1746 Carling Ave

TIA Strategy Report

DRAFT

Oct 2025

1746 Carling Ave

TIA Strategy Report

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STRATEGY REPORT

Parsons has been retained by Kerr Broadview Properties Ltd. to prepare a TIA Report in support of a Zoning By-Law Amendment Application (ZBLA) and a Site Plan Control Application (SPA) for a proposed residential development at 1746 Carling Ave. The ZBLA is for the entire lot, and the SPA is for the senior living building (Tower C). This document follows the TIA process as outlined in the City of Ottawa's Transportation Impact Assessment (TIA) Guidelines (2017) and Revisions (2023). The following report represents Step 3 – Strategy Report.

1.0 SCREENING FORM

The Screening Form confirmed the need for a TIA Report based on the Trip Generation, Location and Safety triggers. The Trip Generation trigger was met as the development is anticipated to have more than 150 units. The Location trigger was met due to the location of the proposed development along a Corridor – Mainstreet within Design Priority Area (DPA) and along a transit priority corridor. The Safety trigger is met due to the proximity of the proposed access within 150m of the signalized Carling/Broadview intersection. The Screening Form has been provided in **Appendix A**.

2.0 SCOPING REPORT

2.1. Existing and Planned Conditions

2.1.1. Proposed Development

The proposed development is located at the municipal address of 1746 Carling Ave and is currently occupied by two auto-repair shops, a retail store, and surface parking. The site is currently zoned AM10 (Arterial Mainstreet) and IG3 H(10.7) (General Industrial Zone with a 10.7m height limit). The developer intends to build a park within the IG3 zoned area, which is a permitted use. However, Towers A and B located within AM10 exceed the allowable heights, thus triggering a ZBLA.

The subject site is bound by Carling Ave to the north, Kerr Ave to the south, Boyd Ave to the east, and commercial and residential buildings to the west. The development will consist of three towers ranging from 9 to 32-storeys tall, connected by a courtyard and a shared underground parking garage with some surface parking spaces. A 984 m^2 (10,592 ft^2) park located at the southeast corner of the site.

Table 1 summarizes the proposed land uses, size and type of applications.

Table 1: Summary of Proposed Land Uses, Size and Location

Tower	Land Use	Application Type	# of Floors	Units	Commercial Retail Size
A	Mixed-Residential	ZBLA	32	336	2,038 ft^2 / 189 m^2
B	Mixed-Residential	ZBLA	28	291	1,902 ft^2 / 177 m^2
C	Senior Living	ZBLA & SPA	9	122	0
			Combined	**749**	**3,940 ft^2 / 366 m^2**

The site plan proposes two two-way accesses, one off Boyd Avenue and the other off Kerr Avenue. Parking for Towers A and B are provided via two ramps, coinciding with the two access points. Lay-by areas are proposed on Kerr Avenue and in front of Tower 'A' along the internal driveway to allow drop-off/pick-up.

A total of 535 parking spaces is proposed, of which 505 are in a two-level underground parking lot. There are 382 bicycle parking spaces and. **Figure 1** provides an illustration of the local area context of the site while **Figure 2** illustrates the latest site plan.

Figure 1: Local Context

Figure 2: Proposed Concept Plan (Sep 2025)

2.1.2. Existing Conditions

Area Road Network

Description of roads included within the study area has been provided below.

Carling Ave is an east-west municipal arterial road extending from Bronson Ave to March Rd. Within the study area, the roadway consists of a six-lane divided cross-section with sidewalks on both sides of the road. The posted speed limit is 60 km/h and the protected ROW is 44.5 m.

Boyd Ave is a dead-end north-south municipal local road extending from Carling Ave to Highway 417. The roadway consists of a two-lane cross-section without sidewalks or on-street parking. The speed limit is assumed to be 50 km/h and the existing ROW is estimated to be 20 m.

Kerr Ave is a short east-west municipal local road extending from Boyd Ave to Rex Ave. Along the site frontage, the roadway consists of a two-lane cross-section with an asphalt sidewalk on the south side. The speed limit is assumed to be 50 km/h and the existing ROW is estimated to be 19 m.

Doheny Ave is a short east-west municipal local road extending from Clyde Ave to Boyd Ave. The roadway consists of a two-lane cross-section without sidewalks. The speed limit is assumed to be 50 km/h and the existing ROW is estimated to be 18 m.

Broadview Ave is a north-south municipal collector road extending from Richmond Rd in the north to Ernest Ave in the south. The roadway consists of two-lane cross-section with sidewalks on both sides of the road north of Kerr Ave and one sidewalk on the east side south of Kerr Ave. The posted speed limit is 30 km/h north of Carling Ave, while the speed limit south of Carling Ave is assumed to be 50 km/h. The existing ROW is estimated to be 20 m.

Clyde Ave North is a north-south municipal local road that extends from Carling Ave in the north and terminates at 951 Clyde Ave. The roadway then continues at Castle Hill Crescent intersection down to Merivale Rd/Lotta Ave. Within the study area, Clyde Ave has a two-lane cross-section and an assumed speed limit of 50 km/h.

Cole Ave South is a north-south municipal local road that extends from Carling Ave in the south and terminates at Dovercourt Ave in the north. Within the study area, Cole Ave South has a two-lane cross-section with sidewalks on both sides of the road south of Tillbury Ave. The posted speed limit is 30 km/h and the existing ROW is estimated to be 20 m.

Maitland Ave is a north-south municipal arterial road extending from Carling Ave in the north to Clyde Ave in the south. The roadway consists of four-lane cross-section with sidewalks on both sides of the road. The posted speed limit is 50 km/h and the protected ROW is 26 m.

Sherbourne Rd is a north-south municipal collector road extending from Byron Ave in the north to Carling Ave in the south. The roadway consists of two-lane cross-section with sidewalks on both sides of the road south of Bromley and one sidewalk on the eastside north of Bromley. The posted speed limit is 40 km/h and the protected ROW is 30 m.

Existing Study Area Intersections

Maitland Ave-Sherbourne Rd/Carling Ave

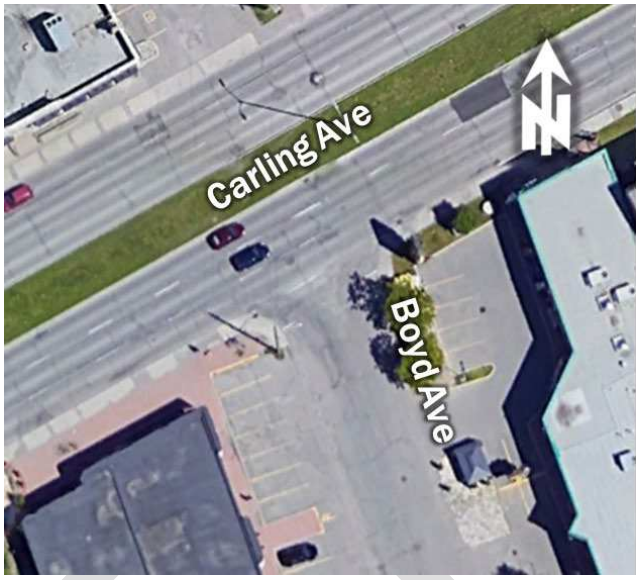
The Maitland/Carling intersection is a four-legged signalized intersection. The east leg consists of one through/right turn lane, one through lane, and two auxiliary left turn lanes. The west leg consists of one through/right turn lane, two through lanes, and one auxiliary left turn lane. The north and south legs consist of one through/right turn lane and an auxiliary left turn lane. Pedestrian crosswalks are provided on all legs of the intersection and there are no restricted movements.

Broadview Ave/Carling Ave

The Broadview/Carling intersection is a four-legged signalized intersection. The east and west legs consist of one through/right turn lane, two through lanes, and one auxiliary left turn lane. The north and south legs consist of one through/right turn lane and one auxiliary left turn lane. Pedestrian crosswalks are provided on all legs of the intersection and trucks are not permitted on Broadview Ave.

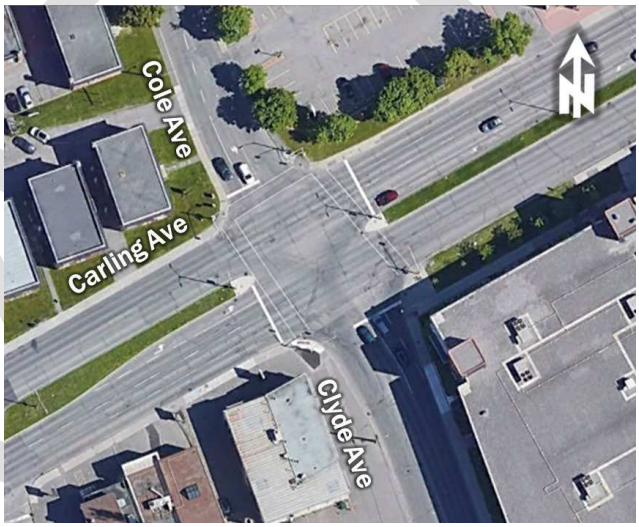
Boyd Ave/Carling Ave

The Boyd/Carling intersection is a three-legged unsignalized intersection with stop control only on Boyd Ave. Boyd Ave operates as a right-in/right-out due to the median along Carling Ave restricting westbound left traffic. The west leg consists of one through/right turn lane and two through lanes. The south leg consists of one through/right turn lane. A pedestrian crossing is provided on the south leg.



Clyde Ave-Cole Ave/Carling Ave

The Clyde-Cole/Carling intersection is a four-legged signalized intersection. The east and west leg consist of one through/right turn lane, one through lane, and one auxiliary left turn lane. The north and south legs consist of one through/right turn lane and one auxiliary left turn lane. Pedestrian crossings are provided on all legs of the intersection and trucks are not permitted on Cole Ave. It is worth noting that the south leg also includes a short, tapered auxiliary right turn lane however it is assumed the efficacy of this lane is negligible and will not be considered in the Synchro analysis in Section 4.9.



Boyd Ave/Kerr Ave-Doheny Ave

The Boyd/Kerr-Doheny intersection is a four-legged unsignalized intersection. All legs consist of one all movement lane with stop control and a pedestrian crossing. There are no restricted movements.

Clyde Ave/Doheny Ave

The Clyde/Doheny intersection is a four-legged signalized intersection. The east leg consists of one right turn lane and one through/left turn lane while the west leg consists of one all movement lane. The north and south legs consist of one through/right turn lane and one auxiliary left turn lane. Pedestrian crossings are provided on all legs and there are no restricted movements.

Existing Driveways to Adjacent Developments

Adjacent development accesses located within 200m of the proposed accesses and/or within area of influence are illustrated in **Figure 3** and described below. While some accesses were shown as an exact location, it is noteworthy that many of the site accesses span the entire lot frontage due to the rural cross-section, leading to lots with entirely paved frontages and consequently allowing for on-street parking or usage of their entire frontage as a single access. The proposed development would consolidate the existing site's multiple accesses into two new accesses.

Carling Ave

Note: the north side was not considered as there is a raised median separating those driveways from the development. Along the south side, there are seven driveways:

- West of the site: One access to a synagogue and sit-down restaurant, two accesses to an auto repair shop, and one access to a drive-through restaurant.
- East of the site: One access to a dental office, one access to a sit-down restaurant, and one access to an auto repair shop.

Boyd Ave

Along Boyd Ave, there are nine driveways on both the east and west sides that lead to a variety of commercial uses, including auto repair shops, a veterinary clinic, and restaurants.

Kerr Ave

Along Kerr Ave there are nine driveways on the north side that lead to a mix of residential houses and commercial uses and 10 driveways on the south side that lead to a mix of residential, commercial, and institutional uses.

Figure 3: Adjacent Development Accesses

Existing Area Traffic Management Measures

Below are the existing area traffic management measures within the study area:

- "Your speed" indicator on Maitland Ave
- School sign on Kerr Ave
- On-street parking on Kerr Ave, Boyd Ave and Doheny St
- Centerline flex-pole on Kerr Ave

Existing Pedestrian/Cycling Network

The following sidewalk facilities are provided within the study area, with approximate width estimates:

- Carling Ave: 1.8m sidewalks on both sides of the road
- Maitland Ave: 1.6m sidewalks on both sides of the road
- Broadview Ave: 2.0m sidewalks on both sides of the road north of Kerr Ave and 2.0m sidewalk on the east side of the road south of Kerr Ave
- Boyd Ave: no sidewalks provided on either side of the road
- Clyde Ave: 2.0m sidewalk on the east side of the road only, with a 1.8m asphalt path on the west side of the road observed to be frequently blocked by parked vehicles
- Kerr Ave: 2.0m sidewalk on the south side of the road only between Rex Ave and Broadview Ave. East of Broadview Ave, there is a 1.6m wide pathway on the south side that extends to Boyd Ave.

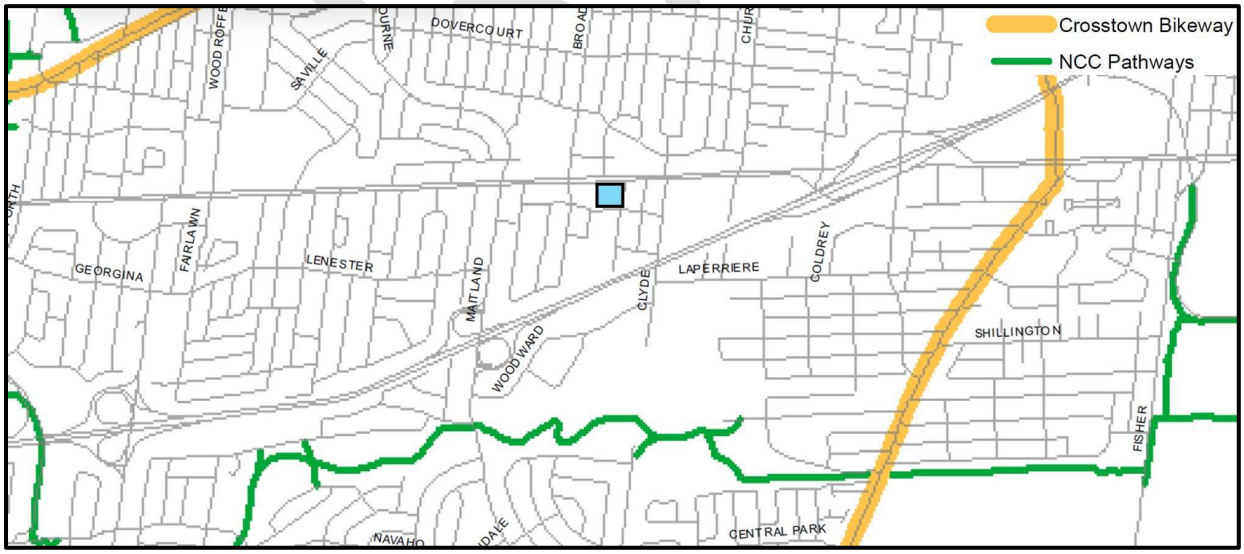
- Doheny St: does not have any sidewalk facilities nor curbs (rural cross-section), and has wide gravel shoulders as extensions of driveways and on-street parking

There are no dedicated cycling facilities within the study area however Kerr Ave–Doheny Street and Cole Ave South–Roosevelt Ave is designated as a "suggested route". **Figure 4** illustrates the existing active transportation facilities.

Figure 4: Existing Active Transportation Facilities

The Crosstown Bikeway Network (March 1, 2023)[1] from the new Transportation Master Plan shows that there are no nearby cycling facilities belonging to the Crosstown Bikeway Network or NCC Pathways as shown in **Figure 5**. It is noteworthy that Sherbourne Rd (extension of Maitland Rd north of Carling Ave) has bike lanes provided as curbside lanes on the southwest side of the road and a pocket lane located between a vehicle traffic lane and on-street parking on the northeast side of the road. Furthermore, Churchill Ave provides north-south cycle-tracks from Carling Ave to Byron Ave. The NCC Experimental Pathway is located south of Highway 417, however it is acknowledged that it is not easy to access this pathway from the proposed site via existing infrastructure.

Figure 5: 2023 TMP Crosstown Bikeway Network



[1] Crosstown Bikeway Network, March 1, 2023

Transit Network

The existing and "New Ways to Bus" OC Transpo transit networks for the study area is illustrated in **Figure 6** with **Figure 7** illustrating the bus stop locations and ID near to the site.

Figure 6: Area Transit Network

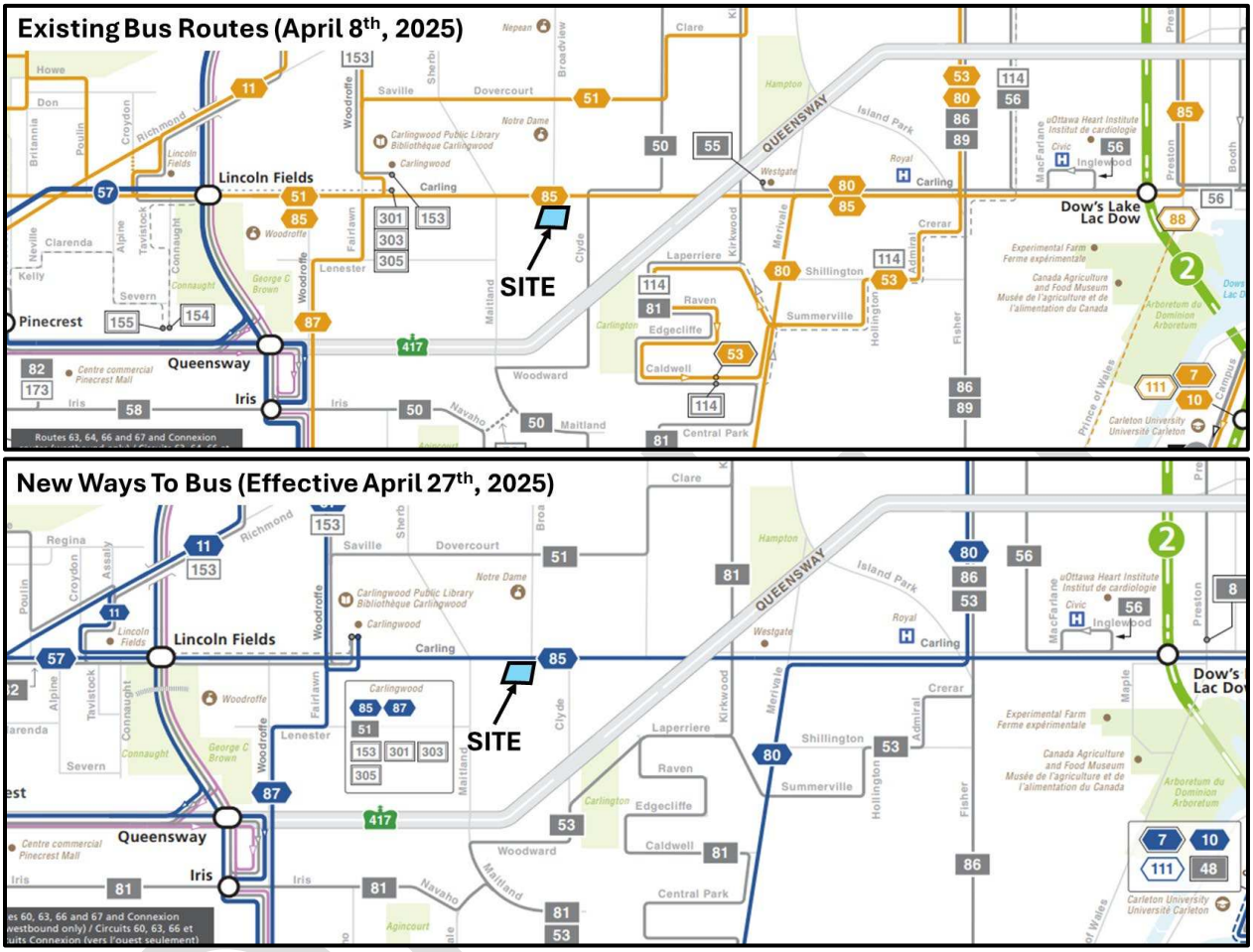
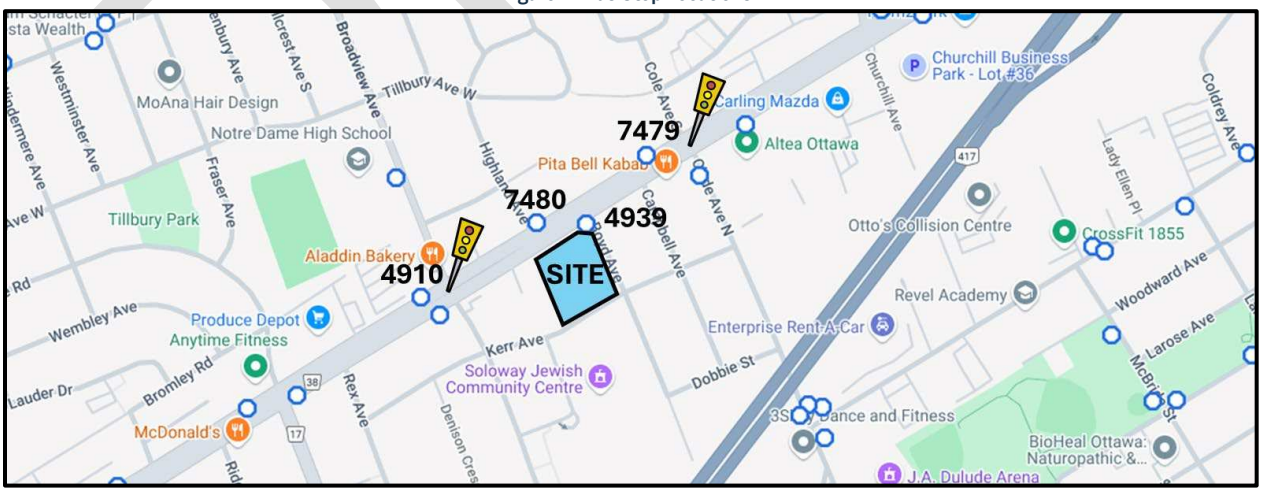


Figure 7: Bus Stop Locations



As shown in **Figure 7**, the eastbound bus stop (ID: 4939) is located adjacent to the site along the site frontage. There is a westbound bus stop located across the street from the site (ID: 7480); however, given the traffic

volumes and lack of a traffic signal for transit users to cross Carling Ave at this location, it is more likely that westbound transit users will use either bus stop ID 4910 near Broadview Ave or 7479 near Clyde Ave which are both located approximately 260m walk from the site.

The following description of OC Transpo routes within the study area reflect the current transit operations:

- **Route #85 (Lees <-> Bayshore)**: identified by OC Transpo as a "Frequent Route", this route operates with frequencies of 15-minutes or less during weekdays, operating 7 days/week at all time periods. Route #85 provides connection to the Confederation LRT Line at Lees and the Trillium LRT Line at Dow's Lake Station, and to major destinations such as the Civic Hospital, Lincoln Fields Station and Bayshore Mall. Bus stops for this route are available on Carling Ave, adjacent to the site for eastbound travel and approximately 260m walk for westbound buses.

The following description of OC Transpo routes within the study area reflects previous transit routes that have since been discontinued as part of the New Ways to Bus initiative that came into effect April 27th, 2025.

- **Route #50 (Tunney's Pasture <-> Lincoln Fields)**: identified by OC Transpo as a "Local Route", this route operated on customized routing and schedules with average headways of 30 minutes during weekdays, to serve local destinations with connection to the Confederation LRT Line at Tunney's Pasture. Bus stops for this route were available on Carling Ave for eastbound (ID 4908) approximately 275m walk and on Clyde Ave for westbound (ID 0350), approximately 250m walk from the site.

Peak Hour Travel Demands

Traffic count data was obtained from the City of Ottawa and from counts performed by Parsons. The traffic volumes at study area intersections are illustrated in **Figure 8** with raw traffic count data provided in **Appendix B**. Existing active transportations volumes have been provided in **Figure 9**, however note that some of the counts were conducted in winter when active users, especially cyclists are expected to be lower than summer months. The traffic volumes were balanced were appropriate.

Figure 8: Existing Peak Hour Vehicle Traffic Volumes

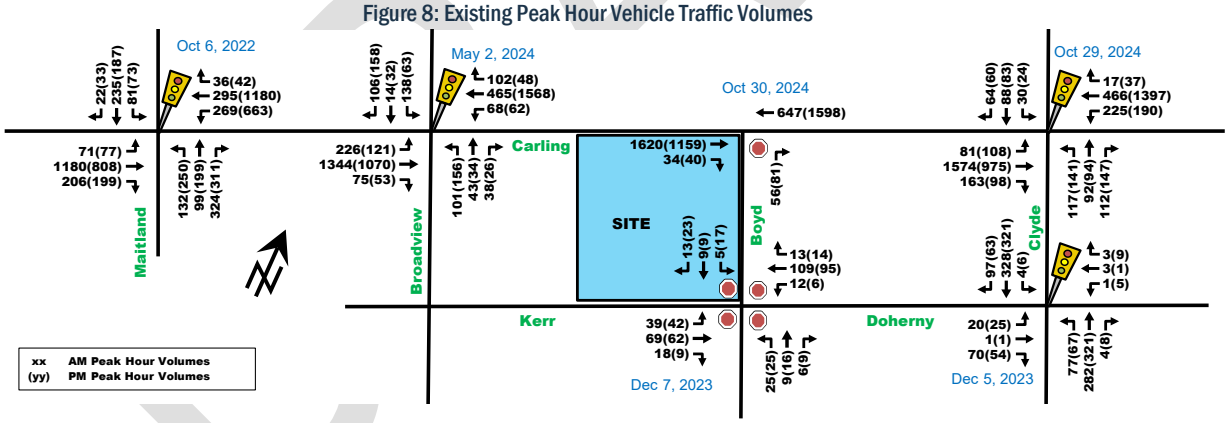
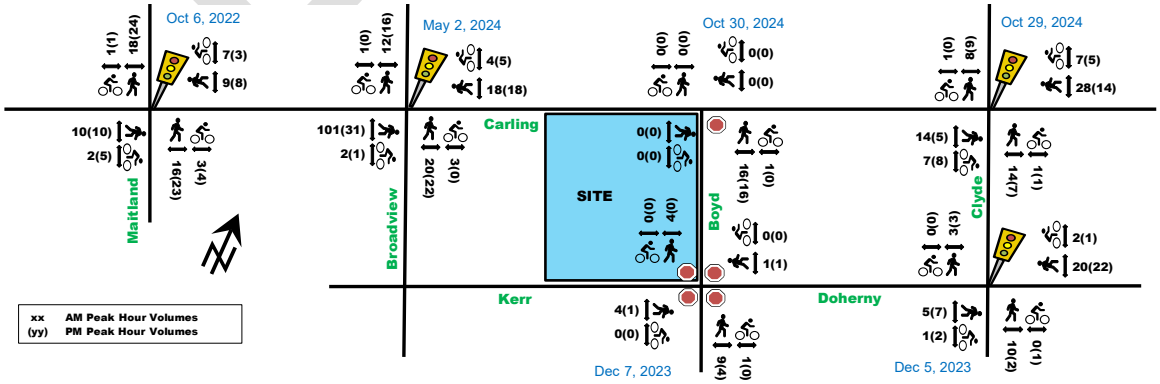


Figure 9: Existing Pedestrian and Cyclists Peak Hour Volumes



Existing Road Safety Conditions

Five-year collision history data (2018-2022, inclusive) was obtained from the City of Ottawa Open Data for the study area intersections and road segments within the study area. The data was analyzed as an initial screening. Detailed collision analysis has been provided in **Appendix C**.

