKING AREA "Y"	579	477
PARKING - VISITOR ONLY (AFTER 12 UNITS PER BLDG.) - 0.1 PER UNIT		91	91
PARKING - COMMERCIAL (VARIES WITH USE) - 1.0 to 10.0 PER 100m² GFA		0	42
PARKING - RESIDENTIAL (MAXIMUM NEAR RAPID TRANSIT STATIONS) 1.75 PER UNIT		2,111	477
PARKING - COMMERCIAL (MAXIMUM NEAR RAPID TRANSIT STATIONS) 3.6 PER 100m² GFA		28	42
BICYCLE PARKING - RESIDENTIAL - 0.5 PER UNIT		545	1,273
BICYCLE PARKING - COMMERCIAL - 1 PER 250m² GFA		3	6
AISLE & DRIVEWAY MINIMUM / MAXIMUM WIDTH		6.0m	6.0m
AMENITY AREA - TOTAL PER UNIT - 6.0m²		7,236.0m²	10,420m²
AMENITY AREA - 50% COMMUNAL PER UNIT - 3.0m²		3,618.0m²	5,000m²
PARKLAND DEDICATION AREA - 10% RESIDENTIAL / 2% COMMERCIAL		773.4m²	780.4 m²

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

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NOTATION SYMBOLS:

- (00) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- ◇ 00 INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDUAL.
- ◇ 00 INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- 000 INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- DETAIL NUMBER
- 00 TITLE
  A900 SCALE
- DETAIL REFERENCE PAGE
- DETAIL CROSS REFERENCE PAGE

KEY MAP



BUILDING STATISTICS

BUILDING 'A1' - 40 Storey's

GROSS BUILDING AREA (CITY OF OTTAWA ZONING AREA)		27,315.5 m² 294,022 ft²
TOWER FOOTPRINT		837.0 m² 9,007 ft²
UNIT COUNT		555
VEHICLE PARKING	294 + 19	313
BICYCLE PARKING	542 + 8	550
COMMERCIAL AREA		466.6 m² 5,023 ft²

BUILDING 'A2' - 4 Storey's

GROSS BUILDING AREA (CITY OF OTTAWA ZONING AREA)		2,321.9 m² 24,993 ft²
TOWER FOOTPRINT		-- m² -- ft²
UNIT COUNT		43
VEHICLE PARKING	0 + 0	0
BICYCLE PARKING	65 + 2	67
COMMERCIAL AREA		0 m² 0 ft²

BUILDING 'B' - 29 Storey's

TOTAL BUILDING AREA (CITY OF OTTAWA ZONING AREA)		15,852.2 m² 170,632 ft²
TOWER FOOTPRINT		698.0 m² 7,512 ft²
UNIT COUNT		290
VEHICLE PARKING - RESIDENTIAL ONLY	144 + 0	144
BICYCLE PARKING	318 + 14	332
COMMERCIAL / AMENITY AREA		321.9 m² 3,465 ft²

BUILDING 'C' - 29 Storey's

TOTAL AREA (CITY OF OTTAWA ZONING AREA)		18,881.6 m² 203,240 ft²
TOWER FOOTPRINT		862.0 m² 9,280 ft²
UNIT COUNT		318
VEHICLE PARKING - RESIDENTIAL ONLY	152 + 0	152
BICYCLE PARKING	322 + 0	322
COMMERCIAL AREA		0 m² 0 ft²

BUILDING AREA (CITY OF OTTAWA ZONING AREA)

BUILDING 'A'	27,315.5 m² 294,022 ft²
BUILDING 'A1'	2,261.1 m² 24,339 ft²
BUILDING 'B'	15,852.2 m² 170,632 ft²
BUILDING 'C'	18,881.6 m² 203,240 ft²
TOTAL AREA ABOVE GRADE	64,310.6 m² 692,233 ft²
TOTAL RESIDENTIAL AREA	63,522.1 m² 683,746 ft²
TOTAL COMMERCAIL AREA	788.5 m² 8,487 ft²

UNIT MIX	BLDG. A1	BLDG. A2	BLDG. B	BLDG. C	%	TOTAL
STUDIO UNIT	142	6	82	70	24.9%	300
1 BEDROOM UNIT	283	11	88	79	38.2%	461
1 BEDROOM + UNIT	20	15	57	94	15.7%	186
2 BEDROOM UNIT	104	10	30	36	14.9%	180
2 BEDROOM + UNIT	0	1	29	33	5.2%	63
3 BEDROOM UNIT	6	0	4	6	1.3%	16
TOTAL UNITS	555	43	290	318		1,206
COMMERCIAL AREA						788.6 sq. m. 8,488 sq. ft.

CAR PARKING AREA 'X' on SCHEDULE 1A

MINIMUM REQUIRED			
RESIDENCE	(AFTER 12 UNITS)	- 0.5 PER DWELLING UNIT	579
VISITOR	(AFTER 12 UNITS)	- 0.1 PER DWELLING UNIT	91
COMM. USE		- UNDER 200m² NON REQUIRED	0
TOTAL			670

MAXIMUM REQUIRED			
RESIDENCE		- 1.75 PER DWELLING UNIT	2,111
COMM. USE		- 3.6 PER 100m² of GFA ESTIMATE	28
TOTAL			2,139

PROVIDED			
RESIDENCE		- 0.38 PER DWELLING UNIT	477
VISITOR			91
COMM. USE			42
TOTAL			609

LOCATION	BLDG. A1	BLDG. A2	BLDG. B	BLDG. C	
EXTERIOR	0	0	0	0	
U/G - P1 LEVEL	46	0	22	30	
U/G - P2 LEVEL	53	0	30	40	
U/G - P3 LEVEL	53	0	30	40	
U/G - P4 LEVEL	53	0	30	42	
U/G - P5 LEVEL	53	0	32	0	
U/G - P6 LEVEL	55	0	0	0	
TOTAL	313	0	144	152	609

BICYCLE PARKING

REQUIRED			
RESIDENCE	- 0.5 PER UNIT (1,206 UNITS)		603
COMMERCIAL	- 1 PER 250m² GFA (788.6m²)		3
TOTAL			606

PROVIDED		
RESIDENCE	- 1.04 PER UNIT	1,267
COMMERCIAL		6
PARKLAND		6
TOTAL		1,279

AMENITY SPACE

AT GRADE EXTERIOR - COMMUNAL =	600.0 sq. m.
INTERIOR 1st fl. AMENITY - COMMUNAL =	450.0 sq. m.
EXTERIOR TERRACES - PRIVATE =	500.0 sq. m.
INTERIOR 5th fl. AMENITY - COMMUNAL =	900.0 sq. m.
EXTERIOR 5th fl. TERRACES - COMMUNAL =	1,200.0 sq. m.
EXTERIOR ROOF TOP - COMMUNAL =	300.0 sq. m.
INTERIOR ROOF TOP - COMMUNAL =	600.0 sq. m.
PRIVATE BALCONIES =	4,000.0 sq. m.
TOTAL =	8,550 sq. m.
TOTAL COMMUNAL =	4,050 sq. m.
REQUIRED - 6.0M² PER UNIT (1,206) =	7,236 sq. m.
REQUIRED COMMUNAL @ 50% =	3,618 sq. m.

LOT COVERAGE

BUILDING FOOTPRINT - "A1" =	1,159.4 m²	15.0%
BUILDING FOOTPRINT - "A2" =	660.2 m²	8.5%
BUILDING FOOTPRINT - "B" =	768.0 m²	9.9%
BUILDING FOOTPRINT - "C" =	1,007.7 m²	13.0%
DRIVING SURFACE =	63.3 m²	0.8%
LANDSCAPE SURFACE =	3,294.7 m²	42.6%
PARKLAND DEDICATION =	780.4 m²	10.0%
TOTAL =	7,733.7 m²	100.0%

LANDSCAPE SURFACE AREA INCLUDES: ROW, POPS AND CORNER SITE TRIANGLE

LAND BLOCK AREA

BUILDING "A1" =	2,265.4 m²	29.4%
BUILDING "A2" =	1,332.9 m²	17.2%
BUILDING "B" =	1,650.3 m²	21.3%
BUILDING "C" =	1,704.7 m²	22.1%
PARKLAND DEDICATION =	780.4 m²	10.0%
TOTAL =	7,733.7 m²	100.0%

No.	DESCRIPTION	DATE
7	OPA & ZBLA CITY COMMENTS REPLY	2026 04 10
6	ISSUED FOR OPA & ZBLA APPLICATION	2025 12 12
5	UPDATED AS PER CIVIL COORDINATION	2025 12 09
4	GENERAL REVISION: ISSUED FOR REVIEW	2025 11 17
3	ISSUED FOR OWNER / CONSULTANT REVIEW	2025 09 12
2	ISSUED FOR OWNER / CONSULTANT REVIEW	2025 07 17
1		

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — KEVIN D. REID LICENCE 8667

SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT: WESTBORO VILLAGE

ARCHITECT: rla/architecture roderick lahey architect inc.
56 beech street, ottawa, ontario K1S 3J6
t. 613.724.9932 f. 613.724.1209 rlaarchitecture.ca

PROJECT TITLE: WESTBORO VILLAGE
OTTAWA ONTARIO

SHEET TITLE: OVERALL SITE PLAN

DRAWN: R.V. | CHECKED: K.R.

SCALE: 1:250 | SHEET No. SP-1

PROJECT No. 2409

1 / SP-1 OVERALL SITE PLAN
SCALE = 1 : 250

0m 5 10 25
SCALE 1: 250

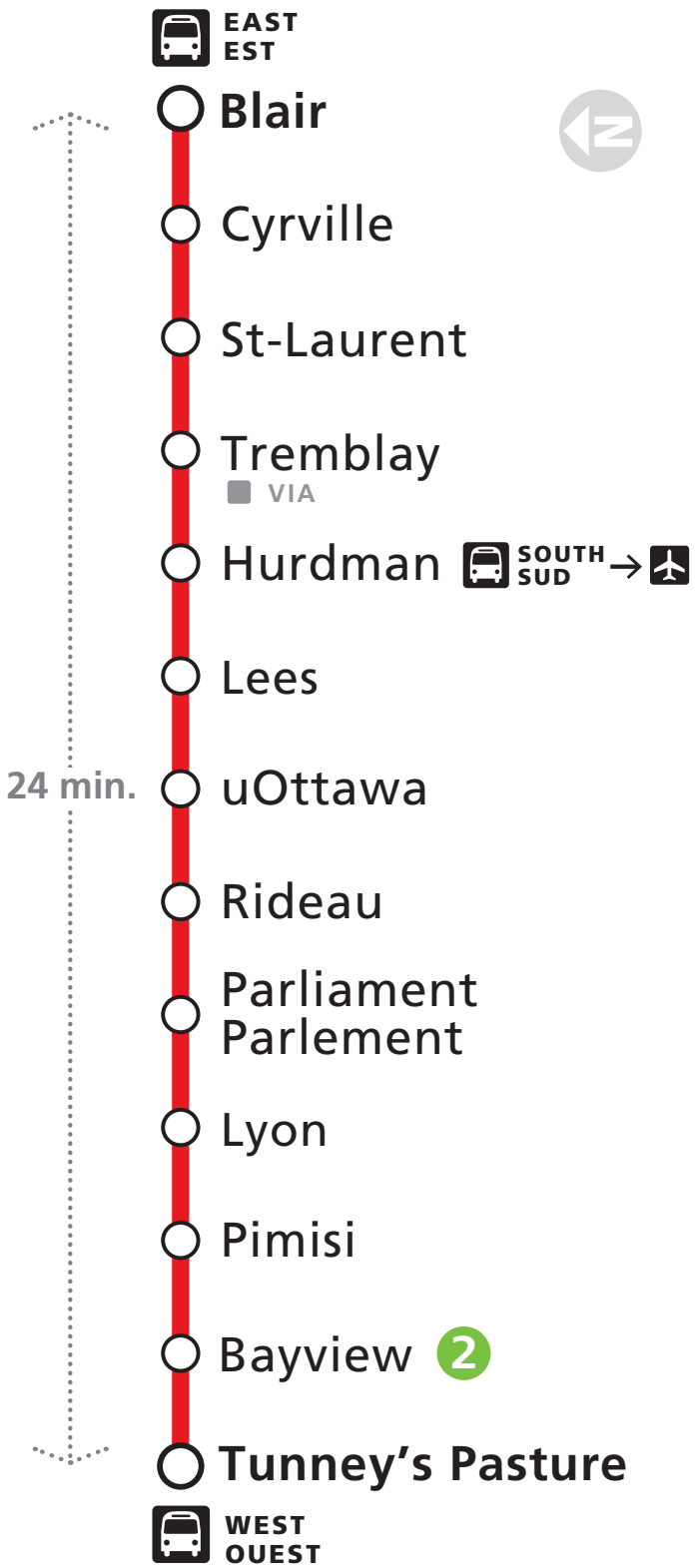
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City Plan # _____

Appendix B:

Transit Route Maps


EAST
EST
Blair
Cyrville
St-Laurent
Tremblay
VIA
Hurdman
SOUTH
SUD
Lees
24 min.
uOttawa
Rideau
Parliament
Parlement
Lyon
Pimisi
Bayview
2
Tunney's Pasture
WEST
OUEST

11

WALLER

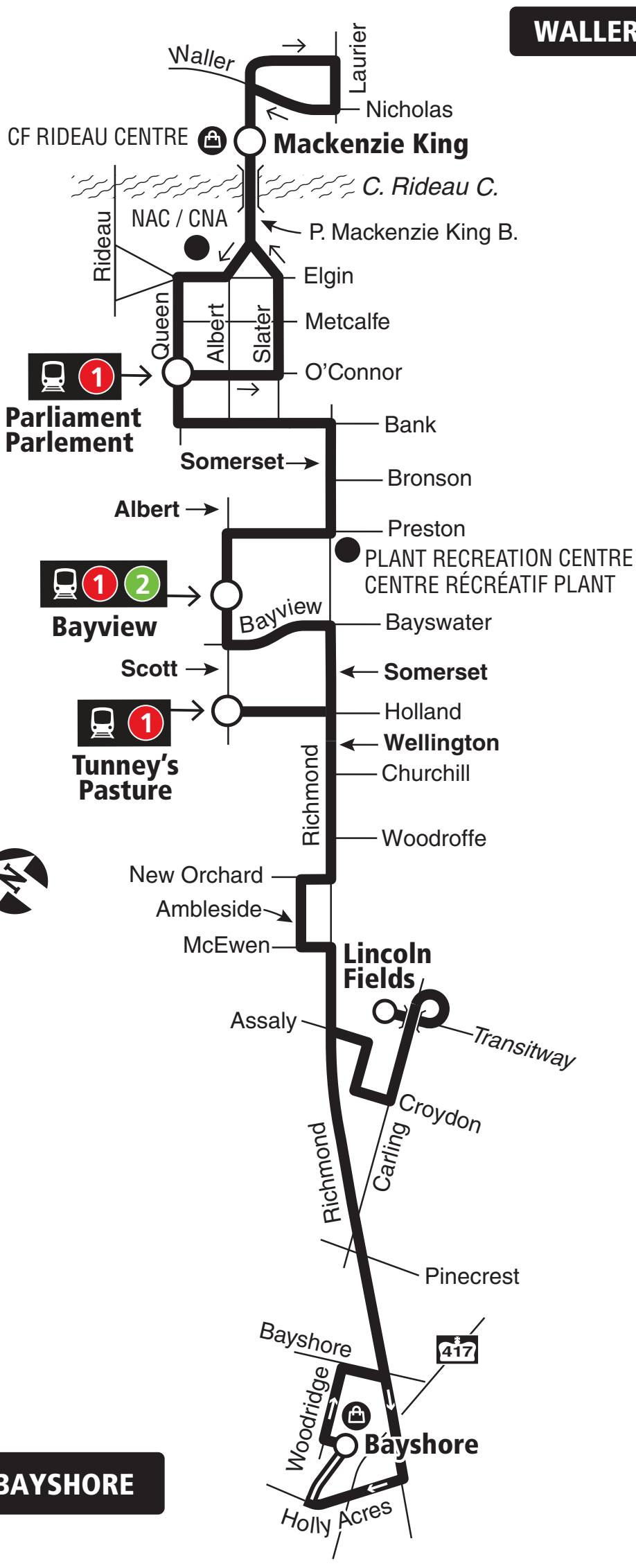
BAYSHORE

Fréquent

7 days a week / 7 jours par semaine

All day service

Service toute la journée



04.2025

Transitway & Station

Shopping Centre / Centre commercial

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

57

Fréquent

CARLING CAMPUS
COMPLEXE CARLING
BAYSHORE

TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

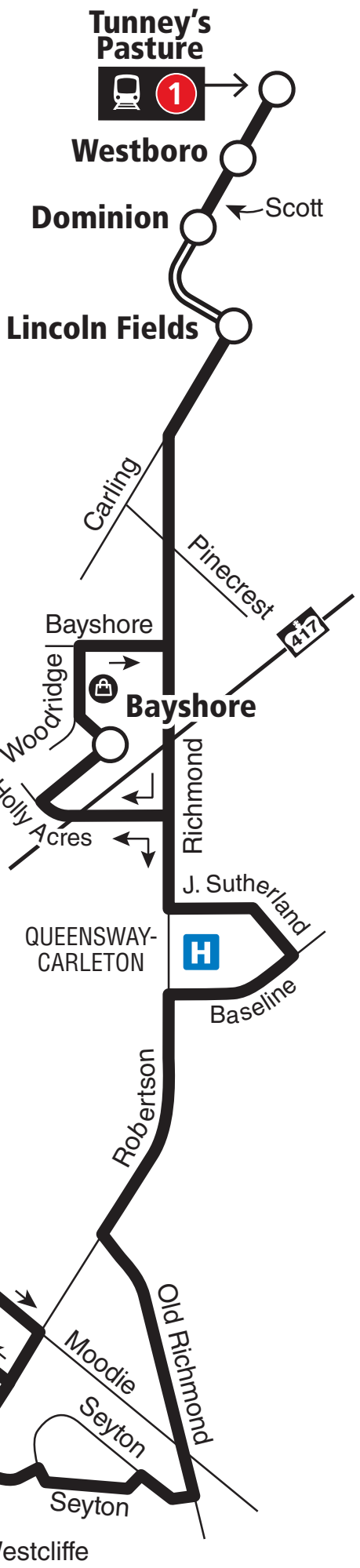
All day and limited overnight service
Service toute la journée et limité la nuit



TUNNEY'S PASTURE

BAYSHORE

CARLING CAMPUS
COMPLEXE CARLING



Transitway & Station

Shopping Centre / Centre commercial

04.2025



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.

2025.04

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

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

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

Security / Sécurité **613-741-2478**

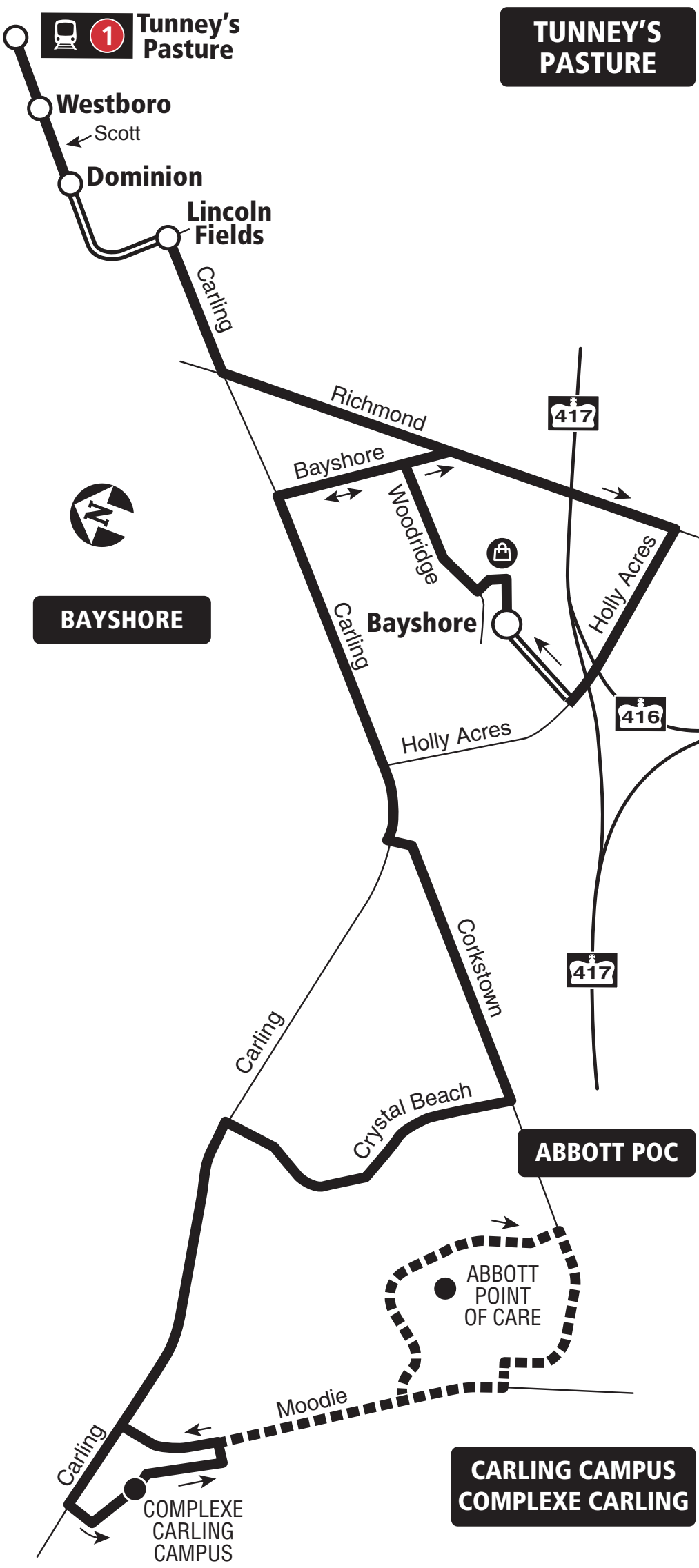
OC Transpo **octranspo.com**

58

Local

TUNNEY'S PASTURE
BAYSHORE
CARLING CAMPUS
COMPLEXE CARLING
ABBOTT POC

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



Transitway & Station

Limited weekday trips / Service limité en semaine

Shopping Centre / Centre commercial

08.2025

2025.08

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

Lost & Found.....**octranspo.com/lostandfound**
Objets perdus.....**octranspo.com/objetsperdus**

OC Transpo
octranspo.com

Effective August 24, 2025
En vigueur le 24 août 2025

60

COPE

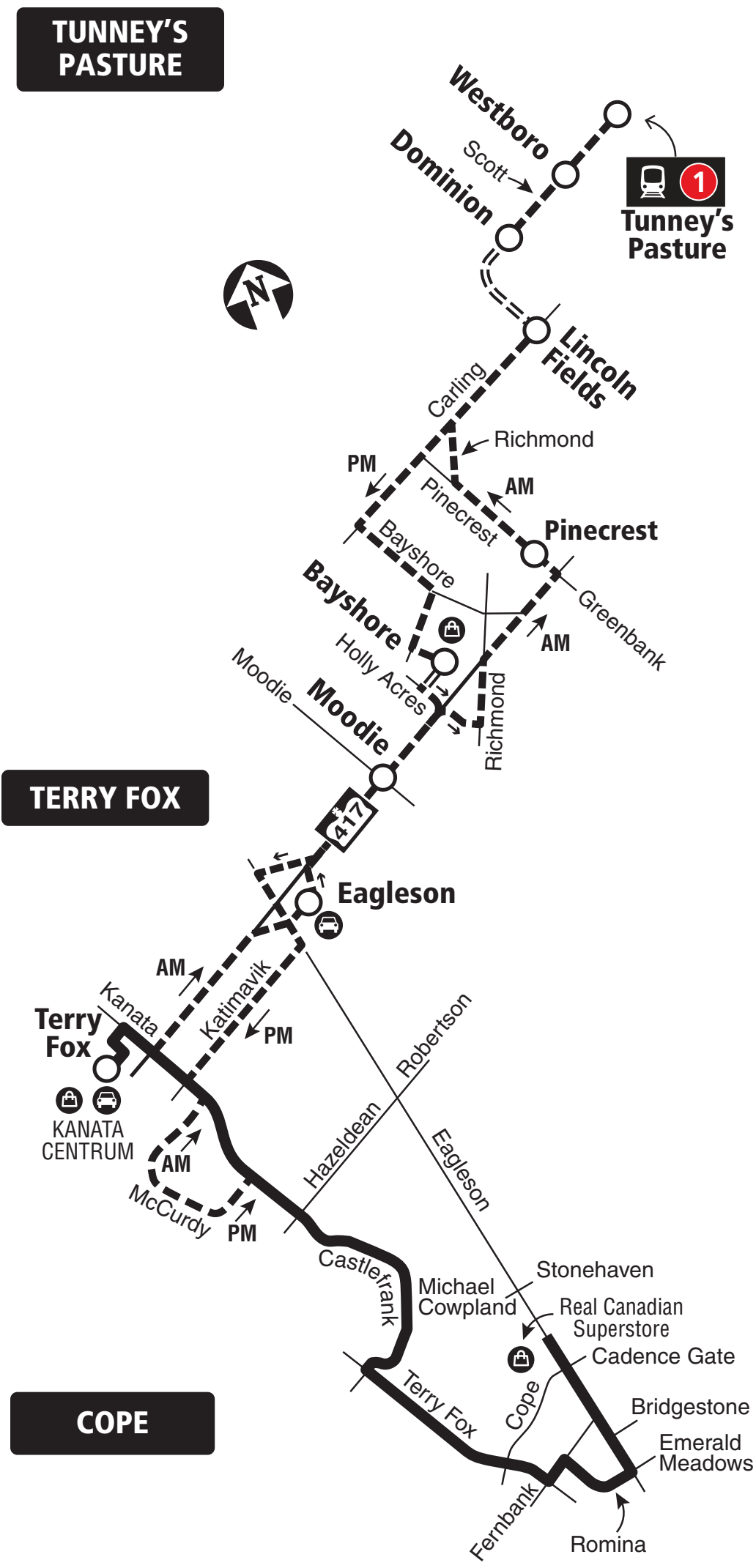
TERRY FOX
TUNNEY'S PASTURE

Local

Monday to Friday / Lundi au vendredi

All day service

Service toute la journée



04/2025

- Station
- Transitway
- Peak Periods Only / Périodes de pointe seulement
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

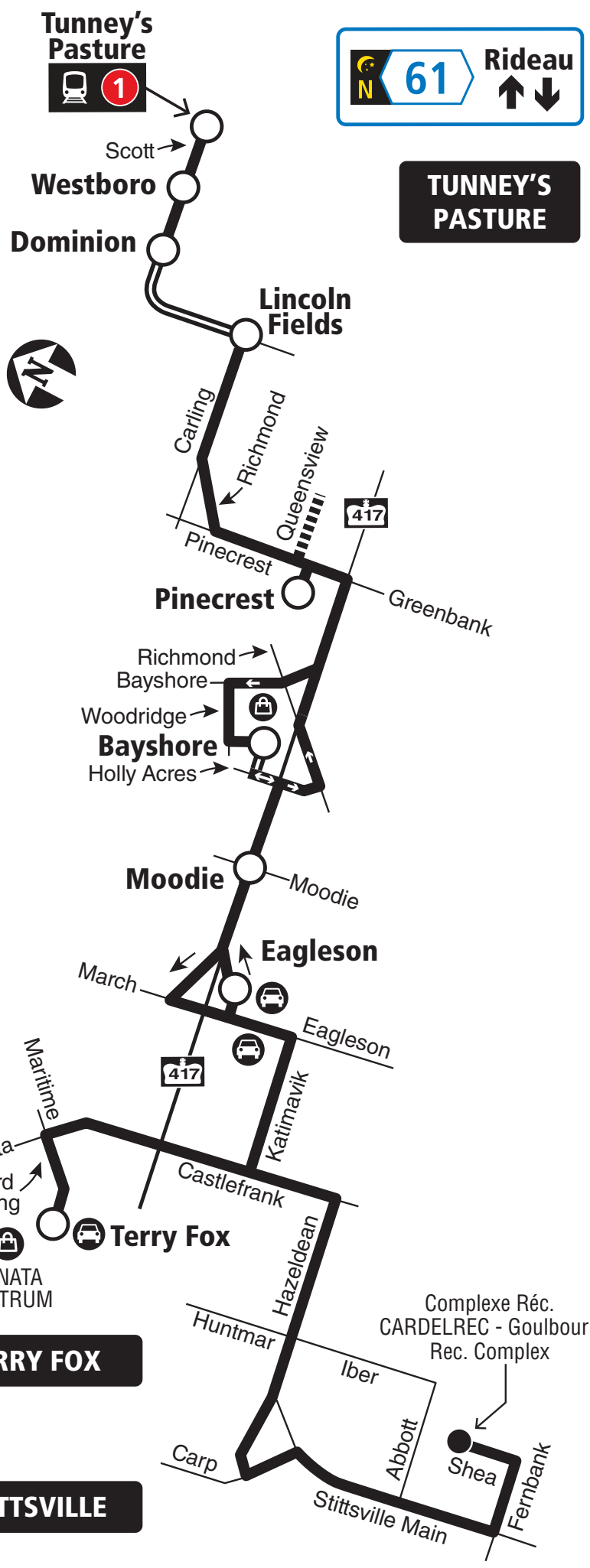
61

Fréquent

STITTSVILLE TERRY FOX
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



05/2025

- Transitway & Station
- Selected time periods / Périodes sélectionnées
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

N 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.

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

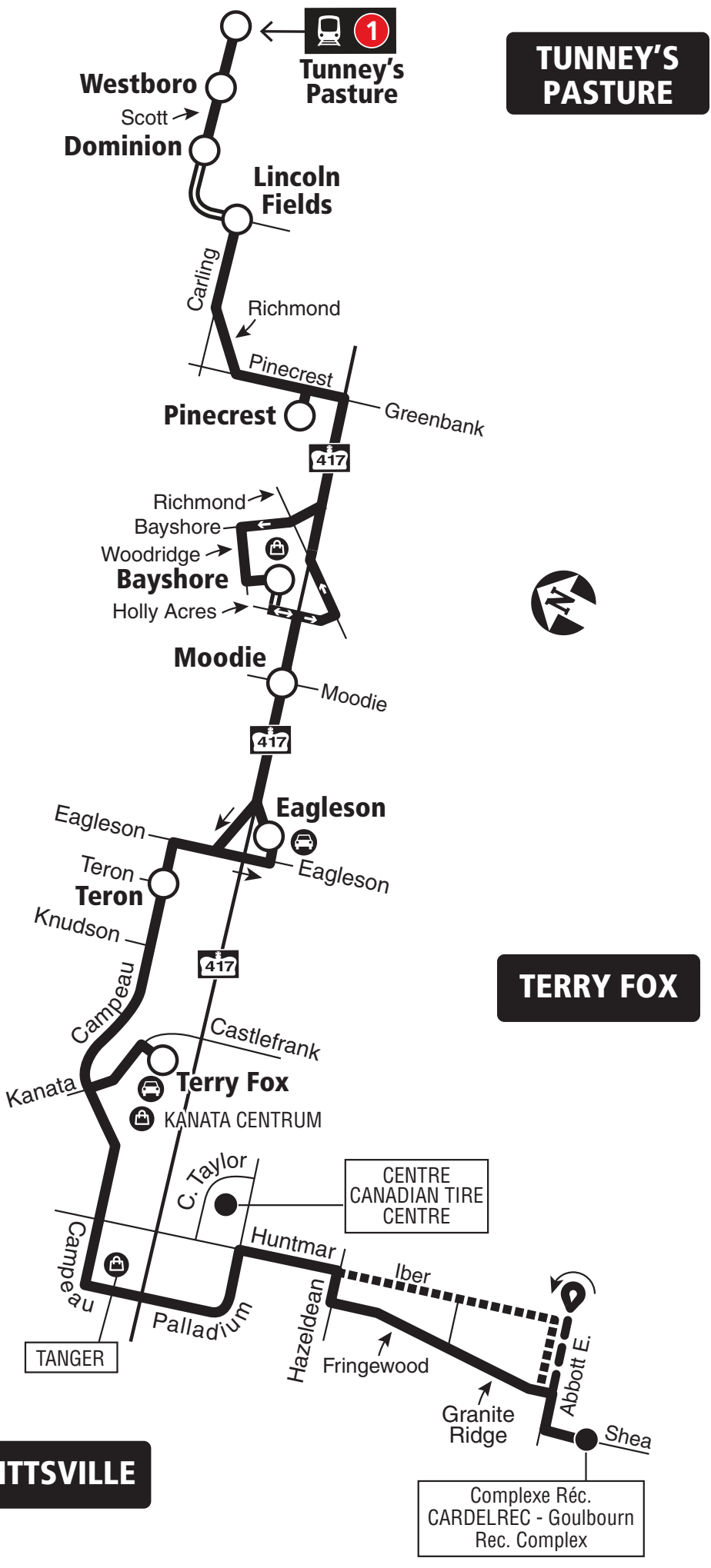
62

STITTSVILLE
TUNNEY'S PASTURE

Fréquent

7 days a week / 7 jours par semaine

All day service
Service toute la journée



04/2025

- 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.
- Saturday and Sunday / Samedi et dimanche
- Shopping Centre / Centre commercial
- Park & Ride / Parc relais

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

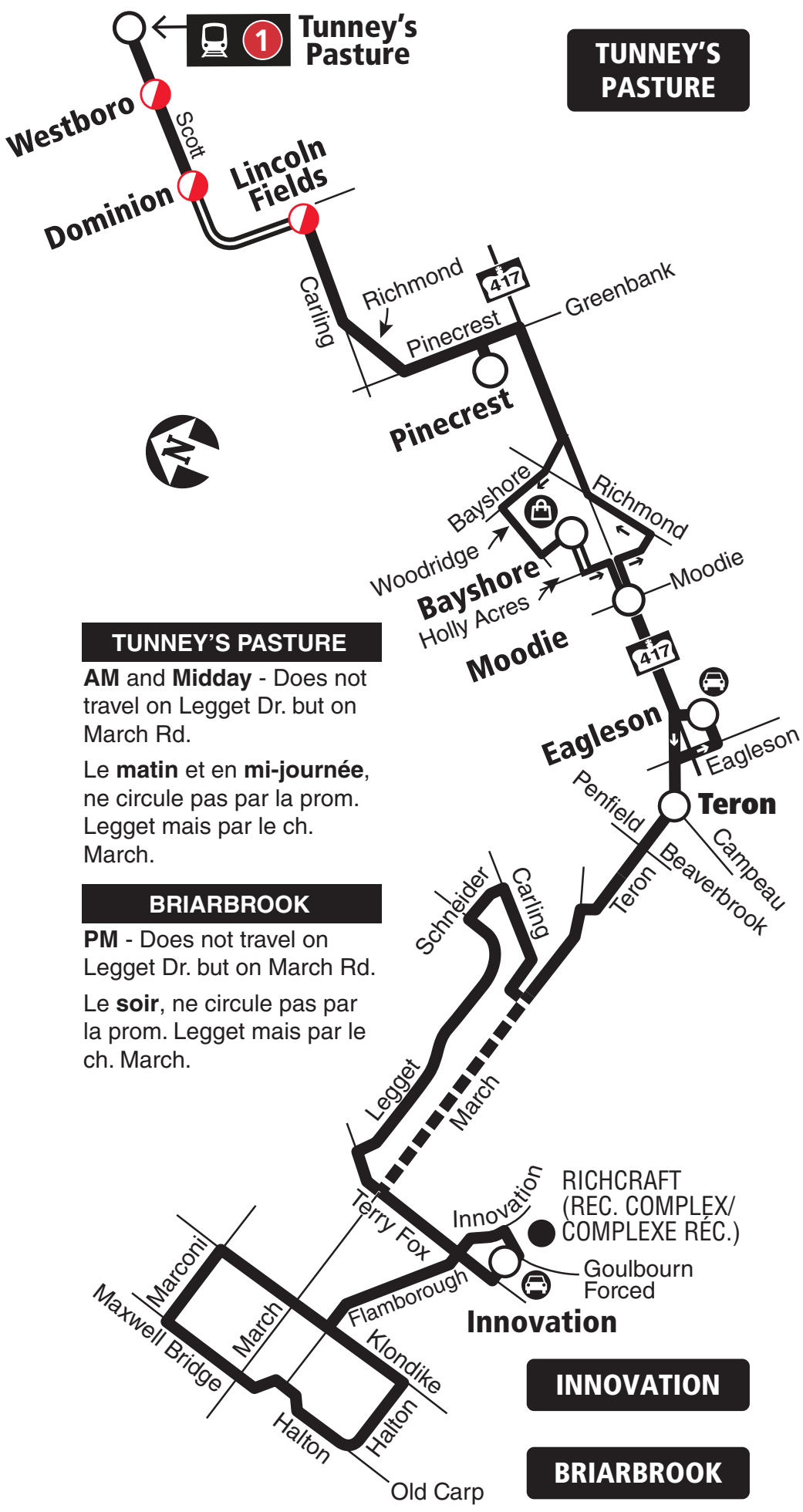
63

Fréquent

BRIARBROOK INNOVATION
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



TUNNEY'S PASTURE

AM and **Midday** - Does not travel on Legget Dr. but on March Rd.

Le **matin** et en **mi-journée**, ne circule pas par la prom. Legget mais par le ch. March.

BRIARBROOK

PM - Does not travel on Legget Dr. but on March Rd.

Le **soir**, ne circule pas par la prom. Legget mais par le ch. March.

2024

- Transitway & Station
- Eastbound: AM Off only - Westbound: Full Service
  Vers l'est AM: Débarquement seulement
  Vers l'ouest: Service complet
- Some trips / Certains trajets
- Shopping Centre / Centre commercial
- Park & Ride / Parc relais

2025.04

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

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

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

Security / Sécurité **613-741-2478**

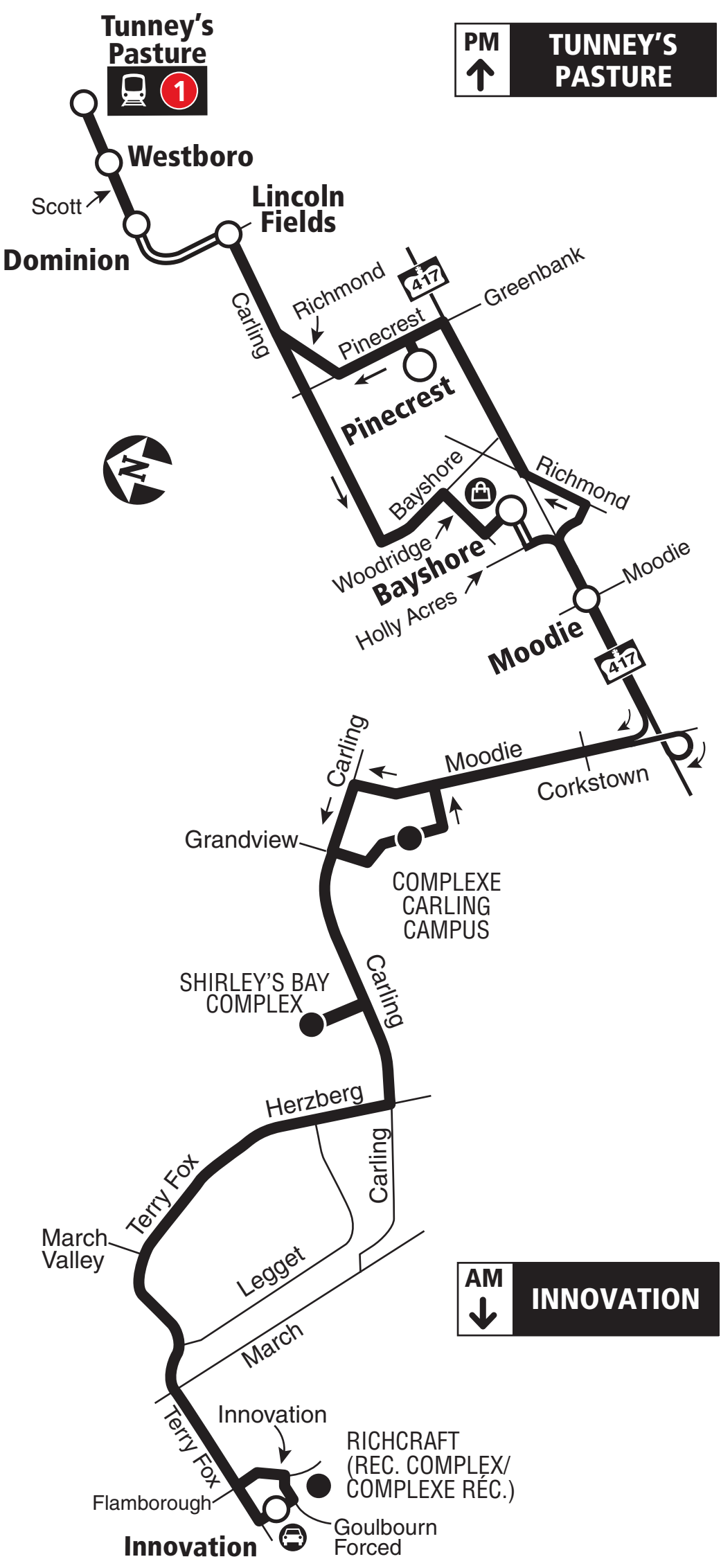
OC Transpo **octranspo.com**

66

INNOVATION
TUNNEY'S PASTURE

Local

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



Transitway & Station

Shopping Centre / Centre commercial

Park & Ride / Parc relais

04/2025

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

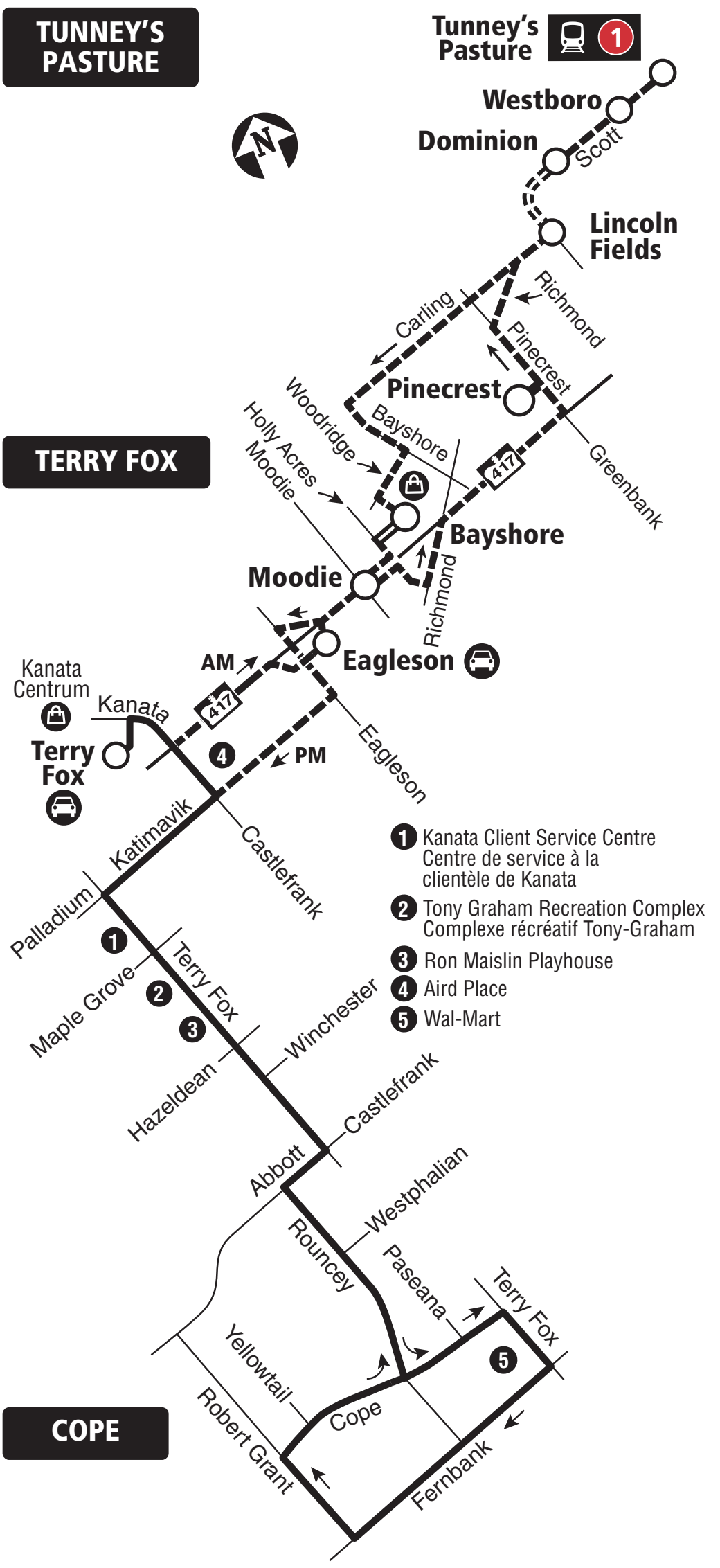
67

Local

COPE

TERRY FOX
TUNNEY'S PASTURE

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



2025.04

Transitway & Station

Peak Periods Only / Périodes de pointe seulement

Park & Ride / Parc relais

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

73

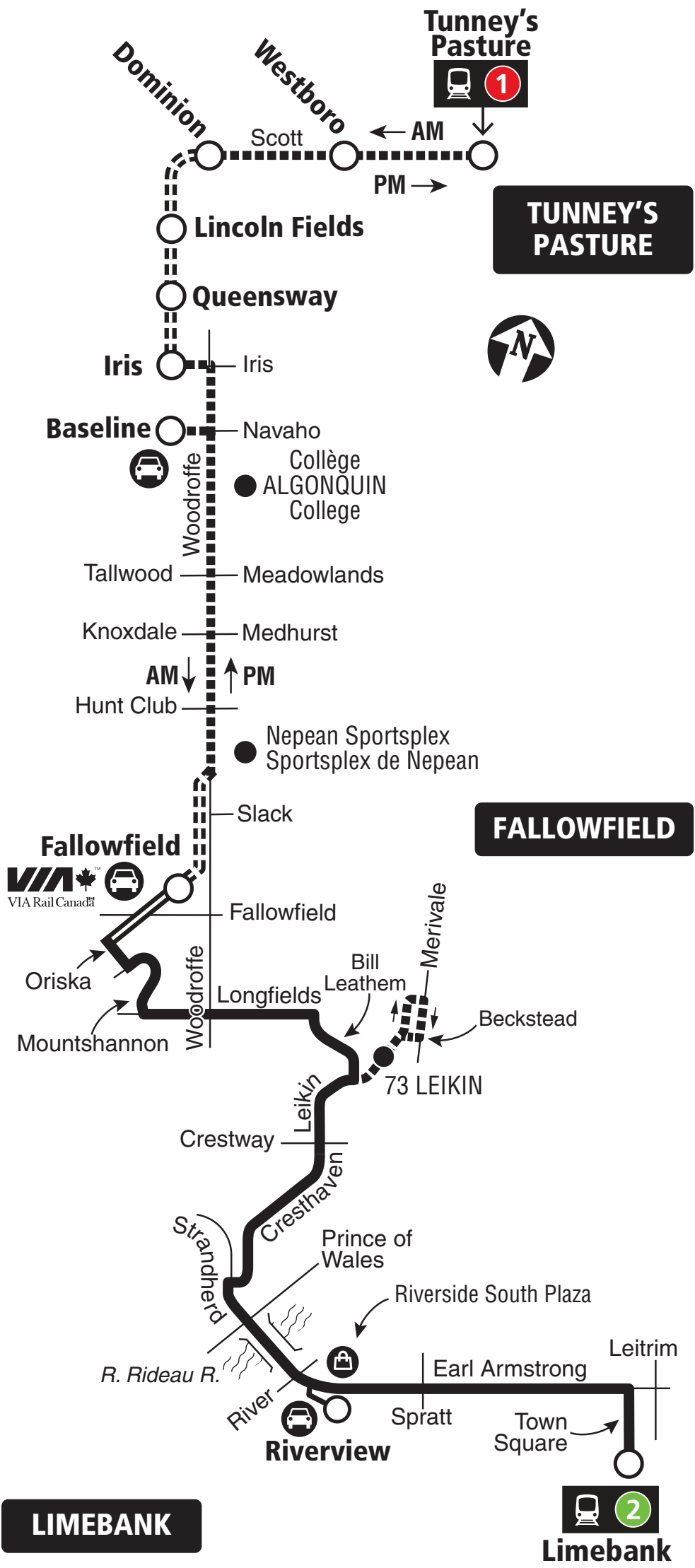
TUNNEY'S PASTURE
FALLOWFIELD
LIMEBANK

Local

Monday to Friday / Lundi au vendredi

All day service

Service toute la journée



05.2025

- Transitway & Station
- Peak Periods / Périodes de pointe
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.05

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

74

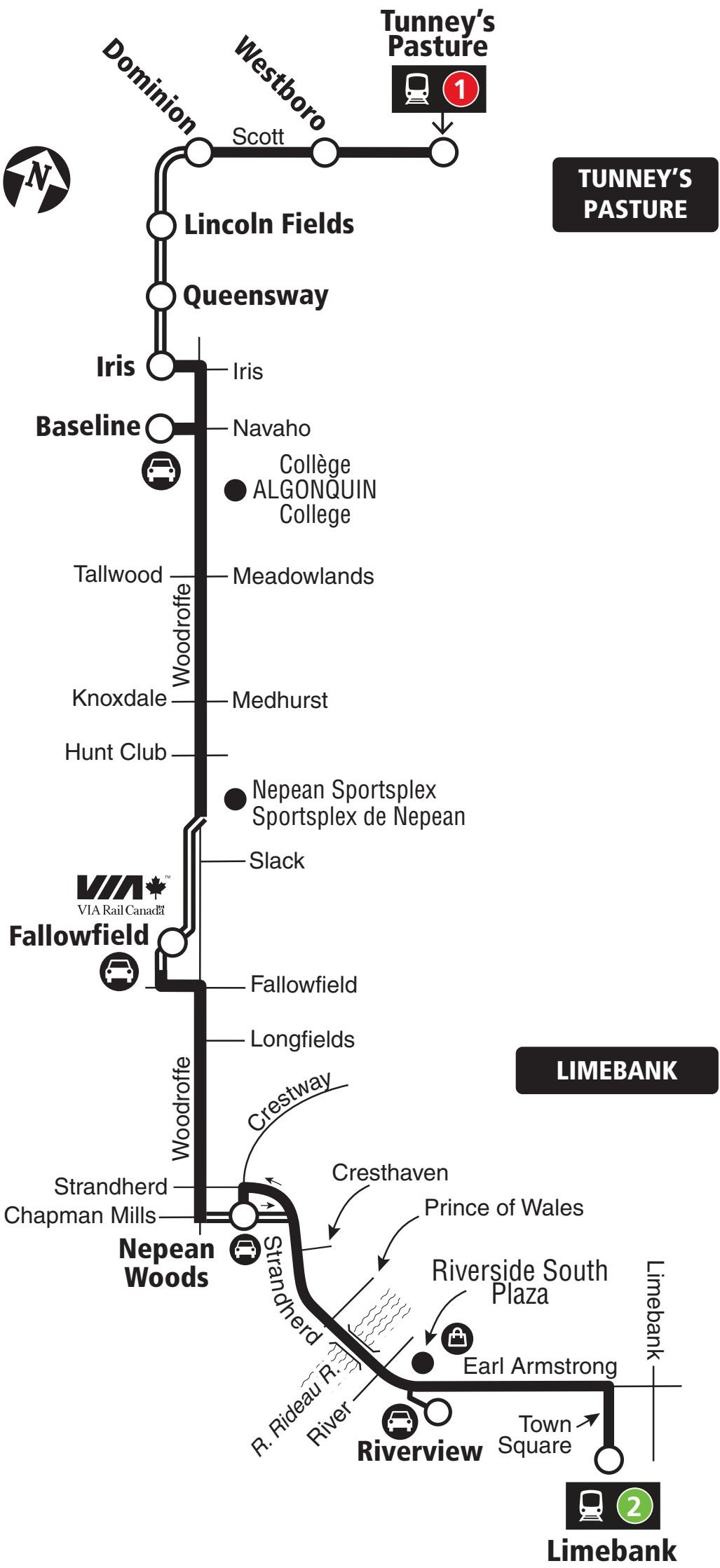
Fréquent

TUNNEY'S PASTURE
LIMEBANK

7 days a week / 7 jours par semaine

All day service

Service toute la journée



05.2025

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

2025.05

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

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

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

Security / Sécurité **613-741-2478**

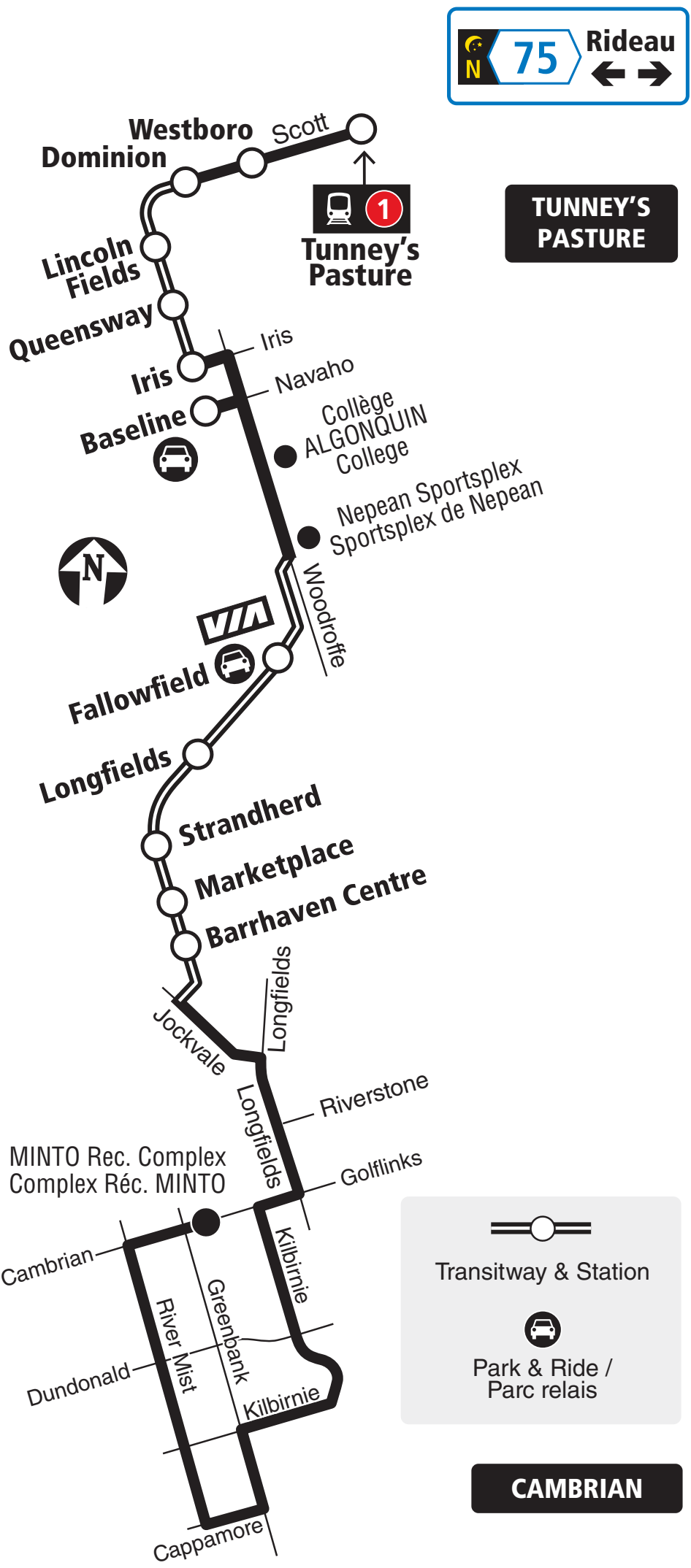
OC Transpo **octranspo.com**

75 Fréquent

CAMBRIAN
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

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



04.2025

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.

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

81

TUNNEY'S PASTURE
BAYSHORE

Local

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

2025.04

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

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

Security / Sécurité **613-741-2478**

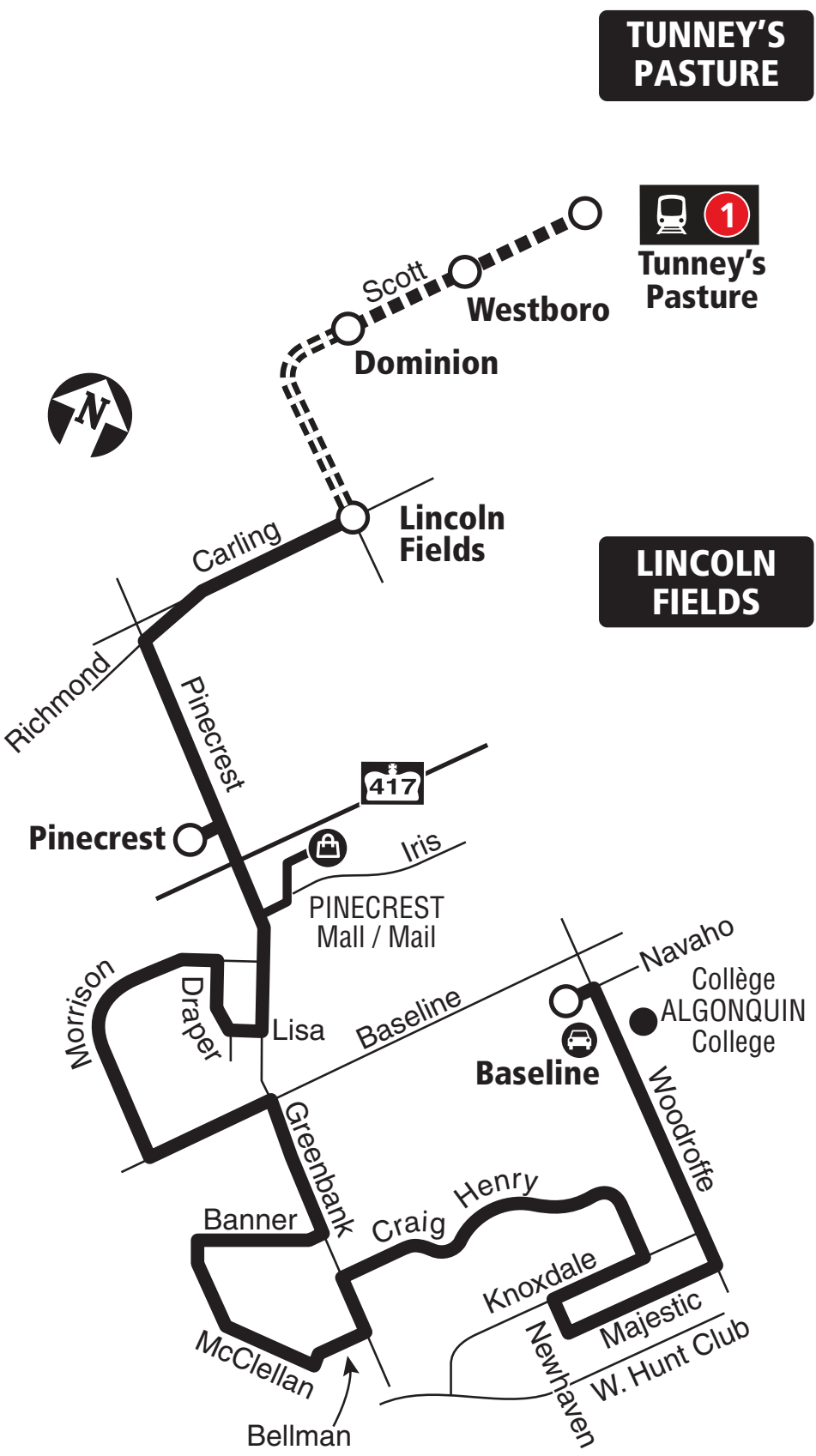
OC Transpo **octranspo.com**

82

TUNNEY'S PASTURE
LINCOLN FIELDS
BASELINE

Local

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



04/2025

==○==	Transitway & Station (Peak periods / périodes de pointe)
■■■■■■	Peak periods / périodes de pointe
	Park & Ride / Parc relais
	Shopping Centre / Centre commercial

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

87

Fréquent

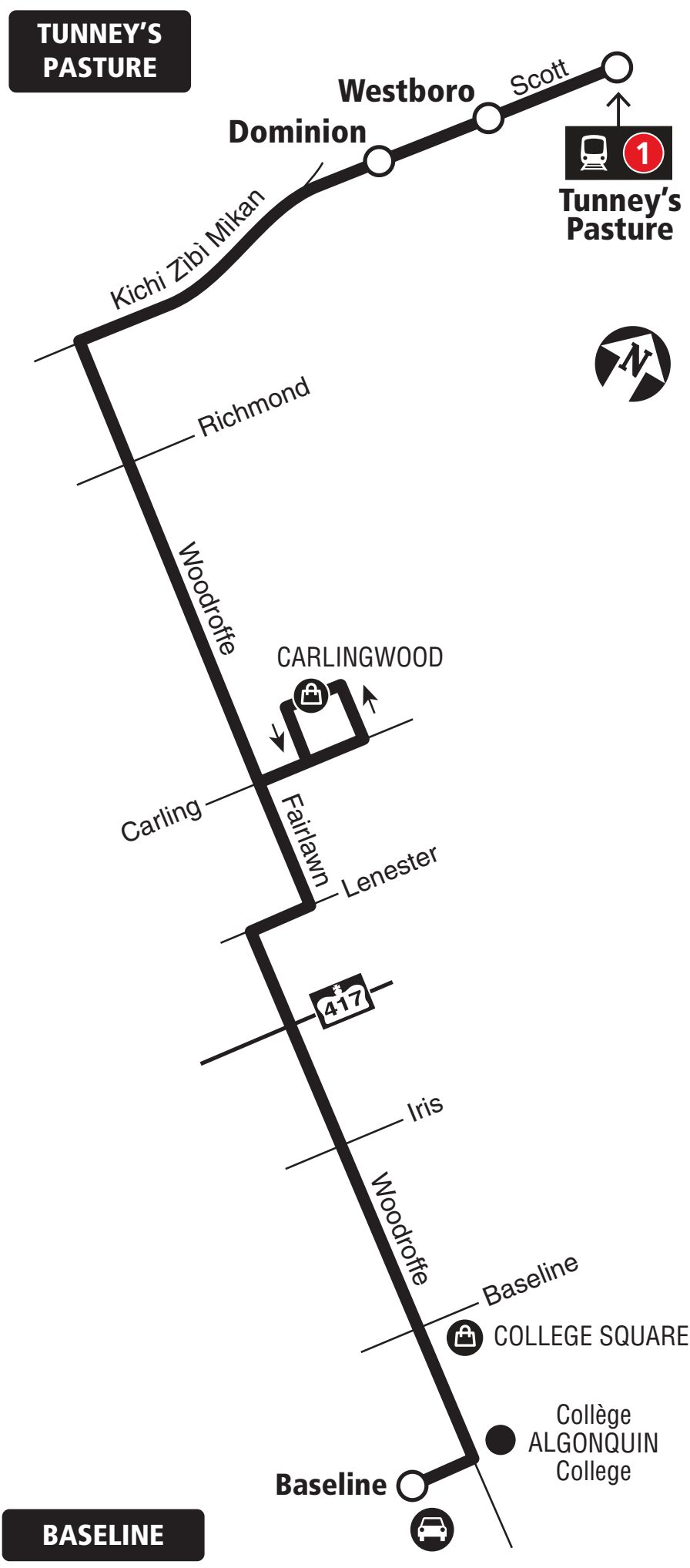
TUNNEY'S PASTURE

BASELINE

7 days a week / 7 jours par semaine

All day service

Service toute la journée



04.2025

Transitway & Station

Park & Ride / Parc relais

Shopping Centre / Centre commercial

2025.04

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

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

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

Security / Sécurité **613-741-2478**

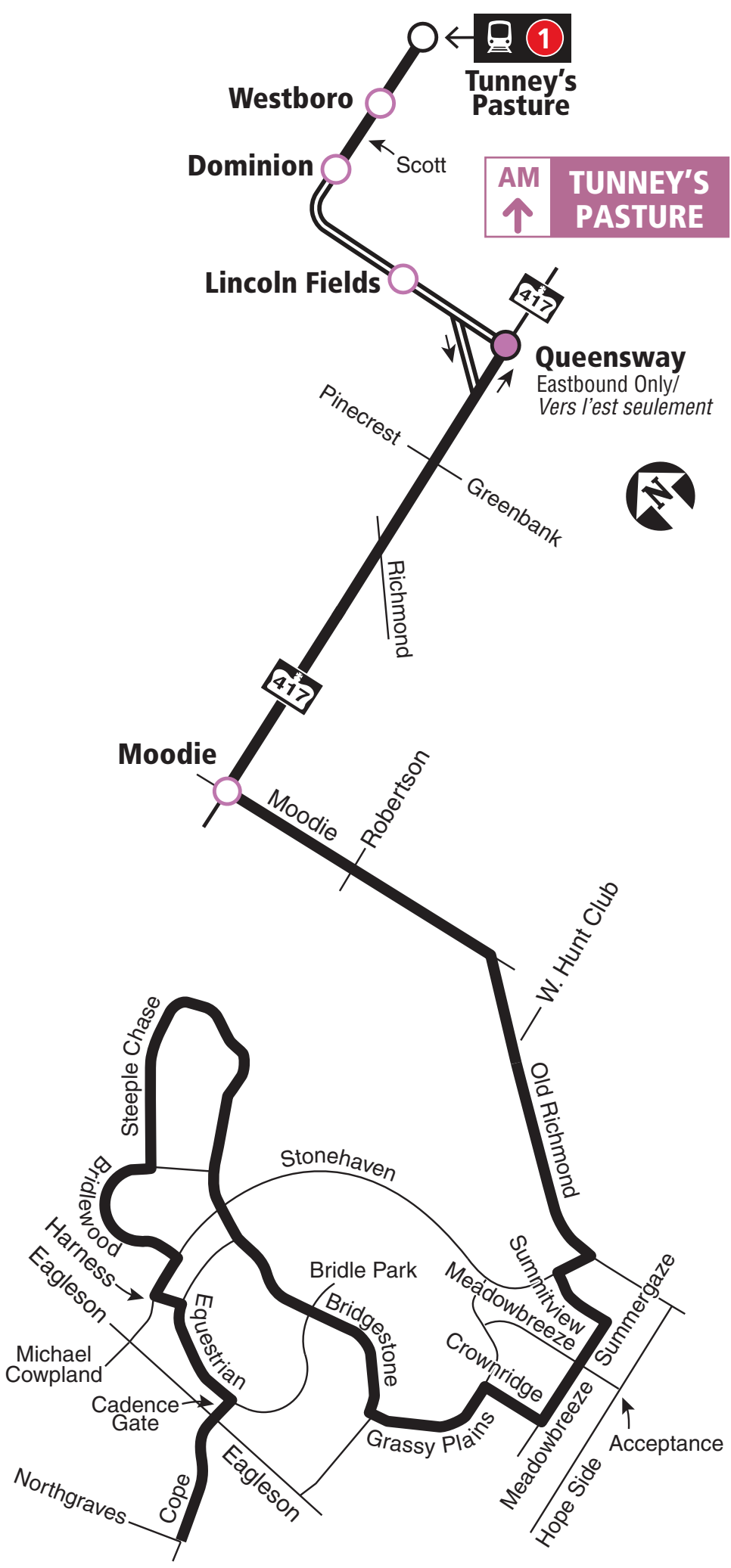
OC Transpo **octranspo.com**

256 Connexion

TUNNEY'S PASTURE
BRIDLEWOOD

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



08.2025

Transitway & Station

Limited stops: Full service in AM / No stop in PM
Arrêts limités : Service complet en AM / aucun arrêt en PM

AM: Off only - PM: Full Service
AM : débarquement seul. - PM : service complet

2025.08

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

Lost & Found.....**octranspo.com/lostandfound**
Objets perdus.....**octranspo.com/objetsperdus**

OC Transpo
octranspo.com

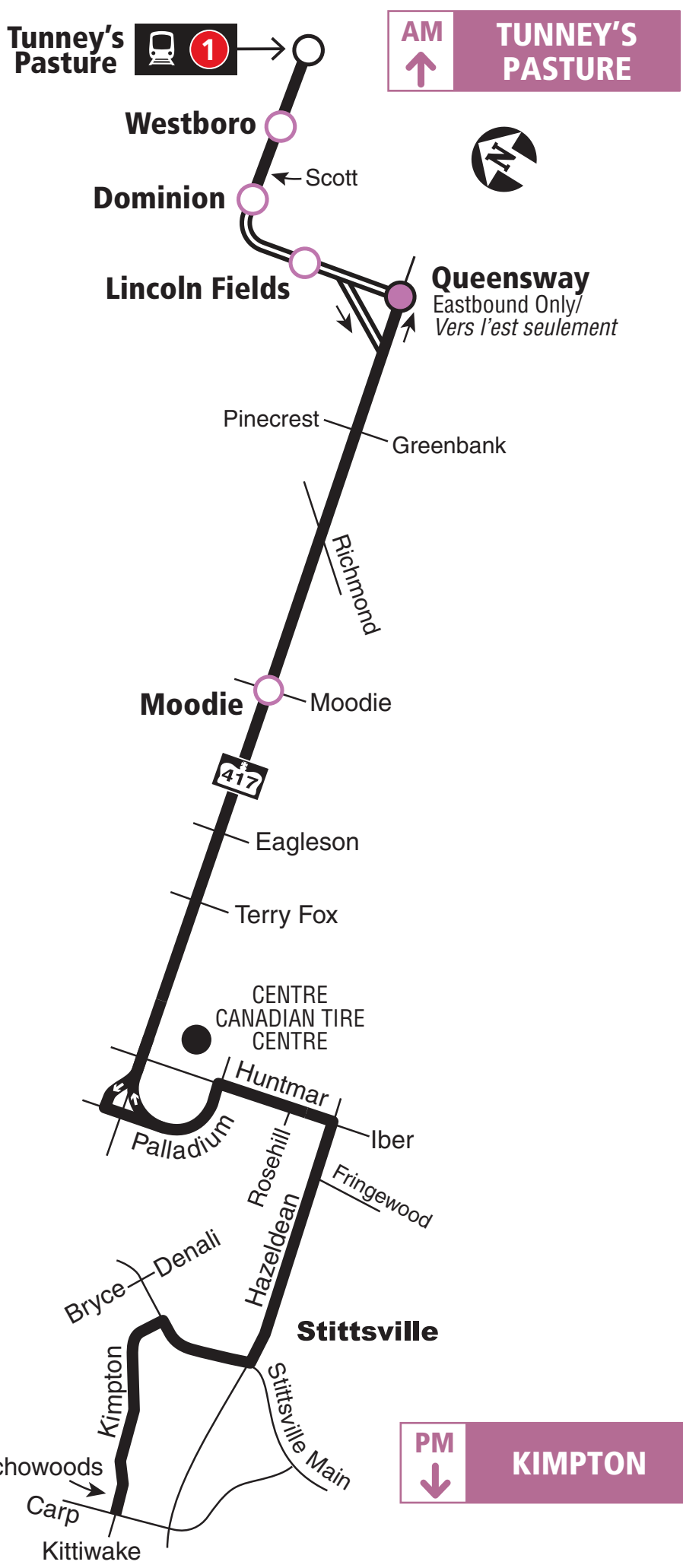
Effective August 24, 2025
En vigueur le 24 août 2025

261 Connexion

KIMPTON
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



04.2025

- Transitway & Station
- AM Peak Only / Pointe seulement
- Limited stops: Off only in AM / No stop in PM
  Arrêts limités : débarquement en AM seul. / aucun arrêt en PM
- AM: Off only - PM: Full Service
  AM : débarquement seul. - PM : service complet

2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

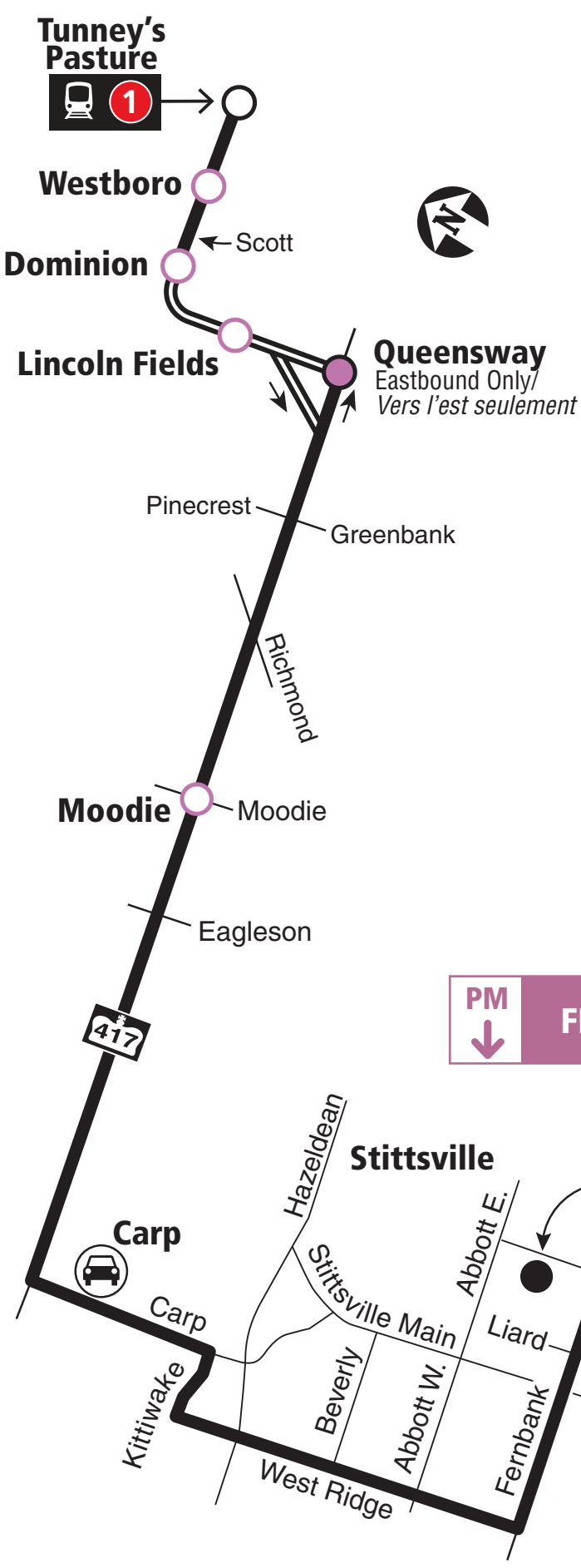
262 Connexion

FERNBANK
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement

AM ↑ TUNNEY'S PASTURE



04.2025

- Transitway & Station
- AM Peak Only / Pointe seulement
- Limited stops: Off only in AM / No stop in PM
  Arrêts limités : débarquement en AM seul. / aucun arrêt en PM
- AM: Off only - PM: Full Service
  AM : débarquement seul. - PM : service complet
- Park & Ride / Parc relais

