March 2021

SURFACE

2050 Scott Street

TIA Report

PARSONS

2050 Scott Street

TIA Report

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TIA Plan Reports

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

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

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

CERTIFICATION

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

Dated at _____Ottawa______ this 8th __day of March, 2021. (City)

Name: Matthew Mantle
(Please Print)

Professional Title: Transportation Engineer

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

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TIA STRATEGY REPORT

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

1. Screening Form

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

2. Scoping Report

2.1. Existing and Planned Conditions

2.1.1. PROPOSED DEVELOPMENT

It is our understanding that the proponent is proposing to construct a residential development located at 2050 Scott Street. A single-phased project is proposed with assumed buildout year of 2021. The development will consist of a 30-storey residential building on a 3- and 6-storey podiums with approximately 353 units and 233 m² of ground commercial/office. The taller portion of the building is located closer to Scott Street while the 3- and 6-storey podiums extend towards Ashton Avenue. Vehicle access is proposed at Scott Street via a single all movement driveway. An underground parking lot with 210 vehicle spaces and 292 bicycle spaces are proposed. The site is located between 2 different land zonings, TM[103] fronting Scott Street and R4G on the south portion of the parcel towards Ashton Avenue. This TIA is in support of a Zoning By-Law Amendment (ZBLA) and Site Plan Application (SPA) to vary the height schedule from 6-storeys (18 meters) to 30-storeys within the TM zoning and from 4-storeys (11 meters) to 6-storeys within the R4 zoning. Height step-backs (staggering) are proposed to assist in the transition from low-rise to mid- and high-rise from south to north. The site is currently occupied by a mechanic garage, a hot tub retailer and 3 residential houses. The local context of the site is provided as **Figure 1** and the proposed Site Plan is provided as **Figure 2**.

Figure 1: Local Context

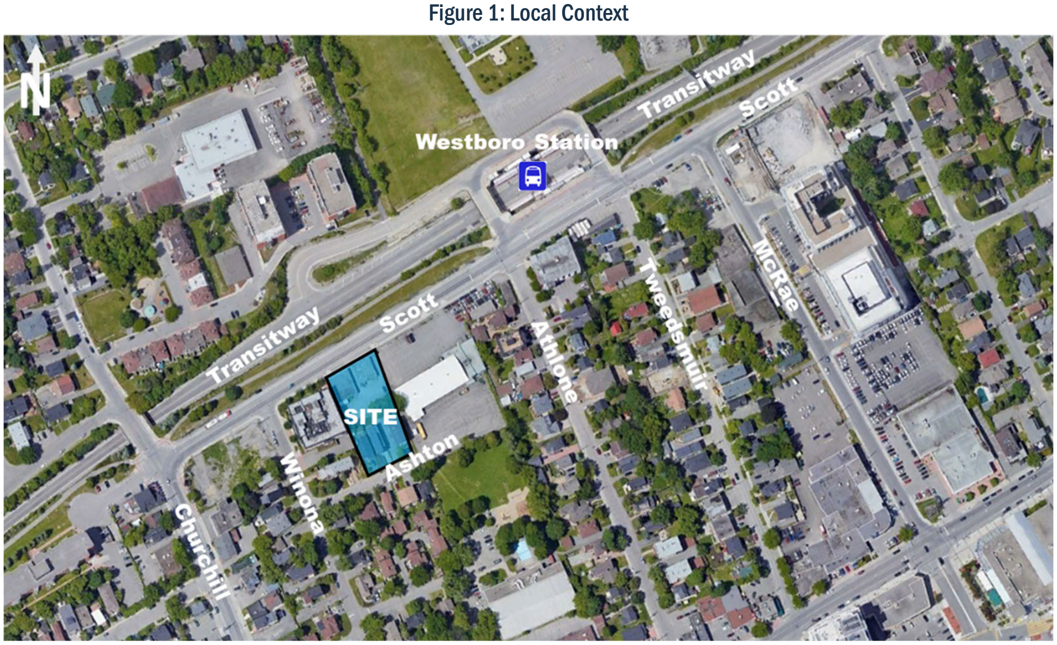
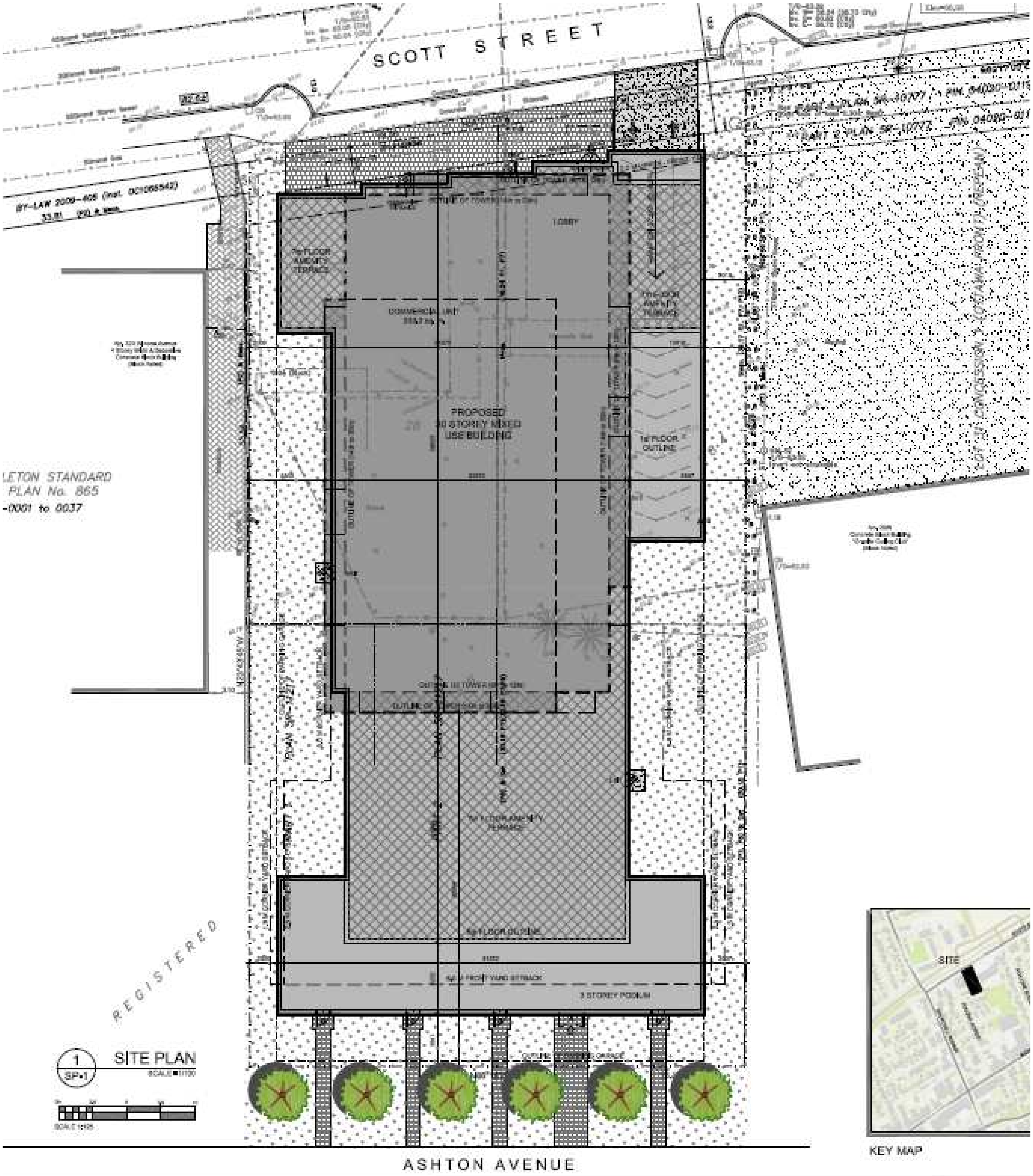


Figure 2: Proposed Site Plan



2.1.2. EXISTING CONDITIONS

Area Road Network

Scott Street is an east-west arterial roadway, which extends from Churchill Avenue in the west to Bayview Road in the east, where it continues as Albert Street into Ottawa's downtown area. Within the study area, its cross-section consists of a single travel lane in each direction and the posted speed limit has recently been increased to 50 km/h. At study area intersections, auxiliary turn lanes are not provided along Scott Street.

Churchill Avenue 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 provided along both sides of the roadway. Churchill Avenue's intersection with Scott Street is all-way STOP controlled. Within the study area, auxiliary turn lanes are not provided along Churchill Avenue and the unposted speed limit is understood to be 50 km/h.

Winona Avenue is a local roadway with a posted speed limit of 40 km/h. Its cross-section consists of a single travel lane in each direction with on-street parking permitted along the west side of the road only. Winona Avenue's intersections with Scott Street is STOP sign controlled on the minor approach and auxiliary turn lanes are not provided.

Athlone Avenue is a local roadway with an unposted speed limit of 50 km/h. Its cross-section consists of a single travel lane in each direction with on-street parking permitted. Athlone Avenue's intersections with Scott Street is STOP sign controlled on the minor approach and auxiliary turn lanes are not provided.

Tweedsmuir Avenue is a local roadway with an unposted speed limit of 50 km/h. Its cross-section consists of a single travel lane in each direction with on-street parking permitted. Tweedsmuir Avenue's intersections with Scott Street is STOP sign controlled on the minor approach and auxiliary turn lanes are not provided.

McRae Avenue is a local roadway with an unposted speed limit assumed to be 50 km/h. Its cross-section consists of a single travel lane in each direction with on-street parking not permitted. McRae Avenue's intersections with Scott Street is STOP sign controlled on the minor approach. Auxiliary turn lanes are not provided.

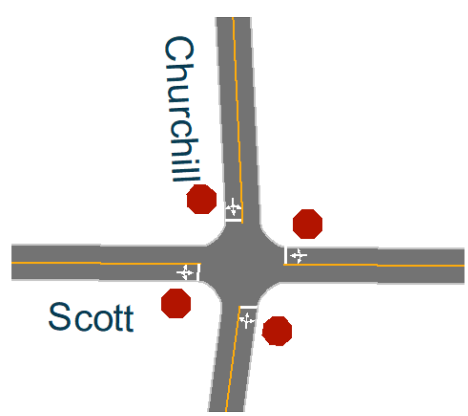
Ashton Avenue is a local roadway with an unposted speed limit of 50 km/h. Its cross-section consists of a single travel lane in each direction with on-street parking permitted. Ashton Avenue's intersections with Winona Avenue is STOP sign controlled on the minor approach and auxiliary turn lanes are not provided.

Transitway Corridor is a transit only roadway with a single travel lane in each direction and is grade separated. As part of the Stage 2 LRT project, bus detoured from the Transitway at Tunney's Pasture and westward will be routed on Scott Street until the completion of Stage 2 LRT, expected to be in 2023.

Existing Study Area Intersections

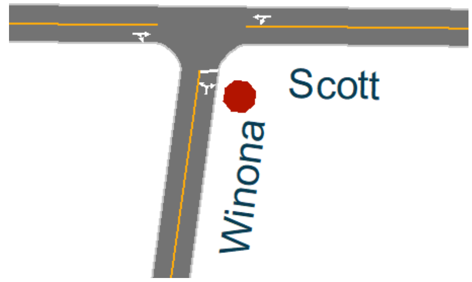
Churchill/Scott

The Churchill/Scott intersection is a STOP controlled four-legged intersection. A single lane approach is provided for each leg of this intersection with all movements permitted. A designated bike lane is provided on both sides of Scott Street.



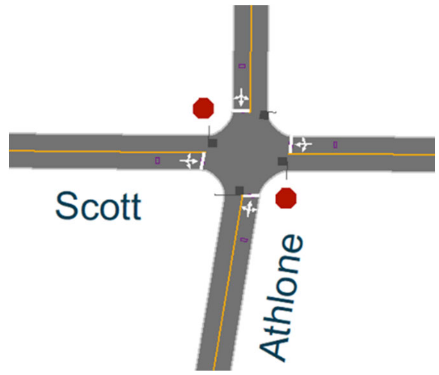
Winona/Scott

The Winona/Scott intersection is a 'T' intersection with a STOP control on the minor approach. A single lane approach is provided for each leg of this intersection with all movements permitted. A designated bike lane is provided on both sides of Scott Street.



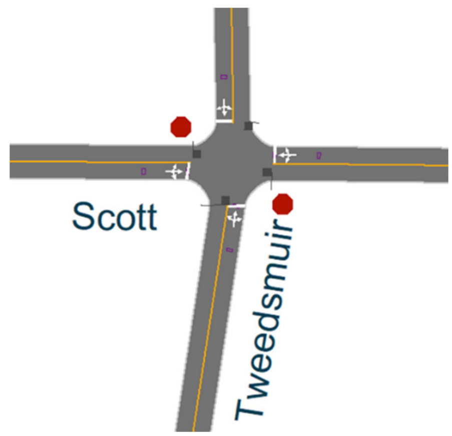
Athlone/Scott

The Athlone/Scott intersection is a four-legged intersection with a STOP control on the north and south approaches. The east and west approaches have a signal control that is only actuated by pedestrian calls. All approaches consist of a single all movement lane. The southbound approach is restricted to buses only. All movements are permitted at this location. A designated bike lane is provided on both sides of Scott Street.



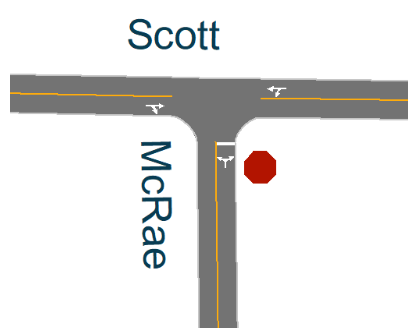
Tweedsmuir/Scott

The Tweedsmuir/Scott intersection is a four-legged intersection with a STOP control on the north and south approaches. The east and west approaches have a signal control that is only actuated by pedestrian calls. All approaches consist of a single all movement lane. The southbound approach is restricted to buses only. All movements are permitted at this location. A designated bike lane is provided on both sides of Scott Street.



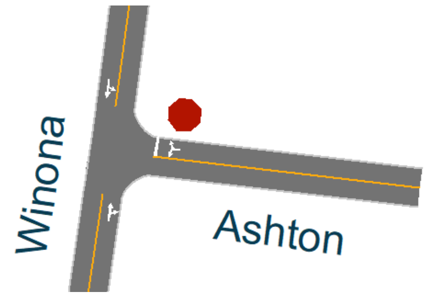
McRae/Scott

The McRae/Scott intersection is a 'T' intersection with a STOP control on the minor approach. A single lane approach is provided for each leg of this intersection with all movements permitted. A designated bike lane is provided on both sides of Scott Street.



Winona/Ashton

The Winona/Ashton intersection is a 'T' intersection with a STOP control on the minor approach. A single lane approach is provided for each leg of this intersection with all movements permitted.



Existing Driveways to Adjacent Developments

Between Winona Avenue and Athlone Avenue, Scott Street has no driveways on the north side of the roadway. The south side of Scott Street has one existing driveway which has access to the Granite Curling Club.

Pedestrian/Cycling Network

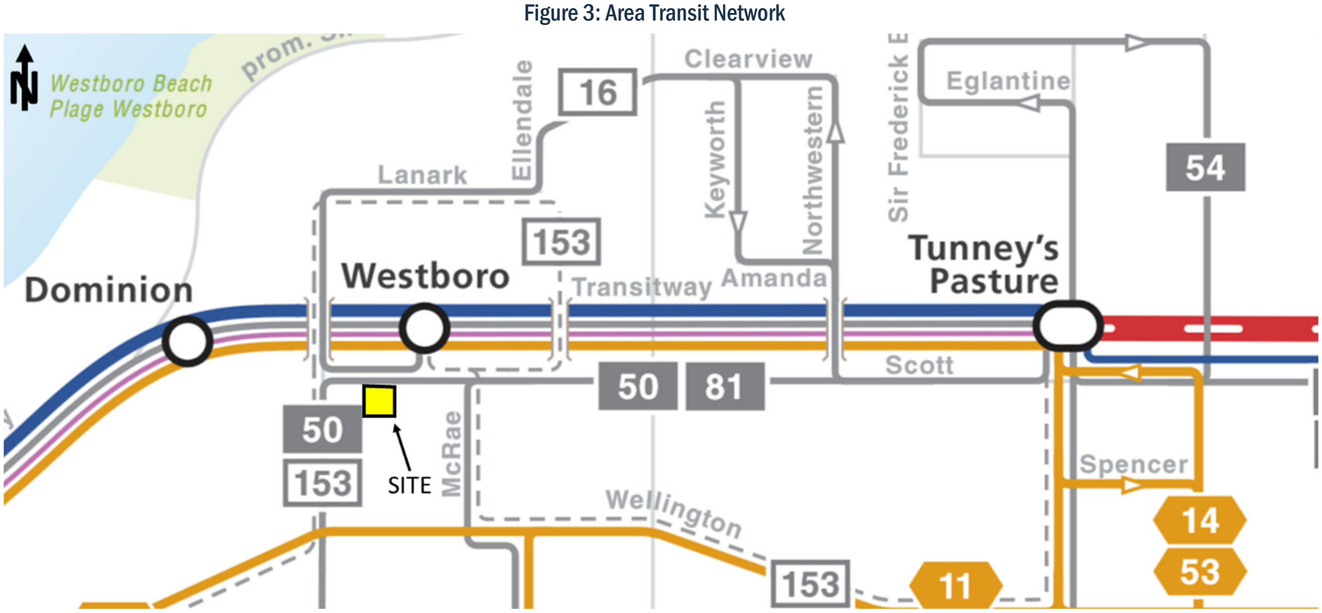
Sidewalk facilities are provided on both sides of Churchill Avenue and McRae Avenue. Scott Street has sidewalks on the south side of the roadway and a multi-use pathway (MUP) on the north side of the roadway. Winona Avenue and Ashton Avenue have no sidewalks. Athlone Avenue and Tweedsmuir Avenue have sidewalks on one side of the roadway each.

According to the City's Cycling Plan, Scott Street has an on-road cycle track as well as a path (MUP) on the north side of the roadway. Churchill Avenue is suggested as a future spine route.

Transit Network

The current transit area network is provided as **Figure 3**. Major rapid transit station Westboro is located less than 200 meters east of the site with access to 36 different transit routes travelling on the transitway and additional 3 surface local routes. Westboro is one stop away on the Transitway from Line 1 of the Confederation LRT Line.

Figure 3: Area Transit Network

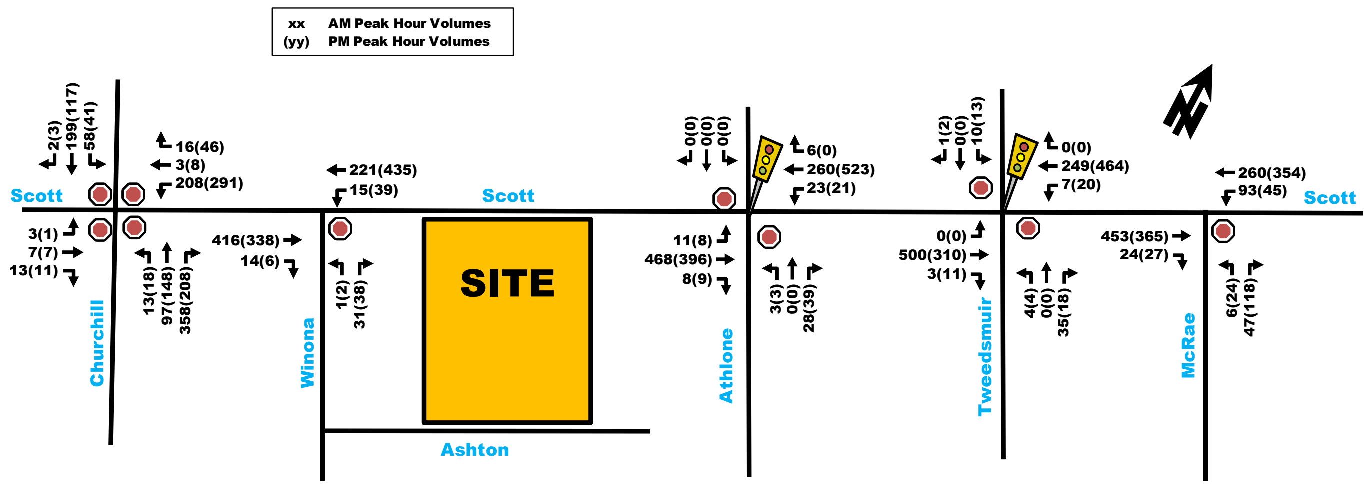


Source: OC Transpo

Peak hour travel demands

The existing peak hour traffic volumes within the study area were obtained from the City of Ottawa and Parson's field collection. They are illustrated in **Figure 4**, whereas the source data is included as Appendix C.

Figure 4: Existing Peak Hour Traffic Volumes



Note: Counts at Churchill/Scott and Winona/Scott were conducted in 2019 and show a decrease in volumes from Athlone/Scott and Tweedsmuir/Scott, which were conducted in 2017.

Existing Road Safety Conditions

Collision history for study area intersections and roads (2014 to 2018, inclusive) was obtained from the City of Ottawa. A total of 15 collisions were recorded, with 13 (87%) of them occurring at intersections. Most collisions 11 (73%) involved property damage only, and 4 (27%) involved personal injuries. The primary causes of collisions cited by police include; rear end 4 (27%) and single vehicle other 3 (20%) type collisions.

Of the 4 (27%) collisions involving personal injuries, 2 (13%) resulted from collisions with pedestrians and 1 (7%) resulted from collisions with a cyclist. The last collision involving personal injuries occurred when a stopped vehicle was rear ended. The low amount of vehicular collisions involving personal injuries indicate low impact speeds.

A standard unit of measure for assessing collisions at an intersection is based on the number collisions per million entering vehicles (MEV). It was calculated that all intersections had an MEV value of less than 0.25 which is considered a low frequency of collision when compared to other intersections around the City.

The source collision data as provided by the City of Ottawa and related analysis is provided as Appendix D.

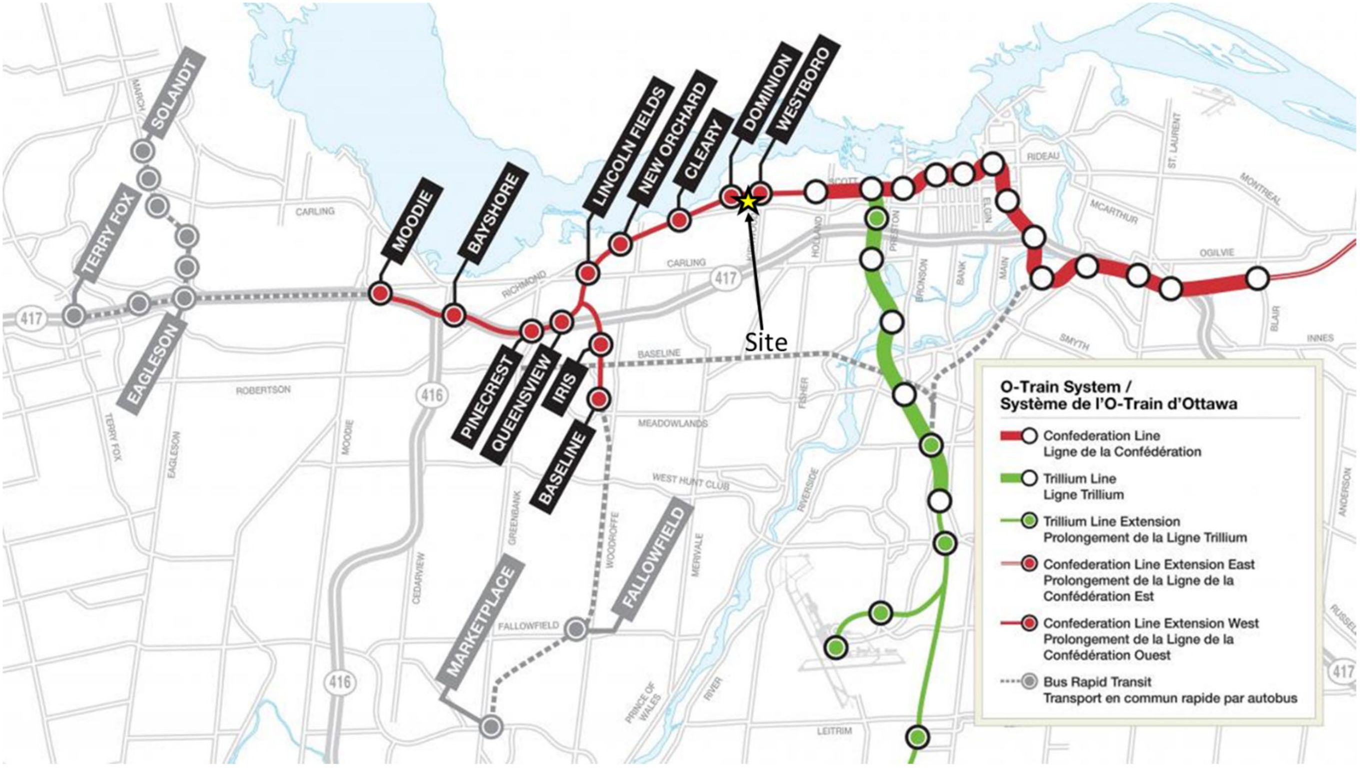
2.1.3. PLANNED CONDITIONS

Planned Study Area Transportation Network Changes

Transit Projects

A future LRT transit station is planned at Westboro Station as part of Stage 2 LRT (expected to be completed in 2025), approximately 200 meters east from the development. Stage 2 will extend the existing LRT Line 1 as far east as Trim Station and as far west as Moodie Station and Baseline Station. Additionally, Line 2 will be expanded south to Limebank Station with a spur line to Ottawa's McDonald Cartier Airport. During the LRT Stage 2 construction, buses will be routed off the existing Transitway onto Scott Street. Approximately 210 additional busses in the morning peak (154 EB/54 WB) and 225 additional busses in the afternoon peak (65 EB/160WB) are expected to be added to the existing vehicle traffic. The detour is expected to be in operation from late 2021 (October/November) to 2025. The Stage 2 West Extension plans are outlined in Figure 5 below.

Figure 5: Ottawa LRT Stage 2 West Extension



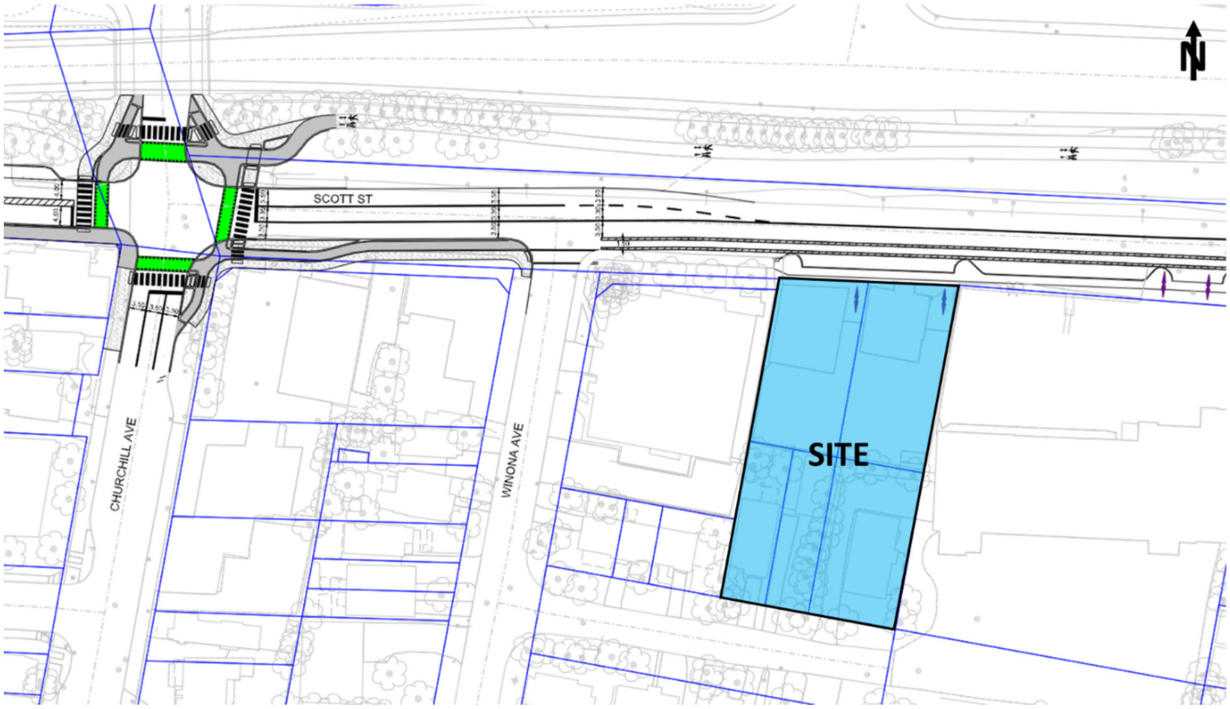
Source: Stage 2 LRT website

Road Projects

As part of Stage 2 LRT, the City of Ottawa has prepared a "complete street" concept for Scott Street which is included as Appendix E. The section directly adjacent to the site is shown as Figure 6. The proposed design will provide cycle tracks and sidewalks along both sides of Scott Street and provide fully protected intersections at signalized locations.