Upon analyzing the collision data, the total number of collisions observed within the study area was determined to be 181 collisions within the past five-years. Of the collisions, 139 (77%) resulted in property-damage-only (PDO), while the remaining incidents 42 (23%) resulted in non-fatal injury collisions. There were no fatal collisions recorded within the study area.

Table 2: Collision Summary by Type and Severity

Classification of Accident	Rear End	Turning Movement	Sides-wipe	Angle	Appro-aching	SMV Other	SMV Unatt-ended	Other	Total
Property-Damage-Only (PDO)	36	32	44	20	0	3	1	3	**139 (77%)**
Non-fatal injury	8	20	1	5	0	7	0	1	**42 (23%)**
Fatal Incidents	0	0	0	0	0	0	0	0	**0 (0%)**
Total	**44 (24%)**	**52 (29%)**	**45 (25%)**	**25 (14%)**	**0 (0%)**	**10 (6%)**	**1 (1%)**	**4 (2%)**	**181 (100%)**

More than three quarters of collisions occurred from rear end, turning movement and sideswipe collisions which are expected types of collisions for high-volume major multi-lane arterial roads such as Carling Ave and its junctions with other arterial and collector roads such as Maitland Ave, Sherbourne Rd and Broadview Ave. Approximately half of all collisions causing non-fatal injuries involved turning movements. **Table 3** summarizes the study area collision history by intersection, including the total number of collisions, percent causing injury, number of collisions with vulnerable road users, and the most frequent collision type. Similarly, the mid-block collisions are summarized in **Table 4**.

Table 3: Collision Summary at Study Area Intersections, Vulnerable Road Users

Intersection Location	Collisions in 5 Years	Percent Causing Injury	Collisions with Peds	Collisions with Bikes	Most frequent type of collision and % of total collision at that location
Maitland/Carling	63	13%	1	0	Rear End (37%), Sideswipe (30%)
Broadview/Carling	40	25%	0	1	Turning Movement (43%)
Boyd/Carling	3	0%	0	0	Rear End, Sideswipe, Turning (33%)
Clyde/Carling	53	30%	2	2	Turning Movement (43%)
Boyd/Kerr	0	0%	0	0	n/a
Doheny/Clyde	1	0%	0	0	Sideswipe (100%)

Table 4: Collision Summary at Study Area Mid-Block Locations

Midblock Locations	Collisions in 5 Years	Length of Segment	Percent Causing Injury	Collisions with AT	Most frequent type of collision and % of total collision at that location
Carling – Maitland to Broadview	7	250m	57%	1 ped, 1 bike	Rear End, Sideswipe (29%)
Carling – Broadview to Clyde	4	370m	25%	0	Sideswipe (75%)
Kerr / Doheny (all)	2	370m	50%	1 ped	Single Vehicle (100%)
Clyde (all)	8	140m	25%	1 bike	Angle (75%)

In review of intersection patterns within the study area, Broadview/Carling and Clyde/Carling both experienced high levels of turning movement collisions (43% each of their total collisions). About half of these collisions resulted in non-fatal injury. It is understood that the City of Ottawa took action to mitigate this type of collisions in late 2022, by implementing fully protected left-turns at those two intersections. Within the five years of collision history, 40 turning collisions occurred at these two intersections, or approximately eight per year. Data shows that after August of 2022 (approximately two thirds of the year elapsed), only one turning collision

occurred. It is forecasted that new data post-2022 (currently not available) will show a reduction in turning movement type collisions and reduction in injury causing collisions.

The intersection of Maitland/Carling exhibited 63 collisions; however, this is an intersection between two major arterial roads. Overall, a low number of injury-causing collisions were recorded at this location. The intersection of Clyde/Carling exhibited four collisions with active transportation users.

Within the mid-block sections, the quantity of collisions were relatively low, however 4 of the 21 (19%) involved active transportation users. The pedestrian collision on Kerr Ave is likely due to the poor sidewalk facilities or lack of facilities altogether. The bike collisions on Carling Ave and Clyde Ave are similarly likely due to the mixed-operating conditions for vehicles and bikes. Cycling facilities are proposed on Clyde Ave (refer to next section for Transportation Master Plan). Carling Ave is also proposed to undergo some changes as part of the Carling Ave Transit Priority Measures (refer to next section) which would convert the curbside lanes into shared bus and cycling lanes. Based on traffic volumes and operating speeds, the Ontario Traffic Manual Book 18 recommends that these facilities be physically separated. However, that would require a larger scope of work and capital costs to implement.

2.1.3. Planned Conditions

Future Transportation Network Changes

Carling Ave Transit Priority Measures (2017)

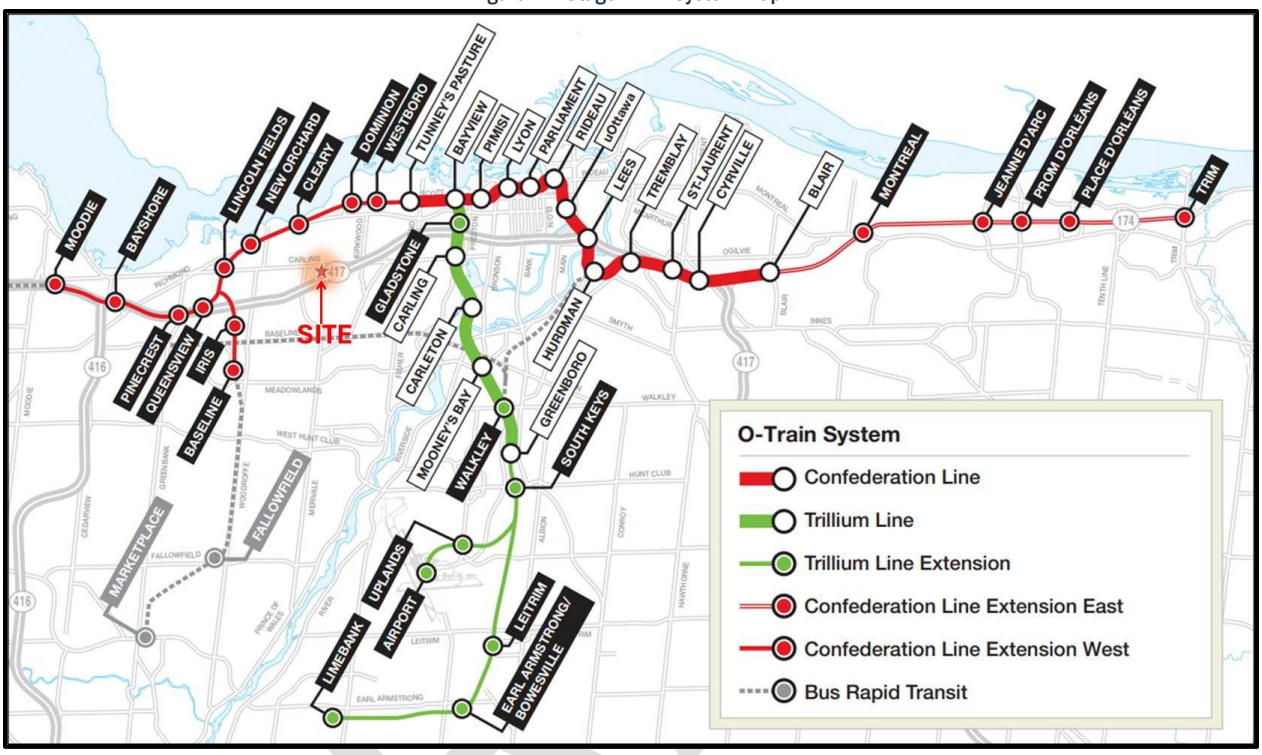
A low-cost and easy-to-implement interim transit priority corridor between Lincoln Fields Station and Bronson Ave was proposed in 2017 with some measures already completed. Some key elements proposed within the design include revised pavement markings and signage; minor modifications to convert the curbside lane into a bus only lane; cycling treatments at signalized intersections; and general improvements to multi-modal levels of service for alternative modes of transportation. **Figure 10** illustrates the proposed measures within the study area, with the entire corridor provided in higher detail within **Appendix D.** To date, minor transit priority measures have been incorporated within this corridor, such as bus-only lanes from Sherwood Dr to Bronson Ave, or transit lane improvements near to Lincoln Fields Station. Changes proposed by the Carling Ave Transit Priority Measures Planning and Functional Design Study have been carried into the draft 2025 TMP, which is discussed further below.

Figure 10: Carling Transit Priority Corridor Roll Plan

Stage 2 LRT (Construction Began 2019)

Stage 2 of the City of Ottawa LRT system is currently under construction. Stage 2, as shown in **Figure 11,** is a package of three extensions – south, east and west – totaling 44 km of new rail and 24 new LRT stations. The subject site will not be located near any of the new LRT Stations, but as the LRT network matures and captures a wider catch basin and more destinations, it is anticipated that a shift in vehicle drivers to new transit users may occur. Existing bus route #85 provides connectivity to recently opened Trillium Line at Dow's Lake Station and will provide future connectivity to the Confederation Line at Lincoln Fields Station.

Figure 11: Stage 2 LRT System Map



Official Plan (2021)

According to the Official Plan (OP), the site is located adjacent to an "at-grade" O-Train/LRT corridor on Carling Ave from Dow's Lake Station to Lincoln Fields Station as part of the "ultimate network – Schedule C2". Within Schedule C7-A, the development is located within a design priority corridor as part of a Mainstreet, which has specific policies targeted at higher density developments supported by active transportation trips to rapid transit stations.

Transportation Master Plan (2023 and On-going)

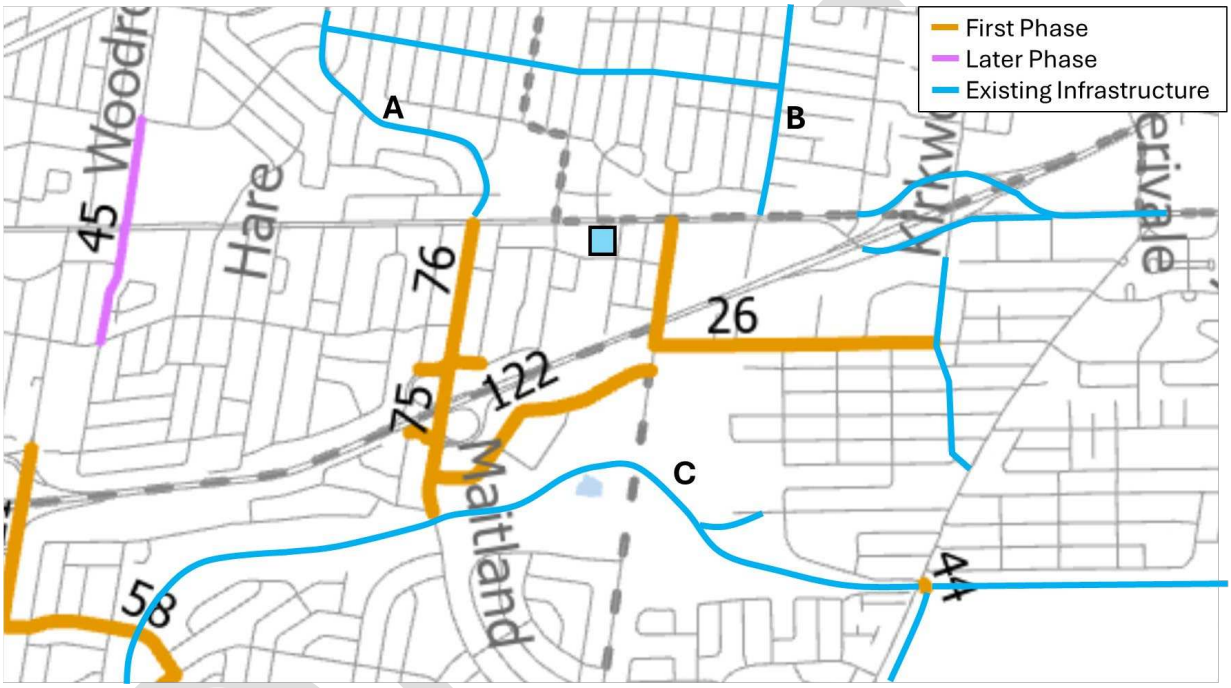
Cycling: As of March 2025, the City of Ottawa released the proposed cycling priority network, which is expected to be implemented within the first 10 years for the first phase. Adjacent to the site, various improvements were identified as shown in **Figure 12**. Note that light-blue lines were added by the consultant to show relevant existing cycling infrastructure and how the proposed cycling priorities would tie in to produce a comprehensive network. Some of the highlights include:

- On map #76: a feasibility study for cycling facilities on Maitland Ave from Carling Ave to the Experimental Farm Pathway (shown as C on map). This facility would connect to existing bike lanes on Sherbourne Rd (shown as A on map). The Experimental Farm Pathway provides excellent east-west active transportation facilities that are generally separated from vehicle travel lanes except for at road crossings. The Experimental Farm Pathway provides connectivity to the Pinecrest Creek

Pathway/Ottawa River Pathway to the west and to the Rideau Canal Pathways/Trillium Pathway to the east

- On map #75: improved cycling connectivity from the proposed Maitland facilities (#76 described above) to the local road network connecting the proposed development's neighborhood. A connection to Rex Ave is proposed
- On map #26: proposed separated cycling facilities and/or bike lanes on Clyde Ave from Carling Ave to Laperriere Ave and on Laperriere Ave from Clyde Ave to Kirkwood Ave. This project along with #122 could provide an alternate route from the site to the Experimental Farm Pathway
- On map #122: proposed bike lanes where feasible on Woodward Dr from Clyde Ave to Carling Ave
- On map #44: improved active transportation crossing on Experimental Farm Pathway at Merivale Rd

Figure 12: TMP Proposed Cycling Priorities



Pedestrians: The City of Ottawa's 'TMP Pedestrian Projects Proposed Priority' map also indicates that a sidewalk will be constructed as a 'first phase' project on Doheny Avenue between Clyde Avenue North and Boyd Avenue, which is at the eastern edge of the site.

Transit: As of March 2025, the City of Ottawa released the transit proposed priority network, which lists projects that are expected to be developed by 2046. Within the "needs based transit network", Carling Ave is denoted as a transitway from Lincoln Fields Station to Dow's Lake Station. However, due to funding, the transitway classification was reduced to continuous bus lanes within that corridor on the "priority transit network". This is in alignment with the 2017 Carling Ave Transit Priority Measures Planning and Functional Design Study. Based on the latest update, this transit project ranks as the highest priority for continuous bus lane projects (separate ranking from rapid transit projects), and is estimated to improve corridor travel times by as much as 20%[2], improve reliability and support transit-oriented developments such as 1746 Carling Ave. Overall, the Carling Ave transit priority project received the second highest score for priority, after the Baseline Transitway Corridor. No plans for the proposed ultimate improvements were found online, although the 2017 functional design is available.

[2] TMP – Transit Network Development, page 25

Other Area Developments

The following section outlines adjacent developments in the general area that were considered in the TIA. The criteria for inclusion of other area developments are either approved developments or developments that have an active planning application that are generally within a 1-km radius of the subject site. **Figure 13** illustrates the location and relative size of relevant other area developments.

1 - 1995 Carling Ave

A TIA was submitted by IBI in April 2020 for a 27-storey residential building consisting of 210 residential units. The proposed development is expected to result in up to 55 to 60 'new' veh/h during peak hours. Traffic volumes generated by this development will be included in the future background volumes in this TIA report.

2 - 1705 Carling Ave

A TIA was submitted by Novatech in April 2020 for a 9-storey retirement home facility with 158 units and a 22-storey residential high-rise building with 194 units located at 1705 Carling Ave. As the site is currently occupied by an 80-unit motel and a 3500 ft^2 restaurant, the number of trips forecasted for the future development are expected to be less 25 veh/h during peak hours. Trips for this development are minimal and will be accounted for in the future background traffic growth rate in this TIA report.

3 - 1655 Carling Ave (Carlton West)

A TIA was submitted by Parsons in May 2022 for a 16 and 18-storey two-tower building consisting of 418 residential units and 8,300ft^2 commercial space. Westbound cycle tracks will be added to the development frontage along Carling Ave. The proposed development is expected to result in up to 116 'new' veh/h during peak hours. This development is currently under construction. Traffic volumes generated by this development will be included in the future background volumes in this TIA report.

4 - 1640 Carling Ave (former Canadian Tire)

A TIA was submitted by Parsons in October 2022 for a plan of subdivision including 6 towers varying from 18 and 40-storey consisting of 1,754 residential units. The proposed development is expected to result in net negligible 'new' trips in the morning and 40 'new' veh/h during peak hours since it is replacing an existing restaurant, Canadian Tire Center and Fitness Center. Traffic volumes generated by this development will be included in the future background volumes in this TIA report.

5 - 861 Clyde Avenue North

A TIA was submitted by Novatech in May 2021 in support of an OPA and ZBLA application for a 3-phase residential development consisting of 23 townhouses and 1,712 apartment dwelling units within 6 towers varying in height from 9 to 30-storeys. A MUP is proposed on the south side of the development. Full build-out of the development is forecast to generate 1,139 AM peak hour person trips and 1,188 PM peak hour person trips. Traffic volumes generated by this development will be included in the future background volumes in this TIA report.

Additional Other Area Developments

Noted below are future developments located outside the study area, at distances exceeding 1km radius from the proposed development site.

- 6 - 1354 Carling Ave: Five high-rise buildings with 1,018 residential units (2023 buildout).
- 7 - 1330 Carling Ave: 24-storey residential building with 175 units (2023 buildout).

Figure 13: Other Area Developments

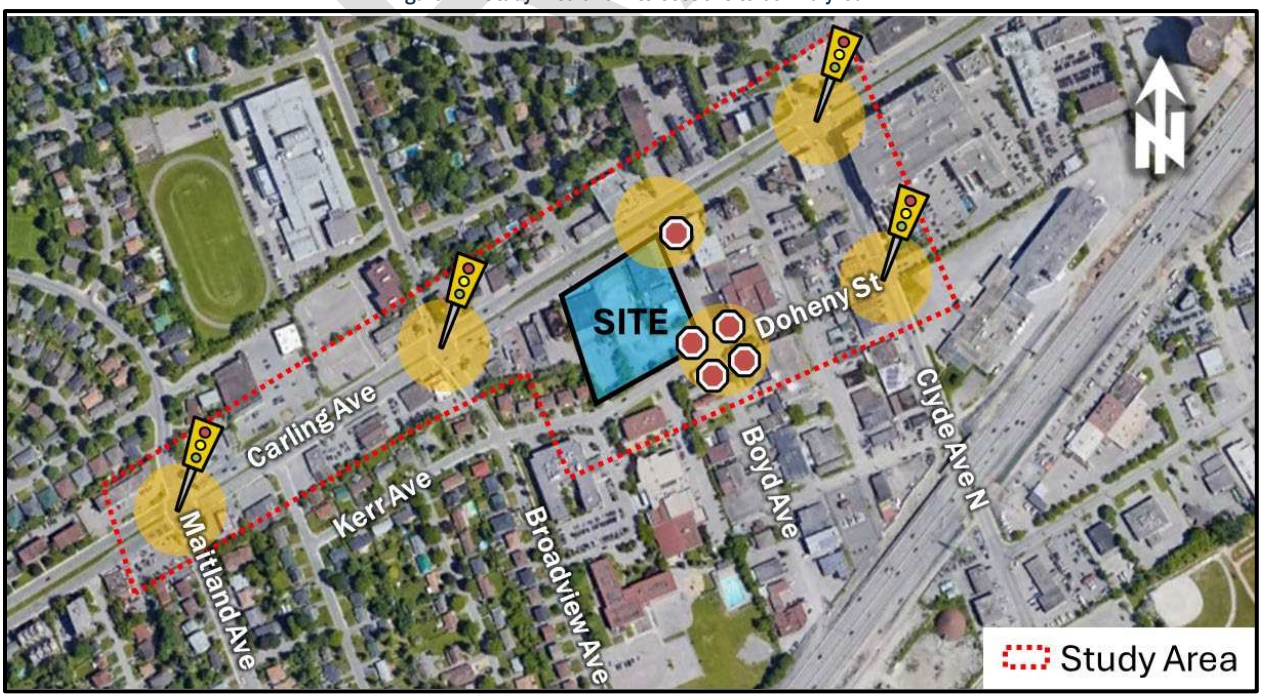
2.2. Study Area and Time Periods

For the purposes of this report, the proposed development is assumed to be fully constructed by 2028. The full buildout scenario and five-years after development buildout will be analyzed, 2028 and 2033. The future horizon years analyzed will use the weekday morning and afternoon peak hour traffic volumes.

Proposed study area intersections are listed below and illustrated in **Figure 14**.

- Maitland/Carling
- Broadview/Carling
- Boyd/Carling
- Kerr/Boyd
- Doheny/Clyde
- Clyde/Carling

Figure 14: Study Area and Intersections to be Analyzed



2.3. Exemption Review

The following modules/elements of the TIA process provided in **Table 5** are recommended to be exempt in the subsequent steps of the TIA process, based on the City's TIA guidelines and the subject site:

Table 5: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Street Network	Only required for plans of subdivision

3.0 FORECASTING

3.1. Development Generated Travel Demand

3.1.1. Trip Generation Sources

Trip generation rates for 627 high-rise apartment units in Towers A and B were obtained from the City's revised 2020 TRANS Trip Generation Manual. The senior living units in Tower C were obtained from ITE's Trip Generation Manual 11th edition. The commercial aspect is relatively small in size and considered comparable to the existing commercial land uses. For this reason, it is anticipated that the few commercial trips generated by the existing land uses will cancel out the future proposed ground level commercial land uses within towers A and B. The trip generation rates for residential and senior living have been summarized in **Table 6**.

Table 6: 2020 TRANS Residential Trip Generation Rates & ITE Senior Living Rates

Land Use	Data Source	Units or Size	Trip Rates	
			AM Peak	PM Peak
High Rise Apartments	TRANS 2020	627 units	T = 0.80(du)	T = 0.90(du)
Senior Housing (multi)	ITE 252	122 units	T = 0.19(du) + 0.90	T = 0.25(du) + 0.07
Note: T = Average Vehicle Trip Ends; du = dwelling units				

3.1.2. Residential Trip Generation and Mode Shares

Using the TRANS Trip Generation rates, the total amount of person trips generated by the proposed 627 residential units was calculated. The results are summarized in **Table 7**.

Table 7: Projected Residential Peak Period Person Trip Generation – TRANS Model

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
Residential	627	502	564

The projected site peak period person trips were then divided based on the mode shares for Ottawa West according to TRANS 2020 **Table 5**, as summarized in **Table 8**.

Table 8: Residential Peak Period Trips using TRANS 2020 Mode Shares

Travel Mode	AM Peak Period		PM Peak Period	
	Mode Share	Person Trip	Mode Share	Person Trips
Auto Driver	28%	143	33%	186
Auto Passenger	11%	57	11%	65
Transit	41%	206	26%	144
Cycling	3%	16	7%	39
Walking	16%	79	23%	131
Total Person Trips	100%	502	100%	564

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent a worst-case scenario. The 2020 TRANS Manual uses peak periods which can exceed the peak hours. Table 4 within the 2020 TRANS Manual includes factors for converting peak periods into peak hour traffic volumes as seen in **Table 9**. Note that conversion factors for passenger trips are assumed to be the same as auto driver.

Table 9: Peak Period to Peak Hour Conversion Factor (2020 TRANS Manual)

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

Using the peak period to peak hour conversion rates from **Table 9**, the derived peak period trips by mode shares from **Table 8**, and the inbound and outbound splits from table 9 within the TRANS 2020 Manual, then the residential peak hour trips generated by the site for TRANS 2020 Ottawa West mode share can be calculated, as seen summarized in **Table 10**.

Table 10: Residential Peak Hour Trips Generated using TRANS 2020 Mode Shares

Travel Mode	Mode Share	AM Peak Hour (Trips/h)			Mode Share	PM Peak Hour (Trips/h)		
		In	Out	Total		In	Out	Total
Auto Driver	28%	21	47	69	33%	47	34	82
Auto Passenger	11%	9	19	28	11%	16	12	28
Transit	41%	35	78	113	26%	39	28	68
Cycling	3%	3	7	10	7%	11	8	19
Walking	16%	14	31	46	23%	40	29	68
Total Person Trips	**100%**	**82**	**183**	**265**	**100%**	**154**	**111**	**265**

Overall, the mode shares for Ottawa West seem reasonable for the site context. Minor adjustments were done to reflect the direct site context as summarized in **Table 11.**

Table 11: Future Mode Share Proposed for Residential Trips

Travel Mode	TRANS Residential Mode Shares		Future Target Mode Share (AM & PM)	Residential Modal Share Proposed Rationale
	AM	PM		
Auto Driver	28%	33%	40%	The LRT to Tunney's Pasture and transitway bisects the Ottawa West area and may over-inflate transit usage. The planned Carling TPMs will attract some users, but overall, shares of trips completed by drivers and by transit users are expected to increase and decrease, respectively.
Passenger	11%	11%	10%	
Transit	41%	26%	30%	
Cycling	3%	7%	5%	Cycling may increase with improvements to cycling facilities. There are some offices and workplaces near the site which may attract walking trips.
Walking	16%	23%	15%	

Using the proposed residential mode shares from above, then the forecasted residential trips by mode share can be derived, as summarized in **Table 12**.

Table 12: Residential Peak Hour Trip Generation using Proposed Mode Shares

Travel Mode	Mode Shares AM & PM	AM Peak Hour (Trips/h)			PM Peak Hour (Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	40%	33	73	106	61	44	106
Auto Passenger	10%	8	18	26	15	11	26
Transit	30%	25	55	79	46	33	79
Cycling	5%	4	9	13	8	6	13
Walking	15%	12	27	40	23	17	40
Total Person Trips	**100%**	**82**	**183**	**265**	**154**	**111**	**265**

3.1.3. Senior Living Trip Generation and Mode Shares

The trip generation rates for senior living uses from **Table 6** were multiplied by the proposed 128 units and then multiplied by 1.28 to account for typical North American auto occupancy, transit use and non-motorized mode to produce a modified person trip as shown in **Table 13**.

Table 13: Modified Person Trip Generation for Senior Living

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
Senior Living	122	31	39

The proposed mode shares for senior living are shown in **Table 14**.

Table 14: Future Mode Share Targets for Senior Living

Travel Mode	TRANS Mode Shares for Residential Uses		Senior Living Proposed Mode Share	Target Rationale
	AM	PM	AM & PM	
Auto Driver	28%	33%	40%	It is forecasted that seniors may be slightly more dependent on transit and being picked up by family than the residential buildings' residents.
Passenger	11%	11%	15%	
Transit	41%	26%	35%	
Cycling	3%	7%	0%	Due to mobility and aging, a reduction in active mode shares is proposed.
Walking	16%	23%	10%	

The modified person trip from **Table 13** is then multiplied by the respective mode share as described in **Table 14** to estimate senior living trips per mode share as shown in **Table 15.**

Table 15: Senior Living Peak Hour Trips Generated by Mode

Travel Mode	Mode Shares AM & PM	AM Peak Hour (Trips/h)			PM Peak Hour (Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	40%	4	9	13	9	8	17
Auto Passenger	15%	2	3	5	3	3	6
Transit	35%	3	7	10	7	6	13
Cycling	0%	0	0	0	0	0	0
Walking	10%	1	2	3	2	1	3
Modified Person Trips	**100%**	**10**	**21**	**31**	**21**	**18**	**39**

3.1.4. Combined Trip Generation

The trips per mode shares were then combined for the residential aspect and senior living from **Table 12** and **Table 15** respectively to produce the combined site generated trips by the proposed development as shown in **Table 16**.