2025.04

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

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

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

Security / Sécurité **613-741-2478**

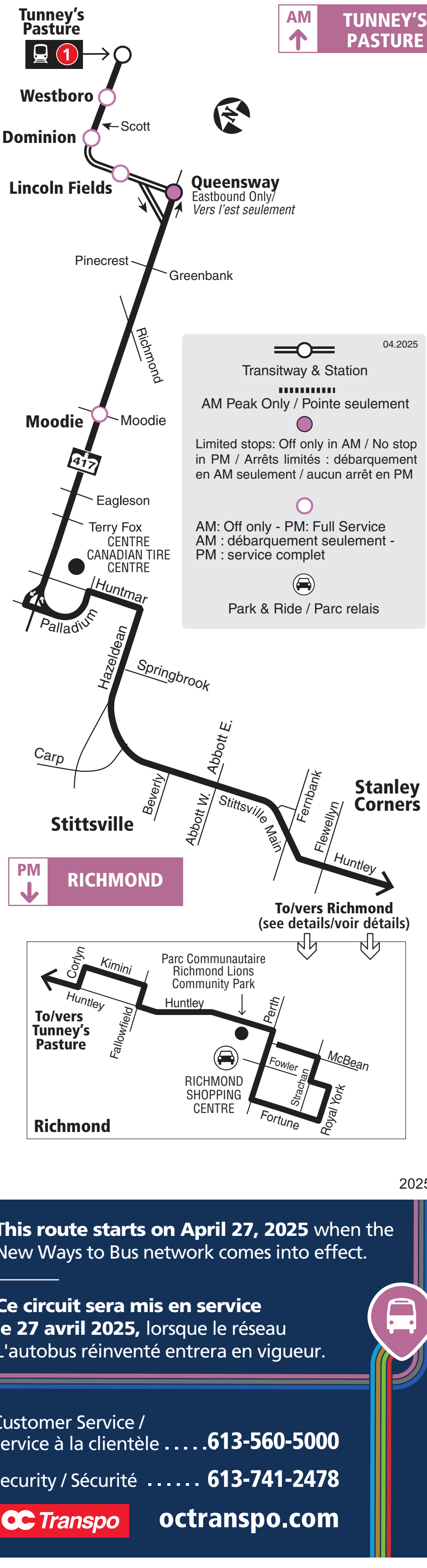
OC Transpo **octranspo.com**

263 Connexion

TUNNEY'S PASTURE
RICHMOND

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



2025.04

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

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

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

Security / Sécurité **613-741-2478**

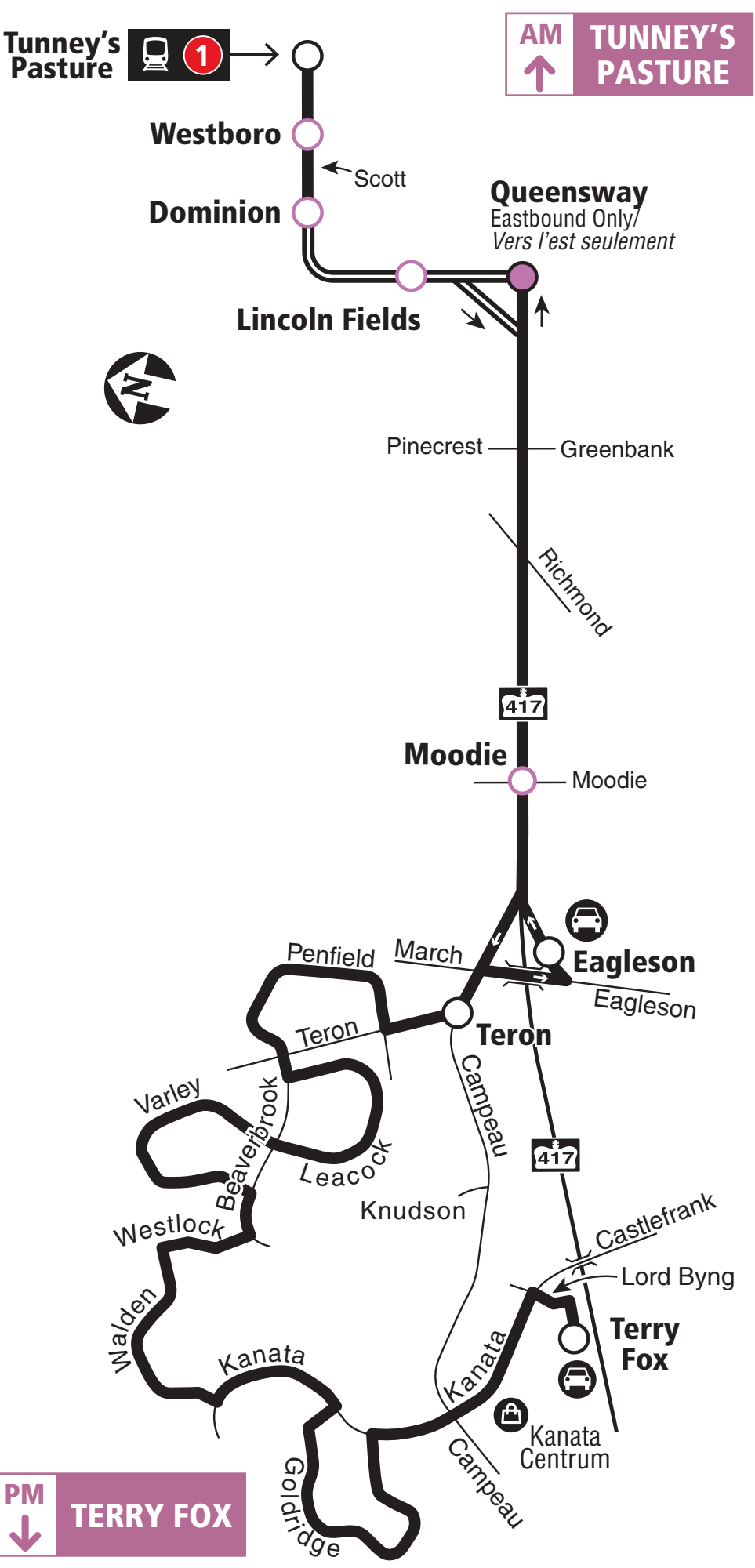
OC Transpo **octranspo.com**

265 Connexion

TUNNEY'S PASTURE
TERRY FOX

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



04.2025

- Transitway & Station
- AM Peak Only / Pointe seulement
- Limited stops: Off only in AM / No stop in PM
  Arrêts limités : débarquement en AM seul. / aucun arrêt en PM
- AM: Off only - PM: Full Service
  AM : débarquement seul. - PM : service complet
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.04

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

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

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

Security / Sécurité **613-741-2478**

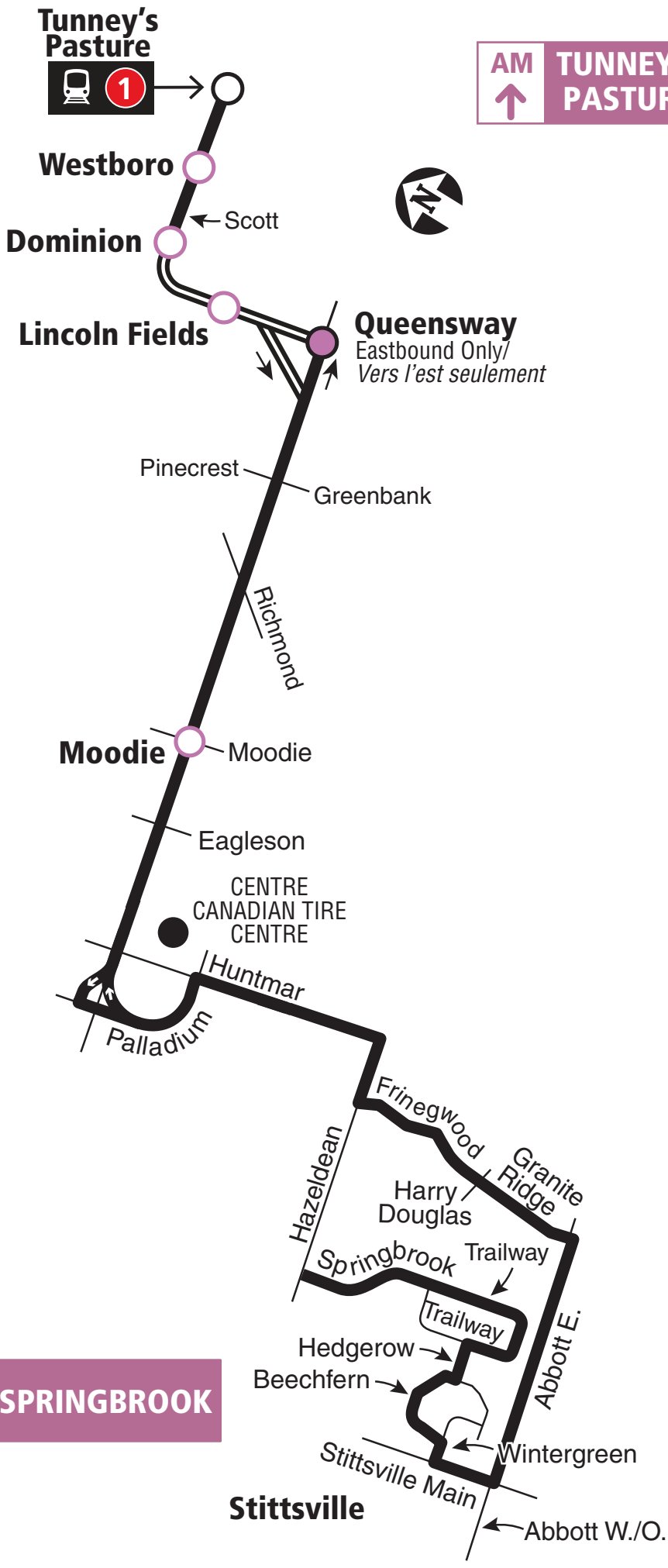
OC Transpo **octranspo.com**

266 Connexion

SPRINGBROOK
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



04.2025

- Transitway & Station
- AM Peak Only / Pointe seulement
- Limited stops: Off only in AM / No stop in PM
  Arrêts limités : débarquement en AM seul. / aucun arrêt en PM
- AM: Off only - PM: Full Service
  AM : débarquement seul. - PM : service complet
- Shopping Centre / Centre commercial

2024

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

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

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

Security / Sécurité **613-741-2478**

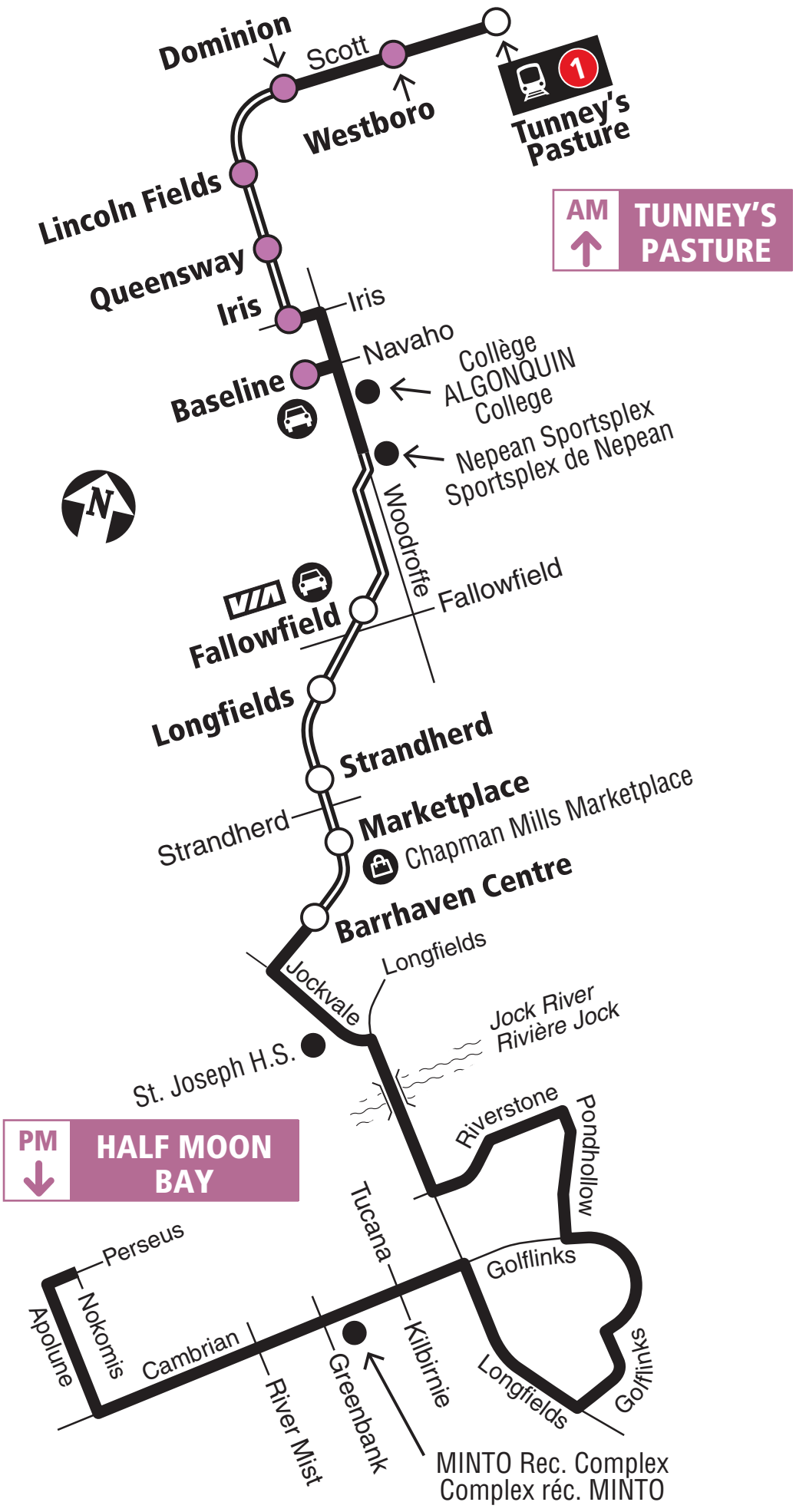
OC Transpo **octranspo.com**

275 Connexion

HALF MOON BAY
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



04.2025

- Transitway & Station
- **Limited stops:** Off only in AM / No stop in PM
  Arrêts limités : débarquement en AM seulement / aucun arrêt en PM
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.04

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

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

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

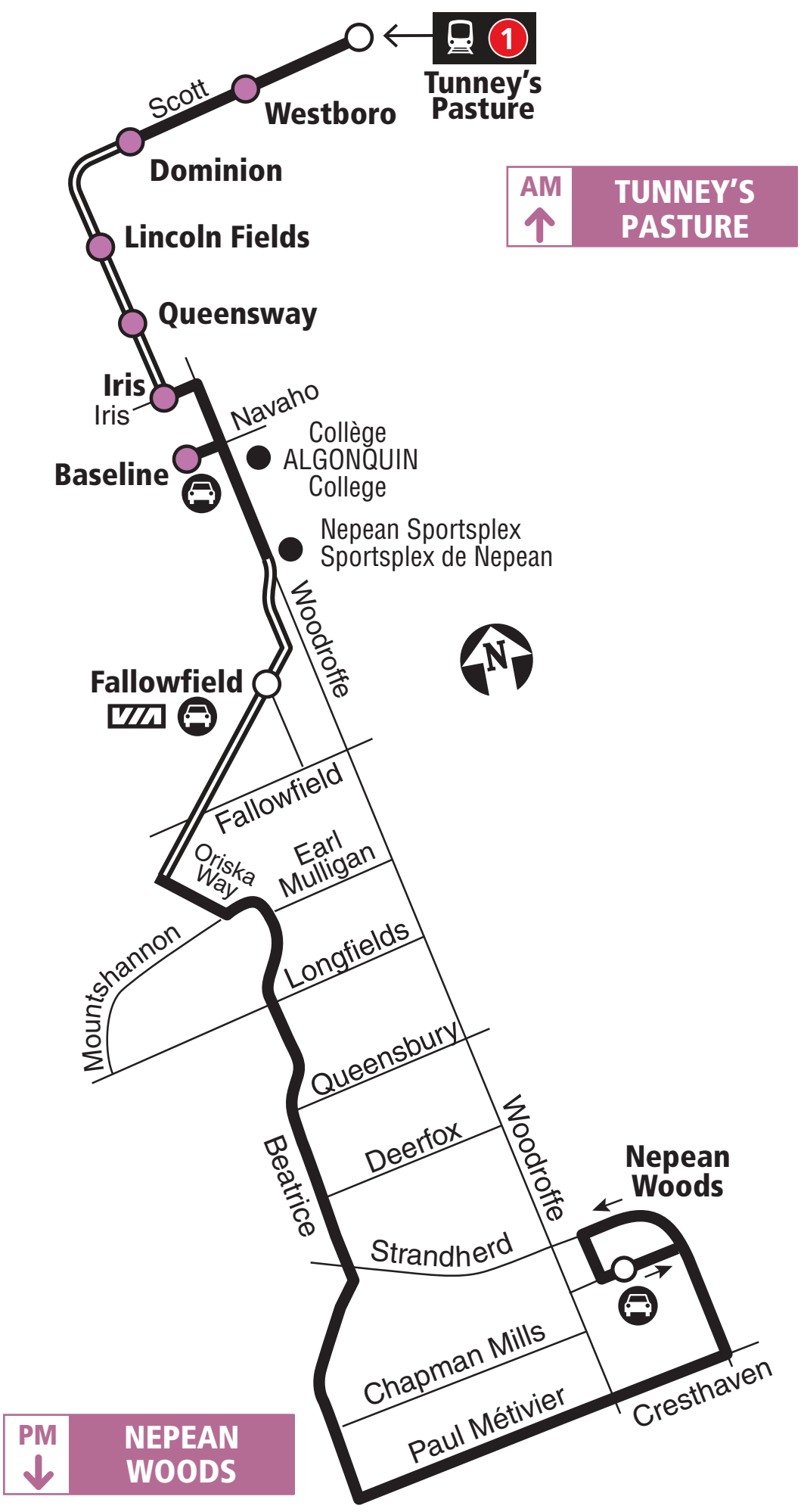
Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

277 Connexion

NEPEAN WOODS
TUNNEY'S PASTURE

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



04.2025

Transitway & Station

Limited stops: Off only in AM / No stop in PM
Arrêts limités: débarquement en AM seul. / aucun arrêt en PM

Park & Ride / Parc relais

2025.04

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

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

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

Security / Sécurité **613-741-2478**

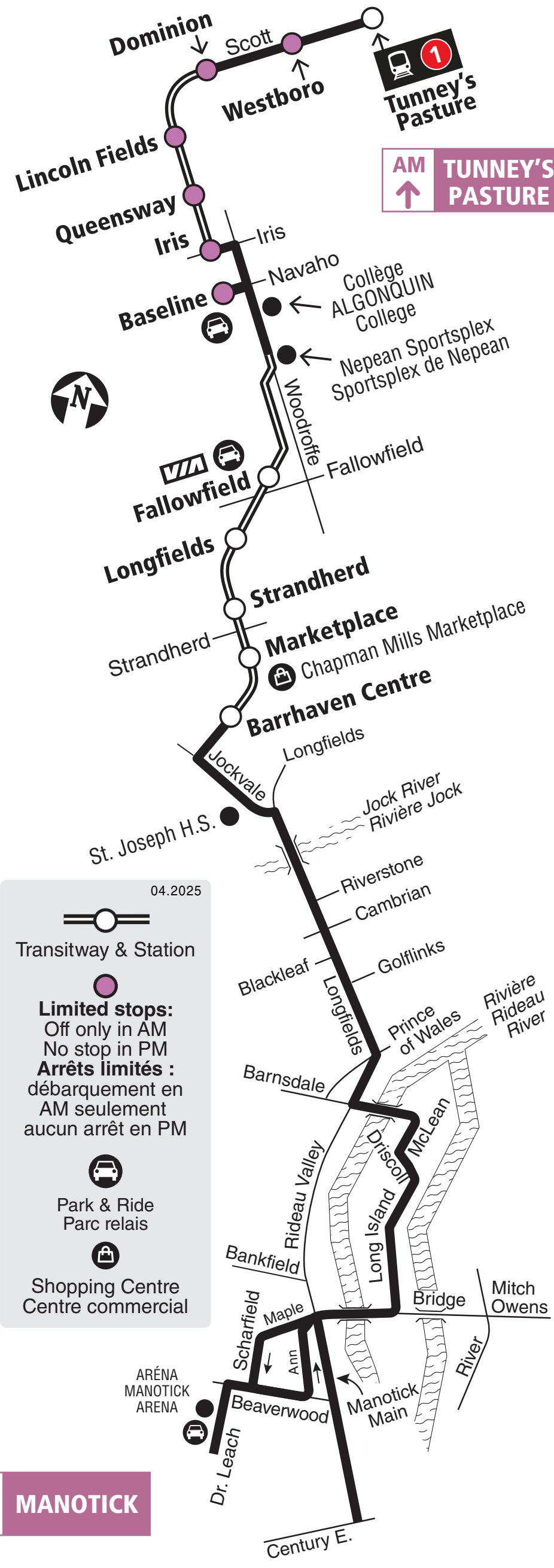
OC Transpo **octranspo.com**

279 Connexion

MANOTICK
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



2025.04

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

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

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

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

Appendix C:

Existing Peak Hour Volumes

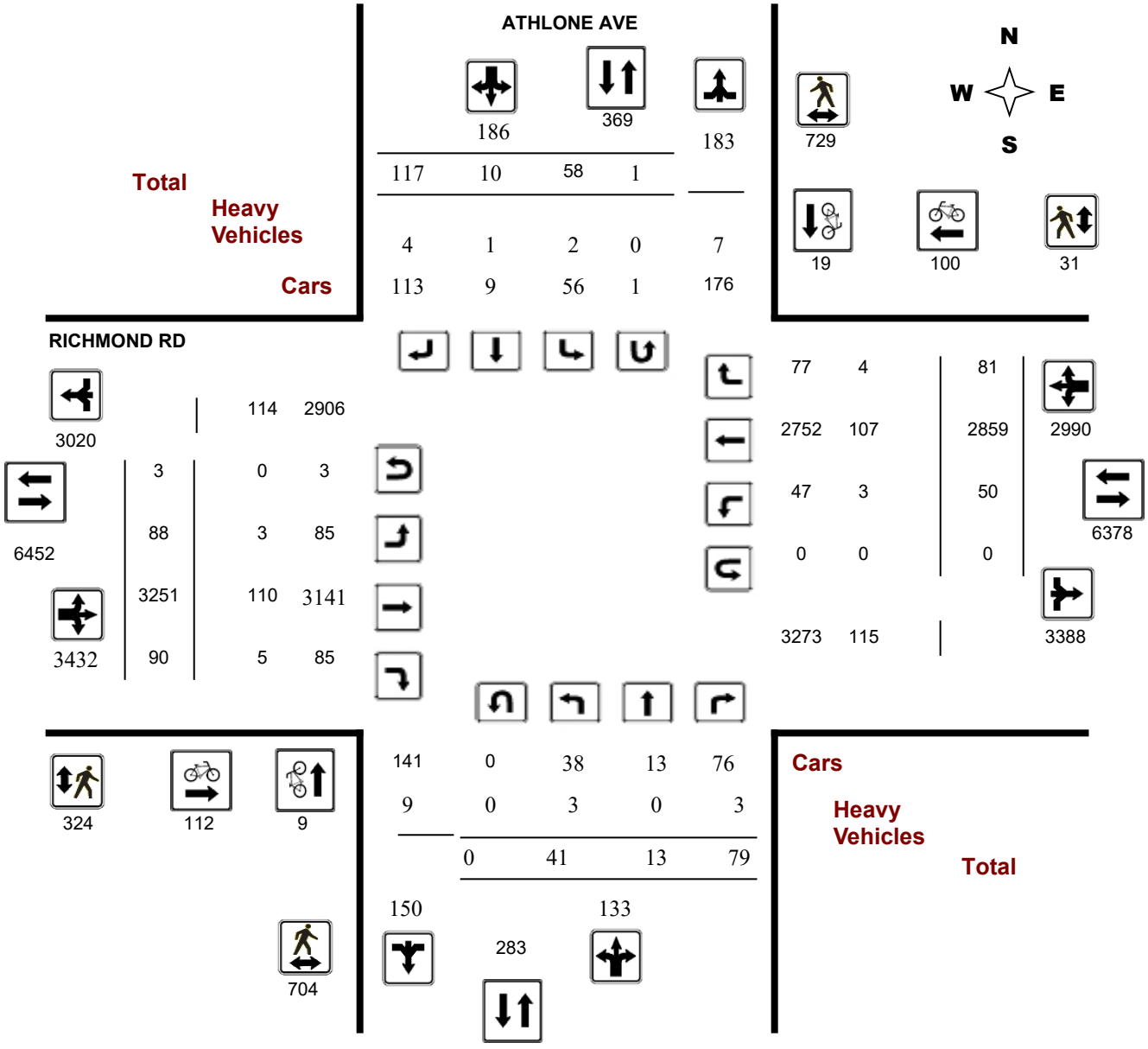
Transportation Services - Traffic Services

Turning Movement Count - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022
Start Time: 07:00
WO No: 40401
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

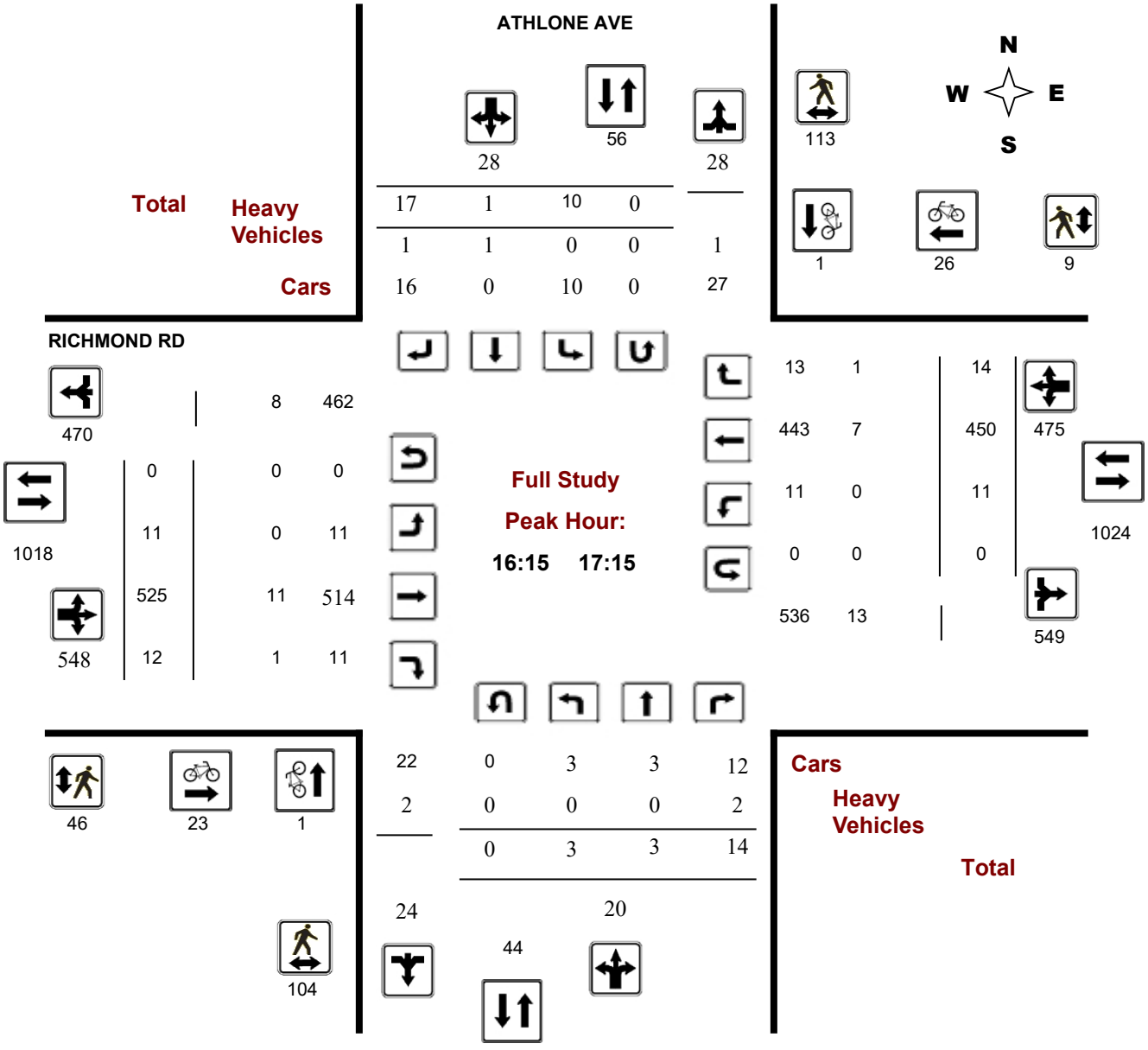
Turning Movement Count - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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

Full Study Peak Hour Diagram



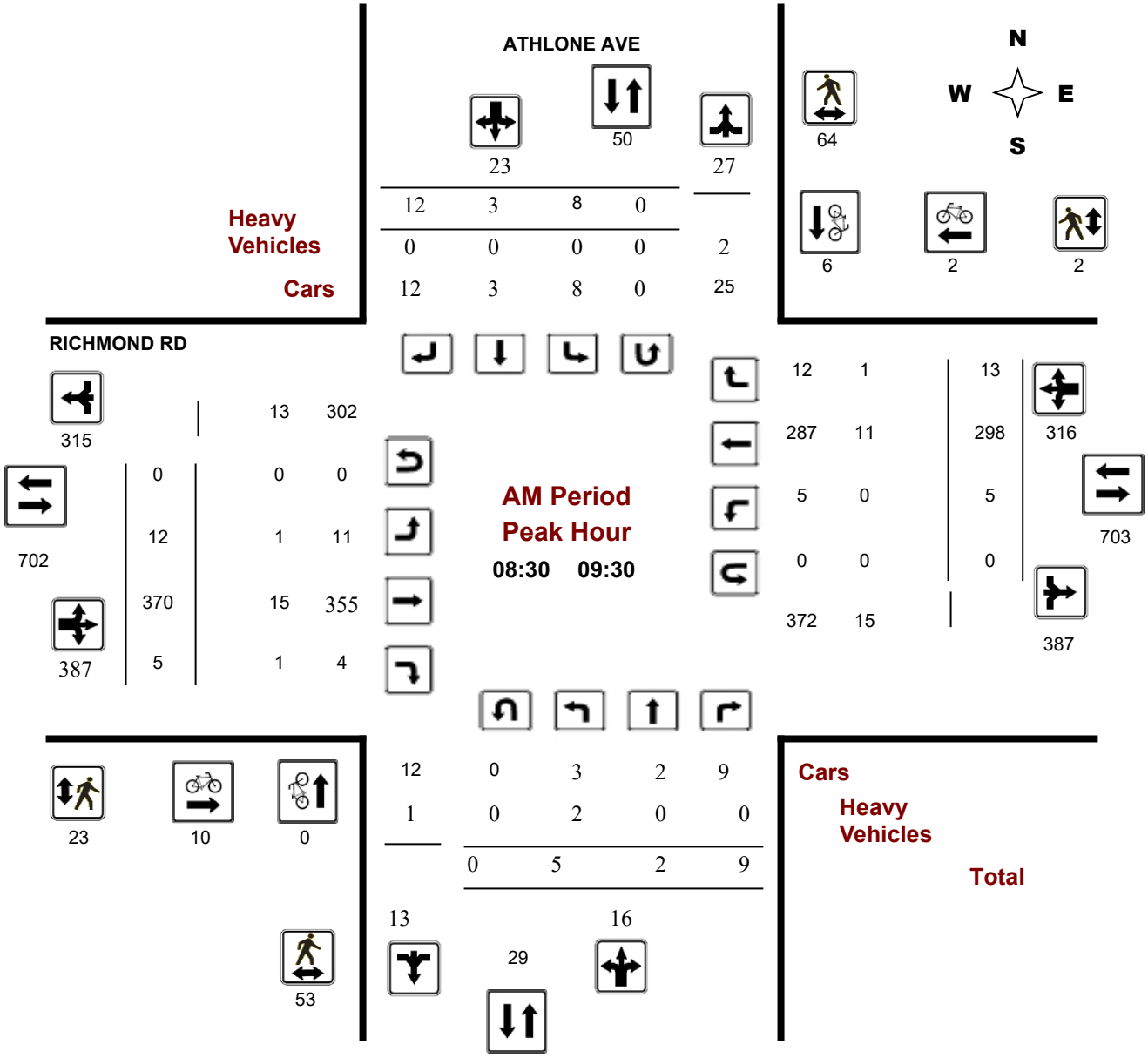
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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



Comments

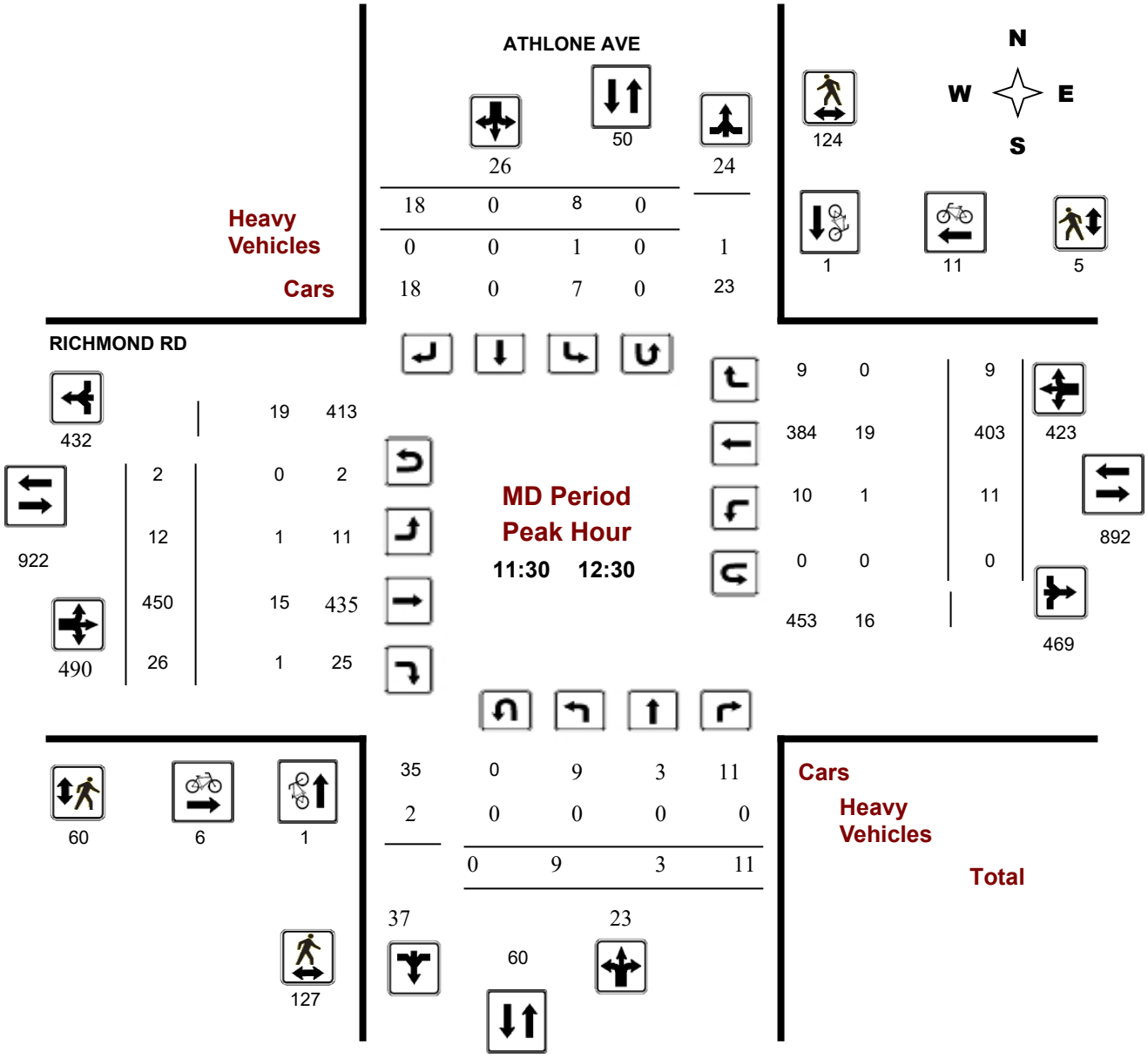
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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



Comments

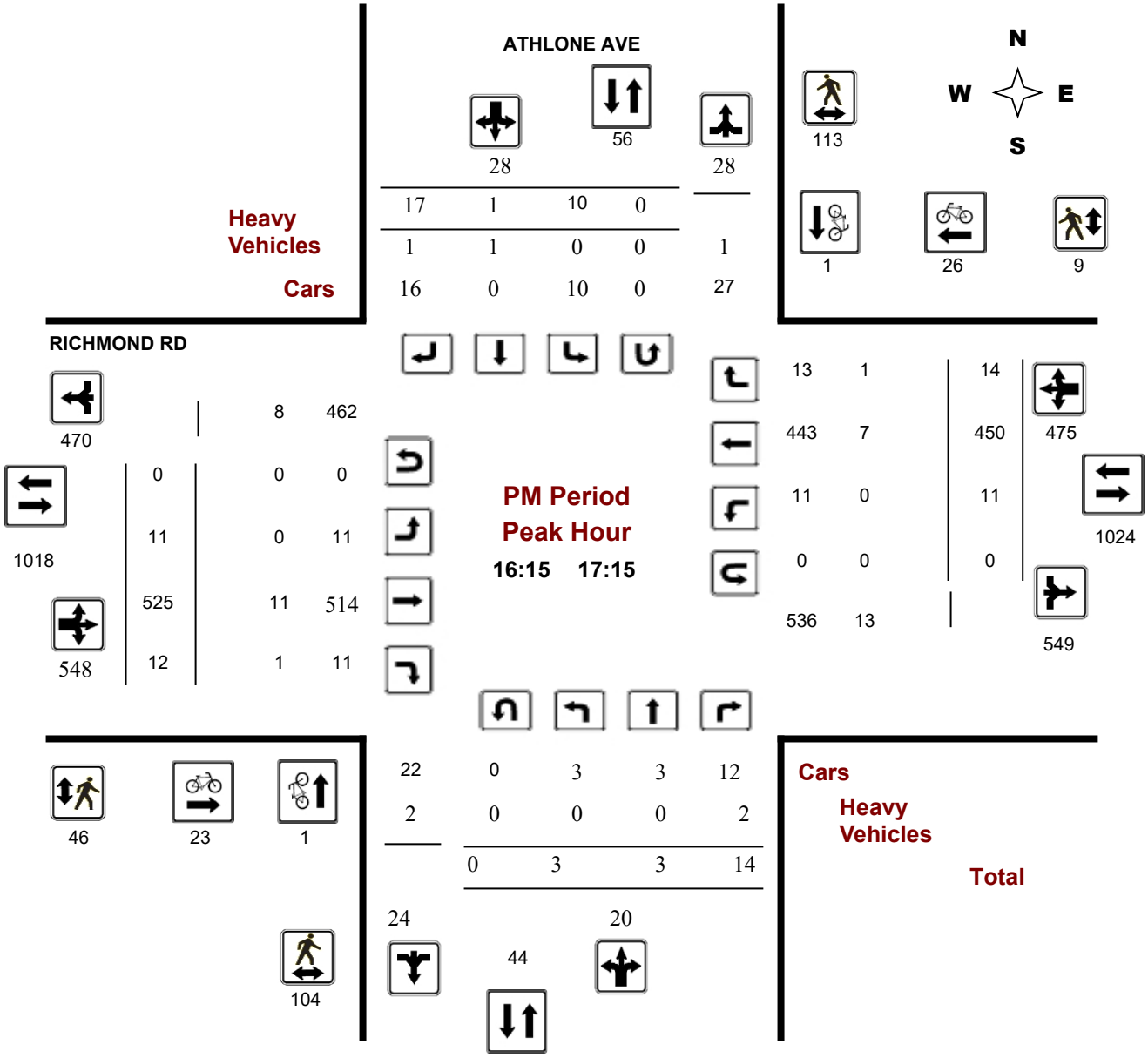
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, July 07, 2022

Total Observed U-Turns

Northbound: 0 Southbound: 1

Eastbound: 3 Westbound: 0

AADT Factor

.90

	ATHLONE AVE									RICHMOND RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	3	1	2	**6**	4	1	6	**11**	**17**	4	225	2	**231**	6	173	6	**185**	**416**	**433**
08:00 09:00	6	2	7	**15**	11	2	10	**23**	**38**	8	365	7	**380**	5	283	10	**298**	**678**	**716**
09:00 10:00	4	0	7	**11**	6	2	10	**18**	**29**	10	317	1	**328**	4	278	13	**295**	**623**	**652**
11:30 12:30	9	3	11	**23**	8	0	18	**26**	**49**	12	450	26	**488**	11	403	9	**423**	**911**	**960**
12:30 13:30	5	3	12	**20**	7	0	25	**32**	**52**	13	417	17	**447**	4	393	10	**407**	**854**	**906**
15:00 16:00	5	1	13	**19**	6	2	17	**25**	**44**	14	453	9	**476**	3	439	9	**451**	**927**	**971**
16:00 17:00	2	3	13	**18**	8	1	11	**20**	**38**	12	536	8	**556**	11	436	15	**462**	**1018**	**1056**
17:00 18:00	7	0	14	**21**	8	2	20	**30**	**51**	15	488	20	**523**	6	454	9	**469**	**992**	**1043**
Sub Total	41	13	79	**133**	58	10	117	**185**	**318**	88	3251	90	**3429**	50	2859	81	**2990**	**6419**	**6737**
U Turns				**0**				**1**	**1**				**3**				**0**	**3**	**4**
Total	41	13	79	**133**	58	10	117	**186**	**319**	88	3251	90	**3432**	50	2859	81	**2990**	**6422**	**6741**
EQ 12Hr	57	18	110	**185**	81	14	163	**259**	**443**	122	4519	125	**4770**	70	3974	113	**4156**	**8927**	**9370**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	51	16	99	**166**	73	16	192	**233**	**399**	110	4067	112	**4293**	63	3577	102	**3740**	**8034**	**8433**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	67	21	130	**217**	96	21	252	**305**	**523**	144	5328	147	**5624**	83	4686	134	**4899**	**10525**	**11047**
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 - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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

Full Study 15 Minute Increments

		ATHLONE AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	1	1	0	0	2	2	3	2	48	1	51	0	41	0	41	92	95
07:15	07:30	0	0	0	0	0	1	2	3	3	1	56	1	58	1	33	2	36	94	97
07:30	07:45	1	1	0	2	2	0	0	2	4	0	58	0	58	3	41	2	46	104	108
07:45	08:00	2	0	1	3	2	0	2	4	7	1	63	0	64	2	58	2	62	126	133
08:00	08:15	1	0	1	2	3	0	2	5	7	1	79	1	81	0	50	1	51	132	139
08:15	08:30	1	0	0	1	4	0	1	5	6	2	72	1	75	1	68	2	71	146	152
08:30	08:45	3	1	1	5	4	0	2	6	11	1	99	4	104	1	84	2	87	191	202
08:45	09:00	1	1	5	7	0	2	5	7	14	4	115	1	120	3	81	5	89	209	223
09:00	09:15	0	0	3	3	3	0	4	7	10	4	74	0	78	0	63	2	65	143	153
09:15	09:30	1	0	0	1	1	1	1	3	4	3	82	0	85	1	70	4	75	160	164
09:30	09:45	2	0	2	4	2	0	2	4	8	1	79	1	81	1	68	1	70	151	159
09:45	10:00	1	0	2	3	0	1	3	4	7	2	82	0	84	2	77	6	85	169	176
11:30	11:45	2	0	4	6	2	0	4	6	12	4	109	5	118	4	94	0	98	216	228
11:45	12:00	4	2	3	9	3	0	3	6	15	2	109	10	121	5	101	2	108	229	244
12:00	12:15	3	0	2	5	0	0	5	5	10	3	126	8	137	0	108	2	110	247	257
12:15	12:30	0	1	2	3	3	0	6	9	12	3	106	3	114	2	100	5	107	221	233
12:30	12:45	1	0	3	4	2	0	6	8	12	2	101	3	107	1	94	3	98	205	217
12:45	13:00	1	1	2	4	3	0	4	7	11	5	93	3	101	2	102	3	107	208	219
13:00	13:15	2	1	5	8	0	0	8	8	16	5	106	6	117	1	106	1	108	225	241
13:15	13:30	1	1	2	4	2	0	7	9	13	1	117	5	123	0	91	3	94	217	230
15:00	15:15	0	0	4	4	1	0	5	6	10	2	109	4	115	2	110	2	114	229	239
15:15	15:30	1	0	2	3	1	0	6	7	10	7	119	0	126	0	115	3	118	244	254
15:30	15:45	1	0	1	2	1	2	3	6	8	3	96	2	101	0	104	2	106	207	215
15:45	16:00	3	1	6	10	3	0	3	6	16	2	129	3	134	1	110	2	113	247	263
16:00	16:15	0	0	2	2	1	0	2	4	6	3	137	1	141	2	103	2	107	248	254
16:15	16:30	1	2	3	6	1	0	1	2	8	2	130	3	135	2	115	7	124	259	267
16:30	16:45	0	0	7	7	2	1	4	7	14	4	147	1	152	5	114	1	120	272	286
16:45	17:00	1	1	1	3	4	0	4	8	11	3	122	3	128	2	104	5	111	239	250
17:00	17:15	1	0	3	4	3	0	8	11	15	2	126	5	133	2	117	1	120	253	268
17:15	17:30	2	0	4	6	0	1	4	5	11	1	115	7	123	1	126	1	128	251	262
17:30	17:45	0	0	4	4	2	0	4	6	10	4	121	3	128	3	110	3	116	244	254
17:45	18:00	4	0	3	7	3	1	4	8	15	8	126	5	139	0	101	4	105	244	259
Total:		41	13	79	133	58	10	117	186	319	88	3251	90	3432	50	2859	81	2990	6422	6,741

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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

Full Study Cyclist Volume

Time Period		ATHLONE AVE			RICHMOND RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	2	2	4	4
07:15	07:30	0	0	0	1	0	1	1
07:30	07:45	0	0	0	4	1	5	5
07:45	08:00	0	0	0	3	3	6	6
08:00	08:15	0	0	0	2	4	6	6
08:15	08:30	1	0	1	5	2	7	8
08:30	08:45	0	1	1	1	1	2	3
08:45	09:00	0	0	0	1	0	1	1
09:00	09:15	0	3	3	7	1	8	11
09:15	09:30	0	2	2	1	0	1	3
09:30	09:45	0	0	0	3	2	5	5
09:45	10:00	0	0	0	3	1	4	4
11:30	11:45	0	0	0	4	7	11	11
11:45	12:00	0	0	0	1	1	2	2
12:00	12:15	1	1	2	0	2	2	4
12:15	12:30	0	0	0	1	1	2	2
12:30	12:45	0	1	1	8	3	11	12
12:45	13:00	0	0	0	2	2	4	4
13:00	13:15	0	1	1	7	4	11	12
13:15	13:30	0	1	1	1	5	6	7
15:00	15:15	1	1	2	4	4	8	10
15:15	15:30	0	0	0	4	4	8	8
15:30	15:45	2	1	3	4	3	7	10
15:45	16:00	1	1	2	2	4	6	8
16:00	16:15	0	0	0	3	3	6	6
16:15	16:30	0	0	0	2	6	8	8
16:30	16:45	1	0	1	5	9	14	15
16:45	17:00	0	0	0	8	3	11	11
17:00	17:15	0	1	1	8	8	16	17
17:15	17:30	2	0	2	5	8	13	15
17:30	17:45	0	2	2	3	3	6	8
17:45	18:00	0	3	3	7	3	10	13
Total		9	19	**28**	112	100	212	240

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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

Full Study Pedestrian Volume

	ATHLONE AVE			RICHMOND RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	14	6	**20**	1	1	**2**	**22**
07:15 07:30	5	8	**13**	4	1	**5**	**18**
07:30 07:45	10	7	**17**	2	1	**3**	**20**
07:45 08:00	6	9	**15**	4	0	**4**	**19**
08:00 08:15	9	8	**17**	5	0	**5**	**22**
08:15 08:30	5	20	**25**	2	0	**2**	**27**
08:30 08:45	7	22	**29**	5	1	**6**	**35**
08:45 09:00	15	21	**36**	9	1	**10**	**46**
09:00 09:15	18	12	**30**	4	0	**4**	**34**
09:15 09:30	13	9	**22**	5	0	**5**	**27**
09:30 09:45	14	21	**35**	6	0	**6**	**41**
09:45 10:00	13	21	**34**	5	1	**6**	**40**
11:30 11:45	26	27	**53**	5	2	**7**	**60**
11:45 12:00	24	38	**62**	18	1	**19**	**81**
12:00 12:15	41	23	**64**	23	2	**25**	**89**
12:15 12:30	36	36	**72**	14	0	**14**	**86**
12:30 12:45	40	27	**67**	11	0	**11**	**78**
12:45 13:00	47	39	**86**	17	1	**18**	**104**
13:00 13:15	26	29	**55**	9	0	**9**	**64**
13:15 13:30	26	30	**56**	14	1	**15**	**71**
15:00 15:15	21	23	**44**	16	1	**17**	**61**
15:15 15:30	33	20	**53**	9	3	**12**	**65**
15:30 15:45	18	25	**43**	14	0	**14**	**57**
15:45 16:00	46	27	**73**	32	2	**34**	**107**
16:00 16:15	22	27	**49**	9	2	**11**	**60**
16:15 16:30	21	36	**57**	12	3	**15**	**72**
16:30 16:45	20	27	**47**	6	1	**7**	**54**
16:45 17:00	24	24	**48**	8	1	**9**	**57**
17:00 17:15	39	26	**65**	20	4	**24**	**89**
17:15 17:30	18	32	**50**	6	0	**6**	**56**
17:30 17:45	21	25	**46**	12	0	**12**	**58**
17:45 18:00	26	24	**50**	17	1	**18**	**68**
Total	704	729	**1433**	324	31	**355**	**1788**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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

Full Study Heavy Vehicles

		ATHLONE AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	07:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**7**	0	3	0	**7**	**14**	**7**
07:15	07:30	0	0	0	**1**	0	0	0	**0**	**1**	0	4	1	**6**	0	1	0	**5**	**11**	**6**
07:30	07:45	1	0	0	**2**	0	0	0	**0**	**2**	0	3	0	**6**	1	2	0	**6**	**12**	**7**
07:45	08:00	0	0	0	**0**	0	0	1	**2**	**2**	1	4	0	**11**	0	5	0	**9**	**20**	**11**
08:00	08:15	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**9**	0	5	0	**9**	**18**	**9**
08:15	08:30	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**10**	0	5	0	**10**	**20**	**10**
08:30	08:45	2	0	0	**3**	0	0	0	**0**	**3**	0	4	1	**12**	0	5	0	**9**	**21**	**12**
08:45	09:00	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**7**	0	2	0	**7**	**14**	**7**
09:00	09:15	0	0	0	**0**	0	0	0	**0**	**0**	0	2	0	**4**	0	2	0	**4**	**8**	**4**
09:15	09:30	0	0	0	**0**	0	0	0	**2**	**2**	1	4	0	**7**	0	2	1	**7**	**14**	**8**
09:30	09:45	0	0	0	**0**	0	0	0	**1**	**1**	0	4	0	**8**	0	4	1	**9**	**17**	**9**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**8**	0	3	0	**8**	**16**	**8**
11:30	11:45	0	0	0	**0**	0	0	0	**1**	**1**	1	6	0	**11**	0	4	0	**10**	**21**	**11**
11:45	12:00	0	0	0	**1**	0	0	0	**0**	**1**	0	0	0	**6**	1	6	0	**7**	**13**	**7**
12:00	12:15	0	0	0	**1**	0	0	0	**0**	**1**	0	5	1	**12**	0	6	0	**11**	**23**	**12**
12:15	12:30	0	0	0	**0**	1	0	0	**1**	**1**	0	4	0	**7**	0	3	0	**8**	**15**	**8**
12:30	12:45	0	0	0	**1**	1	0	0	**1**	**2**	0	4	1	**11**	0	6	0	**11**	**22**	**12**
12:45	13:00	0	0	1	**2**	0	0	1	**2**	**4**	0	5	0	**11**	1	5	1	**13**	**24**	**14**
13:00	13:15	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**10**	0	5	0	**10**	**20**	**10**
13:15	13:30	0	0	0	**0**	0	0	1	**1**	**1**	0	2	0	**4**	0	1	0	**3**	**7**	**4**
15:00	15:15	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**7**	0	6	0	**7**	**14**	**7**
15:15	15:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**3**	0	3	0	**3**	**6**	**3**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**8**	0	4	0	**8**	**16**	**8**
15:45	16:00	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**7**	0	2	0	**7**	**14**	**7**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	5	0	**8**	0	3	0	**8**	**16**	**8**
16:15	16:30	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**5**	0	2	0	**5**	**10**	**5**
16:30	16:45	0	0	2	**3**	0	1	1	**2**	**5**	0	3	0	**6**	0	2	0	**7**	**13**	**9**
16:45	17:00	0	0	0	**0**	0	0	0	**1**	**1**	0	2	0	**5**	0	3	1	**6**	**11**	**6**
17:00	17:15	0	0	0	**1**	0	0	0	**0**	**1**	0	3	1	**4**	0	0	0	**3**	**7**	**4**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**3**	0	2	0	**3**	**6**	**3**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**5**	0	2	0	**5**	**10**	**5**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**4**	0	3	0	**4**	**8**	**4**
Total:	None	3	0	3	**15**	2	1	4	**14**	**29**	3	110	5	**232**	3	107	4	**229**	**461**	**245**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ATHLONE AVE @ RICHMOND RD

Survey Date: Thursday, July 07, 2022 **WO No:** 40401

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

Full Study 15 Minute U-Turn Total

Time Period		ATHLONE AVE Northbound U-Turn Total	ATHLONE AVE Southbound U-Turn Total	RICHMOND RD Eastbound U-Turn Total	RICHMOND RD Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	2	0	2
12:30	12:45	0	0	1	0	1
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	1	0	0	1
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	1	3	0	4

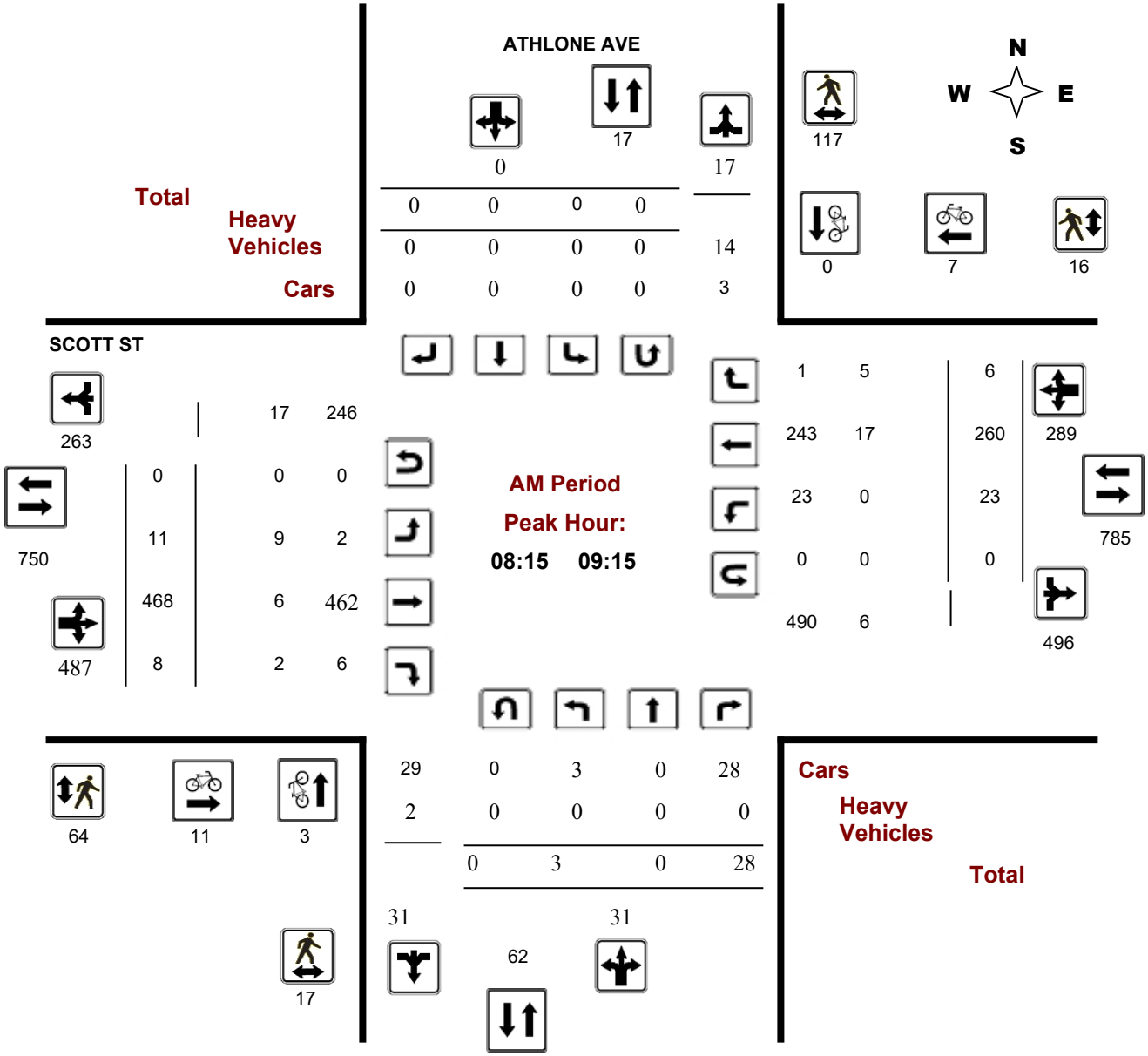
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

ATHLONE AVE @ SCOTT ST

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

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



Comments

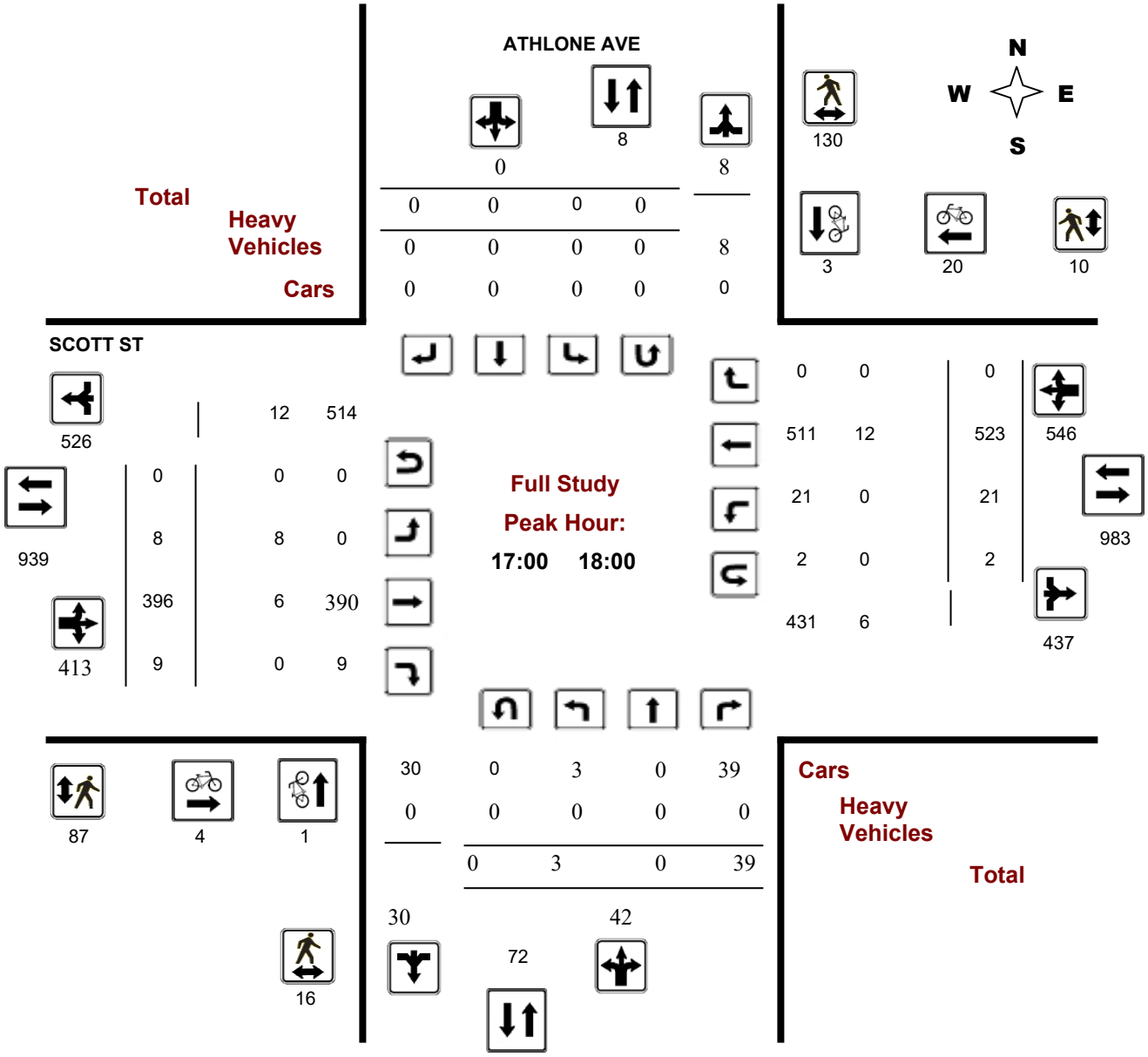
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

ATHLONE AVE @ SCOTT ST

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

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



Comments

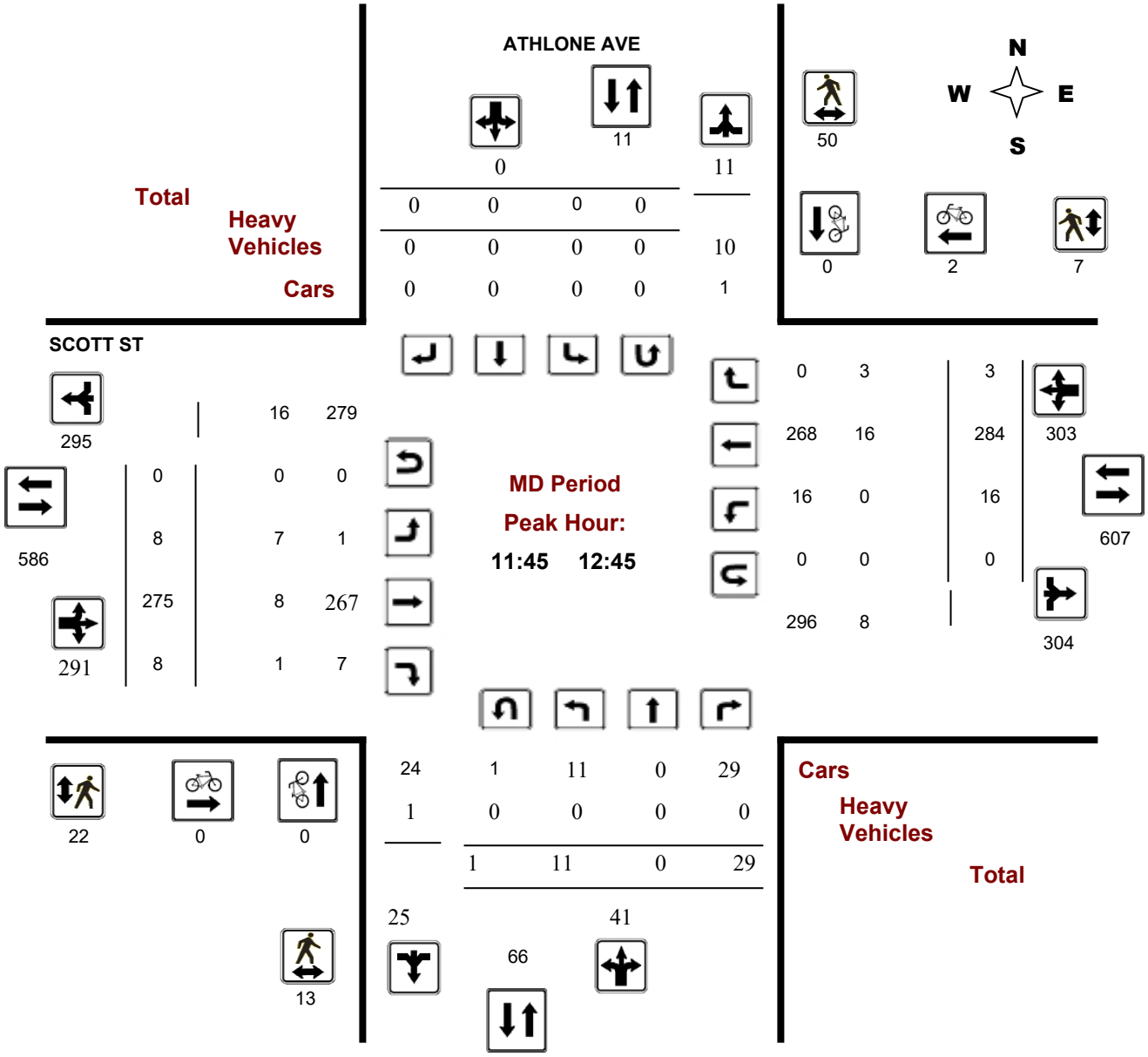
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

ATHLONE AVE @ SCOTT ST

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

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



Comments

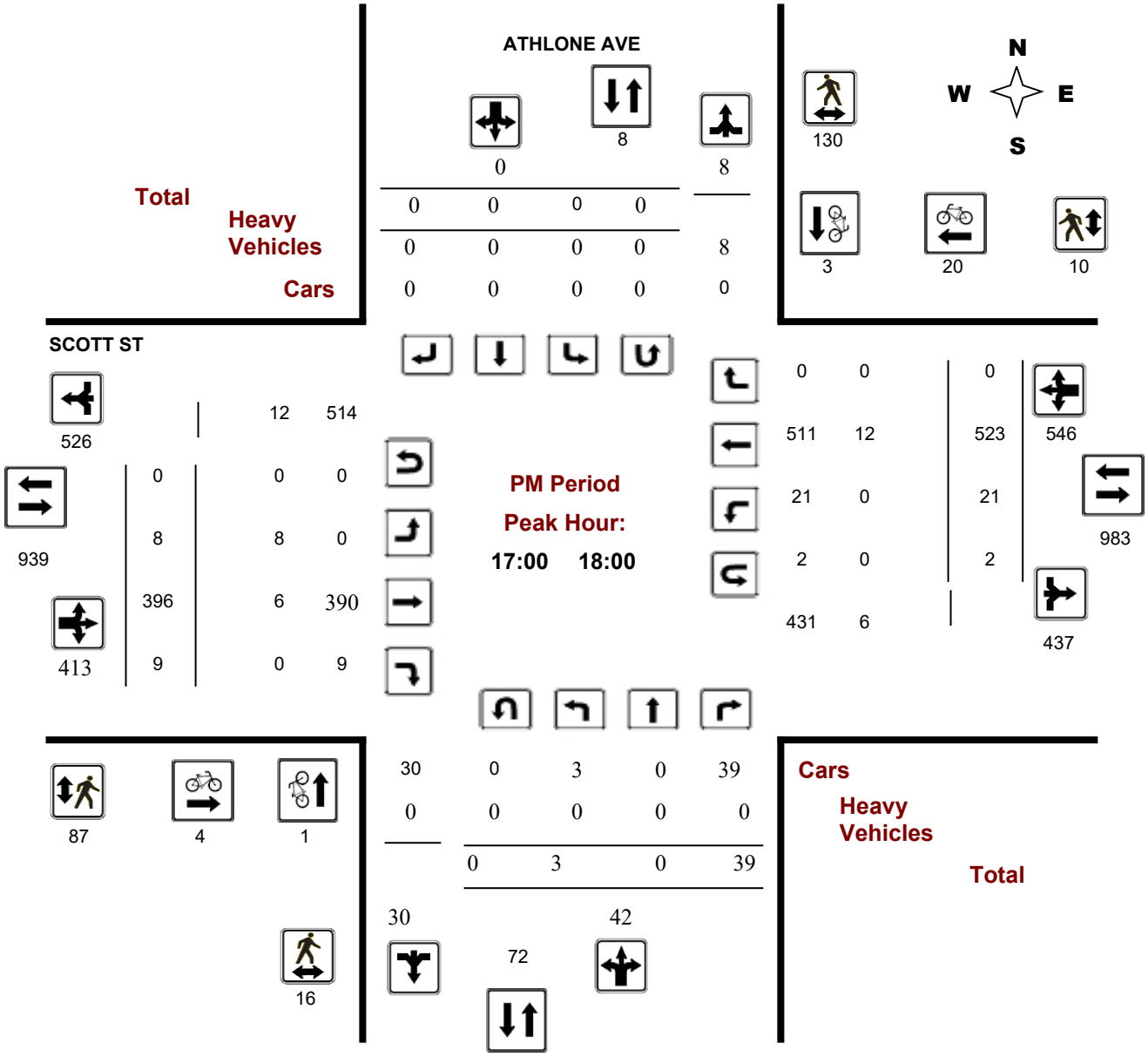
Transportation Services - Traffic Services

Turning Movement Count - Full Study 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

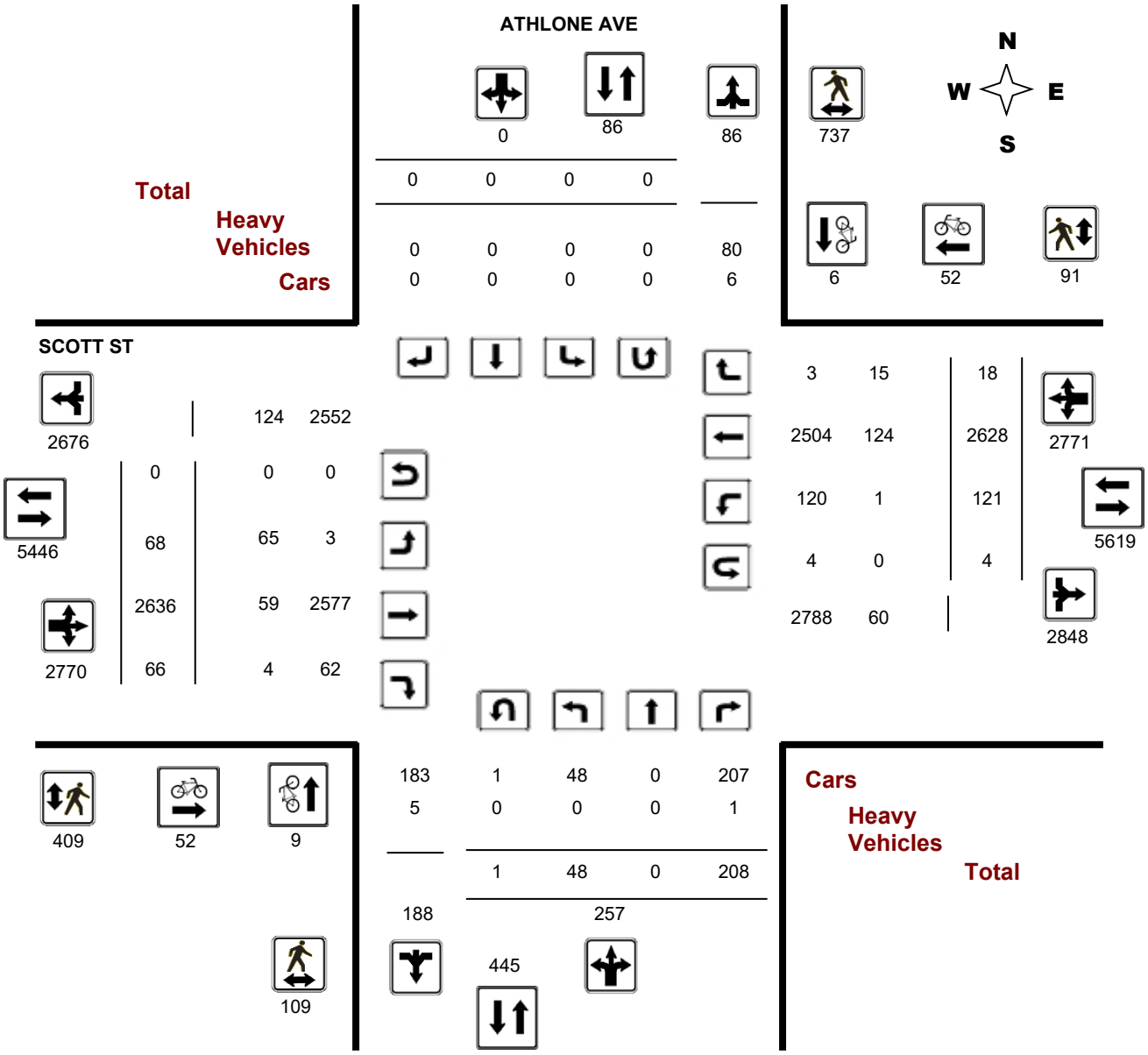
Turning Movement Count - Full Study Diagram