The planned modifications along Scott Street are expected to be constructed between May 2021 to October 2021 (some construction might begin in fall 2020). This plan will be in place for the detour of BRT buses along Scott Street during the Stage 2 LRT construction. The interim cross-section of Scott Street will include a single vehicle travel lane per direction between Churchill Avenue and Clifton Road. Post LRT construction (2025), it is understood that the cross-section of Scott Street will be revised to be a single vehicle travel lane in each direction. During the bus detours on Scott Street, the intersection of Churchill/Scott will be upgraded to a signalized intersection and maintained throughout future conditions.

Figure 6: Planned Scott Street Interim "Complete Street" Design



Source: City of Ottawa

Other Area Development

According to the City's development application search tool, the following developments are planned within the vicinity of the subject site and are illustrated in **Figure 7** with description below.

1 – 2070 Scott Street
Azure Urban Developments Inc is proposing the construction of a mixed-use development consisting of approximately 241 residential dwelling units with ground floor retail. The Transportation Brief (prepared by Stantec) projected approximately 40 veh/h and 35 veh/h in the morning and afternoon peak hours, respectively.

2 – 1960 Scott Street
Colonnade Bridgeport is proposing the construction of a mixed-use development consisting of approximately 120 residential dwelling units, 74,153 ft^2 of office and 14,440 ft^2 of retail located at the above address. The Transportation Brief (prepared by Parsons) projected 123 veh/h and 132 veh/h in the morning and afternoon peak hours, respectively.

3 – 1950 Scott Street
EBC is proposing the construction of a residential development consisting of approximately 141 residential dwelling units. The Transportation Impact Assessment Study (prepared by Parsons) projected approximately 50 veh/h in the morning and afternoon peak hours.

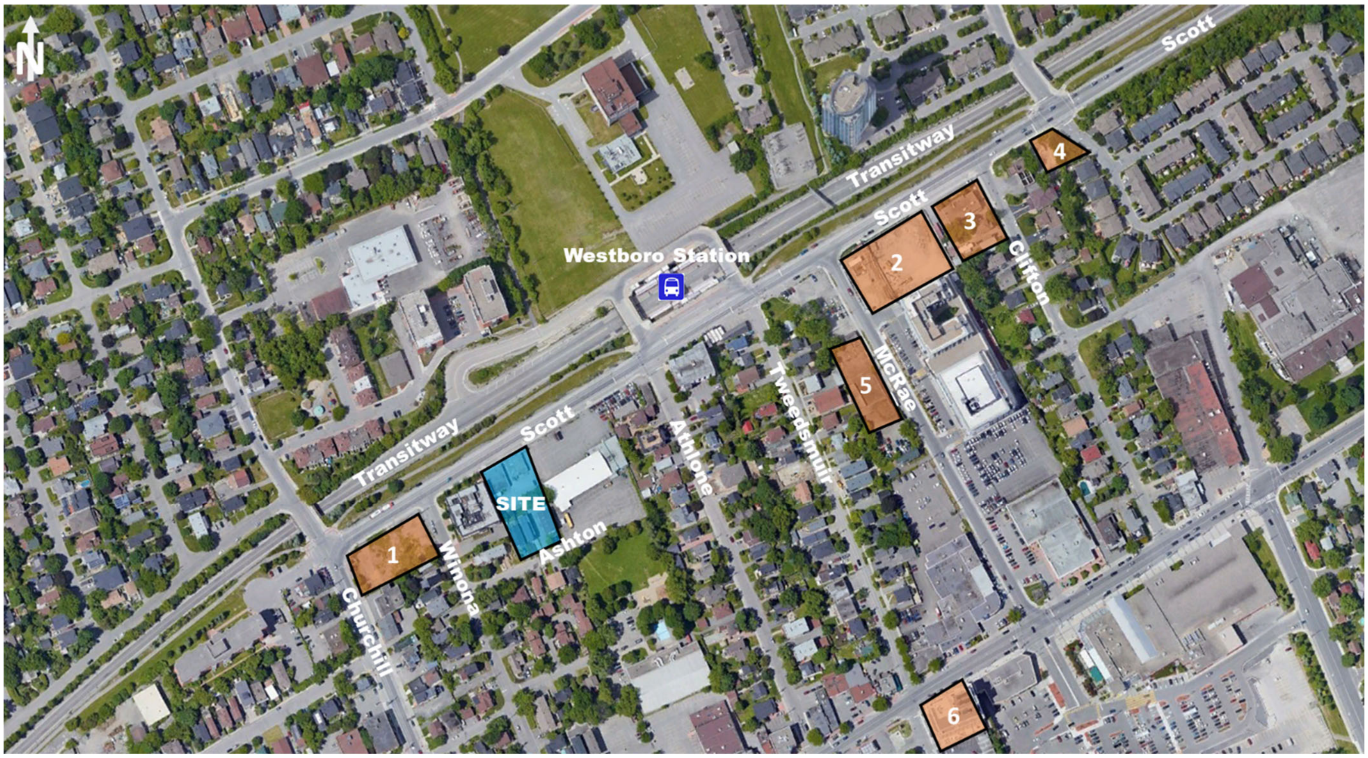
4 – 1946 Scott Street
Surface Developments is proposing the construction of a 9-storey residential building consisting of 60 units and 9 parking spaces. The Transportation Impact Assessment (prepared by Parsons) projected minimal vehicle impact on the transportation network.

5 – 320 McRae Avenue, 1976 Scott Street, and 315 Tweedsmuir Avenue
A mixed-use development consisting of approximately 242 residential dwelling units, 11,200 ft^2 of office space, and 23,000 ft^2 of retail land uses is proposed at the abovementioned address. The Transportation Study (prepared by Parsons) projected 95 and 120 veh/h in the morning and afternoon peak hours, respectively.

6 – 236 Richmond Road

The proposed new development is for a 9-storey mixed-use building containing commercial on the ground floor and remaining floors will be used for residential consisting of approximately 70 units.

Figure 7: Other Area Development



Tunney's Pasture

Tunney's Pasture is located approximately 1.5 km east of the subject site and currently consists of approximately 10,000 office/lab employees. A Master Plan for Tunney's Pasture proposes long-term redevelopment of the site consisting of approximately 24,000 office, lab, and retail employees and approximately 3,700 high density residential dwelling units. The Multi-Modal Transportation Study (prepared by Parsons) projected net increase in vehicle traffic of 1,135 and 1,400 veh/h during the morning and afternoon peak hours, respectively. This project is expected to be gradually built over many years to come, and well past the study horizon years for the subject development at 2050 Scott.

2.2. Study Area and Time Periods

As the proposed site is a residential development, the time periods assessed will be the weekday morning and afternoon peak hours. The proposed study area is outlined below and highlighted in Figure 8.

- Churchill/Scott intersection;
- Athlone/Scott intersection;
- McRae/Scott intersection;
- Winona/Scott intersection;
- Tweedsmuir/Scott intersection;
- Scott Street adjacent to the site.

Figure 8: Study Area

2.3. Exemption Review

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

Table 1: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.2 New Streets Network	Not required for applications involving site plans.
4.2 Parking	4.2.2 Spillover Parking	The parking is expected to meet By-Law requirements. Spillover demand can be accommodated within site-provided parking and on-street parking on adjacent roads.
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	This element is only required for developments which rely on local or collector streets for access. Scott Street is an arterial roadway.

3. Forecasting Report

3.1. Development-Generated Travel Demand

3.1.1. TRIP GENERATION AND MODE SHARES

It was assumed the approximate 233 m^2 of ground floor local service retail space would cater to local residents and would not generate new primary trips. The basis for this assumption was based on the proposed location and size of the local service retail area. The proposed local service retail area is not located on a major commercial strip such as nearby Richmond Road, and is not anticipated to attract many customers from far away. The size of the commercial segment is small and anticipated to cater to local residents with services such as a laundry mat, a hair salon, or small local specialty retail such as a florist, or a copy print store.

Appropriate trip generation rates for the proposed residential segment of the development consisting of approximately 353 high-rise apartment units were obtained from the City's 2009 TRANS Trip Generation – Residential Trip Rates Report. These rates are summarized in Table 2.

Table 2: 2009 TRANS Residential Trip Generation Rates

Land Use	Data Source	Trip Rates	
		AM Peak	PM Peak
High Rise Apartments	222	T = 0.24(du)	T = 0.27(du)
Note: T = Average Vehicle Trip Ends; du = dwelling units			

Using the TRANS Trip Generation rates, the total amount of vehicle trips generated by the proposed 353 residential units was calculated. The results are summarized in Table 3.

Table 3: Projected Site Vehicle Trip Generation – TRANS Model

Land Use	Area	AM Peak (Veh/h)			PM Peak (Veh/h)		
		In	Out	Total	In	Out	Total
High-Rise Apartments	353 units	20	65	85	58	37	95

As shown in Table 3, a total of 85 and 95 veh/h are projected to travel to/from the proposed development during the weekday morning and afternoon commuter peak hours. Using the TRANS Auto Trips projected in Table 3 and the mode share percentages in the TRANS Trip Generation Report (Table 3.13), the total projected number of person trips by mode for the residential development are summarized in Table 4. The 'person trip generation' for the development was then converted to 'vehicle trip generation' using mode shares extrapolated from the OD-Survey 2011 for Ottawa West Area and are summarized in Table 5.

Table 4: Site Person Trip Generation

Travel Mode	Mode Share	AM Peak (Person Trips/h)			Mode Share	PM Peak (Person Trips/h)		
		In	Out	Total		In	Out	Total
Auto Driver	37%	20	65	85	40%	58	37	95
Auto Passenger	8%	4	14	18	9%	14	7	21
Transit	41%	22	73	95	37%	55	34	89
Non-motorized	14%	7	25	32	14%	21	12	33
Total Person Trips	**100%**	**53**	**177**	**230**	**100%**	**148**	**90**	**238**

Table 5: Site Vehicle Trip Generation

Travel Mode	AM Mode Share	AM Peak (veh/h)			PM Mode Share	PM Peak (veh/h)		
		In	Out	Total		In	Out	Total
Auto Driver	45%	24	80	104	50%	73	46	119
Auto Passenger	15%	9	25	34	10%	14	9	23
Transit	25%	13	44	57	20%	29	19	48
Non-motorized	15%	8	27	35	20%	29	19	48
Total People Trips	**100%**	**54**	**176**	**230**	**100%**	**145**	**93**	**238**
Total 'New' Auto Trips		**24**	**80**	**104**	**-**	**73**	**46**	**119**

As shown in

Table 5, based on the TRANS Trip Generation method and OD-Survey modal shares, the proposed site is projected to generate approximately 105 to 120 new auto-trips per hour during the weekday commuter peak hours. The increase in two-way transit trips is estimated to be approximately 55 to 50 persons per hour, and the increase in bike/walk trips is approximately 35 to 50 persons per hour.

Mode Shares

Given the location of the site, within close proximity to the Westboro BRT Transit Station (future LRT station), a higher transit modal share is appropriate. Table 6 illustrates future modal shares which reflect the site's location within close proximity to the existing Westboro BRT Station and construction of future Phase 2 Westboro LRT Station.

Table 6: Future Mode Share Targets for the Development

Travel Mode	Mode Share Target	Rationale
Transit	65%	Development is located within 600m of a future LRT station and is within 600m of existing BRT Transitway Corridor, making it a Transit-Oriented Development (TOD) which have transit targets of 65%.
Walking	10%	This is consistent with the City's TMP, TOD areas and the existing TRANS trip-generation report.
Biking	5%	This is consistent with the City's TMP, TOD areas and the existing TRANS trip-generation report.
Auto Passenger	5%	This is consistent with TOD targets.
Auto Driver	15%	This is consistent with TOD targets.

Based on the future mode share targets for this development, the project site-generated person trips are outlined in Table 7.

Table 7: Future Projected Site Generated Traffic

Travel Mode	Mode Share	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	15%	8	27	35	21	14	35
Auto Passenger	5%	3	8	11	7	5	12
Transit	65%	35	114	149	96	59	155
Non-motorized	15%	8	27	35	22	14	36
Total Person Trips	**100%**	**54**	**176**	**230**	**146**	**92**	**238**
Total 'New' Auto Trips		**8**	**27**	**35**	**21**	**14**	**35**

Future trip generated vehicle trips for the development are anticipated to be approximately 35 'new' vehicles two-way per peak hour, which equates to approximately 1 vehicle every 2 minutes.

3.1.2. TRIP DISTRIBUTION

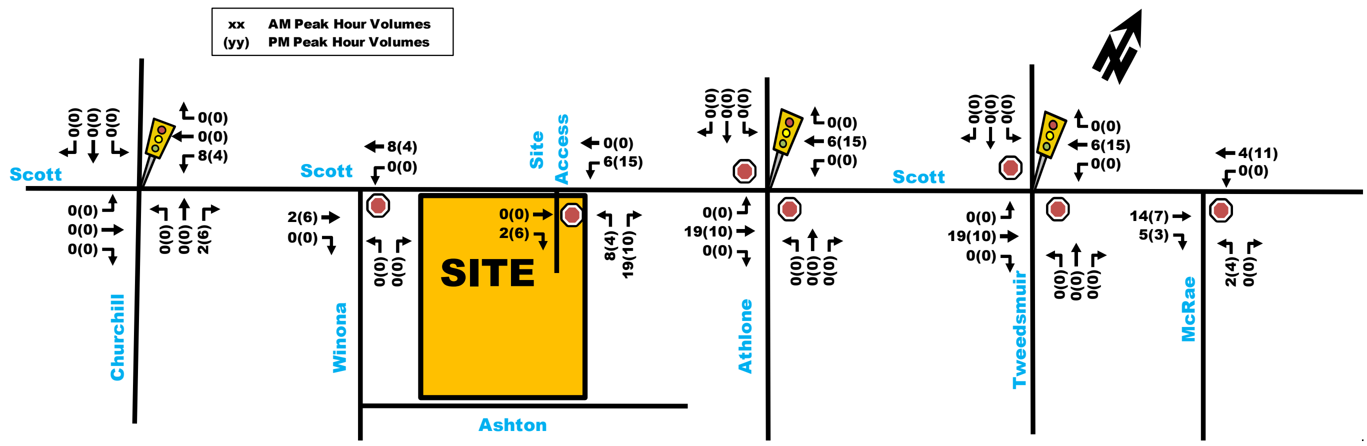
Based on the OD Mode Share Survey, existing traffic volume counts and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes is as follows:

- 40% to/from the east;
- 30% to/from the south;
- 25% to/from the west; and
- 5% to/from the north.

3.1.3. TRIP ASSIGNMENT

A full movement driveway connection to Scott Street is proposed to serve the subject development. This driveway is proposed at the eastern boundary of the site, approximately 150 m east of Churchill Avenue. The 'new' site-generated vehicle trips outlined in Table 7 were assigned to the study area network and are illustrated as Figure 9.

Figure 9: 'New' Site-Generated Traffic

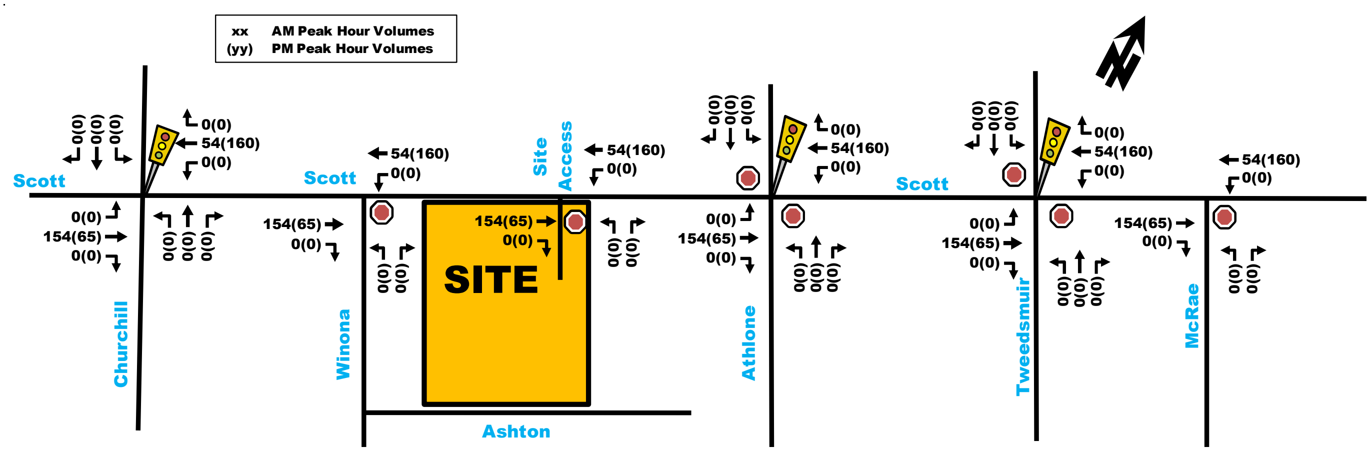


3.2. Background Network Travel Demands

3.2.1. TRANSPORTATION NETWORK PLANS

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

Figure 10: Buses Detoured on Scott Street



3.2.2. BACKGROUND GROWTH & OTHER DEVELOPMENTS

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

The projected vehicle volumes from the planned area developments as discussed in Section 2.1.3. 'Planned Conditions – Other Area Developments' were added to the study area intersections and are shown in Figure 11. The volumes from the other area development along with detoured buses were layered onto the existing traffic volumes for the future interim analysis volumes. Since the bus detour are anticipated between 2021 and 2025, they have been removed from 2026 background analysis. **Figure 12** and **Figure 13** outlines the total 2021 interim and 2026 background traffic volumes respectively.

Figure 11: Other Area Development Trip Generation

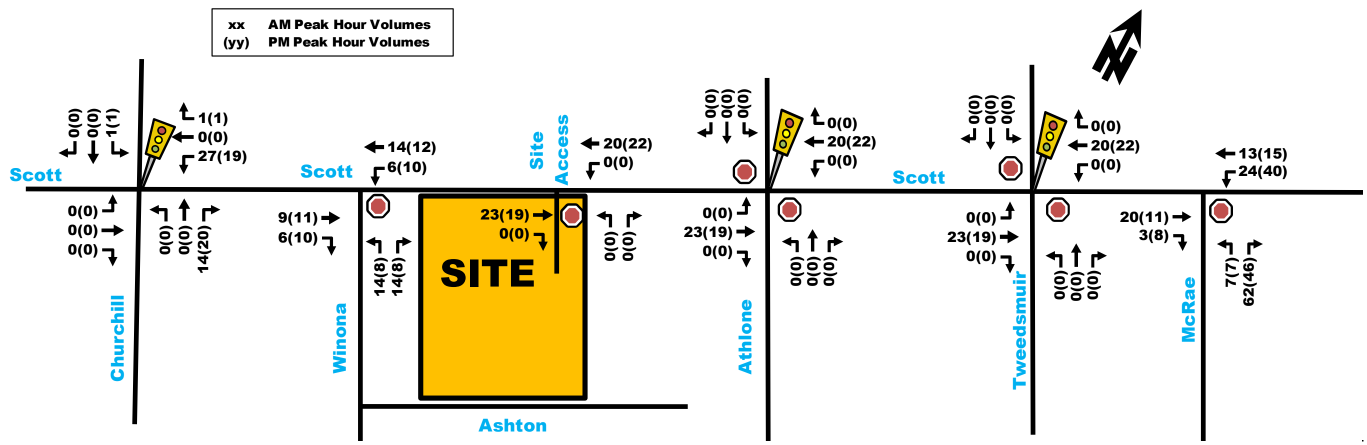


Figure 12: Interim LRT Bus Detour 2021 Background Volumes

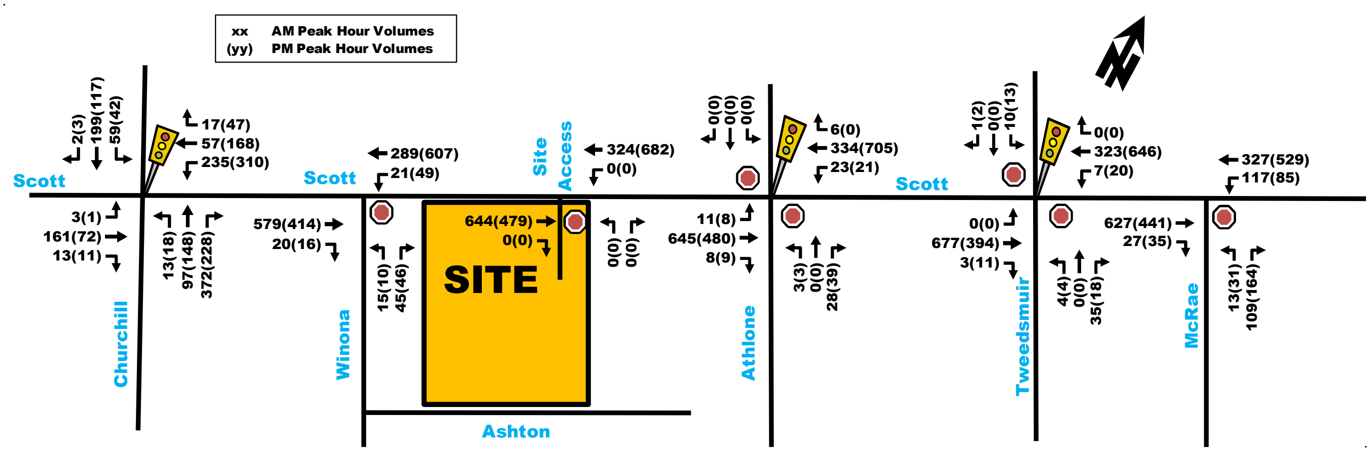
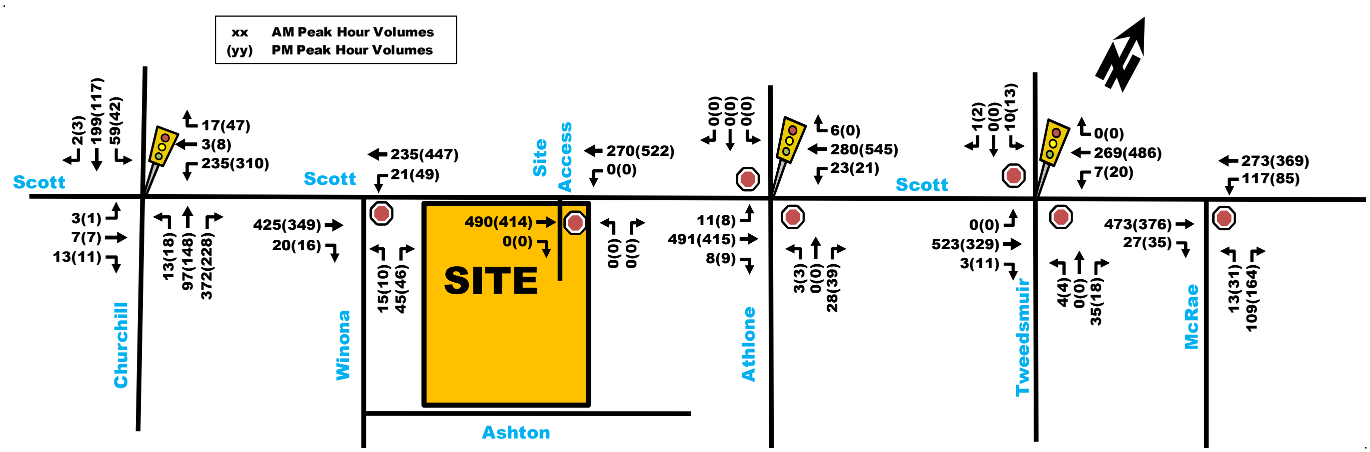


Figure 13: 2026 Post LRT Construction Detour Background Volumes



3.3. Demand Rationalization

The following Table 8 provides a summary of the existing traffic operations at the study area intersection based on the Synchro (V10) traffic analysis software. The subject intersections were assessed in terms of the volume-to-capacity (v/c) ratio and the corresponding Level of Service (LoS) for the critical movement(s). The Synchro model outputs of existing conditions are provided within Appendix G.

Table 8: Existing Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Athlone/Scott1	A(A)	0.44(0.49)	EBT(WBT)	6.7(5.5)	A(A)	0.44(0.49)
Tweedsmuir/Scott1	A(A)	0.52(0.57)	EBT(WBT)	6.2(8.8)	A(A)	0.52(0.57)
Unsignalized Intersections						
Churchill/Scott	C(C)	18(17)	NB(WB)	16(15)	C(C)	-
Winona/Scott	B(B)	12(11)	NB(NB)	1(1)	A(A)	-
McRae/Scott	B(C)	14(15)	NB(NB)	2(3)	A(A)	-
Athlone/Scott2	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Tweedsmuir/Scott2	D(D)	26(33)	SB(SB)	1(1)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 0.90 and a saturation flow rate of 1800 veh/h/lane.
1.) Signalized intersections operate as a STOP-Control on minor and free flow on major roadway with traffic signals that are only actuated by pedestrians. Within signalized, it is reflective of east-west traffic and pedestrian activity
2.) As unsignalized, it looks at the performance of the roadway as a whole, taking into account STOP-Control

As shown in Table 8, all intersections currently operate at acceptable Level of Service 'C' or better, and no critical movements which surpasses LoS 'D'.

Based on the foregoing analysis and projected low trip generation from site of only 1 vehicle two-way total every 2 minutes during the peak hours, it is anticipated that there will be sufficient capacity in the network.

4. Strategy Report

4.1. Development Design

4.1.1. DESIGN FOR SUSTAINABLE MODES

Location of Transit Facilities

The subject site is located less than 200m walking distance from existing major BRT stop on the east-west Transitway, and future LRT stop at Westboro Station.

Pedestrian/Cycling Routes and Facilities

The building will have at-grade accesses connecting directly to Scott Street and Ashton Avenue. Currently there is a sidewalk on the south side of Scott Street adjacent to the site and a multi-use pathway located on the north side of Scott Street. As seen in Figure 6 earlier (interim conditions on Scott Street), it is anticipated that the existing sidewalk on the south side of Scott Street as well as the MUP on the north side will be maintained and that the eastbound designated bike lane on the south side of Scott Street will be maintained.

Bicycle Parking

The proponent is providing bicycle parking spaces at a rate of approximately 0.83 bicycle parking spaces per unit, exceeding the minimum City By-Law requirements of 0.5. All bicycle parking is proposed indoors in a secure, well-lit area located in the parking garage, below grade level.

4.1.2. CIRCULATION AND ACCESS

The proposed development access will utilize the existing curb depression on Scott Street adjacent to Bob Peter's Garage. The proposed driveway will give access to an underground parking lot via a single vehicular ramp on the east quadrant of the building, thus meeting the maximum 1 driveway allowance for TM Zone. Note that no vehicular access is proposed for Ashton Avenue.

With regard to on-site circulation, the proposed parking lot is laid out such that two-way traffic can be efficiently accommodated. The ramp width to the underground parking lot is approximately 6 meters wide, two-way traffic, meeting the minimum requirements for a building with more than 20 parking spots within TM Zone. Drive aisle widths accommodating the 2-way vehicle traffic meet the minimum width of 6 meters. The ramp providing access to the lower level parking has proper transition grades and a ramp grade of approximately 8%. The ramp access exceeds more than 2% transition grade within 9 meters from the property line, therefore relief to the By-Law is required.

The garbage bins are anticipated to be rolled up from P1 to Scott street and be picked up within the lay-by area located in front of the subject property.

4.2. Parking

4.2.1. PARKING SUPPLY

The subject site is located less than 200 meters walking distance to the existing Westboro BRT Station and future Westboro LRT Station. Considering Sections 101(2), 102(5), 103(1) and 103(2) of the Zoning By-Law 2008-250-Consolidation-Part 4, the vehicle parking requirements have been estimated and summarized in **Table 9**. The site is located in Area B according to Schedule 1 and Area Y in Schedule 1A (Scott Street Inner Urban Mainstreet between Churchill Avenue and Island Park Drive). **Table 10** summarizes the bicycle parking requirements as per City of Ottawa Zoning By-Law-Part 4, sections 100-114.