Table 16: Combined Trips Generated by the Site

Travel Mode	AM Peak Hour (Trips/h)			PM Peak Hour (Trips/h)		
	In	Out	Total	In	Out	Total
Auto Driver	37	82	119	70	52	123
Auto Passenger	10	21	31	18	14	32
Transit	28	62	89	53	39	92
Cycling	4	9	13	8	6	13
Walking	13	29	43	25	18	43
Total Person Trips	**92**	**204**	**296**	**175**	**129**	**304**

Based on **Table 16**, the proposed development will generate approximately 120 to 125 'new' vehicles trips, 90 to 95 'new' transit trips and to 55 'new' bike/walk trips (excluding recreational trips), two-way per peak hour. Note that transit trips are anticipated to contribute to active modes to/from the bus stops on Carling Ave, which will be accounted for in the future analysis.

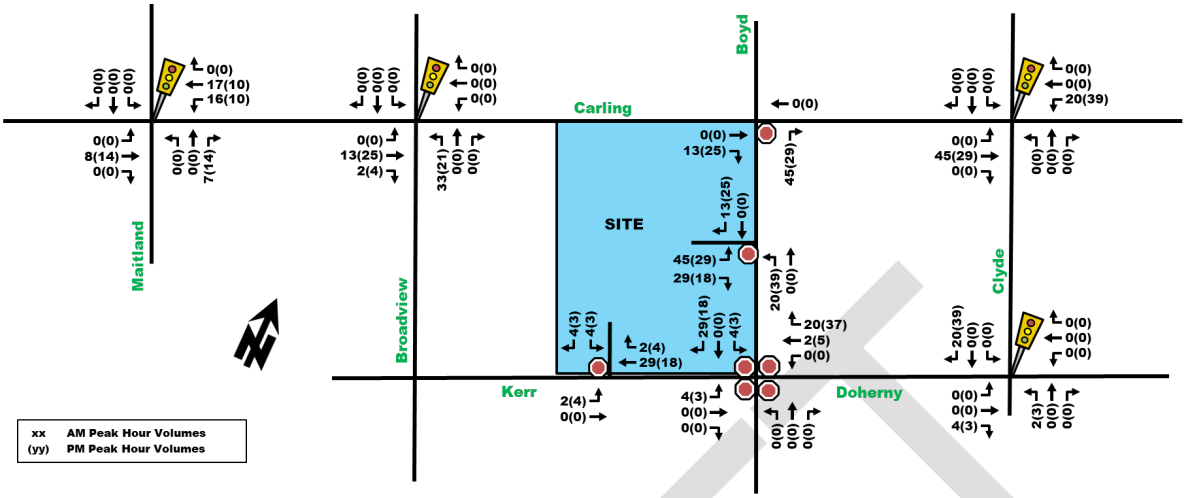
3.1.5. Trip Distribution and Assignment

Based on the OD Mode Share Survey, existing traffic volume counts, the location of adjacent arterial roadways and neighborhoods, and the location of accesses, the distribution of site-generated traffic volumes has been illustrated in **Figure 15**.

Figure 15: Site Generated Vehicle Traffic Percent Distribution

The anticipated 'new' auto trips for the proposed development from **Table 16** were then assigned to the road network with the distribution shown above, as shown in **Figure 16**, for the total site-generated traffic for custom mode share.

Figure 16: Site-Generated Traffic Using Custom Mode Shares



3.2. Background Network Traffic

3.2.1. Transportation Network Plans

Refer to Section 2.1.3.

3.2.2. Background Growth and Other Area Developments

The emphasis in the New Official Plan and New Transportation Master Plan is to prioritize 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 dependency on private auto.

Once Stage 2 LRT extension is completed, approximately 77% of Ottawa residents will be within 5km of light rail[3], resulting in a city-wide reduction in vehicle dependency, especially for areas better served by transit such as within the inner urban area.

Furthermore, this development will be located along a future transit priority corridor with continuous bus lanes. Based on the “Carling Avenue Transit Priority Measures Study and Functional Design” dated June 2017 and prepared by WSP, the future transit measures will reduce vehicle trips on Carling Ave east-west by up to 20% in the peak direction and up to 15% in the off-peak direction.

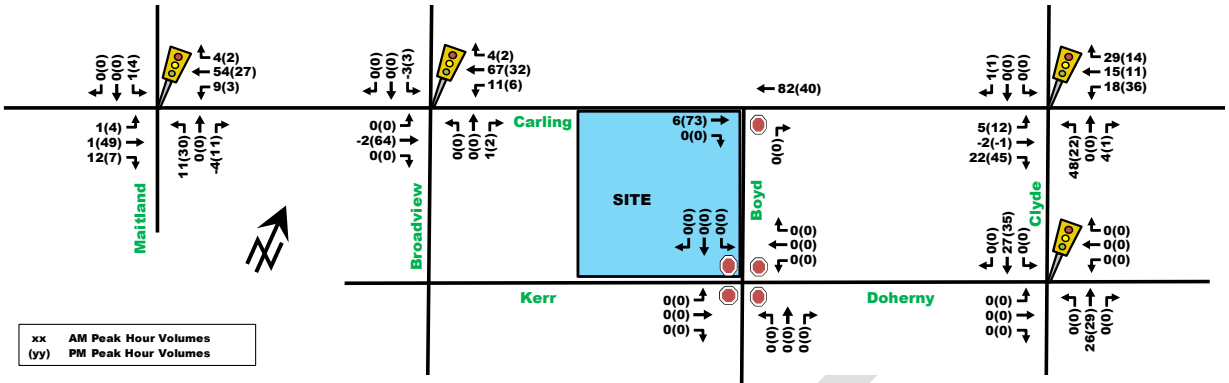
Given that a large percentage of potential developments have been captured within other area developments and the forecasted reductions in vehicular dependency surrounding the study area, then a **0% annual growth rate** (plus layering of other known developments) is considered acceptable. Known other area developments will be manually added to study area intersections.

3.2.3. Future Background Volumes

As described in Section 2.1.3, there are various new developments proposed which will be layered on individually to background traffic volumes. The total number of other area development vehicle trips projected to use study area intersections have been illustrated in **Figure 17**. The future background volumes for horizon years 2028 and 2033 assuming that all developments are built out by 2028 (conservative assumption) have been illustrated in **Figure 18**.

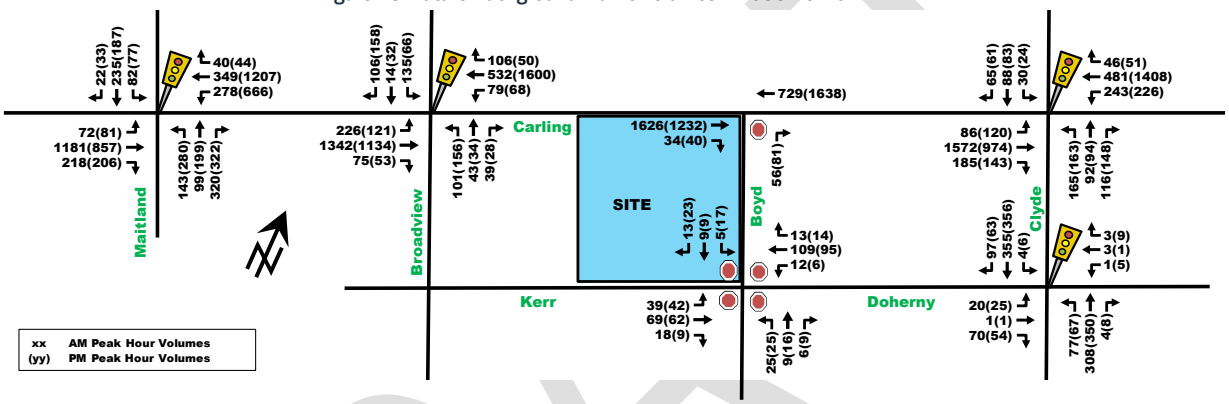
[3] https://ottawa.ca/en/planning-development-and-construction/major-projects/stage-2-light-rail-transit-project/overview#section-74f946f7-8138-491b-a748-f8e569072c88

Figure 17: Other Area Development Trip Generation



Note that some values appear negative as the trip distributions changed slightly within the TIAs. Values extracted directly from TIAs.

Figure 18: Future Background Traffic Volumes – 2033 Horizon



3.3. Demand Rationalization

Within the past few years, major changes have occurred within the City of Ottawa, affecting travel patterns and transportation demand.

The COVID-19 pandemic has had long-lasting effects on work culture, reducing many former traditional AM peak and PM peak hour work commute trips. Some trips have been eliminated altogether by people who have decided to continue to work from home. Others have adopted a more flexible work schedule, reducing pressures on the peak hour demands. Although many have begun to return to offices and places of work, it has become evident that a full return to in-person work is not likely.

In 2017, the City of Ottawa completed Stage 1 LRT which provided a large improvement to rapid transit; however, it did not provide a seamless connectivity to the suburbs, requiring transit users to transfer at LRT-Bus connecting stations to continue their commute. By 2027, Stage 2 LRT expansion is anticipated to be fully operational, which would eliminate the need to transfer from LRT to a bus for many people in Ottawa and highly improve the commuter experience. Once Stage 2 LRT is complete, a much larger shift in vehicle users to transit users is forecasted for Ottawa.

More specifically, this development is located within a future “continuous bus lanes” transit priority corridor which will provide reduced transit times of up to 20% and increase reliability adjacent to the development. These improvements will leverage rapid transit and reduce overall reliance on personal motor vehicles. Based on the “Carling Avenue Transit Priority Measures Study and Functional Design” dated June 2017, the future transit measures will reduce vehicle trips on Carling Ave east-west by up to 20% in the peak direction and up to 15% in the off-peak direction.

While a growth rate of 0% annually and inclusion of multiple known other area developments were incorporated in the background growth projections as discussed in **Section 3.2.2**, it is possible that the 0% annual growth rate may still be too conservative based on the transit improvements discussed above and the change in work culture. For this reason, if congestion concerns are noted in future conditions, a sensitivity scenario with a reduction in annual growth rate may be considered.

4.0 ANALYSIS

4.1. Development Design

4.1.1. Design for Sustainable Modes

Pedestrian/Cycling Routes and Facilities

The latest site concept proposes internal walkways that permeate the site, providing connectivity from all towers to pedestrian pathways and the parkland area in the southeast corner of the site. The site also proposes sidewalks along all frontages, including Carling Ave, Boyd Ave and Kerr Ave. As only Carling Ave currently has sidewalks, the proposed plan would significantly improve pedestrian facilities in the area.

The proposed active transportation facilities on Boyd Ave, Kerr Ave and internal to the site are all 1.8m wide. The proposed facilities on Carling Ave comprises of a wider 2.0m sidewalk and a 1.8m unidirectional cycle-track with a 1.0m buffer from the road. Tower C proposes sidewalks along both sides of the building connecting to the future phases and a new crosswalk towards Tower B, which connects to Carling Ave. **Figure 19** illustrates the proposed active transportation facilities.

Figure 19: Active Transportation Facilities

Location of Transit Facilities

OC Transpo bus stops are located along Carling Ave and transit users are expected to either travel internally or along external sidewalks to access the bus stops. Boyd Ave has an approximate 45m discontinuity in sidewalk along the 818 Boyd Ave frontage, a property that is not part of this development. While some transit users may use Boyd Ave to get to Carling Ave in the interim (while only Tower C is built), it is expected that after full build-out, pedestrians will prefer internal site pathways to reach Carling Ave, avoiding Boyd Ave as the primary route to transit stops. During interim conditions, Boyd's low operating speeds, low traffic volumes, wide paved shoulder and partial planned sidewalk extension are considered satisfactory for pedestrians to access Carling Ave's bus stops.

4.1.2. Circulation and Access

Vehicular access to the site is illustrated in **Figure 20**. The site proposes two vehicle accesses, one from Boyd Ave and the other from Kerr Ave (see **Section 4.4.1** for design details). The Boyd access will operate as a two-way, two-lane all movement access, providing a connection to Towers A and B, a two-way ramp to an underground parking garage, and the surface parking lot. This access is also part of the designated fire route and provides access for garbage collection vehicles. A loading bay is provided along the Boyd Ave access on the south side of Tower A, serving also as a lay-by for pickup/drop off and accessible transit shuttles.

The Kerr Ave access will primarily operate as a two-way, two-lane all movement access connecting to the parking garage ramp and the Tower 'C' loading bay. Additionally, a lay-by is proposed east of the access on Kerr Ave for senior pick-up/drop-off activity and small deliveries.

It is understood that the site will have a single underground parking garage with two accesses, providing two-way traffic on 6.0m wide ramps, meeting minimum zoning requirements. The central ramp (for Towers A and B) is sloped at 15%, while the ramp from Kerr Avenue is sloped at 12%.

The proposed internal driveway widths within the parking garage are 6.0m wide, which meet the minimum required aisle width established in Zoning By-law Section 107.1(c)(ii) for 90-degree parking stalls with two-way travel.

The proposed 3.6m wide loading bay for Tower C does not meet the 4m minimum width required by the Waste Collection Guidelines; however, it is not expected to cause any issues. Meanwhile, the loading area for Tower B meets all minimum requirements.

Truck turning templates have been reviewed as provided in **Appendix E** and no major concerns are anticipated with regard to vehicle maneuvers within the site and at site accesses.

Figure 20: Vehicular Circulation

4.1.3. New Streets Network

Exempt, refer to **Table 5**.

4.2. Parking

The following parking analysis reflects the minimum parking rates and spaces required based on the City of Ottawa Zoning By-Law for developments located in Area Y: Inner Urban Mainstreets on Schedule 1A. **Table 17** and **Table 18** summarize the minimum vehicle and bicycle parking rates from Part 4, Parking, Queueing and Loading Provisions zoning by-law, referenced from Tables 101, 102, and 111A. The minimum vehicle and bicycle parking space requirements are expected to be met.

Vehicle Parking

Towers A and B propose three levels of underground parking facilities, providing 235 and 162 spaces, respectively. The two towers will also share an above-ground parking lot, totaling 30 spaces. Tower C proposes 108 spaces over two levels of underground parking and no surface parking.

Table 17: Required Vehicle Parking Spaces

Land Use	Size (unit or m²)	Parking Rates		Minimum Required			Provided Parking Spaces
		Base	Visitor	Base	Visitor	Total	Total
Tower A							
Mid-High-Rise Apartments (R12)	336 units	0.5/unit[1,3]	0.1/unit[4]	146	30	176	**250**
Commercial Retail (N79)	189m²	n/a[2]	-	-	-	-	-
Tower B							
Mid-High-Rise Apartments (R12)	291 units	0.5/unit[1,3]	0.1/unit[4]	126	28	154	**177**
Commercial Retail (N79)	177m²	n/a[2]	-	-	-	-	-
Tower C							
Mid-High-Rise Apartments (R12)	122 units	0.5/unit[1,3]	0.1/unit[4]	50	11	61	**108**
			Total	**322**	**69**	**391**	**535**

1 – No off-street parking is required for the first 12 residential units per building.
2 – No off-street parking is required for non-residential uses located partly or entirely on ground floor with a GFA of 500m² or less
3 – Off-street parking may be reduced by the lesser of 10% or 20 spaces if all required spaces are provided below-grade of the same building
4 – No visitor off-street parking is required for the first 12 residential units per building and a maximum of 30 spaces per building.

Bicycle Parking

The proposed development provides 382 bicycle parking spaces, an amount compliant with Zoning By-law Section 111(1) and Table 111A(b)(i) for apartment buildings located within Area B. Secure bicycle storage is provided indoors for Towers A and B at the ground level, and underground for Towers A, B and C across several small storage areas. There are also 12 short-term surface bicycle parking spaces provided throughout the development.

Table 18: Required Bicycle Parking Spaces

Land Use	Size (unit or m²)	Bicycles		
		Base Rate	Min Required Spaces	Proposed Combined
Tower A				
(b) Apartment dwelling, mid-size	336 units	0.5/unit	168	168
(e) Retail store	189m²	1/250m²	1	-
Tower B				
(b) Apartment dwelling, mid-size	291 units	0.5/unit	146	146
(e) Retail store	177m²	1/250m²	1	-
Tower C				
(a) Retirement home	122 units	0.5/unit	61	68
Total			**375**	**382**

4.3. Boundary Street Design

For the purpose of this analysis, the New 2025 MMLOS Tool which has recently has been adopted by the city will be used for this report.

4.3.1. Existing & Future Conditions

The boundary streets to the proposed development are Carling Ave, Boyd Ave and Kerr Ave. All roads are located within the "Inner Urban Transect" which has more aggressive targets than "Mainstreet Corridor (outside of hub)".

- *Carling Ave:*

  - Three vehicle travel lanes in each direction
  - 1.8m sidewalks on each side of the road without boulevard separation. Proposed new 2.0m sidewalk along site frontage separated by a 1.5m unidirectional cycle track and a 1.0m buffer from vehicle lanes
  - More than 3,000 vehicles per day during existing conditions and less than 3,000 vehicles per day during future conditions
  - Posted speed 60km/h
  - Classified as mainstreet roadway with transit priority measures. Transit operates as mixed traffic today and proposed as bus lanes in the future
  - Not part of the Crosstown Bikeway Network
  - Note: as per MMLOS Guidelines, "other streets" was used for public realm context given that an outer boulevard will be provided in the future
- *Boyd Ave:*
  - One vehicle travel lane in each direction
  - No active transportation facilities on either side of the road. Proposed 1.8m sidewalk along the site frontage, without boulevard separation
  - Less than 3,000 vehicles per day existing and future conditions
  - Assumed unposted speed 50km/h
  - Classified as local roadway
  - Not part of the Crosstown Bikeway Network or transit priority
- *Kerr Ave:*
  - One vehicle travel lane in each direction
  - No active transportation facilities on north side of the road. The south side of the road has a 1.6m asphalt path with an approximate 2.5m boulevard separation. Proposed 1.8m sidewalk along the site frontage, with a 1.6m boulevard separation
  - Less than 3,000 vehicles per day existing and future conditions
  - Assumed unposted speed 50km/h
  - Classified as local roadway
  - Not part of the Crosstown Bikeway Network or transit priority

Multi-modal Level of Service analysis for the subject road segments adjacent to the site is summarized in **Table 19** with detail analysis provided in **Appendix H**. Note that the truck level of service is no longer calculated, but rather confirmed as part of the geometrics checks and truck turning templates.

Table 19: MMLOS – Boundary Street Segments Existing and Future Conditions

Road Segment	Level of Service							
	Pedestrian		Bicycle		Transit		Public Realm	
	PLoS	Target	BLoS	Target	TLoS	Target	PRLoS	Target
Existing & Future Conditions (Unless Future Changes Below)								
Carling Ave (Both Sides)	D	A	F	B	E	C	D	N/A
Boyd Ave (Both Sides)	F	A	D	B	-	N/A	D	N/A
Kerr (North Side)	F	A	D	B	-	N/A	E	N/A
Kerr (South Side)	D	A	D	B	-	N/A	C	N/A
Future Conditions								
Carling Ave (South Side)	A	A	C	B	B	B	C	N/A
Boyd Ave (West Side)	B	A	D	B	-	N/A	B	N/A
Kerr (North Side)	A	A	D	B	-	N/A	B	N/A

Pedestrian

The pedestrian level of service target was not met at any of the existing mid-block segments. Some segments provide facilities that are narrow or do not offer offset from travel lanes, and in some cases, no facilities are

provided at all. The development proposed new facilities along its three site frontages, all which experience a notable improvement in level of service. The target is not expected to be met at the new Carling Ave and Kerr Ave site frontage, while a major improvement on Boyd Ave will be made, but are still not sufficient to meet the desired PLoS target. Providing a 1.5m buffer from the road would achieve the desired target.

Bicycle

For existing conditions, the BLoS target was not met on any of the mid-block sections given the lack of cycling facilities. Carling Ave approaches the desired BLoS target as it provides a new unidirectional cycletrack along the site frontage. To meet the desired BLoS target on Carling Ave, the facility would either need to be widened to 2.1m or the buffer from the road increased to 1.5m or wider. On Boyd Ave and Kerr Ave, biking facilities would be required.

Transit

The transit level of service was not met on Carling Ave in existing conditions since buses need to share their lane with general traffic. Once dedicated curbside bus lanes (or potential future median transit lanes) are provided, then the transit desired level of service would be met. Boyd Ave and Kerr Ave do not have active transit routes within the study segment.

Public Realm

The public realm analysis showed notable improvements to the overall health and attractiveness of the road segments due to improved facilities and wide outer boulevard which could allow trees being planted behind the active transportation facilities.

Site Frontage RMA Designs

The Roadway Modification Approval (RMA) process is typically required at Site Plan Application for any off-site modifications. Since Tower C is undergoing SPA and modifications are proposed, which includes the addition of new curbs and a lay-by area, an RMA consisting of functional design drawings and cost estimates will be prepared as part of the application.

4.4. Access Intersection Location

Note, former Sections 4.4.2 (Access Control) and 4.4.3 (Access Design) have been moved to Sections 4.9.1 and 4.9.2 as per the revised TIA Guidelines, June 2023.

4.4.1. Location and Design of Access

Vehicle Access and Circulation

The site plan proposes an access from Boyd Ave serving the site interior and Towers A and B, and an access from Kerr Ave into the underground parking for Tower C and an adjacent loading bay immediately to the west. The first proposed access is approximately 40m south of the Boyd Ave/Carling Ave intersection, while the second access is approximately 100m west of the Boyd Ave/Kerr Ave intersection.

Throat Length

The Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, Chapter 8 (Access) provides guidelines for clear throat length. Clear throat lengths are only recommended for arterial and collector roads. As Boyd Ave and Kerr Ave are both classified by the City as local roads, TAC's clear throat length guidelines are not considered applicable.

Private Approach By-law

The Private Approach By-Law requirements for the City of Ottawa were reviewed, and the site was found to comply with the by-law requirements. Note the following relevant requirements:

- **25.1(a).** The site has four frontages.
  - The Carling Avenue frontage is 104m long, which permits 2 two-way private approaches
  - The north Boyd Avenue frontage is 36m long, which permits 2 two-way private approaches
  - The south Boyd Avenue frontage is 23m long, which permits 1 two-way private approach
  - The Kerr Avenue frontage is 107m long, which permits 2 two-way private approaches
- **25.1(c-f).** The proposed access from Boyd Avenue is 14.1m wide at the curb line and 6.7m wide at the street line.
  - The width at the curb line exceeds the maximum width supplied in Section 25.1(c) of 9.0m. However, this width was considered necessary to enable fire trucks to access the internal fire route of the site, as well as to provide access to trucks for garbage pick-up and deliveries.
  - At the street line, the access width is acceptable (less than 9.0m wide).
- **25.1(c-f).** The proposed access from Kerr Avenue is 17.5m wide at the curb line and 10.4m wide at the street line.
  - While the curb line and street line widths exceed the maximum width of 9.0m, this access is a multi-purpose access, with a combination loading dock for large moving vehicles and parking garage entrance, designed to accommodate a range of turning radii.
- **25.1(m).** The site abuts an arterial (Carling Avenue) as designated by the Official Plan. As such, the Carling Avenue frontage is subject to the provisions of Section 25.1(m)(ii) for apartment buildings. However, there are no direct accesses to Carling.
- **25.1(o).** Neither access is located within an intersection or its corner radius, and neither private approach is within 6m of an intersecting street line or its extension.
- **25.1(p).** The Kerr Avenue access is located more than 3m from any property line. The Boyd Avenue access is located 2.5m from a property line, which is less than the minimum 3m separation stipulated by Section 25.1(p). However, the access is considered to be at a safe distance (2.5m) from the adjacent site's access (which spans its full frontage) and allows for adequate sight lines while not creating any traffic hazards. The adjacent property is a mechanic shop, where traffic generation would typically be minimal, creating a low safety risk for the proposed Boyd Avenue access.
- **25.1(u)**. Neither access has a grade exceeding 2% within the private property for a distance of 9m from the property line.

The access designs are in conformance with the City of Ottawa Private Approach By-law 2003-447 or have been justified based on their intended purpose. Truck turning templates have been provided in **Appendix E.**

4.5. Transportation Demand Management

4.5.1. Context for TDM

Given the type of land use as apartments, residents are expected to commute to work in the morning peak period and return from work in the afternoon peak period. Commercial users will likely come and go throughout the day, with a heavier influence in the afternoon peak period.

Sections 3.1.1 and **3.1.2** describe the number of trips per travel mode and anticipates the likely locations that they will travel to and from based on the OD-Survey 2011 for Ottawa West. The site is located adjacent to a future transit priority corridor, making it a great candidate for transit-oriented travel. Typically, shared parking provisions for residential/commercial uses could reduce the overall need for quantity of provided parking;

however, due to the relatively small amount of planned commercial land, this effect was considered negligible and not considered for this TIA.

4.5.2. Need and Opportunity

With investments in rapid transit within walkable distance, the site has a good opportunity to levy this upcoming service and help reduce its environmental footprint and congestion throughout the city. Appropriate TDM measures to encourage sustainable active mode shares are desirable.

4.5.3. TDM Program

The TDM-Supportive Development Design and Infrastructure and TDM Measures checklists have been provided in **Appendix G**.

Regarding the TDM Supportive Development Design and Infrastructure Checklist for residential developments:

- All ten (10) **Required** measures related to walking and cycling (facilities and bicycle parking) and vehicle parking are anticipated to be satisfied.
- Ten (10) of 14 **Basic** measures related to walking and cycling, transit, ridesharing, and parking are anticipated to be satisfied, namely:
    - Locate building close to the street without parking areas between the street and building entrances
    - Locating building entrances to minimize walk distance to sidewalks and transit.
    - Locating building doors and windows to ensure visibility of pedestrians.
    - Providing safe, direct and attractive walking routes to transit.
    - Ensuring walking routes are secure, visible, and lighted.
    - Designing roads for cyclist circulation.
    - Providing lighting, landscaping and benches along walking and cycling routes.
    - Providing wayfinding signage for site access.
    - Provide designated areas for carpool drivers.
    - Providing parking for long-term and short-term users.
- One of the seven (7) **Better** measures are satisfied, namely:
    - Provide a permanent bike repair station adjacent to the main bicycle parking area.

Regarding the TDM Measures Checklist for residential developments, the developer has indicated there is a willingness to consider the following measures:

- Four (4) of seven (7) **Basic** measures related to walking, cycling, transit, parking and TDM marketing will likely be satisfied or not applicable. Two (2) of those, which have been designated with an asterisk (*), are considered by the City to be some of the most effective tools to encourage sustainable travel modes. These include:
    - Display local area maps with walking/cycling access routes at major entrances.
    - Display transit information at major entrances.
    - *Unbundle parking cost from monthly rent.
    - *Provide multi-modal travel information packages to new residents.
- One of eleven (11) “better” measures related to walking, cycling, transit, parking and TDM marketing are anticipated to be satisfied.
    - Contract with provide to install on-site carsharing vehicles

4.6. Neighborhood Traffic Calming

4.6.1. Adjacent Neighborhoods

The site is accessed through two driveways on Boyd Avenue and Kerr Avenue. Several criteria are required to be met by the accesses/site context for this section to be triggered, including the following:

1. Access to Collector or Local **-> Met since Boyd Ave and Kerr Ave are both local roads.**
2. "Significant sensitive land use presence" exists, where there is at least two of the following adjacent to the subject street segment: **-> Met as a long-term care home, a day care, a community centre and schools are located adjacent to or near the site.**
    - School (within 250m walking distance).
    - Park;
    - Retirement / Older Adult Facility (i.e. long-term care and retirement homes);
    - Licenced Child Care Centre; Community Centre; or
    - 50%, or greater, of adjacent property along the route(s) is occupied by residential lands and a minimum of 10 occupied residential units are present on the route.
3. Application is for Zoning By-Law Amendment or Draft Plan of Subdivision **-> Met for Towers A and B only. Tower C is undergoing SPA.**
4. At least 75 site-generated auto trips **-> Met, see Table 12 for Towers A and B specifically.**
5. Site Trip Infiltration is expected. Site traffic will increase peak hour vehicle volumes along the route by 50% or more **-> Met, see Table 20 below.**

Based on the above, Towers A and B would trigger a review of this section, but not Tower C. Towers A and B are accessed along Boyd Ave, which is a short local street consisting of a mix of institutional, commercial, and light industrial land uses. The City of Ottawa TIA Guidelines indicate an ideal threshold of 120 vehicles per hour along local streets. As noted above, the 2023 TIA Revisions indicate a new threshold of existing traffic volumes being increased by 50% due to the site-generated traffic. For information purposes, both thresholds are shown in **Table 20** below, along with the existing and projected two-way traffic volumes.