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017

WO#: 37320

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 37320

Turning Movement Count - Full Study Summary Report

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 4

AADT Factor .90

Full Study

	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**				**0**	**1**				**0**				**4**	**4**	**5**
Total	48	0	208	**257**	0	0	0	**0**	**257**	68	2636	66	**2770**	121	2628	18	**2771**	**5541**	**5798**
EQ 12Hr	67	0	289	**357**	0	0	0	**0**	**357**	95	3664	92	**3850**	168	3653	25	**3852**	**7702**	**8059**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	60	0	260	**322**	0	0	0	**0**	**322**	85	3298	83	**3465**	151	3288	23	**3467**	**6932**	**7254**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	79	0	341	**421**	0	0	0	**0**	**421**	111	4320	108	**4540**	198	4307	29	**4541**	**9081**	**9502**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

Transportation Services - Traffic Services

W.O. 37320

Turning Movement Count - 15 Minute Summary Report

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 4

		ATHLONE AVE									SCOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	0	3	**4**	0	0	0	**0**	**4**	2	45	0	**47**	1	40	0	**41**	**88**	**92**
07:15	07:30	1	0	2	**3**	0	0	0	**0**	**3**	3	80	1	**84**	1	45	1	**47**	**131**	**134**
07:30	07:45	1	0	5	**6**	0	0	0	**0**	**6**	2	105	2	**109**	1	67	2	**70**	**179**	**185**
07:45	08:00	2	0	14	**16**	0	0	0	**0**	**16**	2	96	1	**99**	2	58	2	**62**	**161**	**177**
08:00	08:15	4	0	7	**11**	0	0	0	**0**	**11**	2	113	2	**117**	4	48	0	**52**	**169**	**180**
08:15	08:30	1	0	6	**7**	0	0	0	**0**	**7**	3	119	5	**127**	6	59	0	**65**	**192**	**199**
08:30	08:45	1	0	9	**10**	0	0	0	**0**	**10**	2	119	2	**123**	10	84	4	**98**	**221**	**231**
08:45	09:00	1	0	6	**7**	0	0	0	**0**	**7**	2	110	0	**112**	2	58	2	**62**	**174**	**181**
09:00	09:15	0	0	7	**7**	0	0	0	**0**	**7**	4	120	1	**125**	5	59	0	**64**	**189**	**196**
09:15	09:30	1	0	3	**4**	0	0	0	**0**	**4**	2	74	1	**77**	4	70	0	**74**	**151**	**155**
09:30	09:45	1	0	6	**7**	0	0	0	**0**	**7**	2	74	2	**78**	1	51	1	**53**	**131**	**138**
09:45	10:00	0	0	6	**6**	0	0	0	**0**	**6**	1	44	0	**45**	5	68	0	**73**	**118**	**124**
11:30	11:45	1	0	2	**3**	0	0	0	**0**	**3**	2	59	7	**68**	6	71	0	**78**	**146**	**149**
11:45	12:00	5	0	8	**14**	0	0	0	**0**	**14**	1	79	4	**84**	4	68	0	**72**	**156**	**170**
12:00	12:15	1	0	5	**6**	0	0	0	**0**	**6**	2	59	2	**63**	3	58	1	**62**	**125**	**131**
12:15	12:30	2	0	7	**9**	0	0	0	**0**	**9**	1	72	2	**75**	7	84	2	**93**	**168**	**177**
12:30	12:45	3	0	9	**12**	0	0	0	**0**	**12**	4	65	0	**69**	2	74	0	**76**	**145**	**157**
12:45	13:00	3	0	4	**7**	0	0	0	**0**	**7**	2	69	3	**74**	3	69	0	**72**	**146**	**153**
13:00	13:15	1	0	11	**12**	0	0	0	**0**	**12**	2	64	1	**67**	1	49	0	**50**	**117**	**129**
13:15	13:30	2	0	6	**8**	0	0	0	**0**	**8**	2	54	3	**59**	2	52	0	**54**	**113**	**121**
15:00	15:15	1	0	8	**9**	0	0	0	**0**	**9**	1	70	2	**73**	0	84	1	**85**	**158**	**167**
15:15	15:30	0	0	3	**3**	0	0	0	**0**	**3**	2	66	0	**68**	3	110	0	**113**	**181**	**184**
15:30	15:45	1	0	4	**5**	0	0	0	**0**	**5**	2	96	3	**101**	6	106	1	**113**	**214**	**219**
15:45	16:00	1	0	4	**5**	0	0	0	**0**	**5**	2	69	1	**72**	2	109	0	**111**	**183**	**188**
16:00	16:15	2	0	8	**10**	0	0	0	**0**	**10**	2	87	2	**91**	4	117	0	**121**	**212**	**222**
16:15	16:30	1	0	3	**4**	0	0	0	**0**	**4**	3	84	3	**90**	4	110	0	**115**	**205**	**209**
16:30	16:45	4	0	7	**11**	0	0	0	**0**	**11**	2	72	5	**79**	4	99	0	**103**	**182**	**193**
16:45	17:00	3	0	6	**9**	0	0	0	**0**	**9**	3	76	2	**81**	7	138	1	**146**	**227**	**236**
17:00	17:15	1	0	11	**12**	0	0	0	**0**	**12**	1	112	3	**116**	6	133	0	**140**	**256**	**268**
17:15	17:30	1	0	8	**9**	0	0	0	**0**	**9**	3	95	1	**99**	9	124	0	**133**	**232**	**241**
17:30	17:45	0	0	10	**10**	0	0	0	**0**	**10**	2	97	3	**102**	1	133	0	**134**	**236**	**246**
17:45	18:00	1	0	10	**11**	0	0	0	**0**	**11**	2	92	2	**96**	5	133	0	**139**	**235**	**246**
TOTAL:		48	0	208	**257**	0	0	0	**0**	**257**	68	2636	66	**2770**	121	2628	18	**2771**	**5541**	**5798**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
37320

ATHLONE AVE @ SCOTT ST

Count Date: Wednesday, November 22, 2017 **Start Time:** 07:00

	ATHLONE AVE			SCOTT ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	1	0	**1**	15	3	**18**	**19**
08:00 09:00	4	0	**4**	17	5	**22**	**26**
09:00 10:00	2	1	**3**	7	4	**11**	**14**
11:30 12:30	0	0	**0**	1	2	**3**	**3**
12:30 13:30	1	0	**1**	2	1	**3**	**4**
15:00 16:00	0	2	**2**	1	3	**4**	**6**
16:00 17:00	0	0	**0**	5	14	**19**	**19**
17:00 18:00	1	3	**4**	4	20	**24**	**28**
Total	9	6	**15**	52	52	**104**	**119**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 37320

Turning Movement Count - Heavy Vehicle Report

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017

		ATHLONE AVE									SCOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	08:00	0	0	0	**0**	0	0	0	**0**	**0**	9	4	0	**13**	0	16	4	**20**	**33**	**33**
08:00	09:00	0	0	0	**0**	0	0	0	**0**	**0**	9	8	2	**19**	0	11	5	**16**	**35**	**35**
09:00	10:00	0	0	0	**0**	0	0	0	**0**	**0**	7	7	0	**14**	0	20	0	**20**	**34**	**34**
11:30	12:30	0	0	0	**0**	0	0	0	**0**	**0**	6	12	2	**20**	0	16	3	**19**	**39**	**39**
12:30	13:30	0	0	0	**0**	0	0	0	**0**	**0**	9	7	0	**16**	0	12	0	**12**	**28**	**28**
15:00	16:00	0	0	1	**1**	0	0	0	**0**	**1**	7	12	0	**19**	1	19	2	**22**	**41**	**42**
16:00	17:00	0	0	0	**0**	0	0	0	**0**	**0**	10	3	0	**13**	0	18	1	**19**	**32**	**32**
17:00	18:00	0	0	0	**0**	0	0	0	**0**	**0**	8	6	0	**14**	0	12	0	**12**	**26**	**26**
Sub Total		0	0	1	**1**	0	0	0	**0**	**1**	65	59	4	**128**	1	124	15	**140**	**268**	**269**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	0	1	**0**	0	0	0	**0**	**1**	65	59	4	**128**	1	124	15	**140**	**268**	**269**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
37320

Turning Movement Count - Pedestrian Volume Report

ATHLONE AVE @ SCOTT ST

Count Date: Wednesday, November 22, 2017 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	12	**12**	9	3	**12**	**24**
07:15 07:30	1	16	**17**	8	4	**12**	**29**
07:30 07:45	0	36	**36**	21	0	**21**	**57**
07:45 08:00	4	33	**37**	15	7	**22**	**59**
07:00 08:00	5	97	**102**	53	14	**67**	**169**
08:00 08:15	4	42	**46**	27	5	**32**	**78**
08:15 08:30	6	38	**44**	23	4	**27**	**71**
08:30 08:45	1	33	**34**	17	3	**20**	**54**
08:45 09:00	5	25	**30**	10	7	**17**	**47**
08:00 09:00	16	138	**154**	77	19	**96**	**250**
09:00 09:15	5	21	**26**	14	2	**16**	**42**
09:15 09:30	2	15	**17**	11	0	**11**	**28**
09:30 09:45	3	8	**11**	2	3	**5**	**16**
09:45 10:00	2	14	**16**	7	2	**9**	**25**
09:00 10:00	12	58	**70**	34	7	**41**	**111**
11:30 11:45	1	10	**11**	1	1	**2**	**13**
11:45 12:00	4	10	**14**	3	1	**4**	**18**
12:00 12:15	5	13	**18**	7	1	**8**	**26**
12:15 12:30	2	16	**18**	8	2	**10**	**28**
11:30 12:30	12	49	**61**	19	5	**24**	**85**
12:30 12:45	2	11	**13**	4	3	**7**	**20**
12:45 13:00	3	15	**18**	5	1	**6**	**24**
13:00 13:15	0	10	**10**	6	0	**6**	**16**
13:15 13:30	2	15	**17**	6	1	**7**	**24**
12:30 13:30	7	51	**58**	21	5	**26**	**84**
15:00 15:15	7	14	**21**	11	0	**11**	**32**
15:15 15:30	2	13	**15**	2	0	**2**	**17**
15:30 15:45	6	31	**37**	12	9	**21**	**58**
15:45 16:00	5	20	**25**	11	4	**15**	**40**
15:00 16:00	20	78	**98**	36	13	**49**	**147**
16:00 16:15	3	33	**36**	19	4	**23**	**59**
16:15 16:30	7	34	**41**	20	4	**24**	**65**
16:30 16:45	5	34	**39**	23	4	**27**	**66**
16:45 17:00	6	35	**41**	20	6	**26**	**67**
16:00 17:00	21	136	**157**	82	18	**100**	**257**
17:00 17:15	4	38	**42**	24	0	**24**	**66**
17:15 17:30	4	37	**41**	26	4	**30**	**71**
17:30 17:45	5	34	**39**	18	0	**18**	**57**
17:45 18:00	3	21	**24**	19	6	**25**	**49**
17:00 18:00	16	130	**146**	87	10	**97**	**243**
Total	109	737	**846**	409	91	**500**	**1346**

Comment:

Transportation Services - Traffic Services

Work Order
37320

Turning Movement Count - 15 Min U-Turn Total Report

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	1	1
11:45	12:00	1	0	0	0	1
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	1	1
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	1	1
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	1	1
Total		1	0	0	4	5

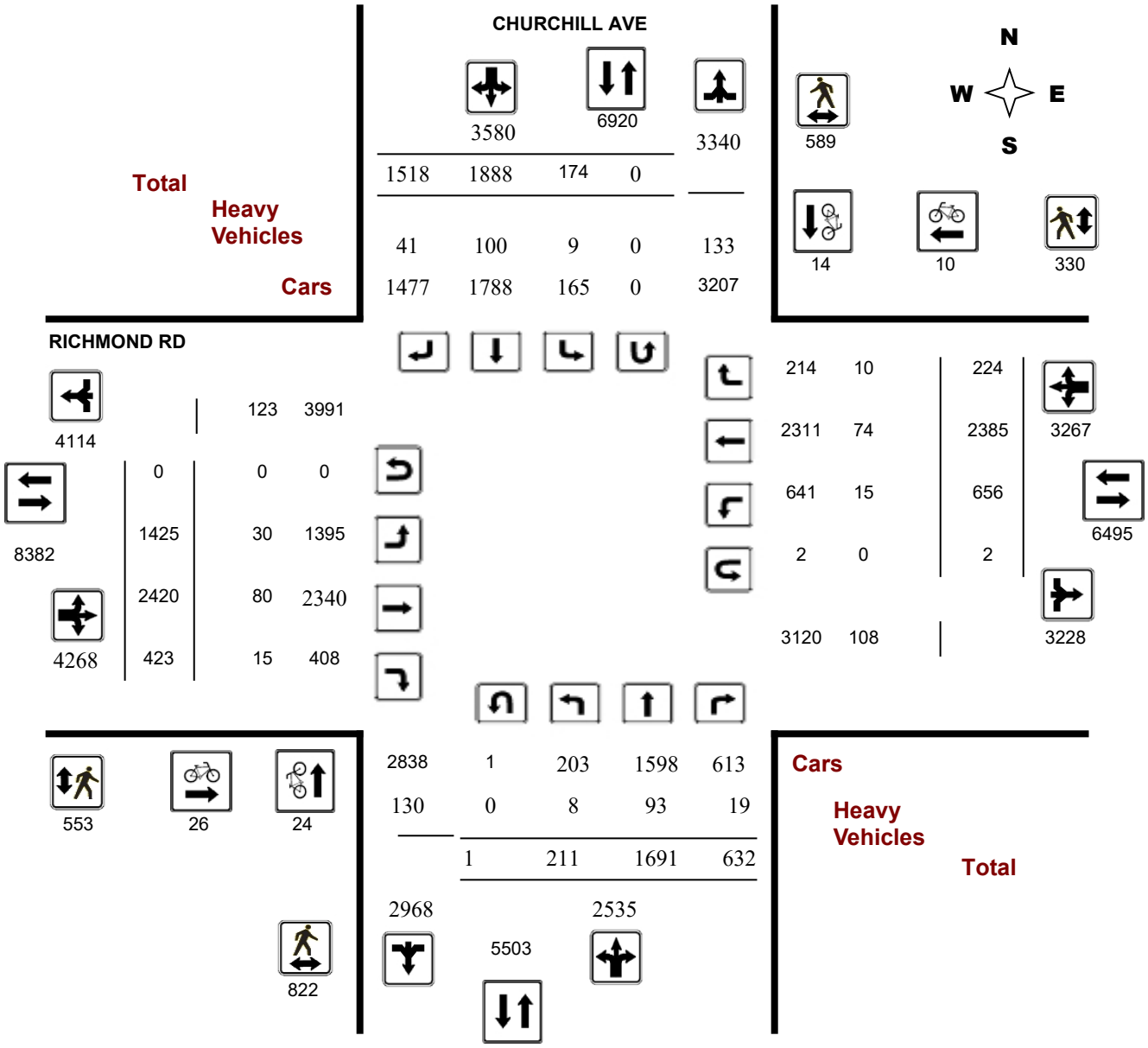
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020
Start Time: 07:00
WO No: 39644
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

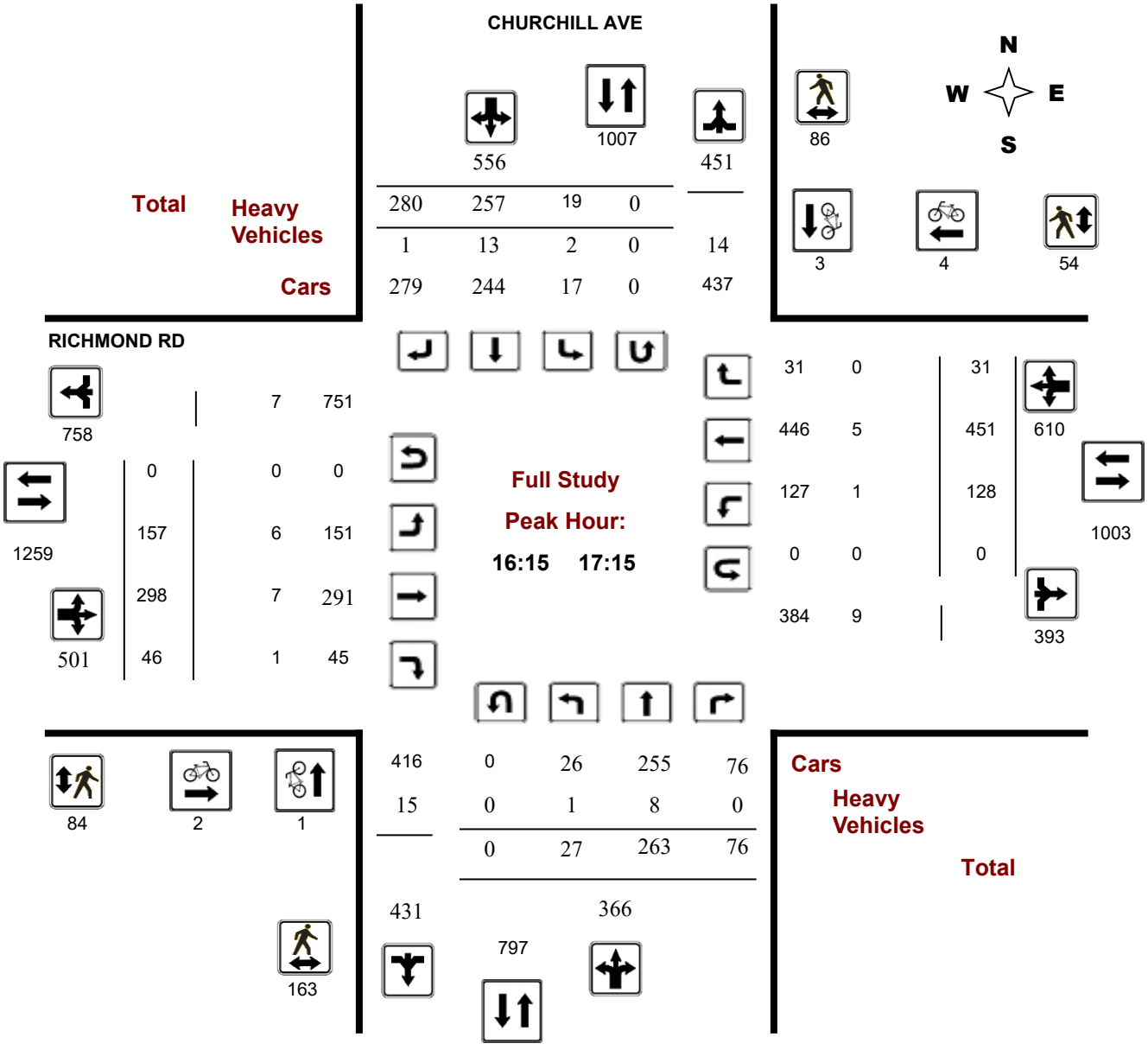
Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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

Full Study Peak Hour Diagram



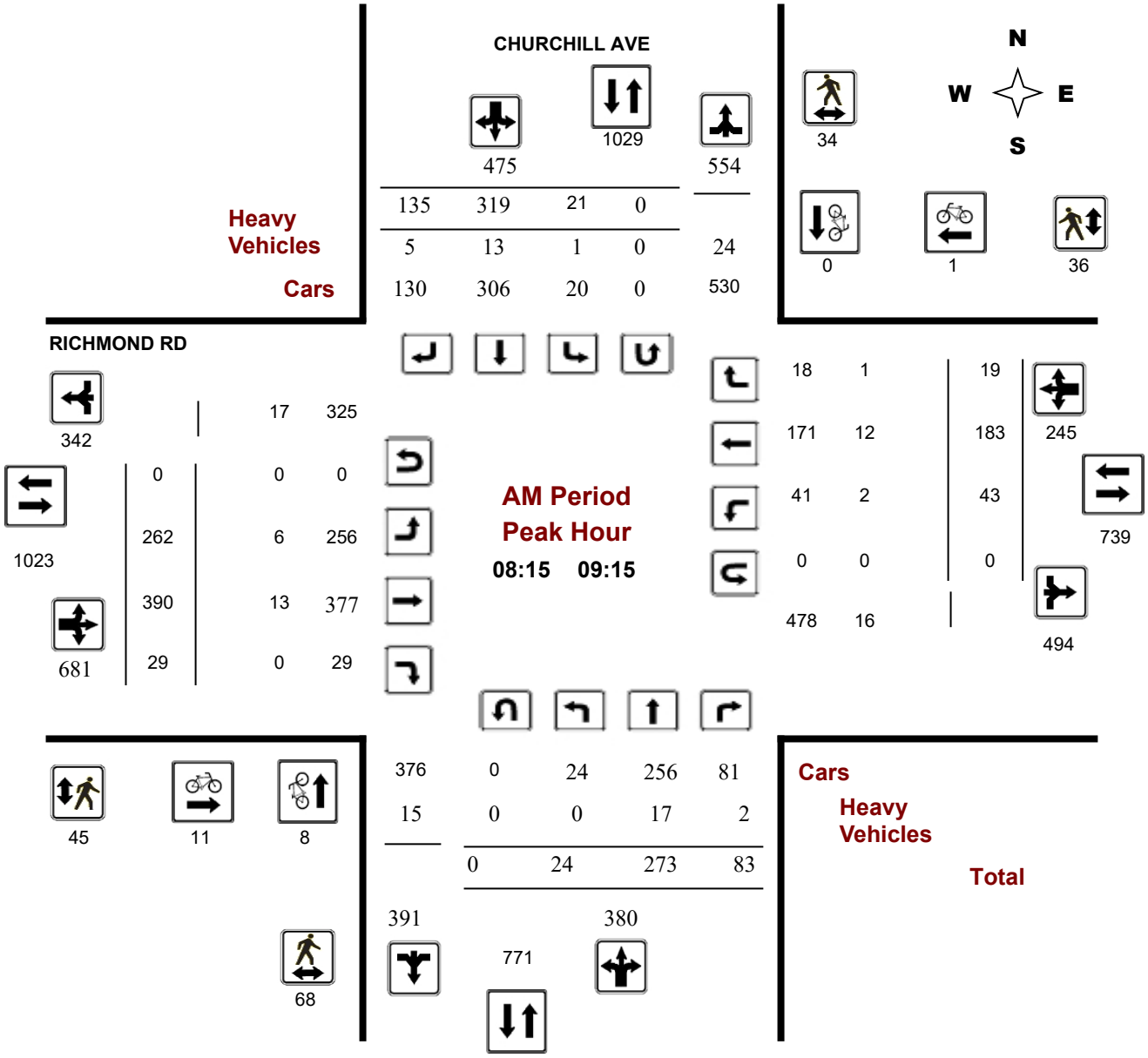
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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



Comments

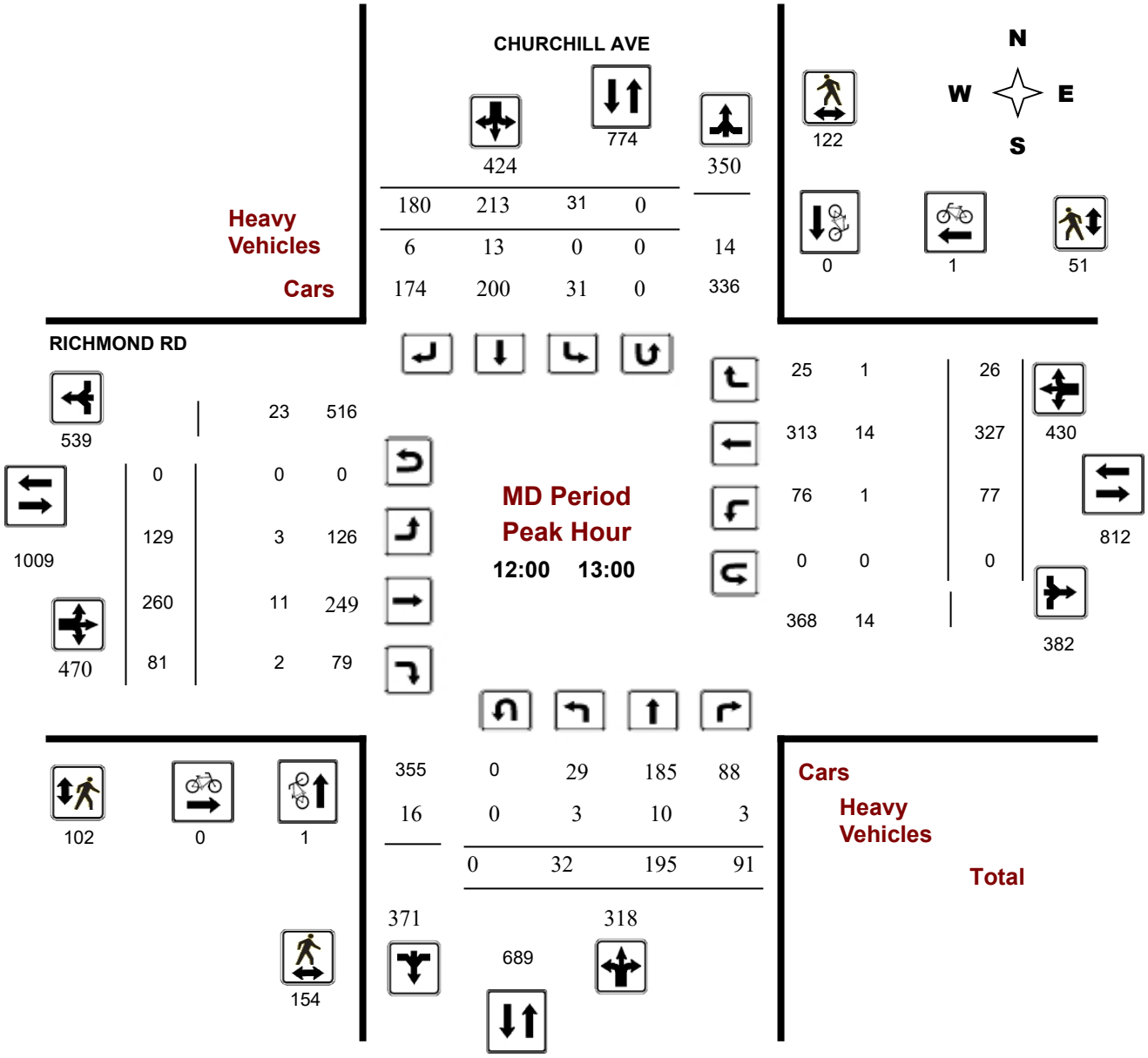
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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



Comments

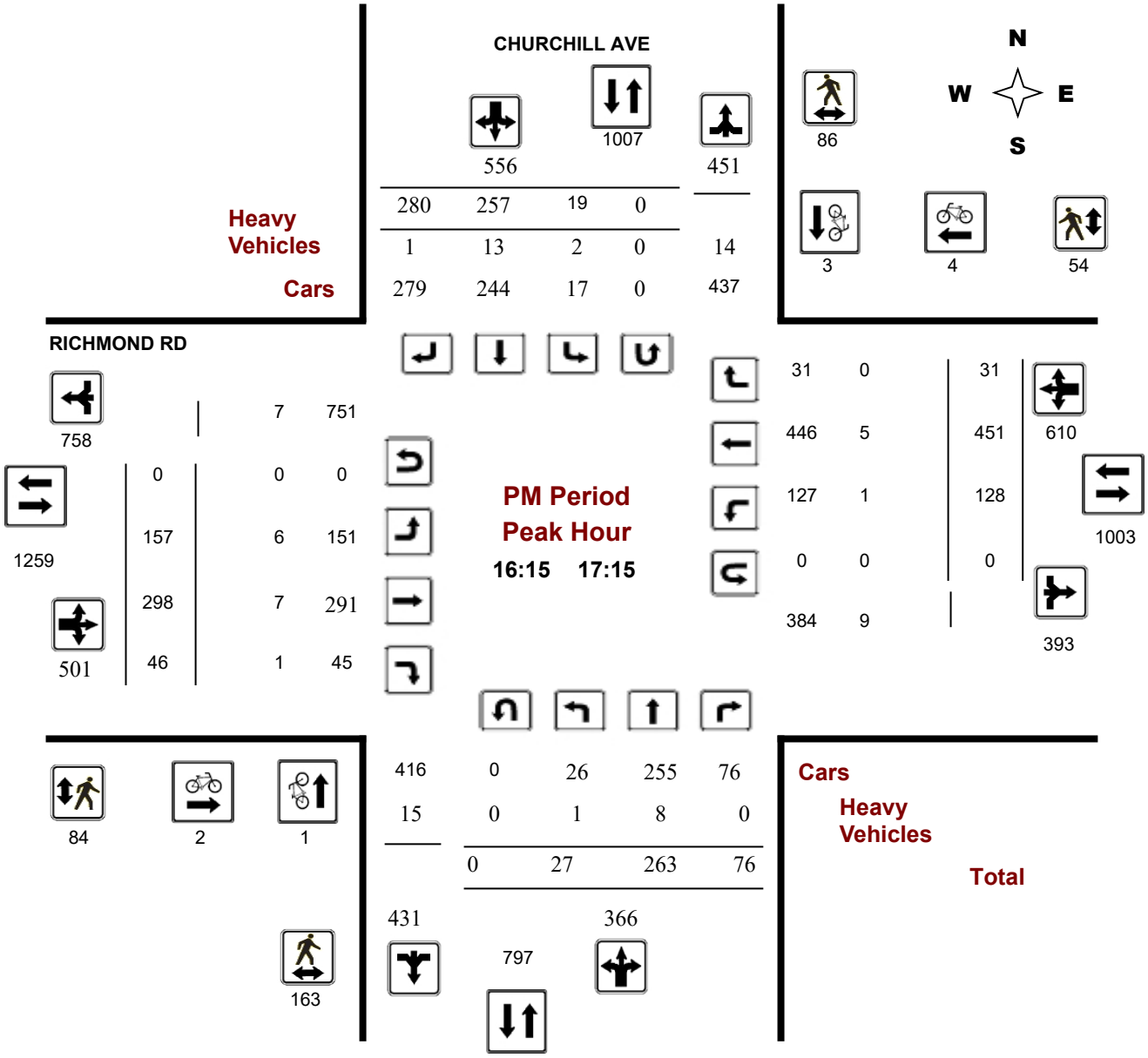
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 23, 2020

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 2

AADT Factor

1.00

	CHURCHILL AVE								RICHMOND RD									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	14	161	59	**234**	16	226	90	**332**	**566**	274	347	24	**645**	35	126	22	**183**	**828**	**1394**
08:00 09:00	16	270	93	**379**	21	296	136	**453**	**832**	287	373	32	**692**	40	182	16	**238**	**930**	**1762**
09:00 10:00	27	205	81	**313**	18	219	137	**374**	**687**	162	329	35	**526**	64	173	33	**270**	**796**	**1483**
11:30 12:30	42	173	77	**292**	36	195	161	**392**	**684**	122	289	72	**483**	79	308	33	**420**	**903**	**1587**
12:30 13:30	31	183	83	**297**	30	215	187	**432**	**729**	128	254	83	**465**	73	340	27	**440**	**905**	**1634**
15:00 16:00	28	201	84	**313**	18	247	276	**541**	**854**	145	283	78	**506**	116	393	29	**538**	**1044**	**1898**
16:00 17:00	28	260	71	**359**	16	256	270	**542**	**901**	145	279	57	**481**	132	453	25	**610**	**1091**	**1992**
17:00 18:00	25	238	84	**347**	19	234	261	**514**	**861**	162	266	42	**470**	117	410	39	**566**	**1036**	**1897**
Sub Total	211	1691	632	**2534**	174	1888	1518	**3580**	**6114**	1425	2420	423	**4268**	656	2385	224	**3265**	**7533**	**13647**
U Turns				**1**				**0**	**1**				**0**				**2**	**2**	**3**
Total	211	1691	632	**2535**	174	1888	1518	**3580**	**6115**	1425	2420	423	**4268**	656	2385	224	**3267**	**7535**	**13650**
EQ 12Hr	293	2350	878	**3524**	242	2624	2110	**4976**	**8500**	1981	3364	588	**5933**	912	3315	311	**4541**	**10474**	**18974**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	293	2350	878	**3524**	242	3438	2764	**4976**	**8500**	1981	3364	588	**5933**	912	3315	311	**4541**	**10474**	**18974**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	384	3078	1150	**4616**	317	4504	3621	**6519**	**11135**	2595	4407	770	**7772**	1195	4343	407	**5949**	**13721**	**24856**
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 - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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

Full Study 15 Minute Increments

		CHURCHILL AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	4	25	10	39	3	46	20	69	108	56	75	5	136	7	27	6	40	176	284
07:15	07:30	4	28	8	40	2	50	19	71	111	63	91	5	159	5	35	2	42	201	312
07:30	07:45	2	37	18	57	9	59	24	92	149	80	85	10	175	11	26	4	41	216	365
07:45	08:00	4	71	23	98	2	71	27	100	198	75	96	4	175	12	38	10	60	235	433
08:00	08:15	1	69	22	93	6	60	32	98	191	72	83	11	166	11	39	3	53	219	410
08:15	08:30	6	60	30	96	7	83	29	119	215	77	95	7	179	9	43	7	59	238	453
08:30	08:45	4	66	20	90	3	74	36	113	203	76	83	8	167	8	53	4	65	232	435
08:45	09:00	5	75	21	101	5	79	39	123	224	62	112	6	180	12	47	2	61	241	465
09:00	09:15	9	72	12	93	6	83	31	120	213	47	100	8	155	14	40	6	60	215	428
09:15	09:30	4	48	27	79	5	55	39	99	178	46	79	12	137	14	37	6	58	195	373
09:30	09:45	6	46	19	71	4	43	34	81	152	38	74	8	120	19	56	10	85	205	357
09:45	10:00	8	39	23	70	3	38	33	74	144	31	76	7	114	17	40	11	68	182	326
11:30	11:45	9	32	16	57	12	46	29	87	144	28	75	13	116	22	78	11	111	227	371
11:45	12:00	15	52	19	86	8	43	39	90	176	31	73	22	126	19	63	12	94	220	396
12:00	12:15	10	48	22	80	7	59	44	110	190	31	82	20	133	17	90	6	113	246	436
12:15	12:30	8	41	20	69	9	47	49	105	174	32	59	17	108	21	77	4	102	210	384
12:30	12:45	5	46	25	76	9	51	41	101	177	31	52	27	110	16	77	6	99	209	386
12:45	13:00	9	60	24	93	6	56	46	108	201	35	67	17	119	23	83	10	116	235	436
13:00	13:15	11	42	13	66	6	50	56	112	178	30	70	24	124	17	83	4	104	228	406
13:15	13:30	6	35	21	62	9	58	44	111	173	32	65	15	112	17	97	7	121	233	406
15:00	15:15	10	48	16	74	5	61	62	128	202	32	77	34	143	28	98	11	137	280	482
15:15	15:30	10	53	24	87	6	66	71	143	230	46	74	18	138	32	84	7	123	261	491
15:30	15:45	4	49	15	68	6	57	61	124	192	35	68	9	112	30	110	8	148	260	452
15:45	16:00	4	51	29	84	1	63	82	146	230	32	64	17	113	26	101	3	131	244	474
16:00	16:15	4	53	15	72	4	57	62	123	195	28	60	18	106	36	114	5	155	261	456
16:15	16:30	8	70	12	90	4	60	68	132	222	37	76	12	125	29	113	7	149	274	496
16:30	16:45	6	64	23	93	4	71	67	142	235	43	72	13	128	35	114	7	156	284	519
16:45	17:00	10	73	21	104	4	68	73	145	249	37	71	14	122	32	112	6	150	272	521
17:00	17:15	3	56	20	79	7	58	72	137	216	40	79	7	126	32	112	11	155	281	497
17:15	17:30	10	62	16	88	5	61	68	134	222	44	52	16	112	28	116	8	152	264	486
17:30	17:45	8	59	22	89	3	68	66	137	226	40	72	5	117	28	89	7	124	241	467
17:45	18:00	4	61	26	91	4	47	55	106	197	38	63	14	115	29	93	13	135	250	447
Total:		211	1691	632	2535	174	1888	1518	3580	6115	1425	2420	423	4268	656	2385	224	3267	7535	13,650

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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

Full Study Cyclist Volume

Time Period		CHURCHILL AVE			RICHMOND RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	1	0	1	1
07:15	07:30	2	0	2	0	0	0	2
07:30	07:45	1	0	1	0	0	0	1
07:45	08:00	3	0	3	4	0	4	7
08:00	08:15	4	1	5	0	1	1	6
08:15	08:30	5	0	5	4	0	4	9
08:30	08:45	2	0	2	2	1	3	5
08:45	09:00	0	0	0	2	0	2	2
09:00	09:15	1	0	1	3	0	3	4
09:15	09:30	2	1	3	0	1	1	4
09:30	09:45	0	1	1	1	1	2	3
09:45	10:00	1	0	1	0	0	0	1
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	1	1	1
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	1	0	1	0	0	0	1
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	1	0	1	1
15:15	15:30	0	0	0	1	0	1	1
15:30	15:45	0	0	0	2	0	2	2
15:45	16:00	0	1	1	1	0	1	2
16:00	16:15	0	2	2	0	1	1	3
16:15	16:30	0	0	0	0	1	1	1
16:30	16:45	0	1	1	0	0	0	1
16:45	17:00	0	0	0	1	0	1	1
17:00	17:15	1	2	3	1	3	4	7
17:15	17:30	0	2	2	0	0	0	2
17:30	17:45	0	1	1	2	0	2	3
17:45	18:00	1	2	3	0	0	0	3
Total		24	14	**38**	26	10	36	74

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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

Full Study Pedestrian Volume

	CHURCHILL AVE			RICHMOND RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	3	2	**5**	2	2	**4**	**9**
07:15 07:30	4	3	**7**	6	3	**9**	**16**
07:30 07:45	10	8	**18**	4	2	**6**	**24**
07:45 08:00	17	4	**21**	14	4	**18**	**39**
08:00 08:15	11	9	**20**	6	3	**9**	**29**
08:15 08:30	18	5	**23**	10	11	**21**	**44**
08:30 08:45	19	15	**34**	18	10	**28**	**62**
08:45 09:00	15	7	**22**	8	10	**18**	**40**
09:00 09:15	16	7	**23**	9	5	**14**	**37**
09:15 09:30	8	16	**24**	6	4	**10**	**34**
09:30 09:45	14	8	**22**	12	6	**18**	**40**
09:45 10:00	14	9	**23**	10	7	**17**	**40**
11:30 11:45	26	24	**50**	19	7	**26**	**76**
11:45 12:00	23	28	**51**	24	14	**38**	**89**
12:00 12:15	46	21	**67**	31	12	**43**	**110**
12:15 12:30	34	35	**69**	20	16	**36**	**105**
12:30 12:45	32	34	**66**	24	8	**32**	**98**
12:45 13:00	42	32	**74**	27	15	**42**	**116**
13:00 13:15	37	19	**56**	18	11	**29**	**85**
13:15 13:30	35	28	**63**	33	14	**47**	**110**
15:00 15:15	33	27	**60**	26	14	**40**	**100**
15:15 15:30	28	20	**48**	24	12	**36**	**84**
15:30 15:45	23	28	**51**	17	18	**35**	**86**
15:45 16:00	28	24	**52**	16	12	**28**	**80**
16:00 16:15	27	16	**43**	24	5	**29**	**72**
16:15 16:30	29	23	**52**	16	15	**31**	**83**
16:30 16:45	48	20	**68**	24	11	**35**	**103**
16:45 17:00	48	25	**73**	18	17	**35**	**108**
17:00 17:15	38	18	**56**	26	11	**37**	**93**
17:15 17:30	31	27	**58**	27	11	**38**	**96**
17:30 17:45	33	24	**57**	17	16	**33**	**90**
17:45 18:00	32	23	**55**	17	24	**41**	**96**
Total	822	589	**1411**	553	330	**883**	**2294**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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

Full Study Heavy Vehicles

		CHURCHILL AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	1	1	**3**	0	1	1	**6**	**9**	3	2	0	**7**	0	1	0	**4**	**11**	**10**
07:15	07:30	0	1	2	**5**	0	2	1	**5**	**10**	1	4	0	**8**	0	2	0	**8**	**16**	**13**
07:30	07:45	0	5	1	**11**	1	2	4	**13**	**24**	1	1	2	**9**	1	1	0	**5**	**14**	**19**
07:45	08:00	1	2	1	**8**	1	3	0	**8**	**16**	1	2	0	**8**	1	4	1	**10**	**18**	**17**
08:00	08:15	0	8	0	**9**	1	1	0	**13**	**22**	2	4	0	**11**	0	5	1	**11**	**22**	**22**
08:15	08:30	0	2	0	**6**	1	4	0	**9**	**15**	1	4	0	**8**	0	3	1	**9**	**17**	**16**
08:30	08:45	0	5	2	**8**	0	1	3	**12**	**20**	3	3	0	**11**	0	2	0	**7**	**18**	**19**
08:45	09:00	0	7	0	**9**	0	1	0	**10**	**19**	2	2	0	**7**	1	3	0	**6**	**13**	**16**
09:00	09:15	0	3	0	**11**	0	7	2	**12**	**23**	0	4	0	**10**	1	4	0	**9**	**19**	**21**
09:15	09:30	0	6	1	**13**	0	5	1	**13**	**26**	0	5	0	**7**	1	1	1	**9**	**16**	**21**
09:30	09:45	1	7	2	**14**	1	3	3	**14**	**28**	0	5	0	**12**	1	3	0	**12**	**24**	**26**
09:45	10:00	0	2	3	**11**	0	4	3	**11**	**22**	1	5	0	**10**	2	1	1	**12**	**22**	**22**
11:30	11:45	0	2	1	**14**	1	10	0	**15**	**29**	0	1	1	**6**	0	4	2	**9**	**15**	**22**
11:45	12:00	1	7	2	**12**	0	2	2	**12**	**24**	0	3	0	**8**	0	2	1	**8**	**16**	**20**
12:00	12:15	0	4	2	**14**	0	6	2	**13**	**27**	0	4	2	**12**	0	4	1	**11**	**23**	**25**
12:15	12:30	1	0	0	**5**	0	4	0	**6**	**11**	2	2	0	**8**	0	3	0	**5**	**13**	**12**
12:30	12:45	1	4	0	**8**	0	3	2	**10**	**18**	1	2	0	**12**	0	6	0	**8**	**20**	**19**
12:45	13:00	1	2	1	**5**	0	0	2	**4**	**9**	0	3	0	**7**	1	1	0	**6**	**13**	**11**
13:00	13:15	0	4	0	**8**	1	3	1	**10**	**18**	1	2	1	**6**	0	1	0	**4**	**10**	**14**
13:15	13:30	0	2	0	**13**	0	8	2	**15**	**28**	3	1	1	**11**	2	4	0	**7**	**18**	**23**
15:00	15:15	1	1	0	**11**	0	3	2	**7**	**18**	1	5	4	**17**	2	4	0	**11**	**28**	**23**
15:15	15:30	0	3	0	**8**	0	4	1	**8**	**16**	0	1	1	**5**	0	2	0	**3**	**8**	**12**
15:30	15:45	0	0	0	**3**	0	2	2	**4**	**7**	0	2	1	**5**	0	0	0	**2**	**7**	**7**
15:45	16:00	0	1	0	**2**	0	1	1	**4**	**6**	1	2	0	**6**	0	2	0	**4**	**10**	**8**
16:00	16:15	0	2	0	**4**	0	1	4	**8**	**12**	0	2	0	**9**	1	3	1	**7**	**16**	**14**
16:15	16:30	0	2	0	**7**	0	4	0	**7**	**14**	1	1	1	**5**	0	2	0	**3**	**8**	**11**
16:30	16:45	1	2	0	**7**	1	4	0	**10**	**17**	3	1	0	**5**	0	0	0	**2**	**7**	**12**
16:45	17:00	0	2	0	**8**	0	5	0	**8**	**16**	1	3	0	**4**	1	0	0	**4**	**8**	**12**
17:00	17:15	0	2	0	**2**	1	0	1	**5**	**7**	1	2	0	**7**	0	3	0	**6**	**13**	**10**
17:15	17:30	0	2	0	**4**	0	1	1	**4**	**8**	0	1	1	**4**	0	1	0	**2**	**6**	**7**
17:30	17:45	0	2	0	**6**	0	4	0	**6**	**12**	0	0	0	**1**	0	1	0	**1**	**2**	**7**
17:45	18:00	0	0	0	**1**	0	1	0	**1**	**2**	0	1	0	**2**	0	1	0	**2**	**4**	**3**
Total:	None	8	93	19	**250**	9	100	41	**283**	**533**	30	80	15	**248**	15	74	10	**207**	**455**	**494**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39644

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

Full Study 15 Minute U-Turn Total

		CHURCHILL AVE		RICHMOND RD		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	1	0	0	0	1
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	1	1
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	1	1
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		1	0	0	2	3

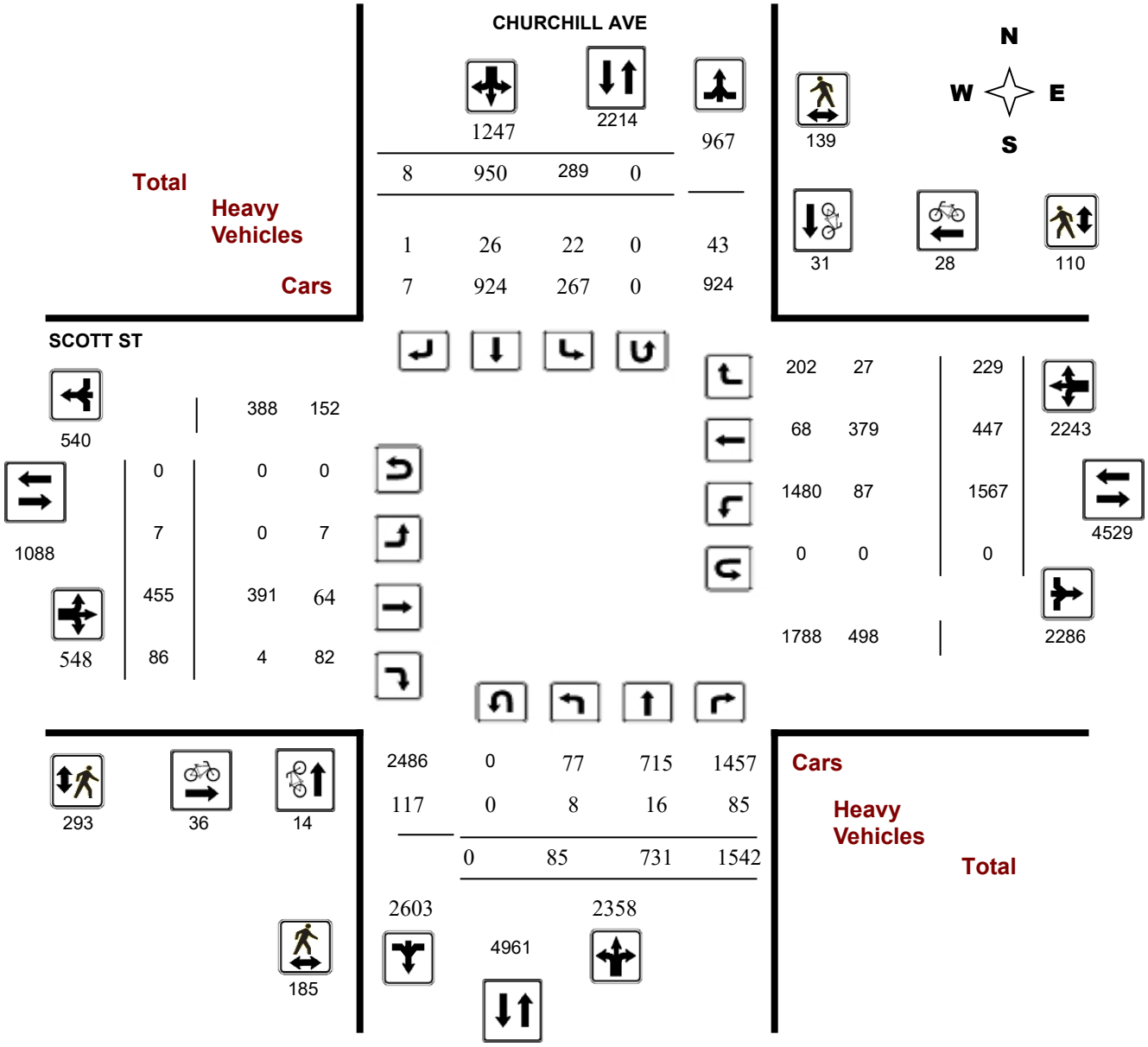
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023
Start Time: 07:00
WO No: 41269
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

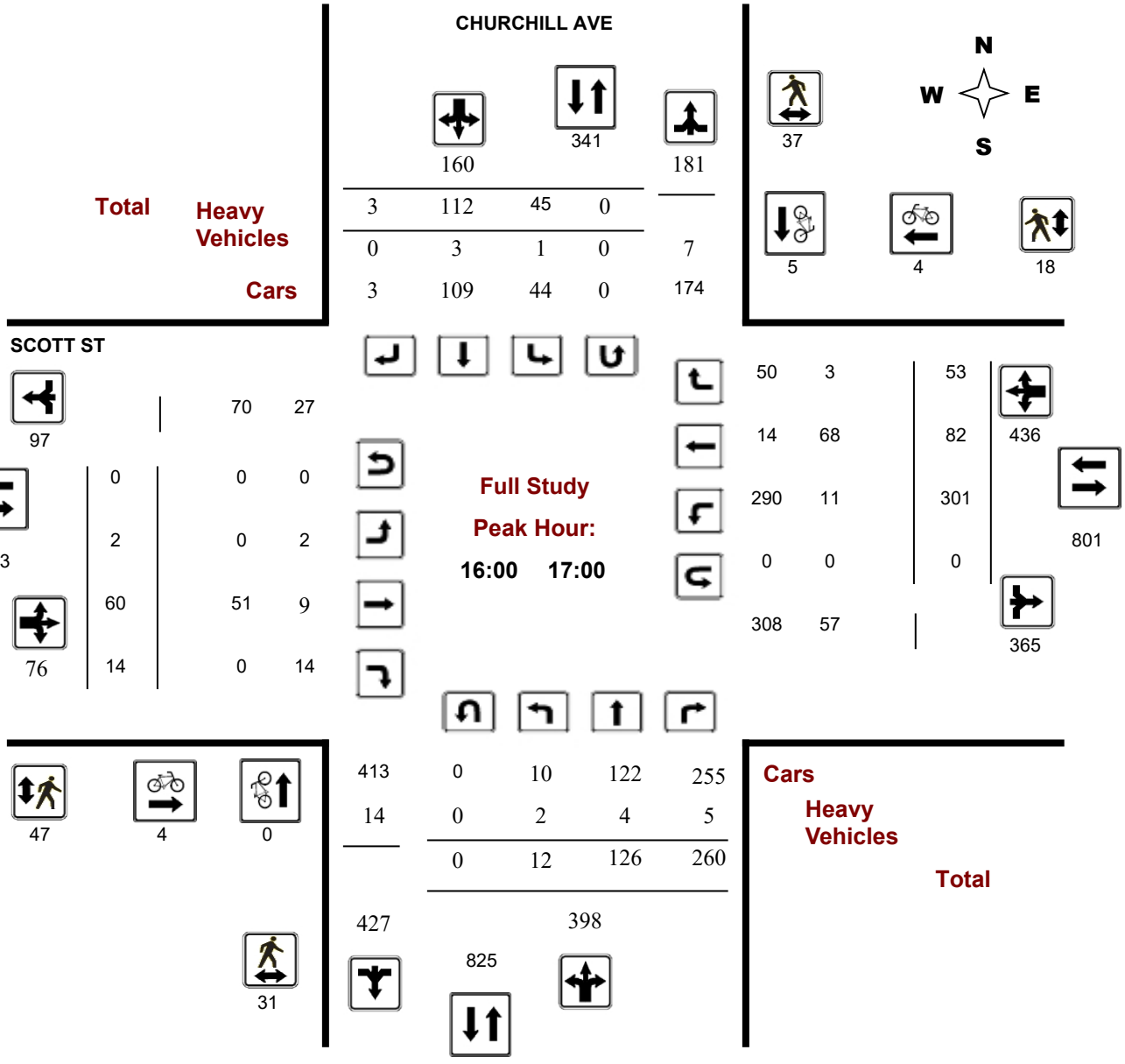
Turning Movement Count - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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

Full Study Peak Hour Diagram



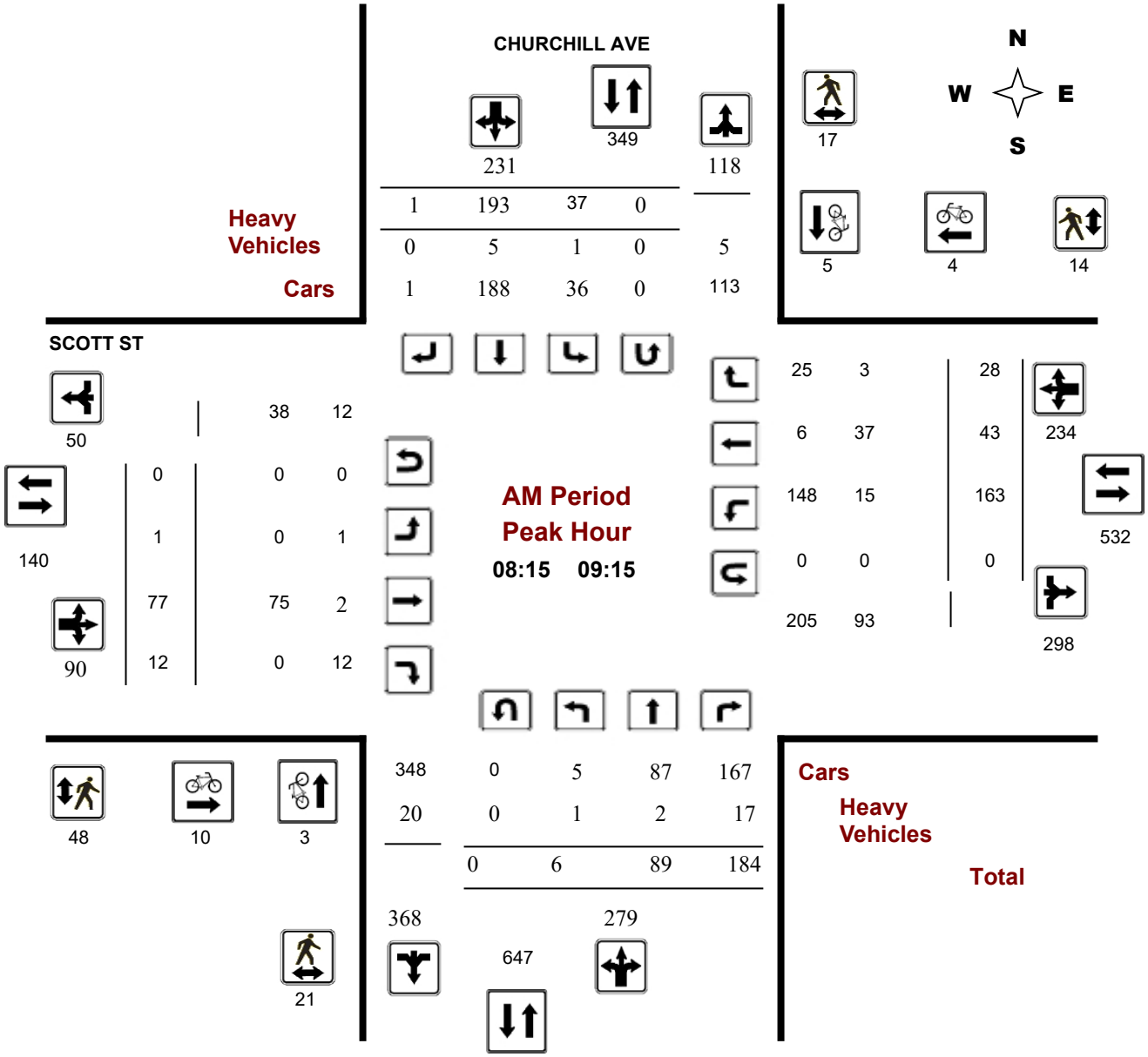
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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



Comments

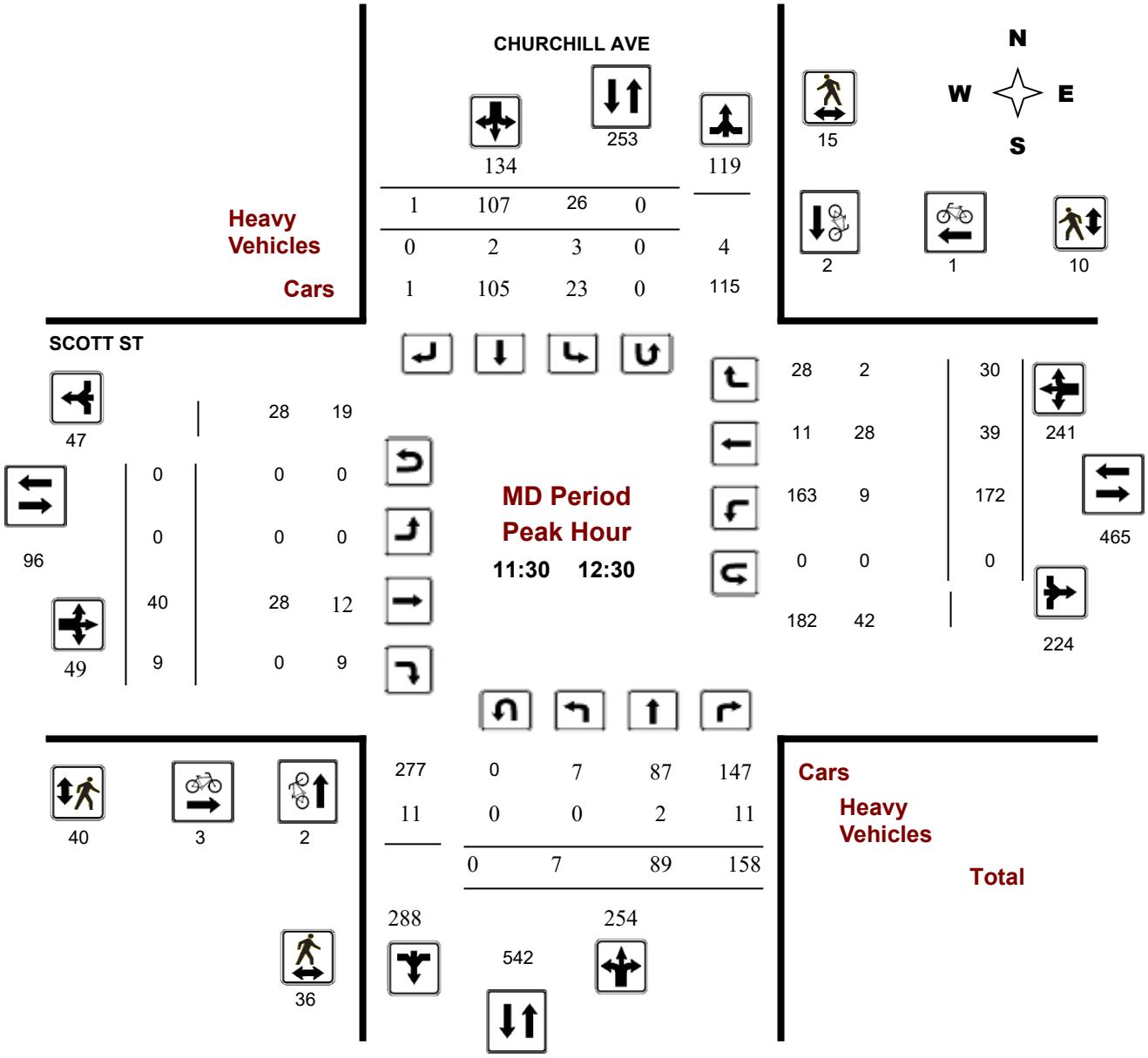
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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



Comments

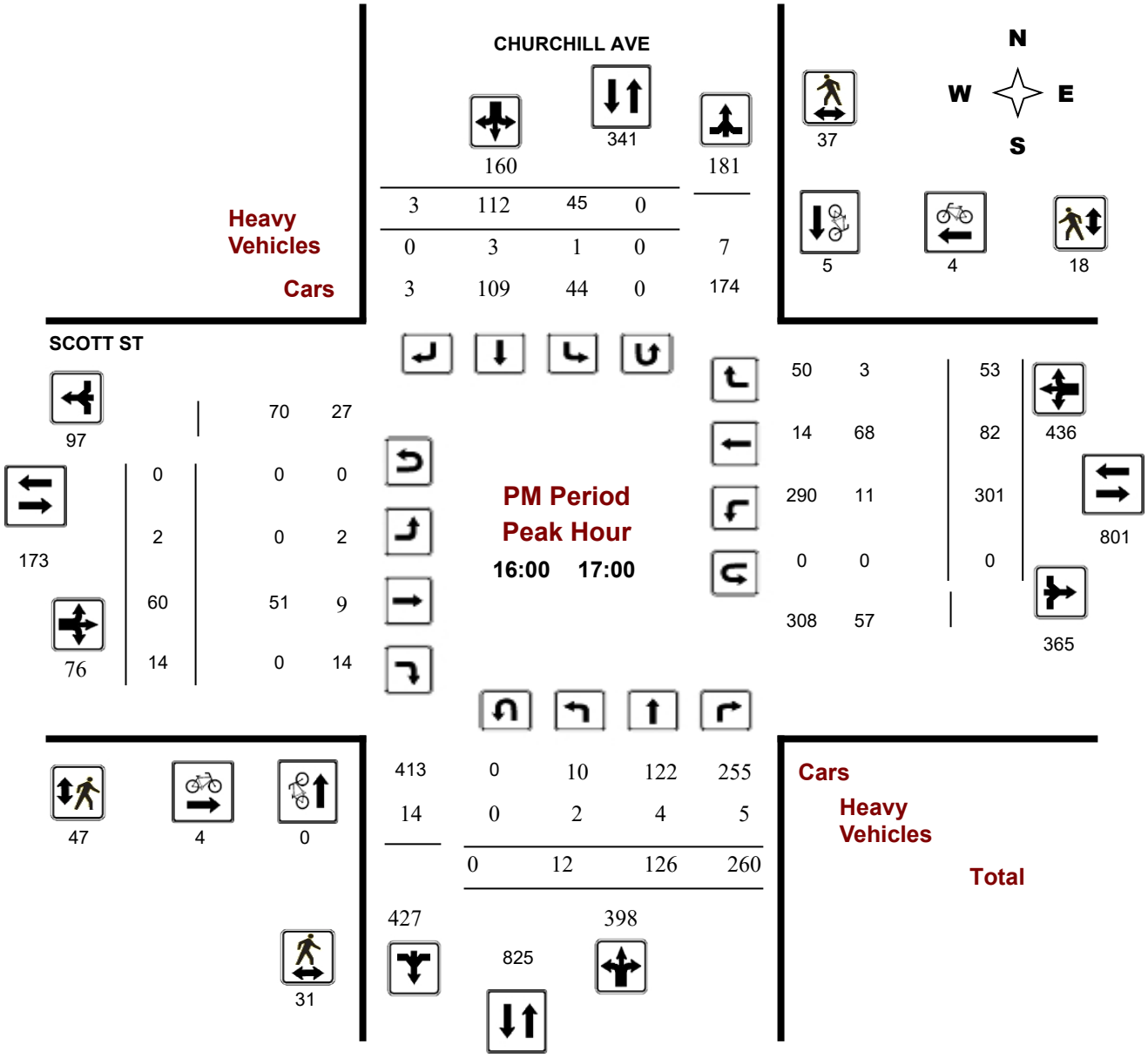
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, November 30, 2023

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor

.90

	CHURCHILL 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	6	46	119	**171**	33	129	1	**163**	**334**	0	72	6	**78**	137	50	11	**198**	**276**	**610**
08:00 09:00	5	76	196	**277**	39	193	1	**233**	**510**	1	77	10	**88**	159	43	28	**230**	**318**	**828**
09:00 10:00	9	86	130	**225**	28	104	0	**132**	**357**	0	54	11	**65**	179	39	14	**232**	**297**	**654**
11:30 12:30	7	89	158	**254**	26	107	1	**134**	**388**	0	40	9	**49**	172	39	30	**241**	**290**	**678**
12:30 13:30	13	91	155	**259**	29	98	0	**127**	**386**	1	38	11	**50**	140	42	29	**211**	**261**	**647**
15:00 16:00	14	114	272	**400**	48	115	1	**164**	**564**	3	55	10	**68**	228	67	36	**331**	**399**	**963**
16:00 17:00	12	126	260	**398**	45	112	3	**160**	**558**	2	60	14	**76**	301	82	53	**436**	**512**	**1070**
17:00 18:00	19	103	252	**374**	41	92	1	**134**	**508**	0	59	15	**74**	251	85	28	**364**	**438**	**946**
Sub Total	85	731	1542	**2358**	289	950	8	**1247**	**3605**	7	455	86	**548**	1567	447	229	**2243**	**2791**	**6396**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	85	731	1542	**2358**	289	950	8	**1247**	**3605**	7	455	86	**548**	1567	447	229	**2243**	**2791**	**6396**
EQ 12Hr	118	1016	2143	**3278**	402	1320	11	**1733**	**5011**	10	632	120	**762**	2178	621	318	**3118**	**3879**	**8890**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	106	914	1929	**2950**	362	1557	13	**1560**	**4510**	9	569	108	**686**	1960	559	286	**2806**	**3491**	**8001**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	139	1197	2527	**3864**	474	2040	17	**2044**	**5908**	12	745	141	**899**	2568	732	375	**3676**	**4573**	**10481**
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 - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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

Full Study 15 Minute Increments

		CHURCHILL AVE									SCOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	14	20	35	8	24	1	33	68	0	21	0	21	20	10	5	35	56	124
07:15	07:30	0	6	22	28	9	25	0	34	62	0	18	1	19	29	10	2	41	60	122
07:30	07:45	0	16	23	39	7	38	0	45	84	0	18	1	19	43	13	0	56	75	159
07:45	08:00	5	10	54	69	9	42	0	51	120	0	15	4	19	45	17	4	66	85	205
08:00	08:15	0	17	61	78	10	36	0	46	124	0	19	0	19	34	9	8	51	70	194
08:15	08:30	1	15	50	66	16	46	0	62	128	0	23	6	29	38	11	5	54	83	211
08:30	08:45	1	21	49	71	7	54	0	61	132	1	14	3	18	40	11	7	58	76	208
08:45	09:00	3	23	36	62	6	57	1	64	126	0	21	1	22	47	12	8	67	89	215
09:00	09:15	1	30	49	80	8	36	0	44	124	0	19	2	21	38	9	8	55	76	200
09:15	09:30	3	16	36	55	4	30	0	34	89	0	12	4	16	52	12	2	66	82	171
09:30	09:45	3	22	20	45	9	18	0	27	72	0	12	2	14	43	10	3	56	70	142
09:45	10:00	2	18	25	45	7	20	0	27	72	0	11	3	14	46	8	1	55	69	141
11:30	11:45	0	19	45	64	5	29	0	34	98	0	11	1	12	42	9	8	59	71	169
11:45	12:00	3	17	41	61	10	21	1	32	93	0	13	4	17	51	15	7	73	90	183
12:00	12:15	2	25	34	61	4	28	0	32	93	0	5	3	8	45	9	5	59	67	160
12:15	12:30	2	28	38	68	7	29	0	36	104	0	11	1	12	34	6	10	50	62	166
12:30	12:45	1	25	32	58	6	30	0	36	94	1	6	4	11	41	9	11	61	72	166
12:45	13:00	4	18	41	63	7	24	0	31	94	0	12	3	15	38	10	5	53	68	162
13:00	13:15	3	28	45	76	7	19	0	26	102	0	10	4	14	29	12	7	48	62	164
13:15	13:30	5	20	37	62	9	25	0	34	96	0	10	0	10	32	11	6	49	59	155
15:00	15:15	4	19	52	75	9	27	1	37	112	1	17	4	22	58	11	8	77	99	211
15:15	15:30	4	35	84	123	15	41	0	56	179	1	11	3	15	54	18	8	80	95	274
15:30	15:45	3	32	79	114	14	32	0	46	160	0	11	2	13	59	17	10	86	99	259
15:45	16:00	3	28	57	88	10	15	0	25	113	1	16	1	18	57	21	10	88	106	219
16:00	16:15	3	37	64	104	14	26	1	41	145	1	16	2	19	76	22	8	106	125	270
16:15	16:30	2	30	64	96	8	29	0	37	133	1	12	4	17	78	17	13	108	125	258
16:30	16:45	3	23	67	93	13	21	1	35	128	0	11	4	15	67	25	14	106	121	249
16:45	17:00	4	36	65	105	10	36	1	47	152	0	21	4	25	80	18	18	116	141	293
17:00	17:15	6	21	78	105	16	16	1	33	138	0	13	9	22	71	24	6	101	123	261
17:15	17:30	3	33	68	104	12	30	0	42	146	0	11	4	15	63	27	11	101	116	262
17:30	17:45	6	31	53	90	8	23	0	31	121	0	17	1	18	52	15	5	72	90	211
17:45	18:00	4	18	53	75	5	23	0	28	103	0	18	1	19	65	19	6	90	109	212
Total:		85	731	1542	2358	289	950	8	1247	3605	7	455	86	548	1567	447	229	2243	2791	6,396

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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

Full Study Cyclist Volume

Time Period		CHURCHILL AVE			SCOTT ST			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	1	1	0	0	0	1
07:15	07:30	1	0	1	0	0	0	1
07:30	07:45	0	1	1	0	1	1	2
07:45	08:00	0	0	0	3	0	3	3
08:00	08:15	0	2	2	4	1	5	7
08:15	08:30	1	3	4	4	3	7	11
08:30	08:45	1	1	2	3	0	3	5
08:45	09:00	1	1	2	3	1	4	6
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	1	0	1	1	0	1	2
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	1	1	2	1	3	4
11:30	11:45	1	0	1	0	1	1	2
11:45	12:00	1	0	1	1	0	1	2
12:00	12:15	0	1	1	0	0	0	1
12:15	12:30	0	1	1	2	0	2	3
12:30	12:45	1	1	2	0	2	2	4
12:45	13:00	0	0	0	2	0	2	2
13:00	13:15	0	1	1	0	1	1	2
13:15	13:30	0	2	2	2	0	2	4
15:00	15:15	0	1	1	0	2	2	3
15:15	15:30	1	0	1	2	0	2	3
15:30	15:45	4	0	4	2	0	2	6
15:45	16:00	1	2	3	1	0	1	4
16:00	16:15	0	1	1	0	0	0	1
16:15	16:30	0	3	3	1	3	4	7
16:30	16:45	0	0	0	1	1	2	2
16:45	17:00	0	1	1	2	0	2	3
17:00	17:15	0	4	4	0	4	4	8
17:15	17:30	0	0	0	0	2	2	2
17:30	17:45	0	2	2	0	3	3	5
17:45	18:00	0	1	1	0	2	2	3
Total		14	31	**45**	36	28	64	109

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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

Full Study Pedestrian Volume

	CHURCHILL AVE			SCOTT ST			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	4	1	**5**	2	6	**8**	**13**
07:15 07:30	2	3	**5**	5	0	**5**	**10**
07:30 07:45	6	3	**9**	18	6	**24**	**33**
07:45 08:00	5	0	**5**	2	0	**2**	**7**
08:00 08:15	6	3	**9**	3	3	**6**	**15**
08:15 08:30	2	4	**6**	11	5	**16**	**22**
08:30 08:45	7	4	**11**	14	4	**18**	**29**
08:45 09:00	7	5	**12**	14	3	**17**	**29**
09:00 09:15	5	4	**9**	9	2	**11**	**20**
09:15 09:30	4	1	**5**	5	1	**6**	**11**
09:30 09:45	3	8	**11**	5	1	**6**	**17**
09:45 10:00	5	3	**8**	6	4	**10**	**18**
11:30 11:45	7	1	**8**	9	4	**13**	**21**
11:45 12:00	3	2	**5**	7	0	**7**	**12**
12:00 12:15	12	3	**15**	12	1	**13**	**28**
12:15 12:30	14	9	**23**	12	5	**17**	**40**
12:30 12:45	4	6	**10**	6	4	**10**	**20**
12:45 13:00	5	6	**11**	15	3	**18**	**29**
13:00 13:15	5	4	**9**	10	4	**14**	**23**
13:15 13:30	5	0	**5**	7	4	**11**	**16**
15:00 15:15	3	1	**4**	9	4	**13**	**17**
15:15 15:30	0	8	**8**	7	1	**8**	**16**
15:30 15:45	15	8	**23**	22	6	**28**	**51**
15:45 16:00	2	2	**4**	6	4	**10**	**14**
16:00 16:15	9	11	**20**	14	7	**21**	**41**
16:15 16:30	11	5	**16**	11	6	**17**	**33**
16:30 16:45	8	14	**22**	12	5	**17**	**39**
16:45 17:00	3	7	**10**	10	0	**10**	**20**
17:00 17:15	3	4	**7**	9	6	**15**	**22**
17:15 17:30	6	6	**12**	5	4	**9**	**21**
17:30 17:45	7	1	**8**	4	5	**9**	**17**
17:45 18:00	7	2	**9**	12	2	**14**	**23**
Total	185	139	**324**	293	110	**403**	**727**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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