Table 9: Vehicle Parking Space Supply

Land Use		Rate per Unit		Required Vehicle Spaces			Proposed Spaces
		Base	Visitor	Base	Visitors	Total	
Residential	353 units	0.5 per unit 1	0.1 per unit 2	170.5	30	203	204
Commercial	233 m²	2.5 per 100 m² 3	0	2.5	0		
1) no off-street motor vehicle parking is required for the first 12 dwelling units							
2) no off-street motor vehicle parking is required for the first 12 dwelling units with a max of 30 visitor spots							
3) no parking spaces required for the first 150 m² ground floor retail							

Table 10: Bicycle Parking Requirements

Land Use		Rate	Required Bicycle Spaces		Proposed Spaces
			Required	Total	
Residential	353 units	0.5 per unit	177	178	292
Commercial	233 m²	1 per 250 m²	1		

As shown in **Table 9** and **Table 10**, the proposed development is required to provide a minimum of 203 vehicle parking spaces and 178 bicycle parking spaces. With a total of 204 proposed underground parking spaces (174 residential and 30 visitor stalls) and 292 bicycle parking spaces, the proposed development is meeting City requirements. It is anticipated that a large share of parking is intended to satisfy the desire for many area residents to own a car (for use predominantly during evenings and weekends) and use alternate modes of transportation for their daily weekday commute. The parking lot will be monitored and short- long-term parking uses enforced.

4.2.2. SPILLOVER PARKING

Exempt. See table **Table 1**.

4.3. Boundary Street Design

4.3.1. EXISTING CONDITIONS

The boundary streets for the development are Scott Street and Ashton Avenue. The existing roadway geometries consist of the following features:

- *Scott Street:*
  - 1 vehicle travel lane in each direction;
  - 1.8m sidewalk on south side and >2m MUP on north side of roadway;
  - More than 3,000 vehicles per day;
  - Posted speed 40km/h;
  - Identified as a Cross-town bikeway; and,
  - Designated Truck Route.
- *Ashton Avenue:*
  - 1 vehicle travel lane in each direction;
  - No sidewalks on either side;
  - Less than 3,000 vehicles per day; and,
  - Posted speed 40km/h.

The proposed site is located within 600m of a rapid bus station/future LRT station. Multi-modal Level of Service analysis for the subject road segments adjacent to the site is summarized in Table 11 with detail analysis provided in Appendix H.

Table 11: MMLOS – Boundary Street Segment Existing

Road Segment	Level of Service							
	Pedestrian		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Minimum Desirable Target	BLoS	Minimum Desirable Target	TLoS	Minimum Desirable Target	TkLoS	Minimum Desirable Target
Scott Street south side between Winona Avenue and Athlone Avenue	C	A	B	A	D	D	C	D
Scott Street north side between Winona Avenue and Athlone Avenue	B	A	B	A	D	D	C	D
Ashton Avenue between Winona Avenue and Granite Curling Club	F	A	A	D	-	N/A	-	N/A

<u>Pedestrian</u>

- *Scott Street* does not meet pedestrian PLoS due to volumes exceeding 3,000 vehicles daily. The north side of Scott Street has a separated pedestrian facility (MUP) located between Scott Street the Transitway with a wide separation between the roadway and the MUP facility.
- *Ashton Avenue* does not meet pedestrian PLoS due to the lack of sidewalks; however, Ashton Avenue is not seen as a pedestrian desire line and very few to no pedestrians are anticipated this way.

<u>Bicycle</u>

- *Scott Street* does not meet cyclist BLoS due to the narrowness of the bike lane. The MUP on the north side of the roadway offers a physically separated pathway for active travel modes.
- *Ashton Avenue* meets cycling BLoS targets.

<u>Transit</u>

- *Scott Street* meets transit TLoS targets.
- *Ashton Avenue* does not have active public transportation.

<u>Truck</u>

- *Scott Street* meets the truck TkLoS given the existing geometry and lane widths.
- *Ashton Avenue* is not a truck route

The transit Level of Service is met for existing conditions; however, during the construction of Stage 2 LRT, Scott Street will temporarily become a 'Rapid Transit Corridor' with TLoS targets of 'A' and mixed traffic which would not meet the desirable level of service. Once Stage 2 LRT is complete, buses will be replaced by the LRT.

4.3.2. FUTURE CONDITIONS

The future 2026 Scott Street is assumed to have roadway geometry consisting of the following features:

- *Scott Street:*
  - 1 vehicle travel lane in each direction;
  - 2m sidewalks on south side of roadway with boulevard and cycle track between roadway and sidewalk and >2m MUP on north side of roadway;
  - More than 3,000 vehicles per day;
  - Posted speed 40km/h;
  - Separated bicycle track on the south side, identified as a Cross-town bikeway; and,
  - Designated Truck Route.
- *Ashton Avenue:*
  - *No changes from existing conditions anticipated; hence, future analysis not included.*

The proposed site is located within 600m of a rapid bus station/future LRT station. Multi-modal Level of Service analysis for the subject road segments adjacent to the site is summarized in Table 12 with detail analysis provided in Appendix H.

Table 12: MMLOS – Future Boundary Street Segment

Road Segment	Level of Service							
	Pedestrian		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Minimum Desirable Target	BLoS	Minimum Desirable Target	TLoS	Minimum Desirable Target	TkLoS	Minimum Desirable Target
Scott Street south side between Winona Avenue and Athlone Avenue	B	A	A	A	D	D	C	D
Scott Street north side between Winona Avenue and Athlone Avenue	B	A	B	A	D	D	C	D

<u>Pedestrian</u>

- *Scott Street* does not meet pedestrian PLoS due to volumes exceeding 3,000 vehicles daily. Both north and south sides of the roadway are anticipated to have a 2-meter wide sidewalk with a physical separation of at least 2 meters provided with boulevard treatments or the physically separated cycle track proposed between the roadway and the sidewalk. Additionally, the north side of Scott Street will keep the existing separated pedestrian facility (MUP) located between Scott Street the Transitway with a wide separation between the roadway and the MUP facility.

<u>Bicycle</u>

- *Scott Street* meets cyclist BLoS with a physically separated cycle track on the south side of the roadway. It does not meet cyclist BLoS on the north side of road due to lack of a bike lane. The MUP on the north side of the roadway is anticipated to remain operational and offers a physically separated pathway for active travel modes including cycling.

<u>Transit</u>

- *Scott Street* meets transit TLoS targets.

<u>Truck</u>

- *Scott Street* meets the truck TkLoS given the future roadway geometry and lane widths.

The transit Level of Service is met for future conditions; however, during the construction of Stage 2 LRT, Scott Street will temporarily become a 'Rapid Transit Corridor' with TLoS targets of 'A' and mixed traffic which would not meet the desirable level of service. Once Stage 2 LRT is complete, buses will be replaced by the LRT.

4.4. Access Intersection Design

4.4.1. LOCATION AND DESIGN OF ACCESS

Vehicular access to the site will be provided via a single two-way private driveway connecting Scott Street to an underground parking lot. The driveway is located approximately 75 meters east of Winona/Scott intersection and 110 meters west of Athlone/Scott intersection. With no conflict points until P1 parking lot, the clear-throat length minimums are met. The driveway will utilize an existing curb depression adjacent to Bob Peter's Garage and the ramp gradient for the underground parking lot begins approximately 6 meters away from Scott Street. The proposed development meets the City's Private Approach By-Law.

4.4.2. INTERSECTION CONTROL

As there are only approximately 35 two-way vehicle trips projected in both peak hours, no significant changes to existing intersection operations are expected and signals or auxiliary turn lanes are not warranted. See Appendix I.

4.4.3. INTERSECTION DESIGN

See Section 4.9.2.

4.5. Transportation Demand Management

4.5.1. CONTEXT FOR TDM

Based on the type of development, it is assumed that most trips generated by the proposed site will be residents leaving the site in the AM peak to go to work and returning from work to the proposed 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 OD-Survey 2011 for Ottawa. The site is located in a Design Priority Area (DPA) and a Transit-Oriented Development (TOD) zone according to the Official Plan.

4.5.2. NEED AND OPPORTUNITY

Developments located in Design Priority Area (DPA) and a Transit-Oriented Development (TOD) zone such as the proposed site are expected to utilize measures to provide sustainable active mode shares. Such measures are described in more detail in Section 4.5.3 below, but can include reduced parking ratios as described in Section 4.2, more aggressive Multi-Modal Levels of Service (MMLOS) as described in Section 4.3 and 4.9 and connectivity to public transit as described in Section 4.7, to name a few.

4.5.3. TDM PROGRAM

The TDM checklist is attached as Appendix J. Some of the TDM measures that the proponent is providing/considering to achieve a high level of active mode shares are as follows:

- The amount of bicycle parking significantly exceeds the By-Law minimum requirements;
- Bicycle parking spots are located in an interior, well-lit bike storage;
- Real-time transit arrival information displayed at entrance; and
- Unbundled parking costs from monthly rent.

Given the type of development and its location, the site generated trips are anticipated to be made up of predominately non-auto trips.

4.6. Neighbourhood Traffic Management

4.6.1. ADJACENT NEIBOURHOODS

Exempt. See Table 1.

4.7. Transit

4.7.1. ROUTE CAPACITY

It is projected that 150 to 155 'new' two-way transit passenger trips per hour will be generated for the AM and PM peak hours. Considering the envisioned Confederation LRT Line is projected to operate with a capacity of 600 passengers per train and 12 trains per hour per direction during peak hours, it is anticipated that the future transit network will have sufficient capacity to accommodate the projected transit demand. Additionally, added capacity is available on local bus routes on Scott Street and frequent bus routes on Richmond Road.

4.7.2. TRANSIT PRIORITY

During the Interim LRT Construction, Scott Street is expected to function as a bus detour transit priority route. During this stage, the proposed development will access directly on Scott Street and is anticipated to have little impact on the bus operations due to the low projected volumes of vehicles anticipated from the development.

Once the Stage 2 Confederation Line is complete, Scott Street will return to an arterial roadway without transit priority. Considering that the envisioned LRT Station at Westboro has a proposed platform of approximately 90 meters long, there should be sufficient capacity on the trains and at the platforms to load and off-load the passengers efficiently without creating delays from the site generated transit trips.

4.8. Review of Network Concept

The proposed site is currently located within TM[103] zoning fronting Scott Street and R4G zoning on the south portion of the parcel towards Ashton Avenue. Traditional Mainstreet TM[103] has a provision that allows a maximum building height of 18 meters (approximately 6-storeys) for buildings containing residential uses. Residential Fourth Density R4G has a provision that allows a maximum building height of 11 meters (approximately 4 storeys) for buildings containing residential uses.

The portion of the building to be located within the TM[103] zone is proposed to be 30-storeys high (24-storeys more than current zoning allows). The portion of the building to be located within the R4G zone is proposed to be a 3-storey high podium with a 6-storey transition to the 30-storey tower in TM zone (2-storeys more than current zoning allows for R4).

Given that 230 to 240 people trips are anticipated for this development, and a large portion of units will be in storeys above the existing zoning, it is possible that the development may approach 200 peak hour person trips more than the equivalent volume permits by the established zoning. However, it is not anticipated that changes to the existing network will be required, given that the site is adjacent to BRT and future LRT, has access to pedestrian and cycling facilities and projects a low volume of site generated vehicle trips.

4.9. Intersection Design

4.9.1. INTERSECTION CONTROL

See Section 4.4.2.

4.9.2. INERSECTION DESIGN

Multi-Modal Level of Service

The Athlone/Scott and Tweedsmuir intersections are signalized intersections within the study area. The two intersections are programmed to function as one intersection and are actuated only by a pedestrian call, to cross Scott Street and provides access to Westboro Rapid Transit Station. For the purpose of this analysis the two intersections are going to be assessed as one intersection as they are similar in configuration and function. The intersections operate with STOP sign control on the minor approaches and a signalized phase on Scott Street. The MMLOS analysis is summarized in Table 13, with detailed analyses provided in Appendix K. As stated in the MMLOS Guidelines, only signalized intersections are considered for the intersection Level of Service measures.

Table 13: MMLOS – Athlon/Tweedsmuir/Scott

Intersection	Level of Service							
	Pedestrian		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Minimum Desirable Target	BLoS	Minimum Desirable Target	TLoS	Minimum Desirable Target	TkLoS	Minimum Desirable Target
Churchill/Scott (once signalized)	B	A	B	A	D	D	E	E
Athlone/Tweedsmuir/Scott (Existing)	B	A	C	A	D	D	N/A2	D
Athlone/Tweedsmuir/Scott (Interim bus route)1	B	A	C	A	D	A	N/A2	D
Athlone/Tweedsmuir/Scott (2026)1	A	A	A	A	D	D	N/A2	D

1) It is assumed that the ultimate Athlone/Scott and Tweedsmuir/Scott intersection will include cross-rides for cyclists heading north and south across Scott Street.
2) Trucks are not allowed to turn on to Athlone or Tweedsmuir Avenue.

PLoS
Pedestrian Level of Service for the future Churchill/Scott signalized intersection and Athlone/Tweedsmuir/Scott for the existing and interim conditions do not meet the MMLOS target. If textured/coloured pavement or zebra stipe markings are incorporated within the redevelopment of Scott Street, the PLoS targets could be met in the future for Athlone/Scott.

BLoS
Bicycle target Level of Service is not met with a BLoS 'C' at the Athlone/Tweedsmuir/Scott intersection and 'B' for Churchill/Scott. If cross-rides are incorporated to the redevelopment of Scott Street, including 2-stage left turn boxes, the BLoS targets could be met in the future.

TLoS
Transit Level of Service is affected by delay at an intersection and in the case of the intersections of Tweedsmuir/Scott and Athlone/Scott, the delay is related directly to the time allocated for pedestrians to cross Scott Street. In addition, the signal is only programmed to change/actuate when pedestrians press the button to cross. The TLoS of 'D' is achieved which meets minimum TLoS desired targets for the existing and ultimate conditions of Scott Street. The exception is during the interim conditions, where transit priority along Scott Street raises the desired target to TLoS 'A'.

TkLoS
The truck level of service for Churchill/Scott was met. Trucks are not permitted on Athlone nor Tweedsmuir Avenue; therefore no analysis was performed.

Interim Conditions During Stage 2 LRT construction

During the construction of the west leg of the Stage 2 LRT Confederation Line, buses will be detoured from the Transitway on to Scott Street from Tunney's Pasture Station to Sir John A. McDonald Parkway. As part of the bus detour, Scott Street will be extended from Churchill/Scott intersection to Sir John A. McDonald Parkway and a temporary traffic signal will be added at Churchill/Scott to accommodate for the added bus traffic. An estimated 210 to 225 buses two-way will be added to Scott Street during the AM and PM peak hours respectively. The bus detour is anticipated between 2021 and 2025.
Given that the 35 two-way trips generated per peak hour will play a negligible role in worsening traffic conditions within the study network, only the most critical scenario for interim conditions, total projected interim 2021 as seen in Figure 14, was analyzed. The Synchro model outputs for interim conditions are provided in Appendix L with summaries of operations in Table 14.

Figure 14: 2021 Interim LRT Bus Detour Projected Volumes

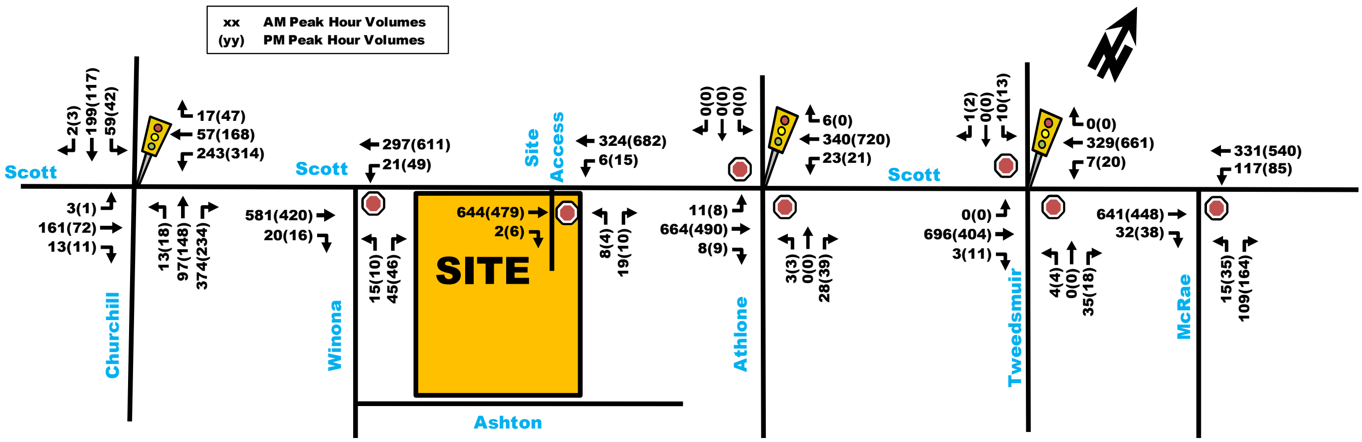


Table 14: 2021 Interim Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Churchill/Scott	A(A)	0.51(0.57)	EBT(WBL)	10.8(12.6)	A(A)	0.47(0.47)
Athlone/Scott$_1$	C(D)	0.77(0.84)	EBT(WBT)	13.7(18.3)	C(D)	0.77(0.84)
Tweedsmuir/Scott$_1$	B(A)	0.63(0.52)	EBT(WBT)	6.6(7.2)	B(A)	0.63(0.52)
Unsignalized Intersections						
Winona/Scott	C(B)	15(14)	NB(NB)	1(1)	A(A)	-
Site Access/Scott	C(C)	19(20)	NB(NB)	1(1)	A(A)	-
McRae/Scott	C(C)	19(20)	NB(NB)	3(3)	A(A)	-
Athlone/Scott$_2$	C(B)	15(14)	NB(NB)	1(1)	A(A)	-
Tweedsmuir/Scott$_2$	D(E)	34(44)	SB(SB)	1(1)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
Signalized intersections operate as a STOP-Control on minor and free flow on major roadway with traffic signals that are only actuated by pedestrians.

1.) Signalized intersections operate as a STOP-Control on minor and free flow on major roadway with traffic signals that are only actuated by pedestrians. Within signalized, it is reflective of east-west traffic and pedestrian activity
2.) As unsignalized, it looks at the performance of the roadway as a whole, taking into account STOP-Control

As seen in Table 14, all intersections operate overall at acceptable LoS 'D' or better with critical movements operating at LoS 'E' or better during the interim horizon while buses are detoured on to Scott Street.

Future Conditions Post Stage 2 LRT Construction

Once the west leg of the Stage 2 LRT Confederation Line becomes operational, detoured buses will be removed from Scott Street and traffic volumes are expected to return to existing traffic volumes plus other area developments. It is understood that the traffic signals added for the bus detour will be maintained after the buses are removed from Scott Street.

Given that the 35 two-way trips generated per peak hour will play a negligible role in worsening traffic conditions within the study network, only the most critical scenario for future conditions post LRT construction, total projected 2026 as seen in Figure 15, was analyzed. The Synchro model outputs for conditions post construction of Stage 2 West Extension and bus detours are provided in Appendix M with summaries of intersection operations in Table 15.

Figure 15: 2026 Post LRT Construction Detour Projected Volumes

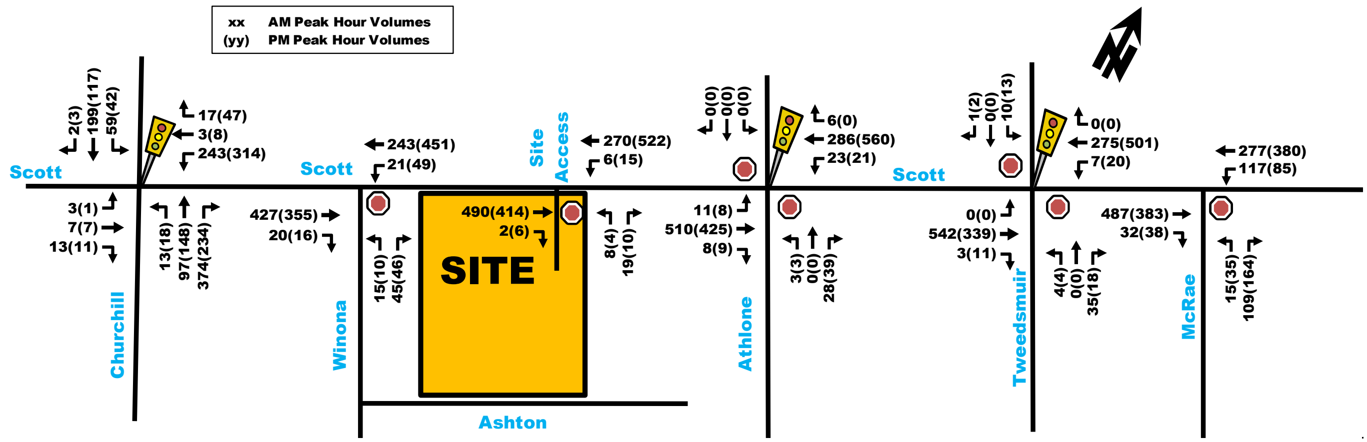


Table 15: Post Stage 2 Construction Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Churchill/Scott	B(B)	0.70(0.65)	WBL(WBL)	12.7(13.1)	A(A)	0.51(0.53)
Athlone/Scott1	B(B)	0.61(0.66)	EBT(WBT)	10.1(16.9)	B(B)	0.61(0.66)
Tweedsmuir/Scott1	A(A)	0.51(0.38)	EBT(EBT)	5.2(3.6)	A(A)	0.51(0.38)
Unsignalized Intersections						
Winona/Scott	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Site Access/Scott	C(C)	16(17)	NB(NB)	1(1)	A(A)	-
McRae/Scott	C(C)	15(16)	NB(NB)	3(4)	A(A)	-
Athlone/Scott2	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Tweedsmuir/Scott2	C(D)	25(31)	SB(SB)	1(1)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
Signalized intersections operate as a STOP-Control on minor and free flow on major roadway with traffic signals that are only actuated by pedestrians.
1.) Signalized intersections operate as a STOP-Control on minor and free flow on major roadway with traffic signals that are only actuated by pedestrians. Within signalized, it is reflective of east-west traffic and pedestrian activity
2.) As unsignalized, it looks at the performance of the roadway as a whole, taking into account STOP-Control

As seen in Table 15, all study area intersections are expected to operate similarly to existing conditions with modest delays.

Future Conditions Post Stage 2 LRT Construction if TOD Mode Shares not Met

An additional analysis was completed for the event that TOD mode share targets are not met. The projected critical volumes are illustrated in Figure 16. The Synchro model outputs for conditions post construction of Stage 2 West Extension and bus detours for a mode share if TOD targets are not met are provided in Appendix N with summaries of intersection operations in Table 16.

Figure 16: 2026 Critical Projected Volumes if TOD Targets not Met

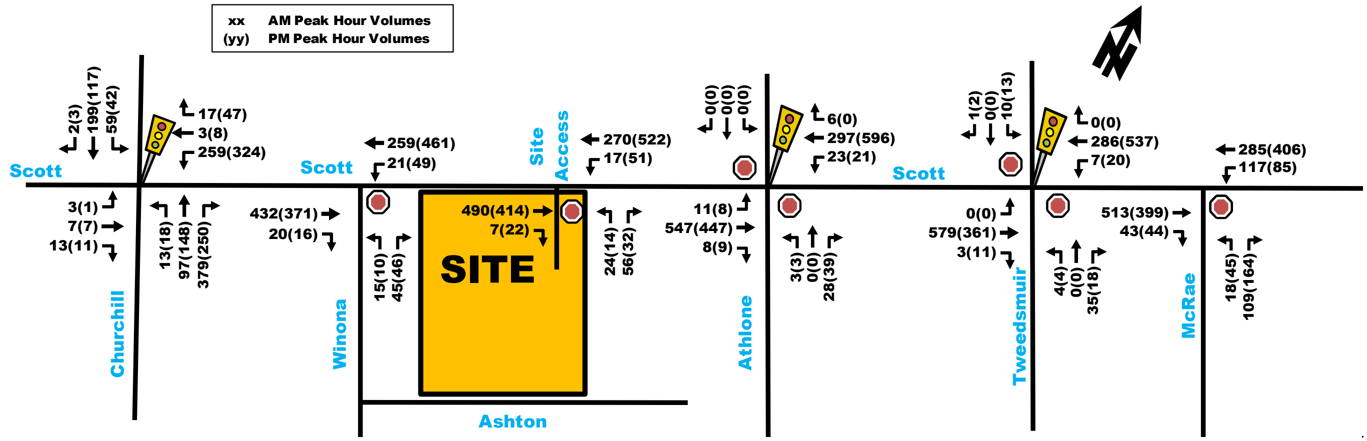


Table 16: 2026 Intersection Performance if TOD Targets not Met

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized Intersections						
Churchill/Scott	A(B)	0.60(0.66)	WBL(WBL)	11.8(13.3)	A(A)	0.53(0.55)
Athlone/Scott$_1$	B(B)	0.61(0.66)	EBT(WBT)	9.3(10.3)	B(B)	0.61(0.66)
Tweedsmuir/Scott$_1$	A(A)	0.52(0.43)	EBT(WBT)	4.7(4.6)	A(A)	0.52(0.43)
Unsignalized Intersections						
Winona/Scott	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Site Access/Scott	C(C)	19(20)	NB(NB)	2(1)	A(A)	-
McRae/Scott	C(C)	16(19)	NB(NB)	3(4)	A(A)	-
Athlone/Scott$_2$	B(B)	13(13)	NB(NB)	1(1)	A(A)	-
Tweedsmuir/Scott$_2$	D(D)	27(34)	SB(SB)	1(1)	A(A)	-

Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
Signalized intersections operate as a STOP-Control on minor and free flow on major roadway with traffic signals that are only actuated by pedestrians.

1.) Signalized intersections operate as a STOP-Control on minor and free flow on major roadway with traffic signals that are only actuated by pedestrians. Within signalized, it is reflective of east-west traffic and pedestrian activity
2.) As unsignalized, it looks at the performance of the roadway as a whole, taking into account STOP-Control

As seen in Table 16, even if TOD targets are not met, all study area intersections are expected to operate similarly to existing conditions with modest delays.

5. Findings and Recommendations

Based on the results summarized herein the following findings and recommendations are provided:

- A residential development comprised of approximately 353 apartment units and 233 m² of ground floor commercial/office in a 30-storey building with 3 and 6-storey podium step-backs is being proposed at 2050 Scott Street with an estimated build-out in year 2021, replacing an existing car garage and a hot tub and sauna store fronting Scott Street and 3 residential homes fronting Ashton Avenue;
- Height step-backs (staggering) are proposed to assist in the transition from low-rise to mid- and high-rise from south to north.
- Existing intersections operate at good overall LoS ‘C’ or better with critical movements of ‘D’ or better during the weekday peak hours;
- The proposed development is projected to generate ‘new’ vehicle volumes of approximately 35 veh/h two-way total during the weekday morning and afternoon peak hours;
- During the construction of the Confederation Line West Expansion, 210 to 225 buses two-way will be detoured on to Scott Street. The interim construction phase is anticipated to last from 2021 to 2025. Traffic signal

controls are proposed at Churchill/Scott to accommodate for the added bus traffic and will be maintained in the future;

- During the interim LRT construction bus detour phase, traffic conditions will worsen to an overall intersection LoS ‘D’ or better and with critical movement of ‘E’ or better;
- Once the LRT construction bus detours are done, the study area intersections will return to similar operating levels of service as existing conditions;
- The proposed development is projected to generate approximately 150 to 155 ‘new’ transit trips/h during the AM and PM peak periods, which can be accommodated by the nearby high-capacity Confederation LRT Line. Additional capacity is available on local bus routes on Scott Street and frequent bus routes on Richmond Road;
- A total of 210 underground parking spaces are proposed which meet the City’s minimum and maximum parking requirements for a development located in Areas B and Y (Inner Urban Mainstreet Area);
- 292 bicycle parking spaces are proposed which exceeds the minimum bicycle parking spaces outlined in the City’s By-Law requirements;
- Site access is proposed via a single 6-meter wide two-way driveway connecting Scott Street to an underground parking lot. Ramp grade of 8% is proposed and gradient begins approximately 6-meters from Scott Street;
- The MMLOS road segment analysis shows that existing and future conditions on boundary streets do not meet MMLOS area targets for pedestrians due to high vehicular volumes on Scott Street and lack of sidewalks on Ashton Avenue. An eastbound cycle track meets future targets, but it is unclear if a westbound bike lane will be built. A physically separated MUP is located on the north side of Scott Street for active travel modes, including cyclists. The transit and truck targets were all met for future conditions;
- The MMLOS intersection analysis shows that Athlone/Scott/Tweedsmuir and Churchill/Scott intersections do not meet MMLOS area targets for pedestrians with PLoS of ‘B’ and target of ‘A’ nor cycling with BLoS ‘C’ and ‘B’ and target of ‘A’ for existing and interim conditions. Future condition targets could be met for Athlone/Tweedsmuir/Scott pedestrians and cyclists if textured/coloured pavement or zebra stipe markings and cross-rides with 2-stage left turn boxes are incorporated within the redevelopment of Scott Street; and
- The proposed Site Plan is located within an area considered supportive of active travel providing:
    - Sidewalks on site frontage and nearby MUP
    - Designated bike lane in eastbound direction on Scott Street with a MUP for westbound direction
    - Proximity to major rapid transit line at Westboro Station
    - A pedestrian actuated signalized crossing point located at Athlone/Scott intersection
    - Limited number of vehicle parking spaces offered, and generous bicycle parking spaces provided onsite

Based on the foregoing findings, the proposed development located at 2050 Scott Street is recommended from a transportation perspective.