Table 20: Existing and Projected Traffic Volumes along Boyd Avenue

Roadway	Classification	Peak Hour Two-way Volumes, AM(PM)		Peak Hour Thresholds based on TIA Guidelines	
		Existing	2033	2017 TIA (Ideal)	2023 Rev. (Ex. +50%)
Boyd Avenue	Local	88(121)	148(182)	120(120)	132(181)

As shown in **Table 20**, projected two-way peak hour volumes along Boyd Avenue exceeds both the ideal and the revised thresholds for neighbourhood traffic calming analysis in the AM and PM periods, though it is noted that the volumes only slightly exceeds the revised threshold. Exceeding the ideal thresholds is common for streets of this context (connecting to a major arterial road such as Carling Ave) and do not automatically warrant concerns.

Notably, despite the overall site being near "sensitive land uses", the segment of Boyd Ave at the site frontage primarily consists of non-sensitive land uses, namely light industrial, strip commercial and some restaurants with front-of-lot parking. Considering the short length of the segment (approximately 100m), opportunities for speeding or reckless driving are also considered limited and there are no major safety concerns at this time.

The peak hour thresholds of the TIA Guidelines are considered ideal suggestions rather than firm requirements for traffic volumes. For comparison, the TAC's Geometric Design Guide for Canadian Roads suggests that typical daily volumes for local roads range from 1,000 to 3,000 vehicles per day, which is significantly higher than the City's 2017 TIA Guidelines, which set an ideal maximum daily volume of 1,000 vehicles as a basis for comparison.

The relatively low volume of traffic on Boyd Avenue, combined with the non-sensitive land uses, likely does not justify a need for traffic calming measures (TCMs). Traffic operational impacts resulting from the site-generated traffic volumes are reviewed in detail in **Section 4.9**.

4.7. Transit

4.7.1. Route Capacity

Existing study area transit ridership data required for this discussion was requested from OC Transpo but has not yet been received.

As seen in **Section 3.1.2**, the site is projected to generate 89 and 92 two-way transit trips for the AM and PM peak hours, respectively. Transit trips are expected to be carried by OC Transpo Route 85, which is classified as a 'frequent' route, with approximately 15-minute headways from 6:00 AM – 6:00 PM on weekdays. Assuming a similar travel distribution provided in **Section 3.1.5**, the site is estimated to produce the transit trips shown in **Table 21**.

Table 21: Estimated Site-Generated Transit Trip Distribution

Time Period	AM Peak Hour		PM Peak Hour	
Direction	Eastbound	Westbound	Eastbound	Westbound
Share of trips (%)	60	40	40	60
Number of trips (veh/hr)	53	36	37	55
Trips/bus	13	9	9	14

Given the 15-minute headways for route 85 and the 57-passenger capacity of one bus, the peak hour capacity per direction is estimated to be 228 passengers per hour along Carling Ave. Based on the estimations above, the existing passenger load would need to be below 75% to accommodate the site-generated transit trips.

As discussed in **Section 2.1.3**, draft planned changes to Carling Avenue include the development of shared bike-bus lanes followed by the creation of a new transitway, which will significantly improve capacity on Carling Avenue.

4.7.2. Transit Priority

As part of the 2025 draft TMP, Carling Avenue within the study area is designated as a Transit Priority Corridor. Once the Carling Avenue transit priority measures are in place, it is expected transit performance along the corridor will be improved.

Since the development does not propose any accesses to/from Carling Avenue, it will not impact transit performance or create safety concerns by means of addition of new conflict points or impedances. The development will generate new vehicle trips along Carling Ave, which may affect transit performance, however, it is anticipated to be a minor impact given the high volumes of existing traffic on Carling Avenue.

4.8. Review of Network Concept

A review of the TRANS Screenline System map confirms that there are no Screenlines near the proposed development site. **Section 4.6** examined traffic volume increase along Boyd Ave, comparing them to the ideal thresholds outlined in the City of Ottawa TIA Guidelines. Further, the impact of vehicle trips on the road network and intersections is detailed in **Section 4.9**.

For Carling Avenue, total peak-direction traffic volumes are projected to reach approximately 2,000 vehicles per hour. As an arterial road, Carling Avenue is assumed to have a capacity of 1,000 vehicles per hour per lane, or 2,000 vehicles per hour in each direction, based on two general traffic lanes and one bus lane per direction. Therefore, projected volumes are expected to align with the road's capacity during peak hours.

For transit, **Section 4.7** evaluated the site-generated transit volumes and the capacity of existing transit services, concluding that the transit network should be able to handle the anticipated demand. With the implementation of Carling Avenue Transit Priority Measures and the future LRT system, traffic volumes are expected to decrease as transit ridership increases. To be conservative, a decrease in traffic volumes was not included as a base assumption in the analysis of this report.

4.9. Intersection Design

4.9.1. Intersection Control

Access to the site is provided via two driveways, which will be stop controlled on the exit movement. No changes to study area intersection controls are anticipated.

4.9.2. Intersection Design

4.9.2.1. Intersection MMLOS

For the purpose of this analysis, the recently approved City of Ottawa MMLOS Tool will be used. Only signalized intersections are considered for the intersection Level of Service measures in the MMLOS Guidelines. The MMLOS analysis is summarized in **Table 22**, with detailed analyses provided in **Appendix H**. As noted previously, a general purpose lane on Carling Ave will be converted to a dedicated transit lane in both directions.

Table 22: MMLOS – Existing and Future Intersection Conditions

Intersection	Level of Service – Existing (Future)					
	Pedestrian		Bicycle		Transit	
	PLoS	Target	BLoS	Target	TLoS	Target
Maitland/Carling	C(C)	A(A)	E(E)	B(B)	D(D)	D (B)
Broadview/Carling	C(C)	A(A)	D(D)	B(B)	C(C)	D (B)
Clyde/Carling	C(C)	A(A)	E(E)	B(B)	B(C)	D (B)
Clyde/Doheny	B(B)	A(A)	D(D)	B(B)	-	N/A

<u>Pedestrian</u>

Current pedestrian facilities within the study area intersections are well below the targets set for the Inner Urban transect. This is in large part due to Carling Avenue's six-to-eight lane cross section, which poses a barrier to pedestrian movement.

- **Carling Ave intersections:** Major changes to intersections along Carling Ave would be required to meet a target goal of 'A' in accordance with the Inner Urban transect target. These changes might include a reduction in the number of lanes on Carling Avenue, which is unrealistic given its function as an arterial. While curbside lanes may be converted to bus-only lanes as proposed in the draft 2025 TMP, they still count as lanes crossed for pedestrians. Other potential options to improve pedestrian facilities include:
  - Aprons to reduce the effective right-turning radius
  - Leading/lagging pedestrian intervals
- **Clyde/Doheny.** The below measures could help to improve pedestrian facilities at Clyde/Doheny. An 'A' score can be achieved with the adoption of the two starred (*) measures.
  - *Zebra stripe high-visibility markings instead of transverse markings
  - *Leading/lagging pedestrian intervals for north-south movement
  - Aprons to reduce the effective right-turning radius

  It should be noted that Doheny Street currently lacks sidewalks outside of the west approach of Clyde/Doheny, but that a sidewalk was proposed in the draft 2025 TMP, as discussed in **Section 2.1.3.**

Bicycle

Cycling conditions in the study area intersections are poor. There are no dedicated cycling facilities in the study area, and Carling Avenue's high traffic volumes make its use as part of a cycling route in existing conditions hazardous. The study area is not part of the Crosstown Cycling Network and thus has a target goal of 'B'.

- **Carling Intersections.** The plan produced by the 2017 Carling Avenue Transit Priority Measures study includes some shared lanes for buses and cyclists, but there are no intersection treatments planned within the study area. Long-term modifications to Carling Avenue are expected to include cycle-tracks alongside Carling Avenue as part of the development of a Transitway. The provision of a cycle-track along the development's frontage on Carling Avenue is part of these changes. Should the City opt to develop intersection cycling treatments, including cycle-tracks, the level of service for cyclists will improve along the entire segment.
- **Clyde/Doheny.** The below measures could be adopted to improve cycling facilities:
    - Painting of bike lanes, crossrides
    - Leading/lagging pedestrian intervals for north-south movement

  The low number of cyclists likely does not justify implementation of these measures.

Transit

Currently, there are no transit facilities or priority measures in the study area; however, the existing target Level of Service (LoS) of 'D' is achieved at all intersections. Under future conditions, with the implementation of transit lanes, the new target LoS of 'B' will not be met at three intersections in the study area:

- **Maitland/Carling:** While the target LoS is met under existing conditions, it is not achieved in future conditions. Since the LoS remains unchanged despite the addition of a bus lane, this indicates that transit performance at this intersection is primarily influenced by signal delay. Should additional transit signal priority measures be introduced such as queue jumps, then improvements to the achieved LoS scores can be expected.
- **Broadview/Carling:** The target LoS is not met under either existing or future conditions, and the scores remain consistent across both scenarios. This suggests that the introduction of transit lanes alone has minimal impact on signal delay without the addition of transit signal priority measures.
- **Clyde/Carling:** The target LoS is met under existing conditions but falls short under future conditions, with the LoS downgraded to a 'C.' This decline is attributed to increased signal delay caused by timing adjustments made to accommodate future traffic conditions.

4.9.2.2. Intersection Performance

Existing Conditions

The following **Table 23** provides a summary of the existing traffic operations at the study area intersection based on volumes from **Figure 8** and Synchro (V11) 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 I**. Note, the southbound left protected permissive phase at Doheny/Clyde was removed as there is a negligible amount of traffic headed into the Canadian Tire Center since its closing in 2022. Therefore, signal timings for this intersection were adjusted using Synchro's 'Optimize Splits' feature.

Table 23: 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						
Maitland/Sherbourne & Carling	F(F)	1.48(1.13)	SBL(WBL)	44.8(65.0)	C(E)	0.79(0.93)
Broadview & Carling	B(E)	0.70(0.91)	EBL(NBL)	28.7(32.6)	A(C)	0.46(0.79)
Clyde & Carling	D(D)	0.86(0.81)	WBL(WBL)	32.7(32.0)	C(A)	0.78(0.60)
Clyde & Doheny	A(A)	0.40(0.36)	SBT(SBT)	6.9(6.9)	A(A)	0.36(0.32)
Unsignalized						
Boyd & Carling	C(C)	22.6(19.9)	NB(NB)	0.5(0.6)	A(A)	-
Boyd & Kerr/Doheny	A(A)	7.9(8.1)	EB(EB)	7.8(8.0)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 0.90 and a saturation flow rate of 1800 veh/h/lane.						

As shown in **Table 23**, all the intersections within the subject area are currently operating 'as a whole' at LoS 'E' or better during the AM and PM peak hours. The 'critical movements' operate at a LoS 'E' or better except for the Maitland/Sherbourne & Carling intersection, where several 'critical movements' are operating above or near their theoretical capacity. These movements are summarized in the **Table 24** below.

Table 24: Existing Maitland/Sherbourne & Carling Critical Movements AM(PM)

Movement	v/c	LoS
SBL	1.48(1.09)	F(F)
WBL	(1.13)	(F)
NBL	(1.05)	(F)
WBT	(0.95)	(E)
NBT	(0.96)	(E)

Additionally, no significant queueing concerns were observed for any of the study area intersection movements.

Future Background Conditions

As discussed in **Section 3.2**, a 0% annual growth factor and the layering of other area developments was used to develop the background traffic volumes. Since no background annual growth rate was assumed, only the more critical 2033 background horizon year will be analyzed. **Figure 18** shows the projected background volumes in the network considering approved and proposed developments within the area. The projected operational results are shown in **Table 25**. The detailed Synchro results can be found in **Appendix I**.

Table 25: Future 2033 Background 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						
Maitland/Sherbourne & Carling	F(E)	1.39(1.00)	SBL(NBL)	42.9(52.1)	C(D)	0.78(0.88)
Broadview & Carling	C(E)	0.77(0.94)	EBL(WBT)	29.6(30.0)	A(D)	0.48(0.88)
Clyde & Carling	E(C)	0.93(0.78)	WBL(WBL)	38.1(33.0)	D(B)	0.88(0.62)
Clyde & Doheny	A(A)	0.38(0.35)	SBT(SBT)	6.6(6.7)	A(A)	0.34(0.31)
Unsignalized						
Boyd & Carling	C(C)	19.2(15.7)	NB(NB)	0.4(0.4)	A(A)	-
Boyd & Kerr/Doheny	A(A)	7.9(8)	EB(EB)	7.8(7.9)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. Signal timing was optimized to improve intersection operations.						

As seen in **Table 25**, most intersections will operate similarly or marginally worse than existing conditions due to the increase in background vehicle volumes and modifications related to the anticipated future curbside bus lanes along Carling Ave. However, the Maitland/Sherbourne & Carling intersection and its critical movements

are shown to operate better primarily due to the optimized signal timings splits. The 'critical movements' for this intersection are summarized in **Table 26** below.

Table 26: Future Background Maitland/Sherbourne & Carling Critical Movements AM(PM)

Movement	v/c	LoS
SBL	1.39(0.84)	F(D)
WBL	(0.90)	(E)
NBL	(1.00)	(E)
WBT	(0.85)	(D)
NBT	(0.91)	(E)

Additionally, no significant queueing concerns were observed for any of the study area intersection movements and all intersections are expected operate within city standards.

Future Conditions – 2033 Full-Buildout

The future 2033 full-buildout volumes assuming the proposed mode shares reflecting future curbside bus lanes are illustrated in **Figure 21**. The projected traffic volumes are summarized in **Table 27**, with detailed Synchro results provided in **Appendix I**. Signal timings were adjusted using Synchro's "Optimize Splits" feature.

Figure 21: Full-Buildout 2033 Total Projected Peak Hour Traffic Volumes

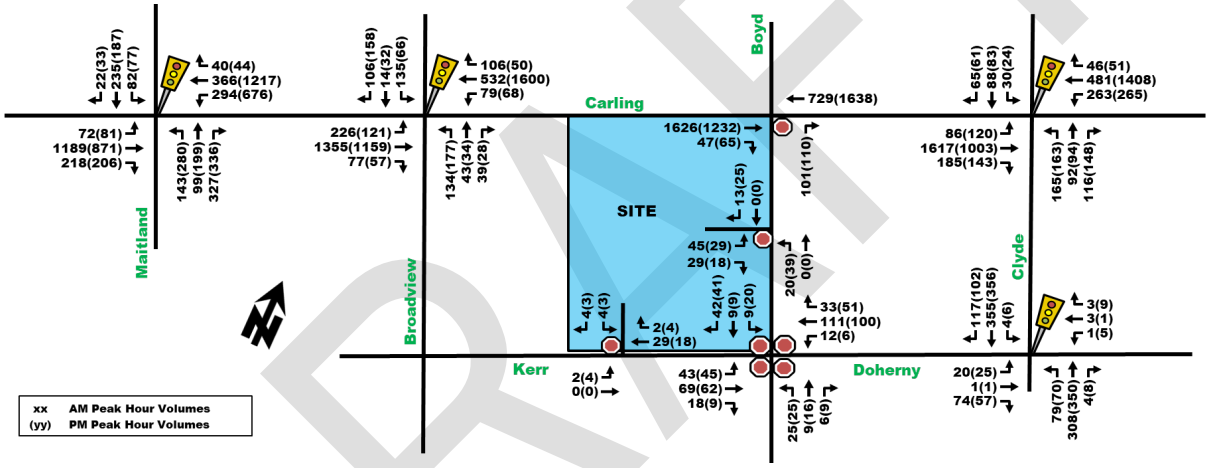


Table 27: Full-Buildout 2033 Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection		
	LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c
Signalized						
Maitland/Sherbourne & Carling	F(E)	1.39(1.00)	SBL(NBL)	42.8(53.2)	C(D)	0.79(0.89)
Broadview & Carling	C(E)	0.77(0.95)	EBL(WBT)	30.0(31.3)	A(D)	0.49(0.89)
Clyde & Carling	E(D)	0.96(0.85)	EBT(WBL)	41.7(35.6)	E(B)	0.91(0.67)
Clyde & Doheny	A(A)	0.40(0.39)	SBT(SBT)	6.8(6.8)	A(A)	0.36(0.35)
Unsignalized						
Boyd & Carling	C(C)	22.2(16.7)	NB(NB)	0.9(0.6)	A(A)	-
Boyd & Kerr/Doheny	A(A)	8(8.1)	EB(EB)	8.1(8)	A(A)	-
East Access & Boyd	A(A)	7.4(7.5)	NB(NB)	7.2(7.2)	A(A)	-
South Access & Kerr	A(A)	7.2(7.2)	EB(EB)	7(6.9)	A(A)	-
Note: Analysis of signalized intersections assumes a PHF of 1.00 and a saturation flow rate of 1800 veh/h/lane. 1. Signal timing was optimized to improve intersection operations.						

As shown in **Table 27**, all intersections will operate similarly to future background conditions at a LoS 'E' or better and with critical movements of 'E' or better except for the Maitland/Sherbourne & Carling intersection. No significant queueing concerns were observed. The 'critical movements' of the Maitland/Sherbourne & Carling intersection for the total projected conditions are summarized below:

Table 28: Maitland/Sherbourne & Carling Intersection Critical Movements – AM(PM)

Movement	v/c	LoS
SBL	1.39(0.90)	F(E)
WBL	(0.90)	(D)
NBL	(1.00)	(E)
WBT	(0.86)	(D)
NBT	(0.92)	(E)

Overall, no significant queueing concerns were observed for any of the study area intersection movements and all intersections are expected operate within city standards.

Maitland/Sherbourne & Carling Sensitivity Analysis

During the morning peak hour, the southbound-left movement experiences a volume-to-capacity (v/c) ratio that significantly exceeds the failing threshold of 1.0. Specifically, the v/c ratio reaches 1.39, primarily due to high northbound-right volumes that conflict with the existing permissive southbound-left movement. To address this issue, a high-level sensitivity analysis was conducted to explore potential timing adjustments that could improve operations for this movement. The analysis concluded that introducing a permitted-protected phase for the southbound-left movement would substantially enhance performance, reducing the v/c ratio to approximately 0.60 without causing significant adverse impacts to other signal phases. It is recommended that the city further investigates the merits of this finding. It is also important to emphasize that the key trigger for this critical movement is most directly attributable to background traffic, whereas the proposed development represents a relatively small contribution to total traffic volumes.

5.0 FINDINGS AND RECOMMENDATIONS

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

Existing Conditions

- The site at 1746 Carling Ave is currently occupied by two auto-repair shops, a retail store, and surface parking. The site is bounded by Carling Ave to the north, Kerr Ave to the south, Boyd Ave to the east, and commercial and residential buildings to the west.
- Carling Ave is a six-lane arterial road with sidewalks on both sides, while Boyd Ave and Kerr Ave are local roads with limited or no pedestrian facilities.
- OC Transpo Route #85, classified as a “Frequent Route,” operates along Carling Ave with 15-minute headways during weekdays. The eastbound bus stop is adjacent to the site, while the westbound stop is across Carling Ave.
- A five-year collision analysis revealed 181 collisions in the study area, with 23% resulting in non-fatal injuries. A notable amount of turning movement collisions were observed at the Broadview/Carling and Clyde/Carling intersections, however it is understood the City has since implemented fully protected left-turns to mitigate this issue. It is forecasted once more recent data is available it will show a reduction in turning movement type collisions.
- All study area intersections currently operate at LoS ‘E’ or better, with critical movements operating at LoS ‘E’ or better except for the Maitland/Sherbourne & Carling intersection. This intersection currently operates with several critical movements at LoS ‘F’, most notably the southbound left with a v/c ratio of 1.39 during the morning peak hour.

Proposed Development

- Kerr Broadview Properties Ltd. proposes a mixed-use development consisting of three Towers. Towers A and B are apartment buildings undergoing a Zoning By-Law Amendment application, while Tower C is a seniors’ apartment building undergoing Site Plan Application.
- The towers range from 9 to 32 storeys, with a total of 749 residential units, 366 m² of commercial retail space, and a 984 m² park.

- The development includes two vehicle accesses: one from Boyd Ave and one from Kerr Ave.
- The development proposes 535 vehicle parking spaces (505 underground) and 382 bicycle parking spaces, which meets minimum zoning by-law requirements.
- New sidewalks are proposed along all site frontages, with a unidirectional cycle track proposed along Carling Ave.
- The development is forecasted to generate approximately 120-125 new vehicle trips, 90-95 new transit trips, and 55 new active transportation trips during peak hours.
- Recommended TDM measures include unbundling parking costs, providing permanent bike repair stations, installing carshare vehicles and displaying transit and active transportation information at building entrances.

Future Conditions

- Peak hour traffic volumes from nearby adjacent developments were incorporated into the future traffic volume projections. No additional background volume growth was applied.
- All study area intersections are projected to operate at acceptable Levels of Service (LoS 'E' or better) under future conditions, with no significant queueing concerns. The critical movements at the Maitland/Sherbourne & Carling intersection are expected to remain over capacity, which occurs at existing conditions.
    - Additional analysis was conducted for the Maitland/Sherbourne & Carling intersection to inform potential improvements. The analysis found that introducing a permitted-protected phase for the southbound-left movement during the morning peak hour would significantly improve performance, considerably reducing the v/c ratio without adversely affecting other signal phases.
- The proposed development proposes notable improvements to pedestrian and cycling facilities along its frontages. However, the MMLoS targets for Carling Ave are not fully met due to the high number of lanes and lack of boulevard separation. Transit LoS results are expected to improve once the dedicated curbside bus lanes are implemented.
- Route #85 is expected to accommodate the site-generated transit trips, with planned Carling Ave Transit Priority Measures further improving transit reliability and travel times.
- Projected traffic volumes on Boyd Ave are expected to slightly exceed the City's thresholds for local roads. However, the short length of the segment, combined with non-sensitive land uses indicates no major concerns from a safety perspective.

Based on the preceding report, the proposed development at 1746 Carling Ave is recommended to proceed from a transportation perspective.

Prepared By:	Reviewed By:
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Appendix A:

Screening Form & Site Plan

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City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	23-Jan-25
Project	1746 Carling Ave
Project Number	479260

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	1746 Carling Ave
Description of location	Existing commerical use lot bounded by Carling, Boyd, and Kerr Ave.
Land Use	Residential buildings with first floor commerical units
Development Size	332 (Bldg A, 32F), 287 (Bldg B, 28F), 105 (Bldg C, 9F) units
Number of Accesses and Locations	4 accesses, 3 two-way 1 one-way
Development Phasing	1 Phase
Buildout Year	Assumed 2028
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Multi-High Rise Res (3+ Storeys)	
Development Size	724	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers		
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority Network, Rapid Transit network or Cross-Town Bikeways?	Yes	Part of Carling Ave transit priority
Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)?	Yes	Mainstreet with design priority
Location Trigger Met?	Yes	

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No	
A proposed driveway is within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions) or within auxiliary lanes of an intersection?	Yes	Broadview/Carling
Does the proposed driveway make use of an existing median break that serves an existing site?	No	
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No	
Does the development include a drive-thru facility?	No	
Safety Trigger Met?	Yes	

PROJECT INFORMATION

Zoning By-law 2008-250 Consolidation AM10 SITE AREA 1.056 ha. 10,560.0 sq. m. 113,667 sq. ft.

ZONING		REQUIRED	PROVIDED
BUILDING HEIGHT	BUILDING 'A'	15.0m & 30.0m	32 STOREY'S / 102.0m
	BUILDING 'B'	15.0m & 30.0m	28 STOREY'S / 90.0m
	BUILDING 'C'	15.0m & 30.0m	9 STOREY'S / 30.0m
ALLOWABLE PROJECTION - AMENITY LEVEL		0.0m	250m² / 4.5m
MAIN STREET FRONTAGE GROUND FLOOR HEIGHT		4.5m	4.5m
CARLING AVENUE GROUND FLOOR TRANSPARENT GLAZING FOR 4.5m HT.		50.0%	4.0m
DENSITY - MAXIMUM FLOOR SPACE INDEX (BASED ON 77% CONSTRUCTION AREA)		n.a.	4.35 = 42,747 m²
DENSITY - UNITS PER HECTARE		n.a.	761
TOWER SEPARATION		25.0m	29.4m
TOWER FOOTPRINT - GFA (GUIDELINE ONLY) NOT INCLUDES BALCONIES		750m²	760.0m² / 760.0m²
FRONT YARD SETBACK (MIXED USE BUILDING)		0.0m	7.2m
CORNER YARD SETBACK (MIXED USE BUILDING)		0.0m	3.4m
INTERIOR SIDE YARD SETBACK (0 to 20m FROM STREET)		3.0m	6.4m
INTERIOR SIDE YARD SETBACK (OVER 20m FROM STREET)		7.5m	5.0m
REAR YARD SETBACK (WITHIN 20m ABUTTING A STREET)		3.0m	5.2m
MINIMUM WIDTH OF LANDSCAPE BUFFER @ PARKING LOT		1.5m	1.9m
TOTAL RESIDENTIAL UNIT COUNT:			749
PARKING - RESIDENTIAL (AFTER 12 UNITS PER BLDG.) - 0.5 PER UNIT	ZONING AREA Y	357	449
PARKING - VISITOR ONLY (AFTER 12 UNITS PER BLDG.) - 0.1 PER UNIT		68	68
PARKING - COMMERCIAL RESTAURANT - 5.0 PER 100m² GFA	(UNITS OVER 350m² GFA)	0	0
PARKING - COMMERCIAL RETAIL / P.S.B. - 1.25 PER 100m² GFA	(UNITS OVER 500m² GFA)	0	0
BICYCLE PARKING - RESIDENTIAL - 0.5 PER UNIT		375	375
BICYCLE PARKING - COMMERCIAL - 1 PER 250m² GFA		4	12
AISLE & DRIVEWAY MINIMUM / MAXIMUM WIDTH		6.0m / 6.7m	6.0m / 6.7m
AMENITY AREA - TOTAL PER UNIT - 6.0m²		4,494.0m²	4,500m²
AMENITY AREA - 50% COMMUNAL PER UNIT - 3.0m²		2,247.0m²	2,250m²
PARKLAND DEDICATION AREA - 10% (SITE AREA EXCLUDES LANE LANDS 9,834.7m²)		10% / 983.47m²	10% / 983.8m²

CAR & BICYCLE PARKING

REQUIRED - TOWER 'A' (336 Units)

RESIDENCE	- 0.5 PER DWELLING UNIT	162
VISITOR	- 0.1 PER DWELLING UNIT	30
COMMERCIAL USE	- NOT REQUIRED	0
RESIDENCE: BICYCLE	- 0.5 PER DWELLING UNIT	168
TOTAL VEHICLE		198

PROVIDED - TOWER 'A'

RESIDENCE	- 0.65 PER DWELLING UNIT	220
VISITOR	- 0.09 PER DWELLING UNIT	30
COMMERCIAL USE	-	0
RESIDENCE: BICYCLE	- 0.5 PER DWELLING UNIT	168
TOTAL VEHICLE		250

REQUIRED - TOWER 'B' (291 Units)

RESIDENCE	- 0.5 PER DWELLING UNIT	140
VISITOR	- 0.1 PER DWELLING UNIT	28
COMMERCIAL USE	- NOT REQUIRED	0
RESIDENCE: BICYCLE	- 0.5 PER DWELLING UNIT	146
TOTAL VEHICLE		168

PROVIDED - TOWER 'B'

RESIDENCE	- 0.51 PER DWELLING UNIT	149
VISITOR	- 0.1 PER DWELLING UNIT	28
COMMERCIAL USE	-	0
RESIDENCE: BICYCLE	- 0.5 PER DWELLING UNIT	146
TOTAL VEHICLE		177

REQUIRED - TOWER 'C' (122 Units)

RESIDENCE	- 0.5 PER DWELLING UNIT	55
VISITOR	- 0.1 PER DWELLING UNIT	11
COMMERCIAL USE	- NOT REQUIRED	0
RESIDENCE: BICYCLE	- 0.5 PER DWELLING UNIT	61
TOTAL VEHICLE		66

PROVIDED - TOWER 'C'

RESIDENCE	- 0.78 PER DWELLING UNIT	95
VISITOR	- 0.1 PER DWELLING UNIT	13
COMMERCIAL USE	-	0
RESIDENCE: BICYCLE	- 0.5 PER DWELLING UNIT	61
TOTAL VEHICLE		108

LOCATION

PARKING GARAGE - P1 LEVEL	176
PARKING GARAGE - P2 LEVEL	194
PARKING GARAGE - P2 LEVEL	135
EXTERIOR	30
TOTAL	535

AMENITY SPACE

AT GRADE EXTERIOR - COMMUNAL =	[illegible]
INTERIOR 1st fl. AMENITY - COMMUNAL =	[illegible]
EXTERIOR TERRACES - PRIVATE =	[illegible]
INTERIOR 5th fl. AMENITY - COMMUNAL =	[illegible]
EXTERIOR 5th fl. TERRACES - COMMUNAL =	[illegible]
EXTERIOR ROOF TOP - COMMUNAL =	[illegible]
INTERIOR ROOF TOP - COMMUNAL =	[illegible]
PRIVATE BALCONIES =	[illegible]
TOTAL =	4,500 sq. m.
TOTAL COMMUNAL =	2,250 sq. m.
REQUIRED - 6.0M² PER UNIT (749) =	4,494 sq. m.
REQUIRED COMMUNAL @ 50% =	2,247 sq. m.