Full Study Heavy Vehicles

		CHURCHILL AVE									SCOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	2	6	**11**	0	0	1	**4**	**15**	0	19	0	**30**	3	10	1	**39**	**69**	**42**
07:15	07:30	0	0	4	**11**	1	6	0	**8**	**19**	0	18	0	**28**	1	10	1	**35**	**63**	**41**
07:30	07:45	0	1	1	**7**	1	1	0	**3**	**10**	0	18	0	**31**	4	13	0	**37**	**68**	**39**
07:45	08:00	0	1	6	**8**	1	1	0	**5**	**13**	0	14	0	**30**	0	16	2	**39**	**69**	**41**
08:00	08:15	0	1	6	**12**	0	2	0	**6**	**18**	0	17	0	**26**	3	9	3	**38**	**64**	**41**
08:15	08:30	0	0	5	**10**	1	1	0	**3**	**13**	0	23	0	**34**	4	11	1	**45**	**79**	**46**
08:30	08:45	1	0	5	**10**	0	1	0	**1**	**11**	0	13	0	**24**	3	10	0	**31**	**55**	**33**
08:45	09:00	0	1	0	**7**	0	2	0	**4**	**11**	0	21	0	**30**	4	9	1	**35**	**65**	**38**
09:00	09:15	0	1	7	**13**	0	1	0	**3**	**16**	0	18	0	**25**	4	7	1	**37**	**62**	**39**
09:15	09:30	1	0	2	**8**	1	0	0	**2**	**10**	0	11	1	**23**	4	10	1	**29**	**52**	**31**
09:30	09:45	0	0	0	**3**	1	0	0	**3**	**6**	0	10	0	**19**	3	9	2	**25**	**44**	**25**
09:45	10:00	1	0	5	**10**	0	0	0	**0**	**10**	0	10	1	**19**	3	7	0	**25**	**44**	**27**
11:30	11:45	0	0	3	**4**	1	0	0	**1**	**5**	0	8	0	**15**	1	7	0	**20**	**35**	**20**
11:45	12:00	0	1	2	**10**	1	1	0	**4**	**14**	0	7	0	**17**	6	10	1	**27**	**44**	**29**
12:00	12:15	0	1	3	**7**	0	1	0	**2**	**9**	0	5	0	**11**	2	6	0	**16**	**27**	**18**
12:15	12:30	0	0	3	**3**	1	0	0	**2**	**5**	0	8	0	**13**	0	5	1	**18**	**31**	**18**
12:30	12:45	0	1	0	**3**	1	0	0	**3**	**6**	0	5	0	**12**	2	7	1	**16**	**28**	**17**
12:45	13:00	0	0	2	**6**	1	0	0	**2**	**8**	0	7	1	**16**	3	8	1	**22**	**38**	**23**
13:00	13:15	2	0	0	**11**	1	2	0	**5**	**16**	0	7	1	**16**	6	6	2	**22**	**38**	**27**
13:15	13:30	1	0	4	**7**	1	0	0	**1**	**8**	0	8	0	**17**	2	8	0	**23**	**40**	**24**
15:00	15:15	0	0	2	**9**	2	2	0	**5**	**14**	0	14	0	**23**	5	9	1	**33**	**56**	**35**
15:15	15:30	0	0	4	**6**	0	0	0	**0**	**6**	0	9	0	**24**	2	15	0	**30**	**54**	**30**
15:30	15:45	0	2	1	**11**	0	1	0	**4**	**15**	0	8	0	**24**	7	16	1	**33**	**57**	**36**
15:45	16:00	0	0	1	**2**	3	0	0	**4**	**6**	0	14	0	**35**	1	21	1	**41**	**76**	**41**
16:00	16:15	1	2	2	**12**	0	1	0	**3**	**15**	0	14	0	**32**	6	17	0	**39**	**71**	**43**
16:15	16:30	0	1	1	**5**	1	1	0	**4**	**9**	0	11	0	**23**	2	12	1	**28**	**51**	**30**
16:30	16:45	0	1	0	**3**	0	1	0	**3**	**6**	0	8	0	**31**	1	23	1	**33**	**64**	**35**
16:45	17:00	1	0	2	**5**	0	0	0	**1**	**6**	0	18	0	**35**	2	16	1	**39**	**74**	**40**
17:00	17:15	0	0	4	**5**	1	0	0	**1**	**6**	0	9	0	**25**	1	16	0	**31**	**56**	**31**
17:15	17:30	0	0	1	**2**	2	0	0	**3**	**5**	0	10	0	**34**	1	24	1	**39**	**73**	**39**
17:30	17:45	0	0	2	**3**	0	0	0	**0**	**3**	0	12	0	**26**	1	14	0	**29**	**55**	**29**
17:45	18:00	0	0	1	**2**	0	1	0	**2**	**4**	0	17	0	**35**	0	18	1	**37**	**72**	**38**
Total:	None	8	16	85	**226**	22	26	1	**92**	**318**	0	391	4	**783**	87	379	27	**991**	**1774**	**1,046**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CHURCHILL AVE @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41269

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

Full Study 15 Minute U-Turn Total

		CHURCHILL AVE		SCOTT ST		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Transportation Services - Traffic Services

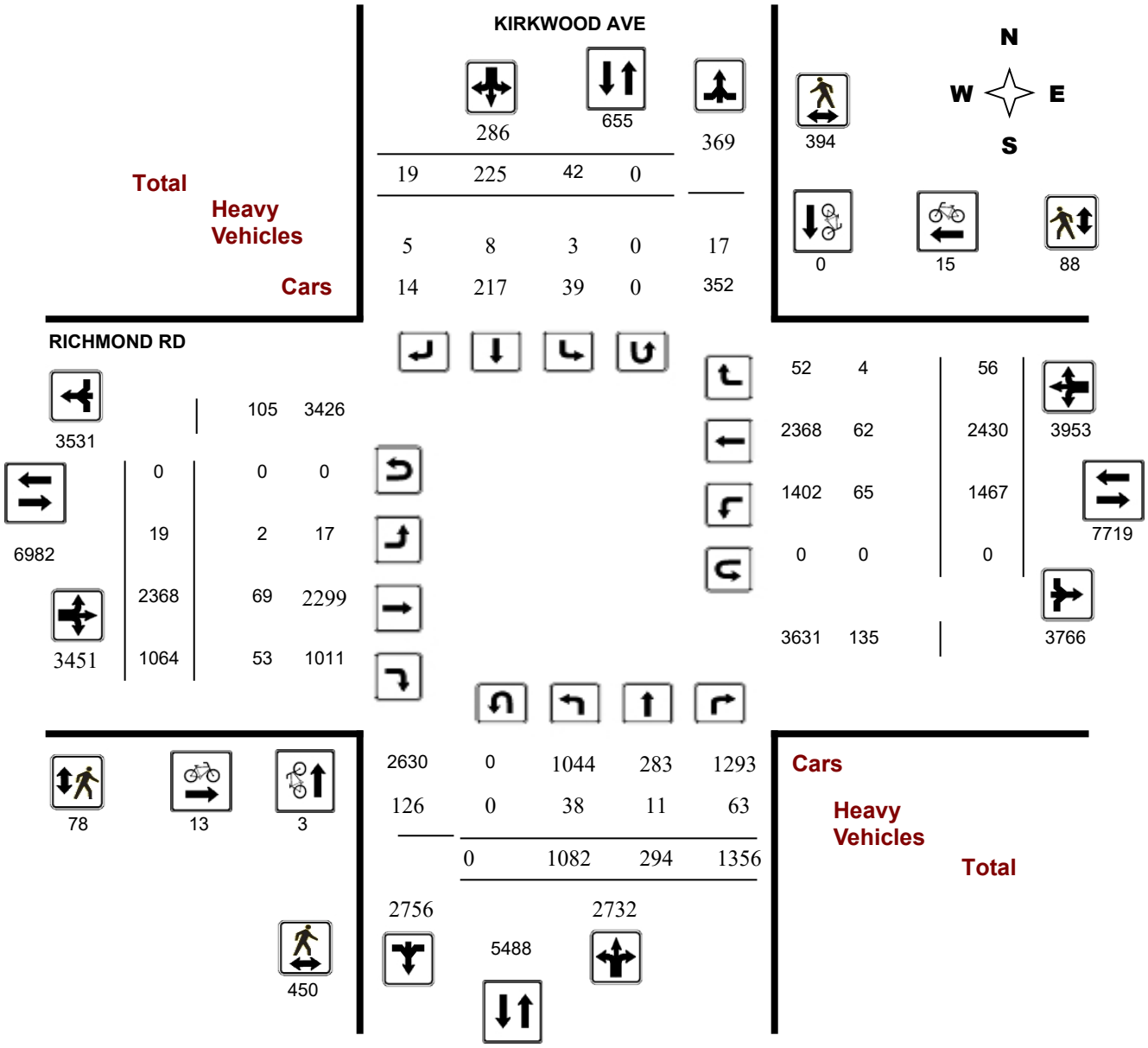
Turning Movement Count - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study Diagram



Transportation Services - Traffic Services

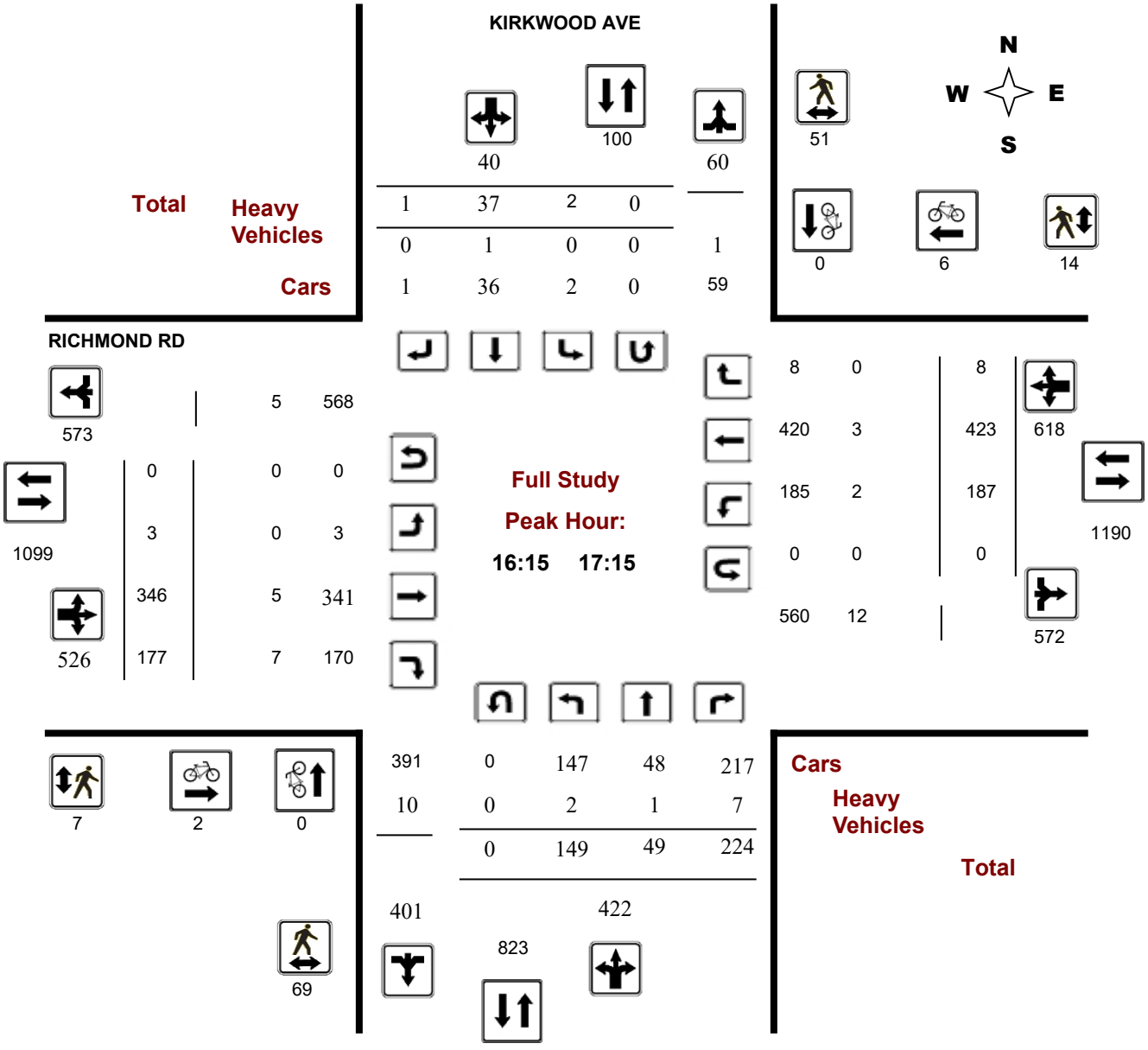
Turning Movement Count - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study Peak Hour Diagram



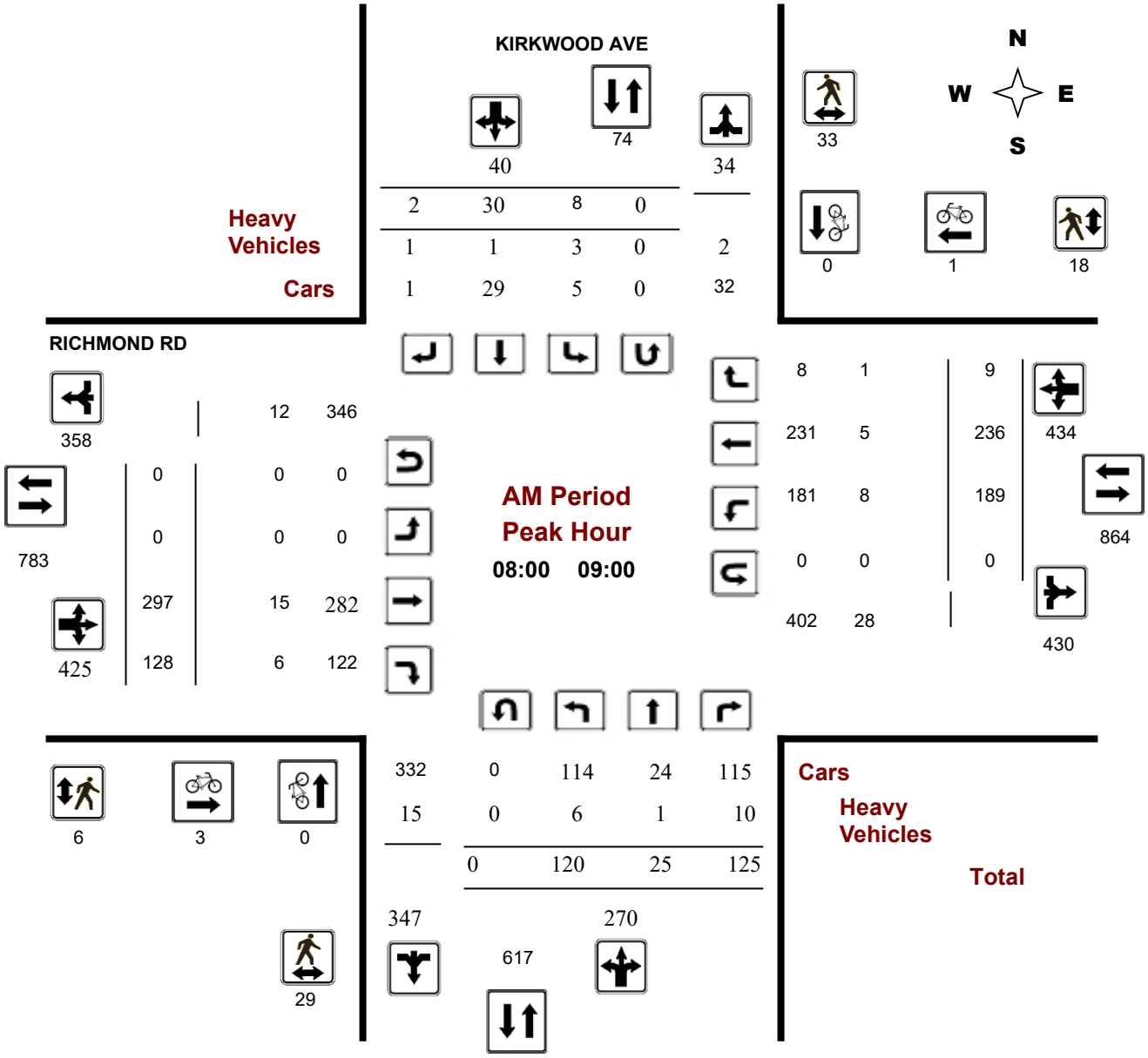
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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



Comments

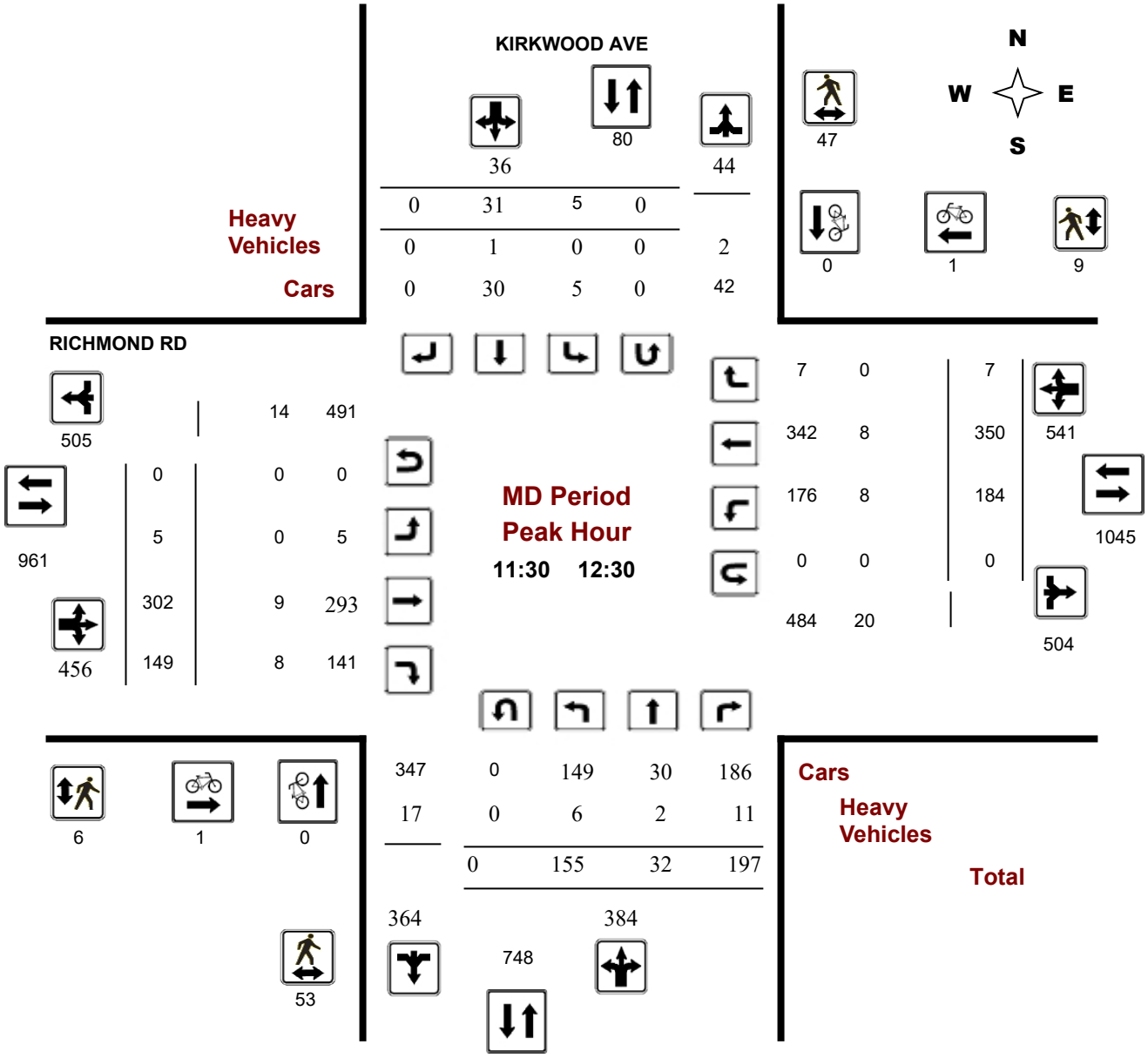
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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



Comments

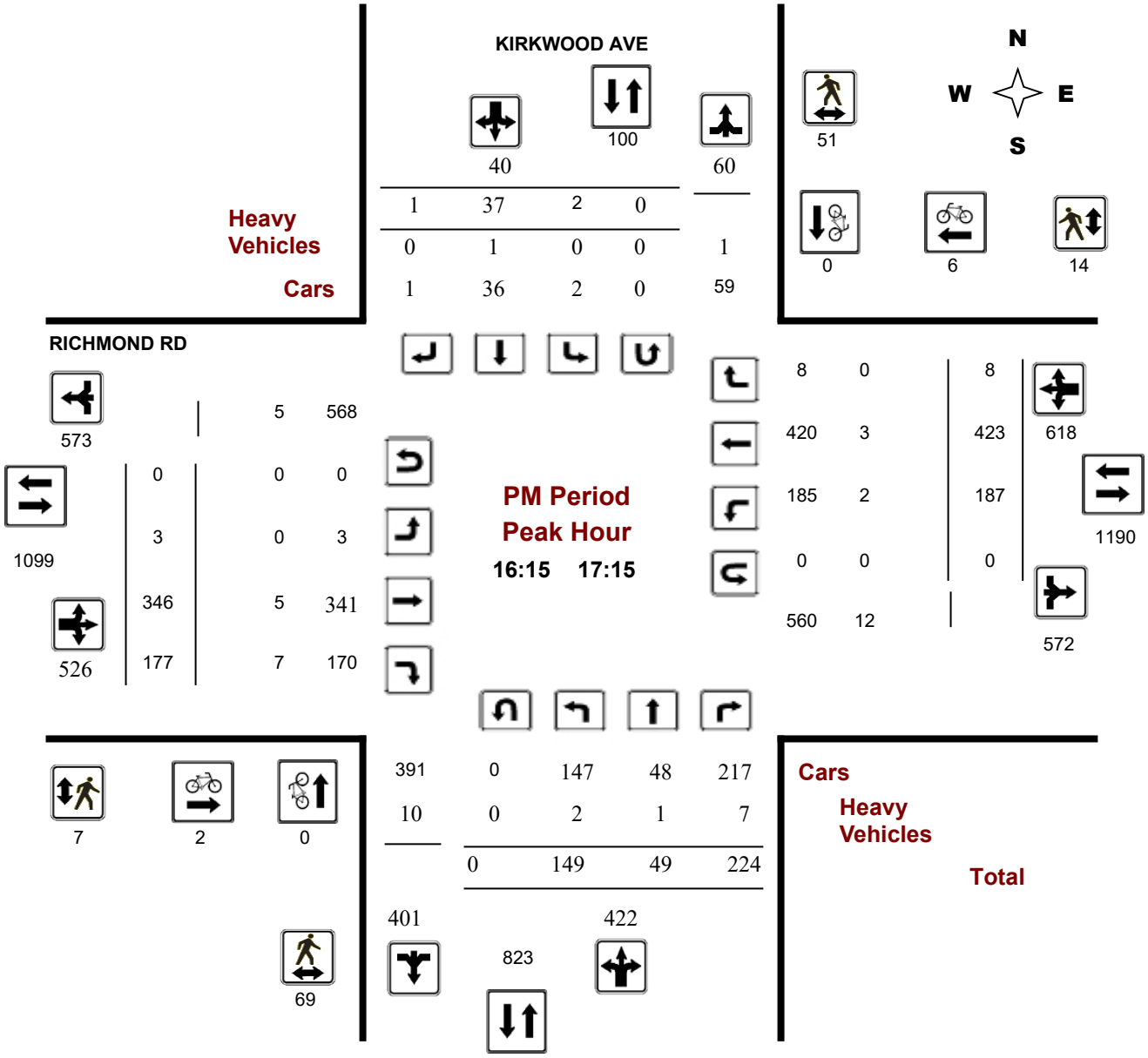
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, December 20, 2023

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor

1.00

	KIRKWOOD AVE								RICHMOND RD									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	90	20	109	**219**	4	11	2	**17**	**236**	3	170	105	**278**	173	141	2	**316**	**594**	**830**
08:00 09:00	120	25	125	**270**	8	30	2	**40**	**310**	0	297	128	**425**	189	236	9	**434**	**859**	**1169**
09:00 10:00	151	21	144	**316**	3	30	4	**37**	**353**	2	240	108	**350**	173	241	1	**415**	**765**	**1118**
11:30 12:30	155	32	197	**384**	5	31	0	**36**	**420**	5	302	149	**456**	184	350	7	**541**	**997**	**1417**
12:30 13:30	135	35	153	**323**	5	24	3	**32**	**355**	3	315	122	**440**	179	323	9	**511**	**951**	**1306**
15:00 16:00	151	54	168	**373**	7	36	4	**47**	**420**	1	357	138	**496**	192	351	11	**554**	**1050**	**1470**
16:00 17:00	147	47	232	**426**	4	39	3	**46**	**472**	1	346	164	**511**	190	423	8	**621**	**1132**	**1604**
17:00 18:00	133	60	228	**421**	6	24	1	**31**	**452**	4	341	150	**495**	187	365	9	**561**	**1056**	**1508**
Sub Total	1082	294	1356	**2732**	42	225	19	**286**	**3018**	19	2368	1064	**3451**	1467	2430	56	**3953**	**7404**	**10422**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	1082	294	1356	**2732**	42	225	19	**286**	**3018**	19	2368	1064	**3451**	1467	2430	56	**3953**	**7404**	**10422**
EQ 12Hr	1504	409	1885	**3797**	58	313	26	**398**	**4195**	26	3292	1479	**4797**	2039	3378	78	**5495**	**10292**	**14487**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1504	409	1885	**3797**	58	410	35	**398**	**4195**	26	3292	1479	**4797**	2039	3378	78	**5495**	**10292**	**14487**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	1970	536	2469	**4974**	76	537	46	**521**	**5495**	34	4313	1937	**6284**	2671	4425	102	**7198**	**13483**	**18978**
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 - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study 15 Minute Increments

		KIRKWOOD AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	24	6	33	63	0	2	0	2	65	0	24	28	52	44	22	0	66	118	183
07:15	07:30	22	6	23	51	0	3	0	3	54	0	42	20	62	34	31	1	66	128	182
07:30	07:45	13	1	21	35	0	3	0	3	38	1	46	34	81	46	37	0	83	164	202
07:45	08:00	31	7	32	70	4	3	2	9	79	2	58	23	83	49	51	1	101	184	263
08:00	08:15	26	3	30	59	3	7	1	11	70	0	70	41	111	70	46	3	119	230	300
08:15	08:30	30	9	24	63	0	5	0	5	68	0	89	31	120	45	62	1	108	228	296
08:30	08:45	39	8	34	81	1	6	1	8	89	0	69	33	102	38	55	4	97	199	288
08:45	09:00	25	5	37	67	4	12	0	16	83	0	69	23	92	36	73	1	110	202	285
09:00	09:15	45	5	35	85	1	11	0	12	97	0	70	25	95	43	55	0	98	193	290
09:15	09:30	37	3	36	76	0	10	0	10	86	1	61	29	91	49	58	0	107	198	284
09:30	09:45	26	9	38	73	0	2	3	5	78	1	52	31	84	32	65	1	98	182	260
09:45	10:00	43	4	35	82	2	7	1	10	92	0	57	23	80	49	63	0	112	192	284
11:30	11:45	31	12	50	93	0	3	0	3	96	1	65	39	105	40	104	1	145	250	346
11:45	12:00	36	8	38	82	2	7	0	9	91	2	77	37	116	48	82	0	130	246	337
12:00	12:15	48	6	59	113	3	13	0	16	129	2	75	39	116	42	81	5	128	244	373
12:15	12:30	40	6	50	96	0	8	0	8	104	0	85	34	119	54	83	1	138	257	361
12:30	12:45	29	10	37	76	1	9	2	12	88	0	91	28	119	45	76	1	122	241	329
12:45	13:00	26	5	47	78	2	2	0	4	82	0	69	29	98	36	82	4	122	220	302
13:00	13:15	44	13	36	93	2	8	1	11	104	3	60	34	97	42	79	3	124	221	325
13:15	13:30	36	7	33	76	0	5	0	5	81	0	95	31	126	56	86	1	143	269	350
15:00	15:15	26	9	43	78	2	6	2	10	88	0	87	43	130	58	82	1	141	271	359
15:15	15:30	31	17	38	86	1	21	1	23	109	0	93	33	126	53	94	6	153	279	388
15:30	15:45	41	12	44	97	0	3	1	4	101	1	99	28	128	38	91	2	131	259	360
15:45	16:00	53	16	43	112	4	6	0	10	122	0	78	34	112	43	84	2	129	241	363
16:00	16:15	37	15	61	113	2	11	2	15	128	0	81	32	113	49	113	1	163	276	404
16:15	16:30	39	7	66	112	0	7	1	8	120	0	92	40	132	44	105	2	151	283	403
16:30	16:45	33	19	50	102	0	12	0	12	114	1	99	46	146	49	117	3	169	315	429
16:45	17:00	38	6	55	99	2	9	0	11	110	0	74	46	120	48	88	2	138	258	368
17:00	17:15	39	17	53	109	0	9	0	9	118	2	81	45	128	46	113	1	160	288	406
17:15	17:30	35	17	49	101	3	2	0	5	106	1	100	41	142	50	85	2	137	279	385
17:30	17:45	31	16	53	100	0	7	0	7	107	0	85	33	118	43	78	4	125	243	350
17:45	18:00	28	10	73	111	3	6	1	10	121	1	75	31	107	48	89	2	139	246	367
Total:		1082	294	1356	2732	42	225	19	286	3018	19	2368	1064	3451	1467	2430	56	3953	7404	10,422

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study Cyclist Volume

Time Period		KIRKWOOD AVE			RICHMOND RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	2	0	2	2
07:30	07:45	0	0	0	1	0	1	1
07:45	08:00	0	0	0	2	1	3	3
08:00	08:15	0	0	0	1	0	1	1
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	2	1	3	3
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	1	0	1	1
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	1	1	1
11:30	11:45	0	0	0	1	0	1	1
11:45	12:00	0	0	0	0	1	1	1
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	1	1	2	2
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	1	1	1
15:45	16:00	1	0	1	0	1	1	2
16:00	16:15	1	0	1	0	1	1	2
16:15	16:30	0	0	0	2	1	3	3
16:30	16:45	0	0	0	0	1	1	1
16:45	17:00	0	0	0	0	2	2	2
17:00	17:15	0	0	0	0	2	2	2
17:15	17:30	0	0	0	0	1	1	1
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	1	0	1	0	0	0	1
Total		3	0	**3**	13	15	28	31

Transportation Services - Traffic Services

Turning Movement Count - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study Pedestrian Volume

	KIRKWOOD AVE			RICHMOND RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	6	7	**13**	0	1	**1**	**14**
07:15 07:30	5	3	**8**	0	0	**0**	**8**
07:30 07:45	6	12	**18**	3	0	**3**	**21**
07:45 08:00	14	8	**22**	3	8	**11**	**33**
08:00 08:15	6	10	**16**	1	7	**8**	**24**
08:15 08:30	6	10	**16**	2	8	**10**	**26**
08:30 08:45	8	8	**16**	1	2	**3**	**19**
08:45 09:00	9	5	**14**	2	1	**3**	**17**
09:00 09:15	3	6	**9**	0	0	**0**	**9**
09:15 09:30	10	11	**21**	0	1	**1**	**22**
09:30 09:45	12	10	**22**	0	1	**1**	**23**
09:45 10:00	8	11	**19**	5	2	**7**	**26**
11:30 11:45	10	9	**19**	1	1	**2**	**21**
11:45 12:00	15	17	**32**	4	4	**8**	**40**
12:00 12:15	12	6	**18**	0	1	**1**	**19**
12:15 12:30	16	15	**31**	1	3	**4**	**35**
12:30 12:45	16	24	**40**	6	3	**9**	**49**
12:45 13:00	14	12	**26**	0	2	**2**	**28**
13:00 13:15	18	21	**39**	3	2	**5**	**44**
13:15 13:30	13	18	**31**	7	2	**9**	**40**
15:00 15:15	25	21	**46**	4	5	**9**	**55**
15:15 15:30	20	20	**40**	2	3	**5**	**45**
15:30 15:45	22	15	**37**	3	2	**5**	**42**
15:45 16:00	19	16	**35**	7	2	**9**	**44**
16:00 16:15	17	12	**29**	3	3	**6**	**35**
16:15 16:30	17	13	**30**	3	5	**8**	**38**
16:30 16:45	20	10	**30**	4	4	**8**	**38**
16:45 17:00	17	11	**28**	0	1	**1**	**29**
17:00 17:15	15	17	**32**	0	4	**4**	**36**
17:15 17:30	26	11	**37**	6	5	**11**	**48**
17:30 17:45	22	12	**34**	4	1	**5**	**39**
17:45 18:00	23	13	**36**	3	4	**7**	**43**
Total	450	394	**844**	78	88	**166**	**1010**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study Heavy Vehicles

		KIRKWOOD AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	2	0	0	**5**	0	0	0	**0**	**5**	0	2	2	**6**	1	0	0	**3**	**9**	**7**
07:15	07:30	1	1	1	**7**	0	0	0	**1**	**8**	0	3	1	**8**	3	3	0	**10**	**18**	**13**
07:30	07:45	0	1	3	**7**	0	1	0	**2**	**9**	0	1	1	**4**	1	2	0	**7**	**11**	**10**
07:45	08:00	1	2	1	**9**	0	0	2	**5**	**14**	1	1	2	**10**	3	3	0	**8**	**18**	**16**
08:00	08:15	1	0	3	**10**	1	0	1	**2**	**12**	0	5	2	**10**	4	1	0	**14**	**24**	**18**
08:15	08:30	2	1	2	**6**	0	0	0	**1**	**7**	0	4	1	**7**	0	0	0	**6**	**13**	**10**
08:30	08:45	3	0	4	**12**	1	1	0	**2**	**14**	0	5	2	**13**	2	3	0	**15**	**28**	**21**
08:45	09:00	0	0	1	**4**	1	0	0	**2**	**6**	0	1	1	**3**	2	1	1	**7**	**10**	**8**
09:00	09:15	1	0	3	**8**	0	0	0	**0**	**8**	0	8	1	**12**	3	2	0	**16**	**28**	**18**
09:15	09:30	3	0	5	**10**	0	0	0	**0**	**10**	0	1	1	**9**	1	4	0	**11**	**20**	**15**
09:30	09:45	2	1	3	**16**	0	0	1	**4**	**20**	1	2	4	**12**	6	2	1	**14**	**26**	**23**
09:45	10:00	3	0	1	**8**	0	0	1	**1**	**9**	0	2	1	**10**	3	3	0	**9**	**19**	**14**
11:30	11:45	1	1	2	**6**	0	0	0	**1**	**7**	0	4	1	**7**	1	1	0	**8**	**15**	**11**
11:45	12:00	0	0	2	**9**	0	1	0	**1**	**10**	0	1	4	**10**	2	5	0	**10**	**20**	**15**
12:00	12:15	4	0	3	**11**	0	0	0	**0**	**11**	0	3	1	**9**	3	1	0	**10**	**19**	**15**
12:15	12:30	1	1	4	**10**	0	0	0	**1**	**11**	0	1	2	**5**	2	1	0	**8**	**13**	**12**
12:30	12:45	1	1	1	**9**	0	1	0	**2**	**11**	0	5	3	**13**	2	4	0	**12**	**25**	**18**
12:45	13:00	0	0	4	**6**	0	0	0	**1**	**7**	0	2	1	**5**	1	2	1	**10**	**15**	**11**
13:00	13:15	4	0	1	**11**	0	1	0	**1**	**12**	0	0	0	**8**	5	4	0	**10**	**18**	**15**
13:15	13:30	0	1	3	**11**	0	2	0	**4**	**15**	0	3	3	**8**	2	2	1	**11**	**19**	**17**
15:00	15:15	1	0	2	**8**	0	0	0	**0**	**8**	0	2	4	**10**	1	3	0	**8**	**18**	**13**
15:15	15:30	0	0	2	**8**	0	0	0	**0**	**8**	0	2	2	**5**	4	1	0	**9**	**14**	**11**
15:30	15:45	0	0	1	**4**	0	0	0	**0**	**4**	0	1	1	**4**	2	2	0	**6**	**10**	**7**
15:45	16:00	2	0	0	**6**	0	0	0	**0**	**6**	0	1	2	**7**	2	2	0	**5**	**12**	**9**
16:00	16:15	1	0	1	**6**	0	0	0	**0**	**6**	0	1	2	**7**	2	3	0	**7**	**14**	**10**
16:15	16:30	0	0	2	**7**	0	0	0	**0**	**7**	0	0	3	**3**	2	0	0	**4**	**7**	**7**
16:30	16:45	2	1	1	**5**	0	0	0	**1**	**6**	0	3	1	**7**	0	1	0	**5**	**12**	**9**
16:45	17:00	0	0	1	**2**	0	1	0	**1**	**3**	0	1	0	**1**	0	0	0	**2**	**3**	**3**
17:00	17:15	0	0	3	**6**	0	0	0	**0**	**6**	0	1	3	**6**	0	2	0	**6**	**12**	**9**
17:15	17:30	1	0	1	**4**	0	0	0	**0**	**4**	0	2	0	**4**	2	1	0	**6**	**10**	**7**
17:30	17:45	1	0	0	**3**	0	0	0	**0**	**3**	0	1	1	**6**	1	3	0	**5**	**11**	**7**
17:45	18:00	0	0	2	**4**	0	0	0	**0**	**4**	0	0	0	**0**	2	0	0	**4**	**4**	**4**
Total:	None	38	11	63	**238**	3	8	5	**33**	**271**	2	69	53	**229**	65	62	4	**266**	**495**	**383**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

KIRKWOOD AVE @ RICHMOND RD

Survey Date: Wednesday, December 20, 2023 **WO No:** 41423

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

Full Study 15 Minute U-Turn Total

		KIRKWOOD AVE		RICHMOND RD		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

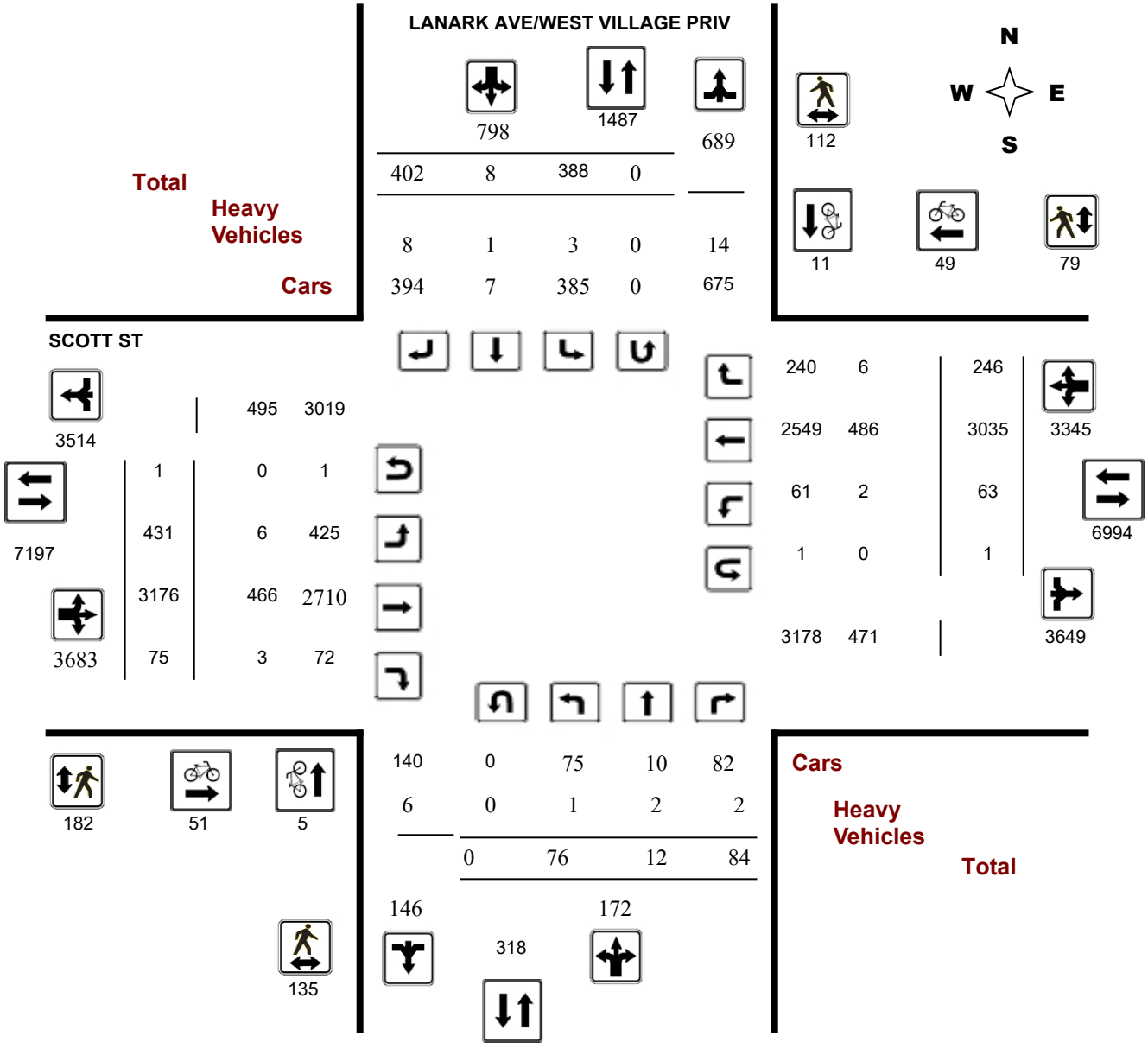
Transportation Services - Traffic Services

Turning Movement Count - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023
Start Time: 07:00
WO No: 41268
Device: Miovision

Full Study Diagram



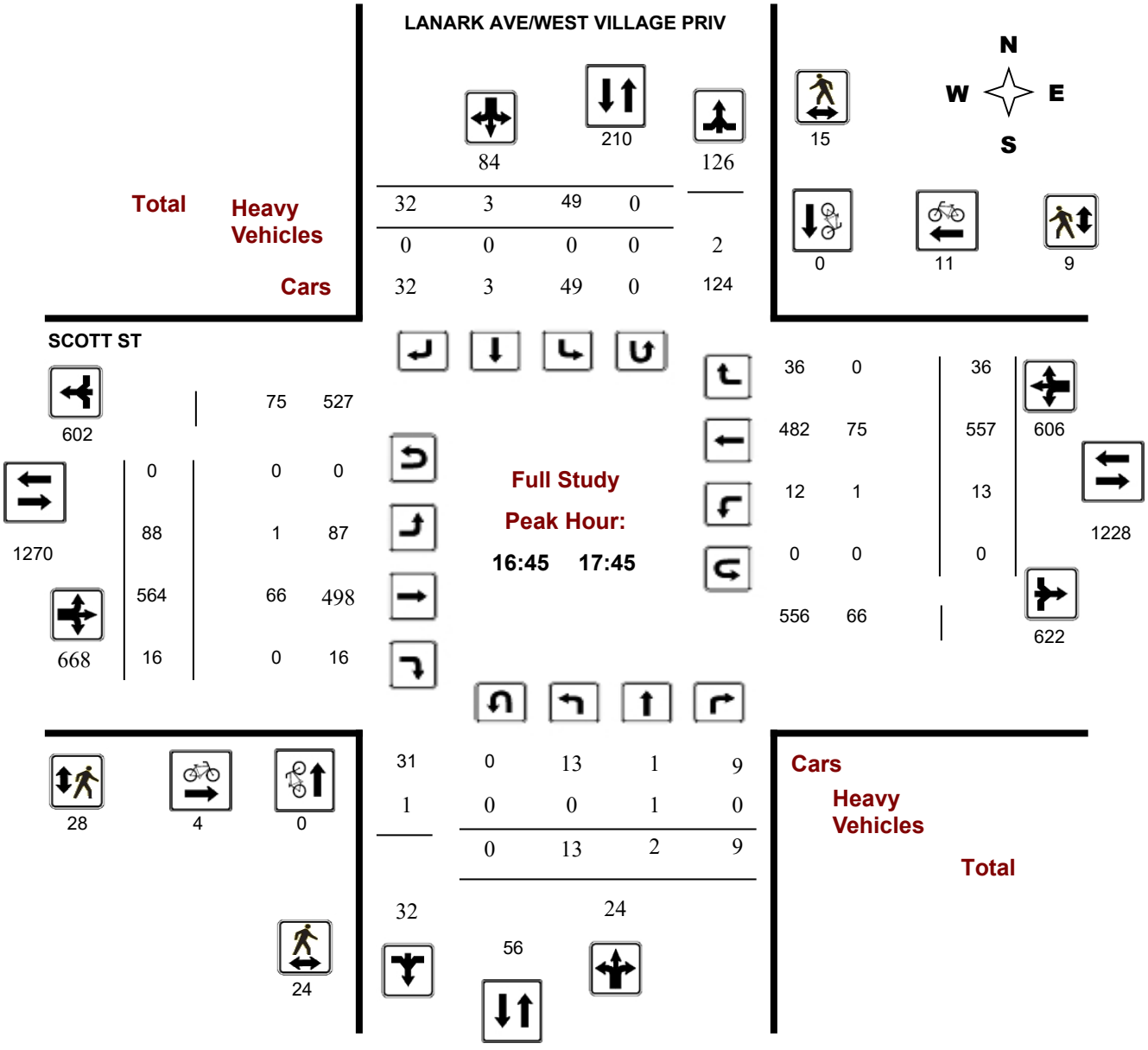
Transportation Services - Traffic Services

Turning Movement Count - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023
Start Time: 07:00
WO No: 41268
Device: Miovision

Full Study Peak Hour Diagram



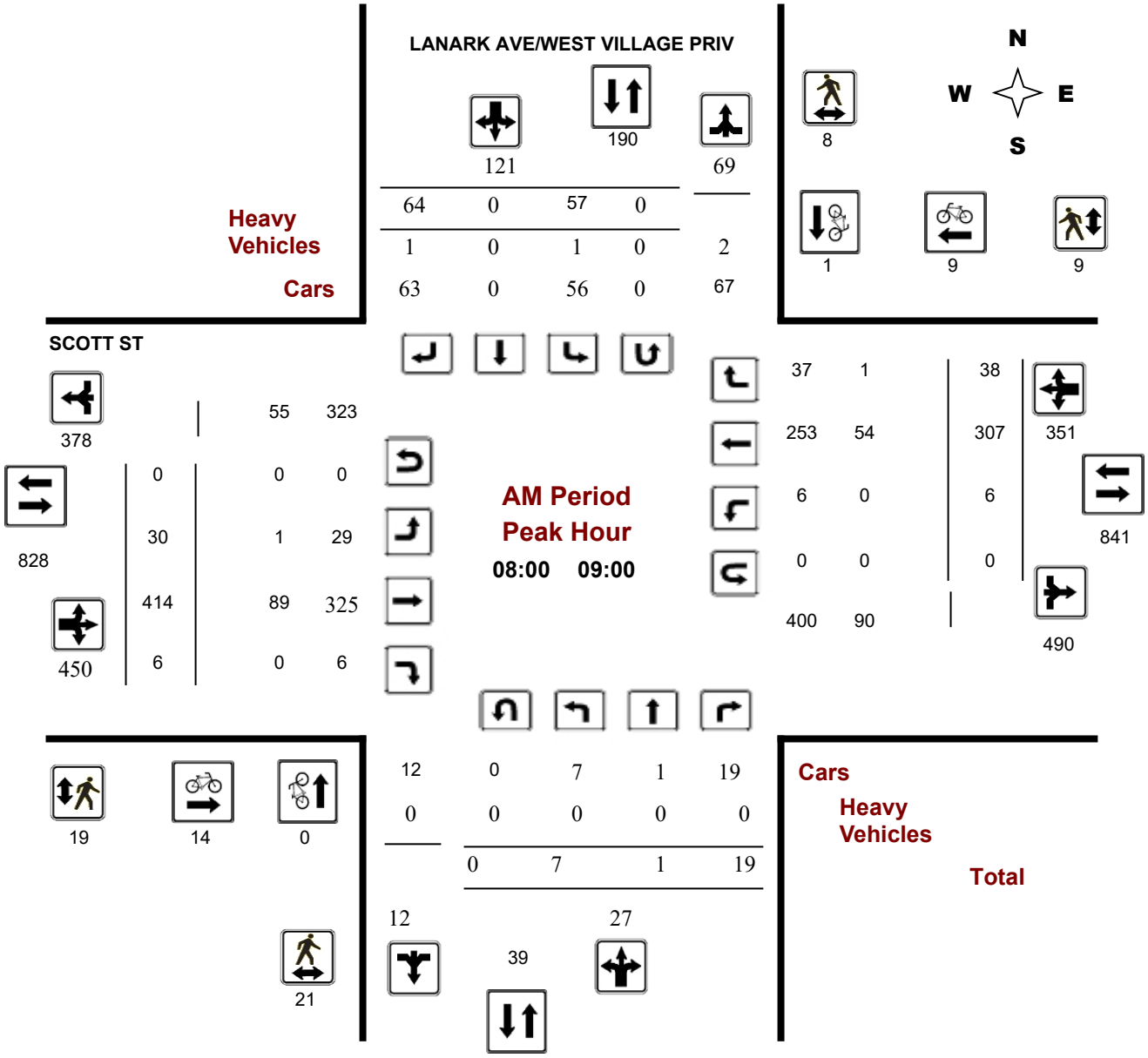
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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



Comments

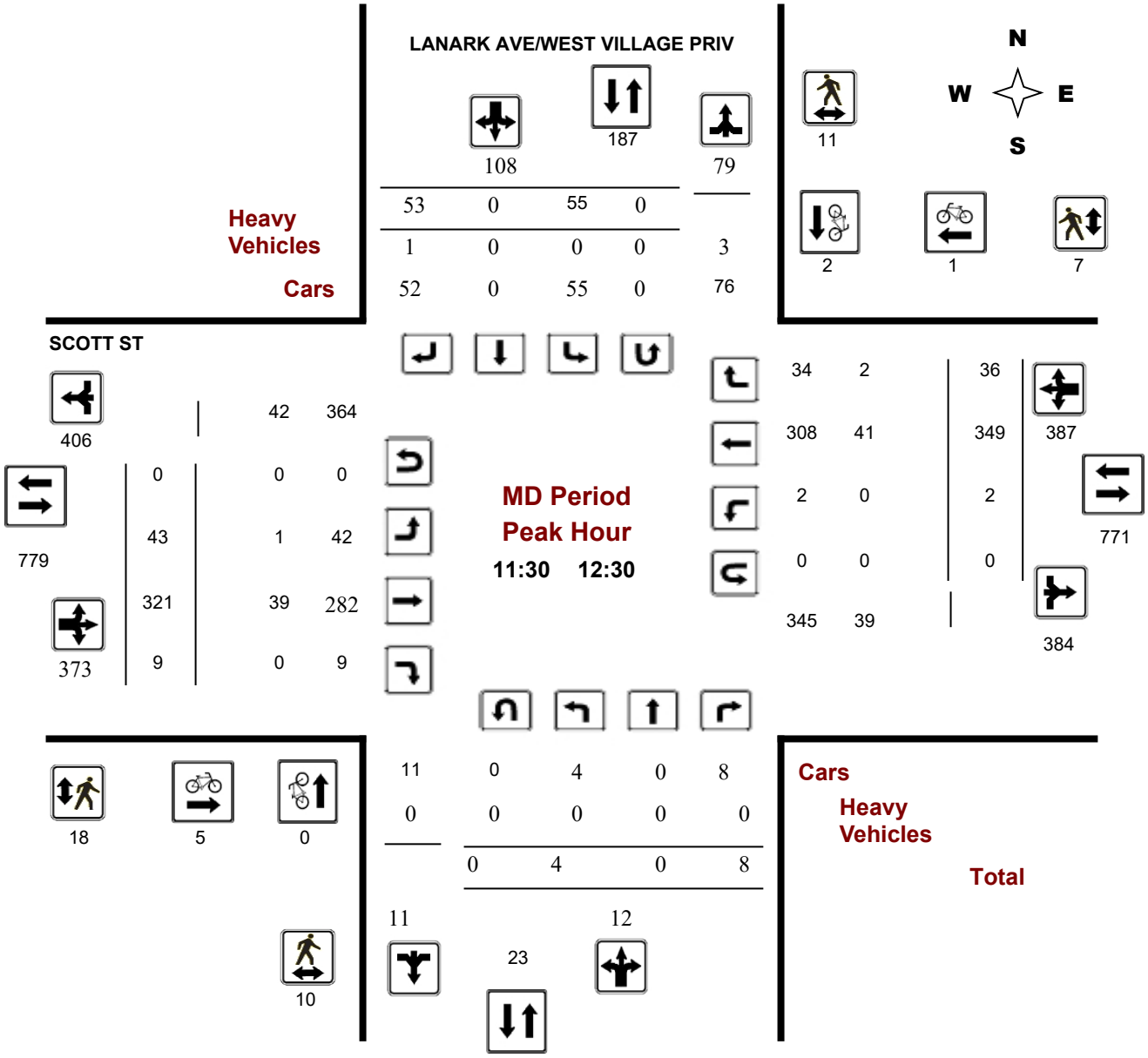
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023
Start Time: 07:00

WO No: 41268
Device: Miovision



Comments

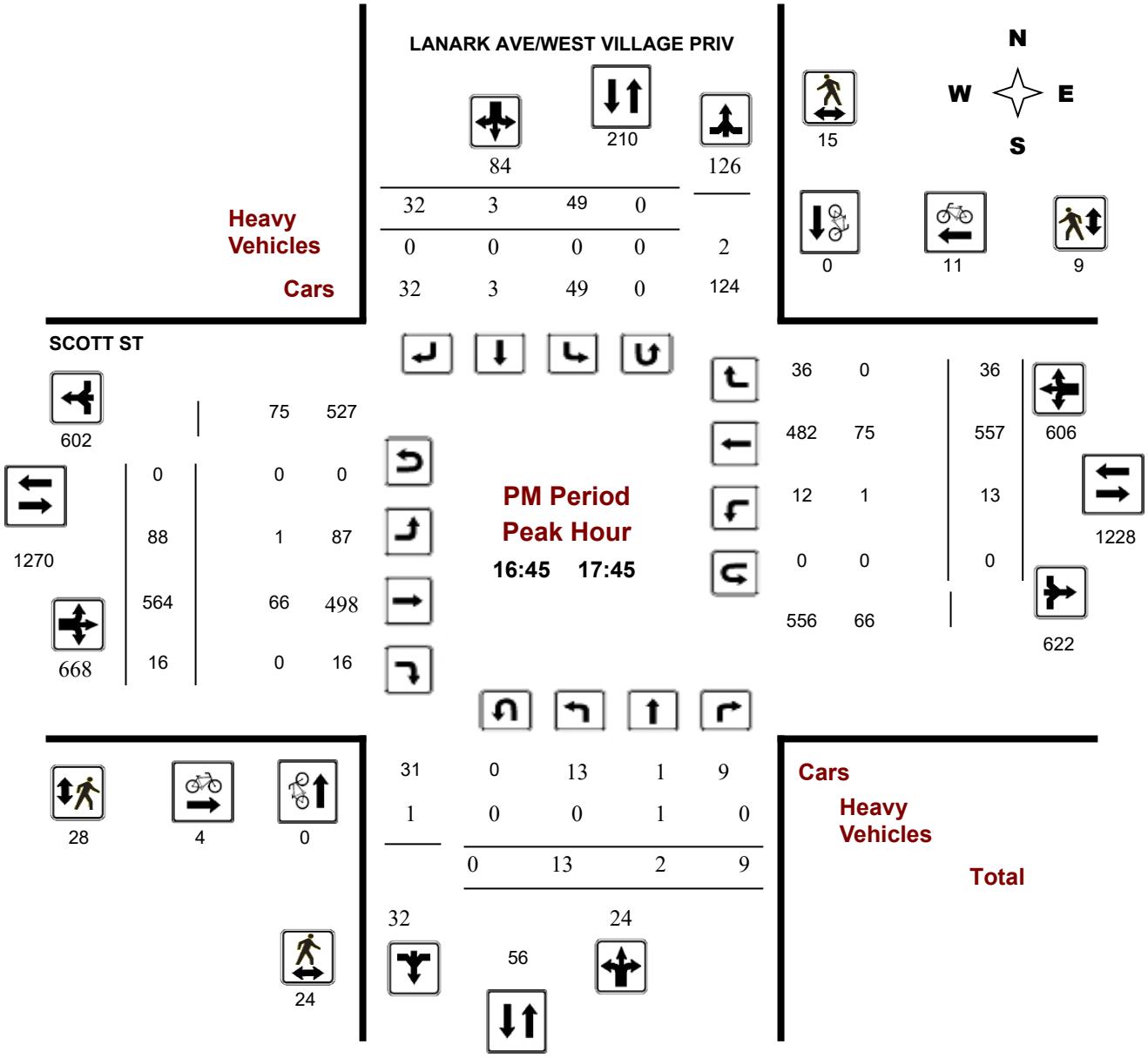
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, November 30, 2023

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 1 Westbound: 1

AADT Factor

.90

	LANARK AVE/WEST VILLAGE PRIV									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	11	0	10	**21**	50	0	71	**121**	**142**	17	283	1	**301**	5	249	12	**266**	**567**	**709**
08:00 09:00	7	1	19	**27**	57	0	64	**121**	**148**	30	414	6	**450**	6	307	38	**351**	**801**	**949**
09:00 10:00	12	0	8	**20**	40	0	46	**86**	**106**	27	296	5	**328**	9	297	19	**325**	**653**	**759**
11:30 12:30	4	0	8	**12**	55	0	53	**108**	**120**	43	321	9	**373**	2	349	36	**387**	**760**	**880**
12:30 13:30	4	1	4	**9**	36	1	47	**84**	**93**	56	329	9	**394**	6	292	37	**335**	**729**	**822**
15:00 16:00	9	7	18	**34**	62	2	46	**110**	**144**	82	517	11	**610**	12	476	36	**524**	**1134**	**1278**
16:00 17:00	11	2	11	**24**	49	3	35	**87**	**111**	90	478	13	**581**	13	540	30	**583**	**1164**	**1275**
17:00 18:00	18	1	6	**25**	39	2	40	**81**	**106**	86	538	21	**645**	10	525	38	**573**	**1218**	**1324**
Sub Total	76	12	84	**172**	388	8	402	**798**	**970**	431	3176	75	**3682**	63	3035	246	**3344**	**7026**	**7996**
U Turns				**0**				**0**	**0**				**1**				**1**	**2**	**2**
Total	76	12	84	**172**	388	8	402	**798**	**970**	431	3176	75	**3683**	63	3035	246	**3345**	**7028**	**7998**
EQ 12Hr	106	17	117	**239**	539	11	559	**1109**	**1348**	599	4415	104	**5119**	88	4219	342	**4650**	**9769**	**11117**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	95	15	105	**215**	485	13	659	**998**	**1213**	539	3974	94	**4607**	79	3797	308	**4185**	**8792**	**10005**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	124	20	138	**282**	635	17	863	**1307**	**1589**	706	5206	123	**6035**	103	4974	403	**5482**	**11518**	**13107**
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 - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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

Full Study 15 Minute Increments

LANARK AVE/WEST VILLAGE PRIV **SCOTT ST**

Time Period		Northbound				Southbound					Eastbound				Westbound					Grand Total
		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	
07:00	07:15	2	0	0	2	9	0	8	17	19	4	66	0	70	0	50	1	51	121	140
07:15	07:30	1	0	3	4	11	0	20	31	35	4	64	1	69	1	49	2	52	121	156
07:30	07:45	5	0	4	9	16	0	16	32	41	5	70	0	75	1	69	7	77	152	193
07:45	08:00	3	0	3	6	14	0	27	41	47	4	83	0	87	3	81	2	86	173	220
08:00	08:15	3	0	5	8	10	0	14	24	32	7	111	1	119	0	68	12	80	199	231
08:15	08:30	0	1	4	5	16	0	17	33	38	9	117	3	129	4	68	8	80	209	247
08:30	08:45	1	0	4	5	9	0	10	19	24	7	102	2	111	0	80	12	92	203	227
08:45	09:00	3	0	6	9	22	0	23	45	54	7	84	0	91	2	91	6	99	190	244
09:00	09:15	1	0	1	2	14	0	12	26	28	12	104	2	118	5	72	7	84	202	230
09:15	09:30	3	0	3	6	9	0	12	21	27	10	74	2	86	2	85	7	94	180	207
09:30	09:45	5	0	0	5	6	0	14	20	25	4	63	1	68	0	72	2	74	142	167
09:45	10:00	3	0	4	7	11	0	8	19	26	1	55	0	56	2	68	3	73	129	155
11:30	11:45	2	0	2	4	14	0	11	25	29	9	85	4	98	0	90	10	100	198	227
11:45	12:00	1	0	3	4	13	0	12	25	29	10	80	1	91	0	105	8	113	204	233
12:00	12:15	0	0	2	2	16	0	14	30	32	11	70	2	83	2	76	8	86	169	201
12:15	12:30	1	0	1	2	12	0	16	28	30	13	86	2	101	0	78	10	88	189	219
12:30	12:45	1	1	1	3	9	1	12	22	25	15	82	2	99	3	82	7	92	191	216
12:45	13:00	1	0	0	1	13	0	10	23	24	21	84	1	106	0	75	15	90	196	220
13:00	13:15	1	0	2	3	10	0	12	22	25	11	83	2	96	2	75	9	86	182	207
13:15	13:30	1	0	1	2	4	0	13	17	19	9	80	4	93	1	60	6	67	160	179
15:00	15:15	3	2	3	8	12	1	8	21	29	19	118	1	138	4	104	9	117	255	284
15:15	15:30	1	3	5	9	19	1	17	37	46	24	121	3	148	3	123	14	141	289	335
15:30	15:45	4	2	5	11	17	0	11	28	39	17	145	3	165	2	115	5	122	287	326
15:45	16:00	1	0	5	6	14	0	10	24	30	22	133	4	159	3	134	8	145	304	334
16:00	16:15	2	0	0	2	10	0	15	25	27	19	113	4	136	3	133	8	144	280	307
16:15	16:30	4	0	3	7	12	0	7	19	26	22	125	4	152	1	128	9	138	290	316
16:30	16:45	4	0	3	7	12	2	9	23	30	29	103	2	134	4	131	5	140	274	304
16:45	17:00	1	2	5	8	15	1	4	20	28	20	137	3	160	5	148	8	161	321	349
17:00	17:15	3	0	2	5	9	0	11	20	25	20	148	1	169	3	153	4	160	329	354
17:15	17:30	6	0	2	8	12	2	10	24	32	26	148	6	180	2	136	16	154	334	366
17:30	17:45	3	0	0	3	13	0	7	20	23	22	131	6	159	3	120	8	131	290	313
17:45	18:00	6	1	2	9	5	0	12	17	26	18	111	8	137	2	116	10	128	265	291
Total:		76	12	84	172	388	8	402	798	970	431	3176	75	3683	63	3035	246	3345	7028	7,998

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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

Full Study Cyclist Volume

Time Period		LANARK AVE/WEST VILLAGE PRIV			SCOTT ST			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	1	0	1	1
07:15	07:30	0	0	0	2	0	2	2
07:30	07:45	0	0	0	1	2	3	3
07:45	08:00	0	2	2	3	0	3	5
08:00	08:15	0	0	0	1	1	2	2
08:15	08:30	0	0	0	4	3	7	7
08:30	08:45	0	0	0	7	4	11	11
08:45	09:00	0	1	1	2	1	3	4
09:00	09:15	0	0	0	1	0	1	1
09:15	09:30	0	0	0	0	1	1	1
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	2	1	3	3
11:30	11:45	0	1	1	2	0	2	3
11:45	12:00	0	1	1	3	0	3	4
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	1	1	1
12:30	12:45	0	1	1	1	2	3	4
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	1	0	1	1	2	3	4
13:15	13:30	0	0	0	2	0	2	2
15:00	15:15	0	1	1	4	2	6	7
15:15	15:30	3	0	3	1	1	2	5
15:30	15:45	0	1	1	2	2	4	5
15:45	16:00	0	0	0	2	1	3	3
16:00	16:15	0	0	0	0	3	3	3
16:15	16:30	1	2	3	2	4	6	9
16:30	16:45	0	0	0	2	3	5	5
16:45	17:00	0	0	0	3	1	4	4
17:00	17:15	0	0	0	1	4	5	5
17:15	17:30	0	0	0	0	2	2	2
17:30	17:45	0	0	0	0	4	4	4
17:45	18:00	0	1	1	1	4	5	6
Total		5	11	**16**	51	49	100	116

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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

Full Study Pedestrian Volume

LANARK AVE/WEST VILLAGE PRIV **SCOTT ST**

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	1	1	**2**	0	0	**0**	**2**
07:15 07:30	2	4	**6**	2	1	**3**	**9**
07:30 07:45	4	6	**10**	5	0	**5**	**15**
07:45 08:00	6	4	**10**	7	6	**13**	**23**
08:00 08:15	6	2	**8**	1	6	**7**	**15**
08:15 08:30	4	3	**7**	9	2	**11**	**18**
08:30 08:45	4	3	**7**	2	1	**3**	**10**
08:45 09:00	7	0	**7**	7	0	**7**	**14**
09:00 09:15	2	2	**4**	1	1	**2**	**6**
09:15 09:30	5	0	**5**	3	3	**6**	**11**
09:30 09:45	4	1	**5**	4	2	**6**	**11**
09:45 10:00	2	1	**3**	5	0	**5**	**8**
11:30 11:45	1	3	**4**	4	3	**7**	**11**
11:45 12:00	0	3	**3**	6	0	**6**	**9**
12:00 12:15	4	4	**8**	3	1	**4**	**12**
12:15 12:30	5	1	**6**	5	3	**8**	**14**
12:30 12:45	2	4	**6**	6	3	**9**	**15**
12:45 13:00	4	5	**9**	9	3	**12**	**21**
13:00 13:15	3	5	**8**	7	0	**7**	**15**
13:15 13:30	5	5	**10**	13	1	**14**	**24**
15:00 15:15	5	2	**7**	5	7	**12**	**19**
15:15 15:30	3	3	**6**	5	0	**5**	**11**
15:30 15:45	6	4	**10**	10	8	**18**	**28**
15:45 16:00	5	4	**9**	7	6	**13**	**22**
16:00 16:15	3	8	**11**	5	6	**11**	**22**
16:15 16:30	10	3	**13**	8	3	**11**	**24**
16:30 16:45	3	10	**13**	11	3	**14**	**27**
16:45 17:00	6	4	**10**	14	1	**15**	**25**
17:00 17:15	3	3	**6**	2	2	**4**	**10**
17:15 17:30	11	5	**16**	7	4	**11**	**27**
17:30 17:45	4	3	**7**	5	2	**7**	**14**
17:45 18:00	5	6	**11**	4	1	**5**	**16**
Total	135	112	**247**	182	79	**261**	**508**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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

Full Study Heavy Vehicles

LANARK AVE/WEST VILLAGE PRIV **SCOTT ST**

Time Period		Northbound				Southbound					Eastbound				Westbound					
		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	07:15	0	0	0	**0**	0	0	0	**1**	**1**	1	26	0	**44**	0	17	0	**43**	**87**	**44**
07:15	07:30	0	0	0	**0**	0	0	0	**0**	**0**	0	22	0	**34**	0	12	0	**34**	**68**	**34**
07:30	07:45	0	0	0	**0**	0	0	0	**0**	**0**	0	20	0	**38**	0	18	0	**38**	**76**	**38**
07:45	08:00	0	0	0	**0**	0	0	0	**0**	**0**	0	17	0	**37**	0	20	0	**37**	**74**	**37**
08:00	08:15	0	0	0	**0**	0	0	0	**1**	**1**	0	19	0	**32**	0	13	1	**33**	**65**	**33**
08:15	08:30	0	0	0	**0**	1	0	1	**2**	**2**	0	28	0	**46**	0	17	0	**46**	**92**	**47**
08:30	08:45	0	0	0	**0**	0	0	0	**1**	**1**	1	19	0	**30**	0	10	0	**29**	**59**	**30**
08:45	09:00	0	0	0	**0**	0	0	0	**0**	**0**	0	23	0	**37**	0	14	0	**37**	**74**	**37**
09:00	09:15	0	0	0	**0**	0	0	1	**1**	**1**	0	23	0	**34**	0	10	0	**33**	**67**	**34**
09:15	09:30	0	0	0	**0**	0	0	0	**0**	**0**	0	13	0	**28**	0	15	0	**28**	**56**	**28**
09:30	09:45	0	0	0	**0**	0	0	0	**0**	**0**	0	11	0	**26**	0	15	0	**26**	**52**	**26**
09:45	10:00	0	0	0	**0**	0	0	0	**0**	**0**	0	10	0	**22**	0	12	0	**22**	**44**	**22**
11:30	11:45	0	0	0	**0**	0	0	0	**1**	**1**	0	11	0	**21**	0	10	1	**22**	**43**	**22**
11:45	12:00	0	0	0	**0**	0	0	0	**0**	**0**	0	9	0	**25**	0	16	0	**25**	**50**	**25**
12:00	12:15	0	0	0	**0**	0	0	0	**1**	**1**	1	9	0	**18**	0	8	0	**17**	**35**	**18**
12:15	12:30	0	0	0	**0**	0	0	1	**2**	**2**	0	10	0	**18**	0	7	1	**18**	**36**	**19**
12:30	12:45	0	0	1	**2**	0	1	1	**2**	**4**	0	7	0	**17**	0	9	0	**17**	**34**	**19**
12:45	13:00	0	0	0	**0**	0	0	1	**1**	**1**	0	11	0	**22**	0	10	0	**21**	**43**	**22**
13:00	13:15	0	0	0	**0**	0	0	1	**3**	**3**	1	8	0	**22**	0	12	1	**21**	**43**	**23**
13:15	13:30	0	0	0	**0**	0	0	0	**0**	**0**	0	14	0	**19**	0	5	0	**19**	**38**	**19**
15:00	15:15	0	0	0	**2**	1	0	0	**2**	**4**	1	4	1	**23**	1	17	0	**23**	**46**	**25**
15:15	15:30	0	1	0	**1**	1	0	0	**2**	**3**	0	2	0	**17**	0	15	0	**18**	**35**	**19**
15:30	15:45	0	0	0	**0**	0	0	0	**0**	**0**	0	13	0	**39**	0	26	0	**39**	**78**	**39**
15:45	16:00	0	0	0	**0**	0	0	0	**0**	**0**	0	17	0	**39**	0	22	0	**39**	**78**	**39**
16:00	16:15	0	0	0	**0**	0	0	1	**2**	**2**	0	17	0	**40**	0	22	1	**40**	**80**	**41**
16:15	16:30	1	0	0	**2**	0	0	0	**0**	**2**	0	14	1	**31**	0	15	0	**29**	**60**	**31**
16:30	16:45	0	0	0	**0**	0	0	1	**1**	**1**	0	10	0	**37**	0	26	0	**36**	**73**	**37**
16:45	17:00	0	1	0	**1**	0	0	0	**1**	**2**	0	17	0	**33**	0	16	0	**33**	**66**	**34**
17:00	17:15	0	0	0	**0**	0	0	0	**0**	**0**	0	18	0	**39**	0	21	0	**39**	**78**	**39**
17:15	17:30	0	0	0	**0**	0	0	0	**1**	**1**	1	15	0	**38**	0	22	0	**37**	**75**	**38**
17:30	17:45	0	0	0	**1**	0	0	0	**0**	**1**	0	16	0	**32**	1	16	0	**33**	**65**	**33**
17:45	18:00	0	0	1	**2**	0	0	0	**1**	**3**	0	13	1	**32**	0	18	1	**33**	**65**	**34**
Total:	None	1	2	2	**11**	3	1	8	**26**	**37**	6	466	3	**970**	2	486	6	**965**	**1935**	**986**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LANARK AVE/WEST VILLAGE PRIV @ SCOTT ST

Survey Date: Thursday, November 30, 2023 **WO No:** 41268

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

Full Study 15 Minute U-Turn Total

LANARK AVE/WEST VILLAGE PRIV **SCOTT ST**

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	1	1
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	1	0	1
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	1	1	2