Prepared By:	Reviewed By:
Juan Lavin, E.I.T.	Matthew Mantle, P.Eng. Transportation Engineer

Appendix A

City Comments

PARSONS

1223 Michael Street, Suite 100 | Ottawa, Ontario K1J7T2
P: +1 613.738.4160 | www.parsons.com

4 November 2019

City of Ottawa
Development Review Services
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: Neeti Paudel, P.Eng.

Dear Neeti:

Re: 2050 Scott Street
Step 2 – Comment and Response Form

The following response form has been prepared to address City of Ottawa comments received on November 4th, 2019. City comments are noted in black with the corresponding responses from Parsons in red.

CITY COMMENTS

The scoping report indicates the proposed number of parking spaces to be 61. The total number shown on site plan is 106. If the number of proposed parking spaces has changed, please update the report. Text revised in Section 2.1.1 to clarify the number of vehicular parking spots and bicycle parking spots.

Collisions and background volume for existing conditions should be updated. Collision and background volumes have been included for this report.

This section of Scott Street is being reconstructed next year. New Scott Street cross-section has been included in Section 2.1.3.

PARSONS
1223 Michael Street, Suite 100 | Ottawa, Ontario K1J7T2
P: +1 613.738.4160 | www.parsons.com

4 December 2019

City of Ottawa
Development Review Services
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: Neeti Paudel, P.Eng.

Dear Neeti:

Re: 2050 Scott Street
Step 3 – Comment and Response Form

The following response form has been prepared to address City of Ottawa comments received on December 3rd, 2019. City comments are noted in black with the corresponding responses from Parsons in red.

TRANSPORTATION ENGINEERING SERVICES

2.1.2 Existing Conditions - Area Road Network: Include a description of McRae Avenue. Winona Avenue has a posted speed limit of 40 km/h. Noted, report updated.

2.1.2 Existing Conditions - Study Area Intersections: Include a description of the intersection of Scott Street / McRae Avenue. Noted, description added to report.

2.1.3 Planned Conditions: Figure 5 is out of date. The western extension of LRT in Phase 2 is now expected to be completed in 2025. Noted, figure updated.

The Transitway detour to Scott Street is now expected to be in operation from 2021 to 2025. Noted, text corrected.

Information on 2070 Scott Street is out of date. Please update the description and projected vehicle traffic of this development based on the new TIA by Stantec. Noted, 2070 Scott has been updated to TIA by Stantec.

2.2 Study Area and Time Periods: Inclusion of the intersection of Scott Street / McRae Avenue is required based on the distance from the Site (280m) and the number of under construction and planned developments in the area. There is a need to determine impacts to this intersection and reassess previous recommendations for an auxiliary westbound left-turn lane at the Scott Street / McRae Avenue intersection included in the 320 McRae Avenue / 1976 Scott Street Redevelopment CTS and the 1960 Scott Street Transportation Brief. Auxiliary lanes may be required during Stage 2 LRT construction. Noted, McRae/Scott was included in the analysis. There were no major delays noted and auxiliary lanes are not needed based on Synchro intersection performance.

2.3 Exemption Review: Suggest that Module 4.6 and Module 4.8 may also be exempt, if desired by the proponent. Noted, table 1 has been updated.

3.1.1 Trip Generation and Mode Shares: The sentence between Table 2 and Table 3 states "the total amount of vehicle trips generated by the proposed 141 residential units". Please correct this sentence to indicate the correct number of residential units. Noted, text corrected.

Provide justification for the following sentence in Section 3.2.2: “Given Stage 2 development, the city is expecting to see a decrease in vehicle traffic on Scott Street in the future.” Noted, text changed.

3.3 Demand Rationalization: Note that despite the low volume of vehicular trip generation, traffic assessment of future horizon years must be completed in Step 4 - Analysis. This analysis is not exempt because of "negligible" site generated traffic. Noted, future traffic assessment analysis will be completed.

The concept plan for Scott Street post LRT includes cycle tracks. If the site frontage is modified, consideration should be given to accommodating the future cycle tracks in the reconstruction. Noted, developers made aware so as to plan accordingly.

TRAFFIC SIGNAL OPERATIONS

Posted speed limit on Scott Street is 40km/hr. Noted, updates completed.

Ensure that the analysis includes the extra detoured buses along Scott Street for LRT Stage 2 construction (210 vehicles in the am peak hour and 225 in the pm peak hour). Noted, buses added to future analysis.

With all the development occurring in the area and with TOD volume reductions rationalization (close to transit and demand rationalization), please provide impact if volumes and transit demand do not meet target. Generated traffic from other developments are in the range of 1500vph in the am peak hour and 1800vph in the pm peak hour. Noted. The majority of traffic generated from other area developments come from Tunney’s Pasture development which is anticipated to be phased in gradually on a horizon much longer than this development.

PARSONS

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29 July 2020

City of Ottawa
Development Review Services
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: Neeti Paudel, P.Eng.

Dear Neeti:

Re: 2050 Scott Street
Step 4 – Comment and Response Form

The following response form has been prepared to address City of Ottawa comments received on July 23, 2020. City comments are noted in black with the corresponding responses from Parsons in green.

TRANSPORTATION ENGINEERING SERVICES

a. Section 4.1.1 Design for Sustainable Modes:
   - Suggest describing/explaining the 2m north-south pathway proposed along the east side of the building (described on page 15 of the Planning Rationale). A TWSI is required where the north-south pathway intersects with Ashton Avenue, per Section 2.7 and Section 3.4.6 of the City of Ottawa Accessibility Design Standards. Pathway is no longer proposed. If it is proposed again, it will be built to City of Ottawa standards with controls as required.
   - Reference the TDM-Supportive Development Design and Infrastructure Checklist provided in Appendix J.

b. "Checking" 3.1.3 of the TDM-Supportive Development Design and Infrastructure Checklist doesn't make sense for this development given that there are no on-site (or adjacent) transit stops. Noted, unchecked.

c. Section 4.1.2 Circulation and Access: Garbage pick-up is unclear. Architectural package shows garbage room on P1, not on the ground level. More clearly describe/show (turning templates) how garbage pick-up will take place. Report to be submitted as ZBLA only and thus, the exact location and plan for garbage pick-up is not yet finalized.

d. Section 4.2 Parking Supply: Explain how short-term and long-term parking is proposed to be separated per 6.2.1 of the TDM-Supportive Development Design and Infrastructure Checklist. Noted, text added in TDM.

e. Section 43.2 [Boundary Street Design] Future Conditions: It seems unlikely that the north side of Scott Street will keep the existing MUP in addition to the anticipated 2m sidewalk and westbound cycle track. Noted, text and MMLOS updated to reflect the interim Scott Street Complete Streets concept plan.

f. Section 4.4.1 Location and Design of Access: The proposed driveway is approximately 100m west of Athlone Avenue (not 350m). Noted, text updated.

g. Section 4.5.3 TDM Program: To encourage transit usage, providing a prepaid Presto pass is a proven tool. Developer advised and they will be in touch with OC-Transpo to discuss alternatives.

TRAFFIC SIGNAL OPERATIONS

a. Pedestrian Signals at Scott Street & Athlone Street / Scott Street & Tweedsmuir Avenue are not modelled correctly in Synchro Files. These locations should not be modeled as a full (4-leg) traffic signal nor a stop-controlled intersection. These locations must be modelled as pedestrian actuated signals. Note: the pedestrian signals do not operate with a Pedestrian Recall Mode for the pedestrian phase. Noted, Synchro files updated.

b. In the 2021 Interim and 2026 Future (Post LRT) Synchro Files, the pedestrian volumes / pedestrian calls per hour at the two pedestrian signals have not been adjusted according to the projected mode share targets. Pedestrian volumes generated from the site (per the report) that walking or crossing Scott Street to access transit should be captured in the analysis as additional pedestrian actuations at the signalized locations. Additional pedestrian actuations could ultimately impact traffic volumes on Scott Street due to increase delays. Transit trips reflected as pedestrians going to Westboro LRT Station at applicable intersections.

c. In a scenario where the 15% auto driver mode share is not achieved, please summarize potential implications on the road network. Noted, analysis completed and discussed in Section 4.9.2.

Appendix B

Screening Form

1223 Michael Street, Suite 100, Ottawa, Ontario, K1J 7T2
P: +1 613.738.4160 l F: +1 613.739.7105 l www.parsons.com

City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	4/23/2020
Project	2050 Scott Street TIA
Project Number	908489-50075

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

Module 1.1 - Description of Proposed Development	
Municipal Address	2050 Scott Street
Description of location	Located on the south side of Scott Street, midblock between Winona Avenue and Athlone Avenue. Currently occupied by a hot tub store, a car garage, and 3 residential houses fronting Ashton Ave.
Land Use	Proposed residential development
Development Size	1 tower with 30 storeys and podium setbacks, consisting of 355 residential units, 233 sqm commercial and 204 underground parking spots.
Number of Accesses and Locations	1 proposed vehicle access to Scott Street, providing access to underground parking.
Development Phasing	Single phase
Buildout Year	2021
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	353	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	Yes
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes
Location Trigger Met?	Yes

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature 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	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	No	
The development includes a drive-thru facility	No	
Safety Trigger Met?	Yes	

Appendix C

Existing Peak Hour Traffic Volumes

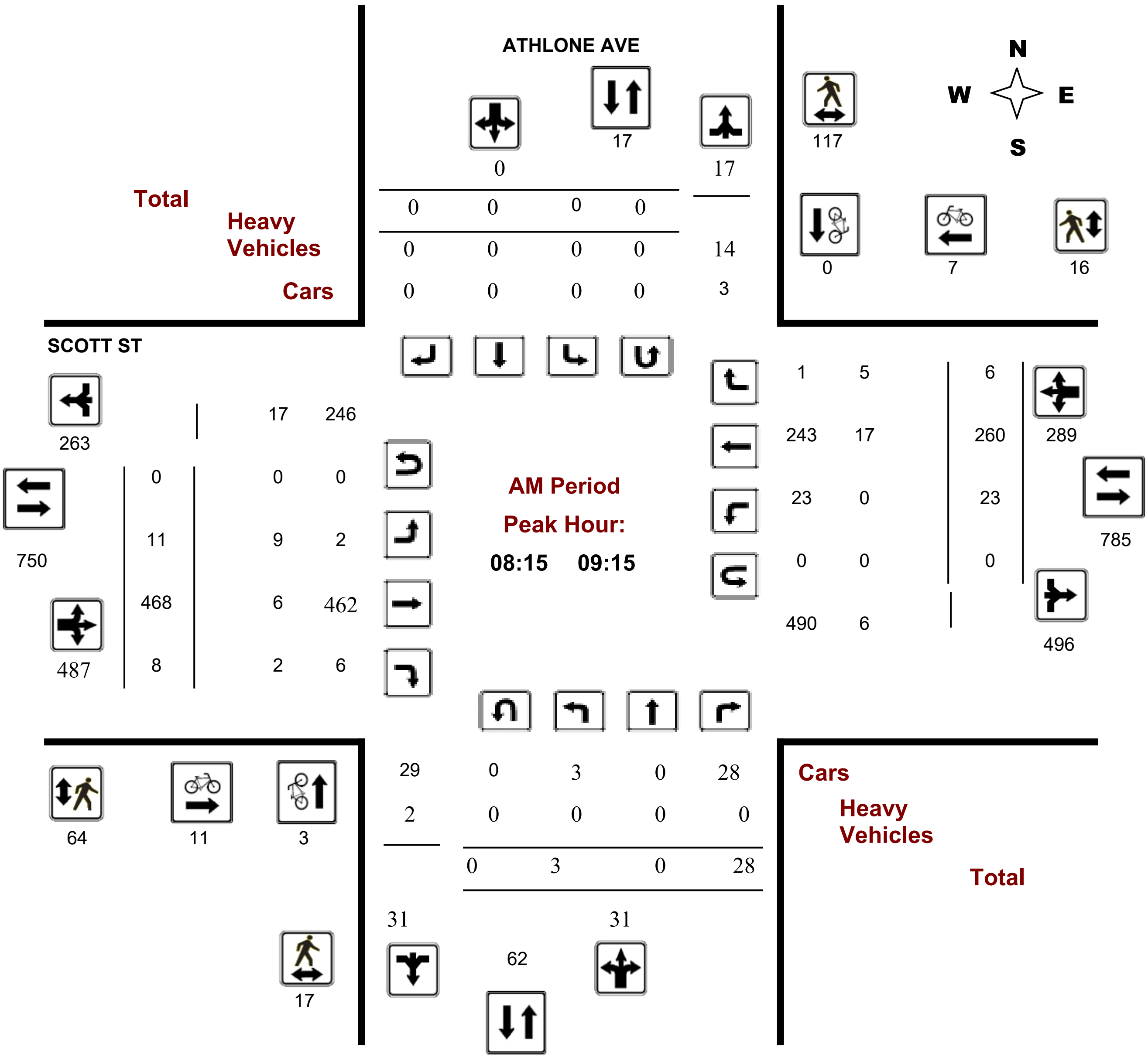
Transportation Services - Traffic Services

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

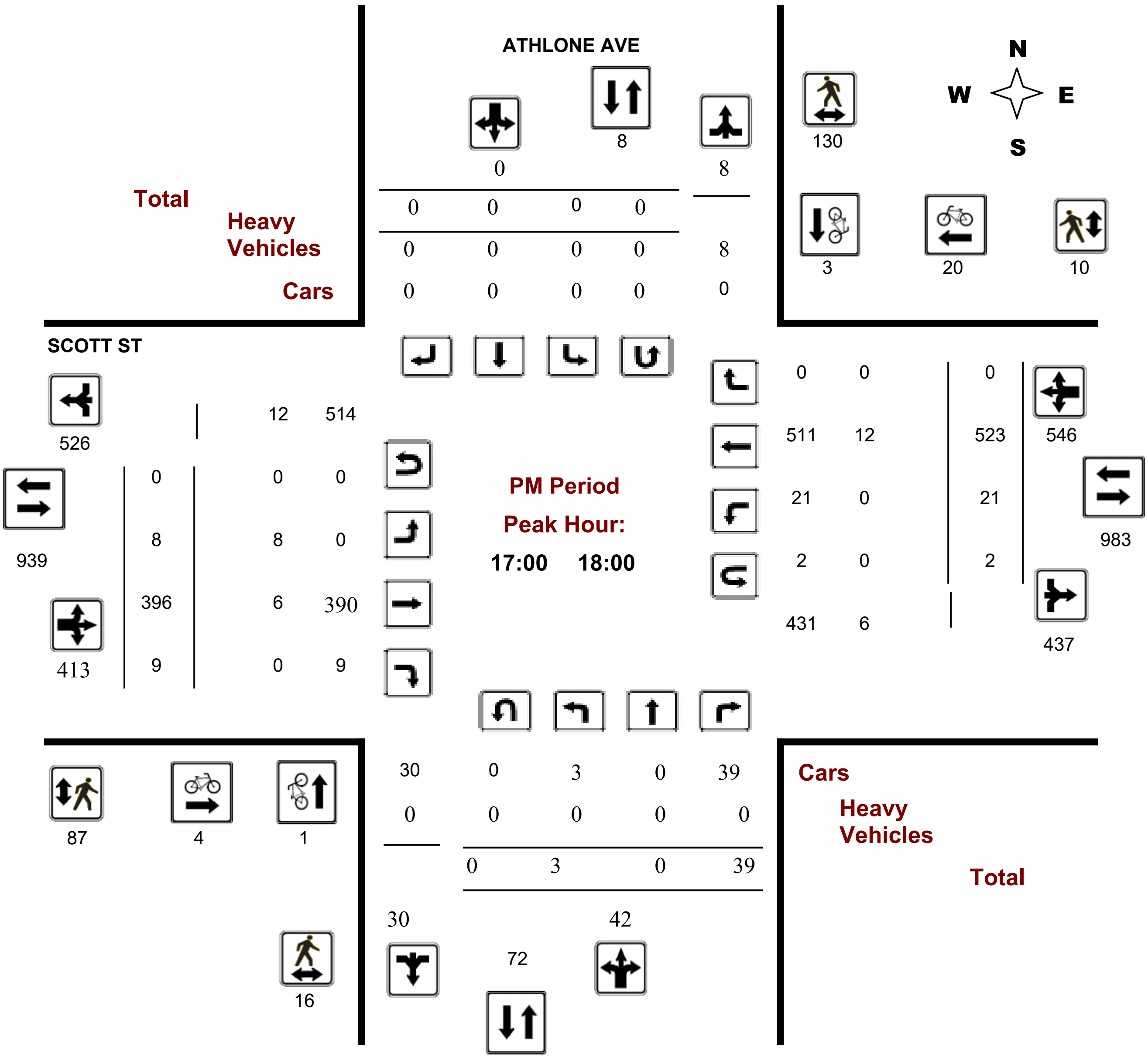
Transportation Services - Traffic Services

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

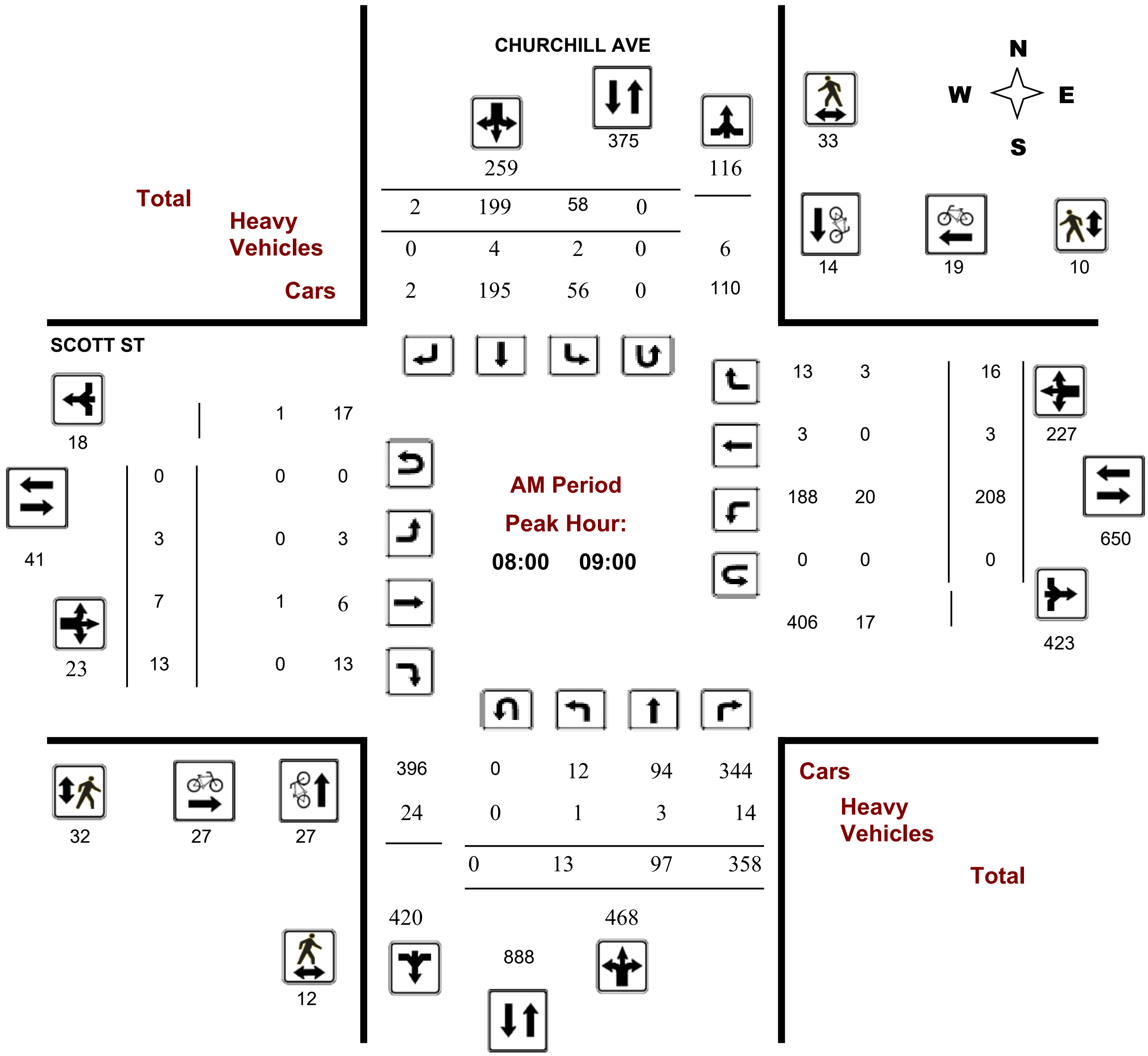
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

CHURCHILL AVE @ SCOTT ST

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

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



Comments

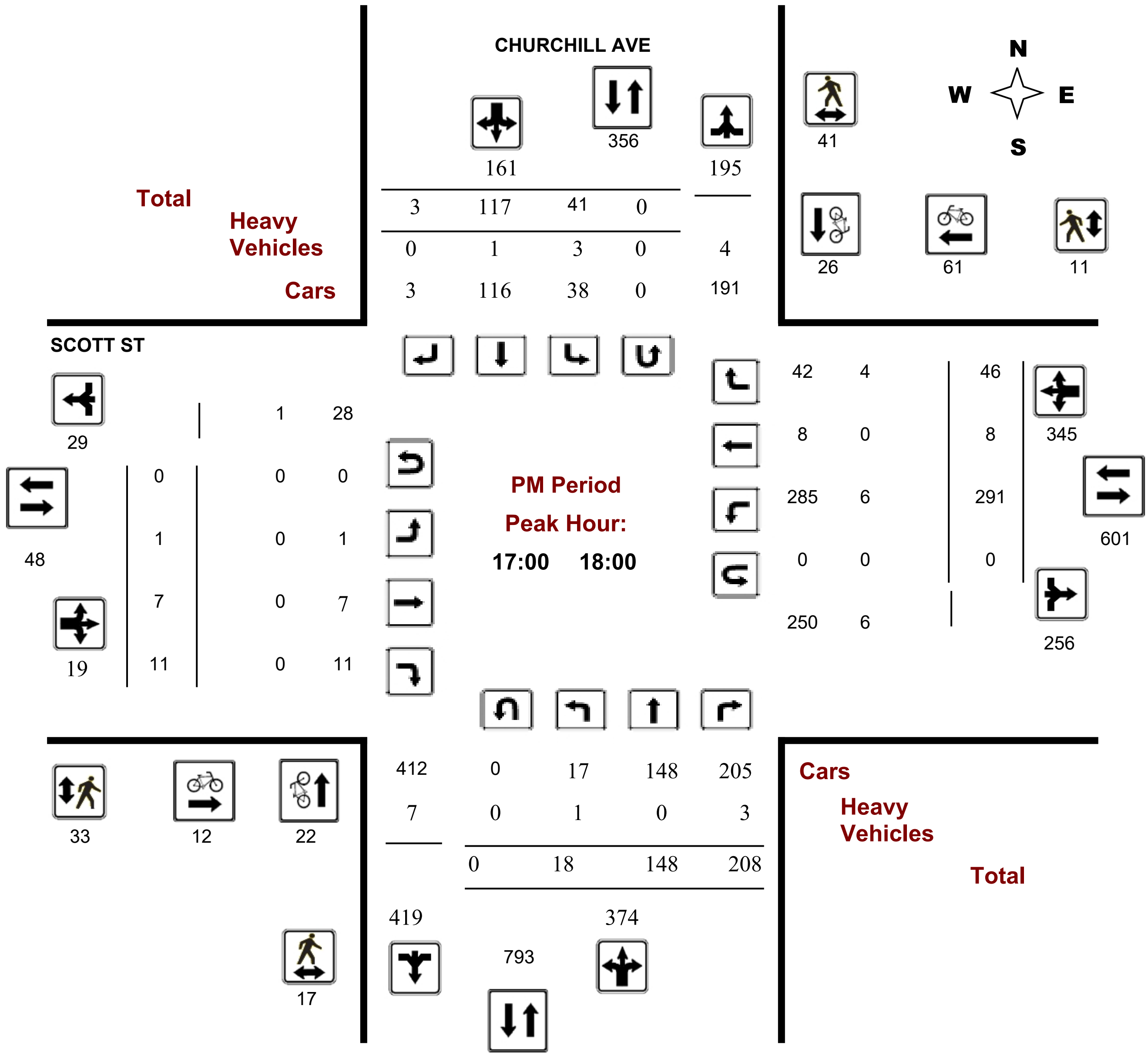
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

CHURCHILL AVE @ SCOTT ST

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

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



Comments

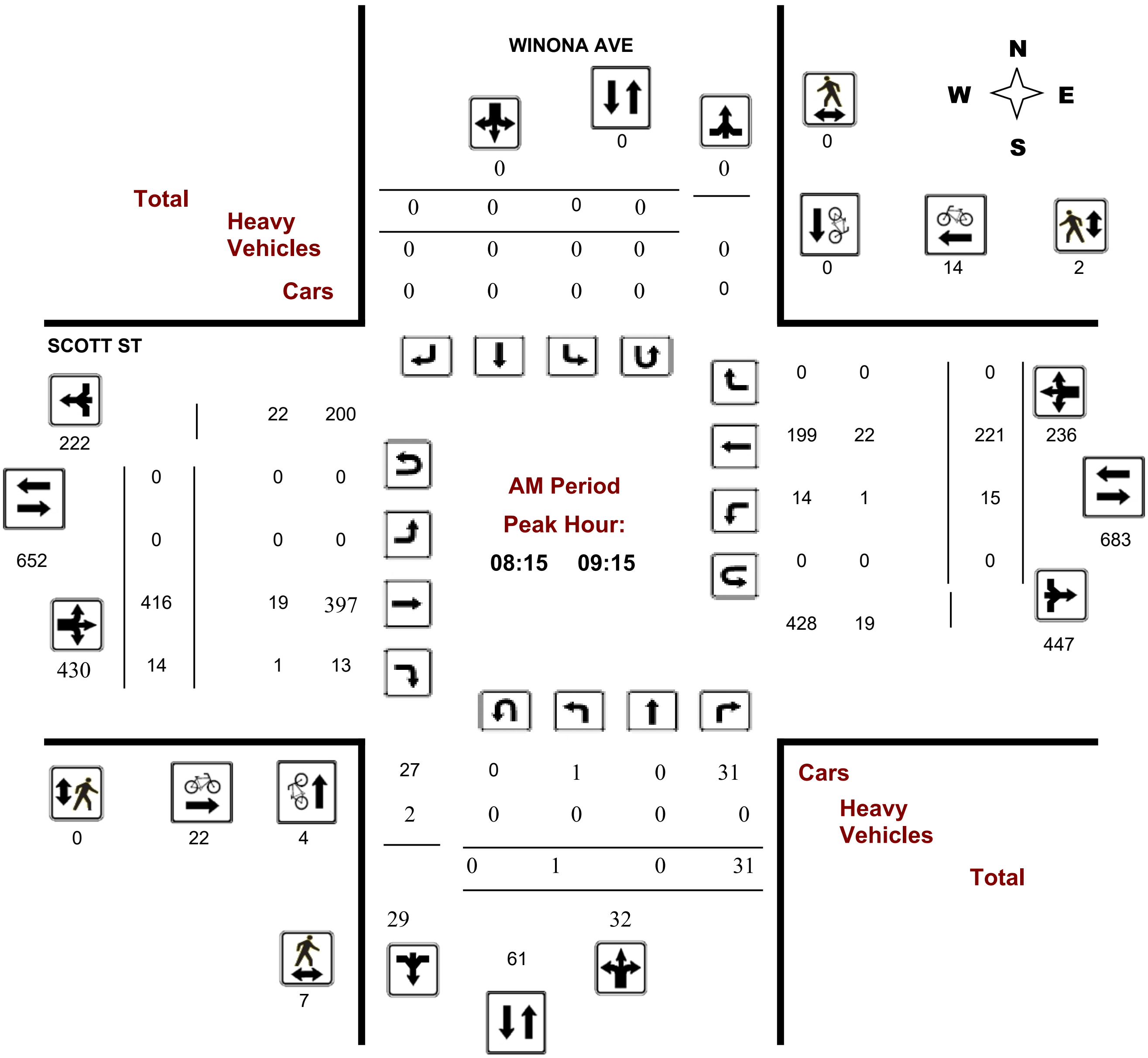
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