BUILDING STATISTICS

GROSS BUILDING - AREAS
(CITY OF OTTAWA ZONING AREA)

BUILDING 'A' - 32 Storey's

TOTAL AREA (BASED ON 76% OF CONSTRUCTION AREA)		18,672.2 sq. m. 200,986 sq. ft.
TOWER FOOTPRINT		760.0 sq. m. 8,180 sq. ft.
UNIT COUNT		336
VEHICLE PARKING	235 (interior) + 15 (surface)	250
BICYCLE PARKING		168
COMMERCIAL AREA		189.3 sq. m. 2,038 sq. ft.

BUILDING 'B' - 28 Storey's

TOTAL BUILDING AREA (BASED ON 76% OF CONSTRUCTION AREA		16,856.0 sq. m. 181,436 sq. ft.
TOWER FOOTPRINT		760.0 sq. m. 8,180 sq. ft.
UNIT COUNT		291
VEHICLE PARKING - RESIDENTIAL ONLY	162 (interior) + 15(surface)	177
BICYCLE PARKING		146
COMMERCIAL AREA		176.7 sq. m. 1,902 sq. ft.

BUILDING 'C' - 9 Storey's

TOTAL AREA (BASED ON 76% OF CONSTRUCTION AREA		7,219.4 sq. m. 77,709 sq. ft.
UNIT COUNT		122
VEHICLE PARKING - RESIDENTIAL ONLY	108 (interior) + 0(surface)	108
BICYCLE PARKING		68

BUILDING AREA (BASED ON 76% OF CONSTRUCTION AREA)

TOWER "A"	18,672.2 sq. m. 200,986 sq. ft.
TOWER "B"	16,856.0 sq. m. 181,436 sq. ft.
TOWER "C"	7,219.4 sq. m. 77,709 sq. ft.
TOTAL AREA ABOVE GRADE	42,747.6 sq. m. 460,131 sq. ft.

UNIT MIX - 749 UNITS

		BLDG - A	BLDG - B	BLDG - C	TOTAL
STUDIO UNIT	6.4%	26	22	0	48
ONE BED UNIT	47.9%	176	149	34	359
ONE BED + DEN UNIT	10.4%	4	13	61	78
TWO BED UNIT	29.1%	107	90	21	218
TWO BED + DEN UNIT	4.3%	19	13	0	32
THREE BED UNIT	0.8%	0	0	6	6
LIVE / WORK UNIT	1.1%	4	4	0	8
TOTAL UNITS	100%	336	291	122	749

LOT COVERAGE (SITE AREA EXCLUDES CLOSED LANES: 725m²)

BUILDING FOOTPRINT - "A" =	926.2 m²	9.42%
BUILDING FOOTPRINT - "B" =	1,375.3 m²	13.98%
BUILDING FOOTPRINT - "C" =	1,173.5 m²	11.93%
PARKING GARAGE EXIT STAIR =	19.3 m²	0.20%
DRIVING SURFACE =	1,640.0 m²	16.67%
LANDSCAPE SURFACE =	3,716.9 m²	37.80%
PARKLAND DEDICATION =	983.5 m²	10.00%
TOTAL =	9,834.7 m²	100.00%

NOTATION SYMBOLS:

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

No.	DESCRIPTION	DATE
7	ISSUED FOR OWNER / CONSULTANT REVIEW	2025 07 10
6	ISSUED FOR OWNER / CONSULTANT REVIEW	2025 06 19
5	ISSUED FOR OWNER / CONSULTANT REVIEW	2025 05 23
4	ISSUED FOR UDRP	2024 12 16
3	ISSUED FOR DISCUSSION	2024 11 15
2	ISSUED FOR PRE-CONSULTATION	2024 06 04
1		

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK LAHEY — LICENCE 4375 — SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT: THE PROPERTIES GROUP

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

PROJECT TITLE:

1746 CARLING AVENUE

OTTAWA ONTARIO

SHEET TITLE: SITE PLAN

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

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

PROJECT No. 2210

1 SP-1 SITE PLAN
SCALE = 1 : 250

SCALE 1: 250 (0m 5 10 25)

KEY MAP

PAPER SIZE: ISO_B1_(707.00_x_1000.00_MM) | PLOT DATE: Thursday, September 25, 2025 | PLOT SCALE: 1:1 | PEN STYLE: 0-RLA-MASTER-100%.ctb | F:\2022\2210 – 1746 Carling_cont1825\01 Design Development\01 Site Plan\2210 SP-1 Site Plan 2025 09 15.dwg

City Plan # _____

Appendix B:

Traffic Count Data

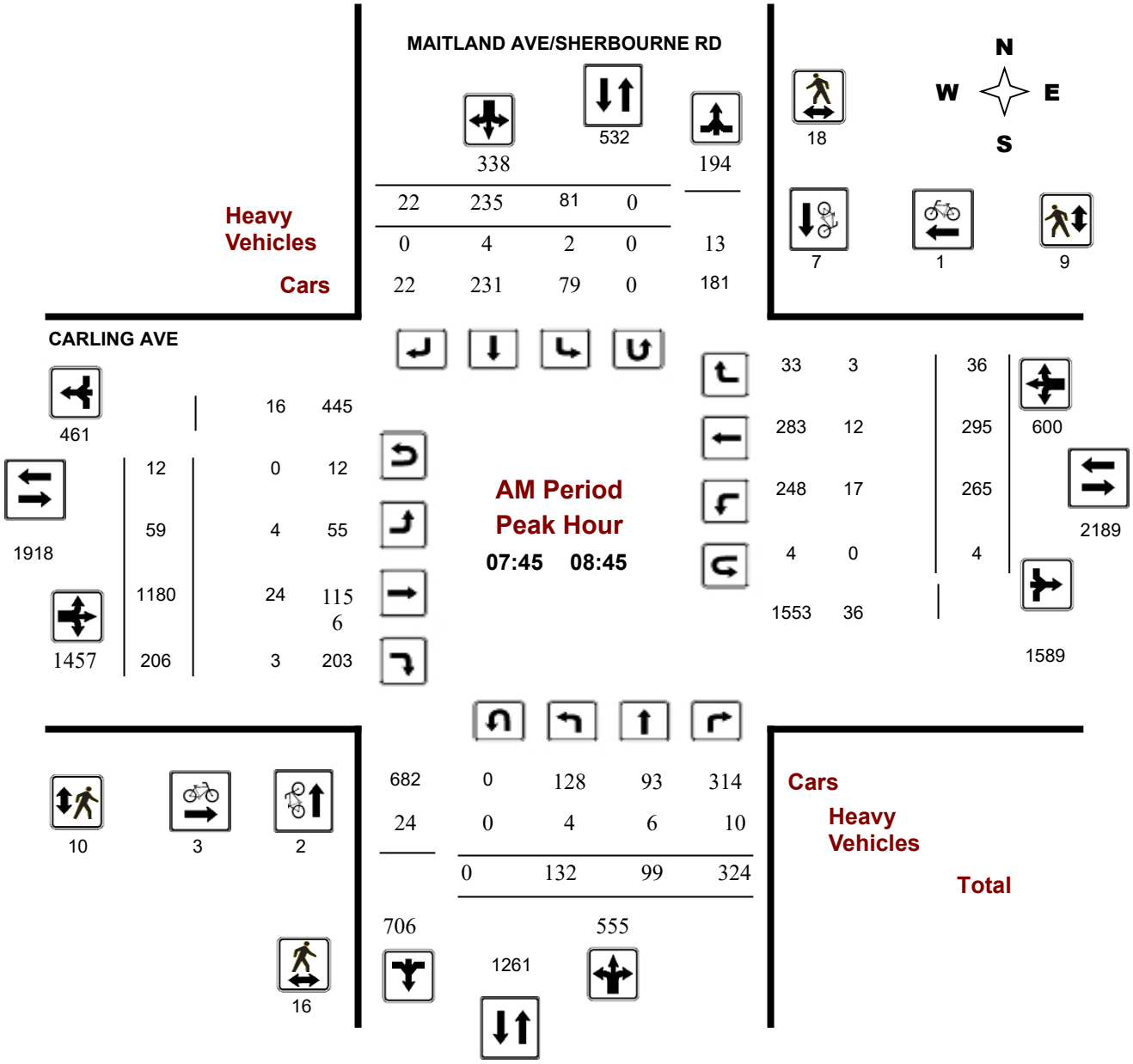
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Survey Date: Thursday, October 06, 2022 **WO No:** 40598

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



Comments

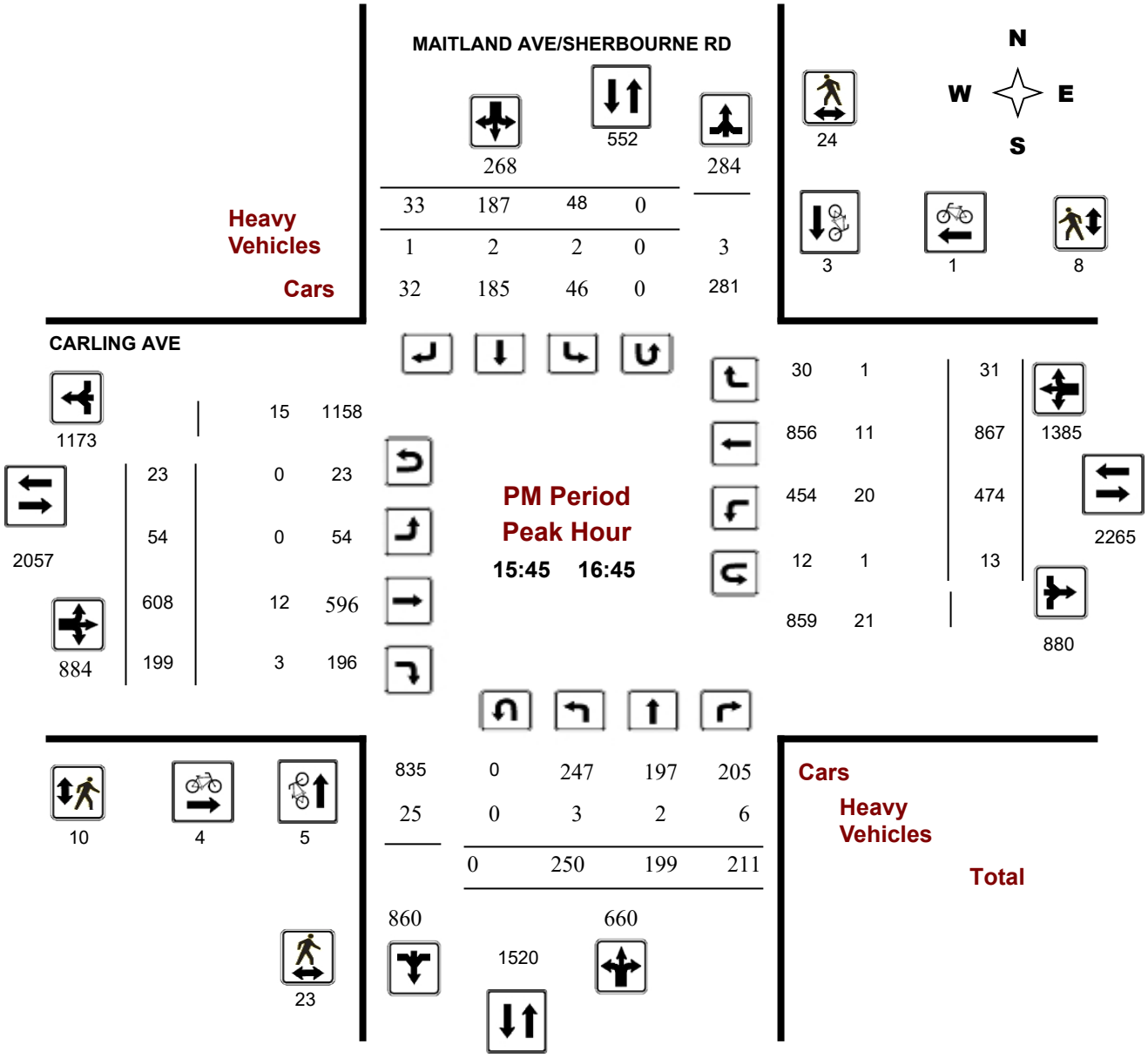
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Survey Date: Thursday, October 06, 2022 **WO No:** 40598

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



Comments

Transportation Services - Traffic Services

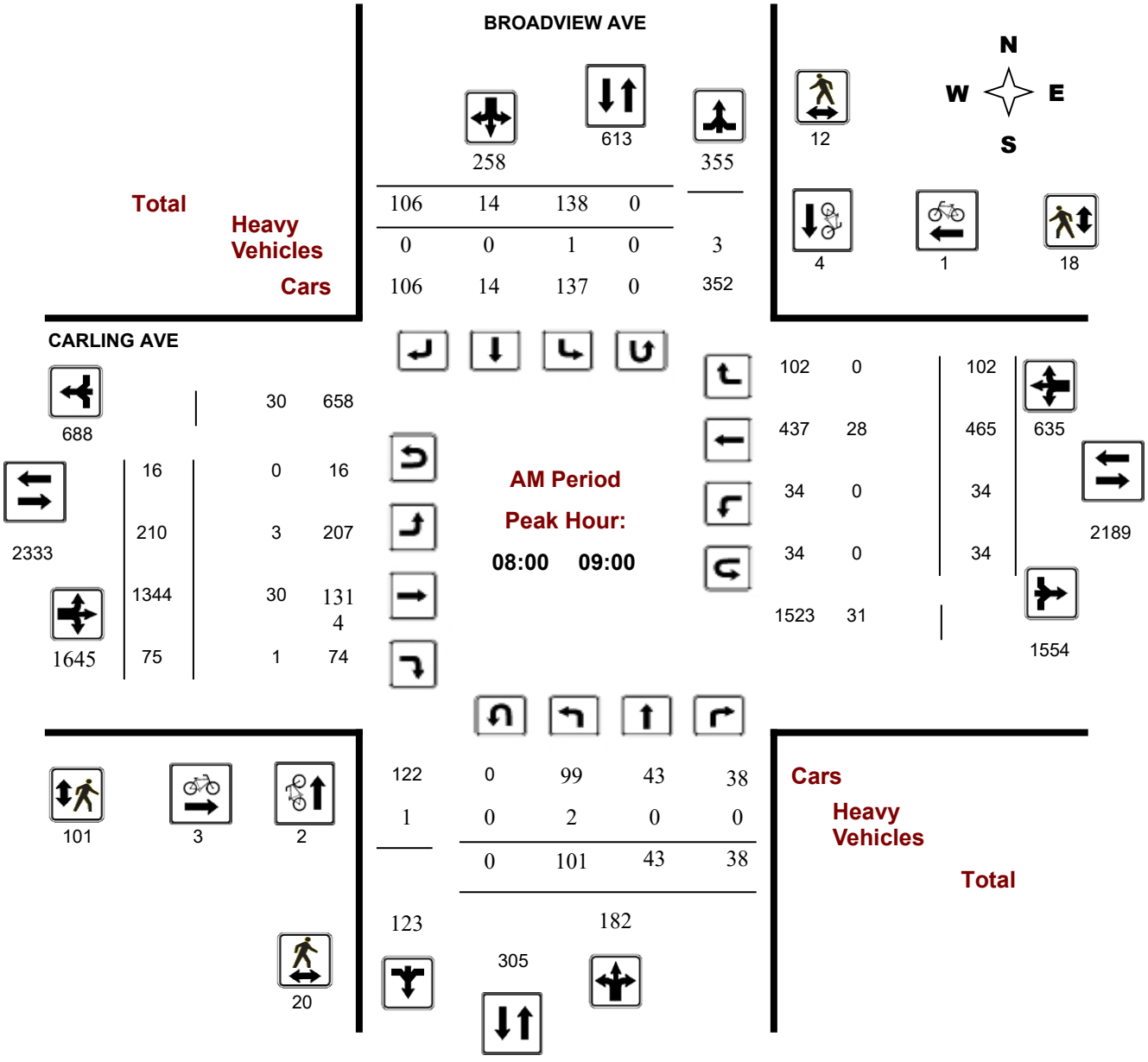
Turning Movement Count - Study Results

CARLING AVE @ BROADVIEW AVE

Survey Date: Thursday, May 02, 2024 **WO No:** 41845

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

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

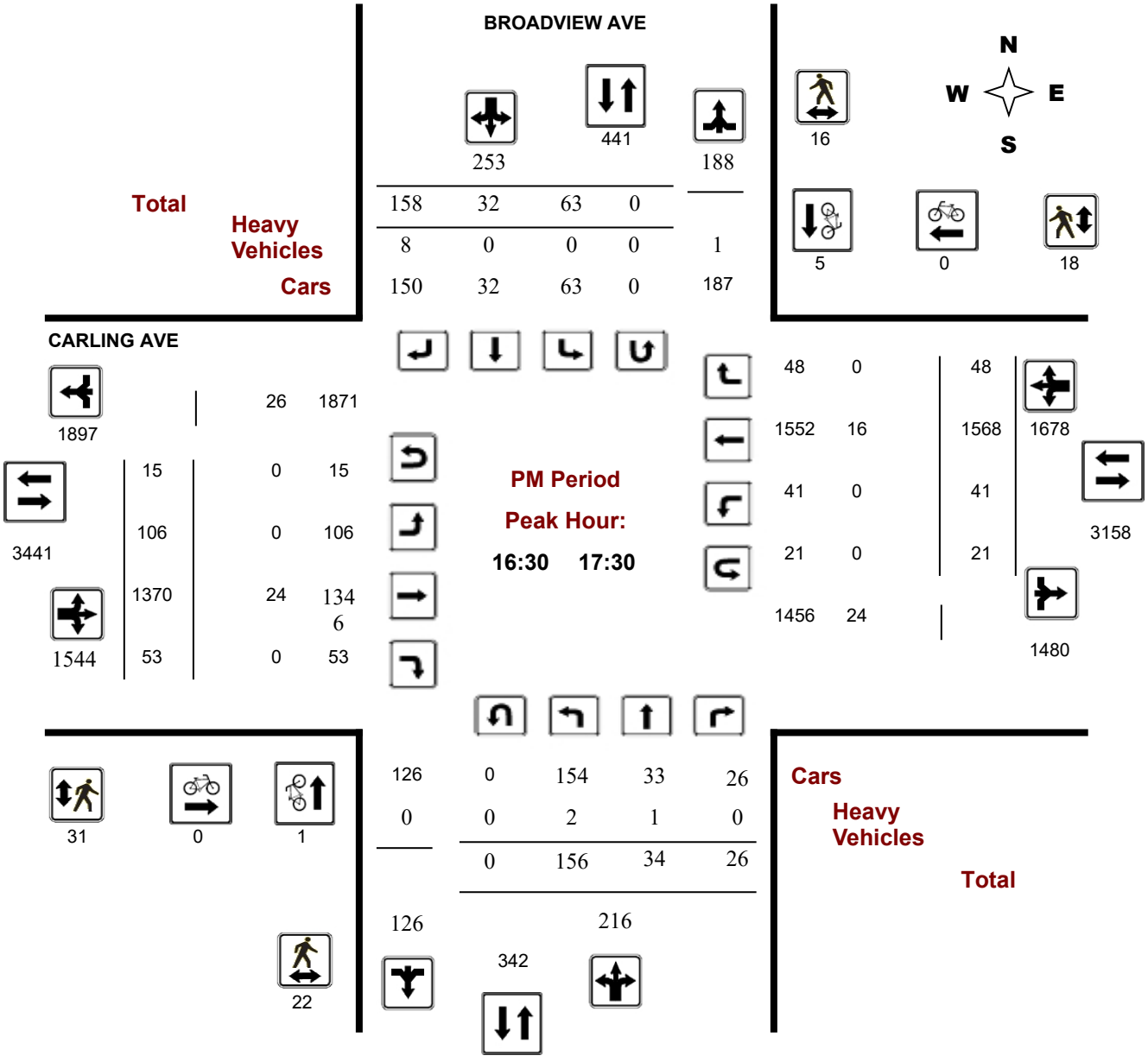
Turning Movement Count - Study Results

CARLING AVE @ BROADVIEW AVE

Survey Date: Thursday, May 02, 2024 **WO No:** 41845

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

PM Period Peak Hour Diagram



Leg	North						East						South						West					
Direction	Southbound						Westbound						Northbound						Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Tota**	Peds	Right	Thru	Left	U-Turn	**App Tota**	Peds	Right	Thru	Left	U-Turn	**App Tota**	Peds	Right	Thru	Left	U-Turn	**App Tota**	Peds
8:15:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	10	0	0	0	**10**	10	3	0	0	0	**3**	0
8:30:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	15	0	0	0	**15**	1	11	0	0	0	**11**	0
8:45:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	16	0	0	0	**16**	0	9	0	0	0	**9**	0
9:00:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	15	0	0	0	**15**	5	11	0	0	0	**11**	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	56	0	0	0	56	16	34	0	0	0	34	0
% Approach	0.0%	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%			100.0%	0.0%	0.0%	0.0%			100.0%	0.0%	0.0%	0.0%		

Leg	North						East						South						West					
Direction	Southbound						Westbound						Northbound						Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Tota**	Peds	Right	Thru	Left	U-Turn	**App Tota**	Peds	Right	Thru	Left	U-Turn	**App Tota**	Peds	Right	Thru	Left	U-Turn	**App Tota**	Peds
12:00:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	22	0	0	0	**22**	5	12	0	0	0	**12**	0
12:00:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	20	0	0	0	**20**	4	9	0	0	0	**9**	0
12:00:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	20	0	0	0	**20**	2	6	0	0	0	**6**	0
12:00:00 AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	19	0	0	0	**19**	5	13	0	0	0	**13**	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	81	0	0	0	81	16	40	0	0	0	40	0
% Approach	0.0%	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%	0.0%			144.6%	0.0%	0.0%	0.0%			117.6%	0.0%	0.0%	0.0%		