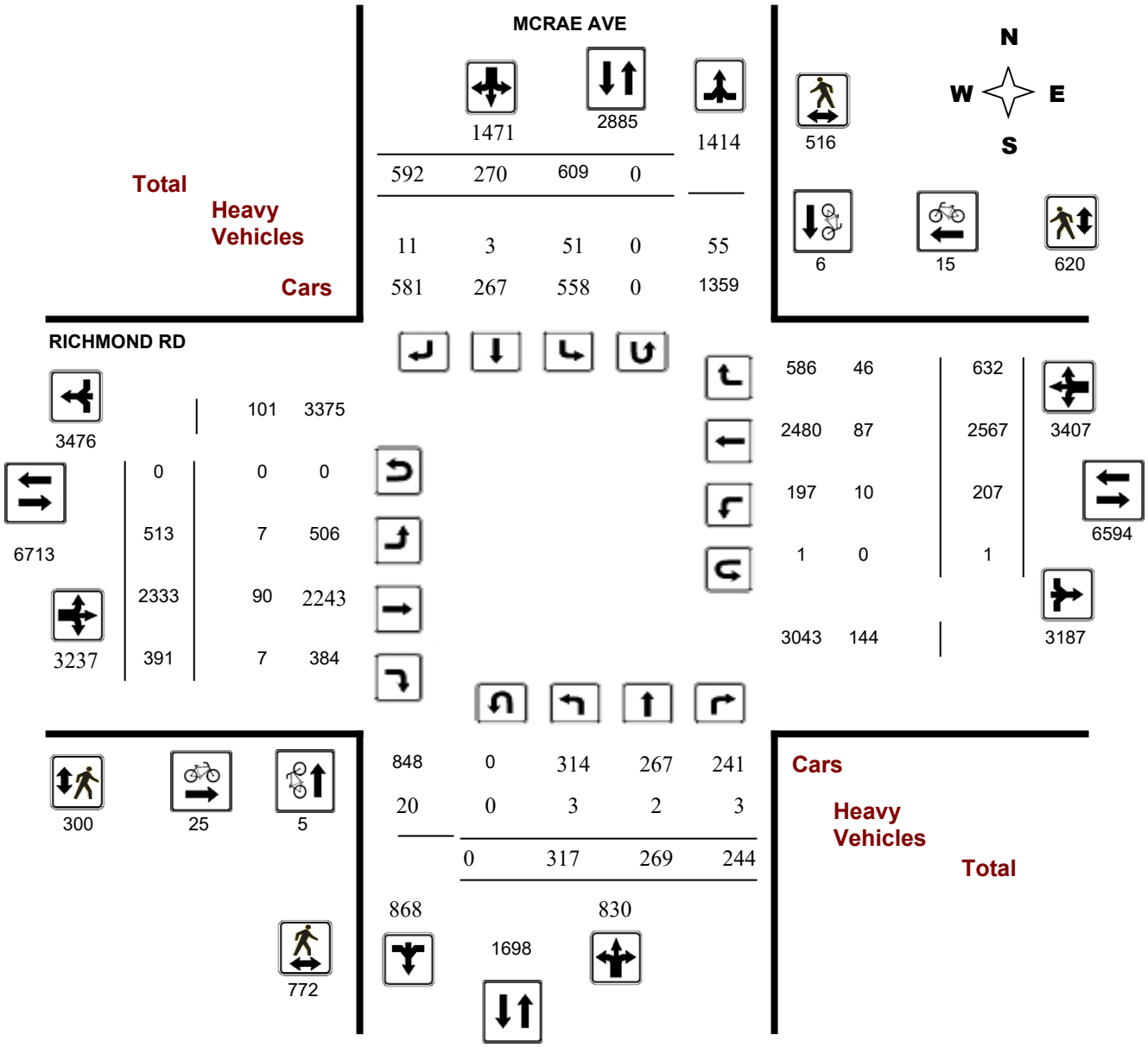
Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020
Start Time: 07:00
WO No: 39388
Device: Miovision

Full Study Diagram



5472206 - THU JAN 23, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

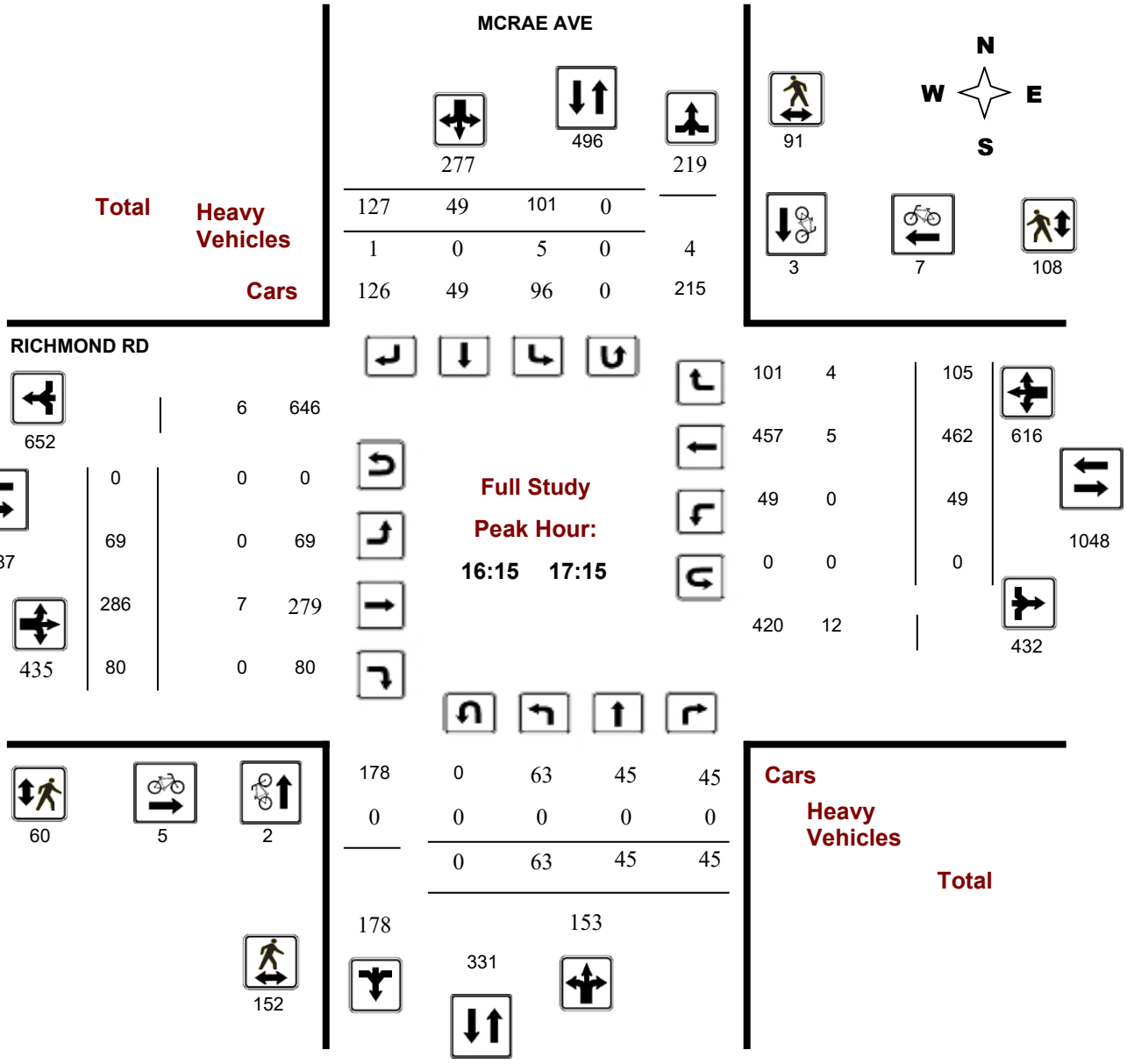
Turning Movement Count - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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

Full Study Peak Hour Diagram



5472206 - THU JAN 23, 2020 - 8HRS - LORETTA

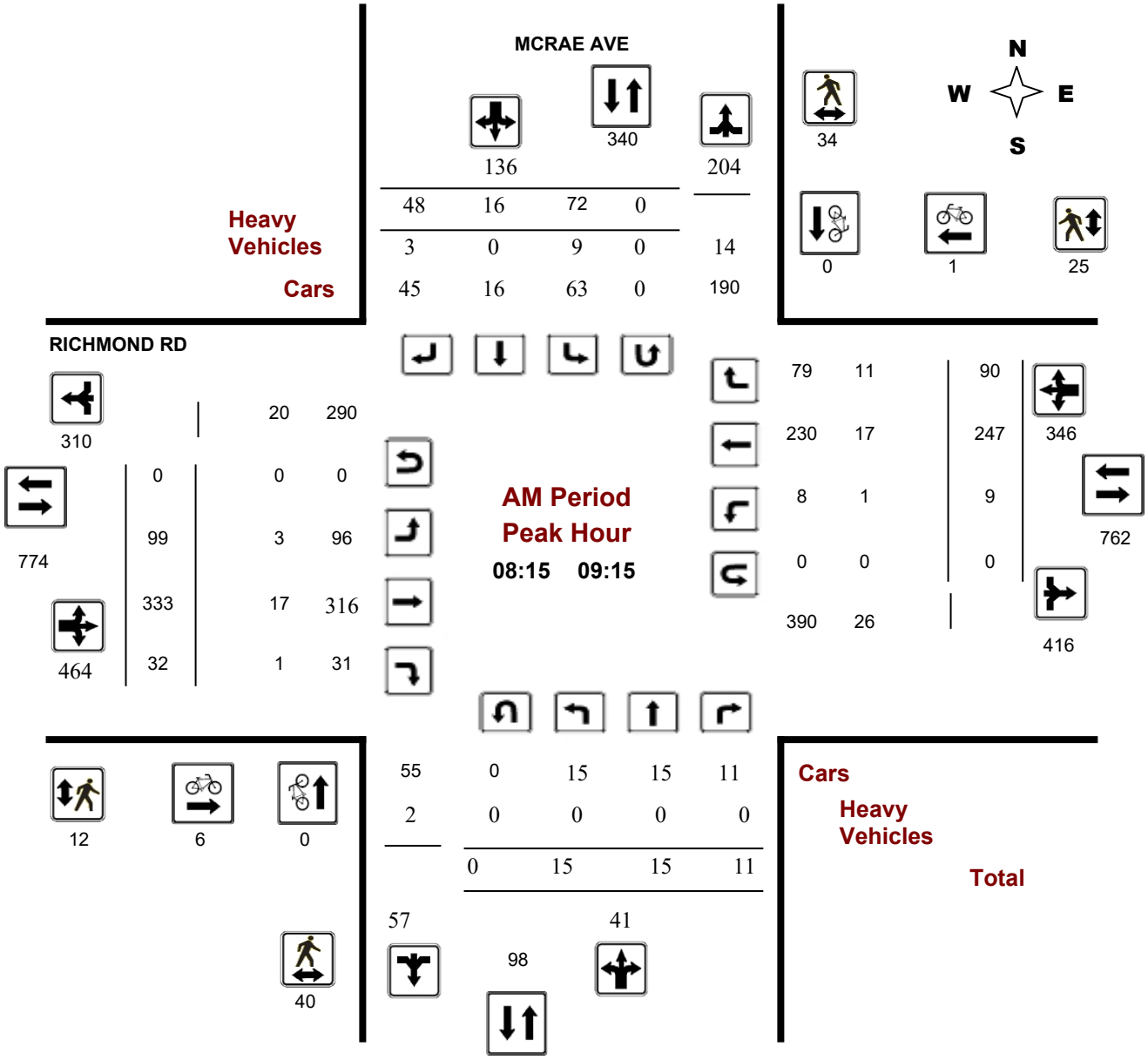
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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



Comments 5472206 - THU JAN 23, 2020 - 8HRS - LORETTA

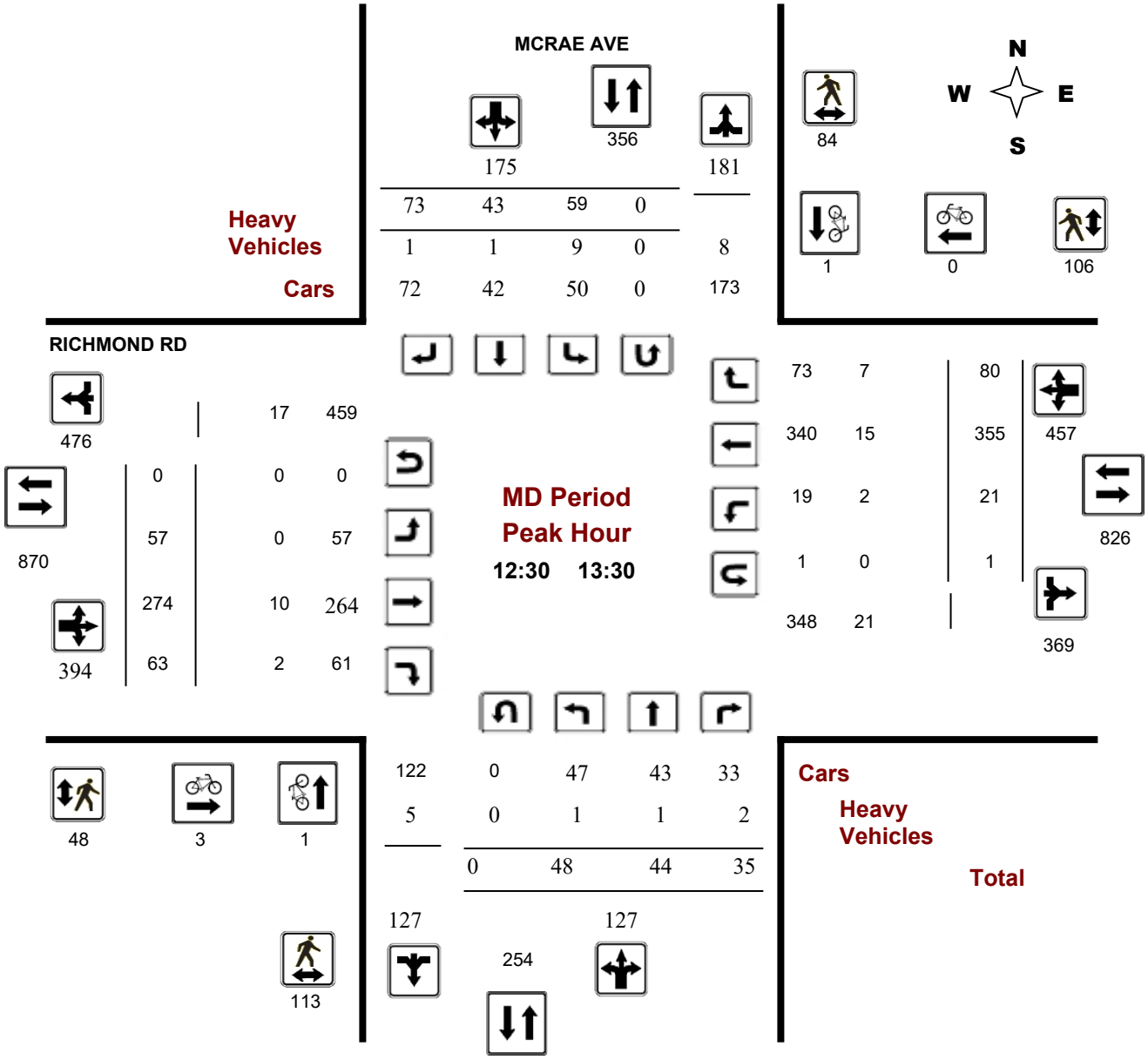
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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



Comments 5472206 - THU JAN 23, 2020 - 8HRS - LORETTA

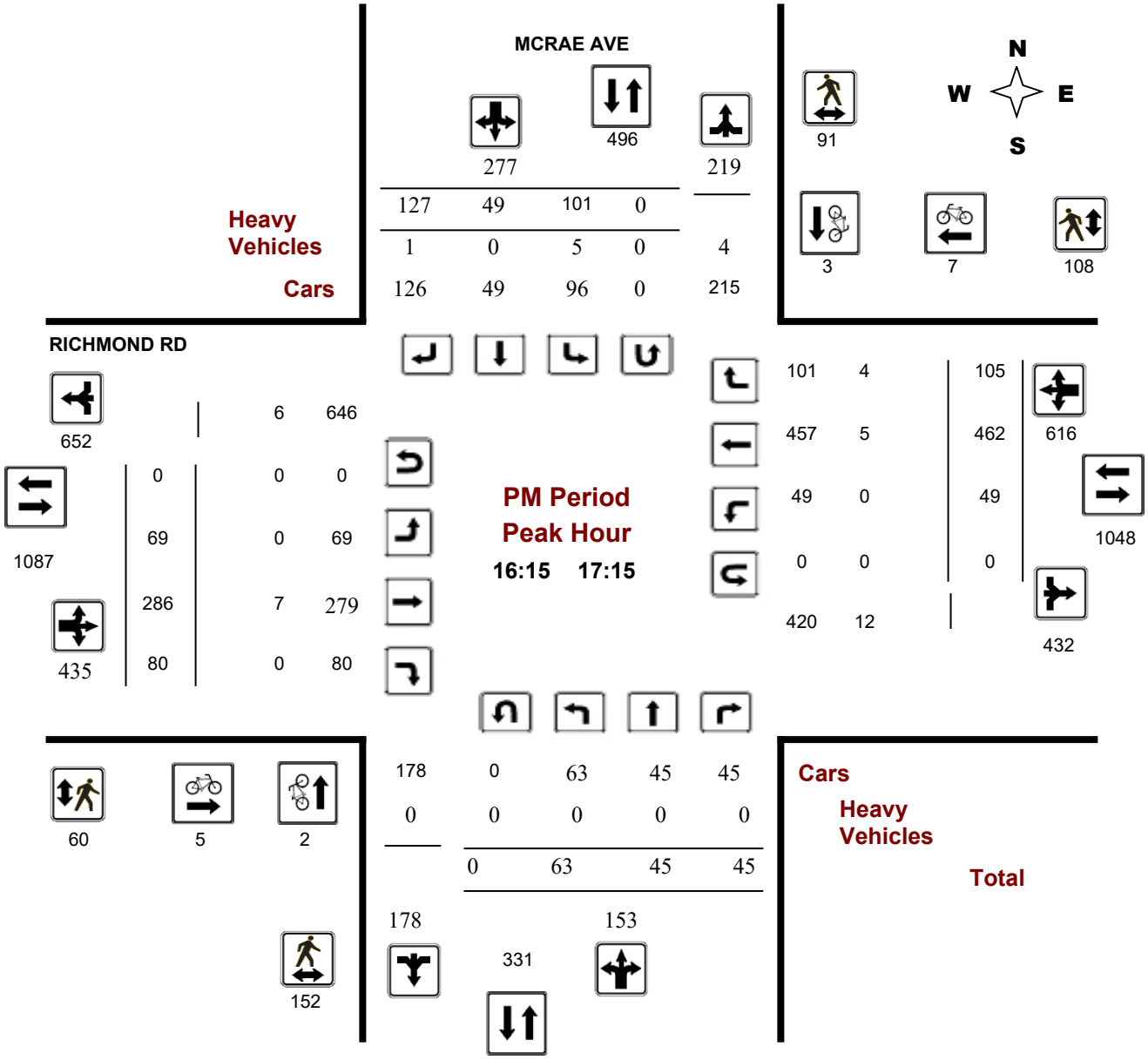
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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



Comments 5472206 - THU JAN 23, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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

Full Study Summary (8 HR Standard)

Survey Date: Thursday, January 23, 2020

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 1

AADT Factor

1.00

	MCRAE AVE								RICHMOND RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	4	4	11	**19**	63	8	29	**100**	**119**	74	293	14	**381**	7	169	60	**236**	**617**	**736**
08:00 09:00	13	11	13	**37**	76	11	40	**127**	**164**	98	333	28	**459**	9	249	93	**351**	**810**	**974**
09:00 10:00	31	21	12	**64**	50	25	56	**131**	**195**	59	291	39	**389**	14	216	72	**302**	**691**	**886**
11:30 12:30	47	47	36	**130**	62	34	77	**173**	**303**	46	298	61	**405**	27	328	59	**414**	**819**	**1122**
12:30 13:30	48	44	35	**127**	59	43	73	**175**	**302**	57	274	63	**394**	21	355	80	**456**	**850**	**1152**
15:00 16:00	59	45	36	**140**	98	45	84	**227**	**367**	49	300	49	**398**	32	383	68	**483**	**881**	**1248**
16:00 17:00	53	48	45	**146**	95	40	123	**258**	**404**	62	267	64	**393**	39	452	114	**605**	**998**	**1402**
17:00 18:00	62	49	56	**167**	106	64	110	**280**	**447**	68	277	73	**418**	58	415	86	**559**	**977**	**1424**
Sub Total	317	269	244	**830**	609	270	592	**1471**	**2301**	513	2333	391	**3237**	207	2567	632	**3406**	**6643**	**8944**
U Turns	0			**0**	0			**0**	**0**	**0**			**0**	1			**1**	**1**	**1**
Total	317	269	244	**830**	609	270	592	**1471**	**2301**	513	2333	391	**3237**	208	2567	632	**3407**	**6644**	**8945**
EQ 12Hr	441	374	339	**1154**	847	375	823	**2045**	**3199**	713	3243	543	**4499**	289	3568	878	**4735**	**9234**	**12433**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	441	374	339	**1154**	847	375	823	**2045**	**3199**	713	3243	543	**4499**	289	3568	878	**4735**	**9234**	**12433**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	578	490	444	**1512**	1110	491	1078	**2679**	**4191**	934	4248	711	**5893**	379	4674	1150	**6203**	**12096**	**16287**
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 - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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

Full Study 15 Minute Increments

		MCRAE AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	2	4	6	16	1	4	21	**27**	13	61	0	74	2	41	7	50	**124**	**151**
07:15	07:30	1	1	2	4	14	2	3	19	**23**	19	71	5	95	2	42	18	62	**157**	**180**
07:30	07:45	1	1	0	2	15	2	11	28	**30**	19	77	2	98	2	31	12	45	**143**	**173**
07:45	08:00	2	0	5	7	18	3	11	32	**39**	23	84	7	114	1	55	23	79	**193**	**232**
08:00	08:15	3	2	3	8	21	1	10	32	**40**	17	88	3	108	4	56	25	85	**193**	**233**
08:15	08:30	2	3	5	10	14	1	8	23	**33**	22	87	11	120	1	65	24	90	**210**	**243**
08:30	08:45	4	2	2	8	29	2	11	42	**50**	22	82	4	108	2	62	24	88	**196**	**246**
08:45	09:00	4	4	3	11	12	7	11	30	**41**	37	76	10	123	2	66	20	88	**211**	**252**
09:00	09:15	5	6	1	12	17	6	18	41	**53**	18	88	7	113	4	54	22	80	**193**	**246**
09:15	09:30	7	4	1	12	11	5	7	23	**35**	19	69	12	100	1	53	13	67	**167**	**202**
09:30	09:45	9	6	5	20	12	6	19	37	**57**	7	66	10	83	6	60	19	85	**168**	**225**
09:45	10:00	10	5	5	20	10	8	12	30	**50**	15	68	10	93	3	49	18	70	**163**	**213**
11:30	11:45	14	8	10	32	14	14	19	47	**79**	12	72	20	104	3	79	18	100	**204**	**283**
11:45	12:00	8	9	10	27	11	6	19	36	**63**	8	92	11	111	2	90	13	105	**216**	**279**
12:00	12:15	12	15	7	34	19	5	15	39	**73**	12	70	14	96	12	85	17	114	**210**	**283**
12:15	12:30	13	15	9	37	18	9	24	51	**88**	14	64	16	94	10	74	11	95	**189**	**277**
12:30	12:45	8	10	7	25	11	11	24	46	**71**	19	53	19	91	5	84	24	113	**204**	**275**
12:45	13:00	15	14	7	36	12	13	13	38	**74**	15	71	13	99	9	92	14	115	**214**	**288**
13:00	13:15	10	12	11	33	18	7	14	39	**72**	8	74	19	101	5	87	24	116	**217**	**289**
13:15	13:30	15	8	10	33	18	12	22	52	**85**	15	76	12	103	3	92	18	113	**216**	**301**
15:00	15:15	14	6	8	28	27	12	16	55	**83**	14	82	12	108	8	95	13	116	**224**	**307**
15:15	15:30	22	11	10	43	20	15	18	53	**96**	9	82	13	104	7	81	12	100	**204**	**300**
15:30	15:45	13	17	11	41	21	7	29	57	**98**	12	65	7	84	5	102	14	121	**205**	**303**
15:45	16:00	10	11	7	28	30	11	21	62	**90**	14	71	17	102	12	105	29	146	**248**	**338**
16:00	16:15	7	12	13	32	30	9	25	64	**96**	18	56	8	82	12	99	32	143	**225**	**321**
16:15	16:30	12	11	12	35	20	13	30	63	**98**	15	74	20	109	11	131	30	172	**281**	**379**
16:30	16:45	19	13	11	43	23	9	35	67	**110**	16	76	16	108	9	113	29	151	**259**	**369**
16:45	17:00	15	12	9	36	22	9	33	64	**100**	13	61	20	94	7	109	23	139	**233**	**333**
17:00	17:15	17	9	13	39	36	18	29	83	**122**	25	75	24	124	22	109	23	154	**278**	**400**
17:15	17:30	14	11	14	39	28	20	28	76	**115**	7	52	17	76	8	110	20	138	**214**	**329**
17:30	17:45	9	14	17	40	20	13	19	52	**92**	15	68	13	96	18	105	23	146	**242**	**334**
17:45	18:00	22	15	12	49	22	13	34	69	**118**	21	82	19	122	10	91	20	121	**243**	**361**
Total:		317	269	244	830	609	270	592	1471	**2301**	513	2333	391	3237	208	2567	632	3407	**2301**	**8,945**

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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

Full Study Cyclist Volume

Time Period		MCRAE AVE			RICHMOND RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	**0**	0	0	**0**	**0**
07:15	07:30	0	0	**0**	2	0	**2**	**2**
07:30	07:45	0	0	**0**	0	0	**0**	**0**
07:45	08:00	0	0	**0**	2	0	**2**	**2**
08:00	08:15	0	0	**0**	1	2	**3**	**3**
08:15	08:30	0	0	**0**	0	0	**0**	**0**
08:30	08:45	0	0	**0**	3	1	**4**	**4**
08:45	09:00	0	0	**0**	1	0	**1**	**1**
09:00	09:15	0	0	**0**	2	0	**2**	**2**
09:15	09:30	0	0	**0**	0	1	**1**	**1**
09:30	09:45	0	0	**0**	1	1	**2**	**2**
09:45	10:00	0	0	**0**	0	1	**1**	**1**
11:30	11:45	0	0	**0**	0	0	**0**	**0**
11:45	12:00	0	0	**0**	0	0	**0**	**0**
12:00	12:15	0	0	**0**	0	0	**0**	**0**
12:15	12:30	0	0	**0**	1	0	**1**	**1**
12:30	12:45	1	0	**1**	0	0	**0**	**1**
12:45	13:00	0	0	**0**	2	0	**2**	**2**
13:00	13:15	0	1	**1**	1	0	**1**	**2**
13:15	13:30	0	0	**0**	0	0	**0**	**0**
15:00	15:15	0	0	**0**	1	0	**1**	**1**
15:15	15:30	0	0	**0**	1	0	**1**	**1**
15:30	15:45	0	0	**0**	1	2	**3**	**3**
15:45	16:00	0	0	**0**	1	0	**1**	**1**
16:00	16:15	2	0	**2**	0	0	**0**	**2**
16:15	16:30	0	0	**0**	0	2	**2**	**2**
16:30	16:45	0	2	**2**	1	1	**2**	**4**
16:45	17:00	2	1	**3**	4	1	**5**	**8**
17:00	17:15	0	0	**0**	0	3	**3**	**3**
17:15	17:30	0	0	**0**	0	0	**0**	**0**
17:30	17:45	0	2	**2**	0	0	**0**	**2**
17:45	18:00	0	0	**0**	0	0	**0**	**0**
Total		5	6	**11**	25	15	**40**	**51**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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

Full Study Pedestrian Volume

	MCRAE AVE			RICHMOND RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	7	3	**10**	2	0	**2**	**12**
07:15 07:30	6	5	**11**	1	4	**5**	**16**
07:30 07:45	7	8	**15**	2	5	**7**	**22**
07:45 08:00	29	11	**40**	5	11	**16**	**56**
08:00 08:15	9	1	**10**	4	8	**12**	**22**
08:15 08:30	12	7	**19**	4	5	**9**	**28**
08:30 08:45	18	14	**32**	6	11	**17**	**49**
08:45 09:00	5	4	**9**	2	3	**5**	**14**
09:00 09:15	5	9	**14**	0	6	**6**	**20**
09:15 09:30	13	11	**24**	6	11	**17**	**41**
09:30 09:45	14	6	**20**	4	14	**18**	**38**
09:45 10:00	12	7	**19**	4	9	**13**	**32**
11:30 11:45	25	10	**35**	3	29	**32**	**67**
11:45 12:00	12	18	**30**	4	19	**23**	**53**
12:00 12:15	35	20	**55**	11	35	**46**	**101**
12:15 12:30	30	21	**51**	5	23	**28**	**79**
12:30 12:45	36	22	**58**	23	24	**47**	**105**
12:45 13:00	24	28	**52**	13	27	**40**	**92**
13:00 13:15	21	17	**38**	6	22	**28**	**66**
13:15 13:30	32	17	**49**	6	33	**39**	**88**
15:00 15:15	28	17	**45**	12	20	**32**	**77**
15:15 15:30	22	13	**35**	8	21	**29**	**64**
15:30 15:45	42	26	**68**	12	26	**38**	**106**
15:45 16:00	37	27	**64**	11	27	**38**	**102**
16:00 16:15	41	20	**61**	26	27	**53**	**114**
16:15 16:30	39	16	**55**	12	23	**35**	**90**
16:30 16:45	46	20	**66**	23	19	**42**	**108**
16:45 17:00	35	29	**64**	10	31	**41**	**105**
17:00 17:15	32	26	**58**	15	35	**50**	**108**
17:15 17:30	25	19	**44**	13	32	**45**	**89**
17:30 17:45	31	38	**69**	29	31	**60**	**129**
17:45 18:00	42	26	**68**	18	29	**47**	**115**
Total	772	516	**1288**	300	620	**920**	**2208**

5472206 - THU JAN 23, 2020 - 8HRS - LORETTA

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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

Full Study Heavy Vehicles

		MCRAE AVE									RICHMOND RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**0**	2	0	0	**2**	**2**	1	2	0	**3**	1	1	0	**2**	**5**	**7**
07:15	07:30	0	0	0	**0**	0	0	1	**1**	**1**	0	3	1	**4**	0	3	1	**4**	**8**	**9**
07:30	07:45	0	0	0	**0**	1	0	0	**1**	**1**	0	3	0	**3**	1	3	2	**6**	**9**	**10**
07:45	08:00	0	0	0	**0**	1	0	1	**2**	**2**	0	3	0	**3**	0	2	1	**3**	**6**	**8**
08:00	08:15	0	0	0	**0**	3	0	1	**4**	**4**	0	4	0	**4**	0	6	1	**7**	**11**	**15**
08:15	08:30	0	0	0	**0**	3	0	1	**4**	**4**	1	6	0	**7**	0	5	2	**7**	**14**	**18**
08:30	08:45	0	0	0	**0**	3	0	0	**3**	**3**	0	7	1	**8**	1	4	2	**7**	**15**	**18**
08:45	09:00	0	0	0	**0**	1	0	1	**2**	**2**	1	1	0	**2**	0	4	4	**8**	**10**	**12**
09:00	09:15	0	0	0	**0**	2	0	1	**3**	**3**	1	3	0	**4**	0	4	3	**7**	**11**	**14**
09:15	09:30	1	0	0	**1**	2	0	0	**2**	**3**	1	4	0	**5**	0	3	0	**3**	**8**	**11**
09:30	09:45	0	0	0	**0**	3	0	0	**3**	**3**	0	5	2	**7**	0	4	2	**6**	**13**	**16**
09:45	10:00	1	0	0	**1**	0	0	2	**2**	**3**	1	6	1	**8**	0	1	3	**4**	**12**	**15**
11:30	11:45	0	0	0	**0**	1	1	0	**2**	**2**	0	1	0	**1**	0	5	1	**6**	**7**	**9**
11:45	12:00	0	0	0	**0**	1	0	1	**2**	**2**	0	3	0	**3**	0	2	2	**4**	**7**	**9**
12:00	12:15	0	0	0	**0**	3	1	0	**4**	**4**	1	5	0	**6**	1	4	1	**6**	**12**	**16**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**4**	0	3	1	**4**	**8**	**8**
12:30	12:45	1	0	1	**2**	3	0	1	**4**	**6**	0	3	1	**4**	0	5	2	**7**	**11**	**17**
12:45	13:00	0	1	1	**2**	1	1	0	**2**	**4**	0	2	1	**3**	1	4	2	**7**	**10**	**14**
13:00	13:15	0	0	0	**0**	4	0	0	**4**	**4**	0	4	0	**4**	0	2	2	**4**	**8**	**12**
13:15	13:30	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**1**	1	4	1	**6**	**7**	**8**
15:00	15:15	0	0	0	**0**	2	0	0	**2**	**2**	0	4	0	**4**	0	4	2	**6**	**10**	**12**
15:15	15:30	0	0	1	**1**	1	0	0	**1**	**2**	0	2	0	**2**	0	2	0	**2**	**4**	**6**
15:30	15:45	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**1**	1	0	2	**3**	**4**	**5**
15:45	16:00	0	0	0	**0**	2	0	0	**2**	**2**	0	1	0	**1**	1	3	0	**4**	**5**	**7**
16:00	16:15	0	1	0	**1**	2	0	0	**2**	**3**	0	2	0	**2**	0	2	4	**6**	**8**	**11**
16:15	16:30	0	0	0	**0**	1	0	0	**1**	**1**	0	2	0	**2**	0	2	0	**2**	**4**	**5**
16:30	16:45	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**1**	0	0	1	**1**	**2**	**3**
16:45	17:00	0	0	0	**0**	2	0	1	**3**	**3**	0	1	0	**1**	0	0	1	**1**	**2**	**5**
17:00	17:15	0	0	0	**0**	1	0	0	**1**	**1**	0	3	0	**3**	0	3	2	**5**	**8**	**9**
17:15	17:30	0	0	0	**0**	1	0	0	**1**	**1**	0	0	0	**0**	0	1	0	**1**	**1**	**2**
17:30	17:45	0	0	0	**0**	1	0	0	**1**	**1**	0	2	0	**2**	2	0	1	**3**	**5**	**6**
17:45	18:00	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**1**	0	1	0	**1**	**2**	**3**
Total:	None	3	2	3	**8**	51	3	11	**65**	**73**	7	90	7	**104**	10	87	46	**143**	**247**	**320**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MCRAE AVE @ RICHMOND RD

Survey Date: Thursday, January 23, 2020 **WO No:** 39388

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

Full Study 15 Minute U-Turn Total

Time Period		MCRAE AVE Northbound U-Turn Total	MCRAE AVE Southbound U-Turn Total	RICHMOND RD Eastbound U-Turn Total	RICHMOND RD Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	**0**
07:15	07:30	0	0	0	0	**0**
07:30	07:45	0	0	0	0	**0**
07:45	08:00	0	0	0	0	**0**
08:00	08:15	0	0	0	0	**0**
08:15	08:30	0	0	0	0	**0**
08:30	08:45	0	0	0	0	**0**
08:45	09:00	0	0	0	0	**0**
09:00	09:15	0	0	0	0	**0**
09:15	09:30	0	0	0	0	**0**
09:30	09:45	0	0	0	0	**0**
09:45	10:00	0	0	0	0	**0**
11:30	11:45	0	0	0	0	**0**
11:45	12:00	0	0	0	0	**0**
12:00	12:15	0	0	0	0	**0**
12:15	12:30	0	0	0	0	**0**
12:30	12:45	0	0	0	0	**0**
12:45	13:00	0	0	0	0	**0**
13:00	13:15	0	0	0	1	**1**
13:15	13:30	0	0	0	0	**0**
15:00	15:15	0	0	0	0	**0**
15:15	15:30	0	0	0	0	**0**
15:30	15:45	0	0	0	0	**0**
15:45	16:00	0	0	0	0	**0**
16:00	16:15	0	0	0	0	**0**
16:15	16:30	0	0	0	0	**0**
16:30	16:45	0	0	0	0	**0**
16:45	17:00	0	0	0	0	**0**
17:00	17:15	0	0	0	0	**0**
17:15	17:30	0	0	0	0	**0**
17:30	17:45	0	0	0	0	**0**
17:45	18:00	0	0	0	0	**0**
Total		0	0	0	1	**1**

DIRECTIONAL TRAFFIC FLOW

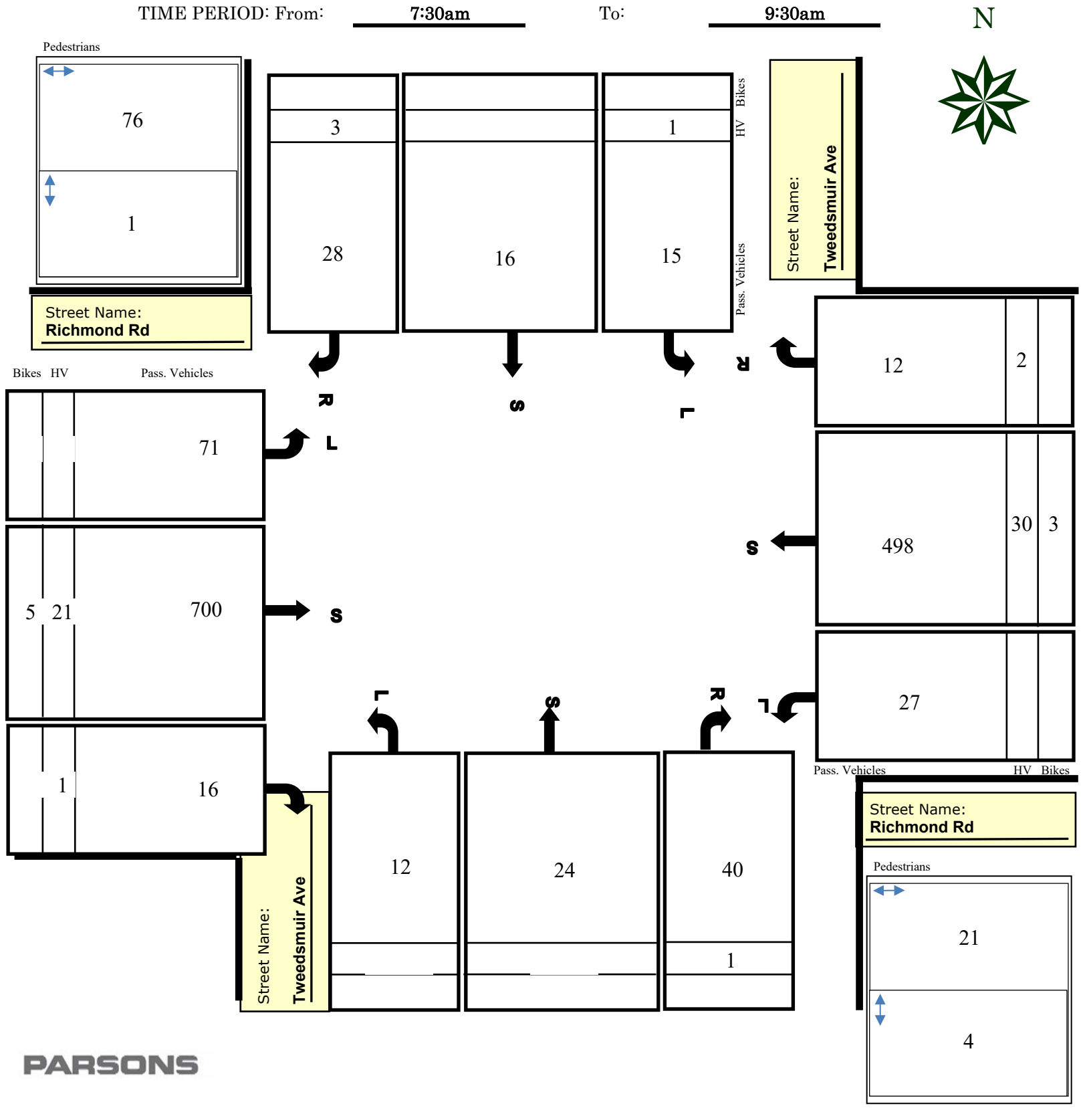
Intersection: **Richmond Rd** at **Tweedsmuir Ave**

DATE: Day: **12** Month: **December** Year: **2023** Day of Week: **Tuesday**

Observer: **Jordan Terada** Weather: **Overcast**

Chkd by: _____ Date: _____

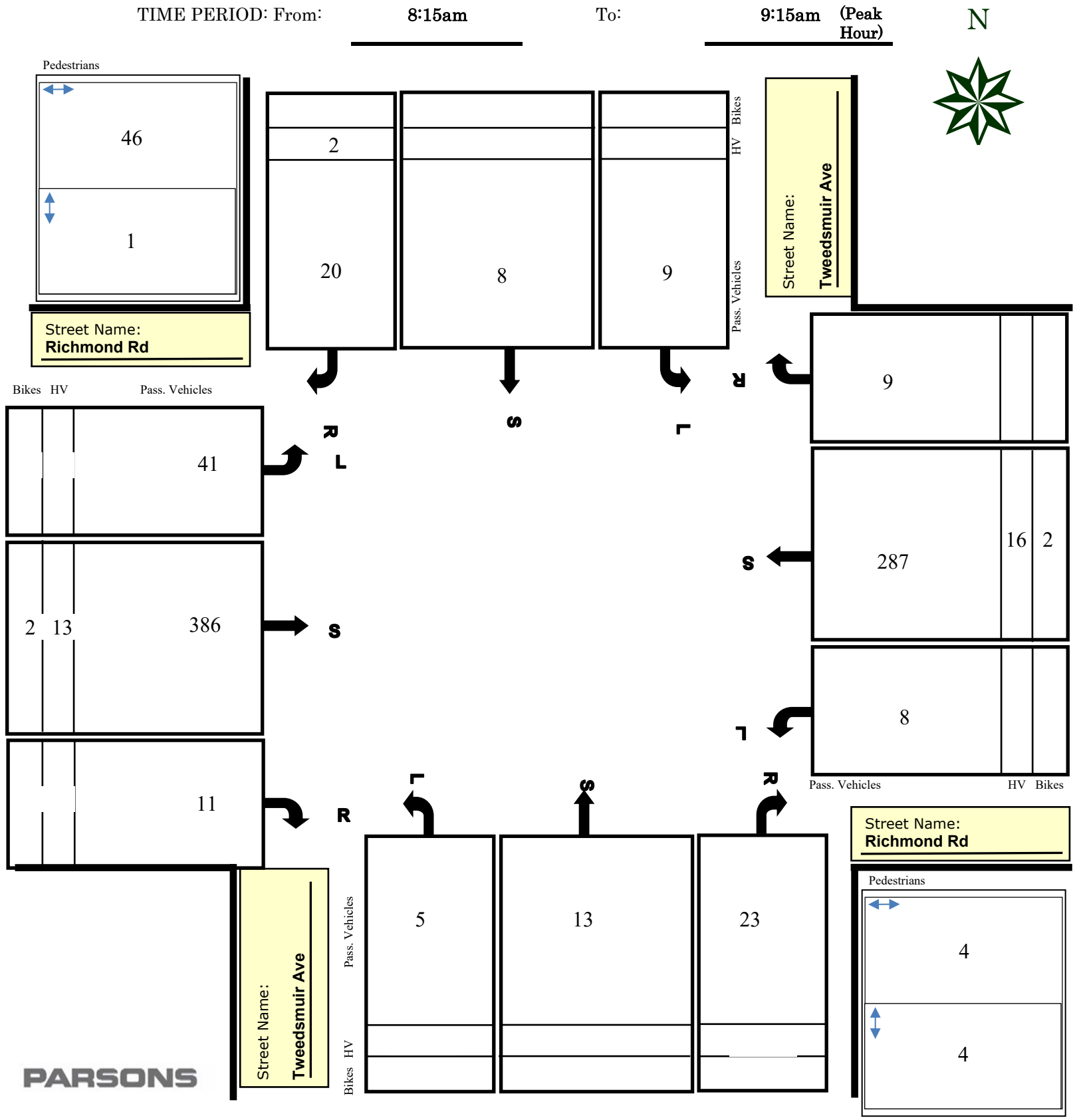
TIME PERIOD: From: **7:30am** To: **9:30am**



PARSONS

DIRECTIONAL TRAFFIC FLOW

TIME PERIOD: From: **8:15am** To: **9:15am** **(Peak Hour)**



DIRECTIONAL TRAFFIC FLOW

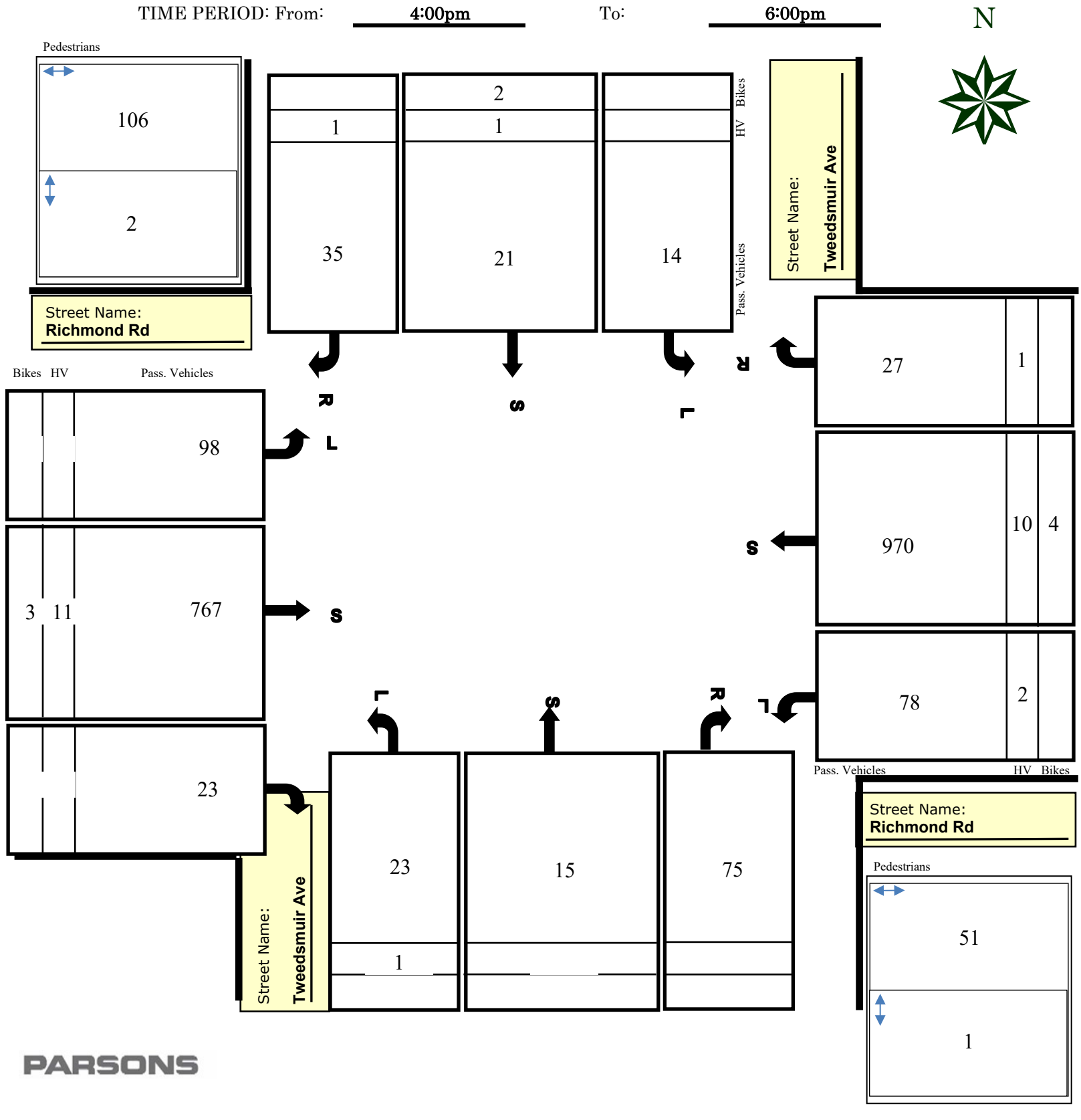
Intersection: **Richmond Rd** at **Tweedsmuir Ave**

DATE: Day: **12** Month: **December** Year: **2023** Day of Week: **Tuesday**

Observer: **Jordan Terada** Weather: **Overcast/Rain**

Chkd by: _____ Date: _____

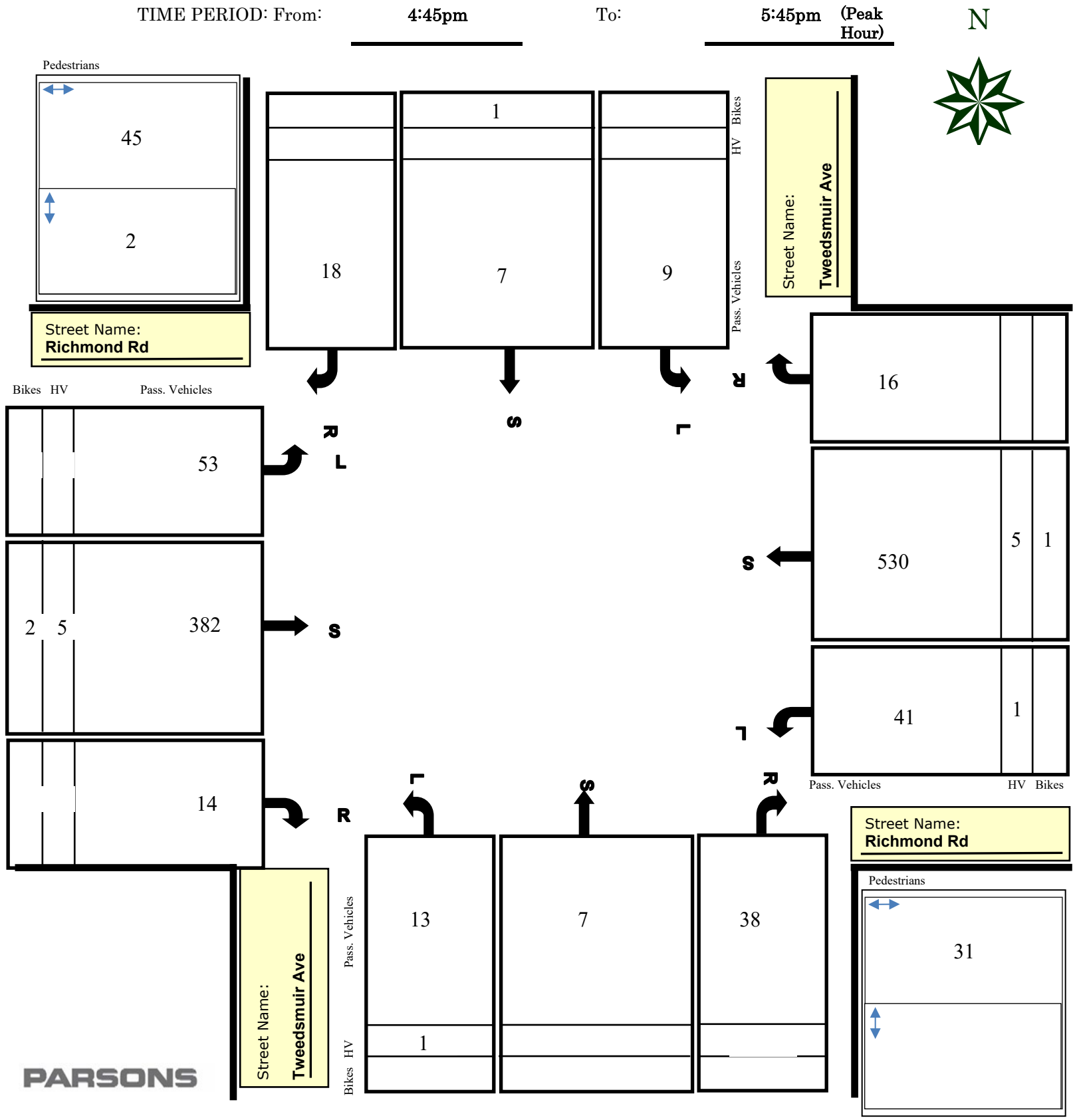
TIME PERIOD: From: **4:00pm** To: **6:00pm**



PARSONS

DIRECTIONAL TRAFFIC FLOW

TIME PERIOD: From: **4:45pm** To: **5:45pm** **(Peak Hour)**



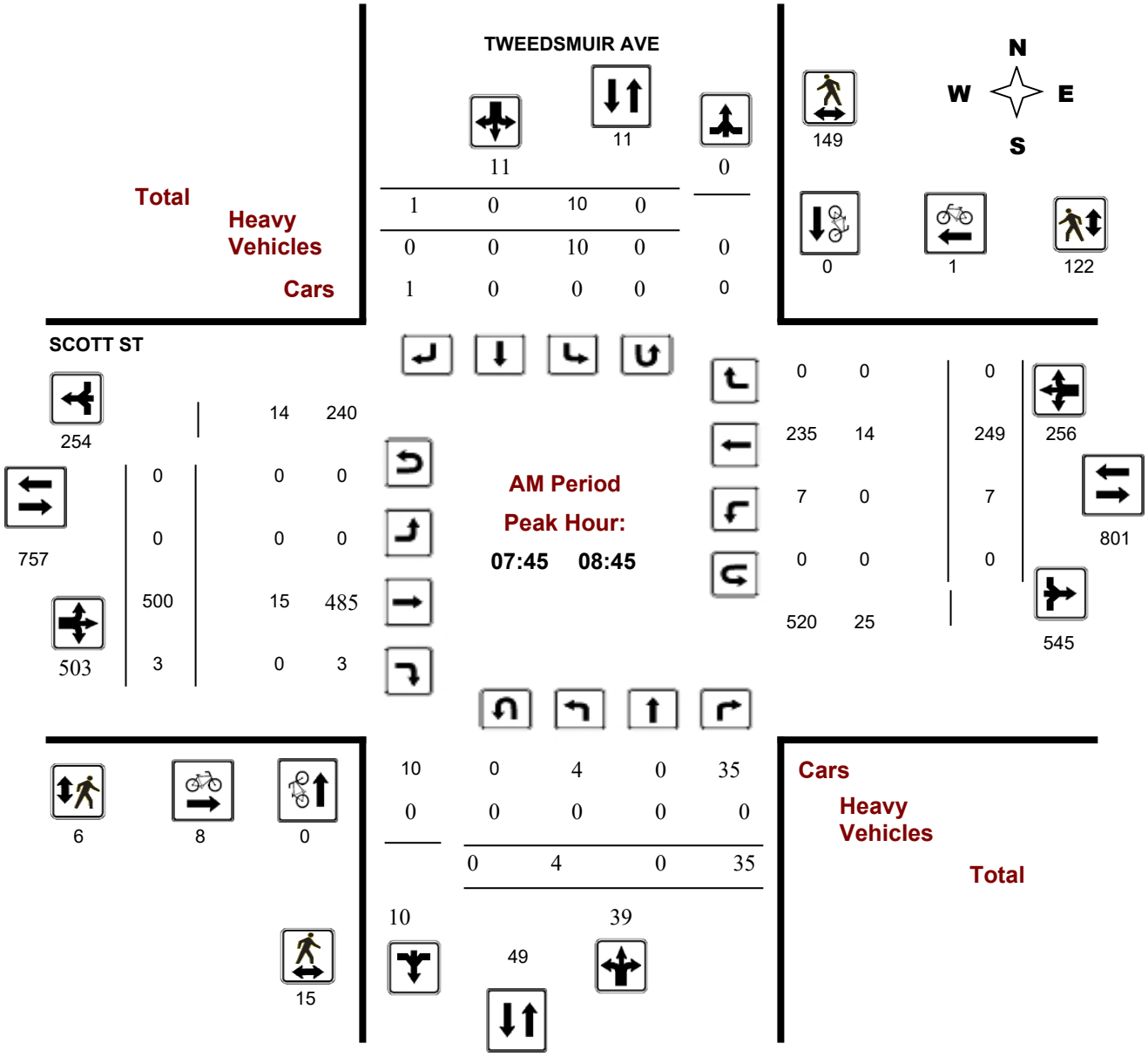
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017
Start Time: 07:00

WO No: 36806
Device: Miovision



Comments

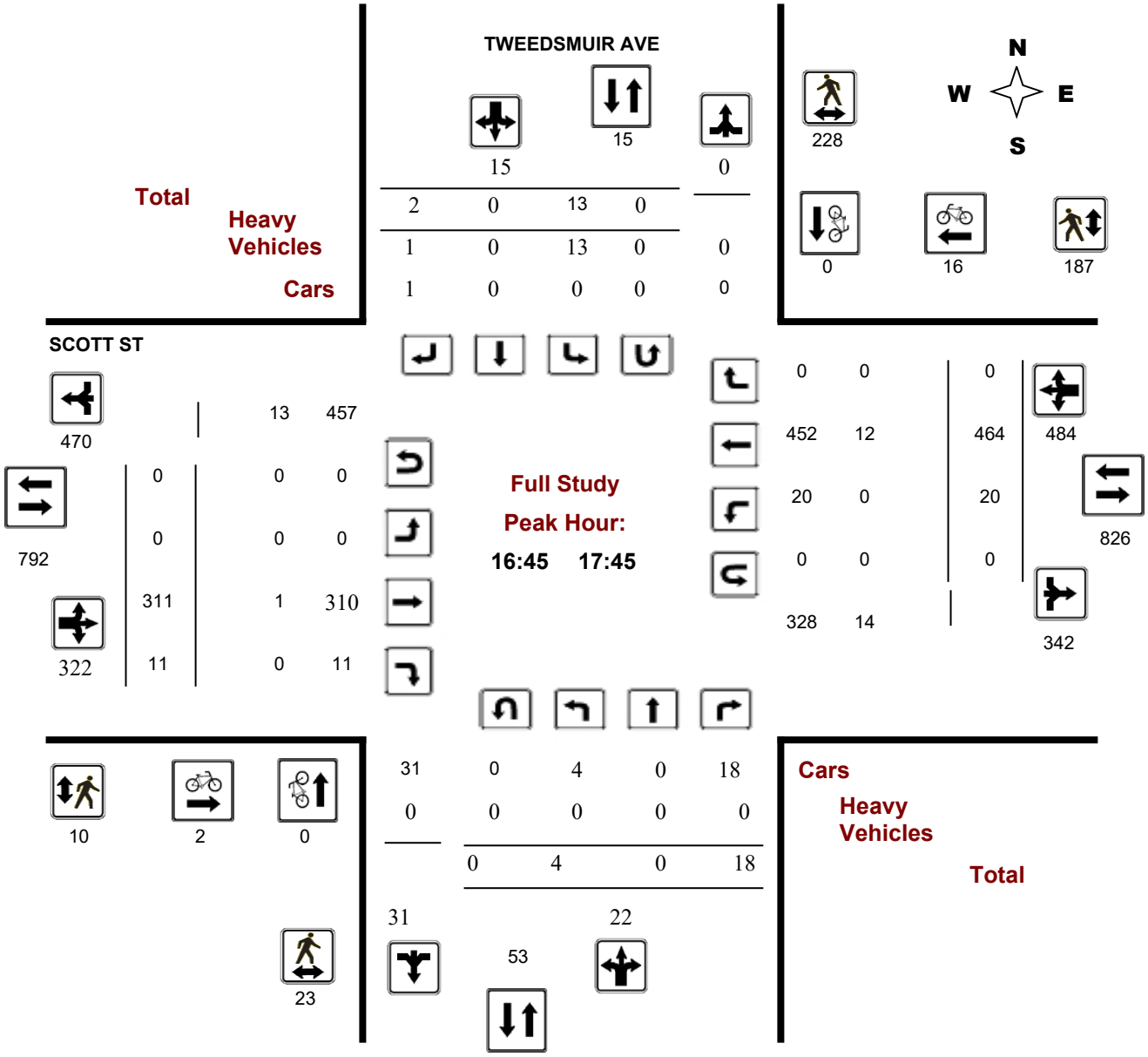
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017
Start Time: 07:00

WO No: 36806
Device: Miovision



Comments

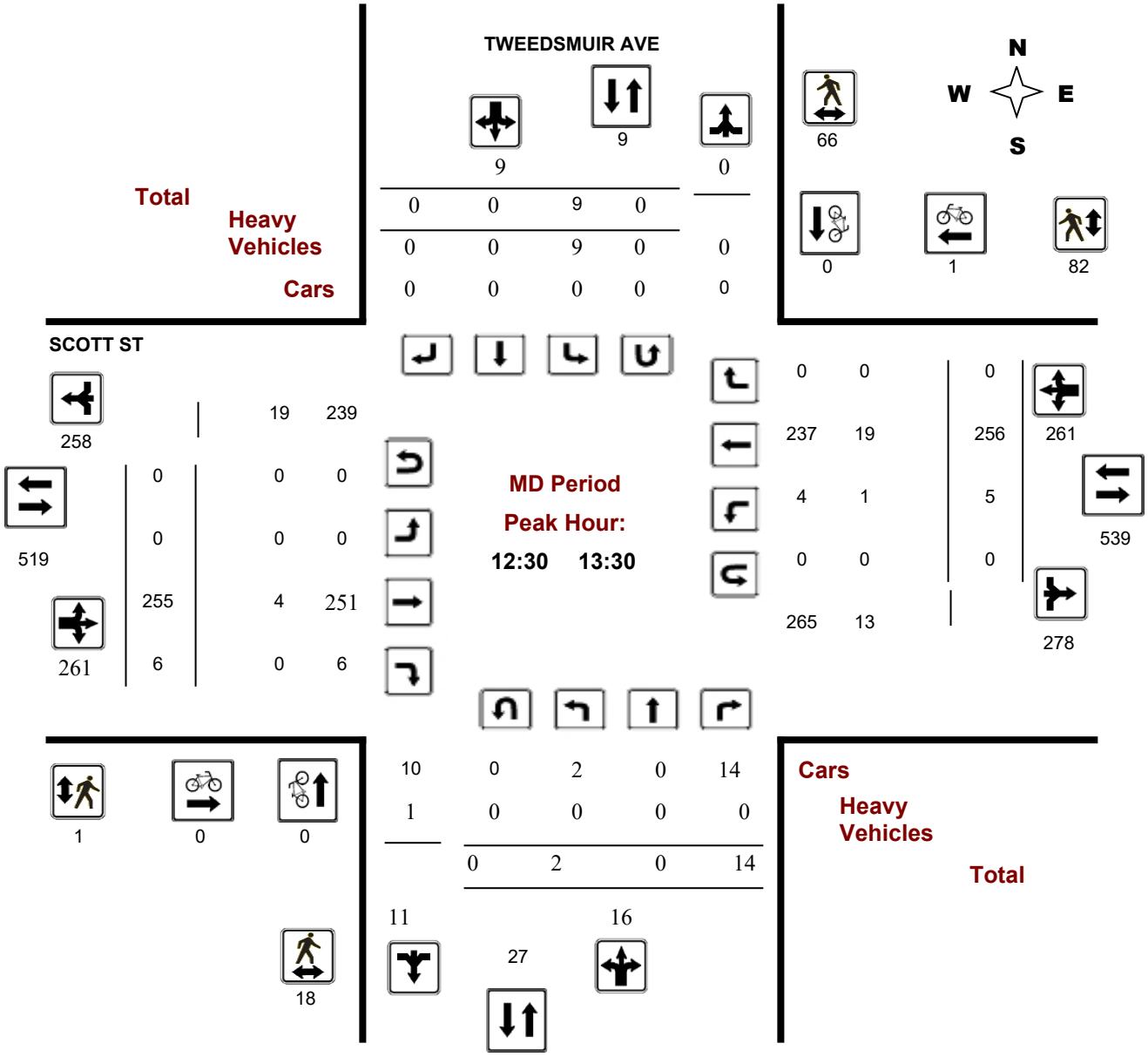
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017
Start Time: 07:00

WO No: 36806
Device: Miovision



Comments

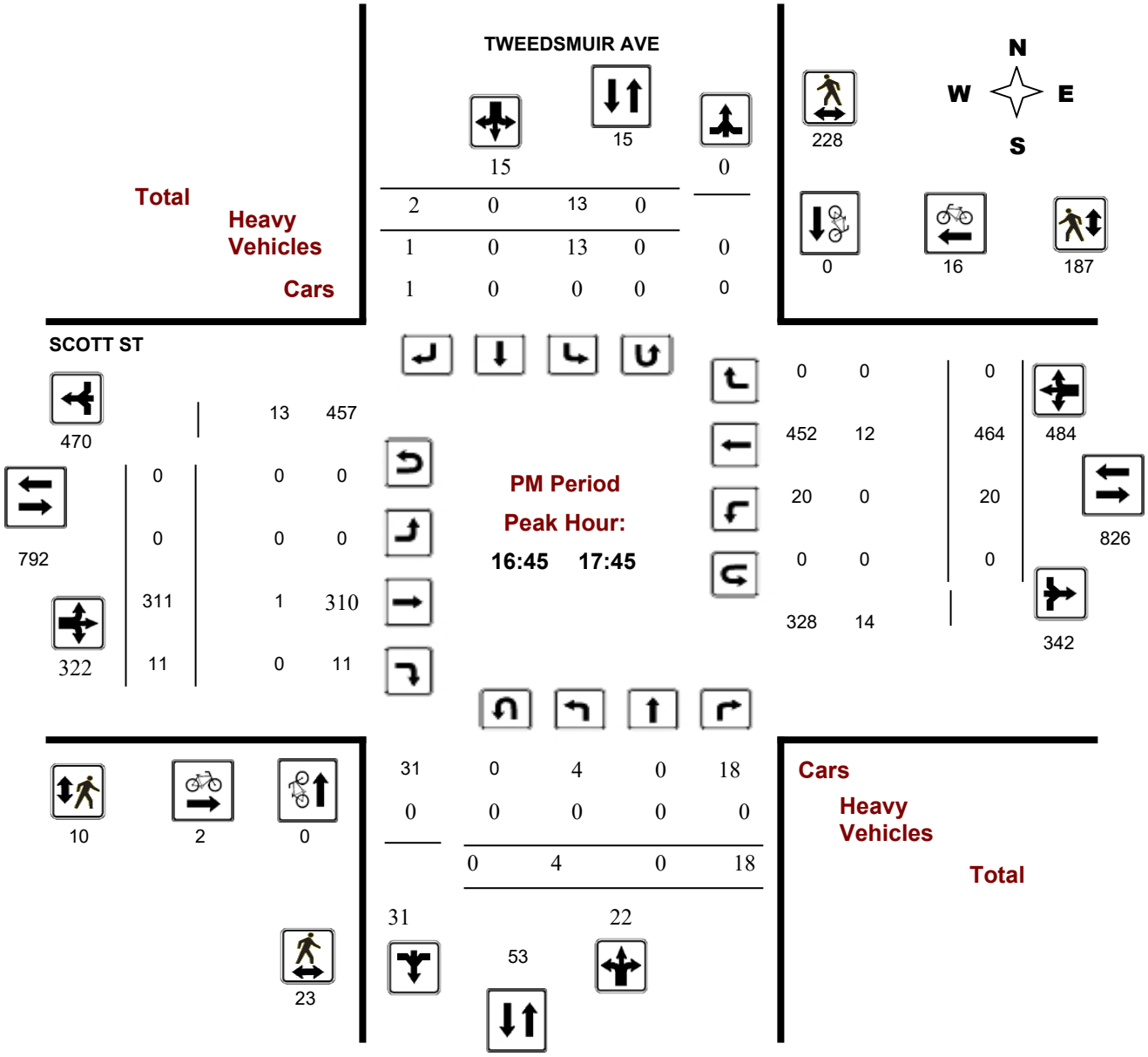
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017
Start Time: 07:00

WO No: 36806
Device: Miovision



Comments

Transportation Services - Traffic Services

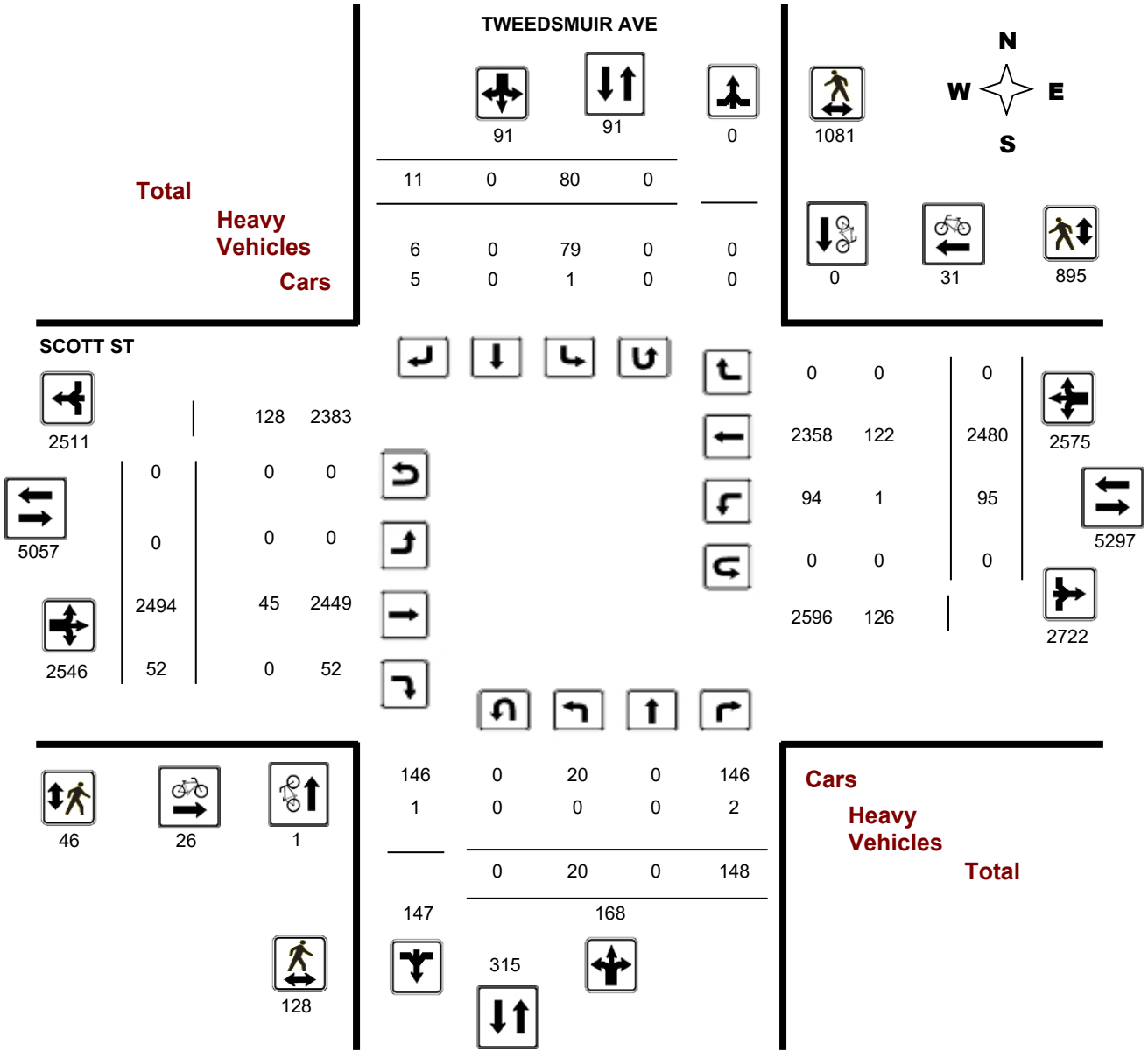
Turning Movement Count - Full Study Diagram

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017

WO#: 36806

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 36806

Turning Movement Count - Full Study Summary Report

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.00

Full Study

	TWEEDSMUIR 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	1	0	22	**23**	10	0	1	**11**	**34**	0	367	6	**373**	8	203	0	**211**	**584**	**618**
08:00 09:00	4	0	33	**37**	11	0	1	**12**	**49**	0	471	2	**473**	6	251	0	**257**	**730**	**779**
09:00 10:00	1	0	13	**14**	8	0	2	**10**	**24**	0	283	4	**287**	10	235	0	**245**	**532**	**556**
11:30 12:30	2	0	14	**16**	8	0	2	**10**	**26**	0	215	8	**223**	11	258	0	**269**	**492**	**518**
12:30 13:30	2	0	14	**16**	9	0	0	**9**	**25**	0	255	6	**261**	5	256	0	**261**	**522**	**547**
15:00 16:00	2	0	19	**21**	10	0	3	**13**	**34**	0	296	7	**303**	18	410	0	**428**	**731**	**765**
16:00 17:00	4	0	18	**22**	10	0	0	**10**	**32**	0	303	11	**314**	19	426	0	**445**	**759**	**791**
17:00 18:00	4	0	15	**19**	14	0	2	**16**	**35**	0	304	8	**312**	18	441	0	**459**	**771**	**806**
Sub Total	20	0	148	**168**	80	0	11	**91**	**259**	0	2494	52	**2546**	95	2480	0	**2575**	**5121**	**5380**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	20	0	148	**168**	80	0	11	**91**	**259**	0	2494	52	**2546**	95	2480	0	**2575**	**5121**	**5380**
EQ 12Hr	28	0	206	**234**	111	0	15	**126**	**360**	0	3467	72	**3539**	132	3447	0	**3579**	**7118**	**7478**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	28	0	206	**234**	111	0	15	**126**	**360**	0	3467	72	**3539**	132	3447	0	**3579**	**7118**	**7478**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	36	0	269	**306**	146	0	20	**166**	**472**	0	4541	95	**4636**	173	4516	0	**4689**	**9325**	**9797**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