SCOTT ST @ WINONA AVE

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

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



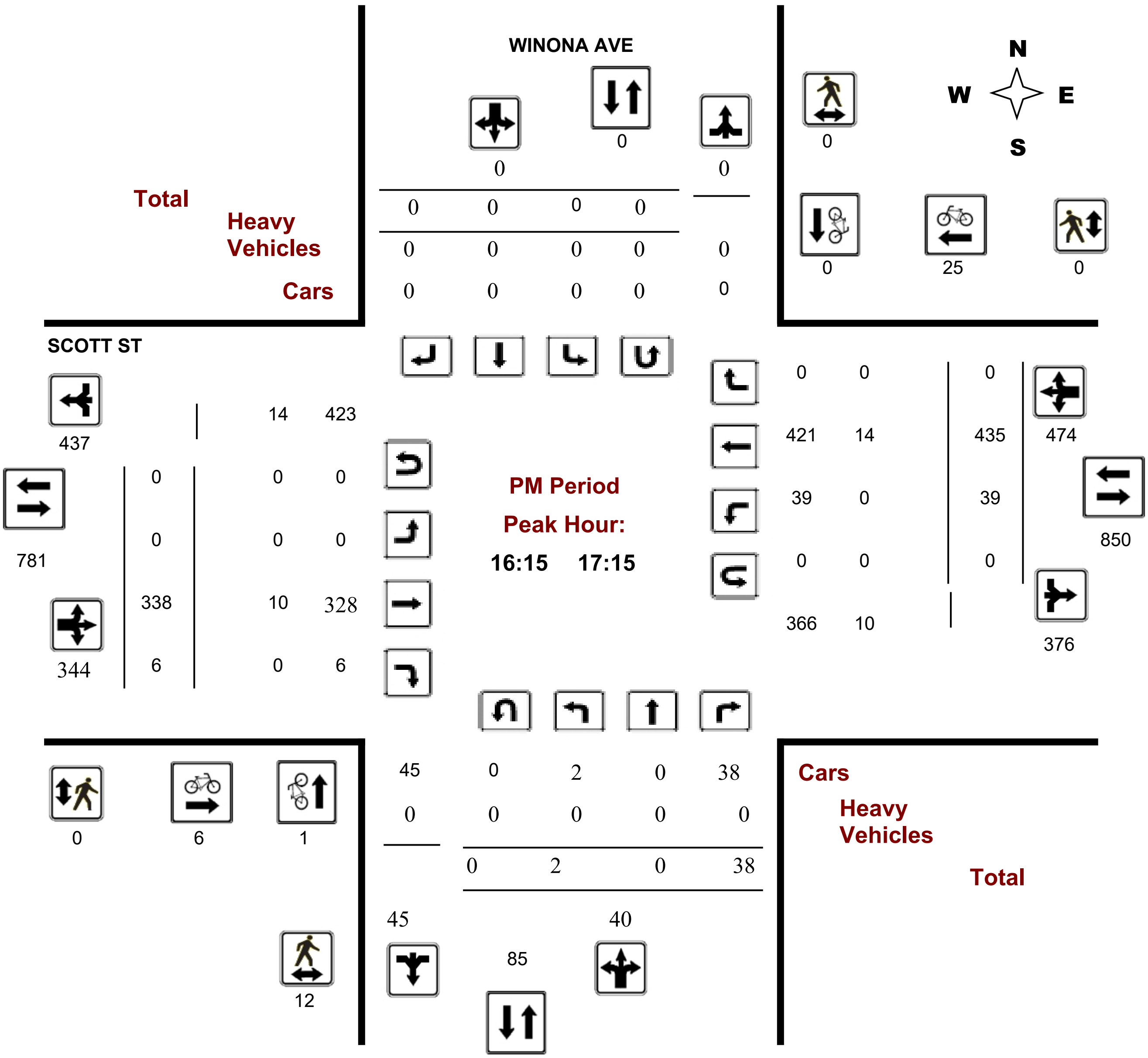
Comments

Turning Movement Count - Full Study Peak Hour Diagram

SCOTT ST @ WINONA AVE

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

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



Comments

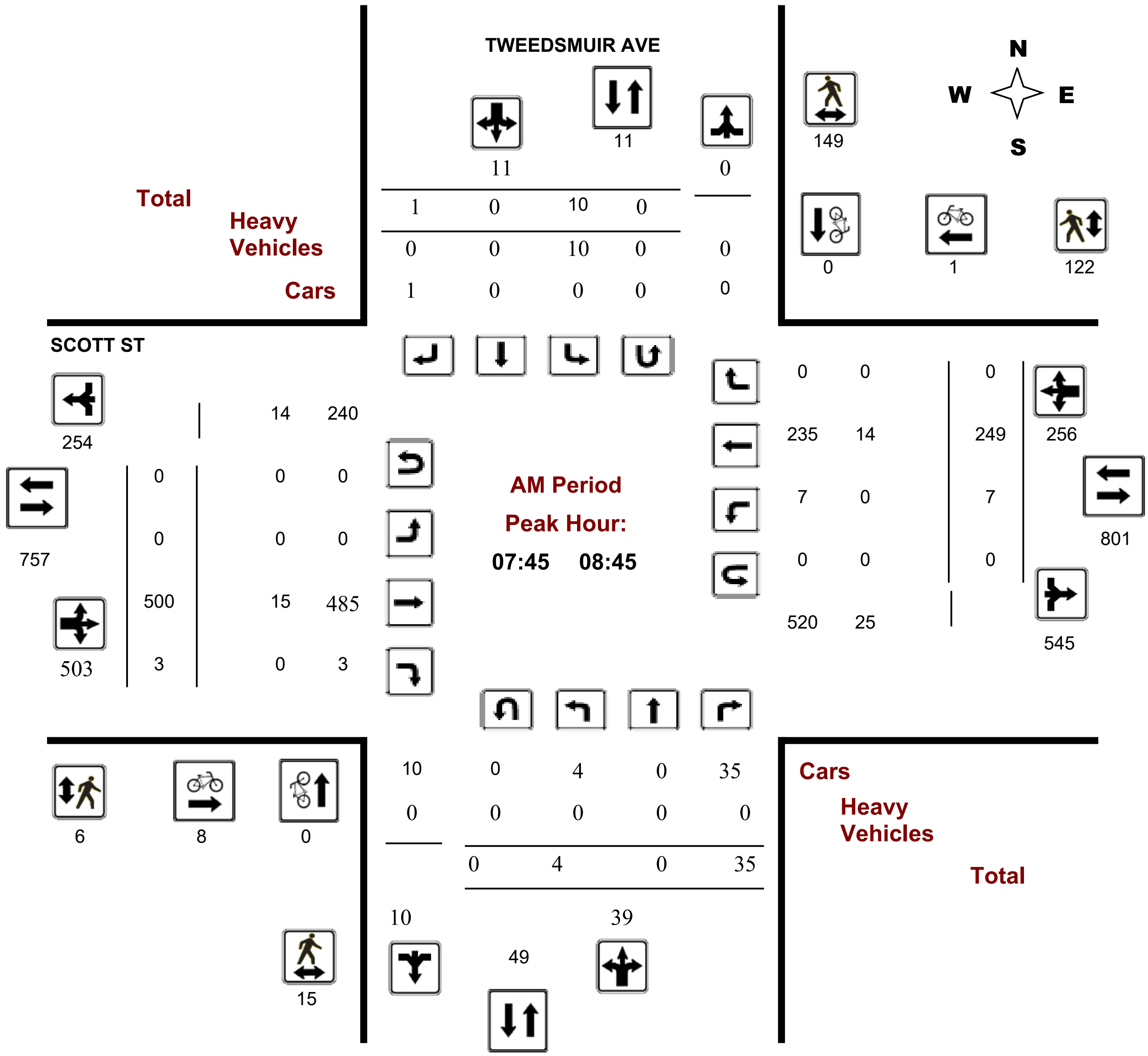
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

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

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



Comments

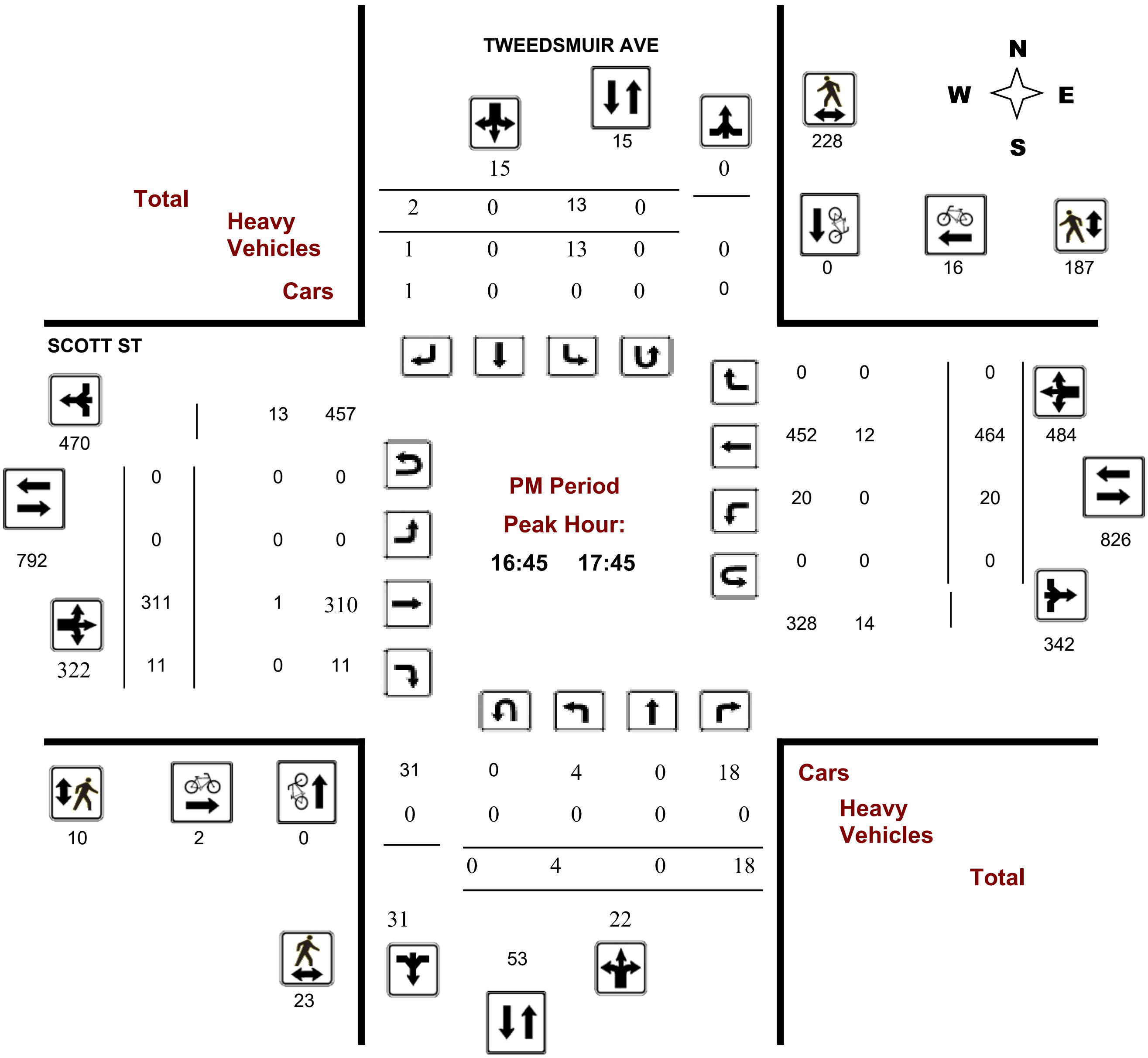
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

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

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



Comments

Appendix D

Collision Analysis

Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	3	1	2	2	1	1	1	0	11	73%
Non-fatal injury	1	1	0	0	0	2	0	0	4	27%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	**4**	**2**	**2**	**2**	**1**	**3**	**1**	**0**	**15**	100%
	#1 or 27%	#3 or 13%	#3 or 13%	#3 or 13%	#6 or 7%	#2 or 20%	#6 or 7%	#8 or 0%		

CHURCHILL AVE / SCOTT ST (0005132)

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	0	1	0	0	1	1	0	3	75%
Non-fatal injury	0	0	0	0	0	1	0	0	1	25%
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%		

SCOTT ST / WINONA AVE (0005131)

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (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 (0006305)

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	3	n/a	1825	**n/a**

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

TWEEDSMUIR AVE / SCOTT ST (0006371)

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	4	n/a	1825	**n/a**

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

Segments

SCOTT ST /twn CHURCHILL AVE N & WINONA AVE (__3ZA1QU)

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	0	0	0	1	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**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	100%

SCOTT ST /twn ATHLONE AVE & TRANSIT (__3ZBN9S)

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	1	0	1	0	0	0	0	2	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**	**1**	**0**	**0**	**0**	**0**	**2**	100%

Appendix E

Scott Street Complete Streets Concept Plan

Transportation Sevice Department

SCOTT STREET

Transportation Planning Branch
Strategic Planning Unit

Checked By:	Drawing No.: 1
Compiled by:	
Scale:	Date:

Appendix F

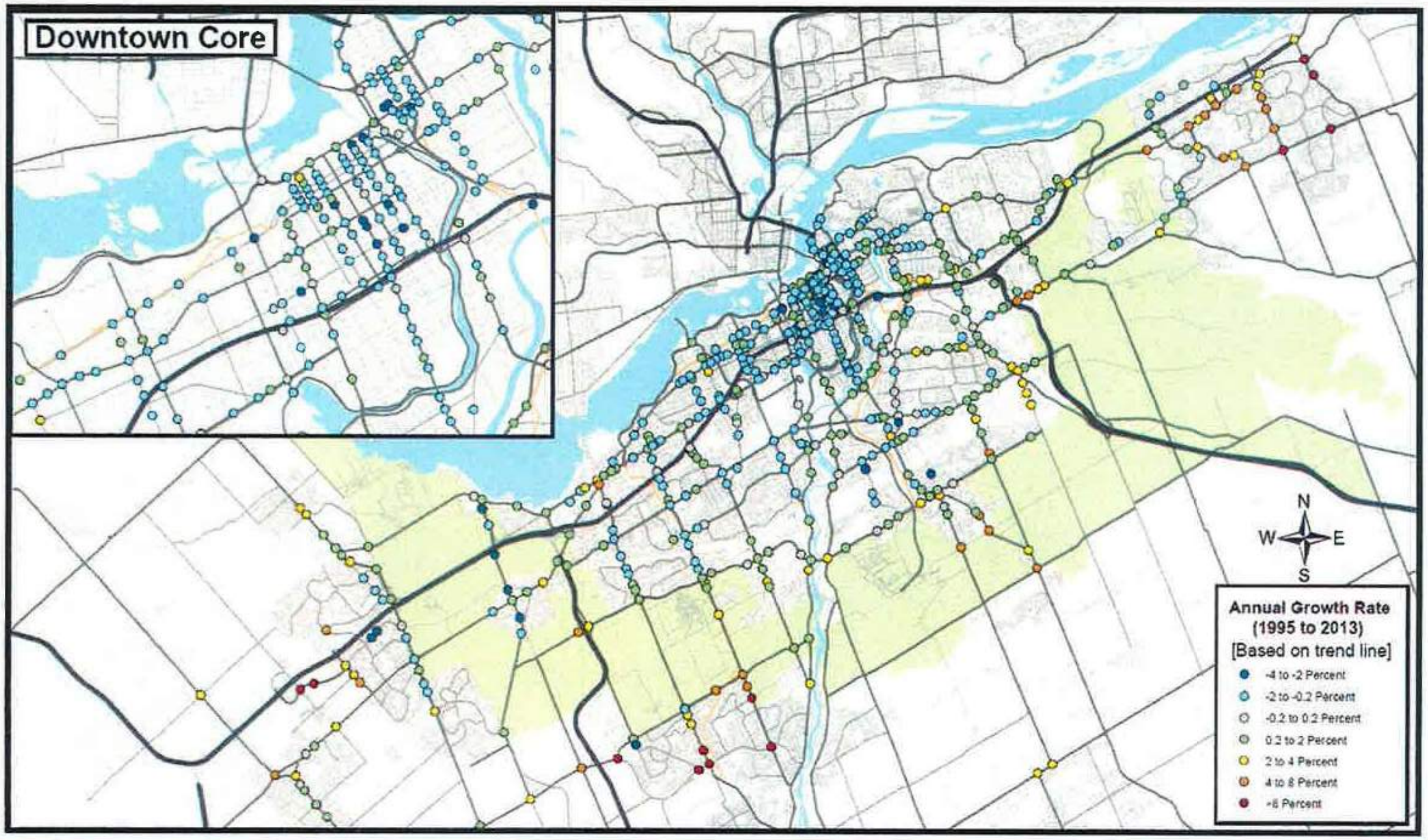
Traffic Growth Map City of Ottawa

Ottawa

3.2 Background Traffic: Background Growth

INTERSECTION TRAFFIC GROWTH RATES, AM PEAK PERIOD (0700 to 0900)

Total Vehicular Volume Entering the Intersection, 1995 to 2013, Scenario F AM 2



- Growth rates vary by location
- In some areas, traffic has been declining
- Growth rate must be justified

Appendix G

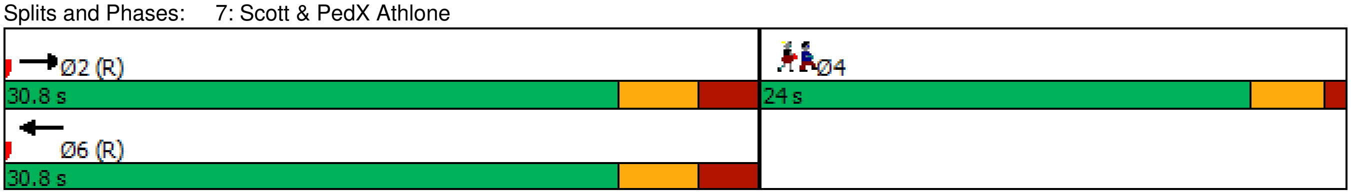
Synchro Analysis: Existing Conditions

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	496	289	0	0	0	
Future Volume (vph)	0	496	289	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	551	321	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		38.1	38.1				
Actuated g/C Ratio		0.70	0.70				
v/c Ratio		0.44	0.26				
Control Delay		9.5	1.9				
Queue Delay		0.0	0.1				
Total Delay		9.5	1.9				
LOS		A	A				
Approach Delay		9.5	1.9				
Approach LOS		A	A				
Queue Length 50th (m)		36.7	2.5				
Queue Length 95th (m)		63.5	3.9				
Internal Link Dist (m)		0.1	26.9		8.8		
Turn Bay Length (m)							
Base Capacity (vph)		1240	1240				
Starvation Cap Reductn		0	183				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.44	0.30				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 6.7	Intersection LOS: A
Intersection Capacity Utilization 32.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Scott & PedX Athlone

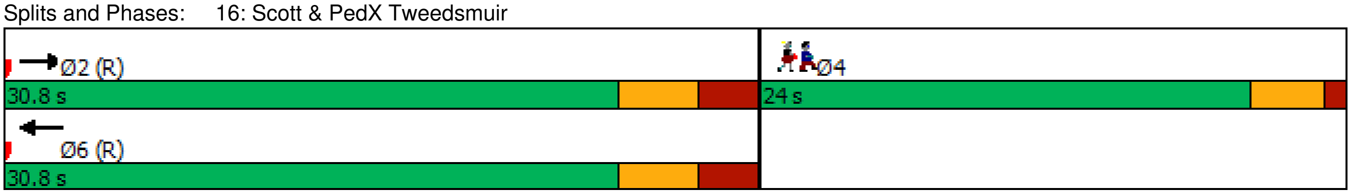


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	496	289	0	0	0	
Future Volume (vph)	0	496	289	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	551	321	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		32.6	32.6				
Actuated g/C Ratio		0.59	0.59				
v/c Ratio		0.52	0.30				
Control Delay		4.5	9.0				
Queue Delay		0.0	0.0				
Total Delay		4.5	9.0				
LOS		A	A				
Approach Delay		4.5	9.0				
Approach LOS		A	A				
Queue Length 50th (m)		4.3	18.0				
Queue Length 95th (m)		6.1	32.4				
Internal Link Dist (m)		26.9	0.1		10.1		
Turn Bay Length (m)							
Base Capacity (vph)		1059	1059				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.52	0.30				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 6.2	Intersection LOS: A
Intersection Capacity Utilization 32.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 16: Scott & PedX Tweedsmuir



Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	3	7	13	208	3	16	13	97	358	58	199	2
Future Vol, veh/h	3	7	13	208	3	16	13	97	358	58	199	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	8	14	231	3	18	14	108	398	64	221	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	13.7	18.2	13.1
HCM LOS	A	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	13%	92%	22%
Vol Thru, %	21%	30%	1%	77%
Vol Right, %	76%	57%	7%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	468	23	227	259
LT Vol	13	3	208	58
Through Vol	97	7	3	199
RT Vol	358	13	16	2
Lane Flow Rate	520	26	252	288
Geometry Grp	1	1	1	1
Degree of Util (X)	0.695	0.044	0.429	0.445
Departure Headway (Hd)	4.812	6.249	6.117	5.569
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	749	569	588	645
Service Time	2.86	4.333	4.171	3.624
HCM Lane V/C Ratio	0.694	0.046	0.429	0.447
HCM Control Delay	18.2	9.6	13.7	13.1
HCM Lane LOS	C	A	B	B
HCM 95th-tile Q	5.7	0.1	2.1	2.3

Intersection						
Int Delay, s/veh	0.7					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	416	14	15	221	1	31
Future Vol, veh/h	416	14	15	221	1	31
Conflicting Peds, #/hr	0	7	7	0	0	2
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, %	2	2	2	2	2	2
Mvmt Flow	462	16	17	246	1	34

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	485	0	757	479
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	280	-
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	-	-	1078	-	375	587
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	767	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1072	-	366	583
Mov Cap-2 Maneuver	-	-	-	-	366	-
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	753	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	572	-	-	1072	-
HCM Lane V/C Ratio	0.062	-	-	0.016	-
HCM Control Delay (s)	11.7	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	468	8	23	260	6	3	0	28	0	0	0
Future Vol, veh/h	11	468	8	23	260	6	3	0	28	0	0	0
Conflicting Peds, #/hr	117	0	17	17	0	117	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	520	9	26	289	7	3	0	31	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	413	0	0	546	0	0	911	1031	542	1026	1032	410
Stage 1	-	-	-	-	-	-	566	566	-	462	462	-
Stage 2	-	-	-	-	-	-	345	465	-	564	570	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1146	-	-	1023	-	-	255	233	540	213	233	642
Stage 1	-	-	-	-	-	-	509	507	-	580	565	-
Stage 2	-	-	-	-	-	-	671	563	-	510	505	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1032	-	-	1008	-	-	243	197	532	174	197	578
Mov Cap-2 Maneuver	-	-	-	-	-	-	243	197	-	174	197	-
Stage 1	-	-	-	-	-	-	494	492	-	514	493	-
Stage 2	-	-	-	-	-	-	650	491	-	472	490	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	13.1	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	477	1032	-	-	1008	-	-	-
HCM Lane V/C Ratio	0.072	0.012	-	-	0.025	-	-	-
HCM Control Delay (s)	13.1	8.5	0	-	8.7	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	-

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	0	500	3	7	249	0	4	0	35	10	0	1
Future Vol, veh/h	0	500	3	7	249	0	4	0	35	10	0	1
Conflicting Peds, #/hr	149	0	15	15	0	149	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	556	3	8	277	0	4	0	39	11	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	426	0	0	574	0	0	867	1015	573	1019	1016	426
Stage 1	-	-	-	-	-	-	573	573	-	442	442	-
Stage 2	-	-	-	-	-	-	294	442	-	577	574	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1133	-	-	999	-	-	273	238	519	215	238	628
Stage 1	-	-	-	-	-	-	505	504	-	594	576	-
Stage 2	-	-	-	-	-	-	714	576	-	502	503	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	990	-	-	986	-	-	267	203	512	172	203	549
Mov Cap-2 Maneuver	-	-	-	-	-	-	267	203	-	172	203	-
Stage 1	-	-	-	-	-	-	498	497	-	519	498	-
Stage 2	-	-	-	-	-	-	705	498	-	464	496	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	13.5	26.1
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	468	990	-	-	986	-	-	183
HCM Lane V/C Ratio	0.093	-	-	-	0.008	-	-	0.067
HCM Control Delay (s)	13.5	0	-	-	8.7	0	-	26.1
HCM Lane LOS	B	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	453	24	93	260	6	47
Future Vol, veh/h	453	24	93	260	6	47
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	503	27	103	289	7	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	530	0	1012	517
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	495	-
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	-	-	1037	-	265	558
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1037	-	234	558
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	541	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	13.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	482	-	-	1037	-
HCM Lane V/C Ratio	0.122	-	-	0.1	-
HCM Control Delay (s)	13.5	-	-	8.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.3	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	435	544	0	0	0	
Future Volume (vph)	0	435	544	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	483	604	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		38.1	38.1				
Actuated g/C Ratio		0.70	0.70				
v/c Ratio		0.39	0.49				
Control Delay		8.8	2.9				
Queue Delay		0.0	0.0				
Total Delay		8.8	2.9				
LOS		A	A				
Approach Delay		8.8	2.9				
Approach LOS		A	A				
Queue Length 50th (m)		30.5	4.7				
Queue Length 95th (m)		52.8	11.3				
Internal Link Dist (m)		0.1	26.9		8.8		
Turn Bay Length (m)							
Base Capacity (vph)		1240	1240				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.39	0.49				

Intersection Summary

Cycle Length: 54.8

Actuated Cycle Length: 54.8

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

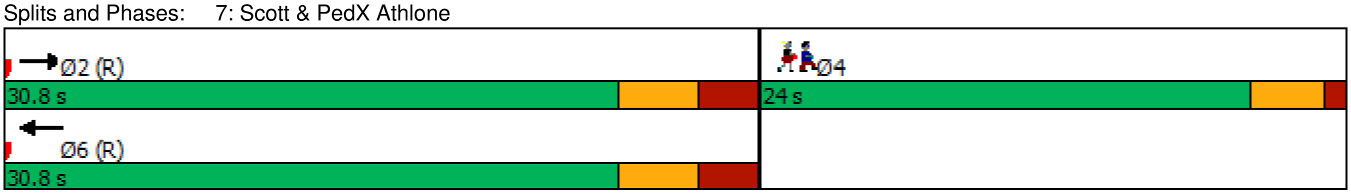
Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 5.5	Intersection LOS: A
Intersection Capacity Utilization 35.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 7: Scott & PedX Athlone



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	435	544	0	0	0	
Future Volume (vph)	0	435	544	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	483	604	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		32.6	32.6				
Actuated g/C Ratio		0.59	0.59				
v/c Ratio		0.46	0.57				
Control Delay		4.1	12.6				
Queue Delay		0.0	0.0				
Total Delay		4.1	12.6				
LOS		A	B				
Approach Delay		4.1	12.6				
Approach LOS		A	B				
Queue Length 50th (m)		3.8	42.0				
Queue Length 95th (m)		5.5	72.9				
Internal Link Dist (m)		26.9	0.1		10.1		
Turn Bay Length (m)							
Base Capacity (vph)		1059	1059				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.46	0.57				

Intersection Summary

Cycle Length: 54.8

Actuated Cycle Length: 54.8

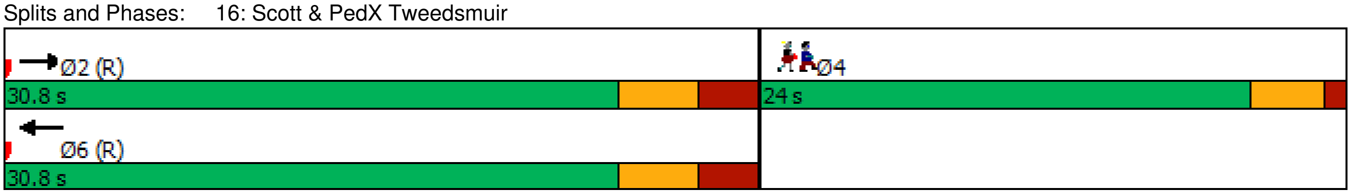
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 35.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 16: Scott & PedX Tweedsmuir



Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	7	11	291	8	46	18	148	208	41	117	3
Future Vol, veh/h	1	7	11	291	8	46	18	148	208	41	117	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	8	12	323	9	51	20	164	231	46	130	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	16.8	15.3	11.2
HCM LOS	A	C	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	5%	84%	25%
Vol Thru, %	40%	37%	2%	73%
Vol Right, %	56%	58%	13%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	374	19	345	161
LT Vol	18	1	291	41
Through Vol	148	7	8	117
RT Vol	208	11	46	3
Lane Flow Rate	416	21	383	179
Geometry Grp	1	1	1	1
Degree of Util (X)	0.59	0.035	0.6	0.289
Departure Headway (Hd)	5.114	5.948	5.634	5.813
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	702	598	640	615
Service Time	3.162	4.023	3.678	3.872
HCM Lane V/C Ratio	0.593	0.035	0.598	0.291
HCM Control Delay	15.3	9.2	16.8	11.2
HCM Lane LOS	C	A	C	B
HCM 95th-tile Q	3.9	0.1	4	1.2

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	338	6	39	435	2	38
Future Vol, veh/h	338	6	39	435	2	38
Conflicting Peds, #/hr	0	12	12	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	376	7	43	483	2	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	395	0	961	392
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	569	-
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	-	-	1164	-	284	657
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	566	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1152	-	267	650
Mov Cap-2 Maneuver	-	-	-	-	267	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	607	-	-	1152	-
HCM Lane V/C Ratio	0.073	-	-	0.038	-
HCM Control Delay (s)	11.4	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	396	9	21	523	0	3	0	39	0	0	0
Future Vol, veh/h	8	396	9	21	523	0	3	0	39	0	0	0
Conflicting Peds, #/hr	130	0	16	16	0	130	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	440	10	23	581	0	3	0	43	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	711	0	0	466	0	0	1106	1236	461	1242	1241	711
Stage 1	-	-	-	-	-	-	479	479	-	757	757	-
Stage 2	-	-	-	-	-	-	627	757	-	485	484	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	888	-	-	1095	-	-	188	176	600	152	175	433
Stage 1	-	-	-	-	-	-	568	555	-	400	416	-
Stage 2	-	-	-	-	-	-	471	416	-	563	552	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	790	-	-	1080	-	-	179	147	592	121	147	385
Mov Cap-2 Maneuver	-	-	-	-	-	-	179	147	-	121	147	-
Stage 1	-	-	-	-	-	-	552	539	-	351	359	-
Stage 2	-	-	-	-	-	-	456	359	-	514	536	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	12.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	508	790	-	-	1080	-	-	-
HCM Lane V/C Ratio	0.092	0.011	-	-	0.022	-	-	-
HCM Control Delay (s)	12.8	9.6	0	-	8.4	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	-

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	0	310	11	20	464	0	4	0	18	13	0	2
Future Vol, veh/h	0	310	11	20	464	0	4	0	18	13	0	2
Conflicting Peds, #/hr	228	0	23	23	0	228	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	344	12	22	516	0	4	0	20	14	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	744	0	0	379	0	0	934	1161	373	1148	1167	744
Stage 1	-	-	-	-	-	-	373	373	-	788	788	-
Stage 2	-	-	-	-	-	-	561	788	-	360	379	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	864	-	-	1179	-	-	246	195	673	176	194	415
Stage 1	-	-	-	-	-	-	648	618	-	384	402	-
Stage 2	-	-	-	-	-	-	512	402	-	658	615	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	697	-	-	1156	-	-	235	150	660	135	149	335
Mov Cap-2 Maneuver	-	-	-	-	-	-	235	150	-	135	149	-
Stage 1	-	-	-	-	-	-	636	606	-	310	316	-
Stage 2	-	-	-	-	-	-	495	316	-	638	603	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	12.6	32.6
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	497	697	-	-	1156	-	-	147
HCM Lane V/C Ratio	0.049	-	-	-	0.019	-	-	0.113
HCM Control Delay (s)	12.6	0	-	-	8.2	0	-	32.6
HCM Lane LOS	B	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	365	27	45	354	24	118
Future Vol, veh/h	365	27	45	354	24	118
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	406	30	50	393	27	131

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	436	0	914	421
Stage 1	-	-	-	-	421	-
Stage 2	-	-	-	-	493	-
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	-	-	1124	-	303	632
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1124	-	286	632
Mov Cap-2 Maneuver	-	-	-	-	286	-
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	579	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	525	-	-	1124	-
HCM Lane V/C Ratio	0.301	-	-	0.044	-
HCM Control Delay (s)	14.8	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

Appendix H

MMLOS Analysis: Road Segments

Multi-Modal Level of Service - Segments Form

Consultant	Parsons	Project	2050 Scott Street
Scenario	Existing Conditions	Date	19-Apr
Comments			

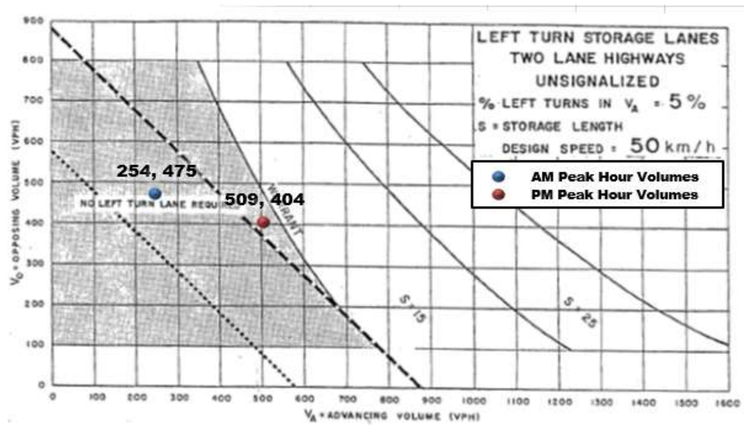
SEGMENTS		Street A	Scott Street South Side	Scott Street North Side	Ashton Avenue	Scott Future South	Scott Future North	Section 6	Section 7	Section 8	Section 9
Pedestrian	Sidewalk Width Boulevard Width	C	1.8 m < 0.5 m	≥ 2 m > 2 m	no sidewalk n/a	≥ 2 m > 2 m	≥ 2 m > 2 m				
	Avg Daily Curb Lane Traffic Volume		> 3000	> 3000	≤ 3000	> 3000	> 3000				
	Operating Speed On-Street Parking		> 30 to 50 km/h yes	> 30 to 50 km/h yes	> 30 to 50 km/h yes	> 30 to 50 km/h no	> 30 to 50 km/h no				
	Exposure to Traffic PLoS		C	B	F	B	B	-	-	-	-
	Effective Sidewalk Width		1.5 m	3.0 m		2.0 m	2.0 m				
	Pedestrian Volume		250 ped/hr	250 ped/hr		250 ped/hr	250 ped/hr				
	Crowding PLoS		B	A	-	B	B	-	-	-	-
	Level of Service		C	B	-	B	B	-	-	-	-
Bicycle	Type of Cycling Facility	B	Curbside Bike Lane	Curbside Bike Lane	Mixed Traffic	Physically Separated	Mixed Traffic				
	Number of Travel Lanes		≤ 1 each direction	≤ 1 each direction	≤ 2 (no centreline)		≤ 2 (no centreline)				
	Operating Speed		≤ 50 km/h	≤ 50 km/h	≤ 40 km/h		>40 to <50 km/h				
	# of Lanes & Operating Speed LoS		A	A	A	-	B	-	-	-	-
	Bike Lane (+ Parking Lane) Width		≥1.5 to <1.8 m	≥1.5 to <1.8 m							
	Bike Lane Width LoS		B	B	-	-	-	-	-	-	-
	Bike Lane Blockages		Rare	Rare							
	Blockage LoS		A	A	-	-	-	-	-	-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge		< 1.8 m refuge				
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes	≤ 3 lanes		≤ 3 lanes				
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h	≤ 40 km/h		≤ 40 km/h				
	Unsignalized Crossing - Lowest LoS		A	A	A	A	A	-	-	-	-
	Level of Service		B	B	A	A	B	-	-	-	-
Transit	Facility Type	D	Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic				
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8		Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8				
	Level of Service		D	D	-	D	D	-	-	-	-
Truck	Truck Lane Width	C	≤ 3.5 m	≤ 3.5 m		≤ 3.5 m	≤ 3.5 m				
	Travel Lanes per Direction		1	1		1	1				
	Level of Service		C	C	-	C	C	-	-	-	-

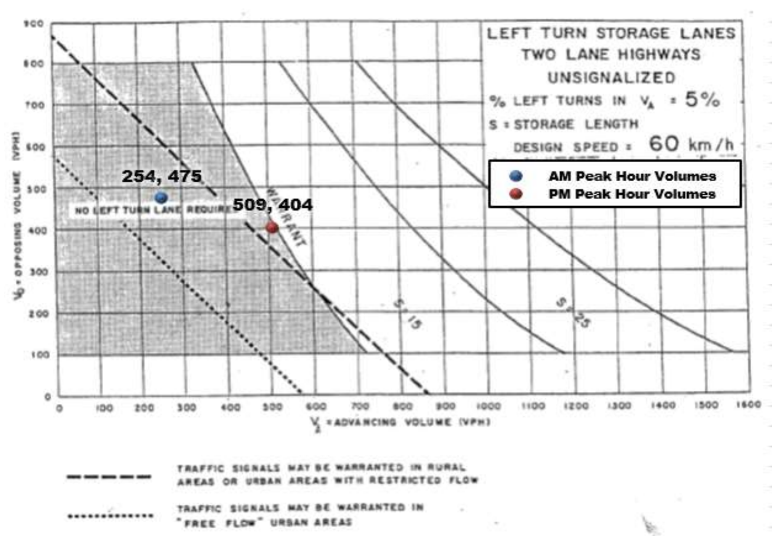
Appendix I

Traffic Warrants

	Design Speed	Advancing Traffic Volume (V_A)		Opposing Traffic Volume (V_O)		Left Turn Traffic Volume (V_L)		% of Left Turning Traffic		Warrant Left Turn Lane
		AM	PM	AM	PM	AM	PM	AM	PM	
Existing										
Scott/Site Access	50	276	537	492	420	6	15	2%	3%	No

Peak	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
										Warrant?		
AM	8		19					490	2	6	270	
PM	4		10					414	6	15	522	





Scott/Site Access - (peak hour signal warrant)

Signal Warrant		Description		Minimum Requirement for Two-Lane Roadways	Compliance		
				Restricted Flow - Operating Speed Less Than 70 km/h	Sectional %	Entire %	Warrant
Intersection	1. Minimum Vehicular Volume	(1) A	Vehicle Volume, All Approaches for Each of the Heaviest 8 Hours of on Average Day, and	720	61%	4%	**4% No**
		(4) B	Vehicle Volume, Along Minor Streets for Each of the Same 8 Hours	255	4%		
	2. Delay to Cross Traffic	(1) A	Vehicle Volume, Along Major Street for Each of the Heaviest 8 Hours of an Average Day, and	720	60%	4%	
		(2) B	Combined Vehicle and Pedestrian Volume Crossing the Major Street for Each of the Same 8 Hours	75	4%		

Notes

1 *Vehicle Volume Warrants (1A), (2A) and (5B) for Roadways Having Two or More Moving Lanes in one Direction Should Be 25% Higher Than Values Given Above*

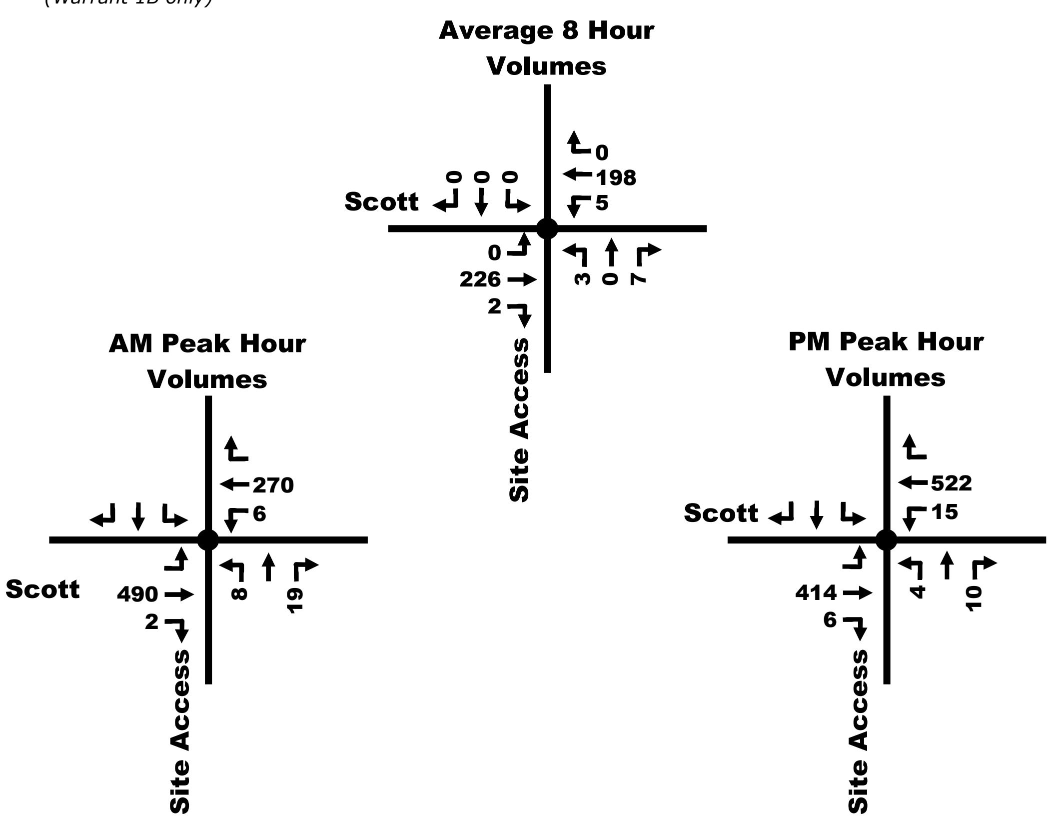
2 *For Definition of Crossing Volume Refer to Note 4 on the Signal Warrant Analysis Form B2.03.08*

3 *The Lowest Sectional Percentage Governs the Entire Warrant*

4 *For "T" Intersections the Warrant Values for Minor Street Should be Increased by 50% (Warrant 1B only)*

No

Yes



Appendix J

TDM Checklist

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	☑ *parking underground*
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑ *accesses located fronting Scott and Ashton*
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑ *Windows and doors with pedestrian visibility provided*
	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)*	☑ *Paved sidewalk fronting the development provides access to Athlone/Scott intersection which has a pedestrian actuated crossing signal.*
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)*	☑ *Proposed road widening increases sidewalk area. Partial step back above ground floor improves pedestrian comfort, creates lively podium façade and creates canopy effect*

		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)*	☑ *Sidewalk to meet city standards*
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)*	☑ *Sidewalk to meet city standards*
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)*	☑ *Building will provide connectivity to the existing and planned pedestrian and cycling network*
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑ *Paved sidewalks*
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑ *Street lighting provided*
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	☑ *Bicycle dedicated lane provided on eastbound and MUP*
	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	☑ *Surface and landscape treatments proposed*
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)	☑ *Distinction between commercial and residential segment*

		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)*	☑ *Bicycle parking provided indoors between P1 and P7 parking lots*
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)*	☑ *Refer to section 4.2 within TIA Report*
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)*	☑ *To meet city standards*
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	☑ *292 bicycle parking spots proposed (178 min required)*
	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)*	☑ *Bicycle parking proposed indoors*
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐ *Building is proposing 292 bike stalls, 114 more than minimum required*
	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)	☐ Will be included in bike storage area
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐ To be reviewed with OC Transpo
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	☐ To be reviewed with OC Transpo
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐ To be reviewed with OC Transpo

		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	☐ Not possible given site configuration
	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)*	☐ Car share program will be available to tenants with number of onsite stalls to be determined
	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	☐ Reviewing options for bike share and scooter sharing programs
	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	☑ *To meet city standards*
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	☑ *Separate parking provided for both long- and short-term users*
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)*	☐ All parking will be for residential use
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)*	☐ Not applicable (residents have their own showers to use)
	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)	☑ *The parking lot will be monitored with specific locations for visitors and long-term parking*

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	☑ Internal 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	☑ Surveys will be conducted on an ongoing basis
		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)*	☑ Mobile application is being developed to highlight these elements
		2.2	**Bicycle skills training**	
BETTER		2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☑ Cycling groups will be established for residents to partake in regular sessions.

			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)*	☑ To be included in application that is being developed
BETTER		3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☑ Information will be provided
		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	☐ To be reviewed with OC Transpo
BETTER		3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐ To be reviewed with OC Transpo
		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)*	☐ To be reviewed with OC Transpo
		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)	☐ Not applicable
		4.	**CARSHARING & BIKESHARING**	
		4.1	**Bikeshare stations & memberships**	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station *(multi-family)*	☐ Reviewing bicycle and scooter sharing programs
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐ Reviewing options
		4.2	**Carshare vehicles & memberships**	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☐ Private car sharing program being explored for residents
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	☐ Private car sharing program being explored for residents
		5.	**PARKING**	
		5.1	**Priced parking**	
BASIC	★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☑ Parking space cost separate
BASIC	★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☑ Parking space cost separate

			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	☑ To be provided as part of rental welcome package
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐ will look into it.

Appendix K

MMLOS Analysis: Intersections

Multi-Modal Level of Service - Intersections Form

Consultant	Parsons	Project	2050 Scott Street
Scenario	Existing	Date	23-Apr
Comments			

Unlocked Rows for Replicating

INTERSECTIONS: Athlone/Scott Existing

	Crossing Side	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	0 - 2	0 - 2	0 - 2	0 - 2
Pedestrian	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Pedestrian	Conflicting Left Turns	Permissive	Permissive	Permissive	No left turn / Prohib.
Pedestrian	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control
Pedestrian	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed
Pedestrian	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes
Pedestrian	Right Turn Channel	No Channel	No Channel	No Right Turn	No Channel
Pedestrian	Corner Radius	5-10m	5-10m	No Right Turn	5-10m
Pedestrian	Crosswalk Type	Std transverse markings	Std transverse markings		Std transverse markings
Pedestrian	**PETSI Score**	88	88		96
Pedestrian	**Ped. Exposure to Traffic LoS**	B	B	-	A
Pedestrian	Cycle Length				
Pedestrian	Effective Walk Time				
Pedestrian	**Average Pedestrian Delay**				
Pedestrian	**Pedestrian Delay LoS**	-	-	-	-
Pedestrian	**Level of Service**	B	B	-	A
Pedestrian	**Level of Service** (overall)	B			
Bicycle	Approach From	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach			Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
Bicycle	Right Turn Lane Configuration			Not Applicable	Not Applicable
Bicycle	Right Turning Speed			≤ 25 km/h	≤ 25 km/h
Bicycle	**Cyclist relative to RT motorists**	-	-	Not Applicable	Not Applicable
Bicycle	**Separated or Mixed Traffic**	-	-	Separated	Separated
Bicycle	Left Turn Approach			No lane crossed	1 lane crossed
Bicycle	Operating Speed			> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h
Bicycle	**Left Turning Cyclist**	-	-	B	C
Bicycle	**Level of Service**	-	-	B	C
Bicycle	**Level of Service** (overall)	C			
Transit	Average Signal Delay	0 sec	0 sec	≤ 30 sec	≤ 30 sec
Transit	**Level of Service**	A	A	D	D
Transit	**Level of Service** (overall)	D			
Truck	Effective Corner Radius				
Truck	Number of Receiving Lanes on Departure from Intersection				
Truck	**Level of Service**	-	-	-	-
Truck	**Level of Service** (overall)	-			
Auto	Volume to Capacity Ratio				
Auto	**Level of Service**	-			

INTERSECTIONS: Athlone/Scott Interim

	Crossing Side	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	0 - 2	0 - 2	0 - 2	0 - 2
Pedestrian	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Pedestrian	Conflicting Left Turns	Permissive	Permissive	Permissive	No left turn / Prohib.
Pedestrian	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control
Pedestrian	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed
Pedestrian	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes
Pedestrian	Right Turn Channel	No Channel	No Channel	No Right Turn	No Channel
Pedestrian	Corner Radius	5-10m	5-10m	No Right Turn	5-10m
Pedestrian	Crosswalk Type	Std transverse markings	Std transverse markings		Std transverse markings
Pedestrian	**PETSI Score**	88	88		96
Pedestrian	**Ped. Exposure to Traffic LoS**	B	B	-	A
Pedestrian	Cycle Length				
Pedestrian	Effective Walk Time				
Pedestrian	**Average Pedestrian Delay**				
Pedestrian	**Pedestrian Delay LoS**	-	-	-	-
Pedestrian	**Level of Service**	B	B	-	A
Pedestrian	**Level of Service** (overall)	B			
Bicycle	Approach From	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach			Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
Bicycle	Right Turn Lane Configuration			Not Applicable	Not Applicable
Bicycle	Right Turning Speed			≤ 25 km/h	≤ 25 km/h
Bicycle	**Cyclist relative to RT motorists**	-	-	Not Applicable	Not Applicable
Bicycle	**Separated or Mixed Traffic**	-	-	Separated	Separated
Bicycle	Left Turn Approach			No lane crossed	1 lane crossed
Bicycle	Operating Speed			> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h
Bicycle	**Left Turning Cyclist**	-	-	B	C
Bicycle	**Level of Service**	-	-	B	C
Bicycle	**Level of Service** (overall)	C			
Transit	Average Signal Delay	0 sec	0 sec	≤ 30 sec	≤ 30 sec
Transit	**Level of Service**	A	A	D	D
Transit	**Level of Service** (overall)	D			
Truck	Effective Corner Radius				
Truck	Number of Receiving Lanes on Departure from Intersection				
Truck	**Level of Service**	-	-	-	-
Truck	**Level of Service** (overall)	-			
Auto	Volume to Capacity Ratio				
Auto	**Level of Service**	-			

INTERSECTIONS: Churchill/Scott

	Crossing Side	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	0 - 2	3	3	0 - 2
Pedestrian	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Pedestrian	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive
Pedestrian	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
Pedestrian	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
Pedestrian	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes
Pedestrian	Right Turn Channel	No Channel	No Channel	No Channel	No Channel
Pedestrian	Corner Radius	5-10m	10-15m	10-15m	5-10m
Pedestrian	Crosswalk Type	Textured/coloured pavement	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
Pedestrian	**PETSI Score**	91	75	75	91
Pedestrian	**Ped. Exposure to Traffic LoS**	A	B	B	A
Pedestrian	Cycle Length				
Pedestrian	Effective Walk Time				
Pedestrian	**Average Pedestrian Delay**				
Pedestrian	**Pedestrian Delay LoS**	-	-	-	-
Pedestrian	**Level of Service**	A	B	B	A
Pedestrian	**Level of Service** (overall)	B			
Bicycle	Approach From	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
Bicycle	Right Turn Lane Configuration	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bicycle	Right Turning Speed	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bicycle	**Cyclist relative to RT motorists**	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Bicycle	**Separated or Mixed Traffic**	Separated	Separated	Separated	Separated
Bicycle	Left Turn Approach	No lane crossed	No lane crossed	No lane crossed	No lane crossed
Bicycle	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h
Bicycle	**Left Turning Cyclist**	B	B	B	B
Bicycle	**Level of Service**	B	B	B	B
Bicycle	**Level of Service** (overall)	B			
Transit	Average Signal Delay	0 sec	0 sec	≤ 30 sec	≤ 30 sec
Transit	**Level of Service**	A	A	D	D
Transit	**Level of Service** (overall)	D			
Truck	Effective Corner Radius		10 - 15 m		
Truck	Number of Receiving Lanes on Departure from Intersection		1		
Truck	**Level of Service**	-	E	-	-
Truck	**Level of Service** (overall)	E			
Auto	Volume to Capacity Ratio				
Auto	**Level of Service**	-			

INTERSECTIONS: Athlone/Scott Post LRT Construction

	Crossing Side	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	0 - 2	0 - 2	0 - 2	0 - 2
Pedestrian	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Pedestrian	Conflicting Left Turns	Permissive	Permissive	Permissive	No left turn / Prohib.
Pedestrian	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control
Pedestrian	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed
Pedestrian	Ped Signal Leading Interval?	Yes	Yes	Yes	Yes
Pedestrian	Right Turn Channel	No Channel	No Channel	No Right Turn	No Channel
Pedestrian	Corner Radius	5-10m	5-10m	No Right Turn	5-10m
Pedestrian	Crosswalk Type	Textured/coloured pavement	Zebra stripe hi-vis markings		Zebra stripe hi-vis markings
Pedestrian	**PETSI Score**	91	91		99
Pedestrian	**Ped. Exposure to Traffic LoS**	A	A	-	A
Pedestrian	Cycle Length				
Pedestrian	Effective Walk Time				
Pedestrian	**Average Pedestrian Delay**				
Pedestrian	**Pedestrian Delay LoS**	-	-	-	-
Pedestrian	**Level of Service**	A	A	-	A
Pedestrian	**Level of Service** (overall)	A			
Bicycle	Approach From	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach			Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
Bicycle	Right Turn Lane Configuration			Not Applicable	Not Applicable
Bicycle	Right Turning Speed			≤ 25 km/h	≤ 25 km/h
Bicycle	**Cyclist relative to RT motorists**	-	-	Not Applicable	Not Applicable
Bicycle	**Separated or Mixed Traffic**	-	-	Separated	Separated
Bicycle	Left Turn Approach			2-stage, LT box	2-stage, LT box
Bicycle	Operating Speed			≤ 40 km/h	≤ 40 km/h
Bicycle	**Left Turning Cyclist**	-	-	A	A
Bicycle	**Level of Service**	-	-	A	A
Bicycle	**Level of Service** (overall)	A			
Transit	Average Signal Delay	0 sec	0 sec	≤ 30 sec	≤ 30 sec
Transit	**Level of Service**	A	A	D	D
Transit	**Level of Service** (overall)	D			
Truck	Effective Corner Radius				
Truck	Number of Receiving Lanes on Departure from Intersection				
Truck	**Level of Service**	-	-	-	-
Truck	**Level of Service** (overall)	-			
Auto	Volume to Capacity Ratio				
Auto	**Level of Service**	-			

Appendix L

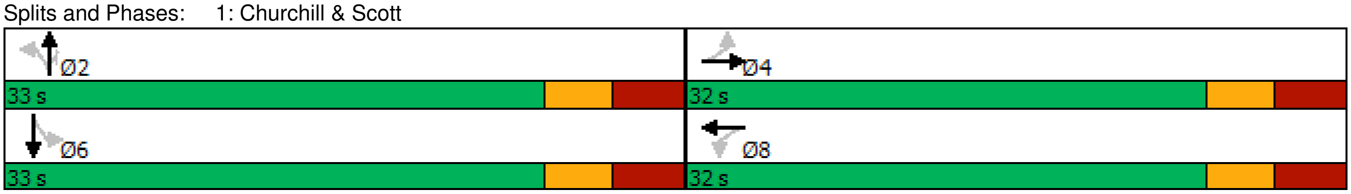
Synchro Analysis: Interim Conditions During Stage 2 LRT Bus Detour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	161	13	243	57	17	13	97	374	59	199	2
Future Volume (vph)	3	161	13	243	57	17	13	97	374	59	199	2
Satd. Flow (prot)	0	955	0	1695	990	0	0	1774	1517	0	1762	0
Flt Permitted		0.994		0.646				0.943			0.900	
Satd. Flow (perm)	0	950	0	1133	990	0	0	1675	1440	0	1597	0
Satd. Flow (RTOR)		7			17				374		1	
Lane Group Flow (vph)	0	177	0	243	74	0	0	110	374	0	260	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	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	10.0	
Minimum Split (s)	24.9	24.9		24.9	24.9		24.9	24.9	24.9	24.9	24.9	
Total Split (s)	32.0	32.0		32.0	32.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	49.2%	49.2%		49.2%	49.2%		50.8%	50.8%	50.8%	50.8%	50.8%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	3.6	3.6		3.6	3.6		3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)		0.0		-2.9	0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.9		4.0	6.9			6.9	6.9		6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)		14.3		17.4	14.3			18.6	18.6		18.6	
Actuated g/C Ratio		0.36		0.44	0.36			0.47	0.47		0.47	
v/c Ratio		0.51		0.49	0.20			0.14	0.43		0.35	
Control Delay		17.8		14.0	10.4			11.6	3.6		13.3	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		17.8		14.0	10.4			11.6	3.6		13.3	
LOS		B		B	B			B	A		B	
Approach Delay		17.8			13.2			5.4			13.3	
Approach LOS		B			B			A			B	
Queue Length 50th (m)		8.5		10.8	2.5			5.1	0.0		13.3	
Queue Length 95th (m)		27.0		32.8	10.4			16.3	14.1		36.6	
Internal Link Dist (m)		48.5			54.6			169.9			90.9	
Turn Bay Length (m)				50.0					50.0			
Base Capacity (vph)		643		826	673			1161	1113		1107	
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		0.29	0.11			0.09	0.34		0.23	

Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 39.9
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.51

Intersection Signal Delay: 10.8	Intersection LOS: B
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Churchill & Scott



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	672	369	0	0	0	
Future Volume (vph)	0	672	369	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	672	369	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		27.0	27.0				
Actuated g/C Ratio		0.49	0.49				
v/c Ratio		0.77	0.42				
Control Delay		19.1	3.8				
Queue Delay		0.1	0.2				
Total Delay		19.1	4.0				
LOS		B	A				
Approach Delay		19.1	4.0				
Approach LOS		B	A				
Queue Length 50th (m)		49.6	2.9				
Queue Length 95th (m)		#102.3	4.4				
Internal Link Dist (m)		0.1	27.0		8.8		
Turn Bay Length (m)							
Base Capacity (vph)		878	878				
Starvation Cap Reductn		0	108				
Spillback Cap Reductn		5	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.77	0.48				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

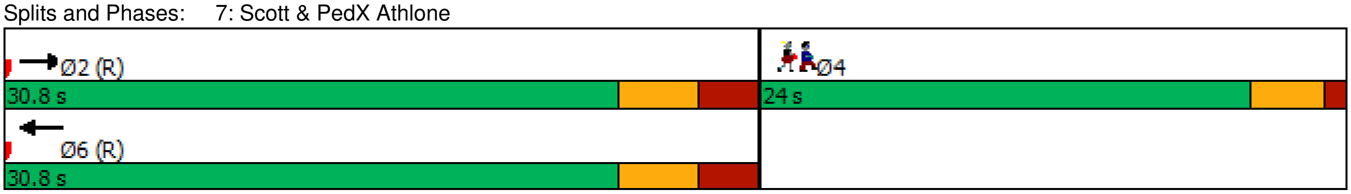
Intersection Signal Delay: 13.7 Intersection LOS: B

Intersection Capacity Utilization 42.2% ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 7: Scott & PedX Athlone



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	672	369	0	0	0	
Future Volume (vph)	0	672	369	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	672	369	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		32.6	32.6				
Actuated g/C Ratio		0.59	0.59				
v/c Ratio		0.63	0.35				
Control Delay		5.0	9.5				
Queue Delay		0.0	0.0				
Total Delay		5.0	9.5				
LOS		A	A				
Approach Delay		5.0	9.5				
Approach LOS		A	A				
Queue Length 50th (m)		5.2	21.5				
Queue Length 95th (m)		m#14.1	38.0				
Internal Link Dist (m)		27.0	0.1		11.1		
Turn Bay Length (m)							
Base Capacity (vph)		1059	1059				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.63	0.35				

Intersection Summary

Cycle Length: 54.8

Actuated Cycle Length: 54.8

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

Natural Cycle: 60

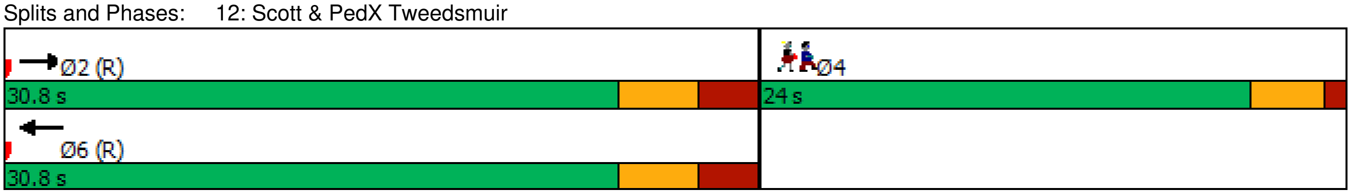
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 6.6	Intersection LOS: A
Intersection Capacity Utilization 42.2%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 12: Scott & PedX Tweedsmuir



Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	581	20	21	297	15	45
Future Vol, veh/h	581	20	21	297	15	45
Conflicting Peds, #/hr	0	7	7	0	0	0
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, %	27	2	2	20	2	2
Mvmt Flow	581	20	21	297	15	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	608	0	937	598
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	339	-
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	-	-	970	-	294	502
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	964	-	285	499
Mov Cap-2 Maneuver	-	-	-	-	285	-
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	703	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	420	-	-	964	-
HCM Lane V/C Ratio	0.143	-	-	0.022	-
HCM Control Delay (s)	15	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	664	8	23	340	6	3	0	28	0	0	0
Future Vol, veh/h	11	664	8	23	340	6	3	0	28	0	0	0
Conflicting Peds, #/hr	266	0	17	17	0	266	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	25	2	2	17	2	2	2	2	2	2	2
Mvmt Flow	11	664	8	23	340	6	3	0	28	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	612	0	0	689	0	0	1096	1365	685	1359	1366	609
Stage 1	-	-	-	-	-	-	707	707	-	655	655	-
Stage 2	-	-	-	-	-	-	389	658	-	704	711	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	967	-	-	905	-	-	191	147	448	126	147	495
Stage 1	-	-	-	-	-	-	426	438	-	455	463	-
Stage 2	-	-	-	-	-	-	635	461	-	428	436	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	749	-	-	892	-	-	180	106	442	88	106	384
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	106	-	88	106	-
Stage 1	-	-	-	-	-	-	410	422	-	344	347	-
Stage 2	-	-	-	-	-	-	615	346	-	392	420	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	15.1	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	387	749	-	-	892	-	-	-
HCM Lane V/C Ratio	0.08	0.015	-	-	0.026	-	-	-
HCM Control Delay (s)	15.1	9.9	0	-	9.1	0	-	0
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	-

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	0	696	3	7	329	0	4	0	35	10	0	1
Future Vol, veh/h	0	696	3	7	329	0	4	0	35	10	0	1
Conflicting Peds, #/hr	149	0	15	15	0	149	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	24	2	2	18	2	2	2	2	2	2	2
Mvmt Flow	0	696	3	7	329	0	4	0	35	10	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	478	0	0	714	0	0	1057	1205	713	1207	1206	478
Stage 1	-	-	-	-	-	-	713	713	-	492	492	-
Stage 2	-	-	-	-	-	-	344	492	-	715	714	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1084	-	-	886	-	-	203	184	432	160	184	587
Stage 1	-	-	-	-	-	-	423	435	-	558	548	-
Stage 2	-	-	-	-	-	-	671	548	-	422	435	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	875	-	-	199	157	427	127	157	513
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	157	-	127	157	-
Stage 1	-	-	-	-	-	-	418	429	-	488	474	-
Stage 2	-	-	-	-	-	-	663	474	-	387	429	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	15.5	33.8
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	382	947	-	-	875	-	-	136
HCM Lane V/C Ratio	0.102	-	-	-	0.008	-	-	0.081
HCM Control Delay (s)	15.5	0	-	-	9.1	0	-	33.8
HCM Lane LOS	C	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	644	2	6	324	8	19
Future Vol, veh/h	644	2	6	324	8	19
Conflicting Peds, #/hr	0	150	150	0	0	0
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, %	25	2	2	18	2	2
Mvmt Flow	644	2	6	324	8	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	796	0	1131	795
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	336	-
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	-	-	826	-	225	388
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	724	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	721	-	194	339
Mov Cap-2 Maneuver	-	-	-	-	194	-
Stage 1	-	-	-	-	388	-
Stage 2	-	-	-	-	717	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	19.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	278	-	-	721	-
HCM Lane V/C Ratio	0.097	-	-	0.008	-
HCM Control Delay (s)	19.3	-	-	10	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	641	32	117	331	15	109
Future Vol, veh/h	641	32	117	331	15	109
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	25	2	2	17	2	2
Mvmt Flow	641	32	117	331	15	109

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	673	0	1222	657
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	565	-
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	-	-	918	-	198	465
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	569	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	918	-	167	465
Mov Cap-2 Maneuver	-	-	-	-	167	-
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	480	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	18.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	382	-	-	918	-
HCM Lane V/C Ratio	0.325	-	-	0.127	-
HCM Control Delay (s)	18.9	-	-	9.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.4	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	72	11	314	168	47	18	148	234	42	117	3
Future Volume (vph)	1	72	11	314	168	47	18	148	234	42	117	3
Satd. Flow (prot)	0	998	0	1695	976	0	0	1775	1517	0	1752	0
Flt Permitted		0.996		0.702				0.944			0.858	
Satd. Flow (perm)	0	994	0	1216	976	0	0	1675	1413	0	1517	0
Satd. Flow (RTOR)		11			27				234		1	
Lane Group Flow (vph)	0	84	0	314	215	0	0	166	234	0	162	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	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	10.0	
Minimum Split (s)	24.9	24.9		24.9	24.9		24.9	24.9	24.9	24.9	24.9	
Total Split (s)	39.0	39.0		39.0	39.0		31.0	31.0	31.0	31.0	31.0	
Total Split (%)	55.7%	55.7%		55.7%	55.7%		44.3%	44.3%	44.3%	44.3%	44.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	3.6	3.6		3.6	3.6		3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)		0.0		-2.9	0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.9		4.0	6.9			6.9	6.9		6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)		16.2		19.2	16.2			11.5	11.5		11.5	
Actuated g/C Ratio		0.39		0.46	0.39			0.27	0.27		0.27	
v/c Ratio		0.22		0.57	0.55			0.36	0.42		0.39	
Control Delay		9.0		12.9	14.5			16.6	5.5		17.2	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		9.0		12.9	14.5			16.6	5.5		17.2	
LOS		A		B	B			B	A		B	
Approach Delay		9.0			13.6			10.1			17.2	
Approach LOS		A			B			B			B	
Queue Length 50th (m)		3.0		13.4	8.8			8.9	0.0		8.7	
Queue Length 95th (m)		10.5		36.2	26.7			27.3	13.0		27.1	
Internal Link Dist (m)		48.5			54.6			169.9			90.9	
Turn Bay Length (m)									50.0			
Base Capacity (vph)		789		1040	778			995	934		901	
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		0.11		0.30	0.28			0.17	0.25		0.18	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 42

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

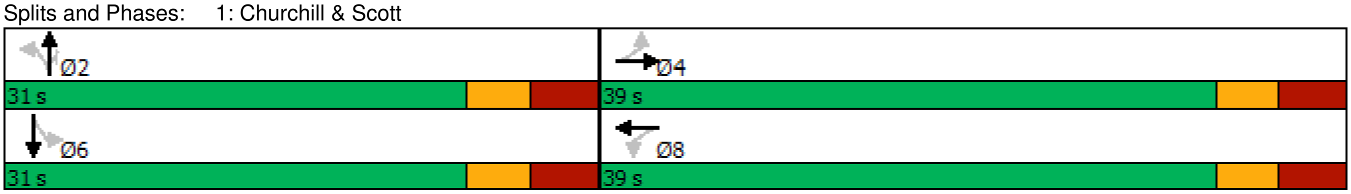
Maximum v/c Ratio: 0.57

Intersection Signal Delay: 12.6 | Intersection LOS: B

Intersection Capacity Utilization 66.4% | ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Churchill & Scott



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	529	741	0	0	0	
Future Volume (vph)	0	529	741	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	529	741	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		27.0	27.0				
Actuated g/C Ratio		0.49	0.49				
v/c Ratio		0.60	0.84				
Control Delay		13.7	18.0				
Queue Delay		0.0	3.6				
Total Delay		13.7	21.6				
LOS		B	C				
Approach Delay		13.7	21.6				
Approach LOS		B	C				
Queue Length 50th (m)		34.7	58.4				
Queue Length 95th (m)		59.9	#111.8				
Internal Link Dist (m)		0.1	28.0		21.3		
Turn Bay Length (m)							
Base Capacity (vph)		878	878				
Starvation Cap Reductn		0	76				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.60	0.92				

Intersection Summary

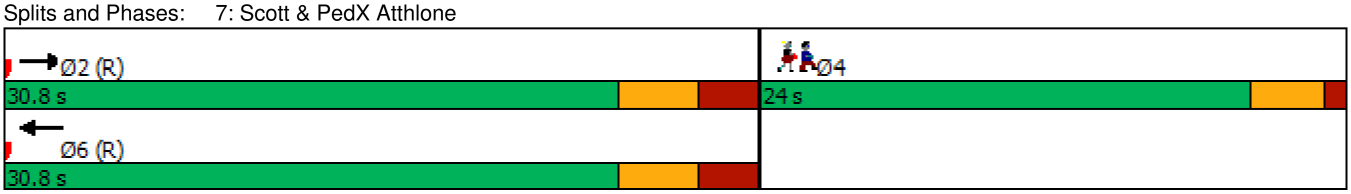
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 7: Scott & PedX Atthlone

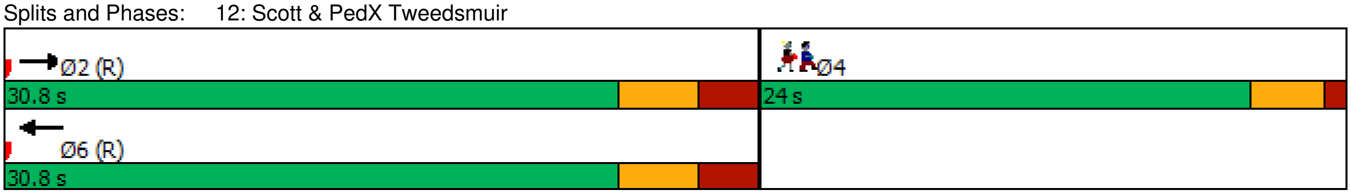


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	529	741	0	0	0	
Future Volume (vph)	0	529	741	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	529	741	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		43.7	43.7				
Actuated g/C Ratio		0.80	0.80				
v/c Ratio		0.37	0.52				
Control Delay		1.6	10.2				
Queue Delay		0.0	1.1				
Total Delay		1.6	11.3				
LOS		A	B				
Approach Delay		1.6	11.3				
Approach LOS		A	B				
Queue Length 50th (m)		0.1	0.0				
Queue Length 95th (m)		5.9	#119.1				
Internal Link Dist (m)		28.0	0.1		19.8		
Turn Bay Length (m)							
Base Capacity (vph)		1422	1422				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	426				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.37	0.74				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 12: Scott & PedX Tweedsmuir



Intersection						
Int Delay, s/veh	1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	420	16	49	611	10	46
Future Vol, veh/h	420	16	49	611	10	46
Conflicting Peds, #/hr	0	12	12	0	0	0
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, %	16	2	2	27	2	2
Mvmt Flow	420	16	49	611	10	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	448	0	1149	440
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	709	-
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	-	-	1112	-	219	617
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	488	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1101	-	202	611
Mov Cap-2 Maneuver	-	-	-	-	202	-
Stage 1	-	-	-	-	643	-
Stage 2	-	-	-	-	455	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	449	-	-	1101	-
HCM Lane V/C Ratio	0.125	-	-	0.045	-
HCM Control Delay (s)	14.2	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	490	9	21	720	0	3	0	39	0	0	0
Future Vol, veh/h	8	490	9	21	720	0	3	0	39	0	0	0
Conflicting Peds, #/hr	130	0	16	16	0	130	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	14	2	2	23	2	2	2	2	2	2	2
Mvmt Flow	8	490	9	21	720	0	3	0	39	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	850	0	0	515	0	0	1289	1419	511	1422	1423	850
Stage 1	-	-	-	-	-	-	527	527	-	892	892	-
Stage 2	-	-	-	-	-	-	762	892	-	530	531	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	788	-	-	1051	-	-	141	137	563	114	136	360
Stage 1	-	-	-	-	-	-	535	528	-	337	360	-
Stage 2	-	-	-	-	-	-	397	360	-	533	526	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	701	-	-	1037	-	-	134	114	555	91	113	320
Mov Cap-2 Maneuver	-	-	-	-	-	-	134	114	-	91	113	-
Stage 1	-	-	-	-	-	-	519	512	-	295	310	-
Stage 2	-	-	-	-	-	-	384	310	-	488	510	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	13.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	453	701	-	-	1037	-	-	-
HCM Lane V/C Ratio	0.093	0.011	-	-	0.02	-	-	-
HCM Control Delay (s)	13.8	10.2	0	-	8.5	0	-	0
HCM Lane LOS	B	B	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	-

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	0	404	11	20	661	0	4	0	18	13	0	2
Future Vol, veh/h	0	404	11	20	661	0	4	0	18	13	0	2
Conflicting Peds, #/hr	228	0	23	23	0	228	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	17	2	2	26	2	2	2	2	2	2	2
Mvmt Flow	0	404	11	20	661	0	4	0	18	13	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	889	0	0	438	0	0	1135	1362	433	1348	1367	889
Stage 1	-	-	-	-	-	-	433	433	-	929	929	-
Stage 2	-	-	-	-	-	-	702	929	-	419	438	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	762	-	-	1122	-	-	179	148	623	128	147	342
Stage 1	-	-	-	-	-	-	601	582	-	321	346	-
Stage 2	-	-	-	-	-	-	429	346	-	612	579	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	615	-	-	1100	-	-	170	114	611	98	113	276
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	114	-	98	113	-
Stage 1	-	-	-	-	-	-	590	571	-	259	271	-
Stage 2	-	-	-	-	-	-	414	271	-	594	568	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	14.2	44.1
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	415	615	-	-	1100	-	-	107
HCM Lane V/C Ratio	0.053	-	-	-	0.018	-	-	0.14
HCM Control Delay (s)	14.2	0	-	-	8.3	0	-	44.1
HCM Lane LOS	B	A	-	-	A	A	-	E
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	479	6	15	682	4	10
Future Vol, veh/h	479	6	15	682	4	10
Conflicting Peds, #/hr	0	160	160	0	0	0
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, %	14	2	2	23	2	2
Mvmt Flow	479	6	15	682	4	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	645	0	1354	642
Stage 1	-	-	-	-	642	-
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	-	-	940	-	165	474
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	813	-	138	410
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	471	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	19.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	262	-	-	813	-
HCM Lane V/C Ratio	0.053	-	-	0.018	-
HCM Control Delay (s)	19.5	-	-	9.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	448	38	85	540	35	164
Future Vol, veh/h	448	38	85	540	35	164
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	15	2	2	31	2	2
Mvmt Flow	448	38	85	540	35	164

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	486	0	1177	467
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	710	-
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	-	-	1077	-	211	596
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1077	-	187	596
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	432	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	430	-	-	1077	-
HCM Lane V/C Ratio	0.463	-	-	0.079	-
HCM Control Delay (s)	20.4	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.4	-	-	0.3	-

Appendix M

Synchro Analysis: Conditions Post LRT Stage 2 Construction

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	7	11	314	8	47	18	148	234	42	117	3
Future Volume (vph)	1	7	11	314	8	47	18	148	234	42	117	3
Satd. Flow (prot)	0	1584	0	1695	1371	0	0	1775	1517	0	1753	0
Flt Permitted		0.988		0.745				0.944			0.858	
Satd. Flow (perm)	0	1564	0	1290	1371	0	0	1676	1415	0	1517	0
Satd. Flow (RTOR)		11			47				234		2	
Lane Group Flow (vph)	0	19	0	314	55	0	0	166	234	0	162	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	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	10.0	
Minimum Split (s)	24.9	24.9		24.9	24.9		24.9	24.9	24.9	24.9	24.9	
Total Split (s)	36.0	36.0		36.0	36.0		29.0	29.0	29.0	29.0	29.0	
Total Split (%)	55.4%	55.4%		55.4%	55.4%		44.6%	44.6%	44.6%	44.6%	44.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	3.6	3.6		3.6	3.6		3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.9		6.9	6.9			6.9	6.9		6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)		15.2		15.2	15.2			11.4	11.4		11.4	
Actuated g/C Ratio		0.37		0.37	0.37			0.28	0.28		0.28	
v/c Ratio		0.03		0.65	0.10			0.35	0.42		0.38	
Control Delay		5.9		17.8	4.2			15.7	5.3		16.3	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		5.9		17.8	4.2			15.7	5.3		16.3	
LOS		A		B	A			B	A		B	
Approach Delay		5.9			15.8			9.6			16.3	
Approach LOS		A			B			A			B	
Queue Length 50th (m)		0.3		15.6	0.3			8.5	0.0		8.3	
Queue Length 95th (m)		3.0		39.6	4.9			25.5	12.4		25.3	
Internal Link Dist (m)		48.5			54.6			169.9			90.9	
Turn Bay Length (m)									50.0			
Base Capacity (vph)		1151		947	1019			934	892		846	
Starvation Cap Reductn		0		0	0			0	0		0	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.02		0.33	0.05			0.18	0.26		0.19	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 40.7

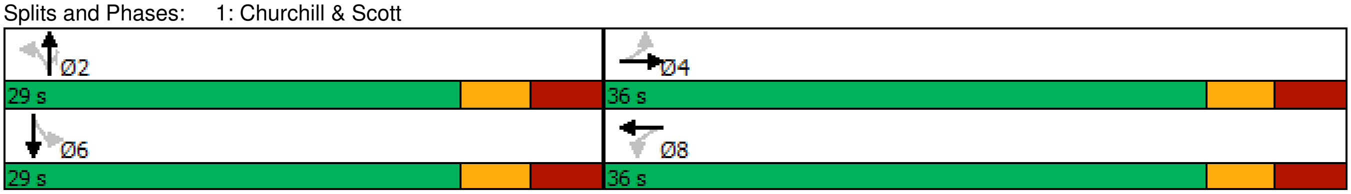
Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.1 Intersection LOS: B
Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Churchill & Scott

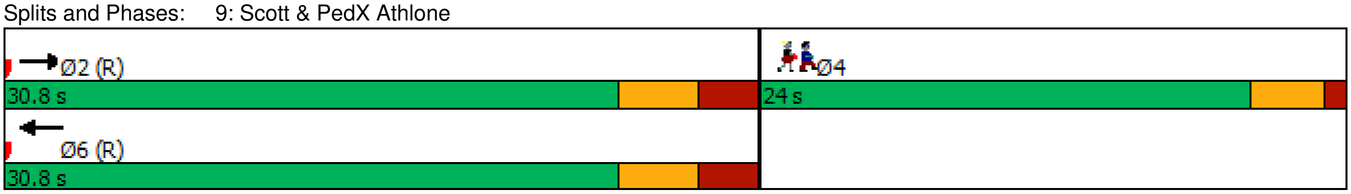


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations		↑	↑				
Traffic Volume (vph)	0	464	581	0	0	0	
Future Volume (vph)	0	464	581	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	464	581	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		27.0	27.0				
Actuated g/C Ratio		0.49	0.49				
v/c Ratio		0.53	0.66				
Control Delay		12.3	12.3				
Queue Delay		0.0	8.2				
Total Delay		12.3	20.5				
LOS		B	C				
Approach Delay		12.3	20.5				
Approach LOS		B	C				
Queue Length 50th (m)		28.9	39.7				
Queue Length 95th (m)		50.2	25.9				
Internal Link Dist (m)		0.1	27.3		20.4		
Turn Bay Length (m)							
Base Capacity (vph)		878	878				
Starvation Cap Reductn		0	256				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.53	0.93				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 16.9	Intersection LOS: B
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Scott & PedX Athlone



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations		↑	↑				
Traffic Volume (vph)	0	538	317	0	0	0	
Future Volume (vph)	0	538	317	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	538	317	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		43.7	43.7				
Actuated g/C Ratio		0.80	0.80				
v/c Ratio		0.38	0.22				
Control Delay		2.3	5.7				
Queue Delay		0.0	0.1				
Total Delay		2.3	5.8				
LOS		A	A				
Approach Delay		2.3	5.8				
Approach LOS		A	A				
Queue Length 50th (m)		0.7	0.0				
Queue Length 95th (m)		10.6	31.9				
Internal Link Dist (m)		27.3	0.1		17.3		
Turn Bay Length (m)							
Base Capacity (vph)		1422	1422				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	355				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.38	0.30				

Intersection Summary

Cycle Length: 54.8

Actuated Cycle Length: 54.8

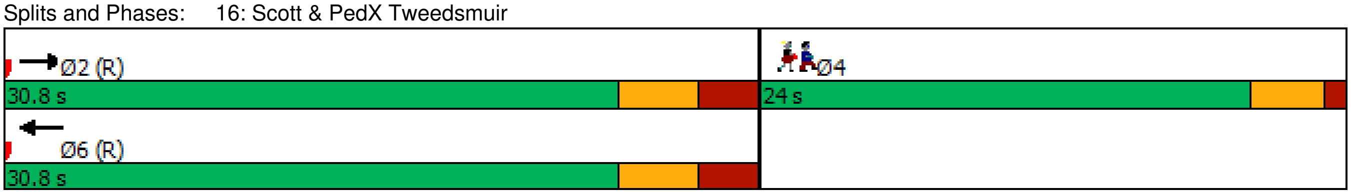
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 3.6	Intersection LOS: A
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 16: Scott & PedX Tweedsmuir



Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	427	20	21	243	15	45
Future Vol, veh/h	427	20	21	243	15	45
Conflicting Peds, #/hr	0	7	7	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	427	20	21	243	15	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	454	0	729	444
Stage 1	-	-	-	-	444	-
Stage 2	-	-	-	-	285	-
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	-	-	1107	-	390	614
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1100	-	379	610
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	529	-	-	1100	-
HCM Lane V/C Ratio	0.113	-	-	0.019	-
HCM Control Delay (s)	12.7	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	510	8	23	286	6	3	0	28	0	0	0
Future Vol, veh/h	11	510	8	23	286	6	3	0	28	0	0	0
Conflicting Peds, #/hr	266	0	17	17	0	266	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	510	8	23	286	6	3	0	28	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	558	0	0	535	0	0	888	1157	531	1151	1158	555
Stage 1	-	-	-	-	-	-	553	553	-	601	601	-
Stage 2	-	-	-	-	-	-	335	604	-	550	557	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1013	-	-	1033	-	-	264	196	548	175	196	531
Stage 1	-	-	-	-	-	-	517	514	-	487	489	-
Stage 2	-	-	-	-	-	-	679	488	-	519	512	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	785	-	-	1018	-	-	251	143	540	124	143	411
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	143	-	124	143	-
Stage 1	-	-	-	-	-	-	499	497	-	370	369	-
Stage 2	-	-	-	-	-	-	661	368	-	482	495	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	12.9	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	486	785	-	-	1018	-	-	-
HCM Lane V/C Ratio	0.064	0.014	-	-	0.023	-	-	-
HCM Control Delay (s)	12.9	9.7	0	-	8.6	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	-

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	0	542	3	7	275	0	4	0	35	10	0	1
Future Vol, veh/h	0	542	3	7	275	0	4	0	35	10	0	1
Conflicting Peds, #/hr	149	0	15	15	0	149	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	542	3	7	275	0	4	0	35	10	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	424	0	0	560	0	0	849	997	559	999	998	424
Stage 1	-	-	-	-	-	-	559	559	-	438	438	-
Stage 2	-	-	-	-	-	-	290	438	-	561	560	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1135	-	-	1011	-	-	281	244	529	222	244	630
Stage 1	-	-	-	-	-	-	513	511	-	597	579	-
Stage 2	-	-	-	-	-	-	718	579	-	512	511	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	998	-	-	275	209	522	180	209	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	275	209	-	180	209	-
Stage 1	-	-	-	-	-	-	506	504	-	522	502	-
Stage 2	-	-	-	-	-	-	711	502	-	478	504	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	13.2	24.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	478	992	-	-	998	-	-	192
HCM Lane V/C Ratio	0.082	-	-	-	0.007	-	-	0.057
HCM Control Delay (s)	13.2	0	-	-	8.6	0	-	24.9
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	490	2	6	270	8	19
Future Vol, veh/h	490	2	6	270	8	19
Conflicting Peds, #/hr	0	150	150	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	490	2	6	270	8	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	642	0	923	641
Stage 1	-	-	-	-	641	-
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	-	-	943	-	299	475
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	766	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	823	-	259	415
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	759	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	352	-	-	823	-
HCM Lane V/C Ratio	0.077	-	-	0.007	-
HCM Control Delay (s)	16.1	-	-	9.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	2.8					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	487	32	117	277	15	109
Future Vol, veh/h	487	32	117	277	15	109
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	487	32	117	277	15	109

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	519	0	1014	503
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	511	-
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	-	264	569
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	602	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1047	-	229	569
Mov Cap-2 Maneuver	-	-	-	-	229	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	15
HCM LOS			C