Transportation Services - Traffic Services

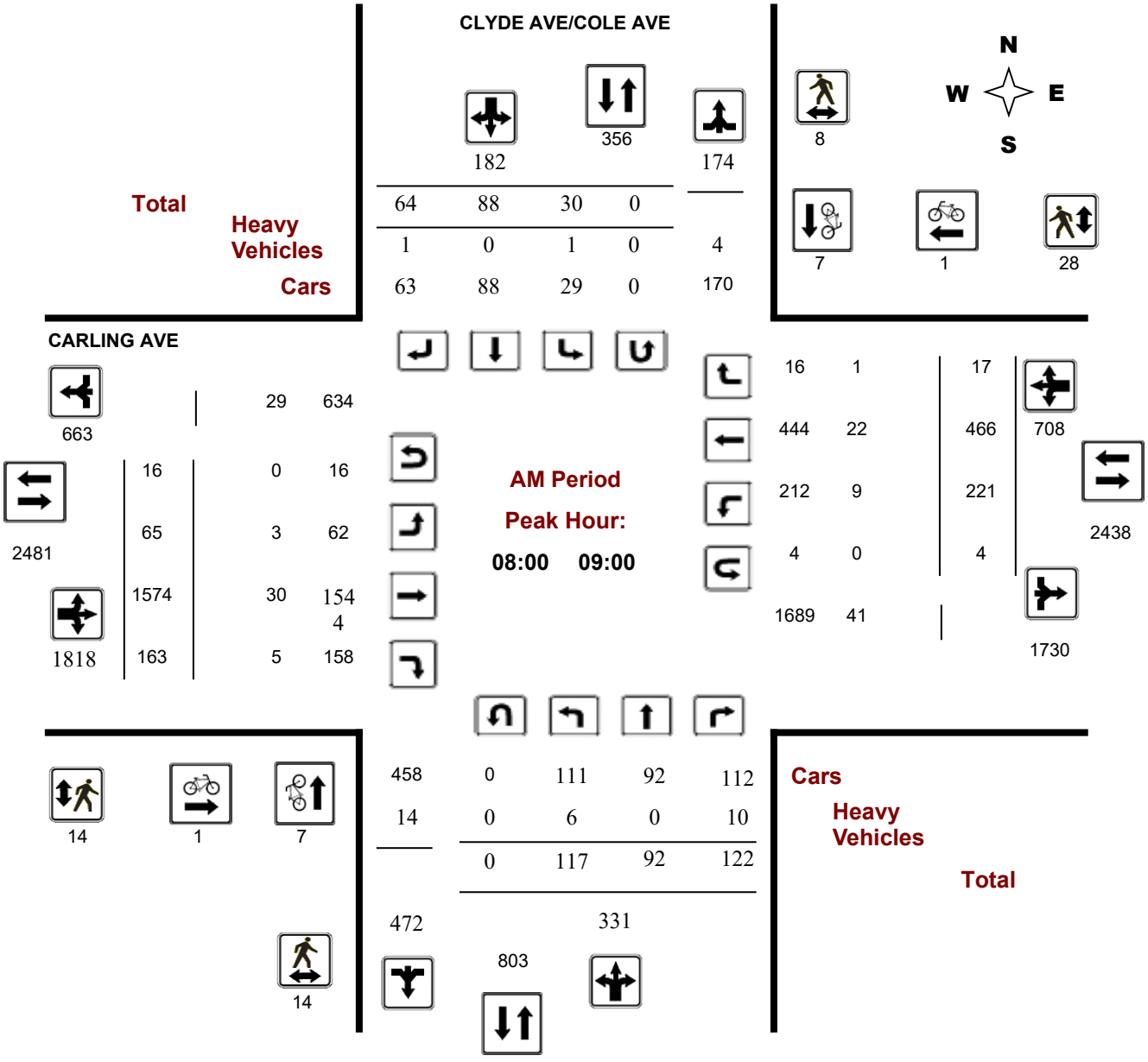
Turning Movement Count - Study Results

CARLING AVE @ CLYDE AVE/COLE AVE

Survey Date: Tuesday, October 29, 2024 **WO No:** 42161

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

AM Period Peak Hour Diagram



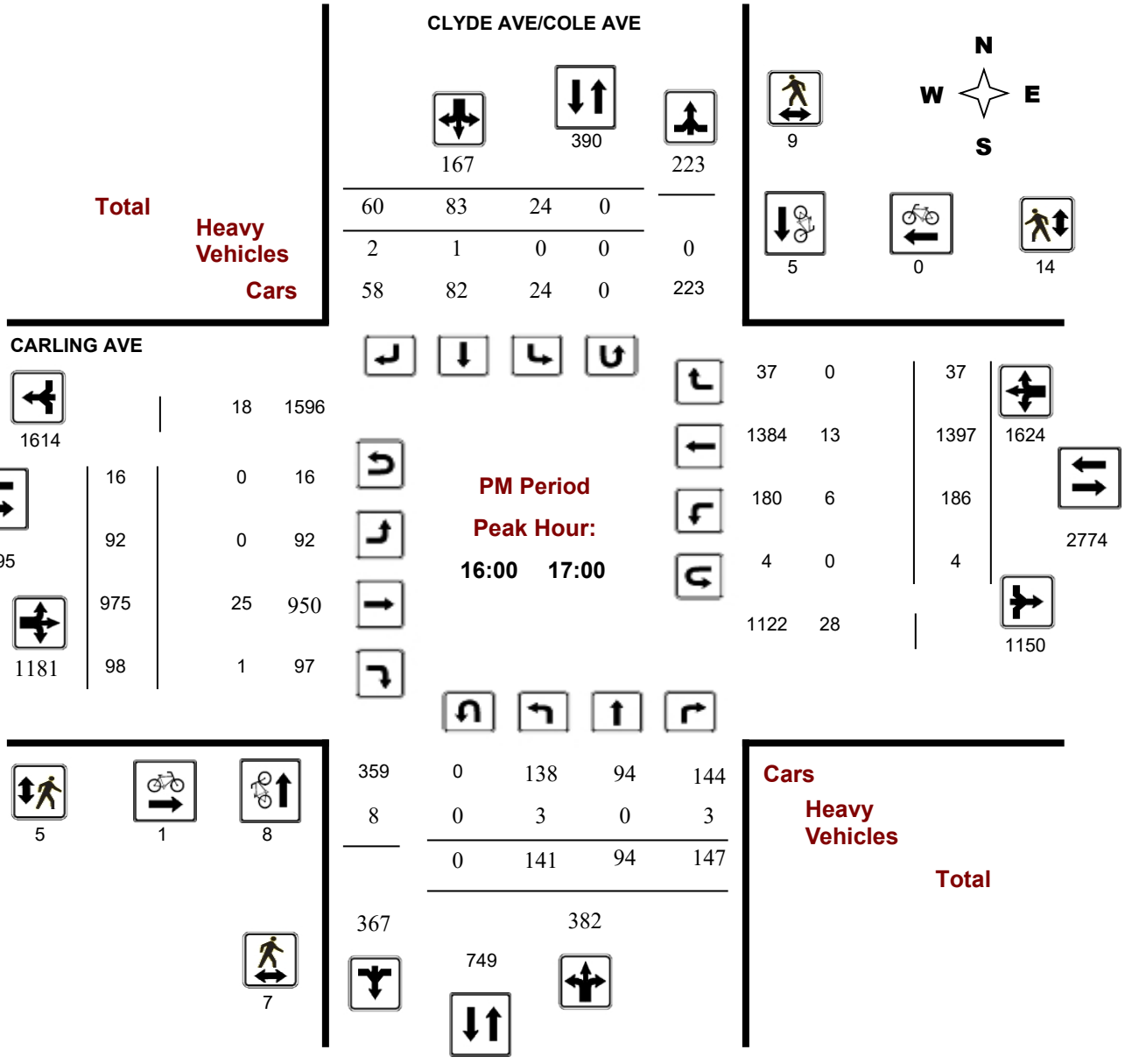
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARLING AVE @ CLYDE AVE/COLE AVE

Survey Date: Tuesday, October 29, 2024
Start Time: 07:00
WO No: 42161
Device: Miovision

PM Period Peak Hour Diagram



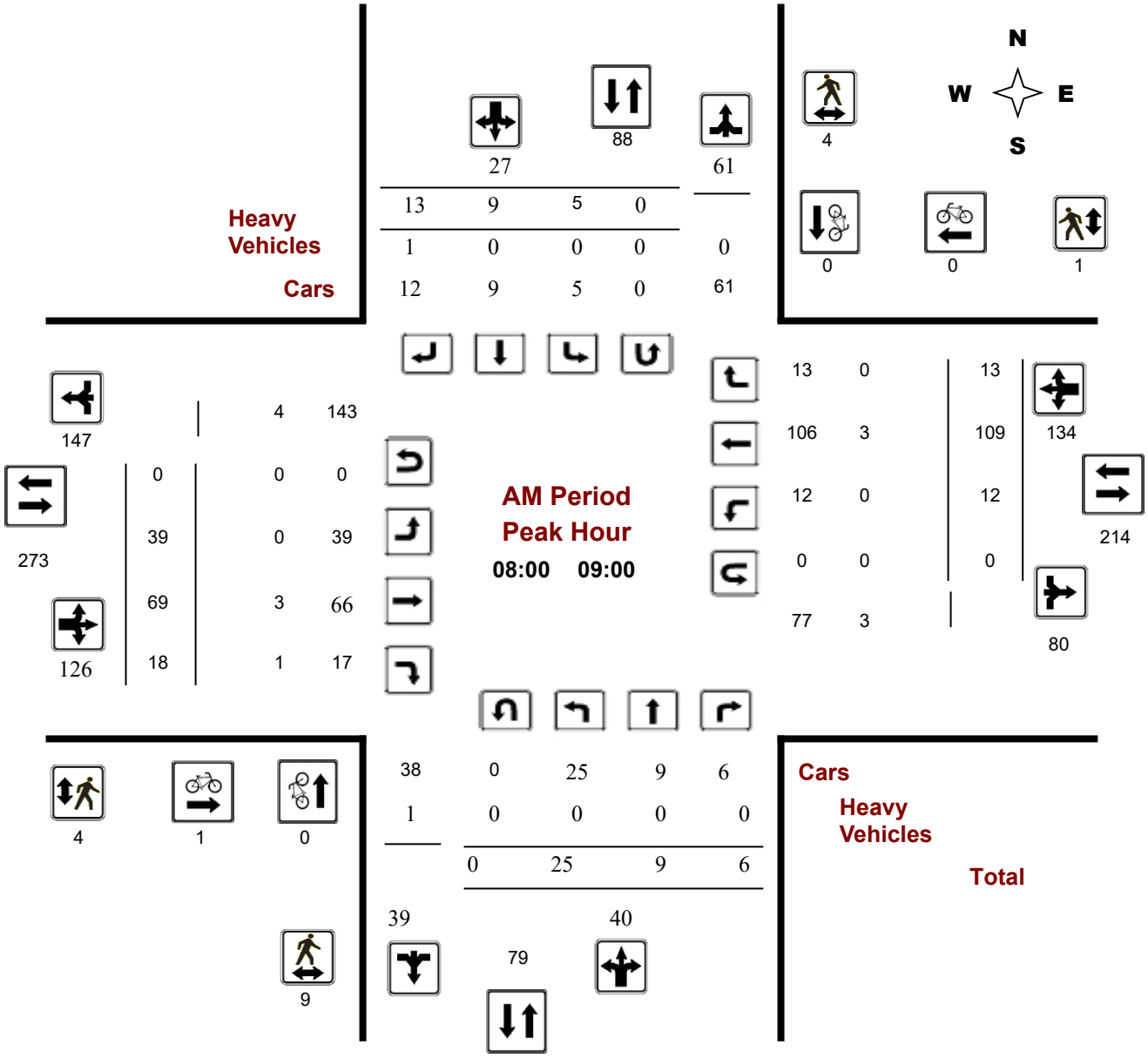
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BOYD AVE @ DOHENY ST/KERR AVE

Survey Date: Thursday, December 07, 2023 **WO No:** 41352

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



Comments

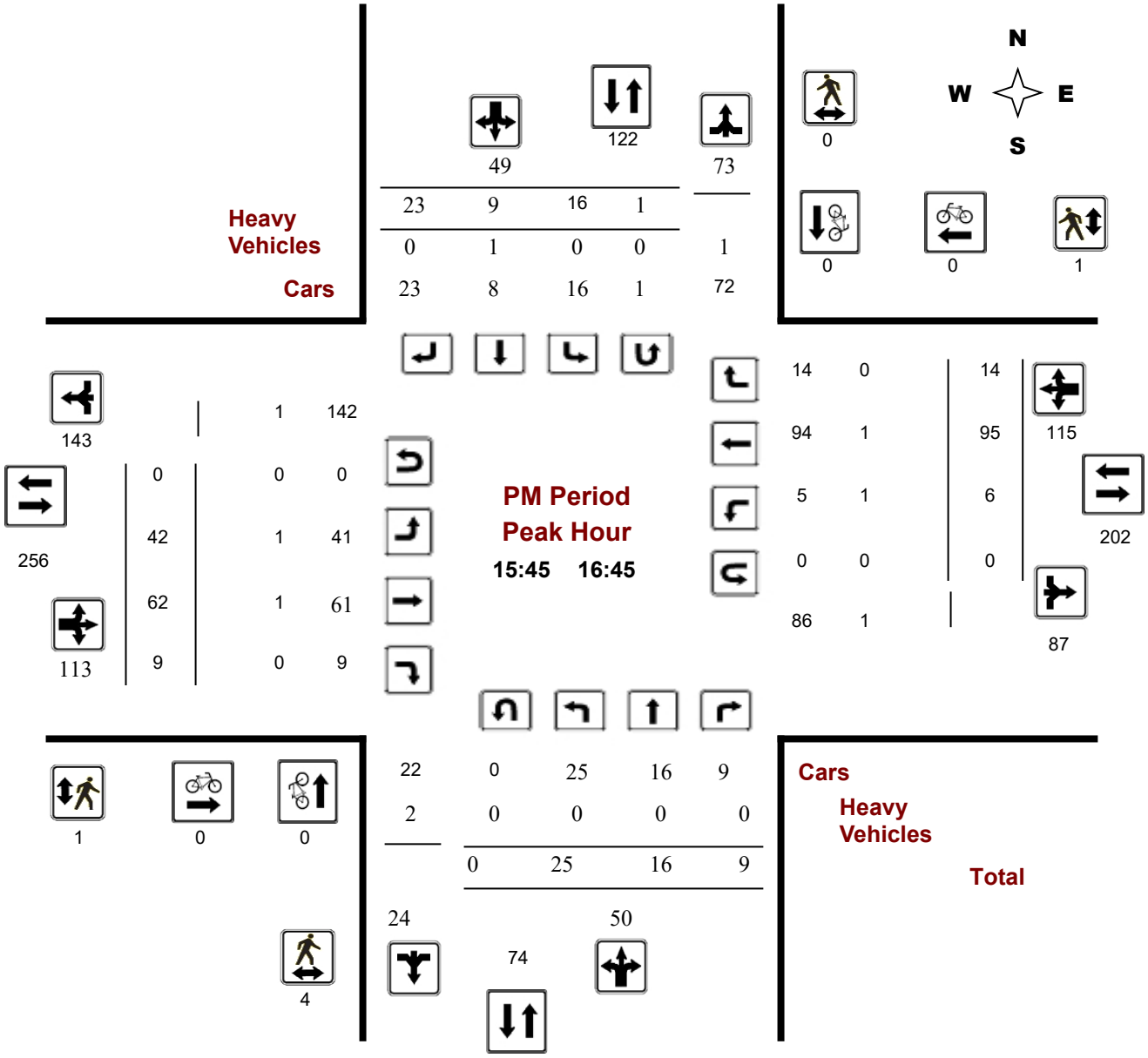
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BOYD AVE @ DOHENY ST/KERR AVE

Survey Date: Thursday, December 07, 2023 **WO No:** 41352

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



Comments

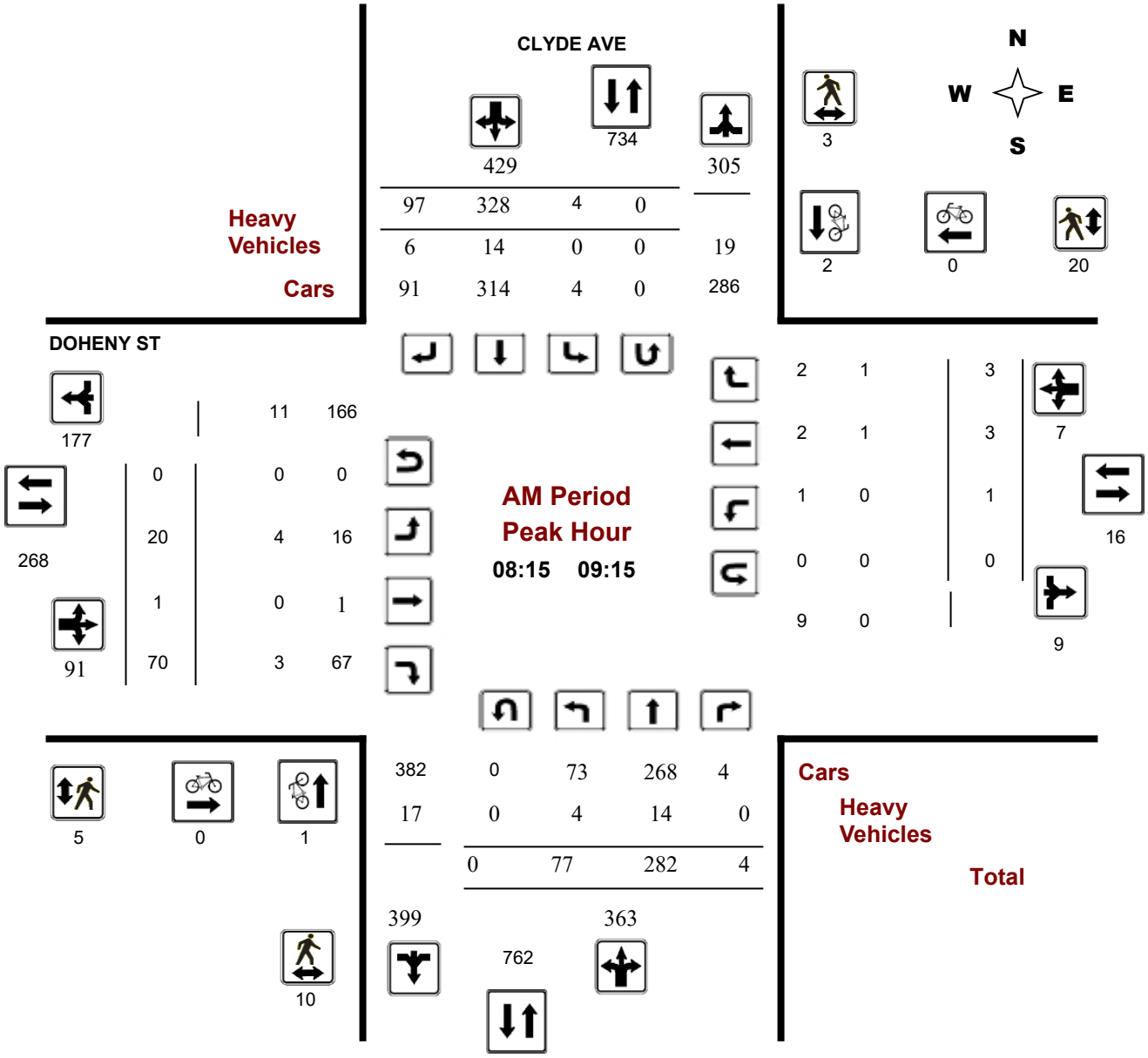
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CLYDE AVE @ DOHENY ST

Survey Date: Tuesday, December 05, 2023 **WO No:** 41350

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



Comments

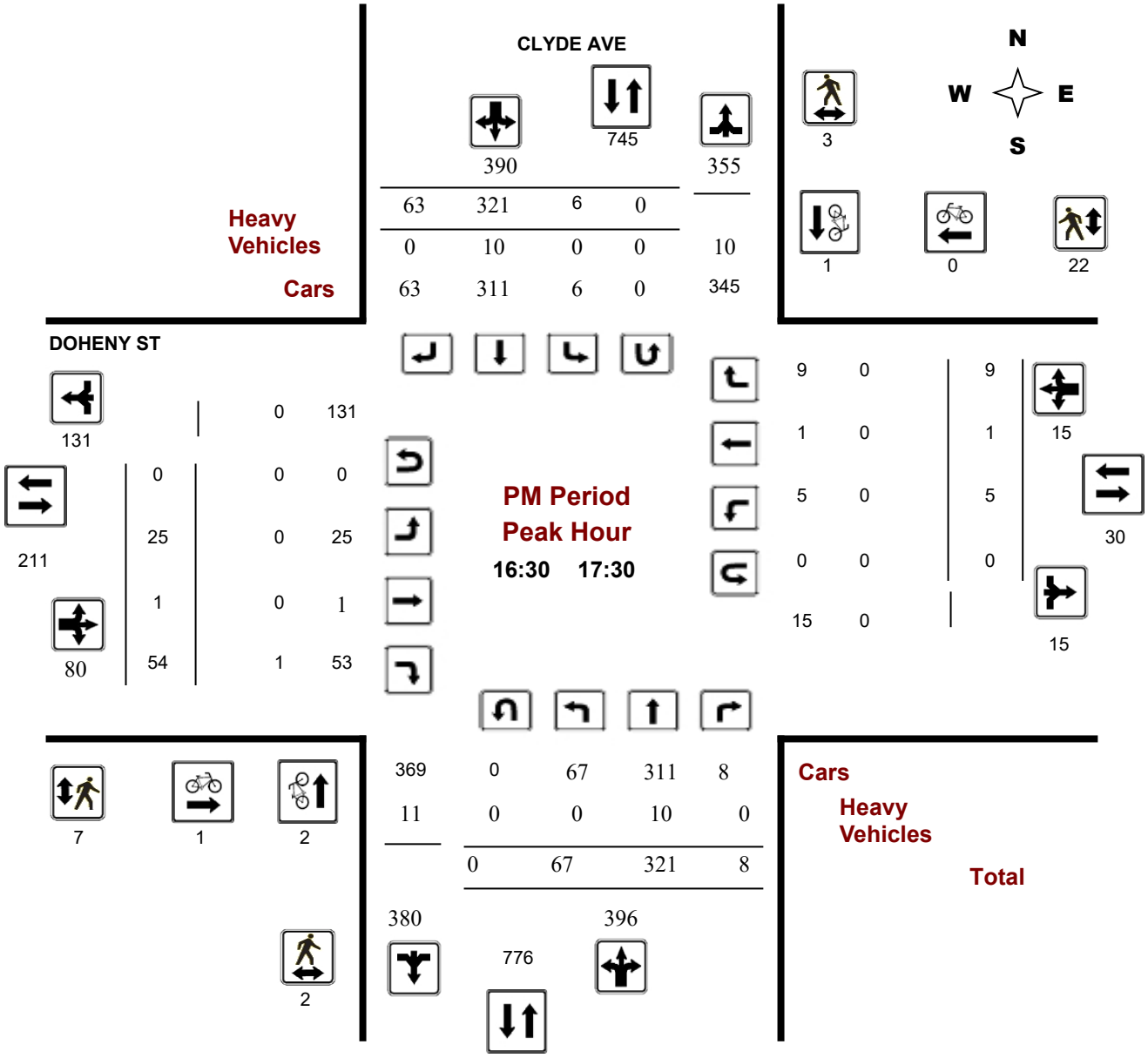
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CLYDE AVE @ DOHENY ST

Survey Date: Tuesday, December 05, 2023 **WO No:** 41350

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



Comments

Appendix C:

Collision Data

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: BOYD AVE @ CARLING AVE

Traffic Control: Stop sign **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jul-17, Tue,09:21	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-22, Thu,11:00	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Nov-18, Thu,07:40	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Pick-up truck	Other motor vehicle	0
					East	Unknown	Automobile, station wagon	Other motor vehicle	

Location: BROADVIEW AVE @ KERR AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Mar-10, Sun,13:21	Snow	Rear end	P.D. only	Slush	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Tow truck	Other motor vehicle	

Location: CARLING AVE @ BROADVIEW AVE

Traffic Control: Traffic signal **Total Collisions:** 41

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jan-06, Sat,16:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-25, Thu,16:30	Clear	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-07, Wed,11:43	Snow	Turning movement	P.D. only	Wet	West	Slowing or stopping	Truck - closed	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ BROADVIEW AVE

Traffic Control: Traffic signal **Total Collisions:** 41

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Mar-09, Fri,15:40	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Changing lanes	Automobile, station wagon	Other motor vehicle	
2018-Mar-25, Sun,14:04	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-10, Thu,17:10	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-28, Mon,09:07	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Passenger van	Cyclist	0
					North	Going ahead	Bicycle	Other motor vehicle	
2018-Jun-26, Tue,08:25	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-02, Thu,12:28	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Aug-09, Thu,11:15	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Truck - dump	Other motor vehicle	
2018-Sep-06, Thu,10:43	Clear	SMV other	Non-reportable	Dry	South	Turning right	Truck - open	Pole (sign, parking meter)	0
2018-Sep-25, Tue,14:52	Rain	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-12, Mon,06:45	Snow	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-24, Thu,12:12	Snow	Angle	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ BROADVIEW AVE

Traffic Control: Traffic signal **Total Collisions:** 41

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Feb-09, Sat,15:37	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Feb-26, Tue,19:14	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Feb-28, Thu,15:15	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Mar-01, Fri,16:10	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2019-Apr-06, Sat,13:40	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2019-Jun-17, Mon,16:25	Clear	Turning movement	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Aug-12, Mon,17:06	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-13, Wed,11:30	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Feb-08, Sat,17:44	Clear	Turning movement	P.D. only	Packed snow	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Sep-23, Wed,17:43	Clear	Rear end	Non-fatal injury	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Truck and trailer	Other motor vehicle	
2020-Sep-26, Sat,12:58	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Motorcycle	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ BROADVIEW AVE

Traffic Control: Traffic signal **Total Collisions:** 41

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Nov-22, Sun,17:20	Snow	Sideswipe	P.D. only	Packed snow	East	Going ahead	Pick-up truck	Skidding/sliding	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2020-Dec-11, Fri,14:30	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Changing lanes	Pick-up truck	Other motor vehicle	
2020-Dec-13, Sun,12:42	Clear	SMV other	P.D. only	Dry	East	Making "U" turn	Automobile, station wagon	Curb	0
2021-Feb-12, Fri,15:30	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Pick-up truck	Other motor vehicle	
2021-Feb-19, Fri,16:25	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2021-Jul-14, Wed,05:58	Clear	SMV other	P.D. only	Dry	West	Going ahead	Pick-up truck	Pole (utility, power)	0
2021-Nov-12, Fri,17:05	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2021-Nov-16, Tue,12:27	Clear	SMV other	Non-fatal injury	Dry	North	Going ahead	Automobile, station wagon	Pole (utility, power)	0
2022-Feb-22, Tue,10:31	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Delivery van	Other motor vehicle	
2022-Mar-05, Sat,10:30	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2022-Apr-18, Mon,08:24	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2022-May-13, Fri,09:46	Clear	Rear end	P.D. only	Dry	East	Unknown	Pick-up truck	Other motor vehicle	0
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	
2022-Jun-13, Mon,08:44	Clear	Turning movement	P.D. only	Dry	West	Making "U" turn	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ BROADVIEW AVE

Traffic Control: Traffic signal **Total Collisions:** 41

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-Aug-12, Fri,10:14	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Aug-12, Fri,13:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Sep-03, Sat,20:43	Rain	Turning movement	Non-fatal injury	Wet	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE @ CHURCHILL AVE

Traffic Control: Traffic signal **Total Collisions:** 31

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jan-16, Tue,18:18	Clear	Rear end	P.D. only	Slush	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Feb-27, Tue,11:26	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Truck - closed	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-27, Tue,10:50	Clear	SMV other	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Curb	0
2018-Jul-23, Mon,18:59	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Aug-27, Mon,12:02	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-04, Tue,08:30	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Truck - dump	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-05, Wed,08:46	Clear	Rear end	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ CHURCHILL AVE

Traffic Control: Traffic signal **Total Collisions:** 31

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Oct-12, Fri,10:20	Clear	Rear end	P.D. only	Dry	East	Turning left	Truck - dump	Other motor vehicle	0
					East	Turning left	Delivery van	Other motor vehicle	
2018-Dec-25, Tue,12:19	Clear	Rear end	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Jan-02, Wed,22:19	Snow	SMV other	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Snowbank/drift	0
2019-Jan-29, Tue,14:45	Snow	Sideswipe	P.D. only	Slush	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2019-Apr-09, Tue,14:52	Snow	Sideswipe	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-28, Tue,17:48	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-18, Tue,16:50	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Sep-15, Sun,14:40	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Sep-24, Tue,15:15	Clear	Sideswipe	P.D. only	Dry	South	Unknown	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Feb-03, Mon,17:19	Clear	Rear end	P.D. only	Wet	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Feb-18, Tue,08:11	Snow	Rear end	P.D. only	Slush	East	Unknown	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Jul-06, Mon,13:40	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ CHURCHILL AVE

Traffic Control: Traffic signal **Total Collisions:** 31

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Jul-14, Tue,12:15	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Delivery van	Other motor vehicle	0
					East	Going ahead	Passenger van	Other motor vehicle	
2020-Aug-22, Sat,13:39	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Oct-14, Wed,09:12	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2020-Nov-18, Wed,10:13	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Feb-12, Fri,10:45	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2021-Feb-23, Tue,11:37	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Mar-05, Fri,17:49	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2021-Jul-18, Sun,22:34	Clear	Sideswipe	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Sep-20, Mon,07:20	Clear	Angle	P.D. only	Dry	East	Making "U" turn	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Pick-up truck	Other motor vehicle	
2021-Dec-08, Wed,16:00	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Feb-23, Wed,15:36	Clear	Rear end	P.D. only	Dry	West	Unknown	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Sep-10, Sat,10:23	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ CLYDE AVE/COLE AVE

Traffic Control: Traffic signal **Total Collisions:** 55

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jan-09, Tue,21:41	Clear	Sideswipe	P.D. only	Slush	South	Unknown	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-10, Wed,21:16	Clear	Turning movement	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Jan-13, Sat,10:12	Drifting Snow	Sideswipe	P.D. only	Ice	West	Slowing or stopping	Automobile, station wagon	Skidding/sliding	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Feb-01, Thu,07:07	Snow	Sideswipe	P.D. only	Loose snow	West	Turning left	School bus	Other motor vehicle	0
					West	Changing lanes	Pick-up truck	Other motor vehicle	
2018-Feb-06, Tue,18:13	Clear	Turning movement	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Pick-up truck	Other motor vehicle	
2018-Feb-09, Fri,12:58	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Truck - dump	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2018-May-12, Sat,14:30	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-18, Fri,11:37	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Truck - closed	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-31, Thu,08:11	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-29, Fri,15:48	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Aug-11, Sat,12:51	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-13, Mon,16:20	Clear	Turning movement	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ CLYDE AVE/COLE AVE