Transportation Services - Traffic Services

W.O. 36806

Turning Movement Count - 15 Minute Summary Report

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		TWEEDSMUIR AVE									SCOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	07:15	0	0	5	**5**	2	0	1	**3**	**8**	0	56	1	**57**	1	35	0	**36**	**93**	**101**
07:15	07:30	0	0	5	**5**	4	0	0	**4**	**9**	0	68	2	**70**	2	50	0	**52**	**122**	**131**
07:30	07:45	1	0	6	**7**	2	0	0	**2**	**9**	0	109	2	**111**	1	56	0	**57**	**168**	**177**
07:45	08:00	0	0	6	**6**	2	0	0	**2**	**8**	0	134	1	**135**	4	62	0	**66**	**201**	**209**
08:00	08:15	0	0	8	**8**	2	0	1	**3**	**11**	0	114	1	**115**	2	50	0	**52**	**167**	**178**
08:15	08:30	2	0	12	**14**	3	0	0	**3**	**17**	0	130	0	**130**	1	61	0	**62**	**192**	**209**
08:30	08:45	2	0	9	**11**	3	0	0	**3**	**14**	0	122	1	**123**	0	76	0	**76**	**199**	**213**
08:45	09:00	0	0	4	**4**	3	0	0	**3**	**7**	0	105	0	**105**	3	64	0	**67**	**172**	**179**
09:00	09:15	0	0	4	**4**	3	0	0	**3**	**7**	0	94	2	**96**	2	64	0	**66**	**162**	**169**
09:15	09:30	1	0	3	**4**	2	0	1	**3**	**7**	0	75	1	**76**	5	53	0	**58**	**134**	**141**
09:30	09:45	0	0	4	**4**	1	0	1	**2**	**6**	0	60	1	**61**	3	61	0	**64**	**125**	**131**
09:45	10:00	0	0	2	**2**	2	0	0	**2**	**4**	0	54	0	**54**	0	57	0	**57**	**111**	**115**
11:30	11:45	1	0	3	**4**	1	0	0	**1**	**5**	0	55	4	**59**	3	69	0	**72**	**131**	**136**
11:45	12:00	0	0	4	**4**	3	0	0	**3**	**7**	0	53	2	**55**	5	70	0	**75**	**130**	**137**
12:00	12:15	1	0	4	**5**	3	0	1	**4**	**9**	0	51	1	**52**	2	57	0	**59**	**111**	**120**
12:15	12:30	0	0	3	**3**	1	0	1	**2**	**5**	0	56	1	**57**	1	62	0	**63**	**120**	**125**
12:30	12:45	1	0	5	**6**	2	0	0	**2**	**8**	0	71	2	**73**	1	66	0	**67**	**140**	**148**
12:45	13:00	0	0	1	**1**	3	0	0	**3**	**4**	0	57	0	**57**	1	70	0	**71**	**128**	**132**
13:00	13:15	1	0	1	**2**	2	0	0	**2**	**4**	0	60	2	**62**	1	66	0	**67**	**129**	**133**
13:15	13:30	0	0	7	**7**	2	0	0	**2**	**9**	0	67	2	**69**	2	54	0	**56**	**125**	**134**
15:00	15:15	0	0	3	**3**	1	0	0	**1**	**4**	0	70	1	**71**	2	104	0	**106**	**177**	**181**
15:15	15:30	0	0	5	**5**	4	0	1	**5**	**10**	0	70	3	**73**	1	87	0	**88**	**161**	**171**
15:30	15:45	0	0	5	**5**	2	0	1	**3**	**8**	0	79	2	**81**	6	103	0	**109**	**190**	**198**
15:45	16:00	2	0	6	**8**	3	0	1	**4**	**12**	0	77	1	**78**	9	116	0	**125**	**203**	**215**
16:00	16:15	1	0	4	**5**	1	0	0	**1**	**6**	0	83	3	**86**	8	127	0	**135**	**221**	**227**
16:15	16:30	1	0	6	**7**	4	0	0	**4**	**11**	0	78	1	**79**	3	92	0	**95**	**174**	**185**
16:30	16:45	1	0	3	**4**	1	0	0	**1**	**5**	0	60	2	**62**	4	109	0	**113**	**175**	**180**
16:45	17:00	1	0	5	**6**	4	0	0	**4**	**10**	0	82	5	**87**	4	98	0	**102**	**189**	**199**
17:00	17:15	0	0	5	**5**	4	0	1	**5**	**10**	0	70	1	**71**	6	136	0	**142**	**213**	**223**
17:15	17:30	2	0	4	**6**	3	0	0	**3**	**9**	0	83	4	**87**	4	119	0	**123**	**210**	**219**
17:30	17:45	1	0	4	**5**	2	0	1	**3**	**8**	0	76	1	**77**	6	111	0	**117**	**194**	**202**
17:45	18:00	1	0	2	**3**	5	0	0	**5**	**8**	0	75	2	**77**	2	75	0	**77**	**154**	**162**
TOTAL:		20	0	148	**168**	80	0	11	**91**	**259**	0	2494	52	**2546**	95	2480	0	**2575**	**5121**	**5380**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
36806

TWEEDSMUIR AVE @ SCOTT ST

Count Date: Tuesday, March 28, 2017 **Start Time:** 07:00

	TWEEDSMUIR AVE			SCOTT ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	1	0	**1**	11	1	**12**	**13**
08:00 09:00	0	0	**0**	6	2	**8**	**8**
09:00 10:00	0	0	**0**	0	1	**1**	**1**
11:30 12:30	0	0	**0**	2	1	**3**	**3**
12:30 13:30	0	0	**0**	0	1	**1**	**1**
15:00 16:00	0	0	**0**	2	4	**6**	**6**
16:00 17:00	0	0	**0**	4	8	**12**	**12**
17:00 18:00	0	0	**0**	1	13	**14**	**14**
Total	1	0	**1**	26	31	**57**	**58**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 36806

Turning Movement Count - Heavy Vehicle Report

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017

		TWEEDSMUIR AVE									SCOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	08:00	0	0	1	**1**	10	0	0	**10**	**11**	0	8	0	**8**	0	16	0	**16**	**24**	**35**
08:00	09:00	0	0	0	**0**	11	0	0	**11**	**11**	0	12	0	**12**	0	11	0	**11**	**23**	**34**
09:00	10:00	0	0	1	**1**	8	0	1	**9**	**10**	0	7	0	**7**	0	20	0	**20**	**27**	**37**
11:30	12:30	0	0	0	**0**	7	0	1	**8**	**8**	0	7	0	**7**	0	13	0	**13**	**20**	**28**
12:30	13:30	0	0	0	**0**	9	0	0	**9**	**9**	0	4	0	**4**	1	19	0	**20**	**24**	**33**
15:00	16:00	0	0	0	**0**	10	0	3	**13**	**13**	0	5	0	**5**	0	20	0	**20**	**25**	**38**
16:00	17:00	0	0	0	**0**	10	0	0	**10**	**10**	0	2	0	**2**	0	12	0	**12**	**14**	**24**
17:00	18:00	0	0	0	**0**	14	0	1	**15**	**15**	0	0	0	**0**	0	11	0	**11**	**11**	**26**
Sub Total		0	0	2	**2**	79	0	6	**85**	**87**	0	45	0	**45**	1	122	0	**123**	**168**	**255**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	0	2	**0**	79	0	6	**85**	**87**	0	45	0	**45**	1	122	0	**123**	**168**	**255**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
36806

Turning Movement Count - Pedestrian Volume Report

TWEEDSMUIR AVE @ SCOTT ST

Count Date: Tuesday, March 28, 2017 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	30	**30**	2	17	**19**	**49**
07:15 07:30	1	38	**39**	0	23	**23**	**62**
07:30 07:45	9	52	**61**	1	41	**42**	**103**
07:45 08:00	10	39	**49**	2	33	**35**	**84**
07:00 08:00	20	159	**179**	5	114	**119**	**298**
08:00 08:15	2	35	**37**	1	24	**25**	**62**
08:15 08:30	0	44	**44**	1	38	**39**	**83**
08:30 08:45	3	31	**34**	2	27	**29**	**63**
08:45 09:00	0	40	**40**	1	29	**30**	**70**
08:00 09:00	5	150	**155**	5	118	**123**	**278**
09:00 09:15	1	25	**26**	3	18	**21**	**47**
09:15 09:30	2	13	**15**	1	9	**10**	**25**
09:30 09:45	0	15	**15**	1	15	**16**	**31**
09:45 10:00	0	8	**8**	1	3	**4**	**12**
09:00 10:00	3	61	**64**	6	45	**51**	**115**
11:30 11:45	1	18	**19**	0	14	**14**	**33**
11:45 12:00	6	14	**20**	0	7	**7**	**27**
12:00 12:15	9	18	**27**	4	16	**20**	**47**
12:15 12:30	7	27	**34**	3	29	**32**	**66**
11:30 12:30	23	77	**100**	7	66	**73**	**173**
12:30 12:45	2	22	**24**	0	29	**29**	**53**
12:45 13:00	7	20	**27**	1	25	**26**	**53**
13:00 13:15	5	16	**21**	0	17	**17**	**38**
13:15 13:30	4	8	**12**	0	11	**11**	**23**
12:30 13:30	18	66	**84**	1	82	**83**	**167**
15:00 15:15	2	31	**33**	1	20	**21**	**54**
15:15 15:30	1	27	**28**	2	18	**20**	**48**
15:30 15:45	7	25	**32**	1	22	**23**	**55**
15:45 16:00	5	40	**45**	1	40	**41**	**86**
15:00 16:00	15	123	**138**	5	100	**105**	**243**
16:00 16:15	2	55	**57**	0	44	**44**	**101**
16:15 16:30	6	39	**45**	1	33	**34**	**79**
16:30 16:45	10	58	**68**	2	53	**55**	**123**
16:45 17:00	4	67	**71**	4	50	**54**	**125**
16:00 17:00	22	219	**241**	7	180	**187**	**428**
17:00 17:15	8	58	**66**	3	56	**59**	**125**
17:15 17:30	5	62	**67**	1	47	**48**	**115**
17:30 17:45	6	41	**47**	2	34	**36**	**83**
17:45 18:00	3	65	**68**	4	53	**57**	**125**
17:00 18:00	22	226	**248**	10	190	**200**	**448**
Total	128	1081	**1209**	46	895	**941**	**2150**

Comment:

Transportation Services - Traffic Services

Work Order
36806

Turning Movement Count - 15 Min U-Turn Total Report

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Appendix D:

Historic Collision Data

Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	3	1	3	6	0	1	11	0	25	71%
Non-fatal injury	0	1	0	4	0	5	0	0	10	29%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**3**	**2**	**3**	**10**	**0**	**6**	**11**	**0**	**35**	100%
	#4 or 9%	#6 or 6%	#4 or 9%	#2 or 29%	#7 or 0%	#3 or 17%	#1 or 31%	#7 or 0%		

ATHLONE AVE/RICHMOND RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	6	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	1	2	0	0	1	0	5	83%
Non-fatal injury	0	0	0	1	0	0	0	0	1	17%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**1**	**3**	**0**	**0**	**1**	**0**	**6**	100%
	17%	0%	17%	50%	0%	0%	17%	0%		

RICHMOND RD/TWEEDSMUIR AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	0	2	0	0	0	0	3	75%
Non-fatal injury	0	0	0	1	0	0	0	0	1	25%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**4**	100%
	25%	0%	0%	75%	0%	0%	0%	0%		

RICHMOND RD, ATHLONE AVE to TWEEDSMUIR AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	3	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	1	0	1	0	0	2	67%
Non-fatal injury	0	0	0	1	0	0	0	0	1	33%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**3**	100%
	0%	0%	0%	67%	0%	33%	0%	0%		

ATHLONE AVE/SCOTT ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	0	0	0	0	0	0	1	50%
Non-fatal injury	0	0	0	0	0	1	0	0	1	50%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	100%
	50%	0%	0%	0%	0%	50%	0%	0%		

CHURCHILL AVE/SCOTT ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	1	0	0	0	1	0	2	50%
Non-fatal injury	0	0	0	0	0	2	0	0	2	50%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**4**	100%
	0%	0%	25%	0%	0%	50%	25%	0%		

LANARK AVE/WEST VILLAGE PRIV/SCOTT ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	0	0	0	0%
Non-fatal injury	0	1	0	1	0	0	0	0	2	100%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	100%
	0%	50%	0%	50%	0%	0%	0%	0%		

SCOTT ST, CLIFTON RD to LANARK AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	1	0	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	0%	100%	0%	0%	0%	0%	0%	0%		

SCOTT ST, TRANSITWAY to MCRAE AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	1	0	1	50%
Non-fatal injury	0	0	0	0	0	1	0	0	1	50%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	100%
	0%	0%	0%	0%	0%	50%	50%	0%		

SCOTT ST, WINONA AVE to TRANSITWAY/ATHLONE AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	1	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	0%	0%	100%	0%	0%	0%	0%	0%		

ATHLONE AVE, SCOTT ST to RICHMOND RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	6	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	5	0	5	83%
Non-fatal injury	0	0	0	0	0	1	0	0	1	17%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**6**	100%
	0%	0%	0%	0%	0%	17%	83%	0%		

TWEEDSMUIR AVE, TRANSITWAY to RICHMOND RD

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2017-2021	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	1	0	0	3	0	4	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**4**	100%
	0%	0%	0%	25%	0%	0%	75%	0%		

Appendix E:

Traffic Growth Analysis

Richmond/Kirkwood
8 hrs

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2011	Tuesday, June 21	591	358	2060	2877	4228	2625	2588	3607	18934
2015	Monday, July 06	456	410	2417	2341	3504	3311	3076	3391	18906
2023	Wednesday, December 20	286	369	2732	2756	3953	3766	3451	3531	20844

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2011	358	591	949	18934				
2015	410	456	866	18906	14.5%	-22.8%	-8.7%	-0.1%
2023	369	286	655	20844	-10.0%	-37.3%	-24.4%	10.3%

Regression Estimate	2011	379	577	955
Regression Estimate	2023	379	279	658
Average Annual Change		**0.01%**	**-5.88%**	**-3.06%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2011	2588	3607	6195	18934				
2015	3076	3391	6467	18906	18.9%	-6.0%	4.4%	-0.1%
2023	3451	3531	6982	20844	12.2%	4.1%	8.0%	10.3%

Regression Estimate	2011	2674	3525	6199
Regression Estimate	2023	3494	3490	6984
Average Annual Change		**2.25%**	**-0.08%**	**1.00%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2011	2625	4228	6853	18934				
2015	3311	3504	6815	18906	26.1%	-17.1%	-0.6%	-0.1%
2023	3766	3953	7719	20844	13.7%	12.8%	13.3%	10.3%

Regression Estimate	2011	2756	3957	6713
Regression Estimate	2023	3832	3818	7649
Average Annual Change		**2.78%**	**-0.30%**	**1.09%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2011	2060	2877	4937	18934				
2015	2417	2341	4758	18906	17.3%	-18.6%	-3.6%	-0.1%
2023	2732	2756	5488	20844	13.0%	17.7%	15.3%	10.3%

Regression Estimate	2011	2117	2665	4782
Regression Estimate	2023	2761	2650	5410
Average Annual Change		**2.24%**	**-0.05%**	**1.03%**

Richmond/Kirkwood
AM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2011	Tuesday, June 21	72	63	305	446	518	422	458	422	2706
2015	Monday, July 06	58	42	302	255	355	390	343	371	2116
2023	Wednesday, December 20	40	34	270	347	434	430	425	358	2338

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2011	63	72	135	2706				
2015	42	58	100	2116	-33.3%	-19.4%	-25.9%	-21.8%
2023	34	40	74	2338	-19.0%	-31.0%	-26.0%	10.5%

Regression Estimate	2011	58	71	129
Regression Estimate	2023	32	39	71
Average Annual Change		**-4.96%**	**-4.76%**	**-4.85%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2011	458	422	880	2706				
2015	343	371	714	2116	-25.1%	-12.1%	-18.9%	-21.8%
2023	425	358	783	2338	23.9%	-3.5%	9.7%	10.5%

Regression Estimate	2011	413	409	823
Regression Estimate	2023	403	352	754
Average Annual Change		**-0.22%**	**-1.26%**	**-0.72%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2011	422	518	940	2706				
2015	390	355	745	2116	-7.6%	-31.5%	-20.7%	-21.8%
2023	430	434	864	2338	10.3%	22.3%	16.0%	10.5%

Regression Estimate	2011	407	460	867
Regression Estimate	2023	423	405	828
Average Annual Change		**0.31%**	**-1.06%**	**-0.39%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2011	305	446	751	2706				
2015	302	255	557	2116	-1.0%	-42.8%	-25.8%	-21.8%
2023	270	347	617	2338	-10.6%	36.1%	10.8%	10.5%

Regression Estimate	2011	309	378	687
Regression Estimate	2023	272	313	585
Average Annual Change		**-1.05%**	**-1.56%**	**-1.33%**

Richmond/Kirkwood
PM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2011	Tuesday, June 21	65	38	244	376	743	297	281	622	2666
2015	Monday, July 06	80	55	357	375	640	586	411	572	3076
2023	Wednesday, December 20	40	60	422	401	618	572	526	573	3212

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2011	38	65	103	2666				
2015	55	80	135	3076	44.7%	23.1%	31.1%	15.4%
2023	60	40	100	3212	9.1%	-50.0%	-25.9%	4.4%

Regression Estimate	2011	42	75	117
Regression Estimate	2023	62	45	107
Average Annual Change		**3.28%**	**-4.17%**	**-0.75%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2011	281	622	903	2666				
2015	411	572	983	3076	46.3%	-8.0%	8.9%	15.4%
2023	526	573	1099	3212	28.0%	0.2%	11.8%	4.4%

Regression Estimate	2011	302	608	909
Regression Estimate	2023	536	566	1102
Average Annual Change		**4.91%**	**-0.59%**	**1.62%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2011	297	743	1040	2666				
2015	586	640	1226	3076	97.3%	-13.9%	17.9%	15.4%
2023	572	618	1190	3212	-2.4%	-3.4%	-2.9%	4.4%

Regression Estimate	2011	382	717	1098
Regression Estimate	2023	614	605	1219
Average Annual Change		**4.05%**	**-1.40%**	**0.87%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2011	244	376	620	2666				
2015	357	375	732	3076	46.3%	-0.3%	18.1%	15.4%
2023	422	401	823	3212	18.2%	6.9%	12.4%	4.4%

Regression Estimate	2011	267	372	639
Regression Estimate	2023	434	399	833
Average Annual Change		**4.12%**	**0.59%**	**2.23%**

Scott/Churchill
8 hrs

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2013	Tuesday, April 30	1373	910	2613	4323	3623	2243	161	294	15540
2019	Tuesday, August 13	1361	1029	2805	2956	2114	2278	148	165	12856
2023	Thursday, November 30	1247	967	2358	2603	2243	2286	548	540	12792

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2013	910	1373	2283	15540				
2019	1029	1361	2390	12856	13.1%	-0.9%	4.7%	-17.3%
2023	967	1247	2214	12792	-6.0%	-8.4%	-7.4%	-0.5%

Regression Estimate	2013	932	1390	2322
Regression Estimate	2023	1000	1272	2273
Average Annual Change		**0.71%**	**-0.88%**	**-0.22%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2013	161	294	455	15540				
2019	148	165	313	12856	-8.1%	-43.9%	-31.2%	-17.3%
2023	548	540	1088	12792	270.3%	227.3%	247.6%	-0.5%

Regression Estimate	2013	96	221	318
Regression Estimate	2023	451	431	882
Average Annual Change		**16.68%**	**6.89%**	**10.75%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2013	2243	3623	5866	15540				
2019	2278	2114	4392	12856	1.6%	-41.7%	-25.1%	-17.3%
2023	2286	2243	4529	12792	0.4%	6.1%	3.1%	-0.5%

Regression Estimate	2013	2245	3444	5689
Regression Estimate	2023	2290	1974	4264
Average Annual Change		**0.20%**	**-5.41%**	**-2.84%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2013	2613	4323	6936	15540				
2019	2805	2956	5761	12856	7.3%	-31.6%	-16.9%	-17.3%
2023	2358	2603	4961	12792	-15.9%	-11.9%	-13.9%	-0.5%

Regression Estimate	2013	2704	4235	6939
Regression Estimate	2023	2494	2471	4965
Average Annual Change		**-0.80%**	**-5.25%**	**-3.29%**

Scott/Churchill
AM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2013	Tuesday, April 30	263	105	528	549	356	505	33	21	2360
2019	Tuesday, August 13	259	116	468	420	227	423	23	18	1954
2023	Thursday, November 30	231	118	279	368	234	298	90	50	1668

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2013	105	263	368	2360				
2019	116	259	375	1954	10.5%	-1.5%	1.9%	-17.2%
2023	118	231	349	1668	1.7%	-10.8%	-6.9%	-14.6%

Regression Estimate	2013	106	267	373
Regression Estimate	2023	119	237	356
Average Annual Change		**1.20%**	**-1.18%**	**-0.45%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2013	33	21	54	2360				
2019	23	18	41	1954	-30.3%	-14.3%	-24.1%	-17.2%
2023	90	50	140	1668	291.3%	177.8%	241.5%	-14.6%

Regression Estimate	2013	21	16	37
Regression Estimate	2023	73	42	115
Average Annual Change		**13.00%**	**10.37%**	**11.96%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2013	505	356	861	2360				
2019	423	227	650	1954	-16.2%	-36.2%	-24.5%	-17.2%
2023	298	234	532	1668	-29.6%	3.1%	-18.2%	-14.6%

Regression Estimate	2013	516	341	857
Regression Estimate	2023	315	212	527
Average Annual Change		**-4.83%**	**-4.65%**	**-4.76%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2013	528	549	1077	2360				
2019	468	420	888	1954	-11.4%	-23.5%	-17.5%	-17.2%
2023	279	368	647	1668	-40.4%	-12.4%	-27.1%	-14.6%

Regression Estimate	2013	552	544	1095
Regression Estimate	2023	314	360	674
Average Annual Change		**-5.47%**	**-4.04%**	**-4.73%**

Scott/Churchill
PM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2013	Tuesday, April 30	140	146	306	866	799	224	8	17	2506
2019	Tuesday, August 13	161	195	374	419	345	256	19	29	1798
2023	Thursday, November 30	160	181	398	427	436	365	76	97	2140

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2013	146	140	286	2506				
2019	195	161	356	1798	33.6%	15.0%	24.5%	-28.3%
2023	181	160	341	2140	-7.2%	-0.6%	-4.2%	19.0%

Regression Estimate	2013	153	142	296
Regression Estimate	2023	192	164	356
Average Annual Change		**2.27%**	**1.40%**	**1.86%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2013	8	17	25	2506				
2019	19	29	48	1798	137.5%	70.6%	92.0%	-28.3%
2023	76	97	173	2140	300.0%	234.5%	260.4%	19.0%

Regression Estimate	2013	0	8	8
Regression Estimate	2023	64	83	147
Average Annual Change		**82.37%**	**27.10%**	**34.33%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2013	224	799	1023	2506				
2019	256	345	601	1798	14.3%	-56.8%	-41.3%	-28.3%
2023	365	436	801	2140	42.6%	26.4%	33.3%	19.0%

Regression Estimate	2013	210	737	947
Regression Estimate	2023	344	343	687
Average Annual Change		**5.06%**	**-7.37%**	**-3.16%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2013	306	866	1172	2506				
2019	374	419	793	1798	22.2%	-51.6%	-32.3%	-28.3%
2023	398	427	825	2140	6.4%	1.9%	4.0%	19.0%

Regression Estimate	2013	309	818	1127
Regression Estimate	2023	403	355	758
Average Annual Change		**2.68%**	**-8.02%**	**-3.89%**

Appendix F:

Adjacent Developments' Site-Generated Volumes

2026 Scott Street TIA Report (April 2024) Excerpt

Figure 10: Net Site-Generated Traffic Volumes (2026)

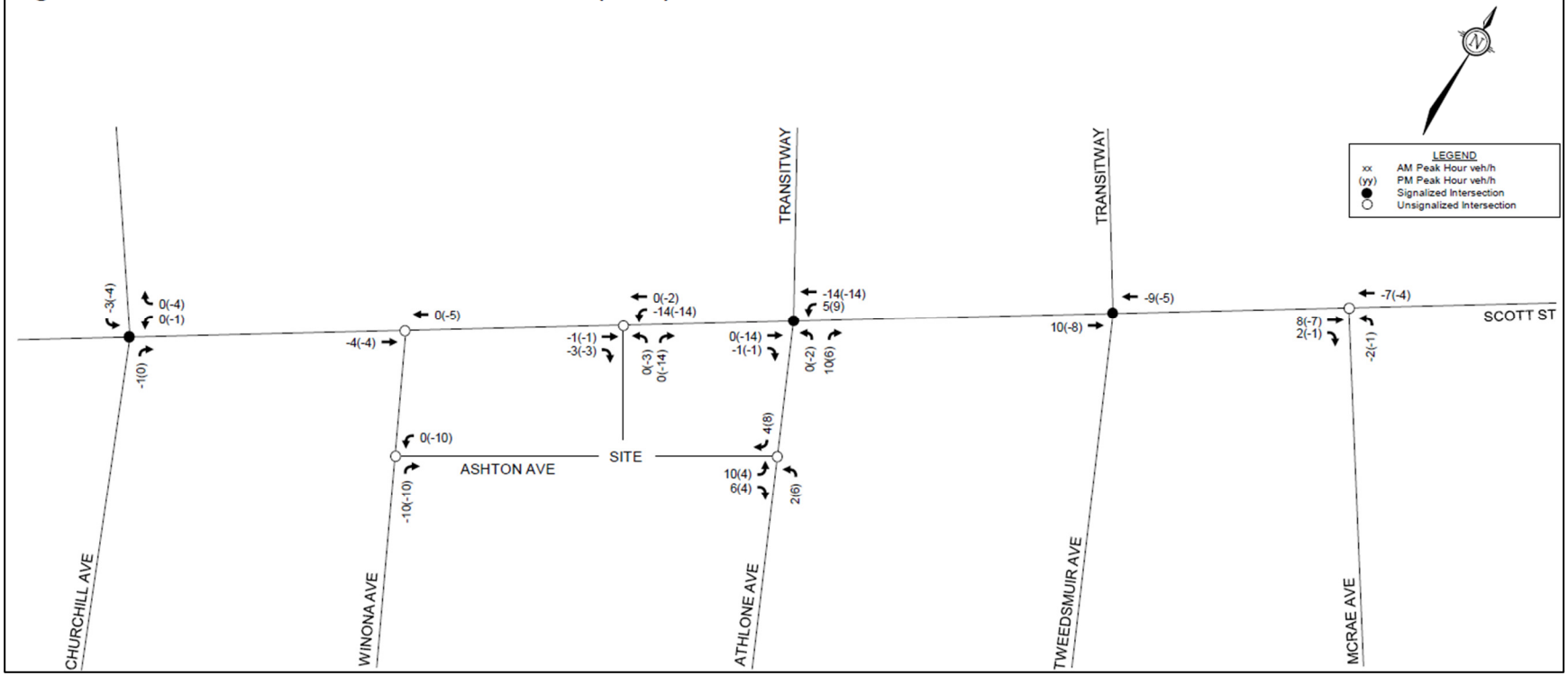
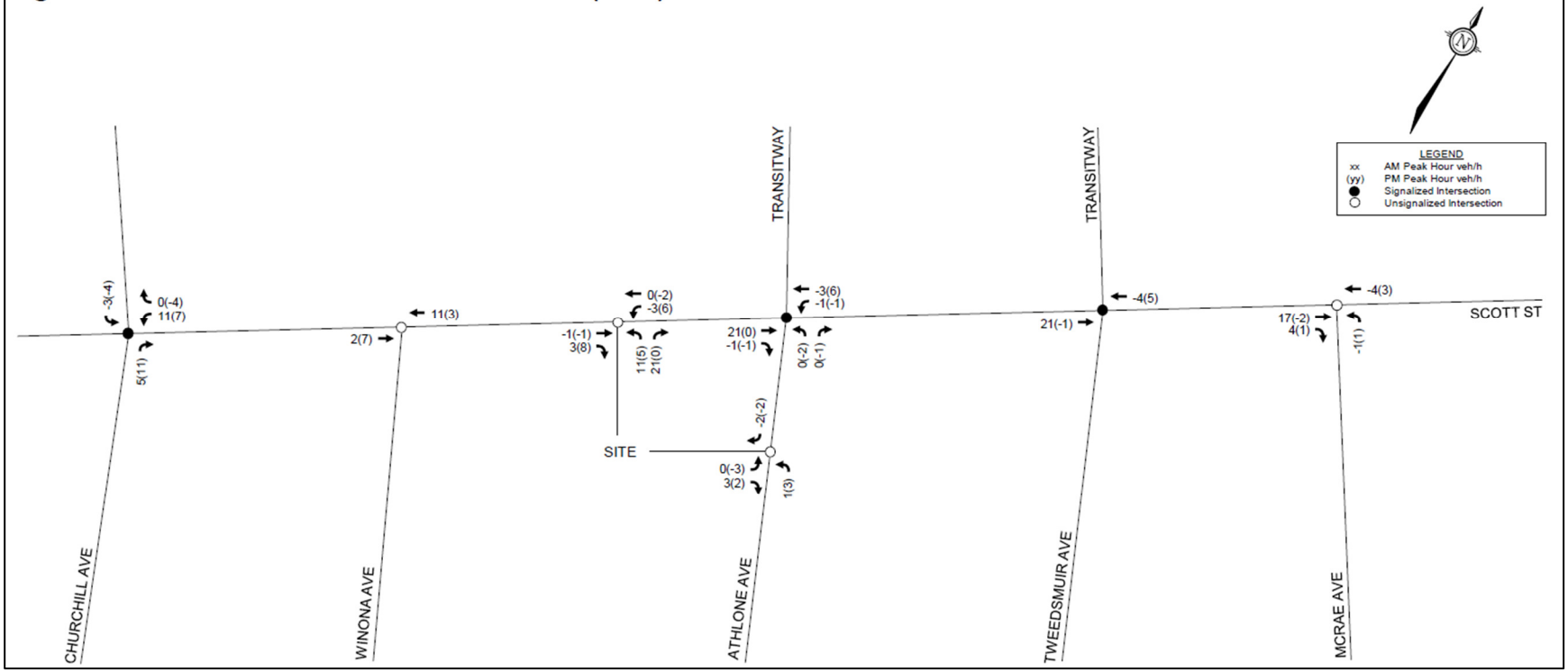
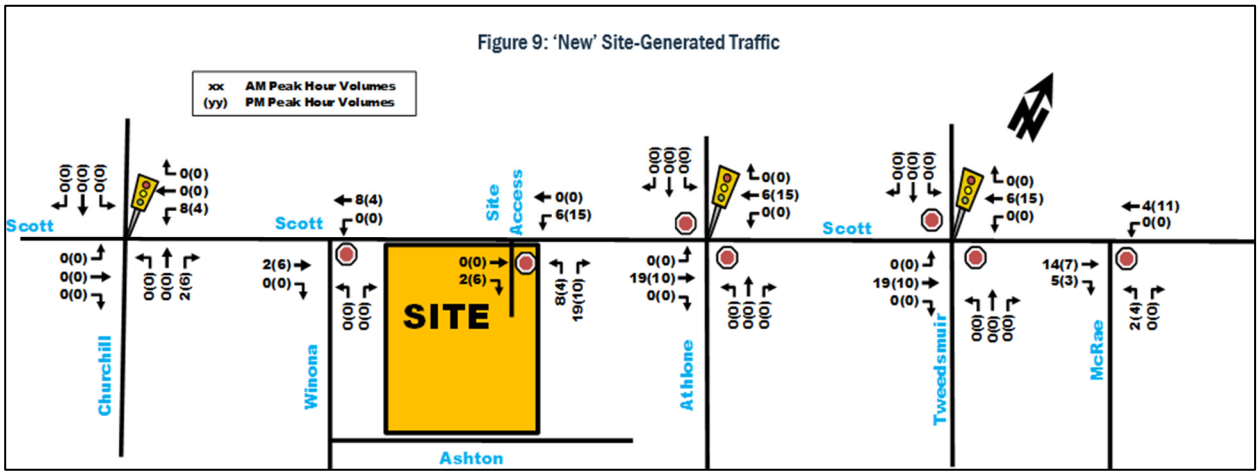


Figure 11: Net Site-Generated Traffic Volumes (2031)

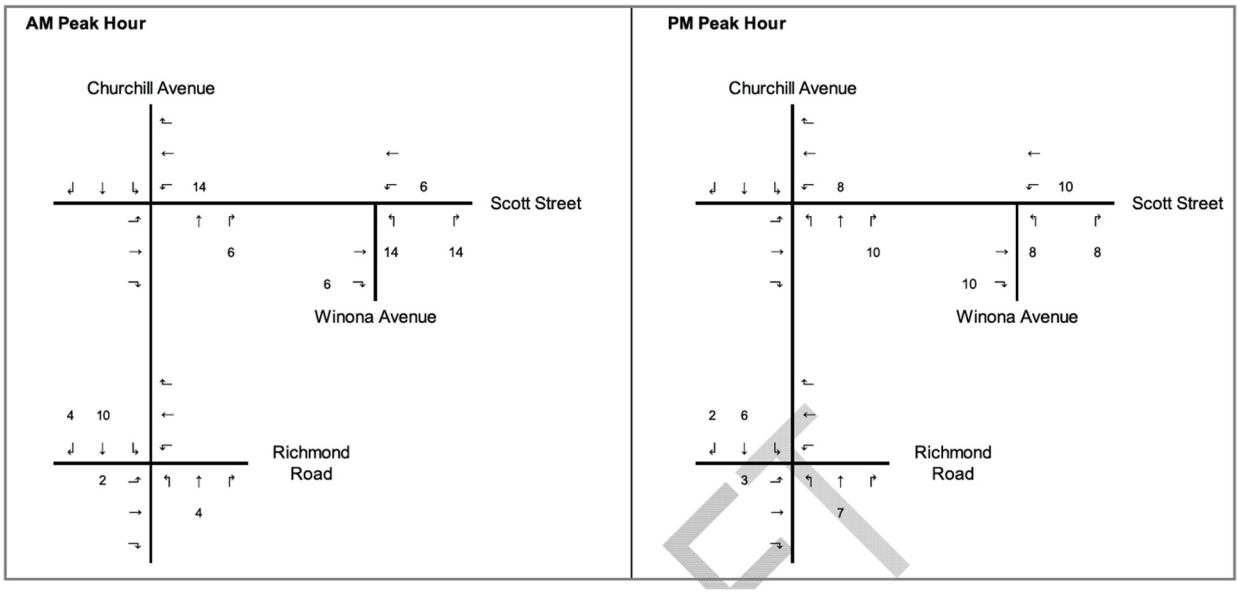


2050 Scott Street TIA Report (Feb 2021) Excerpt



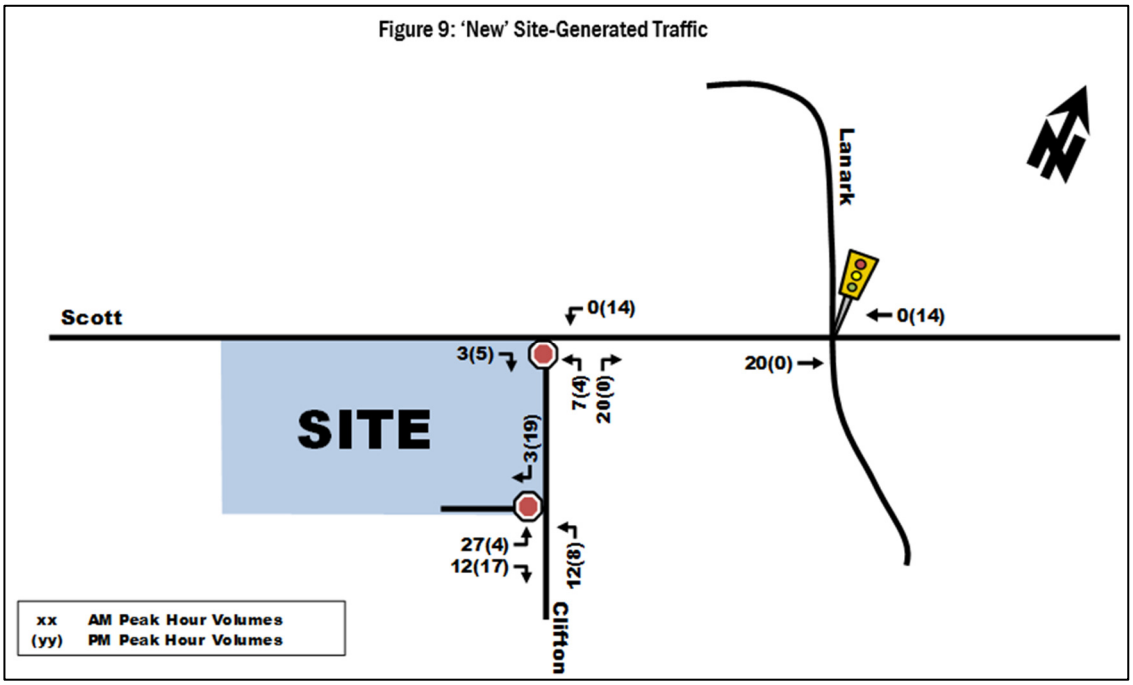
2070 Scott Street TIA Report (Nov 2019) Excerpt

Figure 12 - Site Trips



1950 Scott Street TIA Report (April 2019) Excerpt

Figure 9: 'New' Site-Generated Traffic



249-255 Richmond Road & 372 Tweedsmuir Avenue TIA Report (July 2025) Excerpt

Net Trip Generation

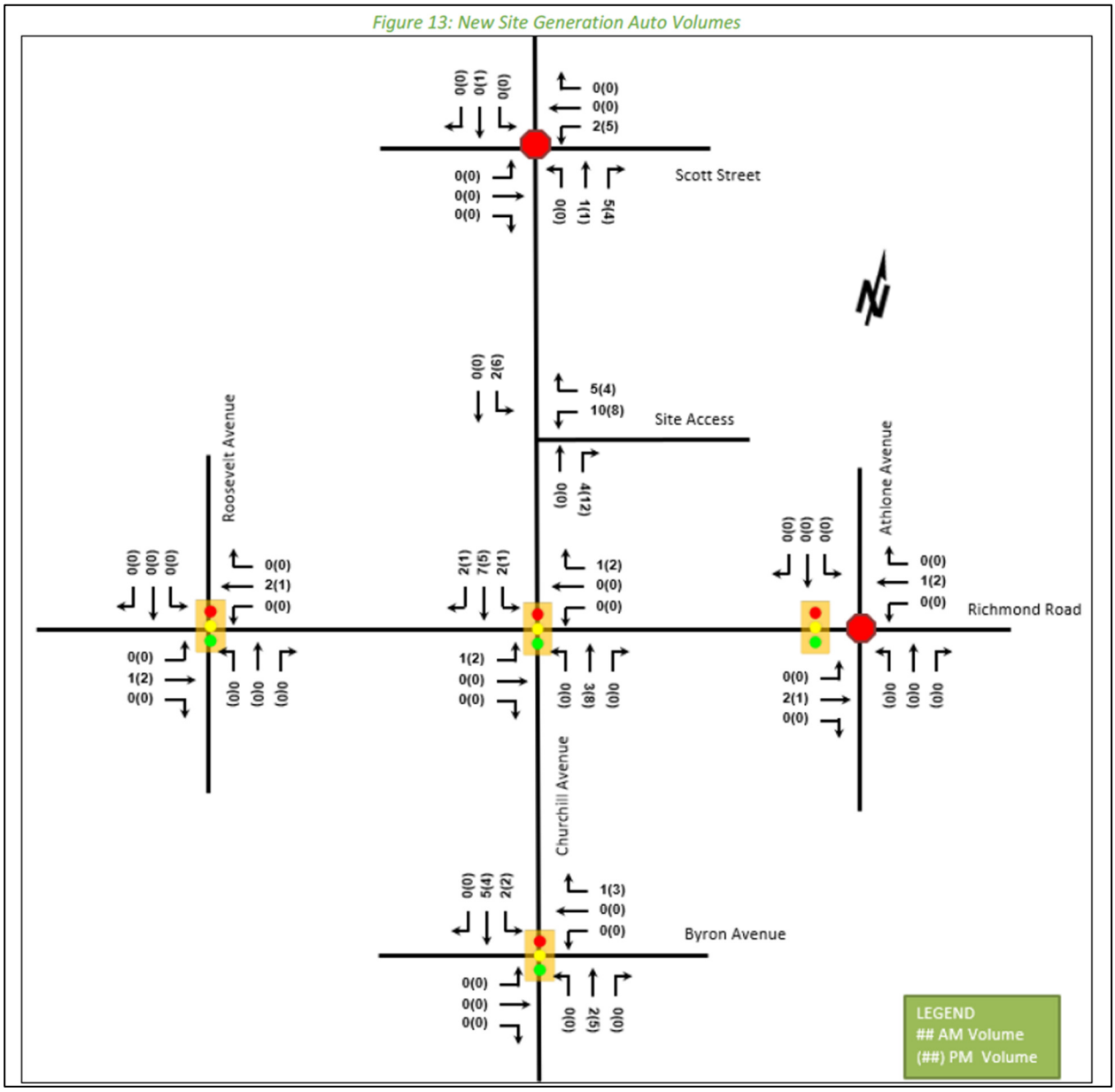
A full breakdown of the net person trips generated by modal share is shown in **Table 12**.

Table 12: Net Person Trip Generation

Travel Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Existing Development						
Auto Driver	3	2	*5*	17	15	*32*
Auto Passenger	1	0	*1*	5	4	*9*
Transit	0	0	*0*	2	3	*5*
Cyclist	0	0	*0*	2	2	*4*
Pedestrian	1	1	*2*	16	11	*27*
Total	**5**	**3**	***8***	**42**	**35**	***77***
Proposed Development						
Auto Driver	11	14	*25*	18	14	*32*
Auto Passenger	2	4	*6*	6	4	*10*
Transit	8	16	*24*	14	11	*25*
Cyclist	2	3	*5*	2	1	*3*
Pedestrian	11	15	*26*	16	11	*27*
Total	**34**	**52**	***86***	**56**	**41**	***97***
Net Trips						
Auto Driver	8	12	*20*	1	-1	*0*
Auto Passenger	1	4	*5*	1	0	*1*
Transit	8	16	*24*	12	8	*20*
Cyclist	2	3	*5*	0	-1	*-1*
Pedestrian	10	14	*24*	0	0	*0*
Total	**29**	**49**	***78***	**14**	**6**	***20***

319-327 Richmond Road TIA Report (Dec 2020) Excerpt

Figure 13: New Site Generation Auto Volumes



Appendix G:

TDM Checklists

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 H:

TRANS Model

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Westboro Area

2011 Model - Basecase

N/A

User Initials: MANS
Plot Prepared: December 14, 2023
EMME Scenario: 21713

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

50 100150200250

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

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

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

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Westboro Area

2031 Model - Basecase

N/A

User Initials: MANS
Plot Prepared: December 14, 2023
EMME Scenario: 21717

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

50 100150200250

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

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

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

Appendix I:

Synchro Analysis Reports

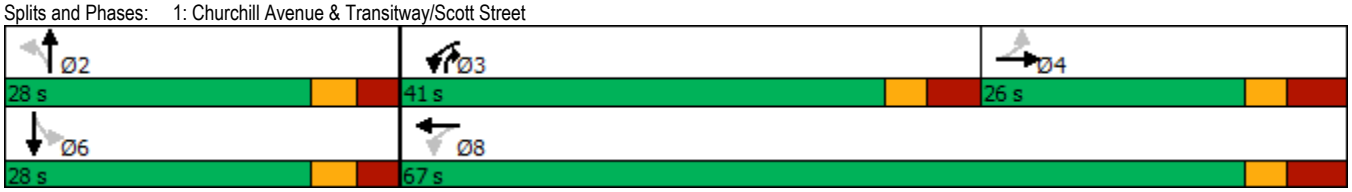
Existing Conditions

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	77	163	43	6	89	184	37	193
Future Volume (vph)	1	77	163	43	6	89	184	37	193
Lane Group Flow (vph)	0	100	181	79	0	106	204	0	256
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	26.0	26.0	41.0	67.0	28.0	28.0	41.0	28.0	28.0
Total Split (%)	27.4%	27.4%	43.2%	70.5%	29.5%	29.5%	43.2%	29.5%	29.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		34.3	60.3	59.7		18.2	18.6		18.2
Actuated g/C Ratio		0.37	0.66	0.65		0.20	0.20		0.20
v/c Ratio		0.28	0.23	0.11		0.31	0.71		0.80
Control Delay		24.9	7.5	5.0		33.6	47.4		53.4
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		24.9	7.5	5.0		33.6	47.4		53.4
LOS		C	A	A		C	D		D
Approach Delay		24.9		6.7		42.7			53.4
Approach LOS		C		A		D			D
Queue Length 50th (m)		11.6	11.6	3.0		16.1	34.4		43.3
Queue Length 95th (m)		28.3	21.2	8.5		30.2	53.1		#71.3
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		363	877	703		404	529		383
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		0.28	0.21	0.11		0.26	0.39		0.67

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 91.7	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 33.6	Intersection LOS: C
Intersection Capacity Utilization 62.2%	ICU Level of Service B
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	414	6	307	7	1	57	0
Future Volume (vph)	30	414	6	307	7	1	57	0
Lane Group Flow (vph)	33	467	7	383	8	22	63	71
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	66.0	66.0	66.0	66.0	29.0	29.0	29.0	29.0
Total Split (%)	69.5%	69.5%	69.5%	69.5%	30.5%	30.5%	30.5%	30.5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	59.4	59.4	59.4	59.4	22.8	22.8	22.8	22.8
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.24	0.24	0.24	0.24
v/c Ratio	0.06	0.50	0.01	0.40	0.03	0.06	0.20	0.10
Control Delay	7.3	11.9	6.8	10.1	28.1	12.6	31.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	11.9	6.8	10.1	28.1	12.6	31.0	0.3
LOS	A	B	A	B	C	B	C	A
Approach Delay		11.6		10.0		16.7		14.7
Approach LOS		B		B		B		B
Queue Length 50th (m)	2.1	42.1	0.4	30.8	1.1	0.2	9.3	0.0
Queue Length 95th (m)	5.7	65.2	2.0	48.3	4.7	5.9	20.0	0.0
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	553	940	493	961	299	375	312	739
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.50	0.01	0.40	0.03	0.06	0.20	0.10

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 83 (87%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 11.6	Intersection LOS: B
Intersection Capacity Utilization 55.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street

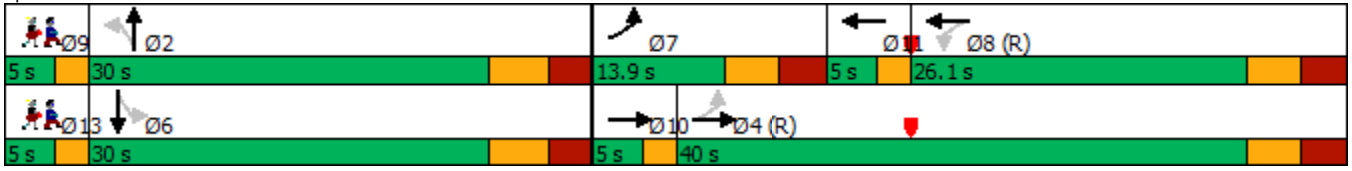


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	262	390	43	183	24	273	21	319				
Future Volume (vph)	262	390	43	183	24	273	21	319				
Lane Group Flow (vph)	291	465	48	224	27	395	0	527				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	13.9		26.1		30.0	30.0	30.0	30.0	40.0	5.0	5.0	5.0
Total Split (%)	17.4%		32.6%		37.5%	37.5%	37.5%	37.5%	50%	6%	6%	6%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	38.9	33.9	20.0	20.0	23.8	23.8		23.8				
Actuated g/C Ratio	0.49	0.42	0.25	0.25	0.30	0.30		0.30				
v/c Ratio	0.62	0.63	0.24	0.53	0.20	0.80		1.21				
Control Delay	19.9	22.6	27.8	30.7	25.6	38.9		140.0				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	19.9	22.6	27.8	30.7	25.6	38.9		140.0				
LOS	B	C	C	C	C	D		F				
Approach Delay		21.6		30.2		38.0		140.0				
Approach LOS		C		C		D		F				
Queue Length 50th (m)	26.1	53.0	5.8	28.6	3.0	52.4		~96.8				
Queue Length 95th (m)	42.9	83.6	14.9	49.5	9.7	#96.4		#154.4				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	469	737	199	421	136	494		437				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.62	0.63	0.24	0.53	0.20	0.80		1.21				

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 43 (54%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 57.8	Intersection LOS: E
Intersection Capacity Utilization 93.7%	ICU Level of Service F
Analysis Period (min) 15	

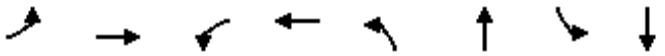
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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

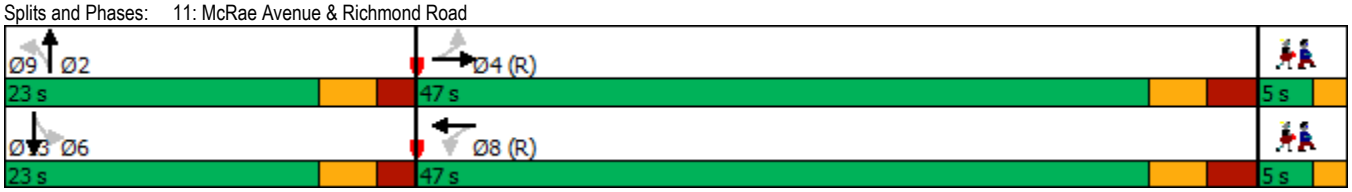


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	99	333	9	247	15	15	72	16		
Future Volume (vph)	99	333	9	247	15	15	72	16		
Lane Group Flow (vph)	110	406	10	374	17	29	0	151		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		4		8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	8	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	35.2	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	47.0	47.0	47.0	47.0	23.0	23.0	23.0	23.0	5.0	5.0
Total Split (%)	62.7%	62.7%	62.7%	62.7%	30.7%	30.7%	30.7%	30.7%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	5.5	5.5		5.5		
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	49.3	49.3	49.3	49.3	13.0	13.0		13.0		
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.17	0.17		0.17		
v/c Ratio	0.18	0.19	0.02	0.35	0.08	0.10		0.62		
Control Delay	7.4	5.8	8.3	8.2	24.9	18.0		32.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	7.4	5.8	8.3	8.2	24.9	18.0		32.9		
LOS	A	A	A	A	C	B		C		
Approach Delay		6.1		8.3		20.5		32.9		
Approach LOS		A		A		C		C		
Queue Length 50th (m)	4.8	8.8	0.4	13.0	2.1	2.1		15.4		
Queue Length 95th (m)	16.0	20.7	m1.0	m33.0	6.6	7.8		30.9		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	597	2132	535	1054	276	395		316		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.18	0.19	0.02	0.35	0.06	0.07		0.48		

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 16 (21%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 11: McRae Avenue & Richmond Road

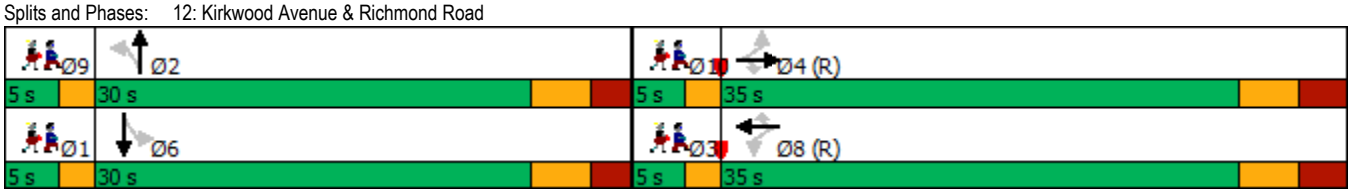


Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø9
Lane Configurations												
Traffic Volume (vph)	297	128	189	236	9	120	25	8	30			
Future Volume (vph)	297	128	189	236	9	120	25	8	30			
Lane Group Flow (vph)	330	142	0	472	10	133	167	0	44			
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA			
Protected Phases	4			8			2		6	1	3	9
Permitted Phases		4	8		8	2		6				
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	30.0	30.0	30.0	30.0	5.0	5.0	5.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	40.0%	40.0%	40.0%	40.0%	7%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Lost Time (s)	6.1	6.1		6.1	6.1	5.6	5.6		5.6			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	28.9	28.9		28.9	28.9	24.4	24.4		24.4			
Actuated g/C Ratio	0.39	0.39		0.39	0.39	0.33	0.33		0.33			
v/c Ratio	0.49	0.23		1.17	0.02	0.33	0.30		0.09			
Control Delay	17.0	2.1		125.0	0.1	21.9	6.9		17.7			
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Delay	17.0	2.1		125.0	0.1	21.9	6.9		17.7			
LOS	B	A		F	A	C	A		B			
Approach Delay	12.5			122.4			13.6		17.7			
Approach LOS	B			F			B		B			
Queue Length 50th (m)	37.6	0.4		~81.0	0.0	14.0	2.7		4.1			
Queue Length 95th (m)	30.8	2.0		#133.8	0.0	27.7	15.1		10.7			
Internal Link Dist (m)	187.3			176.5			528.9		134.6			
Turn Bay Length (m)		35.0										
Base Capacity (vph)	667	611		404	552	405	552		491			
Starvation Cap Reductn	0	0		0	0	0	0		0			
Spillback Cap Reductn	0	0		0	0	0	0		0			
Storage Cap Reductn	0	0		0	0	0	0		0			
Reduced v/c Ratio	0.49	0.23		1.17	0.02	0.33	0.30		0.09			

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 25 (33%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Pretimed	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 53.7	Intersection LOS: D
Intersection Capacity Utilization 69.8%	ICU Level of Service C
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	298	254	
Future Volume (vph)	298	254	
Lane Group Flow (vph)	331	282	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.6	48.6	
Actuated g/C Ratio	0.75	0.75	
v/c Ratio	0.29	0.25	
Control Delay	6.6	2.5	
Queue Delay	0.0	0.0	
Total Delay	6.6	2.5	
LOS	A	A	
Approach Delay	6.6	2.5	
Approach LOS	A	A	
Queue Length 50th (m)	19.1	4.5	
Queue Length 95th (m)	33.5	7.0	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1134	1134	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.29	0.25	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 62 (95%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.29	
Intersection Signal Delay: 4.7	Intersection LOS: A
Intersection Capacity Utilization 21.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	318	257	
Future Volume (vph)	318	257	
Lane Group Flow (vph)	353	286	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.5	48.5	
Actuated g/C Ratio	0.75	0.75	
v/c Ratio	0.31	0.25	
Control Delay	4.7	6.4	
Queue Delay	0.0	0.0	
Total Delay	4.7	6.4	
LOS	A	A	
Approach Delay	4.7	6.4	
Approach LOS	A	A	
Queue Length 50th (m)	12.0	16.0	
Queue Length 95th (m)	18.3	28.5	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1132	1132	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.31	0.25	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 58 (89%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.31	
Intersection Signal Delay: 5.4	Intersection LOS: A
Intersection Capacity Utilization 22.3%	ICU Level of Service A
Analysis Period (min) 15	

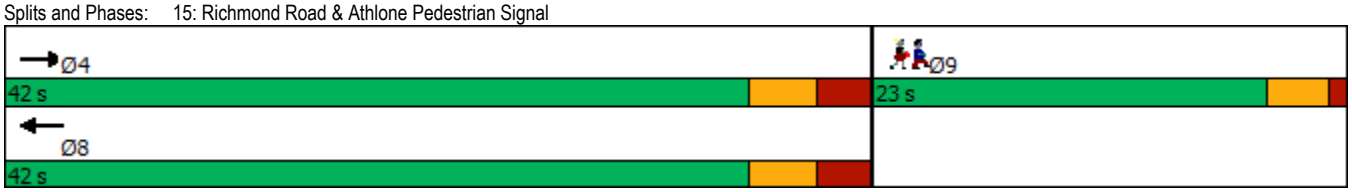
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	451	330	
Future Volume (vph)	451	330	
Lane Group Flow (vph)	501	367	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	24.4	24.4	
Actuated g/C Ratio	0.78	0.78	
v/c Ratio	0.36	0.26	
Control Delay	7.6	6.7	
Queue Delay	0.0	0.0	
Total Delay	7.6	6.7	
LOS	A	A	
Approach Delay	7.6	6.7	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	58.1	39.3	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1555	1555	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.32	0.24	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 31.2	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 30.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	290	8	23	231	3	28
Future Vol, veh/h	290	8	23	231	3	28
Conflicting Peds, #/hr	0	17	17	0	64	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	322	9	26	257	3	31

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	348	0	717	360
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	373	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1211	-	396	684
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1192	-	358	663
Mov Cap-2 Maneuver	-	-	-	-	358	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	638	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	613	-	-	1192	-
HCM Lane V/C Ratio	0.056	-	-	0.021	-
HCM Control Delay (s)	11.2	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	315	3	7	250	4	35
Future Vol, veh/h	315	3	7	250	4	35
Conflicting Peds, #/hr	0	15	15	0	6	122
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	350	3	8	278	4	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	368	0	667	489
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	300	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1191	-	424	579
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1174	-	412	507
Mov Cap-2 Maneuver	-	-	-	-	412	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	742	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	495	-	-	1174	-
HCM Lane V/C Ratio	0.088	-	-	0.007	-
HCM Control Delay (s)	13	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	434	5	5	312	13	5	2	9	8	3	12
Future Vol, veh/h	12	434	5	5	312	13	5	2	9	8	3	12
Conflicting Peds, #/hr	64	0	53	53	0	64	23	0	2	2	0	23
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	8	4	20	0	4	8	40	0	0	0	0	0
Mvmt Flow	13	482	6	6	347	14	6	2	10	9	3	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	425	0	0	541	0	0	961	1001	540	949	997	441
Stage 1	-	-	-	-	-	-	564	564	-	430	430	-
Stage 2	-	-	-	-	-	-	397	437	-	519	567	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.272	-	-	2.2	-	-	3.86	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1103	-	-	1038	-	-	202	245	546	242	246	621
Stage 1	-	-	-	-	-	-	449	512	-	607	587	-
Stage 2	-	-	-	-	-	-	559	583	-	544	510	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1038	-	-	987	-	-	178	214	518	217	215	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	214	-	217	215	-
Stage 1	-	-	-	-	-	-	420	479	-	561	548	-
Stage 2	-	-	-	-	-	-	527	544	-	521	477	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	18.1	17.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	292	1038	-	-	987	-	-	320
HCM Lane V/C Ratio	0.061	0.013	-	-	0.006	-	-	0.08
HCM Control Delay (s)	18.1	8.5	0	-	8.7	0	-	17.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	399	11	8	303	9	5	13	23	9	8	22
Future Vol, veh/h	41	399	11	8	303	9	5	13	23	9	8	22
Conflicting Peds, #/hr	46	0	4	4	0	46	1	0	4	4	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	9
Mvmt Flow	46	443	12	9	337	10	6	14	26	10	9	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	393	0	0	459	0	0	923	956	457	966	952	384
Stage 1	-	-	-	-	-	-	545	545	-	401	401	-
Stage 2	-	-	-	-	-	-	378	411	-	565	551	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.381
Pot Cap-1 Maneuver	1177	-	-	1113	-	-	252	260	608	236	261	648
Stage 1	-	-	-	-	-	-	526	522	-	630	604	-
Stage 2	-	-	-	-	-	-	648	598	-	513	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1127	-	-	1109	-	-	223	232	604	195	233	620
Mov Cap-2 Maneuver	-	-	-	-	-	-	223	232	-	195	233	-
Stage 1	-	-	-	-	-	-	495	491	-	570	573	-
Stage 2	-	-	-	-	-	-	606	567	-	449	488	-

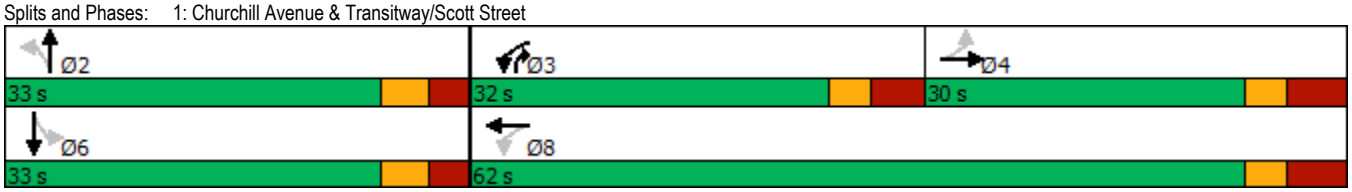
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	16.7	17.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	352	1127	-	-	1109	-	-	336
HCM Lane V/C Ratio	0.129	0.04	-	-	0.008	-	-	0.129
HCM Control Delay (s)	16.7	8.3	0	-	8.3	0	-	17.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.4

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	60	301	82	12	126	260	45	112
Future Volume (vph)	2	60	301	82	12	126	260	45	112
Lane Group Flow (vph)	0	85	334	150	0	153	289	0	177
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	30.0	30.0	32.0	62.0	33.0	33.0	32.0	33.0	33.0
Total Split (%)	31.6%	31.6%	33.7%	65.3%	34.7%	34.7%	33.7%	34.7%	34.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		27.7	55.3	54.7		15.0	20.2		15.0
Actuated g/C Ratio		0.33	0.66	0.65		0.18	0.24		0.18
v/c Ratio		0.24	0.40	0.21		0.51	0.79		0.66
Control Delay		23.6	8.3	5.0		36.8	45.5		43.8
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		23.6	8.3	5.0		36.8	45.5		43.8
LOS		C	A	A		D	D		D
Approach Delay		23.6		7.2		42.5			43.8
Approach LOS		C		A		D			D
Queue Length 50th (m)		8.3	19.4	4.8		22.2	42.6		26.3
Queue Length 95th (m)		23.0	40.0	14.5		39.4	71.7		46.1
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		350	871	720		535	458		475
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.24	0.38	0.21		0.29	0.63		0.37

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 83.6	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	564	13	557	13	2	49	3
Future Volume (vph)	88	564	13	557	13	2	49	3
Lane Group Flow (vph)	98	645	14	659	14	12	54	39
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0	29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%	29.0%	29.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	64.4	64.4	64.4	64.4	22.8	22.8	22.8	22.8
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.23	0.23	0.23	0.23
v/c Ratio	0.26	0.62	0.04	0.64	0.05	0.04	0.18	0.11
Control Delay	9.9	13.7	6.9	14.2	30.9	18.0	33.0	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	13.7	6.9	14.2	30.9	18.0	33.0	12.2
LOS	A	B	A	B	C	B	C	B
Approach Delay		13.2		14.0		25.0		24.3
Approach LOS		B		B		C		C
Queue Length 50th (m)	7.4	66.7	0.9	69.2	2.1	0.3	8.5	0.5
Queue Length 95th (m)	15.8	99.9	3.2	104.4	7.2	4.8	18.7	8.6
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	372	1043	354	1032	285	331	305	358
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.62	0.04	0.64	0.05	0.04	0.18	0.11

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 40 (40%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street



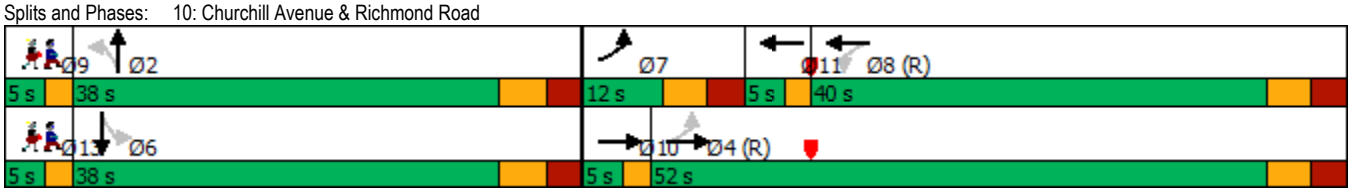
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	157	298	128	451	27	263	19	257				
Future Volume (vph)	157	298	128	451	27	263	19	257				
Lane Group Flow (vph)	174	382	142	535	30	376	0	618				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	12.0		40.0		38.0	38.0	38.0	38.0	52.0	5.0	5.0	5.0
Total Split (%)	12.0%		40.0%		38.0%	38.0%	38.0%	38.0%	52%	5%	5%	5%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	50.9	45.9	33.9	33.9	31.8	31.8		31.8				
Actuated g/C Ratio	0.51	0.46	0.34	0.34	0.32	0.32		0.32				
v/c Ratio	0.70	0.50	0.57	0.89	0.27	0.71		1.37				
Control Delay	31.8	21.3	38.0	50.8	33.3	37.5		209.5				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	31.8	21.3	38.0	50.8	33.3	37.5		209.5				
LOS	C	C	D	D	C	D		F				
Approach Delay		24.6		48.1		37.2		209.5				
Approach LOS		C		D		D		F				
Queue Length 50th (m)	17.7	49.0	22.4	96.8	4.3	61.4		~153.0				
Queue Length 95th (m)	#35.9	75.0	43.6	#157.3	12.7	94.3		#218.8				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	247	763	248	598	111	529		450				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.70	0.50	0.57	0.89	0.27	0.71		1.37				

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 84.5 — Intersection LOS: F
Intersection Capacity Utilization 104.5% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	5%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

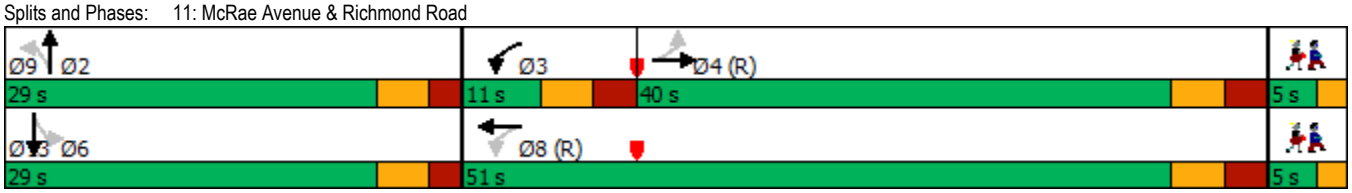
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	69	286	49	462	63	45	101	49		
Future Volume (vph)	69	286	49	462	63	45	101	49		
Lane Group Flow (vph)	77	407	54	630	70	100	0	307		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	4.9	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	11.0	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	40.0	40.0	11.0	51.0	29.0	29.0	29.0	29.0	5.0	5.0
Total Split (%)	47.1%	47.1%	12.9%	60.0%	34.1%	34.1%	34.1%	34.1%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.8	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.1	6.2	5.5	5.5		5.5		
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes							
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	38.2	38.2	44.9	44.8	23.5	23.5		23.5		
Actuated g/C Ratio	0.45	0.45	0.53	0.53	0.28	0.28		0.28		
v/c Ratio	0.29	0.29	0.13	0.70	0.30	0.23		0.85		
Control Delay	20.7	14.5	10.1	13.1	28.7	14.8		47.5		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	20.7	14.5	10.1	13.1	28.7	14.8		47.5		
LOS	C	B	B	B	C	B		D		
Approach Delay		15.5		12.8		20.5		47.5		
Approach LOS		B		B		C		D		
Queue Length 50th (m)	8.4	20.2	3.9	49.0	9.0	6.1		39.9		
Queue Length 95th (m)	19.8	30.8	m4.2	m38.6	20.4	17.6		#84.9		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	270	1428	429	901	233	434		362		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.29	0.29	0.13	0.70	0.30	0.23		0.85		

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 1 (1%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 82.3%	ICU Level of Service E
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: McRae Avenue & Richmond Road

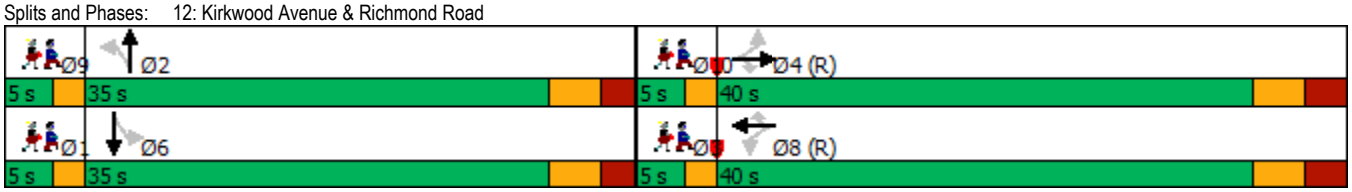


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	3	346	177	187	423	8	149	49	2	37		
Future Volume (vph)	3	346	177	187	423	8	149	49	2	37		
Lane Group Flow (vph)	0	387	197	0	678	9	166	303	0	44		
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA		
Protected Phases		4			8			2		6	1	3
Permitted Phases	4		4	8		8	2		6			
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	41.2%	41.2%	41.2%	41.2%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.1	6.1		6.1	6.1	5.6	5.6		5.6		
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		33.9	33.9		33.9	33.9	29.4	29.4		29.4		
Actuated g/C Ratio		0.40	0.40		0.40	0.40	0.35	0.35		0.35		
v/c Ratio		0.58	0.32		1.66	0.02	0.37	0.45		0.07		
Control Delay		18.3	2.3		330.3	0.0	23.9	7.2		18.9		
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Delay		18.3	2.3		330.3	0.0	23.9	7.2		18.9		
LOS		B	A		F	A	C	A		B		
Approach Delay		12.9			326.0			13.1		18.9		
Approach LOS		B			F			B		B		
Queue Length 50th (m)		37.1	1.5		~162.0	0.0	20.0	5.9		4.6		
Queue Length 95th (m)		m51.6	m4.8		#224.6	0.0	36.4	24.0		11.5		
Internal Link Dist (m)		187.3			176.5			528.9		134.6		
Turn Bay Length (m)			35.0									
Base Capacity (vph)		672	613		409	581	446	675		602		
Starvation Cap Reductn		0	0		0	0	0	0		0		
Spillback Cap Reductn		0	0		0	0	0	0		0		
Storage Cap Reductn		0	0		0	0	0	0		0		
Reduced v/c Ratio		0.58	0.32		1.66	0.02	0.37	0.45		0.07		

Intersection Summary		
Cycle Length: 85		
Actuated Cycle Length: 85		
Offset: 79 (93%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green		
Natural Cycle: 90		
Control Type: Pretimed		
Maximum v/c Ratio: 1.66		
Intersection Signal Delay: 133.7	Intersection LOS: F	
Intersection Capacity Utilization 87.1%	ICU Level of Service E	
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø9	Ø10
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	365	454	
Future Volume (vph)	365	454	
Lane Group Flow (vph)	406	504	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	53.6	53.6	
Actuated g/C Ratio	0.77	0.77	
v/c Ratio	0.35	0.43	
Control Delay	6.7	2.3	
Queue Delay	0.0	0.0	
Total Delay	6.7	2.3	
LOS	A	A	
Approach Delay	6.7	2.3	
Approach LOS	A	A	
Queue Length 50th (m)	24.9	5.0	
Queue Length 95th (m)	42.3	7.0	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1162	1162	
Starvation Cap Reductn	0	13	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.35	0.44	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 56 (80%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 4.2	Intersection LOS: A
Intersection Capacity Utilization 29.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	395	470	
Future Volume (vph)	395	470	
Lane Group Flow (vph)	439	522	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	53.5	53.5	
Actuated g/C Ratio	0.76	0.76	
v/c Ratio	0.38	0.45	
Control Delay	4.9	7.9	
Queue Delay	0.0	0.0	
Total Delay	4.9	7.9	
LOS	A	A	
Approach Delay	4.9	7.9	
Approach LOS	A	A	
Queue Length 50th (m)	16.4	36.2	
Queue Length 95th (m)	23.3	61.0	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1159	1159	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.38	0.45	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 50 (71%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 6.5	Intersection LOS: A
Intersection Capacity Utilization 30.7%	ICU Level of Service A
Analysis Period (min) 15	