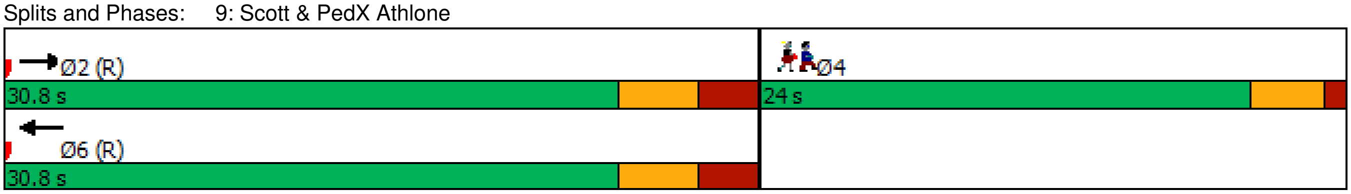
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	482	-	-	1047	-
HCM Lane V/C Ratio	0.257	-	-	0.112	-
HCM Control Delay (s)	15	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.4	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	538	317	0	0	0	
Future Volume (vph)	0	538	317	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	538	317	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		27.0	27.0				
Actuated g/C Ratio		0.49	0.49				
v/c Ratio		0.61	0.36				
Control Delay		13.9	3.4				
Queue Delay		0.0	0.3				
Total Delay		13.9	3.7				
LOS		B	A				
Approach Delay		13.9	3.7				
Approach LOS		B	A				
Queue Length 50th (m)		35.6	2.5				
Queue Length 95th (m)		61.4	3.9				
Internal Link Dist (m)		0.1	27.8		23.4		
Turn Bay Length (m)							
Base Capacity (vph)		878	878				
Starvation Cap Reductn		0	189				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.61	0.46				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 34.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Scott & PedX Athlone

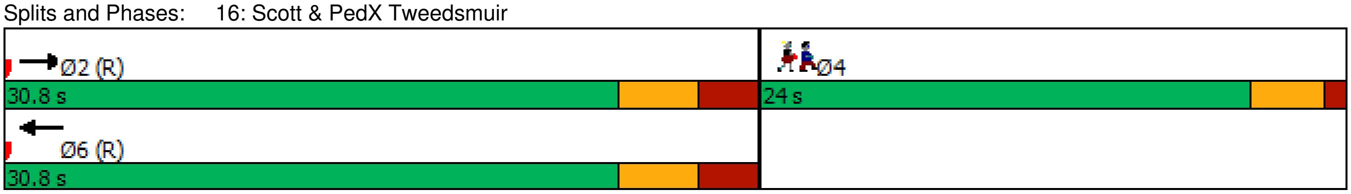


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations		↑	↑				
Traffic Volume (vph)	0	538	317	0	0	0	
Future Volume (vph)	0	538	317	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	538	317	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		0.0	0.0				
Total Lost Time (s)		5.8	5.8				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		32.6	32.6				
Actuated g/C Ratio		0.59	0.59				
v/c Ratio		0.51	0.30				
Control Delay		3.0	9.0				
Queue Delay		0.0	0.0				
Total Delay		3.0	9.0				
LOS		A	A				
Approach Delay		3.0	9.0				
Approach LOS		A	A				
Queue Length 50th (m)		4.2	17.8				
Queue Length 95th (m)		6.0	31.9				
Internal Link Dist (m)		27.8	0.1		20.2		
Turn Bay Length (m)							
Base Capacity (vph)		1059	1059				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.51	0.30				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 34.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 16: Scott & PedX Tweedsmuir



Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	355	16	49	451	10	46
Future Vol, veh/h	355	16	49	451	10	46
Conflicting Peds, #/hr	0	12	12	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	355	16	49	451	10	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	383	0	924	375
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	549	-
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	-	-	1175	-	299	671
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	579	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1163	-	280	664
Mov Cap-2 Maneuver	-	-	-	-	280	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	547	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	533	-	-	1163	-
HCM Lane V/C Ratio	0.105	-	-	0.042	-
HCM Control Delay (s)	12.5	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	425	9	21	560	0	3	0	39	0	0	0
Future Vol, veh/h	8	425	9	21	560	0	3	0	39	0	0	0
Conflicting Peds, #/hr	130	0	16	16	0	130	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	425	9	21	560	0	3	0	39	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	690	0	0	450	0	0	1064	1194	446	1197	1198	690
Stage 1	-	-	-	-	-	-	462	462	-	732	732	-
Stage 2	-	-	-	-	-	-	602	732	-	465	466	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	905	-	-	1110	-	-	201	187	612	163	186	445
Stage 1	-	-	-	-	-	-	580	565	-	413	427	-
Stage 2	-	-	-	-	-	-	486	427	-	578	562	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	805	-	-	1095	-	-	192	157	604	132	157	396
Mov Cap-2 Maneuver	-	-	-	-	-	-	192	157	-	132	157	-
Stage 1	-	-	-	-	-	-	565	550	-	363	369	-
Stage 2	-	-	-	-	-	-	472	369	-	534	547	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	12.5	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	524	805	-	-	1095	-	-	-
HCM Lane V/C Ratio	0.08	0.01	-	-	0.019	-	-	-
HCM Control Delay (s)	12.5	9.5	0	-	8.4	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	-

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	0	339	11	20	501	0	4	0	18	13	0	2
Future Vol, veh/h	0	339	11	20	501	0	4	0	18	13	0	2
Conflicting Peds, #/hr	228	0	23	23	0	228	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	339	11	20	501	0	4	0	18	13	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	729	0	0	373	0	0	910	1137	368	1123	1142	729
Stage 1	-	-	-	-	-	-	368	368	-	769	769	-
Stage 2	-	-	-	-	-	-	542	769	-	354	373	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	875	-	-	1185	-	-	255	202	677	183	200	423
Stage 1	-	-	-	-	-	-	652	621	-	394	411	-
Stage 2	-	-	-	-	-	-	525	411	-	663	618	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	706	-	-	1162	-	-	244	156	664	141	155	341
Mov Cap-2 Maneuver	-	-	-	-	-	-	244	156	-	141	155	-
Stage 1	-	-	-	-	-	-	640	609	-	318	324	-
Stage 2	-	-	-	-	-	-	509	324	-	645	606	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	12.4	31.1
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	506	706	-	-	1162	-	-	153
HCM Lane V/C Ratio	0.043	-	-	-	0.017	-	-	0.098
HCM Control Delay (s)	12.4	0	-	-	8.2	0	-	31.1
HCM Lane LOS	B	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	414	6	15	522	4	10
Future Vol, veh/h	414	6	15	522	4	10
Conflicting Peds, #/hr	0	160	160	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	414	6	15	522	4	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	580	0	1129	577
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	552	-
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	-	-	994	-	226	516
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	577	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	859	-	191	446
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	859	-
HCM Lane V/C Ratio	0.043	-	-	0.017	-
HCM Control Delay (s)	16.7	-	-	9.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	383	38	85	380	35	164
Future Vol, veh/h	383	38	85	380	35	164
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	383	38	85	380	35	164

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	421	0	952	402
Stage 1	-	-	-	-	402	-
Stage 2	-	-	-	-	550	-
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	-	-	1138	-	288	648
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1138	-	261	648
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	16.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	514	-	-	1138	-
HCM Lane V/C Ratio	0.387	-	-	0.075	-
HCM Control Delay (s)	16.4	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.8	-	-	0.2	-

Appendix N

Synchro Analysis: Conditions Post LRT Stage 2 Construction if TOD not Met

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	7	13	259	3	17	13	97	379	59	199	2
Future Volume (vph)	3	7	13	259	3	17	13	97	379	59	199	2
Satd. Flow (prot)	0	1578	0	1695	1430	0	0	1774	1517	0	1762	0
Flt Permitted		0.970		0.742				0.938			0.892	
Satd. Flow (perm)	0	1528	0	1296	1430	0	0	1666	1439	0	1583	0
Satd. Flow (RTOR)		13			17				379		1	
Lane Group Flow (vph)	0	23	0	259	20	0	0	110	379	0	260	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	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	10.0	
Minimum Split (s)	24.9	24.9		24.9	24.9		24.9	24.9	24.9	24.9	24.9	
Total Split (s)	33.0	33.0		33.0	33.0		32.0	32.0	32.0	32.0	32.0	
Total Split (%)	50.8%	50.8%		50.8%	50.8%		49.2%	49.2%	49.2%	49.2%	49.2%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	3.6	3.6		3.6	3.6		3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.9		6.9	6.9			6.9	6.9		6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)		14.1		14.1	14.1			14.3	14.3		14.3	
Actuated g/C Ratio		0.33		0.33	0.33			0.34	0.34		0.34	
v/c Ratio		0.04		0.60	0.04			0.20	0.52		0.49	
Control Delay		7.3		18.5	6.0			12.4	4.7		16.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		7.3		18.5	6.0			12.4	4.7		16.0	
LOS		A		B	A			B	A		B	
Approach Delay		7.3			17.6			6.4			16.0	
Approach LOS		A			B			A			B	
Queue Length 50th (m)		0.4		13.3	0.2			5.2	0.0		13.5	
Queue Length 95th (m)		3.9		36.6	3.3			16.5	14.3		37.2	
Internal Link Dist (m)		48.5			54.6			169.9			90.9	
Turn Bay Length (m)									50.0			
Base Capacity (vph)		966		815	905			1007	1020		958	
Starvation Cap Reductn		0		0	0			0	0		0	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.02		0.32	0.02			0.11	0.37		0.27	

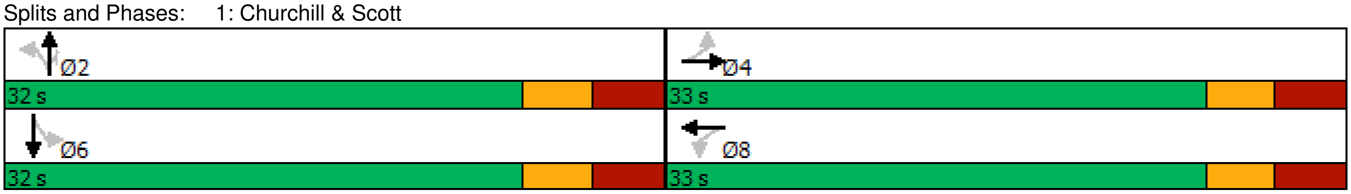
Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 42.6
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.60

Intersection Signal Delay: 11.8 Intersection LOS: B

Intersection Capacity Utilization 68.5% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Churchill & Scott

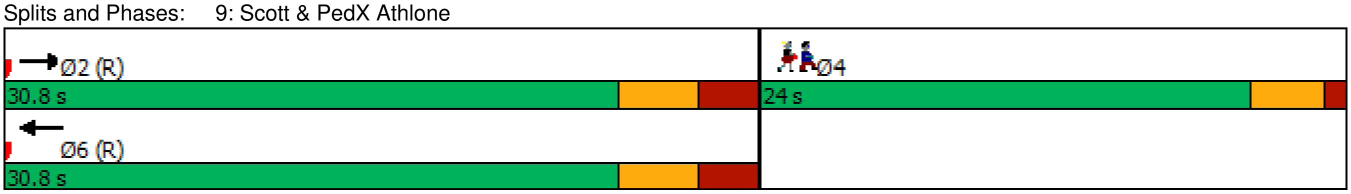


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	575	326	0	0	0	
Future Volume (vph)	0	575	326	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	575	326	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		-1.8	-1.8				
Total Lost Time (s)		4.0	4.0				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		28.8	28.8				
Actuated g/C Ratio		0.53	0.53				
v/c Ratio		0.61	0.35				
Control Delay		12.7	3.1				
Queue Delay		0.0	0.3				
Total Delay		12.7	3.4				
LOS		B	A				
Approach Delay		12.7	3.4				
Approach LOS		B	A				
Queue Length 50th (m)		35.9	2.6				
Queue Length 95th (m)		62.2	4.0				
Internal Link Dist (m)		0.1	27.8		23.4		
Turn Bay Length (m)							
Base Capacity (vph)		937	937				
Starvation Cap Reductn		0	224				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.61	0.46				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 35.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Scott & PedX Athlone



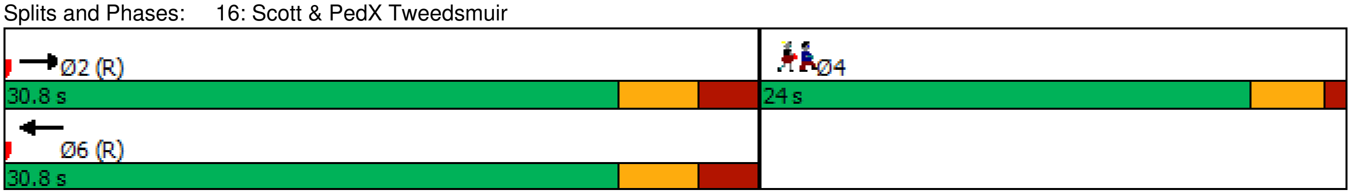
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	575	326	0	0	0	
Future Volume (vph)	0	575	326	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	575	326	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		-1.8	-1.8				
Total Lost Time (s)		4.0	4.0				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		34.0	34.0				
Actuated g/C Ratio		0.62	0.62				
v/c Ratio		0.52	0.29				
Control Delay		2.9	8.0				
Queue Delay		0.0	0.0				
Total Delay		2.9	8.0				
LOS		A	A				
Approach Delay		2.9	8.0				
Approach LOS		A	A				
Queue Length 50th (m)		4.5	16.9				
Queue Length 95th (m)		6.3	30.2				
Internal Link Dist (m)		27.8	0.1		20.2		
Turn Bay Length (m)							
Base Capacity (vph)		1106	1106				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.52	0.29				

Intersection Summary
Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 4.7	Intersection LOS: A
Intersection Capacity Utilization 35.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 16: Scott & PedX Tweedsmuir



Intersection						
Int Delay, s/veh	1.2					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	432	20	21	259	15	45
Future Vol, veh/h	432	20	21	259	15	45
Conflicting Peds, #/hr	0	7	7	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	432	20	21	259	15	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	459	0	750	449
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	301	-
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	-	379	610
Stage 1	-	-	-	-	643	-
Stage 2	-	-	-	-	751	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1095	-	368	606
Mov Cap-2 Maneuver	-	-	-	-	368	-
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	734	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	522	-	-	1095	-
HCM Lane V/C Ratio	0.115	-	-	0.019	-
HCM Control Delay (s)	12.8	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	547	8	23	297	6	3	0	28	0	0	0
Future Vol, veh/h	11	547	8	23	297	6	3	0	28	0	0	0
Conflicting Peds, #/hr	266	0	17	17	0	266	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	547	8	23	297	6	3	0	28	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	569	0	0	572	0	0	936	1205	568	1199	1206	566
Stage 1	-	-	-	-	-	-	590	590	-	612	612	-
Stage 2	-	-	-	-	-	-	346	615	-	587	594	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1003	-	-	1001	-	-	245	184	522	162	184	524
Stage 1	-	-	-	-	-	-	494	495	-	480	484	-
Stage 2	-	-	-	-	-	-	670	482	-	496	493	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	777	-	-	987	-	-	233	134	514	114	134	406
Mov Cap-2 Maneuver	-	-	-	-	-	-	233	134	-	114	134	-
Stage 1	-	-	-	-	-	-	477	478	-	364	364	-
Stage 2	-	-	-	-	-	-	651	363	-	460	476	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.6	13.4	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	460	777	-	-	987	-	-	-
HCM Lane V/C Ratio	0.067	0.014	-	-	0.023	-	-	-
HCM Control Delay (s)	13.4	9.7	0	-	8.7	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	-

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	0	579	3	7	286	0	4	0	35	10	0	1
Future Vol, veh/h	0	579	3	7	286	0	4	0	35	10	0	1
Conflicting Peds, #/hr	149	0	15	15	0	149	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	579	3	7	286	0	4	0	35	10	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	435	0	0	597	0	0	897	1045	596	1047	1046	435
Stage 1	-	-	-	-	-	-	596	596	-	449	449	-
Stage 2	-	-	-	-	-	-	301	449	-	598	597	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1125	-	-	980	-	-	261	229	504	206	228	621
Stage 1	-	-	-	-	-	-	490	492	-	589	572	-
Stage 2	-	-	-	-	-	-	708	572	-	489	491	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	983	-	-	968	-	-	256	196	498	166	195	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	256	196	-	166	195	-
Stage 1	-	-	-	-	-	-	484	486	-	515	495	-
Stage 2	-	-	-	-	-	-	700	495	-	455	485	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	13.7	26.7
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	454	983	-	-	968	-	-	177
HCM Lane V/C Ratio	0.086	-	-	-	0.007	-	-	0.062
HCM Control Delay (s)	13.7	0	-	-	8.7	0	-	26.7
HCM Lane LOS	B	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection						
Int Delay, s/veh	1.9					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	490	7	17	270	24	56
Future Vol, veh/h	490	7	17	270	24	56
Conflicting Peds, #/hr	0	150	150	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	490	7	17	270	24	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	647	0	948	644
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	304	-
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	-	-	939	-	289	473
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	748	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	820	-	246	413
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	730	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	343	-	-	820	-
HCM Lane V/C Ratio	0.233	-	-	0.021	-
HCM Control Delay (s)	18.7	-	-	9.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	513	43	117	285	18	109
Future Vol, veh/h	513	43	117	285	18	109
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	513	43	117	285	18	109

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	556	0	1054	535
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	519	-
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	-	-	1015	-	250	545
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1015	-	216	545
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	515	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	16.2
HCM LOS			C

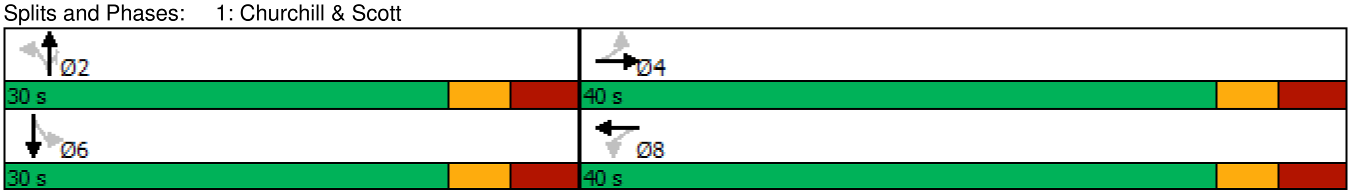
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	448	-	-	1015	-
HCM Lane V/C Ratio	0.283	-	-	0.115	-
HCM Control Delay (s)	16.2	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.4	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	7	11	324	8	47	18	148	250	42	117	3
Future Volume (vph)	1	7	11	324	8	47	18	148	250	42	117	3
Satd. Flow (prot)	0	1582	0	1695	1367	0	0	1775	1517	0	1752	0
Flt Permitted		0.988		0.745				0.944			0.858	
Satd. Flow (perm)	0	1561	0	1287	1367	0	0	1675	1411	0	1517	0
Satd. Flow (RTOR)		11			47				250		1	
Lane Group Flow (vph)	0	19	0	324	55	0	0	166	250	0	162	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	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	10.0	
Minimum Split (s)	24.9	24.9		24.9	24.9		24.9	24.9	24.9	24.9	24.9	
Total Split (s)	40.0	40.0		40.0	40.0		30.0	30.0	30.0	30.0	30.0	
Total Split (%)	57.1%	57.1%		57.1%	57.1%		42.9%	42.9%	42.9%	42.9%	42.9%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	3.6	3.6		3.6	3.6		3.6	3.6	3.6	3.6	3.6	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		6.9		6.9	6.9			6.9	6.9		6.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)		15.7		15.7	15.7			11.4	11.4		11.4	
Actuated g/C Ratio		0.38		0.38	0.38			0.28	0.28		0.28	
v/c Ratio		0.03		0.66	0.10			0.36	0.44		0.39	
Control Delay		5.8		18.0	4.1			16.1	5.4		16.8	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		5.8		18.0	4.1			16.1	5.4		16.8	
LOS		A		B	A			B	A		B	
Approach Delay		5.8			16.0			9.7			16.8	
Approach LOS		A			B			A			B	
Queue Length 50th (m)		0.3		16.3	0.3			8.8	0.0		8.6	
Queue Length 95th (m)		3.0		41.7	4.9			26.0	13.1		26.0	
Internal Link Dist (m)		48.5			54.6			169.9			90.9	
Turn Bay Length (m)									50.0			
Base Capacity (vph)		1289		1061	1135			964	918		873	
Starvation Cap Reductn		0		0	0			0	0		0	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.01		0.31	0.05			0.17	0.27		0.19	

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 41.3
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.66

Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 67.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Churchill & Scott



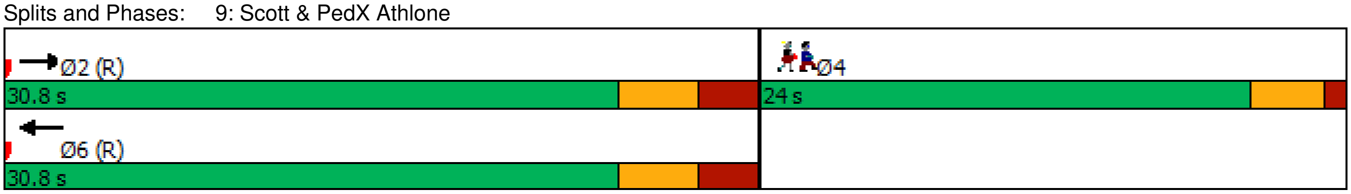
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	486	617	0	0	0	
Future Volume (vph)	0	486	617	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	486	617	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		-1.8	-1.8				
Total Lost Time (s)		4.0	4.0				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		28.8	28.8				
Actuated g/C Ratio		0.53	0.53				
v/c Ratio		0.52	0.66				
Control Delay		11.0	8.4				
Queue Delay		0.0	1.3				
Total Delay		11.0	9.8				
LOS		B	A				
Approach Delay		11.0	9.8				
Approach LOS		B	A				
Queue Length 50th (m)		28.3	39.9				
Queue Length 95th (m)		49.0	6.7				
Internal Link Dist (m)		0.1	27.3		20.4		
Turn Bay Length (m)							
Base Capacity (vph)		937	937				
Starvation Cap Reductn		0	151				
Spillback Cap Reductn		0	0				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.52	0.78				

Intersection Summary

Cycle Length: 54.8
Actuated Cycle Length: 54.8
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 37.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Scott & PedX Athlone



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	0	486	617	0	0	0	
Future Volume (vph)	0	486	617	0	0	0	
Satd. Flow (prot)	0	1784	1784	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1784	1784	0	0	0	
Satd. Flow (RTOR)							
Lane Group Flow (vph)	0	486	617	0	0	0	
Turn Type		NA	NA				
Protected Phases		2	6				4
Permitted Phases							
Detector Phase		2	6				
Switch Phase							
Minimum Initial (s)		5.0	5.0				10.0
Minimum Split (s)		23.8	23.8				22.0
Total Split (s)		30.8	30.8				24.0
Total Split (%)		56.2%	56.2%				44%
Yellow Time (s)		3.3	3.3				3.0
All-Red Time (s)		2.5	2.5				1.0
Lost Time Adjust (s)		-1.8	-1.8				
Total Lost Time (s)		4.0	4.0				
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode		C-Max	C-Max				None
Act Effct Green (s)		44.4	44.4				
Actuated g/C Ratio		0.81	0.81				
v/c Ratio		0.34	0.43				
Control Delay		1.5	6.8				
Queue Delay		0.0	0.3				
Total Delay		1.5	7.1				
LOS		A	A				
Approach Delay		1.5	7.1				
Approach LOS		A	A				
Queue Length 50th (m)		0.1	0.0				
Queue Length 95th (m)		5.5	69.2				
Internal Link Dist (m)		27.3	0.1		17.3		
Turn Bay Length (m)							
Base Capacity (vph)		1445	1445				
Starvation Cap Reductn		0	0				
Spillback Cap Reductn		0	314				
Storage Cap Reductn		0	0				
Reduced v/c Ratio		0.34	0.55				

Intersection Summary

Cycle Length: 54.8

Actuated Cycle Length: 54.8

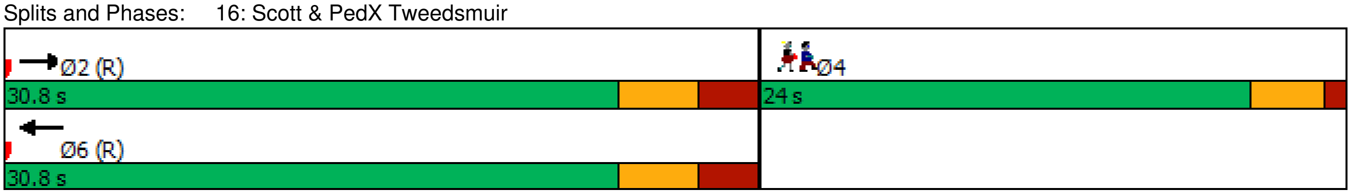
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 4.6	Intersection LOS: A
Intersection Capacity Utilization 37.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 16: Scott & PedX Tweedsmuir



Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	371	16	49	461	10	46
Future Vol, veh/h	371	16	49	461	10	46
Conflicting Peds, #/hr	0	12	12	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	371	16	49	461	10	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	399	0	950	391
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	559	-
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	-	-	1160	-	289	658
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	572	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1148	-	270	651
Mov Cap-2 Maneuver	-	-	-	-	270	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	539	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	520	-	-	1148	-
HCM Lane V/C Ratio	0.108	-	-	0.043	-
HCM Control Delay (s)	12.8	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	447	9	21	596	0	3	0	39	0	0	0
Future Vol, veh/h	8	447	9	21	596	0	3	0	39	0	0	0
Conflicting Peds, #/hr	130	0	16	16	0	130	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	447	9	21	596	0	3	0	39	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	726	0	0	472	0	0	1122	1252	468	1255	1256	726
Stage 1	-	-	-	-	-	-	484	484	-	768	768	-
Stage 2	-	-	-	-	-	-	638	768	-	487	488	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	877	-	-	1090	-	-	183	172	595	148	171	425
Stage 1	-	-	-	-	-	-	564	552	-	394	411	-
Stage 2	-	-	-	-	-	-	465	411	-	562	550	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	780	-	-	1075	-	-	175	144	587	119	144	378
Mov Cap-2 Maneuver	-	-	-	-	-	-	175	144	-	119	144	-
Stage 1	-	-	-	-	-	-	549	537	-	346	355	-
Stage 2	-	-	-	-	-	-	452	355	-	517	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	12.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	502	780	-	-	1075	-	-	-
HCM Lane V/C Ratio	0.084	0.01	-	-	0.02	-	-	-
HCM Control Delay (s)	12.8	9.7	0	-	8.4	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	-

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	0	361	11	20	537	0	4	0	18	13	0	2
Future Vol, veh/h	0	361	11	20	537	0	4	0	18	13	0	2
Conflicting Peds, #/hr	228	0	23	23	0	228	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	-	-	-	-	-	-	-	-	-	-	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	361	11	20	537	0	4	0	18	13	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	765	0	0	395	0	0	968	1195	390	1181	1200	765
Stage 1	-	-	-	-	-	-	390	390	-	805	805	-
Stage 2	-	-	-	-	-	-	578	805	-	376	395	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	848	-	-	1164	-	-	233	186	658	167	185	403
Stage 1	-	-	-	-	-	-	634	608	-	376	395	-
Stage 2	-	-	-	-	-	-	501	395	-	645	605	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	684	-	-	1141	-	-	223	144	645	128	143	325
Mov Cap-2 Maneuver	-	-	-	-	-	-	223	144	-	128	143	-
Stage 1	-	-	-	-	-	-	622	596	-	303	311	-
Stage 2	-	-	-	-	-	-	485	311	-	627	594	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	12.9	34
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	480	684	-	-	1141	-	-	139
HCM Lane V/C Ratio	0.046	-	-	-	0.018	-	-	0.108
HCM Control Delay (s)	12.9	0	-	-	8.2	0	-	34
HCM Lane LOS	B	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	0.4

Intersection						
Int Delay, s/veh	1.3					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	414	22	51	522	14	32
Future Vol, veh/h	414	22	51	522	14	32
Conflicting Peds, #/hr	0	160	160	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	414	22	51	522	14	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	596	0	1209	585
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	624	-
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	-	-	980	-	202	511
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	534	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	847	-	160	442
Mov Cap-2 Maneuver	-	-	-	-	160	-
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	489	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	19.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	288	-	-	847	-
HCM Lane V/C Ratio	0.16	-	-	0.06	-
HCM Control Delay (s)	19.9	-	-	9.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	399	44	85	406	45	164
Future Vol, veh/h	399	44	85	406	45	164
Conflicting Peds, #/hr	0	0	0	0	0	0
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, %	2	2	2	2	2	2
Mvmt Flow	399	44	85	406	45	164

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	443	0	997	421
Stage 1	-	-	-	-	421	-
Stage 2	-	-	-	-	576	-
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	-	-	1117	-	271	632
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	562	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1117	-	244	632
Mov Cap-2 Maneuver	-	-	-	-	244	-
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	507	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	18.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	471	-	-	1117	-
HCM Lane V/C Ratio	0.444	-	-	0.076	-
HCM Control Delay (s)	18.6	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	2.2	-	-	0.2	-