Traffic Control: Traffic signal **Total Collisions:** 55

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Aug-17, Fri,10:38	Clear	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Truck - closed	Other motor vehicle	
2018-Oct-19, Fri,09:19	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-24, Wed,12:43	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-27, Sat,22:36	Snow	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-16, Fri,07:23	Snow	Angle	Non-fatal injury	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2018-Nov-23, Fri,13:08	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2019-Jan-03, Thu,11:46	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jan-21, Mon,20:49	Snow	Angle	P.D. only	Packed snow	East	Turning right	Automobile, station wagon	Skidding/sliding	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Jan-25, Fri,10:49	Clear	Sideswipe	P.D. only	Slush	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Delivery van	Other motor vehicle	
2019-Feb-06, Wed,16:17	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ CLYDE AVE/COLE AVE

Traffic Control: Traffic signal **Total Collisions:** 55

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-May-21, Tue,18:53	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-10, Mon,19:51	Clear	Turning movement	P.D. only	Dry	West	Turning right	Unknown	Cyclist	0
					West	Going ahead	Bicycle	Other motor vehicle	
2019-Jun-12, Wed,09:14	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-25, Tue,07:07	Clear	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Pick-up truck	Other motor vehicle	
2019-Aug-17, Sat,16:38	Clear	Sideswipe	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Oct-17, Thu,06:50	Rain	Sideswipe	P.D. only	Wet	West	Going ahead	Unknown	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2020-Jan-31, Fri,17:53	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2020-Feb-22, Sat,02:05	Clear	Sideswipe	Non-fatal injury	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Passenger van	Other motor vehicle	
2020-Feb-26, Wed,19:34	Snow	Turning movement	Non-fatal injury	Slush	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Feb-28, Fri,15:40	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Mar-12, Thu,12:00	Clear	Other	P.D. only	Dry	East	Stopped	Automobile, station wagon	Debris falling off vehicle	0
					East	Slowing or stopping	Pick-up truck	Other	
2020-Apr-21, Tue,12:31	Snow	Angle	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ CLYDE AVE/COLE AVE

Traffic Control: Traffic signal **Total Collisions:** 55

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Jul-16, Thu,13:21	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2020-Sep-29, Tue,19:44	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2020-Oct-07, Wed,11:33	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Oct-27, Tue,11:59	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2021-May-31, Mon,11:00	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Passenger van	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2021-Jun-07, Mon,17:50	Clear	Turning movement	P.D. only	Dry	West	Turning left	Municipal transit bus	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2021-Sep-12, Sun,18:16	Clear	Turning movement	Non-fatal injury	Dry	North	Going ahead	Bicycle	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Cyclist	
2021-Oct-19, Tue,13:14	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Truck - closed	Other motor vehicle	0
					West	Stopped	Municipal transit bus	Other motor vehicle	
2021-Dec-09, Thu,16:33	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2021-Dec-14, Tue,17:01	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Feb-14, Mon,08:15	Clear	Rear end	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2022-Feb-17, Thu,17:37	Snow	Turning movement	P.D. only	Slush	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ CLYDE AVE/COLE AVE

Traffic Control: Traffic signal **Total Collisions:** 55

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-Mar-15, Tue,06:41	Clear	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2022-Apr-07, Thu,08:08	Rain	Angle	P.D. only	Wet	West	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2022-May-01, Sun,13:15	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2022-May-21, Sat,21:30	Rain	Rear end	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2022-May-25, Wed,16:01	Clear	Sideswipe	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Jul-14, Thu,15:53	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Jul-17, Sun,10:59	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
2022-Dec-09, Fri,17:40	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2022-Dec-17, Sat,12:30	Clear	Angle	P.D. only	Slush	North	Going ahead	Unknown	Other motor vehicle	0
					East	Parked	Automobile, station wagon	Unattended vehicle	

Location: CARLING AVE @ HIGHLAND AVE

Traffic Control: Stop sign **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Sep-05, Wed,12:15	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Truck-other	Other motor vehicle	0
					West	Changing lanes	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ HIGHLAND AVE

Traffic Control: Stop sign **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-29, Tue,16:45	Drifting Snow	Rear end	P.D. only	Ice	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2022-Apr-01, Fri,08:57	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Traffic Control: Traffic signal **Total Collisions:** 64

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jan-14, Sun,11:46	Clear	Sideswipe	P.D. only	Packed snow	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-16, Tue,09:05	Snow	SMV other	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Fence/noice barrier	0
2018-Feb-09, Fri,10:45	Clear	Turning movement	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-13, Tue,07:55	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-04, Sun,08:23	Clear	Turning movement	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Mar-06, Tue,14:30	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-28, Wed,16:34	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jul-12, Thu,06:32	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Traffic Control: Traffic signal **Total Collisions:** 64

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Sep-06, Thu,15:00	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Truck - dump	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Oct-11, Thu,19:01	Fog, mist, smoke, dust	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Oct-13, Sat,18:52	Clear	Turning movement	P.D. only	Dry	East	Turning right	Unknown	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Oct-20, Sat,18:00	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-13, Tue,18:45	Clear	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-15, Thu,12:10	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-30, Fri,13:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Unknown	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Dec-08, Sat,16:50	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Jan-01, Tue,10:01	Clear	Angle	Non-fatal injury	Slush	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Truck - open	Other motor vehicle	
2019-Feb-02, Sat,13:53	Snow	Angle	P.D. only	Loose snow	West	Going ahead	Police vehicle	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Feb-09, Sat,16:51	Clear	Rear end	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Unknown	Other motor vehicle	

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Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Traffic Control: Traffic signal **Total Collisions:** 64

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Mar-25, Mon,10:00	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-27, Mon,15:10	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-03, Mon,15:30	Clear	Other	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Jul-08, Mon,14:15	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Jul-10, Wed,10:36	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Aug-04, Sun,19:07	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Aug-06, Tue,08:51	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-19, Tue,08:42	Clear	Sideswipe	P.D. only	Slush	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Dec-09, Mon,21:06	Rain	Rear end	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2020-Jan-29, Wed,22:25	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2020-Feb-01, Sat,14:20	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Feb-07, Fri,17:45	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Traffic Control: Traffic signal **Total Collisions:** 64

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Feb-28, Fri,13:29	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Feb-28, Fri,14:07	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Truck - closed	Other motor vehicle	
2020-Feb-29, Sat,18:20	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Mar-06, Fri,16:20	Clear	Angle	P.D. only	Dry	North	Going ahead	Police vehicle	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Mar-13, Fri,11:53	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2020-May-02, Sat,02:18	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2020-Jun-17, Wed,16:50	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Delivery van	Other motor vehicle	
2020-Jul-29, Wed,21:55	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Passenger van	Other motor vehicle	
2020-Aug-27, Thu,11:50	Rain	Sideswipe	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Nov-04, Wed,19:12	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	
2020-Dec-09, Wed,09:15	Snow	Rear end	P.D. only	Slush	East	Unknown	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2021-Jan-23, Sat,14:34	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Traffic Control: Traffic signal **Total Collisions:** 64

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2021-Feb-06, Sat,19:00	Clear	Angle	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2021-May-26, Wed,08:47	Clear	SMV other	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Pedestrian	1
2021-Jul-06, Tue,19:29	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Aug-27, Fri,13:01	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2021-Sep-17, Fri,07:45	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2021-Oct-01, Fri,16:20	Clear	Sideswipe	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2021-Nov-06, Sat,12:20	Clear	Rear end	Non-fatal injury	Dry	West	Unknown	Unknown	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2021-Dec-04, Sat,23:30	Clear	Rear end	P.D. only	Slush	North	Unknown	Unknown	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2022-Jan-12, Wed,09:41	Snow	Rear end	P.D. only	Packed snow	North	Slowing or stopping	Passenger van	Other motor vehicle	0
					North	Stopped	Delivery van	Other motor vehicle	
2022-Mar-05, Sat,13:30	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2022-Apr-04, Mon,12:01	Clear	Rear end	P.D. only	Dry	West	Going ahead	Delivery van	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2022-Apr-18, Mon,08:08	Clear	Angle	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE @ MAITLAND AVE/SHERBOURNE RD

Traffic Control: Traffic signal **Total Collisions:** 64

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-May-09, Mon,08:55	Clear	Rear end	P.D. only	Dry	North	Unknown	Unknown	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2022-May-09, Mon,15:50	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2022-May-28, Sat,18:59	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2022-May-31, Tue,21:16	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Aug-19, Fri,13:14	Clear	Rear end	Non-fatal injury	Dry	North	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Aug-19, Fri,14:42	Clear	Other	P.D. only	Dry	North	Reversing	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Aug-31, Wed,17:02	Clear	Sideswipe	P.D. only	Dry	West	Turning left	Truck - dump	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2022-Oct-20, Thu,19:27	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Dec-02, Fri,21:05	Rain	Other	P.D. only	Wet	East	Reversing	Police vehicle	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE EB btwn BROADVIEW AVE & BOYD AVE

Traffic Control: No control **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Feb-11, Sun,22:01	Freezing Rain	SMV other	Non-fatal injury	Slush	East	Going ahead	Automobile, station wagon	Pole (sign, parking meter)	0

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE EB btwn BROADVIEW AVE & BOYD AVE

Traffic Control: No control **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-11, Fri,08:20	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Municipal transit bus	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Dec-20, Fri,07:29	Clear	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	School bus	Other motor vehicle	

Location: CARLING AVE EB btwn CLYDE AVE & CHURCHILL AVE

Traffic Control: No control **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-Jan-21, Fri,07:55	Clear	Sideswipe	P.D. only	Packed snow	East	Unknown	Unknown	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Apr-21, Thu,00:00	Rain	Rear end	P.D. only	Wet	East	Going ahead	Unknown	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2022-Jul-15, Fri,16:40	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE EB btwn MAITLAND AVE & REX AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Sep-18, Tue,19:36	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE WB btwn BROADVIEW AVE & HIGHLAND AVE

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

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

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE WB btwn BROADVIEW AVE & HIGHLAND AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jun-20, Thu,11:30	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CARLING AVE WB btwn COLE AVE & CHURCHILL AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Aug-02, Thu,17:43	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Jan-21, Mon,19:30	Snow	SMV other	Non-fatal injury	Loose snow	West	Going ahead	Automobile, station wagon	Pedestrian	1
2019-Feb-04, Mon,17:31	Snow	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Aug-27, Tue,15:05	Clear	Turning movement	P.D. only	Dry	West	Turning right	Passenger van	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Sep-26, Thu,13:48	Clear	Turning movement	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Truck - closed	Other motor vehicle	
2020-Sep-21, Mon,20:32	Clear	Rear end	P.D. only	Dry	West	Going ahead	Passenger van	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2021-Oct-29, Fri,17:22	Clear	Sideswipe	Non-fatal injury	Dry	West	Overtaking	Automobile, station wagon	Cyclist	0
					West	Going ahead	Bicycle	Other motor vehicle	
2022-Dec-20, Tue,18:00	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Unknown	Pedestrian	1

Location: CARLING AVE WB btwn SHERBOURNE RD & BROADVIEW AVE

Traffic Control: No control **Total Collisions:** 7

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

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CARLING AVE WB btwn SHERBOURNE RD & BROADVIEW AVE

Traffic Control: No control **Total Collisions:** 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jun-18, Mon,19:31	Clear	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-28, Thu,18:17	Clear	Turning movement	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Cyclist	0
					West	Going ahead	Bicycle	Other motor vehicle	
2019-Feb-08, Fri,13:15	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Unknown	Other motor vehicle	
2019-Oct-28, Mon,11:57	Clear	SMV other	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Pedestrian	1
2019-Dec-17, Tue,17:30	Snow	Rear end	P.D. only	Wet	West	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Changing lanes	Pick-up truck	Other motor vehicle	
2021-Jun-02, Wed,14:24	Clear	Other	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Building or wall	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Dec-11, Sun,13:45	Snow	Angle	P.D. only	Loose snow	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CLYDE AVE @ DOHENY ST

Traffic Control: Traffic signal **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jul-27, Fri,14:24	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2022-Dec-08, Thu,11:15	Clear	Other	P.D. only	Dry	East	Stopped	Automobile, station wagon	Other motor vehicle	0
					North	Reversing	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: CLYDE AVE btwn CARLING AVE & DOHENY ST

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Mar-23, Sat,09:45	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Aug-18, Sun,13:08	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2020-Jan-31, Fri,13:47	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	
2020-Sep-13, Sun,14:13	Clear	Angle	P.D. only	Dry	East	Reversing	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2022-Jan-24, Mon,08:50	Clear	Angle	Non-fatal injury	Loose snow	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	
2022-Apr-21, Thu,16:00	Clear	Angle	P.D. only	Wet	East	Reversing	Pick-up truck	Other motor vehicle	0
					South	Stopped	Delivery van	Other motor vehicle	
2022-May-12, Thu,11:35	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-May-29, Sun,20:15	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Cyclist	0
					North	Going ahead	Bicycle	Other motor vehicle	

Location: DOHENY ST btwn CAMPBELL AVE & CLYDE AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Aug-20, Mon,08:51	Clear	SMV unattended vehicle	P.D. only	Dry	East	Going ahead	Truck - closed	Unattended vehicle	0

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2018 **To:** December 31, 2022

Location: KERR AVE btwn BROADVIEW AVE & NADOLNY SACHS PRIV

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-Apr-07, Thu,23:16	Rain	SMV other	Non-fatal injury	Wet	West	Unknown	Automobile, station wagon	Pedestrian	1

Appendix D:

Carling Ave Transit Priority Measures (2017)

CARLING AVENUE TRANSIT PRIORITY MEASURES
PRIORITÉ AUX TRANSPORTS EN COMMUN SUR L'AVENUE CARLING

LEGEND

MMM GROUP

Des: MB	Chkd:	Date:	MAY 2017
Dwn: JE	Chkd:		

PLATE NO.
1 of 2

Scale: 0m 10 20 HORIZONTAL

Ottawa

Appendix E:

Truck Turning Templates

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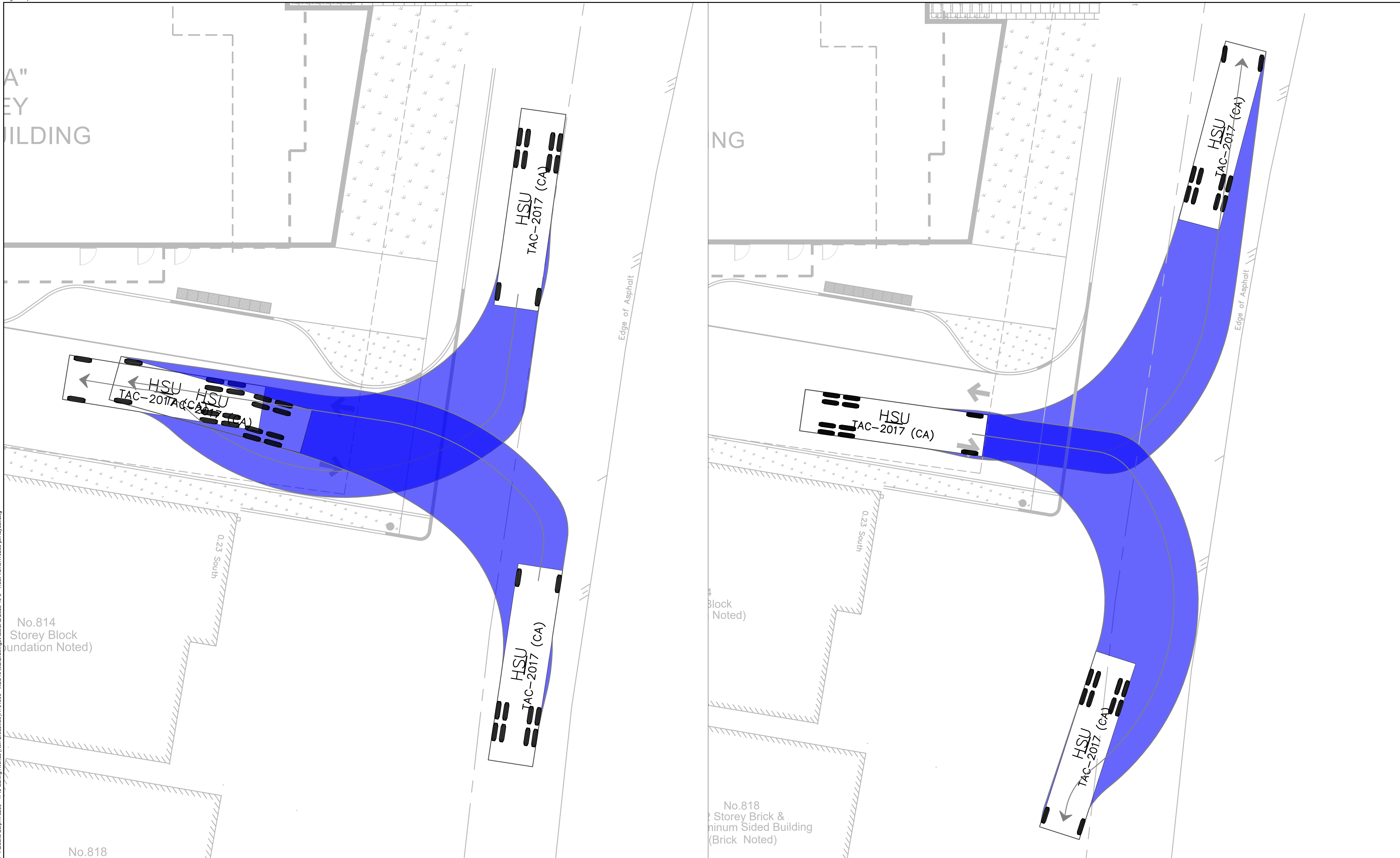


Plot Date: Wednesday, October 15, 2025 15:03:53

Wednesday, October 15, 2025 15:00:59

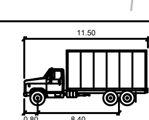
Consultant's Information: C:\Users\p004287H\OneDrive - Parsons Corp\479260 - 1746 Carling Avenue (Kerr Broadview)\4. 01000 - WBS NAME\Drawings\AutoCAD\2025-10-8 Last Saved ... 479260-pl-layout.dwg

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

N

Legend



HSU

meters

Width : 2.60
Track : 2.60
Lock to Lock Time : 6.0
Steering Angle : 40.0

Not to Scale

Drawing Description: Boyd Access HSU In/Out		
Client	Date: Oct 15, 2025	Figure Number: 001
Project Number: 479260	Project Description: 1746 Carling Ave	

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Plot Date: Wednesday, October 15, 2025 15:03:57

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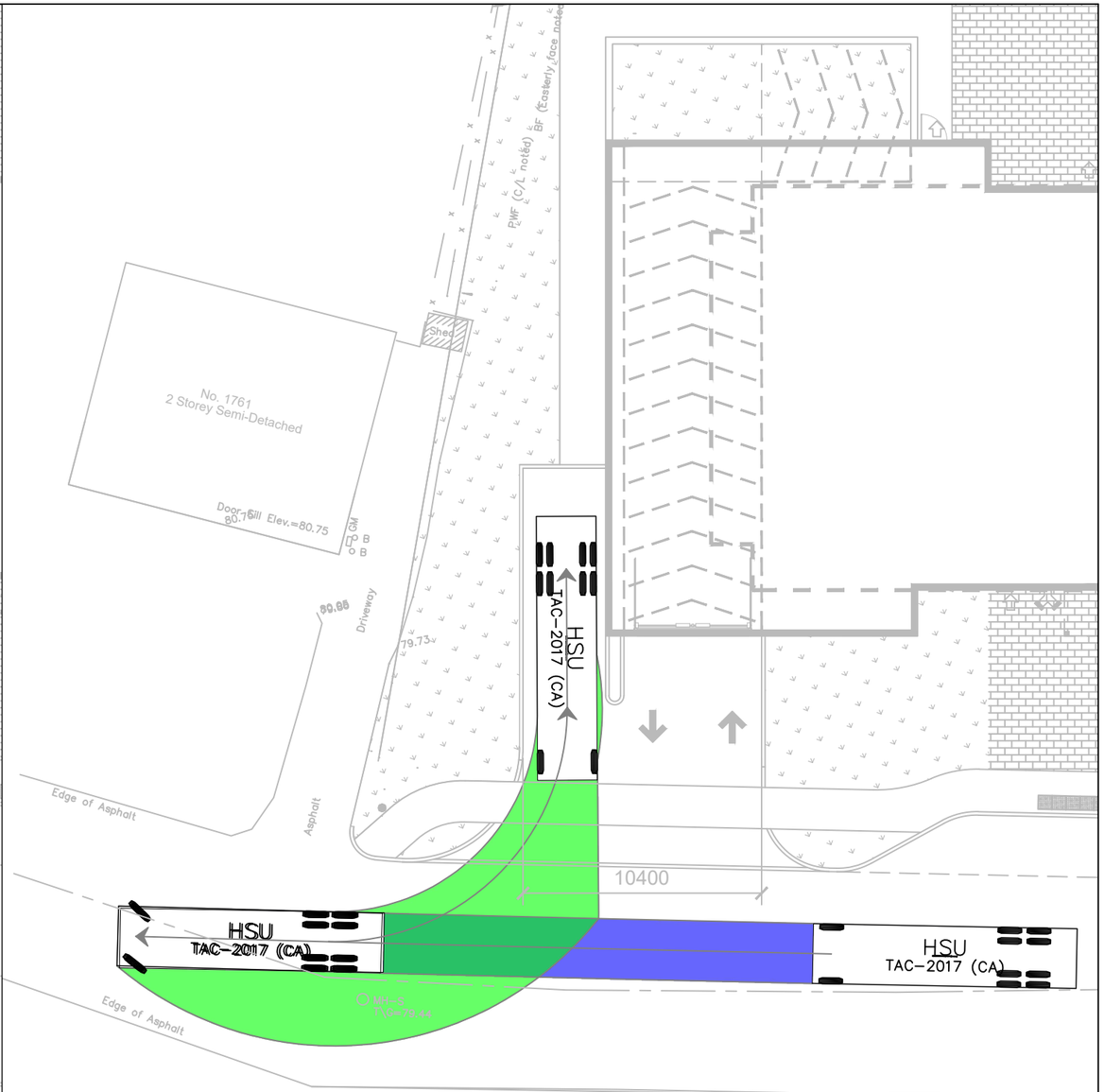
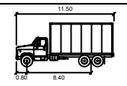


PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

N

Legend



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

Not to Scale

Drawing Description: Kerr Access HSU In/Out		
Client	Date: Oct 15, 2025	Figure Number: 002
Project Number: 479260	Project Description: 1746 Carling Ave	

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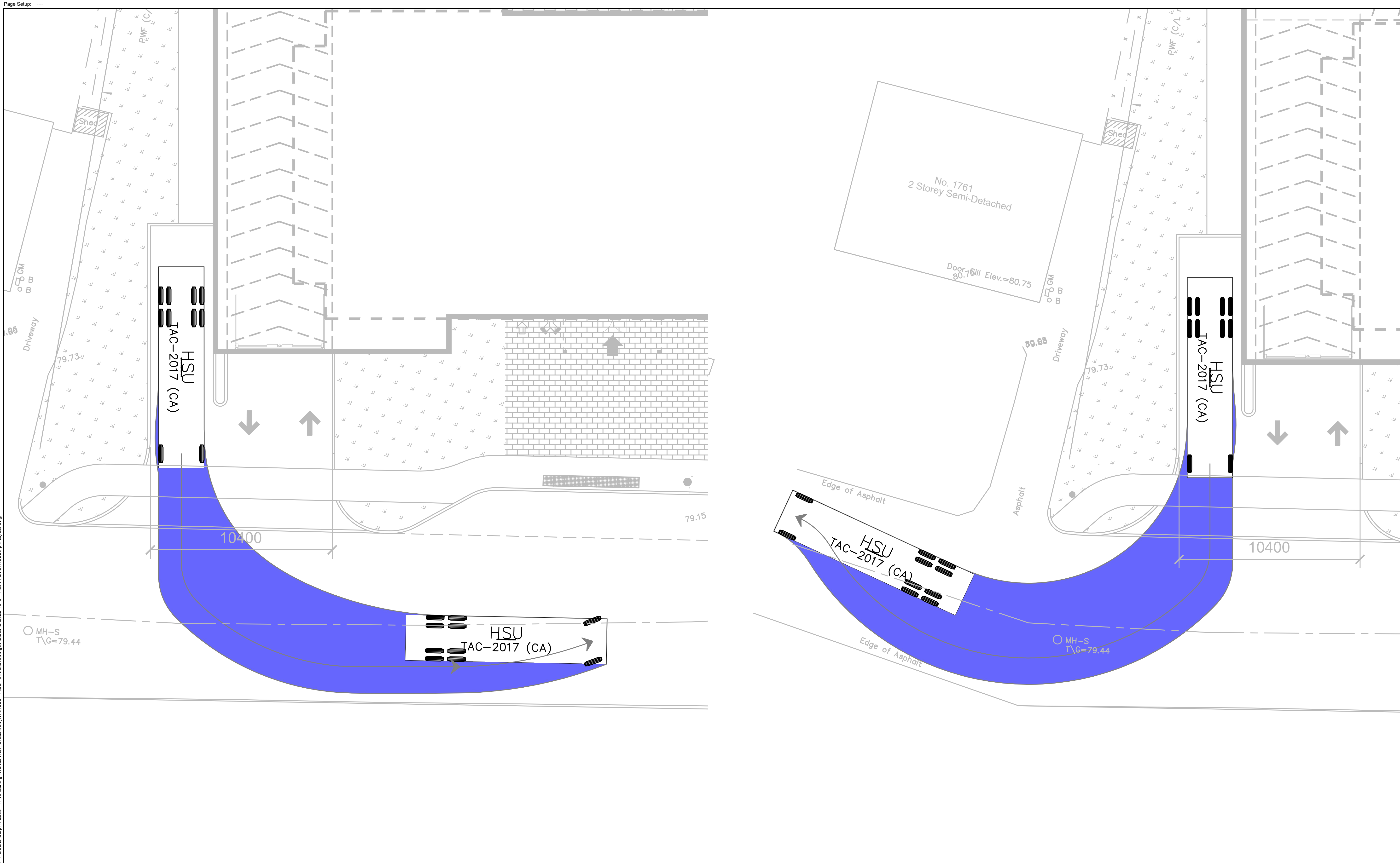

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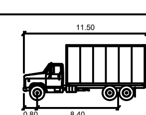
Consultant's Information: C:\Users\p004287H\OneDrive - Parsons Corp\479260 - 1746 Carling Avenue (Kerr Broadview)\4. 01000 - WBS NAME\Drawings\AutoCAD\2025-10-8

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

N

Legend



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

Not to Scale

Drawing Description	Kerr Access HSU Out		
Client		Date: Oct 15, 2025	Figure Number: 003
Project Number	479260	Project Description: 1746 Carling Ave	