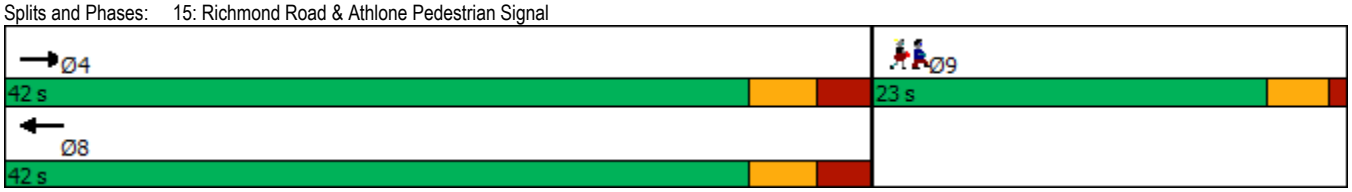
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	548	567	
Future Volume (vph)	548	567	
Lane Group Flow (vph)	609	630	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	29.6	29.6	
Actuated g/C Ratio	0.81	0.81	
v/c Ratio	0.42	0.44	
Control Delay	7.3	7.5	
Queue Delay	0.0	0.0	
Total Delay	7.3	7.5	
LOS	A	A	
Approach Delay	7.3	7.5	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	73.9	77.7	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1492	1492	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.41	0.42	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 36.6	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 7.4	Intersection LOS: A
Intersection Capacity Utilization 36.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	356	9	21	433	3	39
Future Vol, veh/h	356	9	21	433	3	39
Conflicting Peds, #/hr	0	16	16	0	87	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	396	10	23	481	3	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	422	0	1031	427
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	614	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1137	-	258	628
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	540	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1120	-	227	613
Mov Cap-2 Maneuver	-	-	-	-	227	-
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	483	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	547	-	-	1120	-
HCM Lane V/C Ratio	0.085	-	-	0.021	-
HCM Control Delay (s)	12.2	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	384	11	20	450	4	18
Future Vol, veh/h	384	11	20	450	4	18
Conflicting Peds, #/hr	0	23	23	0	10	187
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	427	12	22	500	4	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	462	0	1010	643
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	554	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1099	-	266	473
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1076	-	251	383
Mov Cap-2 Maneuver	-	-	-	-	251	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	554	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	350	-	-	1076	-
HCM Lane V/C Ratio	0.07	-	-	0.021	-
HCM Control Delay (s)	16.1	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	525	12	11	542	14	3	3	14	10	1	17
Future Vol, veh/h	11	525	12	11	542	14	3	3	14	10	1	17
Conflicting Peds, #/hr	113	0	104	104	0	113	46	0	9	9	0	46
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	2	8	0	2	7	0	0	14	0	100	6
Mvmt Flow	12	583	13	12	602	16	3	3	16	11	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	731	0	0	700	0	0	1408	1473	703	1379	1471	769
Stage 1	-	-	-	-	-	-	718	718	-	747	747	-
Stage 2	-	-	-	-	-	-	690	755	-	632	724	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.34	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.426	3.5	4.9	3.354
Pot Cap-1 Maneuver	883	-	-	906	-	-	118	128	418	123	79	395
Stage 1	-	-	-	-	-	-	423	436	-	408	304	-
Stage 2	-	-	-	-	-	-	439	420	-	472	313	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	791	-	-	819	-	-	92	99	375	99	61	339
Mov Cap-2 Maneuver	-	-	-	-	-	-	92	99	-	99	61	-
Stage 1	-	-	-	-	-	-	374	385	-	357	266	-
Stage 2	-	-	-	-	-	-	387	368	-	435	276	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	25.2	31.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	200	791	-	-	819	-	-	167
HCM Lane V/C Ratio	0.111	0.015	-	-	0.015	-	-	0.186
HCM Control Delay (s)	25.2	9.6	0	-	9.5	0	-	31.4
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	482	14	42	535	16	14	7	38	9	7	18
Future Vol, veh/h	53	482	14	42	535	16	14	7	38	9	7	18
Conflicting Peds, #/hr	45	0	31	31	0	45	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	1	0	2	1	0	7	0	0	0	0	0
Mvmt Flow	59	536	16	47	594	18	16	8	42	10	8	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	657	0	0	583	0	0	1406	1444	575	1420	1434	641
Stage 1	-	-	-	-	-	-	693	693	-	733	733	-
Stage 2	-	-	-	-	-	-	713	751	-	687	701	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	940	-	-	991	-	-	114	133	521	115	135	478
Stage 1	-	-	-	-	-	-	426	448	-	415	429	-
Stage 2	-	-	-	-	-	-	415	421	-	440	444	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	901	-	-	963	-	-	87	104	506	83	105	457
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	104	-	83	105	-
Stage 1	-	-	-	-	-	-	374	394	-	360	381	-
Stage 2	-	-	-	-	-	-	359	373	-	358	390	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.6	32.5	34.6
HCM LOS			D	D

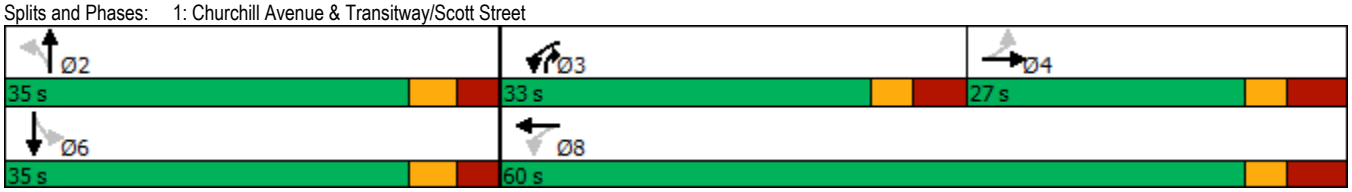
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	195	901	-	-	963	-	-	159
HCM Lane V/C Ratio	0.336	0.065	-	-	0.048	-	-	0.238
HCM Control Delay (s)	32.5	9.3	0	-	8.9	0	-	34.6
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.4	0.2	-	-	0.2	-	-	0.9

Future Background 2028

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	77	194	43	6	90	199	34	193
Future Volume (vph)	1	77	194	43	6	90	199	34	193
Lane Group Flow (vph)	0	90	194	71	0	96	199	0	228
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	27.0	27.0	33.0	60.0	35.0	35.0	33.0	35.0	35.0
Total Split (%)	28.4%	28.4%	34.7%	63.2%	36.8%	36.8%	34.7%	36.8%	36.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		29.1	53.4	52.8		17.8	16.9		17.8
Actuated g/C Ratio		0.34	0.63	0.62		0.21	0.20		0.21
v/c Ratio		0.27	0.27	0.11		0.27	0.71		0.67
Control Delay		25.7	8.6	5.8		29.1	45.2		40.4
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		25.7	8.6	5.8		29.1	45.2		40.4
LOS		C	A	A		C	D		D
Approach Delay		25.7		7.8		39.9			40.4
Approach LOS		C		A		D			D
Queue Length 50th (m)		10.2	13.2	2.7		13.0	31.3		33.8
Queue Length 95th (m)		26.1	24.9	8.6		25.4	50.5		56.4
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		329	783	638		580	441		550
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		0.27	0.25	0.11		0.17	0.45		0.41

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 84.5	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	475	6	312	7	1	57	0
Future Volume (vph)	30	475	6	312	7	1	57	0
Lane Group Flow (vph)	30	481	6	350	7	20	57	64
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	64.0	64.0	64.0	64.0	31.0	31.0	31.0	31.0
Total Split (%)	67.4%	67.4%	67.4%	67.4%	32.6%	32.6%	32.6%	32.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	57.4	57.4	57.4	57.4	24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26
v/c Ratio	0.06	0.53	0.01	0.38	0.02	0.06	0.19	0.10
Control Delay	8.2	13.6	7.7	10.8	26.6	12.3	29.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	13.6	7.7	10.8	26.6	12.3	29.4	0.3
LOS	A	B	A	B	C	B	C	A
Approach Delay		13.3		10.8		16.0		14.0
Approach LOS		B		B		B		B
Queue Length 50th (m)	2.1	47.2	0.4	29.2	1.0	0.1	8.1	0.0
Queue Length 95th (m)	5.7	73.1	2.0	46.4	4.3	5.6	18.2	0.0
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	502	906	429	912	292	359	302	645
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.53	0.01	0.38	0.02	0.06	0.19	0.10

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 83 (87%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 55.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street

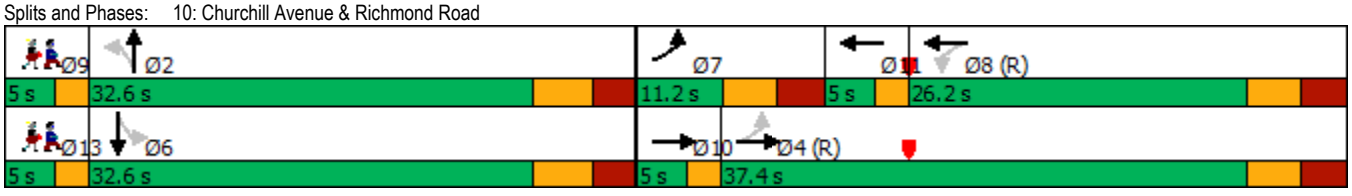


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	265	394	43	188	24	284	23	351				
Future Volume (vph)	265	394	43	188	24	284	23	351				
Lane Group Flow (vph)	265	423	43	208	24	367	0	515				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	11.2		26.2		32.6	32.6	32.6	32.6	37.4	5.0	5.0	5.0
Total Split (%)	14.0%		32.8%		40.8%	40.8%	40.8%	40.8%	47%	6%	6%	6%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	36.3	31.3	20.1	20.1	26.4	26.4		26.4				
Actuated g/C Ratio	0.45	0.39	0.25	0.25	0.33	0.33		0.33				
v/c Ratio	0.63	0.62	0.21	0.49	0.13	0.68		0.98				
Control Delay	23.0	24.3	27.0	29.6	21.2	29.3		63.7				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	23.0	24.3	27.0	29.6	21.2	29.3		63.7				
LOS	C	C	C	C	C	C		E				
Approach Delay		23.8		29.1		28.8		63.7				
Approach LOS		C		C		C		E				
Queue Length 50th (m)	25.0	49.8	5.2	26.2	2.5	45.0		73.6				
Queue Length 95th (m)	41.9	79.0	13.6	46.0	8.1	74.0		#135.7				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	420	679	204	421	180	541		523				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.63	0.62	0.21	0.49	0.13	0.68		0.98				

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 43 (54%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 36.7	Intersection LOS: D
Intersection Capacity Utilization 98.1%	ICU Level of Service F
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

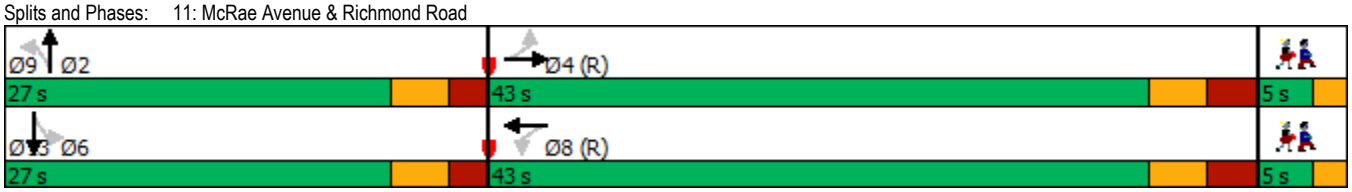
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	99	345	9	253	15	15	79	16		
Future Volume (vph)	99	345	9	253	15	15	79	16		
Lane Group Flow (vph)	99	377	9	343	15	26	0	143		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		4		8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	8	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	35.2	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	43.0	43.0	43.0	43.0	27.0	27.0	27.0	27.0	5.0	5.0
Total Split (%)	57.3%	57.3%	57.3%	57.3%	36.0%	36.0%	36.0%	36.0%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	5.5	5.5		5.5		
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	53.5	53.5	53.5	53.5	13.2	13.2		13.2		
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.18	0.18		0.18		
v/c Ratio	0.15	0.16	0.02	0.30	0.07	0.09		0.60		
Control Delay	7.2	5.6	8.8	8.2	24.3	17.7		31.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	7.2	5.6	8.8	8.2	24.3	17.7		31.7		
LOS	A	A	A	A	C	B		C		
Approach Delay		5.9		8.2		20.1		31.7		
Approach LOS		A		A		C		C		
Queue Length 50th (m)	4.2	8.0	0.4	17.4	1.8	1.8		14.4		
Queue Length 95th (m)	14.9	20.2	m1.0	m44.4	5.9	7.2		28.6		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	672	2305	586	1133	336	472		367		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.15	0.16	0.02	0.30	0.04	0.06		0.39		

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 16 (21%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 63.5%	ICU Level of Service B
Analysis Period (min) 15	

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

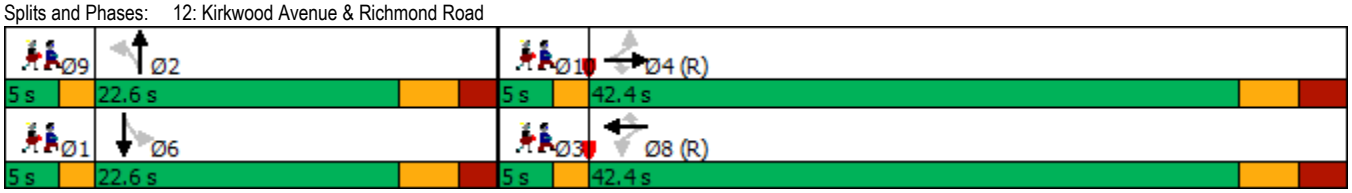
Splits and Phases: 11: McRae Avenue & Richmond Road



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø9
Lane Configurations												
Traffic Volume (vph)	312	132	189	237	11	123	25	8	30			
Future Volume (vph)	312	132	189	237	11	123	25	8	30			
Lane Group Flow (vph)	312	132	0	426	11	123	150	0	40			
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA			
Protected Phases	4			8			2		6	1	3	9
Permitted Phases		4	8		8	2		6				
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (s)	42.4	42.4	42.4	42.4	42.4	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (%)	56.5%	56.5%	56.5%	56.5%	56.5%	30.1%	30.1%	30.1%	30.1%	7%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Lost Time (s)	6.1	6.1		6.1	6.1	5.6	5.6		5.6			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	36.3	36.3		36.3	36.3	17.0	17.0		17.0			
Actuated g/C Ratio	0.48	0.48		0.48	0.48	0.23	0.23		0.23			
v/c Ratio	0.37	0.19		0.76	0.02	0.45	0.37		0.12			
Control Delay	11.5	2.2		26.6	0.1	31.1	10.1		23.4			
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Delay	11.5	2.2		26.6	0.1	31.1	10.1		23.4			
LOS	B	A		C	A	C	B		C			
Approach Delay	8.7			26.0			19.6		23.4			
Approach LOS	A			C			B		C			
Queue Length 50th (m)	30.3	0.3		46.5	0.0	15.0	2.8		4.3			
Queue Length 95th (m)	20.4	2.0		#93.9	0.0	30.2	16.6		11.7			
Internal Link Dist (m)	187.3			176.5			528.9		134.6			
Turn Bay Length (m)		35.0										
Base Capacity (vph)	838	700		563	643	275	401		337			
Starvation Cap Reductn	0	0		0	0	0	0		0			
Spillback Cap Reductn	0	0		0	0	0	0		0			
Storage Cap Reductn	0	0		0	0	0	0		0			
Reduced v/c Ratio	0.37	0.19		0.76	0.02	0.45	0.37		0.12			

Intersection Summary			
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 25 (33%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 70.5%		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: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	338	266	
Future Volume (vph)	338	266	
Lane Group Flow (vph)	338	266	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.2	43.2	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.34	0.26	
Control Delay	8.0	3.1	
Queue Delay	0.0	0.0	
Total Delay	8.0	3.1	
LOS	A	A	
Approach Delay	8.0	3.1	
Approach LOS	A	A	
Queue Length 50th (m)	19.6	4.4	
Queue Length 95th (m)	34.3	6.9	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1007	1007	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.34	0.26	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 62 (95%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.34	
Intersection Signal Delay: 5.8	Intersection LOS: A
Intersection Capacity Utilization 23.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	369	269	
Future Volume (vph)	369	269	
Lane Group Flow (vph)	369	269	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.0	43.0	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.37	0.27	
Control Delay	5.8	7.5	
Queue Delay	0.0	0.0	
Total Delay	5.8	7.5	
LOS	A	A	
Approach Delay	5.8	7.5	
Approach LOS	A	A	
Queue Length 50th (m)	12.6	14.8	
Queue Length 95th (m)	19.0	26.7	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1003	1003	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.37	0.27	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 58 (89%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.37	
Intersection Signal Delay: 6.5	Intersection LOS: A
Intersection Capacity Utilization 25.1%	ICU Level of Service A
Analysis Period (min) 15	

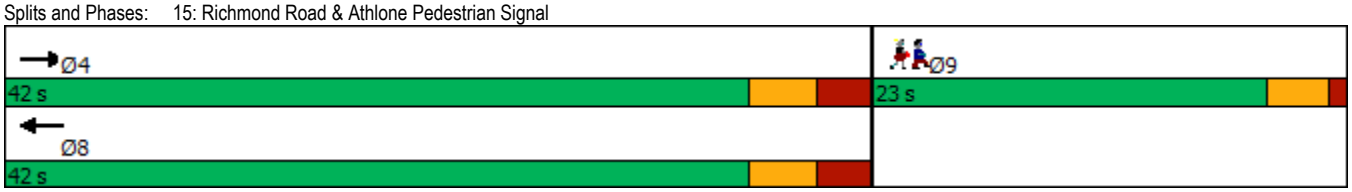
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	457	338	
Future Volume (vph)	457	338	
Lane Group Flow (vph)	457	338	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	23.0	23.0	
Actuated g/C Ratio	0.77	0.77	
v/c Ratio	0.33	0.25	
Control Delay	7.7	7.0	
Queue Delay	0.0	0.0	
Total Delay	7.7	7.0	
LOS	A	A	
Approach Delay	7.7	7.0	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	52.4	36.4	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1579	1579	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.29	0.21	

Intersection Summary		
Cycle Length: 65		
Actuated Cycle Length: 29.9		
Natural Cycle: 45		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.33		
Intersection Signal Delay: 7.4	Intersection LOS: A	
Intersection Capacity Utilization 30.4%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	7	28	238	3	38
Future Vol, veh/h	331	7	28	238	3	38
Conflicting Peds, #/hr	0	100	100	0	150	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	331	7	28	238	3	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	438	0	879	451
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	444	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1122	-	318	608
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1018	-	241	544
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	539	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	498	-	-	1018	-
HCM Lane V/C Ratio	0.082	-	-	0.028	-
HCM Control Delay (s)	12.9	-	-	8.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	366	3	7	262	4	35
Future Vol, veh/h	366	3	7	262	4	35
Conflicting Peds, #/hr	0	100	100	0	6	200
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	366	3	7	262	4	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	469	0	750	668
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	282	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1093	-	379	458
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	766	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	992	-	339	339
Mov Cap-2 Maneuver	-	-	-	-	339	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	756	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	339	-	-	992	-
HCM Lane V/C Ratio	0.115	-	-	0.007	-
HCM Control Delay (s)	17	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	440	5	5	318	15	5	2	9	14	3	12
Future Vol, veh/h	12	440	5	5	318	15	5	2	9	14	3	12
Conflicting Peds, #/hr	80	0	70	70	0	80	40	0	0	0	0	40
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	8	4	20	0	4	8	40	0	0	0	0	0
Mvmt Flow	12	440	5	5	318	15	5	2	9	14	3	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	413	0	0	515	0	0	920	960	513	888	955	446
Stage 1	-	-	-	-	-	-	537	537	-	416	416	-
Stage 2	-	-	-	-	-	-	383	423	-	472	539	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.272	-	-	2.2	-	-	3.86	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1114	-	-	1061	-	-	216	259	565	267	260	617
Stage 1	-	-	-	-	-	-	465	526	-	618	595	-
Stage 2	-	-	-	-	-	-	570	591	-	576	525	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1032	-	-	992	-	-	185	220	528	238	220	550
Mov Cap-2 Maneuver	-	-	-	-	-	-	185	220	-	238	220	-
Stage 1	-	-	-	-	-	-	428	484	-	564	547	-
Stage 2	-	-	-	-	-	-	531	544	-	555	484	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	17.6	17.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	301	1032	-	-	992	-	-	308
HCM Lane V/C Ratio	0.053	0.012	-	-	0.005	-	-	0.094
HCM Control Delay (s)	17.6	8.5	0	-	8.6	0	-	17.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	407	11	8	306	12	5	13	23	13	8	27
Future Vol, veh/h	45	407	11	8	306	12	5	13	23	13	8	27
Conflicting Peds, #/hr	60	0	20	20	0	60	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	9
Mvmt Flow	45	407	11	8	306	12	5	13	23	13	8	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	438	0	0	869	917	433	903	910	366
Stage 1	-	-	-	-	-	-	523	523	-	382	382	-
Stage 2	-	-	-	-	-	-	346	394	-	521	528	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.381
Pot Cap-1 Maneuver	1192	-	-	1133	-	-	274	274	627	260	277	664
Stage 1	-	-	-	-	-	-	541	534	-	645	616	-
Stage 2	-	-	-	-	-	-	674	609	-	542	531	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1126	-	-	1112	-	-	239	239	615	216	242	627
Mov Cap-2 Maneuver	-	-	-	-	-	-	239	239	-	216	242	-
Stage 1	-	-	-	-	-	-	503	497	-	577	577	-
Stage 2	-	-	-	-	-	-	630	570	-	482	494	-

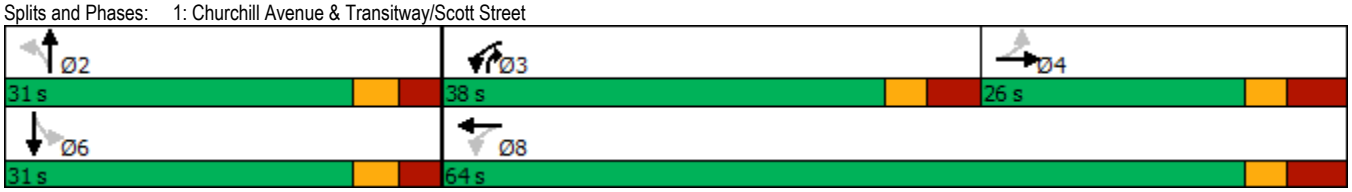
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	16.1	16.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	364	1126	-	-	1112	-	-	352
HCM Lane V/C Ratio	0.113	0.04	-	-	0.007	-	-	0.136
HCM Control Delay (s)	16.1	8.3	0	-	8.3	0	-	16.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.5

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	60	321	82	12	127	285	41	113
Future Volume (vph)	2	60	321	82	12	127	285	41	113
Lane Group Flow (vph)	0	76	321	131	0	139	285	0	157
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	26.0	26.0	38.0	64.0	31.0	31.0	38.0	31.0	31.0
Total Split (%)	27.4%	27.4%	40.0%	67.4%	32.6%	32.6%	40.0%	32.6%	32.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		28.4	57.4	56.8		16.7	21.6		16.7
Actuated g/C Ratio		0.33	0.66	0.65		0.19	0.25		0.19
v/c Ratio		0.23	0.40	0.20		0.44	0.76		0.55
Control Delay		25.9	8.8	5.4		35.3	43.8		39.3
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		25.9	8.8	5.4		35.3	43.8		39.3
LOS		C	A	A		D	D		D
Approach Delay		25.9		7.8		41.0			39.3
Approach LOS		C		A		D			D
Queue Length 50th (m)		8.5	23.7	5.4		20.7	46.7		23.7
Queue Length 95th (m)		22.4	37.3	12.9		37.2	66.1		42.2
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		333	874	671		469	543		418
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.23	0.37	0.20		0.30	0.52		0.38

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 87.3	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 76.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	576	13	593	13	2	49	3
Future Volume (vph)	88	576	13	593	13	2	49	3
Lane Group Flow (vph)	88	592	13	629	13	11	49	35
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0	29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%	29.0%	29.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	64.4	64.4	64.4	64.4	22.8	22.8	22.8	22.8
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.23	0.23	0.23	0.23
v/c Ratio	0.23	0.57	0.04	0.62	0.05	0.04	0.18	0.11
Control Delay	9.4	12.7	6.8	13.6	31.0	18.5	33.3	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	12.7	6.8	13.6	31.0	18.5	33.3	13.0
LOS	A	B	A	B	C	B	C	B
Approach Delay		12.2		13.5		25.3		24.8
Approach LOS		B		B		C		C
Queue Length 50th (m)	6.5	58.2	0.8	64.4	2.0	0.3	7.7	0.5
Queue Length 95th (m)	14.1	87.1	3.0	97.4	6.9	4.8	17.5	8.2
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	377	1038	370	1022	251	294	269	313
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.57	0.04	0.62	0.05	0.04	0.18	0.11

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 40 (40%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street



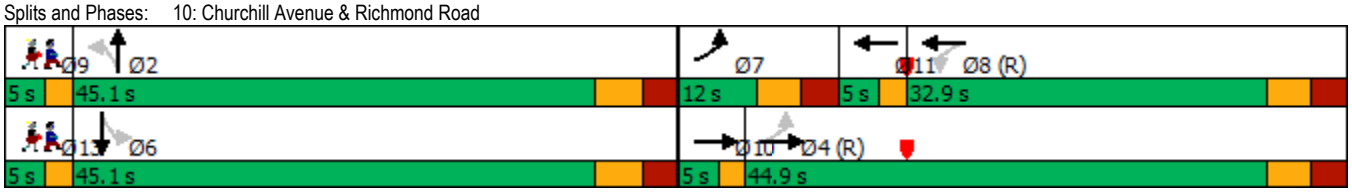
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	162	296	128	450	27	289	20	275				
Future Volume (vph)	162	296	128	450	27	289	20	275				
Lane Group Flow (vph)	162	342	128	483	27	365	0	578				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	12.0		32.9		45.1	45.1	45.1	45.1	44.9	5.0	5.0	5.0
Total Split (%)	12.0%		32.9%		45.1%	45.1%	45.1%	45.1%	45%	5%	5%	5%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	43.8	38.8	26.8	26.8	38.9	38.9		38.9				
Actuated g/C Ratio	0.44	0.39	0.27	0.27	0.39	0.39		0.39				
v/c Ratio	0.81	0.53	0.67	1.02	0.13	0.57		1.08				
Control Delay	50.0	26.7	51.6	84.7	22.0	27.3		89.4				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	50.0	26.7	51.6	84.7	22.0	27.3		89.4				
LOS	D	C	D	F	C	C		F				
Approach Delay		34.2		77.8		26.9		89.4				
Approach LOS		C		E		C		F				
Queue Length 50th (m)	19.0	48.9	22.1	~99.6	3.3	52.4		~118.3				
Queue Length 95th (m)	#45.4	75.9	#48.5	#160.5	9.4	81.1		#182.9				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	201	641	192	472	203	638		537				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.81	0.53	0.67	1.02	0.13	0.57		1.08				

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 60.9 — Intersection LOS: E
Intersection Capacity Utilization 107.1% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	5%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

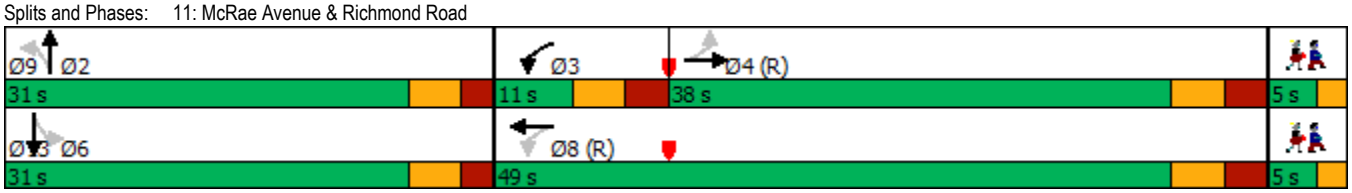
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	69	290	49	469	63	45	103	49		
Future Volume (vph)	69	290	49	469	63	45	103	49		
Lane Group Flow (vph)	69	370	49	577	63	90	0	279		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	4.9	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	11.0	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	38.0	38.0	11.0	49.0	31.0	31.0	31.0	31.0	5.0	5.0
Total Split (%)	44.7%	44.7%	12.9%	57.6%	36.5%	36.5%	36.5%	36.5%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.8	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.1	6.2	5.5	5.5		5.5		
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes							
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	36.2	36.2	42.9	42.8	25.5	25.5		25.5		
Actuated g/C Ratio	0.43	0.43	0.50	0.50	0.30	0.30		0.30		
v/c Ratio	0.25	0.27	0.12	0.67	0.24	0.20		0.74		
Control Delay	21.1	15.5	12.4	18.1	25.5	13.8		35.5		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	21.1	15.5	12.4	18.1	25.5	13.8		35.5		
LOS	C	B	B	B	C	B		D		
Approach Delay		16.4		17.7		18.6		35.5		
Approach LOS		B		B		B		D		
Queue Length 50th (m)	7.7	18.8	3.7	58.9	7.7	5.3		33.3		
Queue Length 95th (m)	18.1	29.2	m5.0	m73.8	17.7	15.9		#70.4		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	279	1349	418	857	263	452		377		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.25	0.27	0.12	0.67	0.24	0.20		0.74		

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 1 (1%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 83.3%	ICU Level of Service E
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: McRae Avenue & Richmond Road

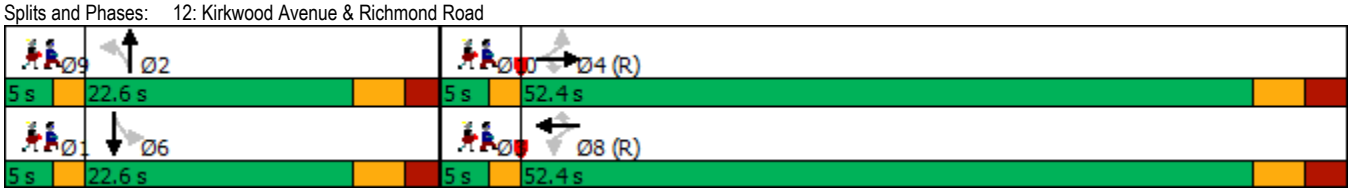


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	3	353	176	187	430	12	148	49	2	37		
Future Volume (vph)	3	353	176	187	430	12	148	49	2	37		
Lane Group Flow (vph)	0	356	176	0	617	12	148	273	0	40		
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA		
Protected Phases		4			8			2		6	1	3
Permitted Phases	4		4	8		8	2		6			
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (s)	52.4	52.4	52.4	52.4	52.4	52.4	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (%)	61.6%	61.6%	61.6%	61.6%	61.6%	61.6%	26.6%	26.6%	26.6%	26.6%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.1	6.1		6.1	6.1	5.6	5.6		5.6		
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		46.3	46.3		46.3	46.3	17.0	17.0		17.0		
Actuated g/C Ratio		0.54	0.54		0.54	0.54	0.20	0.20		0.20		
v/c Ratio		0.36	0.24		0.91	0.02	0.59	0.59		0.12		
Control Delay		9.0	1.8		37.9	0.0	41.6	13.2		28.4		
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Delay		9.0	1.8		37.9	0.0	41.6	13.2		28.4		
LOS		A	A		D	A	D	B		C		
Approach Delay		6.6			37.2			23.2		28.4		
Approach LOS		A			D			C		C		
Queue Length 50th (m)		24.3	1.4		84.4	0.0	22.0	6.7		5.2		
Queue Length 95th (m)		m35.2	m4.5		#155.8	0.0	40.9	29.3		13.3		
Internal Link Dist (m)		187.3			176.5			528.9		134.6		
Turn Bay Length (m)			35.0									
Base Capacity (vph)		977	726		679	735	251	461		346		
Starvation Cap Reductn		0	0		0	0	0	0		0		
Spillback Cap Reductn		0	0		0	0	0	0		0		
Storage Cap Reductn		0	0		0	0	0	0		0		
Reduced v/c Ratio		0.36	0.24		0.91	0.02	0.59	0.59		0.12		

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 79 (93%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 23.3	Intersection LOS: C
Intersection Capacity Utilization 88.9%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø9	Ø10
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	377	483	
Future Volume (vph)	377	483	
Lane Group Flow (vph)	377	483	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.2	48.2	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.36	0.46	
Control Delay	7.7	2.9	
Queue Delay	0.0	0.0	
Total Delay	7.7	2.9	
LOS	A	A	
Approach Delay	7.7	2.9	
Approach LOS	A	A	
Queue Length 50th (m)	22.7	5.2	
Queue Length 95th (m)	38.4	7.2	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1043	1043	
Starvation Cap Reductn	0	14	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.36	0.47	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 56 (80%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 5.0	Intersection LOS: A
Intersection Capacity Utilization 31.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	414	499	
Future Volume (vph)	414	499	
Lane Group Flow (vph)	414	499	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.0	48.0	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.40	0.48	
Control Delay	5.9	9.3	
Queue Delay	0.0	0.0	
Total Delay	5.9	9.3	
LOS	A	A	
Approach Delay	5.9	9.3	
Approach LOS	A	A	
Queue Length 50th (m)	15.4	33.8	
Queue Length 95th (m)	22.3	57.1	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1040	1040	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.40	0.48	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 50 (71%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 32.3%	ICU Level of Service A
Analysis Period (min) 15	

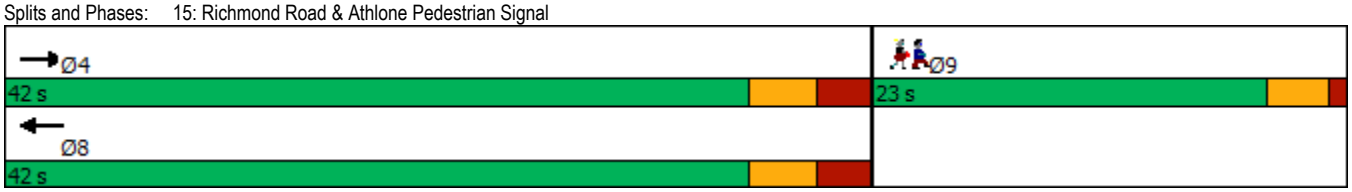
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	547	574	
Future Volume (vph)	547	574	
Lane Group Flow (vph)	547	574	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	27.6	27.6	
Actuated g/C Ratio	0.80	0.80	
v/c Ratio	0.38	0.40	
Control Delay	7.3	7.6	
Queue Delay	0.0	0.0	
Total Delay	7.3	7.6	
LOS	A	A	
Approach Delay	7.3	7.6	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	64.1	68.6	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1521	1521	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.36	0.38	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 34.6	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 36.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	369	8	30	453	1	45
Future Vol, veh/h	369	8	30	453	1	45
Conflicting Peds, #/hr	0	100	100	0	150	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	369	8	30	453	1	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	477	0	1136	483
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	663	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1085	-	223	584
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	512	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	985	-	167	525
Mov Cap-2 Maneuver	-	-	-	-	167	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	423	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	502	-	-	985	-
HCM Lane V/C Ratio	0.092	-	-	0.03	-
HCM Control Delay (s)	12.9	-	-	8.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	403	11	20	479	4	18
Future Vol, veh/h	403	11	20	479	4	18
Conflicting Peds, #/hr	0	100	100	0	10	250
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	403	11	20	479	4	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	514	0	1038	759
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	529	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1052	-	256	406
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	955	-	224	283
Mov Cap-2 Maneuver	-	-	-	-	224	-
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	569	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	19.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	270	-	-	955	-
HCM Lane V/C Ratio	0.081	-	-	0.021	-
HCM Control Delay (s)	19.5	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	524	12	11	543	20	3	3	14	14	1	17
Future Vol, veh/h	11	524	12	11	543	20	3	3	14	14	1	17
Conflicting Peds, #/hr	130	0	120	120	0	130	60	0	0	0	0	60
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	8	0	2	7	0	0	14	0	100	6
Mvmt Flow	11	524	12	11	543	20	3	3	14	14	1	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	693	0	0	656	0	0	1316	1387	650	1266	1383	743
Stage 1	-	-	-	-	-	-	672	672	-	705	705	-
Stage 2	-	-	-	-	-	-	644	715	-	561	678	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.34	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.426	3.5	4.9	3.354
Pot Cap-1 Maneuver	912	-	-	941	-	-	136	144	449	147	91	409
Stage 1	-	-	-	-	-	-	449	458	-	430	320	-
Stage 2	-	-	-	-	-	-	465	438	-	516	331	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	837	-	-	104	108	399	119	68	340
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	108	-	119	68	-
Stage 1	-	-	-	-	-	-	391	399	-	371	276	-
Stage 2	-	-	-	-	-	-	408	378	-	484	288	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	23.2	30.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	218	802	-	-	837	-	-	175
HCM Lane V/C Ratio	0.092	0.014	-	-	0.013	-	-	0.183
HCM Control Delay (s)	23.2	9.6	0	-	9.4	0	-	30.1
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.6

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	487	14	42	543	15	14	7	38	8	7	17
Future Vol, veh/h	51	487	14	42	543	15	14	7	38	8	7	17
Conflicting Peds, #/hr	60	0	45	45	0	60	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	0	2	1	0	7	0	0	0	0	0
Mvmt Flow	51	487	14	42	543	15	14	7	38	8	7	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	618	0	0	546	0	0	1288	1343	539	1306	1335	603
Stage 1	-	-	-	-	-	-	641	641	-	687	687	-
Stage 2	-	-	-	-	-	-	647	702	-	619	648	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	972	-	-	1023	-	-	137	153	546	138	155	503
Stage 1	-	-	-	-	-	-	455	473	-	440	450	-
Stage 2	-	-	-	-	-	-	451	443	-	480	469	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	918	-	-	980	-	-	109	120	523	104	122	475
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	120	-	104	122	-
Stage 1	-	-	-	-	-	-	403	418	-	384	399	-
Stage 2	-	-	-	-	-	-	401	392	-	404	415	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.6	26.3	28
HCM LOS			D	D

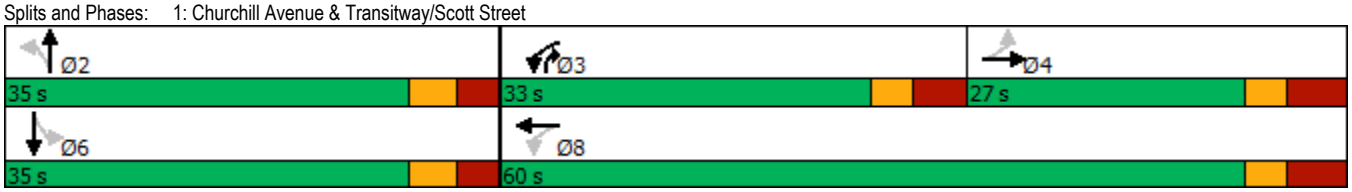
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	227	918	-	-	980	-	-	188
HCM Lane V/C Ratio	0.26	0.056	-	-	0.043	-	-	0.17
HCM Control Delay (s)	26.3	9.2	0	-	8.8	0	-	28
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1	0.2	-	-	0.1	-	-	0.6

Future Background 2031/2036

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	77	205	43	6	90	205	34	193
Future Volume (vph)	1	77	205	43	6	90	205	34	193
Lane Group Flow (vph)	0	90	205	71	0	96	205	0	228
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	27.0	27.0	33.0	60.0	35.0	35.0	33.0	35.0	35.0
Total Split (%)	28.4%	28.4%	34.7%	63.2%	36.8%	36.8%	34.7%	36.8%	36.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		28.8	53.4	52.8		17.8	17.2		17.8
Actuated g/C Ratio		0.34	0.63	0.62		0.21	0.20		0.21
v/c Ratio		0.28	0.29	0.11		0.27	0.71		0.67
Control Delay		26.1	8.7	5.8		29.1	45.1		40.4
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		26.1	8.7	5.8		29.1	45.1		40.4
LOS		C	A	A		C	D		D
Approach Delay		26.1		7.9		40.0			40.4
Approach LOS		C		A		D			D
Queue Length 50th (m)		10.2	14.0	2.7		13.0	32.2		33.8
Queue Length 95th (m)		26.3	26.3	8.7		25.4	51.8		56.4
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		325	783	637		580	441		550
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		0.28	0.26	0.11		0.17	0.46		0.41

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 84.5	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 28.8	Intersection LOS: C
Intersection Capacity Utilization 67.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	484	6	315	7	1	57	0
Future Volume (vph)	30	484	6	315	7	1	57	0
Lane Group Flow (vph)	30	490	6	353	7	20	57	64
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	64.0	64.0	64.0	64.0	31.0	31.0	31.0	31.0
Total Split (%)	67.4%	67.4%	67.4%	67.4%	32.6%	32.6%	32.6%	32.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	57.4	57.4	57.4	57.4	24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26
v/c Ratio	0.06	0.54	0.01	0.39	0.02	0.06	0.19	0.10
Control Delay	8.2	13.8	7.7	10.9	26.6	12.3	29.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	13.8	7.7	10.9	26.6	12.3	29.4	0.3
LOS	A	B	A	B	C	B	C	A
Approach Delay		13.5		10.8		16.0		14.0
Approach LOS		B		B		B		B
Queue Length 50th (m)	2.1	48.5	0.4	29.6	1.0	0.1	8.1	0.0
Queue Length 95th (m)	5.7	74.9	2.0	47.0	4.3	5.6	18.2	0.0
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	500	906	424	912	292	354	302	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.54	0.01	0.39	0.02	0.06	0.19	0.10

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 83 (87%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 56.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street



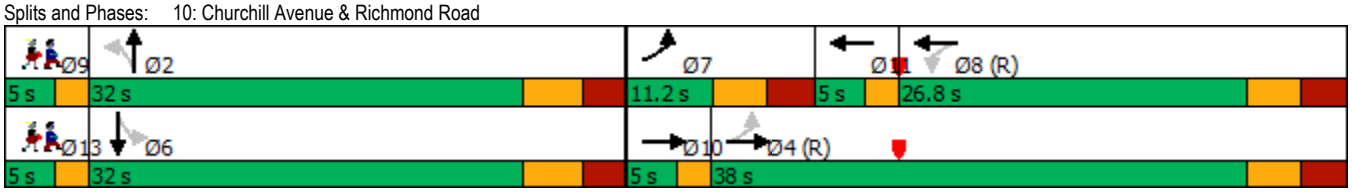
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	265	394	43	188	24	290	23	362				
Future Volume (vph)	265	394	43	188	24	290	23	362				
Lane Group Flow (vph)	265	423	43	208	24	373	0	526				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	11.2		26.8		32.0	32.0	32.0	32.0	38.0	5.0	5.0	5.0
Total Split (%)	14.0%		33.5%		40.0%	40.0%	40.0%	40.0%	48%	6%	6%	6%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	36.9	31.9	20.7	20.7	25.8	25.8		25.8				
Actuated g/C Ratio	0.46	0.40	0.26	0.26	0.32	0.32		0.32				
v/c Ratio	0.62	0.61	0.20	0.48	0.14	0.70		1.03				
Control Delay	22.1	23.4	26.3	28.8	22.1	31.0		74.7				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	22.1	23.4	26.3	28.8	22.1	31.0		74.7				
LOS	C	C	C	C	C	C		E				
Approach Delay		22.9		28.3		30.5		74.7				
Approach LOS		C		C		C		E				
Queue Length 50th (m)	24.6	49.0	5.1	25.9	2.6	46.6		~80.4				
Queue Length 95th (m)	41.2	77.8	13.4	45.4	8.3	76.7		#141.5				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	428	693	210	433	166	530		513				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.62	0.61	0.20	0.48	0.14	0.70		1.03				

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 39.9 — Intersection LOS: D
Intersection Capacity Utilization 98.7% — ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

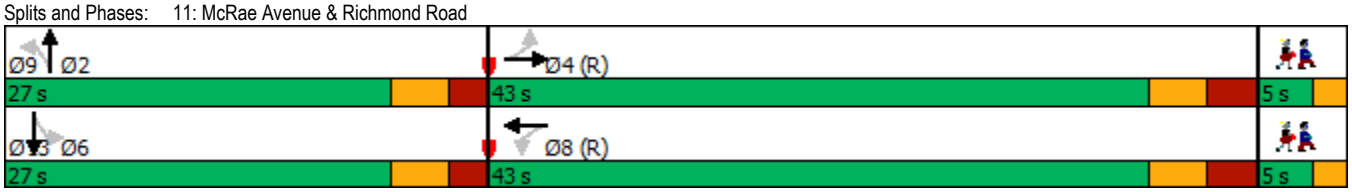
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	99	342	9	252	15	15	81	16		
Future Volume (vph)	99	342	9	252	15	15	81	16		
Lane Group Flow (vph)	99	374	9	343	15	26	0	145		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		4		8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	8	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	35.2	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	43.0	43.0	43.0	43.0	27.0	27.0	27.0	27.0	5.0	5.0
Total Split (%)	57.3%	57.3%	57.3%	57.3%	36.0%	36.0%	36.0%	36.0%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	5.5	5.5		5.5		
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	49.0	49.0	49.0	49.0	13.3	13.3		13.3		
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.18	0.18		0.18		
v/c Ratio	0.16	0.18	0.02	0.33	0.07	0.09		0.61		
Control Delay	7.5	6.0	8.9	8.6	24.1	17.5		32.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	7.5	6.0	8.9	8.6	24.1	17.5		32.1		
LOS	A	A	A	A	C	B		C		
Approach Delay		6.3		8.6		19.9		32.1		
Approach LOS		A		A		B		C		
Queue Length 50th (m)	4.2	8.0	0.4	17.2	1.8	1.8		14.8		
Queue Length 95th (m)	15.1	20.3	m1.0	m45.6	5.9	7.1		29.1		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	611	2111	539	1039	338	472		366		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.16	0.18	0.02	0.33	0.04	0.06		0.40		

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 16 (21%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 11.4	Intersection LOS: B
Intersection Capacity Utilization 63.6%	ICU Level of Service B
Analysis Period (min) 15	

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

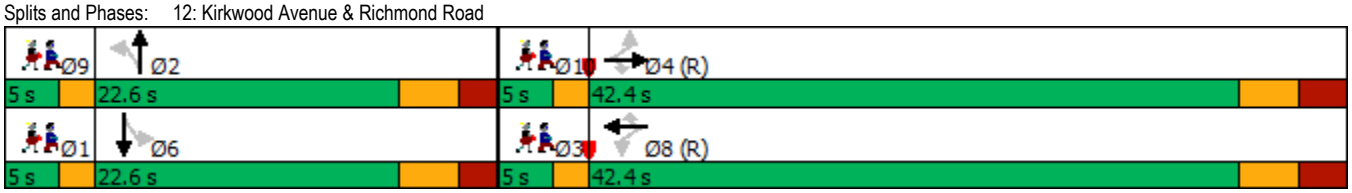
Splits and Phases: 11: McRae Avenue & Richmond Road



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø9
Lane Configurations												
Traffic Volume (vph)	311	132	189	237	11	123	25	8	30			
Future Volume (vph)	311	132	189	237	11	123	25	8	30			
Lane Group Flow (vph)	311	132	0	426	11	123	150	0	40			
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA			
Protected Phases	4			8			2		6	1	3	9
Permitted Phases		4	8		8	2		6				
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (s)	42.4	42.4	42.4	42.4	42.4	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (%)	56.5%	56.5%	56.5%	56.5%	56.5%	30.1%	30.1%	30.1%	30.1%	7%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Lost Time (s)	6.1	6.1		6.1	6.1	5.6	5.6		5.6			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	36.3	36.3		36.3	36.3	17.0	17.0		17.0			
Actuated g/C Ratio	0.48	0.48		0.48	0.48	0.23	0.23		0.23			
v/c Ratio	0.37	0.19		0.76	0.02	0.45	0.37		0.12			
Control Delay	11.3	2.2		26.5	0.1	31.1	10.1		23.4			
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Delay	11.3	2.2		26.5	0.1	31.1	10.1		23.4			
LOS	B	A		C	A	C	B		C			
Approach Delay	8.6			25.9			19.6		23.4			
Approach LOS	A			C			B		C			
Queue Length 50th (m)	30.5	0.4		46.4	0.0	15.0	2.8		4.3			
Queue Length 95th (m)	20.8	2.1		#93.8	0.0	30.2	16.6		11.7			
Internal Link Dist (m)	187.3			176.5			528.9		134.6			
Turn Bay Length (m)		35.0										
Base Capacity (vph)	838	700		564	643	275	401		337			
Starvation Cap Reductn	0	0		0	0	0	0		0			
Spillback Cap Reductn	0	0		0	0	0	0		0			
Storage Cap Reductn	0	0		0	0	0	0		0			
Reduced v/c Ratio	0.37	0.19		0.76	0.02	0.45	0.37		0.12			

Intersection Summary		
Cycle Length: 75		
Actuated Cycle Length: 75		
Offset: 25 (33%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green		
Natural Cycle: 70		
Control Type: Pretimed		
Maximum v/c Ratio: 0.76		
Intersection Signal Delay: 17.9	Intersection LOS: B	
Intersection Capacity Utilization 70.5%	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: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	359	271	
Future Volume (vph)	359	271	
Lane Group Flow (vph)	359	271	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.2	43.2	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.36	0.27	
Control Delay	8.2	3.0	
Queue Delay	0.0	0.0	
Total Delay	8.2	3.0	
LOS	A	A	
Approach Delay	8.2	3.0	
Approach LOS	A	A	
Queue Length 50th (m)	21.2	4.2	
Queue Length 95th (m)	36.9	6.6	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1007	1007	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.36	0.27	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 62 (95%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 24.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	380	274	
Future Volume (vph)	380	274	
Lane Group Flow (vph)	380	274	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.0	43.0	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.38	0.27	
Control Delay	5.8	7.5	
Queue Delay	0.0	0.0	
Total Delay	5.8	7.5	
LOS	A	A	
Approach Delay	5.8	7.5	
Approach LOS	A	A	
Queue Length 50th (m)	12.8	15.2	
Queue Length 95th (m)	19.0	27.2	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1003	1003	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.38	0.27	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 58 (89%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 6.5	Intersection LOS: A
Intersection Capacity Utilization 25.7%	ICU Level of Service A
Analysis Period (min) 15	

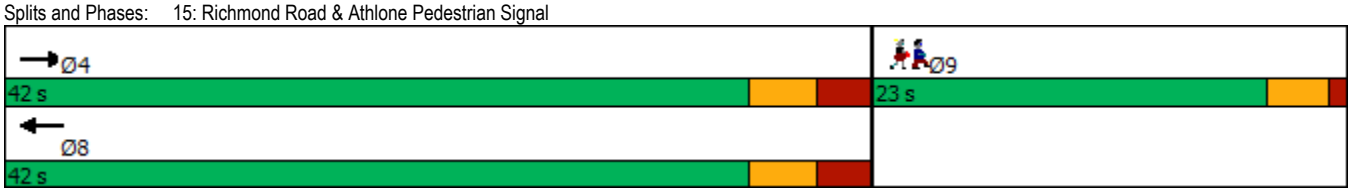
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	457	337	
Future Volume (vph)	457	337	
Lane Group Flow (vph)	457	337	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	23.0	23.0	
Actuated g/C Ratio	0.77	0.77	
v/c Ratio	0.33	0.25	
Control Delay	7.7	7.0	
Queue Delay	0.0	0.0	
Total Delay	7.7	7.0	
LOS	A	A	
Approach Delay	7.7	7.0	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	52.4	36.3	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1579	1579	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.29	0.21	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 29.9	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.33	
Intersection Signal Delay: 7.4	Intersection LOS: A
Intersection Capacity Utilization 30.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	352	7	22	249	3	28
Future Vol, veh/h	352	7	22	249	3	28
Conflicting Peds, #/hr	0	100	100	0	150	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	352	7	22	249	3	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	459	0	899	472
Stage 1	-	-	-	-	456	-
Stage 2	-	-	-	-	443	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1102	-	309	592
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	647	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1000	-	235	529
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	543	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	472	-	-	1000	-
HCM Lane V/C Ratio	0.066	-	-	0.022	-
HCM Control Delay (s)	13.2	-	-	8.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	377	3	7	267	4	35
Future Vol, veh/h	377	3	7	267	4	35
Conflicting Peds, #/hr	0	100	100	0	6	200
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	377	3	7	267	4	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	480	0	766	679
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	287	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1082	-	371	452
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	982	-	332	334
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	334	-	-	982	-
HCM Lane V/C Ratio	0.117	-	-	0.007	-
HCM Control Delay (s)	17.2	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	440	5	5	318	14	5	2	9	11	3	12
Future Vol, veh/h	12	440	5	5	318	14	5	2	9	11	3	12
Conflicting Peds, #/hr	80	0	70	70	0	80	40	0	0	0	0	40
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	8	4	20	0	4	8	40	0	0	0	0	0
Mvmt Flow	12	440	5	5	318	14	5	2	9	11	3	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	412	0	0	515	0	0	920	959	513	887	954	445
Stage 1	-	-	-	-	-	-	537	537	-	415	415	-
Stage 2	-	-	-	-	-	-	383	422	-	472	539	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.272	-	-	2.2	-	-	3.86	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1115	-	-	1061	-	-	216	259	565	267	261	617
Stage 1	-	-	-	-	-	-	465	526	-	619	596	-
Stage 2	-	-	-	-	-	-	570	592	-	576	525	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1033	-	-	992	-	-	185	220	528	238	221	550
Mov Cap-2 Maneuver	-	-	-	-	-	-	185	220	-	238	221	-
Stage 1	-	-	-	-	-	-	428	484	-	565	548	-
Stage 2	-	-	-	-	-	-	531	545	-	555	484	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	17.6	17.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	301	1033	-	-	992	-	-	319
HCM Lane V/C Ratio	0.053	0.012	-	-	0.005	-	-	0.082
HCM Control Delay (s)	17.6	8.5	0	-	8.6	0	-	17.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	404	11	8	305	12	5	13	23	13	8	27
Future Vol, veh/h	45	404	11	8	305	12	5	13	23	13	8	27
Conflicting Peds, #/hr	60	0	20	20	0	60	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	9
Mvmt Flow	45	404	11	8	305	12	5	13	23	13	8	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	377	0	0	435	0	0	865	913	430	899	906	365
Stage 1	-	-	-	-	-	-	520	520	-	381	381	-
Stage 2	-	-	-	-	-	-	345	393	-	518	525	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.381
Pot Cap-1 Maneuver	1193	-	-	1135	-	-	276	276	629	262	278	665
Stage 1	-	-	-	-	-	-	543	535	-	645	617	-
Stage 2	-	-	-	-	-	-	675	609	-	544	533	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1127	-	-	1114	-	-	241	241	617	218	242	628
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	241	-	218	242	-
Stage 1	-	-	-	-	-	-	505	498	-	577	578	-
Stage 2	-	-	-	-	-	-	631	570	-	484	496	-

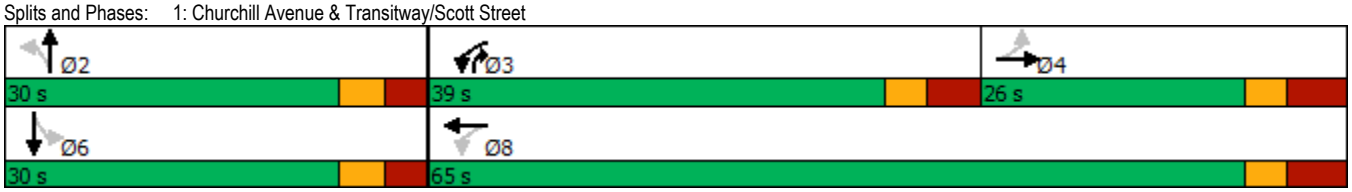
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.2	16.1	16.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	366	1127	-	-	1114	-	-	354
HCM Lane V/C Ratio	0.112	0.04	-	-	0.007	-	-	0.136
HCM Control Delay (s)	16.1	8.3	0	-	8.3	0	-	16.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.5

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	60	329	82	12	127	296	49	113
Future Volume (vph)	2	60	329	82	12	127	296	49	113
Lane Group Flow (vph)	0	76	329	131	0	139	296	0	165
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	26.0	26.0	39.0	65.0	30.0	30.0	39.0	30.0	30.0
Total Split (%)	27.4%	27.4%	41.1%	68.4%	31.6%	31.6%	41.1%	31.6%	31.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		28.4	58.4	57.8		17.0	22.6		17.0
Actuated g/C Ratio		0.32	0.66	0.65		0.19	0.26		0.19
v/c Ratio		0.23	0.41	0.20		0.44	0.77		0.60
Control Delay		26.7	8.9	5.4		35.6	43.6		41.6
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		26.7	8.9	5.4		35.6	43.6		41.6
LOS		C	A	A		D	D		D
Approach Delay		26.7		7.9		41.0			41.6
Approach LOS		C		A		D			D
Queue Length 50th (m)		8.7	24.4	5.4		21.0	49.0		25.5
Queue Length 95th (m)		23.2	39.4	13.2		37.6	69.2		44.9
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		327	880	671		443	553		385
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.23	0.37	0.20		0.31	0.54		0.43

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 88.6	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	581	13	600	13	2	49	3
Future Volume (vph)	88	581	13	600	13	2	49	3
Lane Group Flow (vph)	88	597	13	636	13	11	49	35
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0	29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%	29.0%	29.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	64.4	64.4	64.4	64.4	22.8	22.8	22.8	22.8
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.23	0.23	0.23	0.23
v/c Ratio	0.24	0.58	0.04	0.62	0.05	0.04	0.18	0.11
Control Delay	9.4	12.8	6.8	13.8	31.0	18.5	33.3	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	12.8	6.8	13.8	31.0	18.5	33.3	13.0
LOS	A	B	A	B	C	B	C	B
Approach Delay		12.3		13.7		25.3		24.8
Approach LOS		B		B		C		C
Queue Length 50th (m)	6.5	58.9	0.8	65.7	2.0	0.3	7.7	0.5
Queue Length 95th (m)	14.2	88.2	3.0	99.2	6.9	4.8	17.5	8.2
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	373	1038	367	1023	251	291	269	309
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.58	0.04	0.62	0.05	0.04	0.18	0.11

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 40 (40%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 13.9 — Intersection LOS: B
Intersection Capacity Utilization 78.7% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street

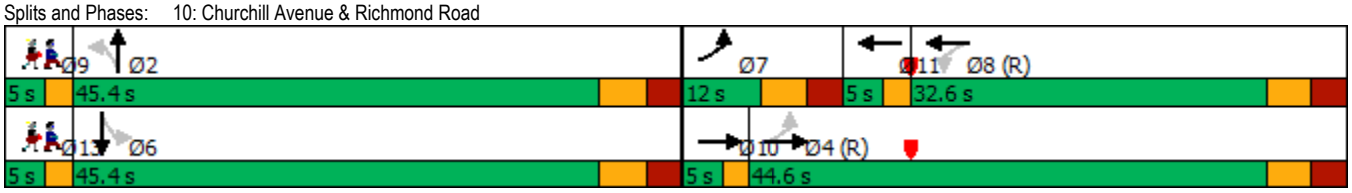


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	162	296	128	450	27	300	20	283				
Future Volume (vph)	162	296	128	450	27	300	20	283				
Lane Group Flow (vph)	162	342	128	483	27	376	0	586				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	12.0		32.6		45.4	45.4	45.4	45.4	44.6	5.0	5.0	5.0
Total Split (%)	12.0%		32.6%		45.4%	45.4%	45.4%	45.4%	45%	5%	5%	5%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	43.5	38.5	26.5	26.5	39.2	39.2		39.2				
Actuated g/C Ratio	0.44	0.38	0.26	0.26	0.39	0.39		0.39				
v/c Ratio	0.82	0.54	0.67	1.04	0.13	0.58		1.08				
Control Delay	52.3	27.0	52.5	88.5	21.8	27.4		90.9				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	52.3	27.0	52.5	88.5	21.8	27.4		90.9				
LOS	D	C	D	F	C	C		F				
Approach Delay		35.1		81.0		27.0		90.9				
Approach LOS		D		F		C		F				
Queue Length 50th (m)	19.2	49.2	22.2	~100.7	3.3	54.2		~120.9				
Queue Length 95th (m)	#46.3	76.3	#48.9	#161.6	9.4	83.3		#185.9				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	198	636	190	466	203	645		542				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.82	0.54	0.67	1.04	0.13	0.58		1.08				

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 62.4	Intersection LOS: E
Intersection Capacity Utilization 107.5%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	5%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

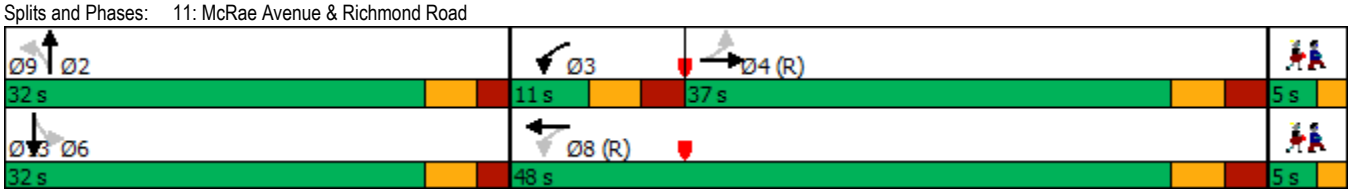
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	69	288	49	466	63	45	105	49		
Future Volume (vph)	69	288	49	466	63	45	105	49		
Lane Group Flow (vph)	69	368	49	576	63	90	0	281		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	4.9	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	11.0	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	37.0	37.0	11.0	48.0	32.0	32.0	32.0	32.0	5.0	5.0
Total Split (%)	43.5%	43.5%	12.9%	56.5%	37.6%	37.6%	37.6%	37.6%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.8	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.1	6.2	5.5	5.5		5.5		
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes							
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	35.2	35.2	41.9	41.8	26.5	26.5		26.5		
Actuated g/C Ratio	0.41	0.41	0.49	0.49	0.31	0.31		0.31		
v/c Ratio	0.26	0.28	0.12	0.69	0.23	0.19		0.72		
Control Delay	22.1	16.1	13.2	19.4	24.5	13.3		33.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	22.1	16.1	13.2	19.4	24.5	13.3		33.6		
LOS	C	B	B	B	C	B		C		
Approach Delay		17.0		18.9		17.9		33.6		
Approach LOS		B		B		B		C		
Queue Length 50th (m)	7.9	19.1	3.8	60.6	7.5	5.2		33.1		
Queue Length 95th (m)	18.6	29.7	m5.2	m75.6	17.4	15.6		#69.0		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	266	1311	408	836	275	468		389		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.26	0.28	0.12	0.69	0.23	0.19		0.72		

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 1 (1%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 21.0	Intersection LOS: C
Intersection Capacity Utilization 83.4%	ICU Level of Service E
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: McRae Avenue & Richmond Road



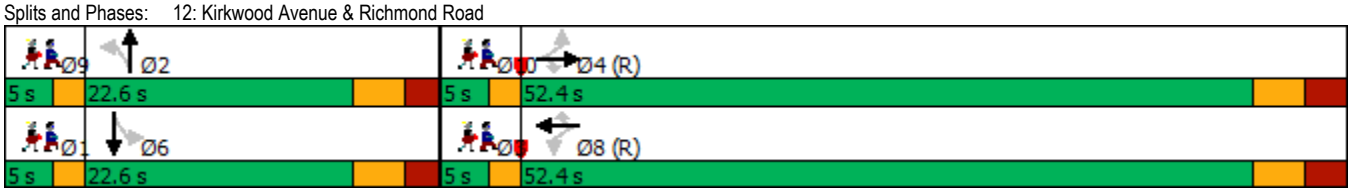
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	3	353	176	187	429	12	148	49	2	37		
Future Volume (vph)	3	353	176	187	429	12	148	49	2	37		
Lane Group Flow (vph)	0	356	176	0	616	12	148	273	0	40		
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA		
Protected Phases		4			8			2		6	1	3
Permitted Phases	4		4	8		8	2		6			
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (s)	52.4	52.4	52.4	52.4	52.4	52.4	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (%)	61.6%	61.6%	61.6%	61.6%	61.6%	61.6%	26.6%	26.6%	26.6%	26.6%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.1	6.1		6.1	6.1	5.6	5.6		5.6		
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		46.3	46.3		46.3	46.3	17.0	17.0		17.0		
Actuated g/C Ratio		0.54	0.54		0.54	0.54	0.20	0.20		0.20		
v/c Ratio		0.36	0.24		0.91	0.02	0.59	0.59		0.12		
Control Delay		9.0	1.8		37.7	0.0	41.6	13.2		28.4		
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Delay		9.0	1.8		37.7	0.0	41.6	13.2		28.4		
LOS		A	A		D	A	D	B		C		
Approach Delay		6.6			37.0			23.2		28.4		
Approach LOS		A			D			C		C		
Queue Length 50th (m)		24.2	1.4		84.1	0.0	22.0	6.7		5.2		
Queue Length 95th (m)		m35.0	m4.6		#155.4	0.0	40.9	29.3		13.3		
Internal Link Dist (m)		187.3			176.5			528.9		134.6		
Turn Bay Length (m)			35.0									
Base Capacity (vph)		977	726		679	735	251	461		346		
Starvation Cap Reductn		0	0		0	0	0	0		0		
Spillback Cap Reductn		0	0		0	0	0	0		0		
Storage Cap Reductn		0	0		0	0	0	0		0		
Reduced v/c Ratio		0.36	0.24		0.91	0.02	0.59	0.59		0.12		

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 79 (93%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 23.2	Intersection LOS: C
Intersection Capacity Utilization 88.9%	ICU Level of Service E
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø9	Ø10
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	391	493	
Future Volume (vph)	391	493	
Lane Group Flow (vph)	391	493	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.2	48.2	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.37	0.47	
Control Delay	7.9	2.8	
Queue Delay	0.0	0.0	
Total Delay	7.9	2.8	
LOS	A	A	
Approach Delay	7.9	2.8	
Approach LOS	A	A	
Queue Length 50th (m)	23.7	4.8	
Queue Length 95th (m)	40.2	6.7	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1043	1043	
Starvation Cap Reductn	0	12	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.37	0.48	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 56 (80%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 5.1	Intersection LOS: A
Intersection Capacity Utilization 31.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	421	509	
Future Volume (vph)	421	509	
Lane Group Flow (vph)	421	509	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.0	48.0	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.40	0.49	
Control Delay	5.9	9.5	
Queue Delay	0.0	0.0	
Total Delay	5.9	9.5	
LOS	A	A	
Approach Delay	5.9	9.5	
Approach LOS	A	A	
Queue Length 50th (m)	15.5	34.8	
Queue Length 95th (m)	22.3	58.9	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1040	1040	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.40	0.49	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 50 (71%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 32.9%	ICU Level of Service A
Analysis Period (min) 15	

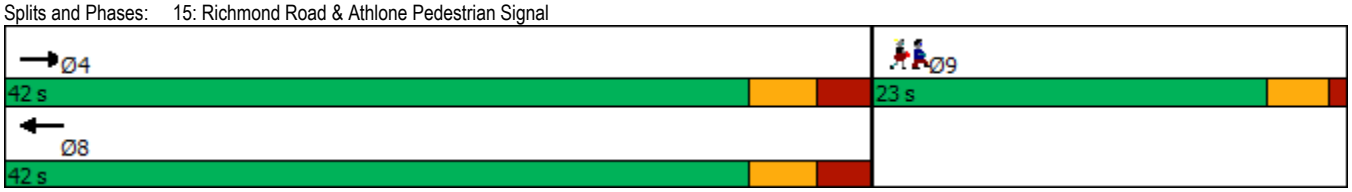
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	547	571	
Future Volume (vph)	547	571	
Lane Group Flow (vph)	547	571	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	27.5	27.5	
Actuated g/C Ratio	0.80	0.80	
v/c Ratio	0.39	0.40	
Control Delay	7.4	7.6	
Queue Delay	0.0	0.0	
Total Delay	7.4	7.6	
LOS	A	A	
Approach Delay	7.4	7.6	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	64.2	68.5	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1523	1523	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.36	0.37	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 34.5	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 36.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	383	8	20	473	1	38
Future Vol, veh/h	383	8	20	473	1	38
Conflicting Peds, #/hr	0	100	100	0	150	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	383	8	20	473	1	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	491	0	1150	497
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	663	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1072	-	219	573
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	512	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	973	-	166	515
Mov Cap-2 Maneuver	-	-	-	-	166	-
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	429	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	489	-	-	973	-
HCM Lane V/C Ratio	0.08	-	-	0.021	-
HCM Control Delay (s)	13	-	-	8.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	410	11	20	489	4	18
Future Vol, veh/h	410	11	20	489	4	18
Conflicting Peds, #/hr	0	100	100	0	10	250
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	410	11	20	489	4	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	521	0	1055	766
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	539	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1045	-	250	403
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	585	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	948	-	219	281
Mov Cap-2 Maneuver	-	-	-	-	219	-
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	19.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	267	-	-	948	-
HCM Lane V/C Ratio	0.082	-	-	0.021	-
HCM Control Delay (s)	19.7	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	524	12	11	543	17	3	3	14	12	1	17
Future Vol, veh/h	11	524	12	11	543	17	3	3	14	12	1	17
Conflicting Peds, #/hr	130	0	120	120	0	130	60	0	0	0	0	60
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	8	0	2	7	0	0	14	0	100	6
Mvmt Flow	11	524	12	11	543	17	3	3	14	12	1	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	690	0	0	656	0	0	1315	1384	650	1265	1382	742
Stage 1	-	-	-	-	-	-	672	672	-	704	704	-
Stage 2	-	-	-	-	-	-	643	712	-	561	678	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.34	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.426	3.5	4.9	3.354
Pot Cap-1 Maneuver	914	-	-	941	-	-	136	145	449	147	92	409
Stage 1	-	-	-	-	-	-	449	458	-	431	320	-
Stage 2	-	-	-	-	-	-	465	439	-	516	331	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	804	-	-	837	-	-	104	109	399	119	69	340
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	109	-	119	69	-
Stage 1	-	-	-	-	-	-	391	399	-	372	276	-
Stage 2	-	-	-	-	-	-	408	379	-	484	288	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	23.1	28.8
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	219	804	-	-	837	-	-	181
HCM Lane V/C Ratio	0.091	0.014	-	-	0.013	-	-	0.166
HCM Control Delay (s)	23.1	9.5	0	-	9.4	0	-	28.8
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.6

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	485	14	42	540	15	14	7	38	8	7	17
Future Vol, veh/h	51	485	14	42	540	15	14	7	38	8	7	17
Conflicting Peds, #/hr	60	0	45	45	0	60	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	0	2	1	0	7	0	0	0	0	0
Mvmt Flow	51	485	14	42	540	15	14	7	38	8	7	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	615	0	0	544	0	0	1283	1338	537	1301	1330	600
Stage 1	-	-	-	-	-	-	639	639	-	684	684	-
Stage 2	-	-	-	-	-	-	644	699	-	617	646	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	974	-	-	1025	-	-	139	154	548	139	156	505
Stage 1	-	-	-	-	-	-	456	474	-	442	452	-
Stage 2	-	-	-	-	-	-	453	445	-	481	470	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	920	-	-	982	-	-	110	121	525	105	122	477
Mov Cap-2 Maneuver	-	-	-	-	-	-	110	121	-	105	122	-
Stage 1	-	-	-	-	-	-	404	419	-	385	400	-
Stage 2	-	-	-	-	-	-	403	394	-	405	415	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.6	26.1	27.9
HCM LOS			D	D

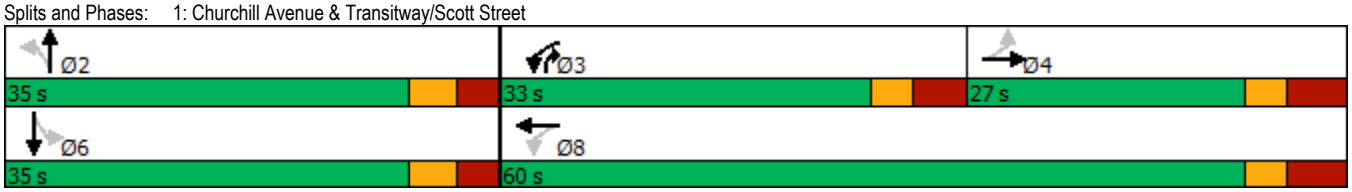
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	229	920	-	-	982	-	-	189
HCM Lane V/C Ratio	0.258	0.055	-	-	0.043	-	-	0.169
HCM Control Delay (s)	26.1	9.1	0	-	8.8	0	-	27.9
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1	0.2	-	-	0.1	-	-	0.6

Total Projected 2028

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	77	199	43	6	90	201	34	193
Future Volume (vph)	1	77	199	43	6	90	201	34	193
Lane Group Flow (vph)	0	90	199	71	0	96	201	0	228
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	27.0	27.0	33.0	60.0	35.0	35.0	33.0	35.0	35.0
Total Split (%)	28.4%	28.4%	34.7%	63.2%	36.8%	36.8%	34.7%	36.8%	36.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		28.8	53.4	52.8		19.3	17.2		19.3
Actuated g/C Ratio		0.34	0.62	0.61		0.22	0.20		0.22
v/c Ratio		0.28	0.29	0.12		0.25	0.71		0.63
Control Delay		26.5	9.1	5.9		28.5	45.8		38.2
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		26.5	9.1	5.9		28.5	45.8		38.2
LOS		C	A	A		C	D		D
Approach Delay		26.5		8.3		40.2			38.2
Approach LOS		C		A		D			D
Queue Length 50th (m)		10.2	13.6	2.7		13.0	31.6		33.9
Queue Length 95th (m)		26.4	25.7	8.7		25.4	50.9		56.5
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		317	756	611		569	434		538
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		0.28	0.26	0.12		0.17	0.46		0.42

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 85.9	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 28.6	Intersection LOS: C
Intersection Capacity Utilization 68.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	480	6	314	7	1	57	0
Future Volume (vph)	30	480	6	314	7	1	57	0
Lane Group Flow (vph)	30	486	6	352	7	20	57	64
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	64.0	64.0	64.0	64.0	31.0	31.0	31.0	31.0
Total Split (%)	67.4%	67.4%	67.4%	67.4%	32.6%	32.6%	32.6%	32.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	57.4	57.4	57.4	57.4	24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26
v/c Ratio	0.06	0.54	0.01	0.39	0.03	0.06	0.20	0.11
Control Delay	8.2	13.7	7.7	10.9	26.6	12.3	29.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	13.7	7.7	10.9	26.6	12.3	29.6	0.4
LOS	A	B	A	B	C	B	C	A
Approach Delay		13.4		10.8		16.0		14.2
Approach LOS		B		B		B		B
Queue Length 50th (m)	2.1	47.9	0.4	29.6	1.0	0.1	8.2	0.0
Queue Length 95th (m)	5.7	74.1	2.0	47.0	4.3	5.6	18.3	0.0
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	481	906	415	906	279	339	288	596
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.54	0.01	0.39	0.03	0.06	0.20	0.11

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 83 (87%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 56.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street

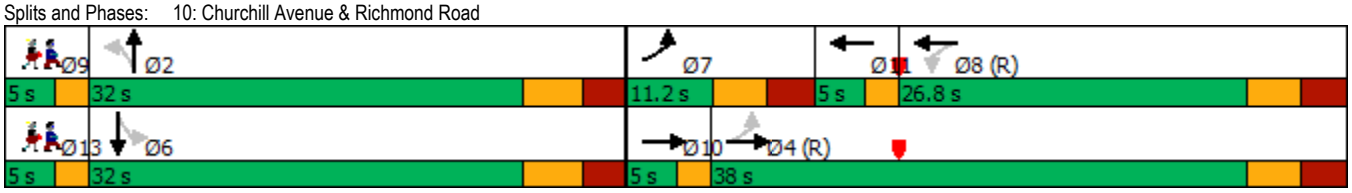


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	265	396	43	191	24	286	23	356				
Future Volume (vph)	265	396	43	191	24	286	23	356				
Lane Group Flow (vph)	265	425	43	211	24	369	0	520				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	11.2		26.8		32.0	32.0	32.0	32.0	38.0	5.0	5.0	5.0
Total Split (%)	14.0%		33.5%		40.0%	40.0%	40.0%	40.0%	48%	6%	6%	6%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	36.9	31.9	20.7	20.7	25.8	25.8		25.8				
Actuated g/C Ratio	0.46	0.40	0.26	0.26	0.32	0.32		0.32				
v/c Ratio	0.63	0.62	0.21	0.49	0.14	0.70		1.03				
Control Delay	22.5	23.6	26.4	29.0	22.0	31.0		74.9				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	22.5	23.6	26.4	29.0	22.0	31.0		74.9				
LOS	C	C	C	C	C	C		E				
Approach Delay		23.2		28.5		30.5		74.9				
Approach LOS		C		C		C		E				
Queue Length 50th (m)	24.6	49.5	5.1	26.4	2.6	46.1		~79.3				
Queue Length 95th (m)	41.2	78.2	13.5	46.2	8.2	76.2		#140.4				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	422	691	208	432	168	525		507				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.63	0.62	0.21	0.49	0.14	0.70		1.03				

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 40.0	Intersection LOS: D
Intersection Capacity Utilization 98.6%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

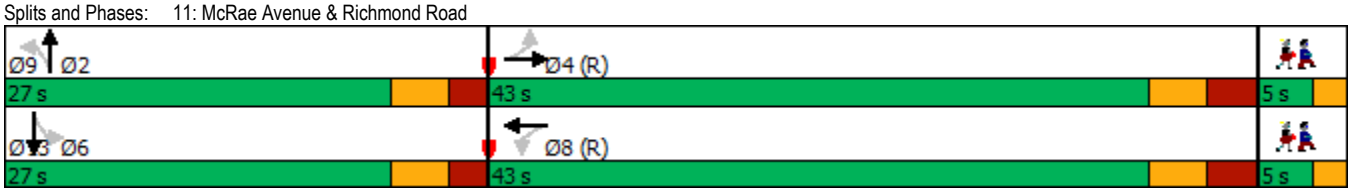
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	99	355	9	258	15	15	79	16		
Future Volume (vph)	99	355	9	258	15	15	79	16		
Lane Group Flow (vph)	99	387	9	348	15	26	0	143		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		4		8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	8	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	35.2	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	43.0	43.0	43.0	43.0	27.0	27.0	27.0	27.0	5.0	5.0
Total Split (%)	57.3%	57.3%	57.3%	57.3%	36.0%	36.0%	36.0%	36.0%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	5.5	5.5		5.5		
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	53.0	53.0	53.0	53.0	13.7	13.7		13.7		
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.18	0.18		0.18		
v/c Ratio	0.15	0.17	0.02	0.31	0.07	0.09		0.59		
Control Delay	7.5	5.8	9.3	8.5	23.6	17.2		30.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	7.5	5.8	9.3	8.5	23.6	17.2		30.8		
LOS	A	A	A	A	C	B		C		
Approach Delay		6.2		8.5		19.5		30.8		
Approach LOS		A		A		B		C		
Queue Length 50th (m)	4.2	8.3	0.4	17.7	1.8	1.8		14.4		
Queue Length 95th (m)	15.1	21.0	m1.0	m44.8	5.9	7.1		28.6		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	657	2281	571	1119	331	466		360		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.15	0.17	0.02	0.31	0.05	0.06		0.40		

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 16 (21%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 63.7%	ICU Level of Service B
Analysis Period (min) 15	

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

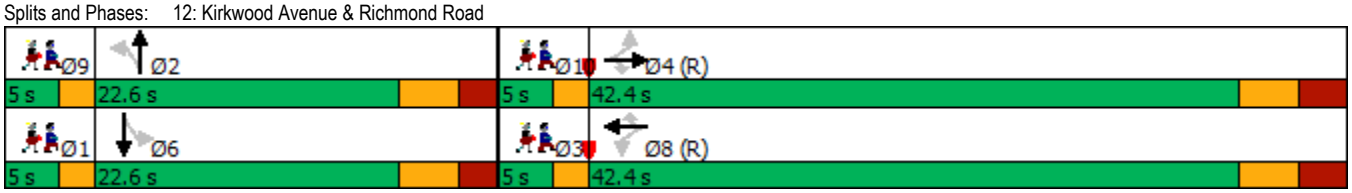
Splits and Phases: 11: McRae Avenue & Richmond Road



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø9
Lane Configurations												
Traffic Volume (vph)	314	140	189	238	11	127	25	8	30			
Future Volume (vph)	314	140	189	238	11	127	25	8	30			
Lane Group Flow (vph)	314	140	0	427	11	127	150	0	40			
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA			
Protected Phases	4			8			2		6	1	3	9
Permitted Phases		4	8		8	2		6				
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (s)	42.4	42.4	42.4	42.4	42.4	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (%)	56.5%	56.5%	56.5%	56.5%	56.5%	30.1%	30.1%	30.1%	30.1%	7%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Lost Time (s)	6.1	6.1		6.1	6.1	5.6	5.6		5.6			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	36.3	36.3		36.3	36.3	17.0	17.0		17.0			
Actuated g/C Ratio	0.48	0.48		0.48	0.48	0.23	0.23		0.23			
v/c Ratio	0.37	0.20		0.76	0.02	0.47	0.38		0.12			
Control Delay	11.2	2.1		27.2	0.1	31.9	10.3		23.4			
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Delay	11.2	2.1		27.2	0.1	31.9	10.3		23.4			
LOS	B	A		C	A	C	B		C			
Approach Delay	8.4			26.5			20.2		23.4			
Approach LOS	A			C			C		C			
Queue Length 50th (m)	30.5	0.4		46.7	0.0	15.6	2.8		4.3			
Queue Length 95th (m)	20.3	1.9		#95.3	0.0	31.3	16.7		11.7			
Internal Link Dist (m)	187.3			176.5			528.9		134.6			
Turn Bay Length (m)		35.0										
Base Capacity (vph)	838	689		559	629	269	393		336			
Starvation Cap Reductn	0	0		0	0	0	0		0			
Spillback Cap Reductn	0	0		0	0	0	0		0			
Storage Cap Reductn	0	0		0	0	0	0		0			
Reduced v/c Ratio	0.37	0.20		0.76	0.02	0.47	0.38		0.12			

Intersection Summary		
Cycle Length: 75		
Actuated Cycle Length: 75		
Offset: 25 (33%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green		
Natural Cycle: 70		
Control Type: Pretimed		
Maximum v/c Ratio: 0.76		
Intersection Signal Delay: 18.2	Intersection LOS: B	
Intersection Capacity Utilization 70.7%	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: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	340	271	
Future Volume (vph)	340	271	
Lane Group Flow (vph)	340	271	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.2	43.2	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.34	0.27	
Control Delay	8.0	1.6	
Queue Delay	0.0	0.0	
Total Delay	8.0	1.6	
LOS	A	A	
Approach Delay	8.0	1.6	
Approach LOS	A	A	
Queue Length 50th (m)	19.7	1.7	
Queue Length 95th (m)	34.4	2.7	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1007	1007	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.34	0.27	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 3 (5%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.34	
Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 23.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	371	271	
Future Volume (vph)	371	271	
Lane Group Flow (vph)	371	271	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.0	43.0	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.37	0.27	
Control Delay	6.9	7.5	
Queue Delay	0.0	0.0	
Total Delay	6.9	7.5	
LOS	A	A	
Approach Delay	6.9	7.5	
Approach LOS	A	A	
Queue Length 50th (m)	16.8	15.0	
Queue Length 95th (m)	25.3	26.9	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1003	1003	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.37	0.27	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 58 (89%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.37	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 25.2%	ICU Level of Service A
Analysis Period (min) 15	

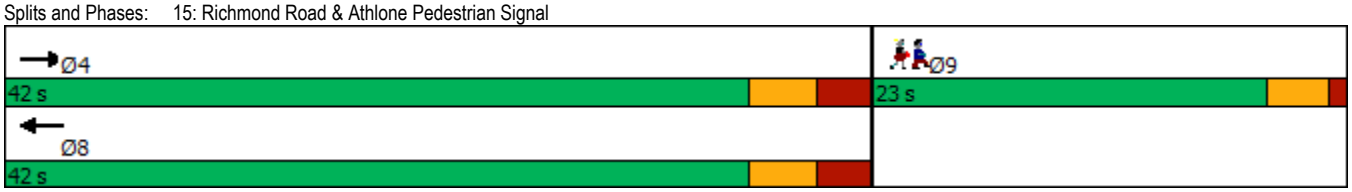
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	459	341	
Future Volume (vph)	459	341	
Lane Group Flow (vph)	459	341	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	23.0	23.0	
Actuated g/C Ratio	0.77	0.77	
v/c Ratio	0.33	0.25	
Control Delay	7.7	7.0	
Queue Delay	0.0	0.0	
Total Delay	7.7	7.0	
LOS	A	A	
Approach Delay	7.7	7.0	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	52.7	36.9	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1579	1579	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.29	0.22	

Intersection Summary		
Cycle Length: 65		
Actuated Cycle Length: 29.9		
Natural Cycle: 45		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.33		
Intersection Signal Delay: 7.4	Intersection LOS: A	
Intersection Capacity Utilization 30.5%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	333	7	28	243	3	38
Future Vol, veh/h	333	7	28	243	3	38
Conflicting Peds, #/hr	0	120	120	0	170	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	333	7	28	243	3	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	460	0	926	473
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1101	-	298	591
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	979	-	216	518
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	513	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	470	-	-	979	-
HCM Lane V/C Ratio	0.087	-	-	0.029	-
HCM Control Delay (s)	13.4	-	-	8.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	366	5	9	262	9	40
Future Vol, veh/h	366	5	9	262	9	40
Conflicting Peds, #/hr	0	120	120	0	6	220
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	366	5	9	262	9	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	491	0	775	709
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	286	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1072	-	366	434
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	953	-	320	307
Mov Cap-2 Maneuver	-	-	-	-	320	-
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	751	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	309	-	-	953	-
HCM Lane V/C Ratio	0.159	-	-	0.009	-
HCM Control Delay (s)	18.8	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	442	5	5	321	15	5	2	9	14	3	12
Future Vol, veh/h	12	442	5	5	321	15	5	2	9	14	3	12
Conflicting Peds, #/hr	90	0	80	80	0	90	50	0	0	0	0	50
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	8	4	20	0	4	8	40	0	0	0	0	0
Mvmt Flow	12	442	5	5	321	15	5	2	9	14	3	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	426	0	0	527	0	0	945	985	525	903	980	469
Stage 1	-	-	-	-	-	-	549	549	-	429	429	-
Stage 2	-	-	-	-	-	-	396	436	-	474	551	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.272	-	-	2.2	-	-	3.86	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1102	-	-	1050	-	-	207	250	556	260	252	598
Stage 1	-	-	-	-	-	-	458	520	-	608	587	-
Stage 2	-	-	-	-	-	-	560	583	-	575	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1010	-	-	972	-	-	174	208	515	229	209	523
Mov Cap-2 Maneuver	-	-	-	-	-	-	174	208	-	229	209	-
Stage 1	-	-	-	-	-	-	417	474	-	548	535	-
Stage 2	-	-	-	-	-	-	516	531	-	554	473	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	18.3	18.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	287	1010	-	-	972	-	-	295
HCM Lane V/C Ratio	0.056	0.012	-	-	0.005	-	-	0.098
HCM Control Delay (s)	18.3	8.6	0	-	8.7	0	-	18.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	407	11	8	306	17	5	13	23	23	8	30
Future Vol, veh/h	47	407	11	8	306	17	5	13	23	23	8	30
Conflicting Peds, #/hr	70	0	30	30	0	70	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	9
Mvmt Flow	47	407	11	8	306	17	5	13	23	23	8	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	393	0	0	448	0	0	887	946	443	917	934	376
Stage 1	-	-	-	-	-	-	537	537	-	392	392	-
Stage 2	-	-	-	-	-	-	350	409	-	525	542	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.381
Pot Cap-1 Maneuver	1177	-	-	1123	-	-	267	264	619	255	268	655
Stage 1	-	-	-	-	-	-	532	526	-	637	610	-
Stage 2	-	-	-	-	-	-	671	600	-	540	523	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1101	-	-	1092	-	-	229	224	602	209	228	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	229	224	-	209	228	-
Stage 1	-	-	-	-	-	-	488	483	-	562	565	-
Stage 2	-	-	-	-	-	-	623	556	-	477	480	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.2	16.8	19.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	1101	-	-	1092	-	-	314
HCM Lane V/C Ratio	0.118	0.043	-	-	0.007	-	-	0.194
HCM Control Delay (s)	16.8	8.4	0	-	8.3	0	-	19.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	14	7	39	10	5
Future Vol, veh/h	9	14	7	39	10	5
Conflicting Peds, #/hr	0	0	120	0	0	120
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	14	7	39	10	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	186	133	135	0	-	0
Stage 1	133	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	803	916	1449	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	631	814	1288	-	-	-
Mov Cap-2 Maneuver	631	-	-	-	-	-
Stage 1	789	-	-	-	-	-
Stage 2	862	-	-	-	-	-

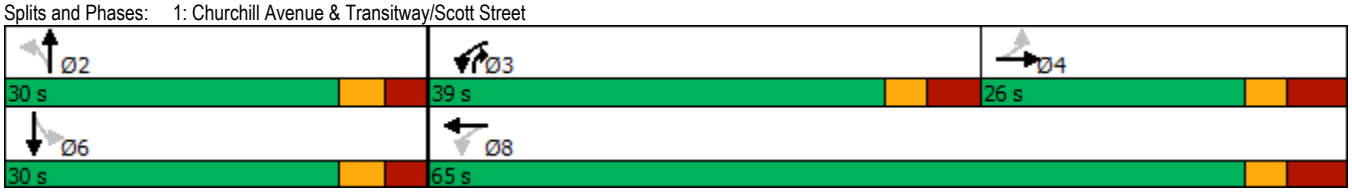
Approach	EB	NB	SB
HCM Control Delay, s	10.1	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1288	-	731	-	-
HCM Lane V/C Ratio	0.005	-	0.031	-	-
HCM Control Delay (s)	7.8	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	60	324	82	12	127	290	41	113
Future Volume (vph)	2	60	324	82	12	127	290	41	113
Lane Group Flow (vph)	0	76	324	131	0	139	290	0	157
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	26.0	26.0	39.0	65.0	30.0	30.0	39.0	30.0	30.0
Total Split (%)	27.4%	27.4%	41.1%	68.4%	31.6%	31.6%	41.1%	31.6%	31.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		28.5	58.3	57.7		18.6	22.5		18.6
Actuated g/C Ratio		0.32	0.65	0.64		0.21	0.25		0.21
v/c Ratio		0.24	0.42	0.20		0.41	0.77		0.52
Control Delay		26.6	9.4	5.6		34.5	44.9		37.8
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		26.6	9.4	5.6		34.5	44.9		37.8
LOS		C	A	A		C	D		D
Approach Delay		26.6		8.3		41.6			37.8
Approach LOS		C		A		D			D
Queue Length 50th (m)		8.6	24.0	5.5		21.0	48.1		24.1
Queue Length 95th (m)		22.6	37.7	13.0		37.6	67.8		42.8
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		319	851	647		434	542		386
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.24	0.38	0.20		0.32	0.54		0.41

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 90.2	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	579	13	598	13	2	49	3
Future Volume (vph)	88	579	13	598	13	2	49	3
Lane Group Flow (vph)	88	595	13	634	13	11	49	35
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0	29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%	29.0%	29.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	64.4	64.4	64.4	64.4	22.8	22.8	22.8	22.8
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.23	0.23	0.23	0.23
v/c Ratio	0.24	0.57	0.04	0.62	0.05	0.04	0.19	0.12
Control Delay	9.5	12.7	6.8	13.8	31.2	18.5	33.6	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	12.7	6.8	13.8	31.2	18.5	33.6	13.1
LOS	A	B	A	B	C	B	C	B
Approach Delay		12.3		13.7		25.3		25.1
Approach LOS		B		B		C		C
Queue Length 50th (m)	6.5	58.8	0.8	65.5	2.0	0.3	7.7	0.5
Queue Length 95th (m)	14.3	88.0	3.0	99.3	6.9	4.8	17.6	8.2
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	367	1036	361	1018	238	279	255	295
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.57	0.04	0.62	0.05	0.04	0.19	0.12

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 40 (40%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 13.9	Intersection LOS: B
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	162	299	128	453	27	294	20	278				
Future Volume (vph)	162	299	128	453	27	294	20	278				
Lane Group Flow (vph)	162	345	128	486	27	370	0	581				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	11.5		32.5		46.0	46.0	46.0	46.0	44.0	5.0	5.0	5.0
Total Split (%)	11.5%		32.5%		46.0%	46.0%	46.0%	46.0%	44%	5%	5%	5%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	42.9	37.9	26.4	26.4	39.8	39.8		39.8				
Actuated g/C Ratio	0.43	0.38	0.26	0.26	0.40	0.40		0.40				
v/c Ratio	0.87	0.55	0.69	1.05	0.13	0.57		1.08				
Control Delay	63.0	27.8	54.2	91.7	21.2	26.7		90.9				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	63.0	27.8	54.2	91.7	21.2	26.7		90.9				
LOS	E	C	D	F	C	C		F				
Approach Delay		39.1		83.9		26.3		90.9				
Approach LOS		D		F		C		F				
Queue Length 50th (m)	19.4	50.3	22.3	~102.5	3.3	52.6		~119.8				
Queue Length 95th (m)	#49.3	77.7	#49.9	#163.7	9.2	81.4		#184.3				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	186	624	186	464	211	647		537				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.87	0.55	0.69	1.05	0.13	0.57		1.08				

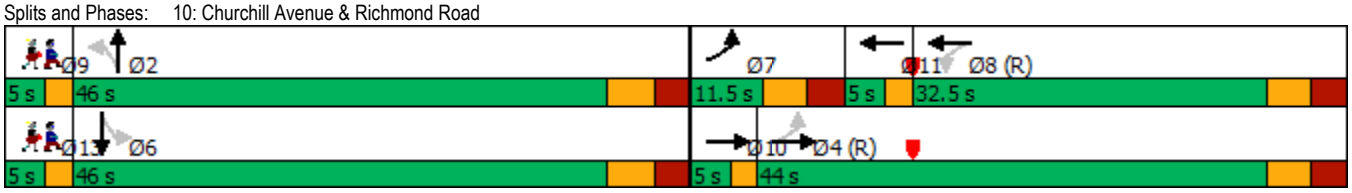
Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 64.1 — Intersection LOS: E
Intersection Capacity Utilization 107.6% — ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	5%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

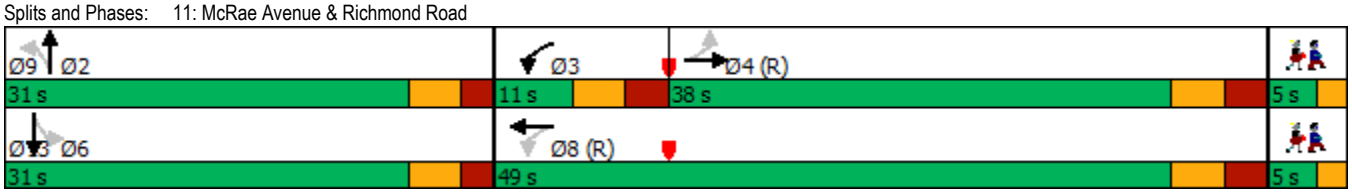
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	69	298	49	479	63	45	103	49		
Future Volume (vph)	69	298	49	479	63	45	103	49		
Lane Group Flow (vph)	69	378	49	587	63	90	0	279		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	4.9	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	11.0	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	38.0	38.0	11.0	49.0	31.0	31.0	31.0	31.0	5.0	5.0
Total Split (%)	44.7%	44.7%	12.9%	57.6%	36.5%	36.5%	36.5%	36.5%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.8	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.1	6.2	5.5	5.5		5.5		
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes							
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	36.2	36.2	42.9	42.8	25.5	25.5		25.5		
Actuated g/C Ratio	0.43	0.43	0.50	0.50	0.30	0.30		0.30		
v/c Ratio	0.26	0.28	0.12	0.69	0.24	0.20		0.74		
Control Delay	21.4	15.7	12.2	18.4	25.5	13.8		35.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	21.4	15.7	12.2	18.4	25.5	13.8		35.7		
LOS	C	B	B	B	C	B		D		
Approach Delay		16.6		17.9		18.6		35.7		
Approach LOS		B		B		B		D		
Queue Length 50th (m)	7.7	19.5	3.6	60.9	7.7	5.3		33.3		
Queue Length 95th (m)	18.3	30.1	m4.8	m75.2	17.7	15.9		#70.5		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	270	1344	413	854	263	450		376		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.26	0.28	0.12	0.69	0.24	0.20		0.74		

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 1 (1%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 83.9%	ICU Level of Service E
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: McRae Avenue & Richmond Road

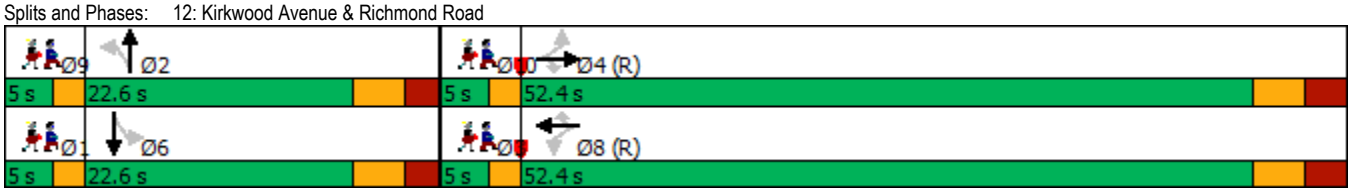


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	3	355	182	187	432	12	156	49	2	37		
Future Volume (vph)	3	355	182	187	432	12	156	49	2	37		
Lane Group Flow (vph)	0	358	182	0	619	12	156	273	0	40		
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA		
Protected Phases		4			8			2		6	1	3
Permitted Phases	4		4	8		8	2		6			
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (s)	52.4	52.4	52.4	52.4	52.4	52.4	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (%)	61.6%	61.6%	61.6%	61.6%	61.6%	61.6%	26.6%	26.6%	26.6%	26.6%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.1	6.1		6.1	6.1	5.6	5.6		5.6		
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		46.3	46.3		46.3	46.3	17.0	17.0		17.0		
Actuated g/C Ratio		0.54	0.54		0.54	0.54	0.20	0.20		0.20		
v/c Ratio		0.37	0.26		0.92	0.02	0.64	0.60		0.12		
Control Delay		8.9	1.8		39.0	0.1	44.8	13.6		28.4		
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Delay		8.9	1.8		39.0	0.1	44.8	13.6		28.4		
LOS		A	A		D	A	D	B		C		
Approach Delay		6.5			38.3			24.9		28.4		
Approach LOS		A			D			C		C		
Queue Length 50th (m)		24.1	1.4		85.3	0.0	23.4	6.7		5.2		
Queue Length 95th (m)		m34.8	m4.4		#157.0	0.0	#47.4	29.6		13.3		
Internal Link Dist (m)		187.3			176.5			528.9		134.6		
Turn Bay Length (m)			35.0									
Base Capacity (vph)		977	709		676	716	244	453		345		
Starvation Cap Reductn		0	0		0	0	0	0		0		
Spillback Cap Reductn		0	0		0	0	0	0		0		
Storage Cap Reductn		0	0		0	0	0	0		0		
Reduced v/c Ratio		0.37	0.26		0.92	0.02	0.64	0.60		0.12		

Intersection Summary

Cycle Length: 85
Actuated Cycle Length: 85
Offset: 79 (93%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 24.1 — Intersection LOS: C
Intersection Capacity Utilization 89.7% — ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø9	Ø10
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	382	486	
Future Volume (vph)	382	486	
Lane Group Flow (vph)	382	486	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.2	48.2	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.37	0.47	
Control Delay	7.8	2.9	
Queue Delay	0.0	0.0	
Total Delay	7.8	2.9	
LOS	A	A	
Approach Delay	7.8	2.9	
Approach LOS	A	A	
Queue Length 50th (m)	23.0	5.3	
Queue Length 95th (m)	39.1	7.4	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1043	1043	
Starvation Cap Reductn	0	16	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.37	0.47	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 56 (80%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 5.1	Intersection LOS: A
Intersection Capacity Utilization 31.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	419	504	
Future Volume (vph)	419	504	
Lane Group Flow (vph)	419	504	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.0	48.0	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.40	0.48	
Control Delay	5.9	9.4	
Queue Delay	0.0	0.0	
Total Delay	5.9	9.4	
LOS	A	A	
Approach Delay	5.9	9.4	
Approach LOS	A	A	
Queue Length 50th (m)	15.7	34.2	
Queue Length 95th (m)	22.6	57.8	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1040	1040	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.40	0.48	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 50 (71%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 32.6%	ICU Level of Service A
Analysis Period (min) 15	

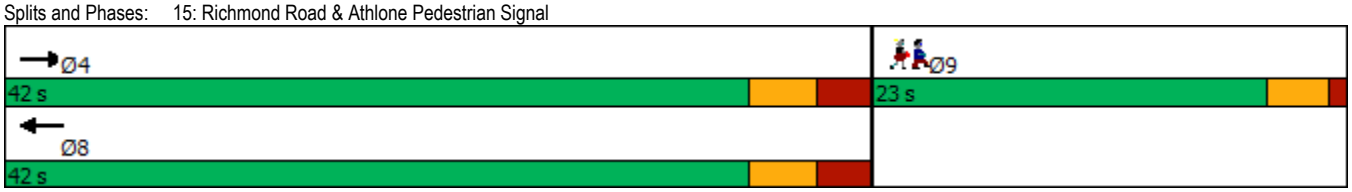
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	550	577	
Future Volume (vph)	550	577	
Lane Group Flow (vph)	550	577	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	26.7	26.7	
Actuated g/C Ratio	0.68	0.68	
v/c Ratio	0.45	0.48	
Control Delay	10.3	10.6	
Queue Delay	0.0	0.0	
Total Delay	10.3	10.6	
LOS	B	B	
Approach Delay	10.3	10.6	
Approach LOS	B	B	
Queue Length 50th (m)	38.6	41.5	
Queue Length 95th (m)	64.5	69.3	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1422	1422	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.39	0.41	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 39.3	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 10.5	Intersection LOS: B
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	374	8	30	456	1	45
Future Vol, veh/h	374	8	30	456	1	45
Conflicting Peds, #/hr	0	120	120	0	170	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	374	8	30	456	1	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	502	0	1184	508
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	686	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1062	-	209	565
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	500	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	944	-	150	498
Mov Cap-2 Maneuver	-	-	-	-	150	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	474	-	-	944	-
HCM Lane V/C Ratio	0.097	-	-	0.032	-
HCM Control Delay (s)	13.4	-	-	8.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	403	16	25	479	7	21
Future Vol, veh/h	403	16	25	479	7	21
Conflicting Peds, #/hr	0	100	100	0	10	250
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	403	16	25	479	7	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	519	0	1050	761
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	539	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1047	-	252	405
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	585	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	950	-	218	283
Mov Cap-2 Maneuver	-	-	-	-	218	-
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	559	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	263	-	-	950	-
HCM Lane V/C Ratio	0.106	-	-	0.026	-
HCM Control Delay (s)	20.3	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	527	12	11	546	20	3	3	14	14	1	17
Future Vol, veh/h	11	527	12	11	546	20	3	3	14	14	1	17
Conflicting Peds, #/hr	140	0	130	130	0	140	70	0	0	0	0	70
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	8	0	2	7	0	0	14	0	100	6
Mvmt Flow	11	527	12	11	546	20	3	3	14	14	1	17

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	706	0	0	669	0	0	1342	1413	663	1282	1409	766
Stage 1	-	-	-	-	-	-	685	685	-	718	718	-
Stage 2	-	-	-	-	-	-	657	728	-	564	691	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.34	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.426	3.5	4.9	3.354
Pot Cap-1 Maneuver	902	-	-	931	-	-	131	139	441	144	88	396
Stage 1	-	-	-	-	-	-	441	451	-	423	315	-
Stage 2	-	-	-	-	-	-	457	432	-	514	326	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	785	-	-	819	-	-	98	102	388	115	65	323
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	102	-	115	65	-
Stage 1	-	-	-	-	-	-	380	389	-	361	269	-
Stage 2	-	-	-	-	-	-	395	369	-	482	281	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	24.1	31.2
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	208	785	-	-	819	-	-	169
HCM Lane V/C Ratio	0.096	0.014	-	-	0.013	-	-	0.189
HCM Control Delay (s)	24.1	9.7	0	-	9.5	0	-	31.2
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	487	14	42	543	25	14	7	38	16	7	20
Future Vol, veh/h	54	487	14	42	543	25	14	7	38	16	7	20
Conflicting Peds, #/hr	70	0	55	55	0	70	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	0	2	1	0	7	0	0	0	0	0
Mvmt Flow	54	487	14	42	543	25	14	7	38	16	7	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	638	0	0	556	0	0	1310	1379	549	1322	1361	613
Stage 1	-	-	-	-	-	-	657	657	-	697	697	-
Stage 2	-	-	-	-	-	-	653	722	-	625	664	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	956	-	-	1015	-	-	133	146	539	135	150	496
Stage 1	-	-	-	-	-	-	446	465	-	435	446	-
Stage 2	-	-	-	-	-	-	448	434	-	476	461	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	894	-	-	963	-	-	103	111	512	99	114	464
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	111	-	99	114	-
Stage 1	-	-	-	-	-	-	388	404	-	373	390	-
Stage 2	-	-	-	-	-	-	394	380	-	397	401	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.6	27.8	35.1
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	216	894	-	-	963	-	-	162
HCM Lane V/C Ratio	0.273	0.06	-	-	0.044	-	-	0.265
HCM Control Delay (s)	27.8	9.3	0	-	8.9	0	-	35.1
HCM Lane LOS	D	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	1.1	0.2	-	-	0.1	-	-	1

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	10	14	22	31	9
Future Vol, veh/h	7	10	14	22	31	9
Conflicting Peds, #/hr	0	0	120	0	0	120
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	10	14	22	31	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	206	156	160	0	-	0
Stage 1	156	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	782	890	1419	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	612	791	1262	-	-	-
Mov Cap-2 Maneuver	612	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	3.1	0
HCM LOS	B		

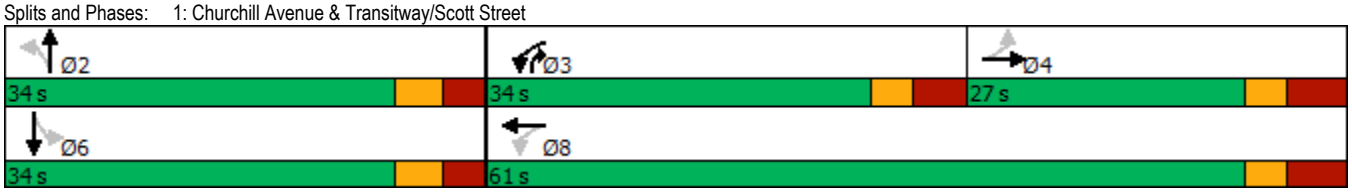
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1262	-	706	-	-
HCM Lane V/C Ratio	0.011	-	0.024	-	-
HCM Control Delay (s)	7.9	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Total Projected 2031/2036

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	77	215	43	6	90	209	34	193
Future Volume (vph)	1	77	215	43	6	90	209	34	193
Lane Group Flow (vph)	0	90	215	71	0	96	209	0	228
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	27.0	27.0	34.0	61.0	34.0	34.0	34.0	34.0	34.0
Total Split (%)	28.4%	28.4%	35.8%	64.2%	35.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		29.1	54.4	53.8		19.4	17.9		19.4
Actuated g/C Ratio		0.33	0.63	0.62		0.22	0.21		0.22
v/c Ratio		0.29	0.32	0.12		0.25	0.72		0.64
Control Delay		27.1	9.3	5.9		29.1	46.1		39.1
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		27.1	9.3	5.9		29.1	46.1		39.1
LOS		C	A	A		C	D		D
Approach Delay		27.1		8.5		40.8			39.1
Approach LOS		C		A		D			D
Queue Length 50th (m)		10.4	14.8	2.7		13.2	33.3		34.4
Queue Length 95th (m)		27.0	27.9	8.8		25.6	53.1		57.0
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		314	753	601		541	444		509
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		0.29	0.29	0.12		0.18	0.47		0.45

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 87	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 28.8	Intersection LOS: C
Intersection Capacity Utilization 69.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	494	6	319	7	1	57	0
Future Volume (vph)	30	494	6	319	7	1	57	0
Lane Group Flow (vph)	30	500	6	357	7	20	57	64
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	64.0	64.0	64.0	64.0	31.0	31.0	31.0	31.0
Total Split (%)	67.4%	67.4%	67.4%	67.4%	32.6%	32.6%	32.6%	32.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	57.4	57.4	57.4	57.4	24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.26	0.26	0.26	0.26
v/c Ratio	0.06	0.55	0.01	0.39	0.03	0.06	0.20	0.11
Control Delay	8.2	14.1	7.7	11.0	26.6	12.3	29.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	14.1	7.7	11.0	26.6	12.3	29.6	0.4
LOS	A	B	A	B	C	B	C	A
Approach Delay		13.7		11.0		16.0		14.2
Approach LOS		B		B		B		B
Queue Length 50th (m)	2.1	49.9	0.4	30.1	1.0	0.1	8.2	0.0
Queue Length 95th (m)	5.7	77.2	2.0	47.9	4.3	5.6	18.3	0.0
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	479	905	407	905	279	334	288	588
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.55	0.01	0.39	0.03	0.06	0.20	0.11

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 83 (87%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 56.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street

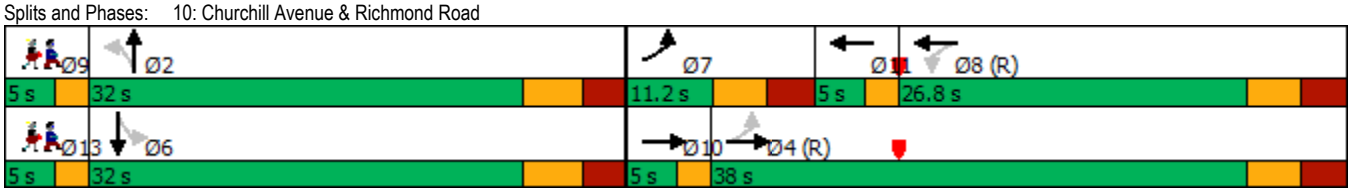


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	265	398	43	195	24	294	23	372				
Future Volume (vph)	265	398	43	195	24	294	23	372				
Lane Group Flow (vph)	265	427	43	215	24	377	0	536				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	11.2		26.8		32.0	32.0	32.0	32.0	38.0	5.0	5.0	5.0
Total Split (%)	14.0%		33.5%		40.0%	40.0%	40.0%	40.0%	48%	6%	6%	6%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	36.9	31.9	20.7	20.7	25.8	25.8		25.8				
Actuated g/C Ratio	0.46	0.40	0.26	0.26	0.32	0.32		0.32				
v/c Ratio	0.64	0.62	0.21	0.50	0.15	0.72		1.07				
Control Delay	22.9	23.7	26.5	29.2	22.2	32.1		86.8				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	22.9	23.7	26.5	29.2	22.2	32.1		86.8				
LOS	C	C	C	C	C	C		F				
Approach Delay		23.4		28.8		31.5		86.8				
Approach LOS		C		C		C		F				
Queue Length 50th (m)	24.6	49.8	5.1	27.0	2.6	47.5		~88.7				
Queue Length 95th (m)	41.2	78.9	13.5	47.1	8.3	#81.0		#146.7				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	416	690	204	431	162	522		503				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.64	0.62	0.21	0.50	0.15	0.72		1.07				

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 43.9	Intersection LOS: D
Intersection Capacity Utilization 99.6%	ICU Level of Service F
Analysis Period (min) 15	

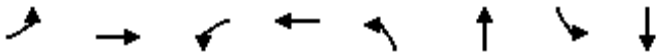
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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

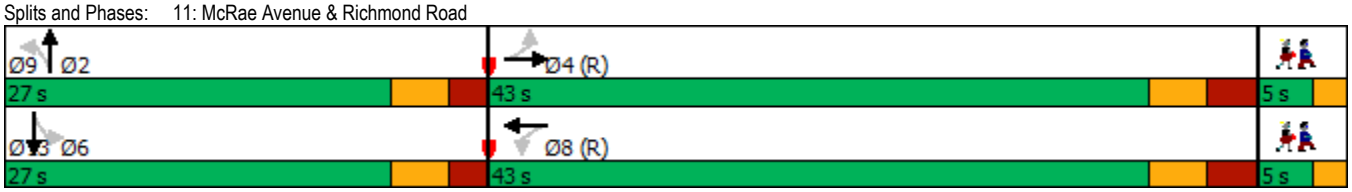


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	99	363	9	262	15	15	81	16		
Future Volume (vph)	99	363	9	262	15	15	81	16		
Lane Group Flow (vph)	99	395	9	353	15	26	0	145		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		4		8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	8	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	35.2	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	43.0	43.0	43.0	43.0	27.0	27.0	27.0	27.0	5.0	5.0
Total Split (%)	57.3%	57.3%	57.3%	57.3%	36.0%	36.0%	36.0%	36.0%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.9	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	5.5	5.5		5.5		
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	48.4	48.4	48.4	48.4	13.9	13.9		13.9		
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.19	0.19		0.19		
v/c Ratio	0.17	0.19	0.02	0.35	0.07	0.09		0.61		
Control Delay	7.9	6.4	9.3	8.9	23.3	17.0		31.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	7.9	6.4	9.3	8.9	23.3	17.0		31.8		
LOS	A	A	A	A	C	B		C		
Approach Delay		6.7		9.0		19.3		31.8		
Approach LOS		A		A		B		C		
Queue Length 50th (m)	4.3	8.7	0.5	18.0	1.8	1.8		14.8		
Queue Length 95th (m)	15.5	22.0	m1.0	m46.4	5.8	7.1		29.1		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	585	2086	514	1021	327	461		351		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.17	0.19	0.02	0.35	0.05	0.06		0.41		

Intersection Summary	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 16 (21%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 64.0%	ICU Level of Service C
Analysis Period (min) 15	

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

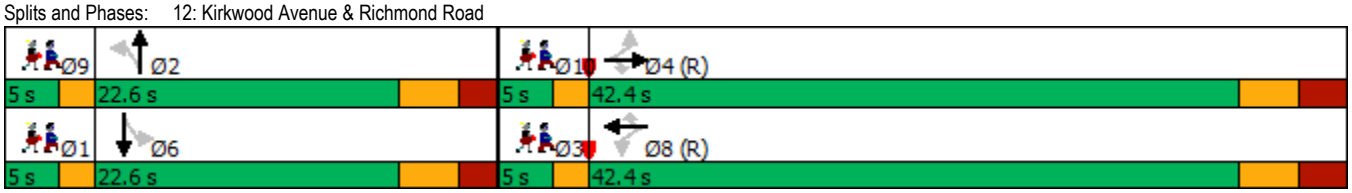
Splits and Phases: 11: McRae Avenue & Richmond Road



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø9
Lane Configurations												
Traffic Volume (vph)	315	149	189	240	11	131	25	8	30			
Future Volume (vph)	315	149	189	240	11	131	25	8	30			
Lane Group Flow (vph)	315	149	0	429	11	131	150	0	40			
Turn Type	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA			
Protected Phases	4			8			2		6	1	3	9
Permitted Phases		4	8		8	2		6				
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (s)	42.4	42.4	42.4	42.4	42.4	22.6	22.6	22.6	22.6	5.0	5.0	5.0
Total Split (%)	56.5%	56.5%	56.5%	56.5%	56.5%	30.1%	30.1%	30.1%	30.1%	7%	7%	7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Lost Time (s)	6.1	6.1		6.1	6.1	5.6	5.6		5.6			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	36.3	36.3		36.3	36.3	17.0	17.0		17.0			
Actuated g/C Ratio	0.48	0.48		0.48	0.48	0.23	0.23		0.23			
v/c Ratio	0.38	0.22		0.77	0.02	0.50	0.39		0.12			
Control Delay	10.9	2.1		27.8	0.1	32.9	10.5		23.4			
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0		0.0			
Total Delay	10.9	2.1		27.8	0.1	32.9	10.5		23.4			
LOS	B	A		C	A	C	B		C			
Approach Delay	8.1			27.1			20.9		23.4			
Approach LOS	A			C			C		C			
Queue Length 50th (m)	30.7	0.5		47.3	0.0	16.2	2.8		4.3			
Queue Length 95th (m)	20.4	1.9		#96.2	0.0	32.4	16.8		11.7			
Internal Link Dist (m)	187.3			176.5			528.9		134.6			
Turn Bay Length (m)		35.0										
Base Capacity (vph)	838	678		556	614	263	385		334			
Starvation Cap Reductn	0	0		0	0	0	0		0			
Spillback Cap Reductn	0	0		0	0	0	0		0			
Storage Cap Reductn	0	0		0	0	0	0		0			
Reduced v/c Ratio	0.38	0.22		0.77	0.02	0.50	0.39		0.12			

Intersection Summary			
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 25 (33%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 18.3		Intersection LOS: B	
Intersection Capacity Utilization 71.0%		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: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	10
Permitted Phases	
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	363	279	
Future Volume (vph)	363	279	
Lane Group Flow (vph)	363	279	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.2	43.2	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.36	0.28	
Control Delay	8.3	1.5	
Queue Delay	0.0	0.0	
Total Delay	8.3	1.5	
LOS	A	A	
Approach Delay	8.3	1.5	
Approach LOS	A	A	
Queue Length 50th (m)	21.5	1.5	
Queue Length 95th (m)	37.3	2.5	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1007	1007	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.36	0.28	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 3 (5%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 5.3	Intersection LOS: A
Intersection Capacity Utilization 24.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	386	278	
Future Volume (vph)	386	278	
Lane Group Flow (vph)	386	278	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	43.0	43.0	22.0
Total Split (%)	66.2%	66.2%	34%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	43.0	43.0	
Actuated g/C Ratio	0.66	0.66	
v/c Ratio	0.38	0.28	
Control Delay	7.0	7.6	
Queue Delay	0.0	0.0	
Total Delay	7.0	7.6	
LOS	A	A	
Approach Delay	7.0	7.6	
Approach LOS	A	A	
Queue Length 50th (m)	17.4	15.5	
Queue Length 95th (m)	25.9	27.6	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1003	1003	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.38	0.28	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 58 (89%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 26.0%	ICU Level of Service A
Analysis Period (min) 15	

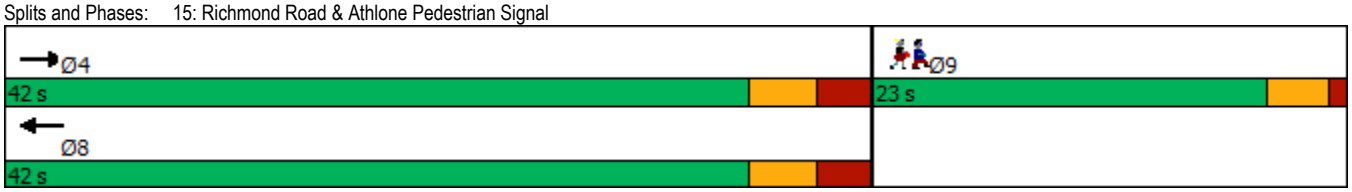
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	461	344	
Future Volume (vph)	461	344	
Lane Group Flow (vph)	461	344	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	23.1	23.1	
Actuated g/C Ratio	0.77	0.77	
v/c Ratio	0.34	0.25	
Control Delay	7.7	7.0	
Queue Delay	0.0	0.0	
Total Delay	7.7	7.0	
LOS	A	A	
Approach Delay	7.7	7.0	
Approach LOS	A	A	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	53.1	37.3	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1578	1578	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.29	0.22	

Intersection Summary		
Cycle Length: 65		
Actuated Cycle Length: 30		
Natural Cycle: 45		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.34		
Intersection Signal Delay: 7.4	Intersection LOS: A	
Intersection Capacity Utilization 30.6%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	355	8	23	256	6	31
Future Vol, veh/h	355	8	23	256	6	31
Conflicting Peds, #/hr	0	140	140	0	190	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	355	8	23	256	6	31

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	503	0	991	515
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	492	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1061	-	273	560
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	615	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	924	-	191	480
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	493	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	385	-	-	924	-
HCM Lane V/C Ratio	0.096	-	-	0.025	-
HCM Control Delay (s)	15.3	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	380	6	10	268	11	42
Future Vol, veh/h	380	6	10	268	11	42
Conflicting Peds, #/hr	0	140	140	0	6	240
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	380	6	10	268	11	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	526	0	817	763
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	294	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1041	-	346	404
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	756	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	906	-	296	274
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	742	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	21
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	278	-	-	906	-
HCM Lane V/C Ratio	0.191	-	-	0.011	-
HCM Control Delay (s)	21	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	443	5	5	323	16	5	2	9	17	3	14
Future Vol, veh/h	13	443	5	5	323	16	5	2	9	17	3	14
Conflicting Peds, #/hr	100	0	90	90	0	100	60	0	0	0	0	60
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	8	4	20	0	4	8	40	0	0	0	0	0
Mvmt Flow	13	443	5	5	323	16	5	2	9	17	3	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	439	0	0	538	0	0	972	1011	536	918	1005	491
Stage 1	-	-	-	-	-	-	562	562	-	441	441	-
Stage 2	-	-	-	-	-	-	410	449	-	477	564	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.272	-	-	2.2	-	-	3.86	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1090	-	-	1040	-	-	198	241	549	254	243	582
Stage 1	-	-	-	-	-	-	450	513	-	599	580	-
Stage 2	-	-	-	-	-	-	550	576	-	573	512	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	989	-	-	954	-	-	162	196	503	220	198	499
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	196	-	220	198	-
Stage 1	-	-	-	-	-	-	405	462	-	534	524	-
Stage 2	-	-	-	-	-	-	499	520	-	550	461	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	19.1	19.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	271	989	-	-	954	-	-	282
HCM Lane V/C Ratio	0.059	0.013	-	-	0.005	-	-	0.121
HCM Control Delay (s)	19.1	8.7	0	-	8.8	0	-	19.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	410	11	8	307	20	5	13	23	28	8	32
Future Vol, veh/h	48	410	11	8	307	20	5	13	23	28	8	32
Conflicting Peds, #/hr	80	0	40	40	0	80	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	5	0	0	0	0	0	0	9
Mvmt Flow	48	410	11	8	307	20	5	13	23	28	8	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	407	0	0	461	0	0	905	975	456	933	960	387
Stage 1	-	-	-	-	-	-	552	552	-	403	403	-
Stage 2	-	-	-	-	-	-	353	423	-	530	557	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.381
Pot Cap-1 Maneuver	1163	-	-	1111	-	-	260	253	609	248	259	646
Stage 1	-	-	-	-	-	-	522	518	-	628	603	-
Stage 2	-	-	-	-	-	-	668	591	-	536	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1077	-	-	1070	-	-	219	210	587	200	215	598
Mov Cap-2 Maneuver	-	-	-	-	-	-	219	210	-	200	215	-
Stage 1	-	-	-	-	-	-	473	470	-	548	554	-
Stage 2	-	-	-	-	-	-	618	543	-	472	467	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.2	17.4	20.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	331	1077	-	-	1070	-	-	295
HCM Lane V/C Ratio	0.124	0.045	-	-	0.007	-	-	0.231
HCM Control Delay (s)	17.4	8.5	0	-	8.4	0	-	20.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.9

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	14	7	43	17	5
Future Vol, veh/h	9	14	7	43	17	5
Conflicting Peds, #/hr	0	0	140	0	0	140
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	14	7	43	17	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	217	160	162	0	-	0
Stage 1	160	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	771	885	1417	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	581	771	1234	-	-	-
Mov Cap-2 Maneuver	581	-	-	-	-	-
Stage 1	753	-	-	-	-	-
Stage 2	841	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1234	-	684	-	-
HCM Lane V/C Ratio	0.006	-	0.034	-	-
HCM Control Delay (s)	7.9	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	8	3	32	34	2
Future Vol, veh/h	5	8	3	32	34	2
Conflicting Peds, #/hr	0	0	140	0	0	140
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	8	3	32	34	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	213	175	176	0	-	0
Stage 1	175	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	775	868	1400	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	586	756	1219	-	-	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1219	-	680	-	-
HCM Lane V/C Ratio	0.002	-	0.019	-	-
HCM Control Delay (s)	8	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	5	48	4	2	15
Future Vol, veh/h	7	5	48	4	2	15
Conflicting Peds, #/hr	0	0	0	140	140	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	5	48	4	2	15

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	209	190	0	0	192	0
Stage 1	190	-	-	-	-	-
Stage 2	19	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	779	852	-	-	1381	-
Stage 1	842	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	677	742	-	-	1202	-
Mov Cap-2 Maneuver	677	-	-	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.9
HCM LOS	B		

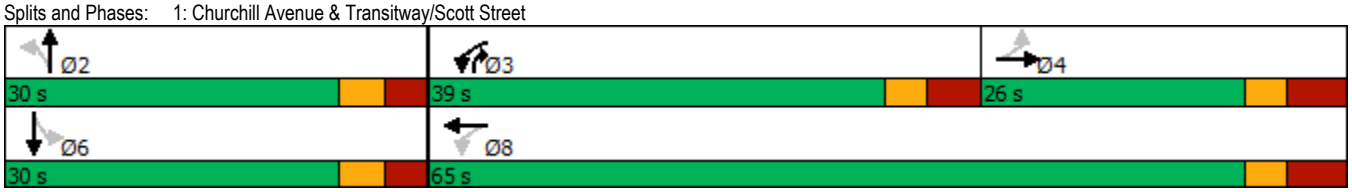
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	703	1202	-
HCM Lane V/C Ratio	-	-	0.017	0.002	-
HCM Control Delay (s)	-	-	10.2	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	60	336	82	12	127	305	49	113
Future Volume (vph)	2	60	336	82	12	127	305	49	113
Lane Group Flow (vph)	0	76	336	131	0	139	305	0	165
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Over	Perm	NA
Protected Phases		4	3	8		2	3		6
Permitted Phases	4		8		2			6	
Detector Phase	4	4	3	8	2	2	3	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	25.4	25.4	11.8	25.4	27.4	27.4	11.8	27.4	27.4
Total Split (s)	26.0	26.0	39.0	65.0	30.0	30.0	39.0	30.0	30.0
Total Split (%)	27.4%	27.4%	41.1%	68.4%	31.6%	31.6%	41.1%	31.6%	31.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.3	3.3	3.0	3.3	3.3
All-Red Time (s)	4.4	4.4	3.8	4.4	3.1	3.1	3.8	3.1	3.1
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)		7.4	6.8	7.4		6.4	6.8		6.4
Lead/Lag	Lag	Lag	Lead				Lead		
Lead-Lag Optimize?	Yes	Yes	Yes				Yes		
Recall Mode	Max	Max	Min	Max	None	None	Min	None	None
Act Effct Green (s)		27.5	58.4	57.8		18.9	23.5		18.9
Actuated g/C Ratio		0.30	0.65	0.64		0.21	0.26		0.21
v/c Ratio		0.25	0.44	0.21		0.40	0.78		0.56
Control Delay		28.1	9.8	5.8		34.3	44.5		39.4
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0
Total Delay		28.1	9.8	5.8		34.3	44.5		39.4
LOS		C	A	A		C	D		D
Approach Delay		28.1		8.7		41.3			39.4
Approach LOS		C		A		D			D
Queue Length 50th (m)		8.7	25.1	5.5		21.0	50.5		25.6
Queue Length 95th (m)		23.6	41.0	13.6		37.5	71.5		45.0
Internal Link Dist (m)		133.0		226.0		312.2			409.2
Turn Bay Length (m)			70.0						
Base Capacity (vph)		303	836	630		432	541		370
Starvation Cap Reductn		0	0	0		0	0		0
Spillback Cap Reductn		0	0	0		0	0		0
Storage Cap Reductn		0	0	0		0	0		0
Reduced v/c Ratio		0.25	0.40	0.21		0.32	0.56		0.45

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 90.5	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Churchill Avenue & Transitway/Scott Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	588	13	609	13	2	49	3
Future Volume (vph)	88	588	13	609	13	2	49	3
Lane Group Flow (vph)	88	604	13	645	13	11	49	35
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	28.2	28.2	28.2	28.2
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0	29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%	29.0%	29.0%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.3	3.3	3.3	3.3	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.2	6.2	6.2	6.2
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
Act Effct Green (s)	64.4	64.4	64.4	64.4	22.8	22.8	22.8	22.8
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.23	0.23	0.23	0.23
v/c Ratio	0.25	0.58	0.04	0.64	0.06	0.04	0.20	0.13
Control Delay	9.7	12.9	6.9	14.2	31.2	18.5	34.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	12.9	6.9	14.2	31.2	18.5	34.0	13.2
LOS	A	B	A	B	C	B	C	B
Approach Delay		12.5		14.0		25.4		25.3
Approach LOS		B		B		C		C
Queue Length 50th (m)	6.5	60.2	0.8	67.6	2.0	0.3	7.7	0.5
Queue Length 95th (m)	14.5	90.3	3.0	102.4	6.9	4.8	17.7	8.2
Internal Link Dist (m)		213.7		548.0		112.2		176.6
Turn Bay Length (m)	40.0		40.0		10.0		30.0	
Base Capacity (vph)	355	1035	349	1015	225	263	241	277
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.58	0.04	0.64	0.06	0.04	0.20	0.13

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 40 (40%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 79.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: West Village Private/Lanark Avenue & Scott Street

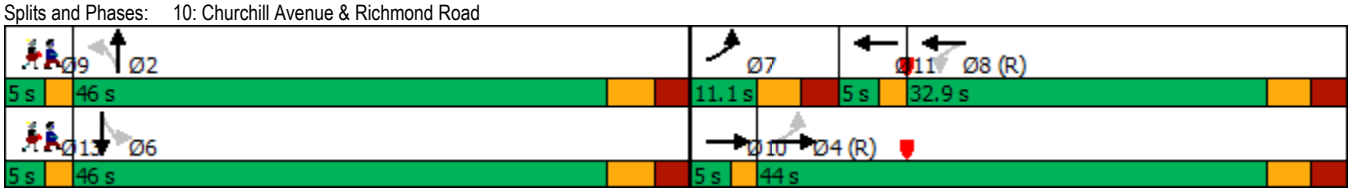


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø4	Ø9	Ø10	Ø11
Lane Configurations												
Traffic Volume (vph)	162	303	128	455	27	309	20	290				
Future Volume (vph)	162	303	128	455	27	309	20	290				
Lane Group Flow (vph)	162	349	128	488	27	385	0	593				
Turn Type	custom	NA	custom	NA	Perm	NA	Perm	NA				
Protected Phases	7	4 10		8 11		2		6	4	9	10	11
Permitted Phases	4		8		2		6					
Detector Phase	7	4 10	8	8 11	2	2	6	6				
Switch Phase												
Minimum Initial (s)	5.0		10.0		10.0	10.0	10.0	10.0	10.0	3.0	3.0	3.0
Minimum Split (s)	11.1		26.1		19.2	19.2	19.2	19.2	26.1	5.0	5.0	5.0
Total Split (s)	11.1		32.9		46.0	46.0	46.0	46.0	44.0	5.0	5.0	5.0
Total Split (%)	11.1%		32.9%		46.0%	46.0%	46.0%	46.0%	44%	5%	5%	5%
Yellow Time (s)	3.3		3.3		3.6	3.6	3.6	3.6	3.3	2.0	2.0	2.0
All-Red Time (s)	2.8		2.8		2.6	2.6	2.6	2.6	2.8	0.0	0.0	0.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0				
Total Lost Time (s)	6.1		6.1		6.2	6.2		6.2				
Lead/Lag	Lead				Lag	Lag	Lag	Lag		Lead		Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes		Yes		Yes
Recall Mode	None		C-Max		Max	Max	Max	Max	C-Max	Max	Max	Max
Act Effct Green (s)	42.9	37.9	26.8	26.8	39.8	39.8		39.8				
Actuated g/C Ratio	0.43	0.38	0.27	0.27	0.40	0.40		0.40				
v/c Ratio	0.89	0.56	0.70	1.04	0.13	0.60		1.13				
Control Delay	66.4	28.1	54.8	88.7	21.3	27.5		106.3				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	66.4	28.1	54.8	88.7	21.3	27.5		106.3				
LOS	E	C	D	F	C	C		F				
Approach Delay		40.2		81.7		27.1		106.3				
Approach LOS		D		F		C		F				
Queue Length 50th (m)	19.4	51.1	22.3	~102.0	3.3	55.5		~127.1				
Queue Length 95th (m)	#50.2	78.9	#50.2	#162.9	9.3	85.6		#192.1				
Internal Link Dist (m)		201.3		218.6		353.2		312.2				
Turn Bay Length (m)	35.0		25.0		15.0							
Base Capacity (vph)	183	622	184	470	206	645		527				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.89	0.56	0.70	1.04	0.13	0.60		1.13				

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 8:WBTL and 4:EBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 68.0	Intersection LOS: E
Intersection Capacity Utilization 108.4%	ICU Level of Service G
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Churchill Avenue & Richmond Road



Lane Group	Ø13
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	5%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	Max
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	

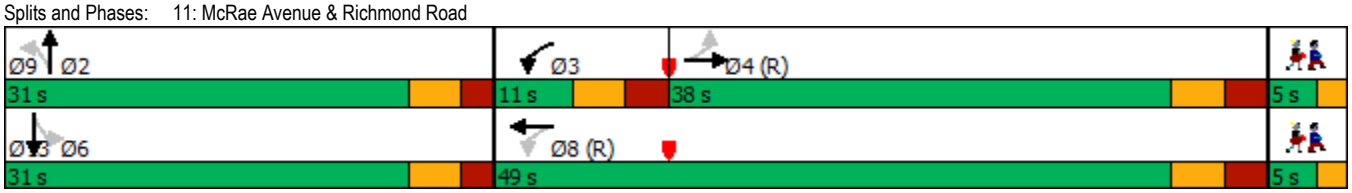
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø9	Ø13
Lane Configurations										
Traffic Volume (vph)	69	304	49	486	63	45	105	49		
Future Volume (vph)	69	304	49	486	63	45	105	49		
Lane Group Flow (vph)	69	384	49	596	63	90	0	281		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	9	13
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	10.0	10.0	4.9	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	35.2	35.2	11.0	35.2	22.5	22.5	22.5	22.5	5.0	5.0
Total Split (s)	38.0	38.0	11.0	49.0	31.0	31.0	31.0	31.0	5.0	5.0
Total Split (%)	44.7%	44.7%	12.9%	57.6%	36.5%	36.5%	36.5%	36.5%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.9	2.9	2.8	2.9	2.2	2.2	2.2	2.2	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)	6.2	6.2	6.1	6.2	5.5	5.5		5.5		
Lead/Lag	Lag	Lag	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes							
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	36.2	36.2	42.9	42.8	25.5	25.5		25.5		
Actuated g/C Ratio	0.43	0.43	0.50	0.50	0.30	0.30		0.30		
v/c Ratio	0.26	0.29	0.12	0.70	0.24	0.20		0.77		
Control Delay	21.7	15.8	12.1	18.6	25.6	13.9		38.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	21.7	15.8	12.1	18.6	25.6	13.9		38.3		
LOS	C	B	B	B	C	B		D		
Approach Delay		16.7		18.1		18.7		38.3		
Approach LOS		B		B		B		D		
Queue Length 50th (m)	7.8	20.0	3.6	62.7	7.7	5.3		34.2		
Queue Length 95th (m)	18.4	30.8	m4.7	m76.5	17.8	16.0		#73.2		
Internal Link Dist (m)		81.0		187.3		44.7		176.9		
Turn Bay Length (m)	40.0		55.0							
Base Capacity (vph)	262	1341	408	851	259	443		365		
Starvation Cap Reductn	0	0	0	0	0	0		0		
Spillback Cap Reductn	0	0	0	0	0	0		0		
Storage Cap Reductn	0	0	0	0	0	0		0		
Reduced v/c Ratio	0.26	0.29	0.12	0.70	0.24	0.20		0.77		

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 1 (1%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 84.7%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: McRae Avenue & Richmond Road

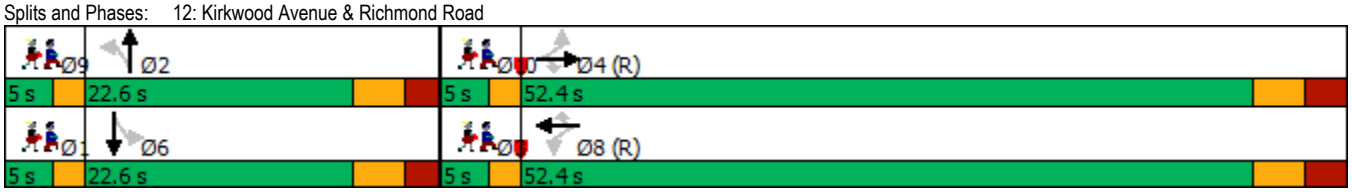


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	3	357	188	187	433	12	164	49	2	37		
Future Volume (vph)	3	357	188	187	433	12	164	49	2	37		
Lane Group Flow (vph)	0	360	188	0	620	12	164	273	0	40		
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA		
Protected Phases		4			8			2		6	1	3
Permitted Phases	4		4	8		8	2		6			
Minimum Split (s)	26.1	26.1	26.1	26.1	26.1	26.1	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (s)	52.4	52.4	52.4	52.4	52.4	52.4	22.6	22.6	22.6	22.6	5.0	5.0
Total Split (%)	61.6%	61.6%	61.6%	61.6%	61.6%	61.6%	26.6%	26.6%	26.6%	26.6%	6%	6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.3	2.3	2.3	2.3	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Lost Time (s)		6.1	6.1		6.1	6.1	5.6	5.6		5.6		
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		46.3	46.3		46.3	46.3	17.0	17.0		17.0		
Actuated g/C Ratio		0.54	0.54		0.54	0.54	0.20	0.20		0.20		
v/c Ratio		0.37	0.27		0.92	0.02	0.69	0.61		0.12		
Control Delay		8.9	1.8		40.2	0.1	48.5	14.0		28.4		
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0		
Total Delay		8.9	1.8		40.2	0.1	48.5	14.0		28.4		
LOS		A	A		D	A	D	B		C		
Approach Delay		6.5			39.5			26.9		28.4		
Approach LOS		A			D			C		C		
Queue Length 50th (m)		24.2	1.3		86.1	0.0	24.9	6.7		5.2		
Queue Length 95th (m)		m34.5	m4.5		#158.1	0.0	#51.9	30.0		13.3		
Internal Link Dist (m)		187.3			176.5			528.9		134.6		
Turn Bay Length (m)			35.0									
Base Capacity (vph)		977	694		672	697	238	445		345		
Starvation Cap Reductn		0	0		0	0	0	0		0		
Spillback Cap Reductn		0	0		0	0	0	0		0		
Storage Cap Reductn		0	0		0	0	0	0		0		
Reduced v/c Ratio		0.37	0.27		0.92	0.02	0.69	0.61		0.12		

Intersection Summary

Cycle Length: 85
Actuated Cycle Length: 85
Offset: 79 (93%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 25.0 — Intersection LOS: C
Intersection Capacity Utilization 90.4% — ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Kirkwood Avenue & Richmond Road



Lane Group	Ø9	Ø10
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	400	500	
Future Volume (vph)	400	500	
Lane Group Flow (vph)	400	500	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.3	15.3	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.3	5.3	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.2	48.2	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.38	0.48	
Control Delay	8.0	2.9	
Queue Delay	0.0	0.0	
Total Delay	8.0	2.9	
LOS	A	A	
Approach Delay	8.0	2.9	
Approach LOS	A	A	
Queue Length 50th (m)	24.4	5.2	
Queue Length 95th (m)	41.4	7.2	
Internal Link Dist (m)	226.0	5.6	
Turn Bay Length (m)			
Base Capacity (vph)	1043	1043	
Starvation Cap Reductn	0	14	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.38	0.49	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 56 (80%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 32.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: Scott Street & Athlone Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	430	518	
Future Volume (vph)	430	518	
Lane Group Flow (vph)	430	518	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	15.5	15.5	22.0
Total Split (s)	48.0	48.0	22.0
Total Split (%)	68.6%	68.6%	31%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.2	2.2	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	5.5	5.5	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
Act Effct Green (s)	48.0	48.0	
Actuated g/C Ratio	0.69	0.69	
v/c Ratio	0.41	0.50	
Control Delay	6.0	9.6	
Queue Delay	0.0	0.0	
Total Delay	6.0	9.6	
LOS	A	A	
Approach Delay	6.0	9.6	
Approach LOS	A	A	
Queue Length 50th (m)	16.0	35.7	
Queue Length 95th (m)	23.0	60.2	
Internal Link Dist (m)	0.1	213.7	
Turn Bay Length (m)			
Base Capacity (vph)	1040	1040	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.41	0.50	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 50 (71%), Referenced to phase 4:EBT and 8:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 33.4%	ICU Level of Service A
Analysis Period (min) 15	

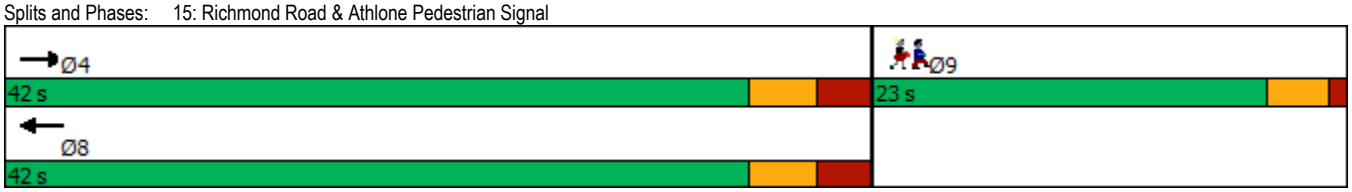
Splits and Phases: 14: Scott Street & Tweedsmuir Pedestrian Signal



Lane Group	EBT	WBT	Ø9
Lane Configurations			
Traffic Volume (vph)	554	580	
Future Volume (vph)	554	580	
Lane Group Flow (vph)	554	580	
Turn Type	NA	NA	
Protected Phases	4	8	9
Permitted Phases			
Detector Phase	4	8	
Switch Phase			
Minimum Initial (s)	10.0	10.0	5.0
Minimum Split (s)	16.0	16.0	23.0
Total Split (s)	42.0	42.0	23.0
Total Split (%)	64.6%	64.6%	35%
Yellow Time (s)	3.3	3.3	3.0
All-Red Time (s)	2.7	2.7	1.0
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.0	6.0	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	None	None
Act Effct Green (s)	27.0	27.0	
Actuated g/C Ratio	0.68	0.68	
v/c Ratio	0.45	0.48	
Control Delay	10.2	10.6	
Queue Delay	0.0	0.0	
Total Delay	10.2	10.6	
LOS	B	B	
Approach Delay	10.2	10.6	
Approach LOS	B	B	
Queue Length 50th (m)	39.0	41.8	
Queue Length 95th (m)	65.2	69.7	
Internal Link Dist (m)	218.6	2.9	
Turn Bay Length (m)			
Base Capacity (vph)	1416	1416	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.39	0.41	

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 39.6	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 10.4	Intersection LOS: B
Intersection Capacity Utilization 37.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: Richmond Road & Athlone Pedestrian Signal



Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	390	10	22	478	3	40
Future Vol, veh/h	390	10	22	478	3	40
Conflicting Peds, #/hr	0	140	140	0	190	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	390	10	22	478	3	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	540	0	1247	545
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	712	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1028	-	192	538
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	895	-	133	464
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	387	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	395	-	-	895	-
HCM Lane V/C Ratio	0.109	-	-	0.025	-
HCM Control Delay (s)	15.2	-	-	9.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	412	18	27	491	9	23
Future Vol, veh/h	412	18	27	491	9	23
Conflicting Peds, #/hr	0	120	120	0	10	270
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	20	2	2	20	2	2
Mvmt Flow	412	18	27	491	9	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	550	0	1096	811
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	555	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1020	-	236	379
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	907	-	199	253
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	546	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	22.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	235	-	-	907	-
HCM Lane V/C Ratio	0.136	-	-	0.03	-
HCM Control Delay (s)	22.7	-	-	9.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	529	12	11	547	22	3	3	14	16	1	18
Future Vol, veh/h	13	529	12	11	547	22	3	3	14	16	1	18
Conflicting Peds, #/hr	150	0	140	140	0	150	80	0	0	0	0	80
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	8	0	2	7	0	0	14	0	100	6
Mvmt Flow	13	529	12	11	547	22	3	3	14	16	1	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	719	0	0	681	0	0	1371	1442	675	1300	1437	788
Stage 1	-	-	-	-	-	-	701	701	-	730	730	-
Stage 2	-	-	-	-	-	-	670	741	-	570	707	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.34	7.1	7.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	6.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.426	3.5	4.9	3.354
Pot Cap-1 Maneuver	892	-	-	921	-	-	125	134	434	140	84	385
Stage 1	-	-	-	-	-	-	433	444	-	417	310	-
Stage 2	-	-	-	-	-	-	450	426	-	510	319	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	768	-	-	802	-	-	91	96	378	110	60	307
Mov Cap-2 Maneuver	-	-	-	-	-	-	91	96	-	110	60	-
Stage 1	-	-	-	-	-	-	368	377	-	351	262	-
Stage 2	-	-	-	-	-	-	383	360	-	476	271	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	25.2	33.9
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	198	768	-	-	802	-	-	159
HCM Lane V/C Ratio	0.101	0.017	-	-	0.014	-	-	0.22
HCM Control Delay (s)	25.2	9.8	0	-	9.6	0	-	33.9
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.8

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	489	14	42	545	30	14	7	38	20	7	21
Future Vol, veh/h	56	489	14	42	545	30	14	7	38	20	7	21
Conflicting Peds, #/hr	80	0	65	65	0	80	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	10	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	0	2	1	0	7	0	0	0	0	0
Mvmt Flow	56	489	14	42	545	30	14	7	38	20	7	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	655	0	0	568	0	0	1331	1412	561	1340	1389	625
Stage 1	-	-	-	-	-	-	673	673	-	709	709	-
Stage 2	-	-	-	-	-	-	658	739	-	631	680	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.17	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.563	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	942	-	-	1004	-	-	128	139	531	131	144	488
Stage 1	-	-	-	-	-	-	437	457	-	428	440	-
Stage 2	-	-	-	-	-	-	445	427	-	472	454	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	872	-	-	944	-	-	97	103	499	94	107	452
Mov Cap-2 Maneuver	-	-	-	-	-	-	97	103	-	94	107	-
Stage 1	-	-	-	-	-	-	374	391	-	361	381	-
Stage 2	-	-	-	-	-	-	389	369	-	390	389	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.6	29.5	40.6
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	205	872	-	-	944	-	-	148
HCM Lane V/C Ratio	0.288	0.064	-	-	0.044	-	-	0.324
HCM Control Delay (s)	29.5	9.4	0	-	9	0	-	40.6
HCM Lane LOS	D	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	1.1	0.2	-	-	0.1	-	-	1.3

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	10	14	29	36	9
Future Vol, veh/h	7	10	14	29	36	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	10	14	29	36	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	98	41	45	0	-	0
Stage 1	41	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	901	1030	1563	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	893	1030	1563	-	-	-
Mov Cap-2 Maneuver	893	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1563	-	969	-	-
HCM Lane V/C Ratio	0.009	-	0.018	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	5	7	45	32	4
Future Vol, veh/h	4	5	7	45	32	4
Conflicting Peds, #/hr	0	0	140	0	0	140
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	5	7	45	32	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	233	174	176	0	-	0
Stage 1	174	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	755	869	1400	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	569	757	1219	-	-	-
Mov Cap-2 Maneuver	569	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	840	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1219	-	660	-	-
HCM Lane V/C Ratio	0.006	-	0.014	-	-
HCM Control Delay (s)	8	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	3	29	7	4	40
Future Vol, veh/h	5	3	29	7	4	40
Conflicting Peds, #/hr	0	0	0	140	140	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	29	7	4	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	221	173	0	0	176	0
Stage 1	173	-	-	-	-	-
Stage 2	48	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	767	871	-	-	1400	-
Stage 1	857	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	666	758	-	-	1219	-
Mov Cap-2 Maneuver	666	-	-	-	-	-
Stage 1	746	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	698	1219	-
HCM Lane V/C Ratio	-	-	0.011	0.003	-
HCM Control Delay (s)	-	-	10.2	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-