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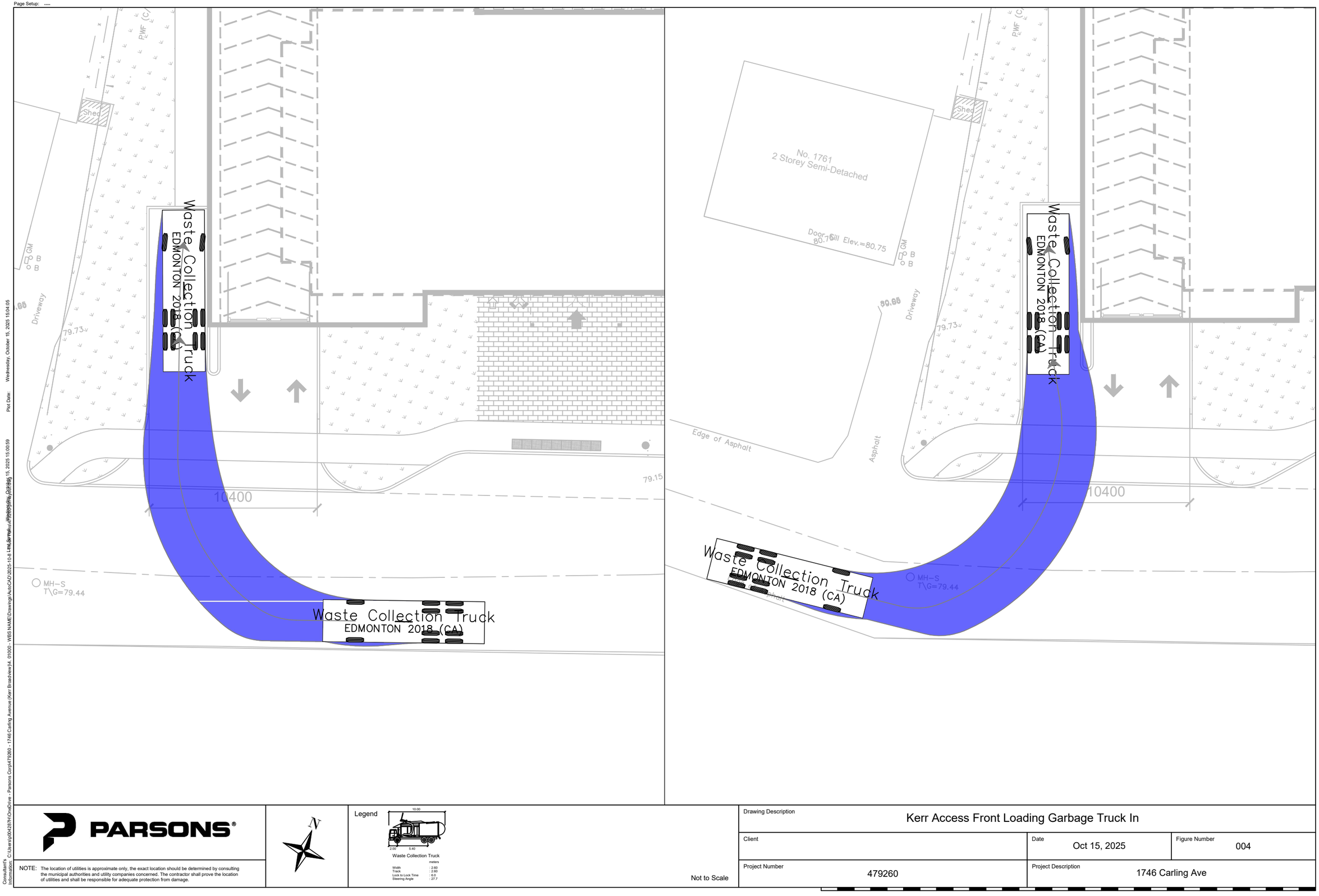

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

N

Legend

Waste Collection Truck

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 27.7

Not to Scale

Drawing Description: Kerr Access Front Loading Garbage Truck In		
Client	Date: Oct 15, 2025	Figure Number: 004
Project Number: 479260	Project Description: 1746 Carling Ave	

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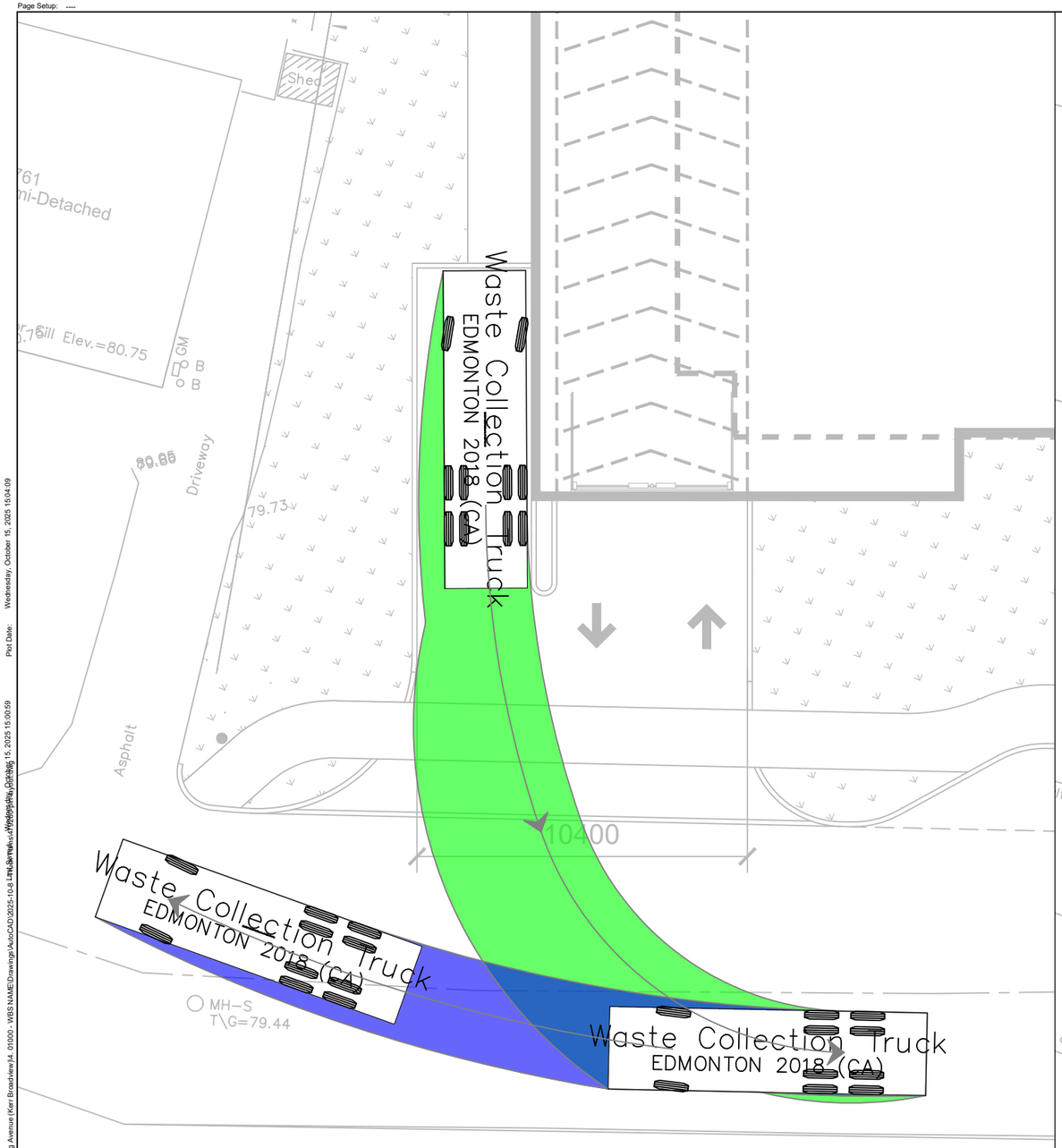

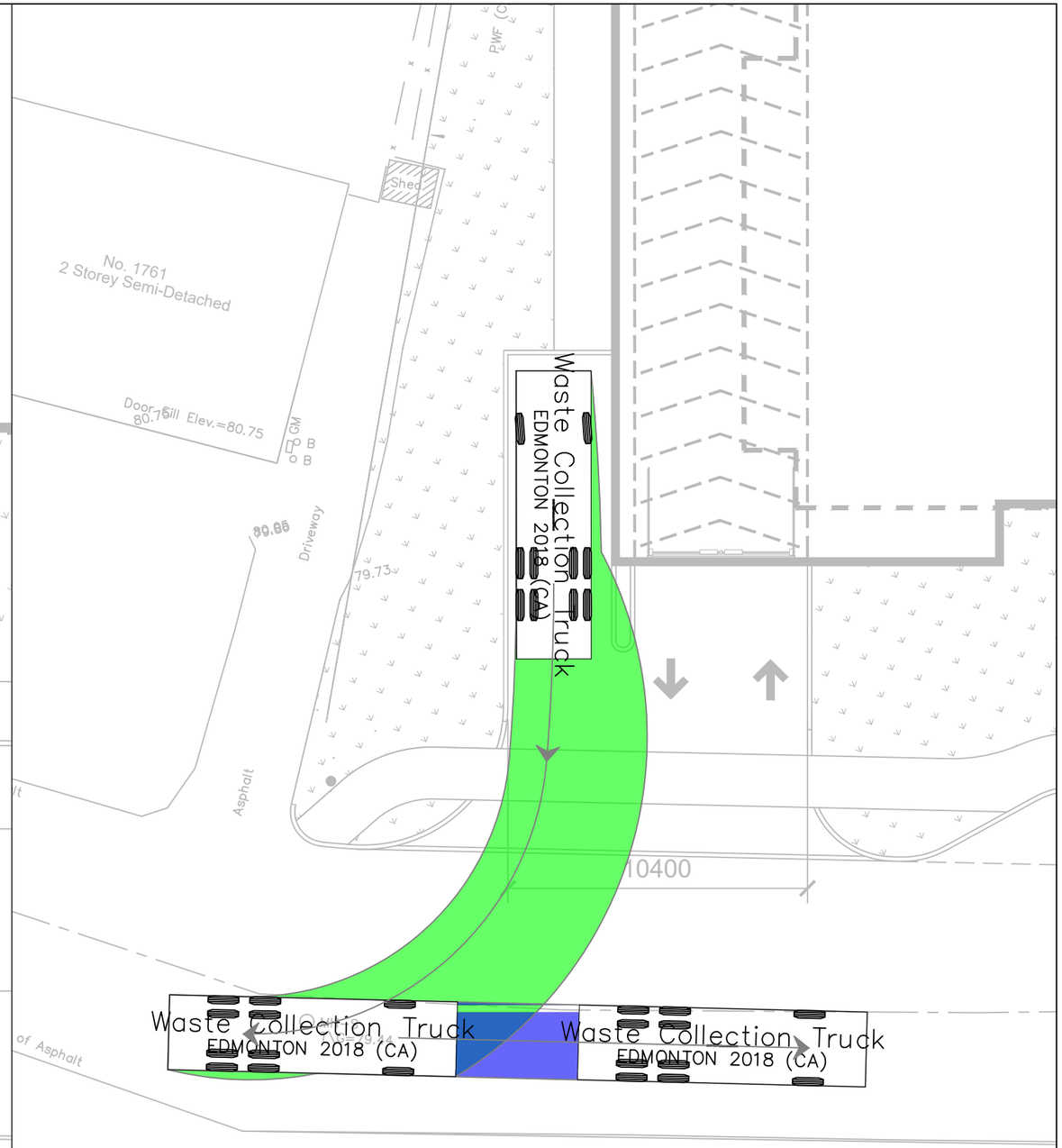

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

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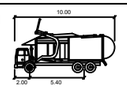
Legend



Waste Collection Truck

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 27.7

Not to Scale

Drawing Description: Kerr Access Front Loading Garbage Truck Out		
Client	Date: Oct 15, 2025	Figure Number: 005
Project Number: 479260	Project Description: 1746 Carling Ave	

Page Setup: ----

Plot Date: Wednesday, October 15, 2025 16:04:12

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TOWER "B"
28 STOREY
RESIDENTIAL
BUILDING

TOWER "C"
9 STOREY
(SENIORS LIVING)
APARTMENT BUILDING

MSU
TAC-2017 (CA)

MSU
TAC-2017 (CA)

MSU
TAC-2017 (CA)

TOWER "B"
28 STOREY
RESIDENTIAL
BUILDING

TOWER "C"
9 STOREY

MSU
TAC-2017 (CA)

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

N

Legend

HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

Not to Scale

Drawing Description: Tower B MSU In/Out		
Client	Date: Oct 15, 2025	Figure Number: 006
Project Number: 479260	Project Description: 1746 Carling Ave	

Page Setup: ----

Plot Date: Wednesday, October 15, 2025 16:04:16

Consultant's Information

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TOWER "B"
28 STOREY
RESIDENTIAL
BUILDING

Waste Collection Truck
EDMONTON 2018 (CA)

TOWER "C"

TOWER "B"
28 STOREY
RESIDENTIAL
BUILDING

Waste Collection Truck
EDMONTON 2018 (CA)

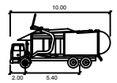
Waste Collection Truck
EDMONTON 2018 (CA)

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

N

Legend



Waste Collection Truck

	meters
Width	2.60
Track	2.60
Lock to Lock Time	6.0
Steering Angle	27.7

Not to Scale

Drawing Description: Tower B Front Loading Garbage Truck In/Out		
Client	Date: Oct 15, 2025	Figure Number: 007
Project Number: 479260	Project Description: 1746 Carling Ave	

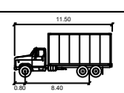
Page Setup: ----

PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

N

Legend



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

Not to Scale

Drawing Description: Tower A HSU In/Out

Client

Date: Oct 15, 2025

Figure Number: 008

Project Number: 479260

Project Description: 1746 Carling Ave

Consultant's Information

Plot Date: Wednesday, October 15, 2025 16:04:20

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Appendix F:

TDM Measures Checklists

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

Legend

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

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

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

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

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

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

Legend

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

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

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

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

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

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

Appendix G:

MMLOS Segments and Intersections Analysis

Multi-Modal Level of Service - Intersections Form

Project: 1746 Carling Ave
Consultant: Parsons
Date: Oct 7, 2025
Scenario: Existing

	Intersection Name	Maitland/Carling (Existing)				Broadview/Carling (Existing)				Clyde/Carling (Existing)				Clyde/Doheny (Existing)			
	OP Transect / Policy Area	Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District			
Pedestrian	PLOS Inputs																
	Pedestrians Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Number of Travel Lanes Crossed	1-3	4	7	7	1-3	1-3	7	8	1-3	5	7	7	1-3	1-3	1-3	1-3
	Median Refuge (≥2.7m)	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No
	Crosswalk Treatment	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings
	Signal Cycle Length (sec)	120.0				120.0				120.0				105.0			
	Effective Walk Time (sec)	35.9	22.9	19.2	7.2	33.2	33.2	42.0	42.0	30.8	30.8	36.6	36.6	24.6	24.6	29.0	29.0
	Conflict with Right-Turn Vehicles (For PLOS & BLOS)	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR
	Right-Turn Geometry	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel
	Right-Turn Signal Phasing	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive (with LPI/LBI)	Permissive (with LPI/LBI)	Permissive	Permissive	Permissive (with LPI/LBI)	Permissive (with LPI/LBI)	Permissive	Permissive	Permissive	Permissive
	Right-Turn Volume	≤ 150 veh/h	> 150 to 300 veh/h	> 150 to 300 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	> 150 to 300 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h
	Right-Turn Effective Corner Radius	> 8m	> 8m	> 8m	> 8m	≤ 8m	≤ 8m	> 8m	≤ 8m	> 8m	> 8m	> 8m	> 8m	> 8m	> 8m	> 8m	≤ 8m
	Cross-street Posted Speed (km/h)	60 km/h		50 km/h		60 km/h		50 km/h		60 km/h		50 km/h		50 km/h		50 km/h	
	Conflict with Left-Turn Vehicles (For PLOS & BLOS)	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL
	Left-Turn Signal Phasing	Fully Protected	Fully Protected	Perm or Prot+Perm	Perm or Prot+Perm	Fully Protected	Fully Protected	Perm or Prot+Perm (with LPI)	Perm or Prot+Perm (with LPI)	Fully Protected	Fully Protected	Perm or Prot+Perm (with LPI)	Perm or Prot+Perm (with LPI)	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm
	Left-Turn Volume	-	-	≤ 50 veh/h	> 100 veh/h	-	-	> 50 to 100 veh/h	> 100 veh/h	-	-	≤ 50 veh/h	> 100 veh/h	≤ 50 veh/h	≤ 50 veh/h	≤ 50 veh/h	> 50 to 100 veh/h
	Left-Turn Opposing Lanes	-	-	-	-	-	-	≤ 1	-	-	-	-	-	-	-	-	≤ 1
	Score	4.35	3.30	1.95	2.20	4.35	4.35	2.85	1.95	4.15	2.95	2.80	2.65	4.30	4.30	4.45	4.45
	PLOS	B	C	D	D	B	B	C	D	B	C	C	C	B	B	B	B
		C				C				C				B			
	Target PLOS	A				A				A				A			
Bicycle	BLOS Inputs																
	Cycling Route Classification	Elsewhere				Elsewhere				Elsewhere				Elsewhere			
	Cyclists Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Type of Cycling Facility Across Leg	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Two-Way ADT (in Cyclist Travel Direction)	24,766		11,824		27,679		5,295		28,989		5,774		1,475		12,199	
	Floating Bike Lane or Right-Turn Lane Crossover Approaching the Crossing?	No	No	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No
	Crossride Operation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Target Crossride Setback Met?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Right-Turn Vehicle Volume from Adjacent Roadway > 100 veh/h?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cyclist Left-Turn Operation	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL
	Cyclist Left-Turn Treatment Type	General Purpose Dual Left-Turn Lanes	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane
	Vehicle Lanes Crossed by Cyclists	-	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed	Two or More Lanes Crossed	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed	Two or More Lanes Crossed	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed	One Lane Crossed	No Lane Crossed	One Lane Crossed	One Lane Crossed
	Score	30	10	20	10	40	40	55	20	30	30	10	25	10	60	50	50
	BLOS	E	F	E	F	D	D	D	E	E	E	F	E	F	D	D	D
		E				D				E				D			
	Target BLOS	B				B				B				B			
Transit	TLOS Inputs																
	Transit Facility	Mixed Traffic				Mixed Traffic				Mixed Traffic				Select Transit Designation			
	Vehicles Travelling	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound
	Average Transit Delay (if available)			36-55 sec	36-55 sec			36-55 sec	11-20 sec			21-35 sec	11-20 sec				
	Example Transit Priority Treatment			-	-			-	-			-	-				
	TLOS	-	-	D	D	-	-	D	B	-	-	C	B	-	-	-	-
		D				C				B				-			
	Target TLOS	E (D for frequent transit routes)				E (D for frequent transit routes)				E (D for frequent transit routes)				-			
Auto	AutoLOS Inputs																
	Overall Intersection Volume to Capacity Ratio	0.81 to 0.90				0.71 to 0.80				0 to 0.60				0 to 0.60			
	Individual Movements V/C Ratios and Queue Lengths	See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffic Operations Table			
	AutoLOS	D				C				A				A			
	Target AutoLOS	E				E				E				E			

Multi-Modal Level of Service - Intersections Form

Project: 1746 Carling Ave
Consultant: Parsons
Date: Oct 7, 2025
Scenario: Future

	Intersection Name	Maitland/Carling (Future)				Broadview/Carling (Future)				Clyde/Carling (Future)				Clyde/Doheny (Future)			
	OP Transect / Policy Area	Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District			
Pedestrian	PLOS Inputs																
	Pedestrians Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Number of Travel Lanes Crossed	1-3	4	7	7	1-3	1-3	7	8	1-3	5	7	7	1-3	1-3	1-3	1-3
	Median Refuge (≥2.7m)	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No	No	No
	Crosswalk Treatment	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings
	Signal Cycle Length (sec)	120.0				120.0				120.0				105.0			
	Effective Walk Time (sec)	36.1	18.7	21.4	7.0	46.5	45.0	21.0	21.0	44.6	32.6	21.4	21.4	15.4	15.4	35.0	35.0
	Conflict with Right-Turn Vehicles (For PLOS & BLOS)	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR
	Right-Turn Geometry	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel	Right-Turn With No Channel
	Right-Turn Signal Phasing	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive (with LPI/LBI)	Permissive (with LPI/LBI)	Permissive	Permissive	Permissive (with LPI/LBI)	Permissive (with LPI/LBI)	Permissive	Permissive	Permissive	Permissive
	Right-Turn Volume	≤ 150 veh/h	> 150 to 300 veh/h	> 150 to 300 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	> 150 to 300 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h
	Right-Turn Effective Corner Radius	> 8m	> 8m	> 8m	> 8m	≤ 8m	≤ 8m	> 8m	≤ 8m	> 8m	> 8m	> 8m	> 8m	> 8m	> 8m	> 8m	≤ 8m
	Cross-street Posted Speed (km/h)	60 km/h		50 km/h		60 km/h		50 km/h		60 km/h		50 km/h		50 km/h		50 km/h	
	Conflict with Left-Turn Vehicles (For PLOS & BLOS)	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL
	Left-Turn Signal Phasing	Fully Protected	Fully Protected	Perm or Prot+Perm	Perm or Prot+Perm	Fully Protected	Fully Protected	Perm or Prot+Perm (with LPI)	Perm or Prot+Perm (with LPI)	Fully Protected	Fully Protected	Perm or Prot+Perm (with LPI)	Perm or Prot+Perm (with LPI)	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm
	Left-Turn Volume	-	-	> 50 to 100 veh/h	> 100 veh/h	-	-	> 50 to 100 veh/h	> 100 veh/h	-	-	≤ 50 veh/h	> 100 veh/h	≤ 50 veh/h	≤ 50 veh/h	≤ 50 veh/h	> 50 to 100 veh/h
	Left-Turn Opposing Lanes	-	-	≤ 1	-	-	-	≤ 1	-	-	-	-	-	-	-	-	≤ 1
	Score	4.35	3.15	1.95	2.20	4.50	4.50	2.55	1.65	4.30	2.95	2.50	2.35	4.30	4.30	4.45	4.45
	PLOS	B	C	D	D	A	A	C	D	B	C	C	D	B	B	B	B
		C				C				C				B			
	Target PLOS	A				A				A				A			
Bicycle	BLOS Inputs																
	Cycling Route Classification	Elsewhere				Elsewhere				Elsewhere				Elsewhere			
	Cyclists Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Type of Cycling Facility Across Leg	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Two-Way ADT (in Cyclist Travel Direction)	26,500		10,100		22,000		5,000		28,500		5,500		1,000		9,000	
	Floating Bike Lane or Right-Turn Lane Crossover Approaching the Crossing?	No	Yes	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No
	Crossride Operation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Target Crossride Setback Met?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Right-Turn Vehicle Volume from Adjacent Roadway > 100 veh/h?	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cyclist Left-Turn Operation	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL
	Cyclist Left-Turn Treatment Type	General Purpose Dual Left-Turn Lanes	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane
	Vehicle Lanes Crossed by Cyclists	-	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed	Two or More Lanes Crossed	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed	Two or More Lanes Crossed	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed	One Lane Crossed	No Lane Crossed	One Lane Crossed	One Lane Crossed
	Score	30	0	20	10	40	40	55	20	30	30	10	25	10	60	50	50
	BLOS	E	F	E	F	D	D	D	E	E	E	F	E	F	D	D	D
		E				D				E				D			
	Target BLOS	B				B				B				B			
Transit	TLOS Inputs																
	Transit Facility	TP - Continuous Lanes				TP - Continuous Lanes				TP - Continuous Lanes				Select Transit Designation			
	Vehicles Travelling	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound
	Average Transit Delay (if available)			11-20 sec	21-35 sec			21-35 sec	21-35 sec			11-20 sec	36-55 sec				
	Example Transit Priority Treatment			-	-			-	-			-	-				
	TLOS	-	-	B	C	-	-	C	C	-	-	B	D	-	-	-	-
		B				C				C				-			
	Target TLOS	B				B				B				-			
Auto	AutoLOS Inputs																
	Overall Intersection Volume to Capacity Ratio	0.81 to 0.90				0.81 to 0.90				0.61 to 0.70				0 to 0.60			
	Individual Movements V/C Ratios and Queue Lengths	See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffic Operations Table			
	AutoLOS	D				D				B				A			
	Target AutoLOS	E				E				E				E			

Multi-Modal Level of Service - Segments Form
Project: 1746 Carling Ave
Consultant: Parsons
Date: Oct 7, 2025
Scenario: Existing & Future

	Segment Name	Carling Ave (Existing)				Carling Ave (Future South Side)				Boyd Ave (Existing)				Boyd Ave (Future West Side)				Kerr Ave (Existing)				Kerr Ave (Future North Side)			
	OP Transect / Policy Area	Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District			
	Segment Component	Majority (>50%)		Critical		Majority (>50%)		Critical		Majority (>50%)		Critical		Majority (>50%)		Critical		Majority (>50%)		Critical		Majority (>50%)		Critical	
	Side of Street	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S	W or N	E or S
Pedestrian	PLOS Inputs																								
	Posted Speed (km/h)	60 km/h		60 km/h		60 km/h		60 km/h		50 km/h		50 km/h		50 km/h		50 km/h		50 km/h		50 km/h		50 km/h		50 km/h	
	Two-Way ADT	27,679		27,679		27,679		27,679		1,041		1,041		1,041		1,041		2,375		2,375		2,375		2,375	
	Pedestrian Facility	Sidewalk	Sidewalk			Sidewalk	Sidewalk			None	None			Sidewalk	None			None	Sidewalk			Sidewalk	Sidewalk		
	Does the facility meet the TMP Sidewalk or MUP Policy? If not, for MUPs, does the location have a low volume of peak daily users AND are pedestrian volumes likely less than 50% of total users?	Yes	Yes			Yes	Yes			No	No			Yes	No			No	Yes			Yes	Yes		
	Facility Width (m)	1.80m	1.80m			1.80m	2.00m			-	-			1.80m	-			-	1.60m			1.80m	1.60m		
	Offset from Motor Vehicle Travel Lanes (m)	< 0.5m	< 0.5m			< 0.5m	≥ 3.0m			-	-			< 0.5m	-			-	-			1.5-2.99m	-		
	Presence of Adjacent Parking?	-	-			-	No			-	-			-	-			-	-			-	-		
	General Purpose Curb Lane ADT	> 3000	> 3000			≤ 3000	-			-	-			≤ 3000	-			-	-			≤ 3000	-		
	Max. Distance between Controlled Crossings (m)	≤ 200m	≤ 200m			≤ 200m	≤ 200m			-	-	-	-	-	-	-	-	-	≤ 200m			≤ 200m	≤ 200m		
	Score	2.00	2.00	-	-	2.75	6.00	-	-	0.00	0.00	-	-	1.50	6.00	-	-	0.00	2.00	-	-	6.00	2.00	-	-
	PLOS	D	D	-	-	C	A	-	-	F	F	-	-	B	F	-	-	F	D	-	-	A	D	-	-
	Target PLOS	A				A				A				A				A				A			
Bicycle	PLOS Inputs																								
	Cycling Route Classification	Elsewhere				Elsewhere				Elsewhere				Elsewhere				Elsewhere				Elsewhere			
	Cycling Facility	Shared Operating Space	Shared Operating Space	Input PLOS First	Input PLOS First	Shared Operating Space	Cycle Track	Input PLOS First	Input PLOS First	Shared Operating Space	Shared Operating Space	Input PLOS First	Input PLOS First	Shared Operating Space	Shared Operating Space	Input PLOS First	Input PLOS First	Shared Operating Space	Shared Operating Space	Input PLOS First	Input PLOS First	Shared Operating Space	Shared Operating Space	Input PLOS First	Input PLOS First
	Is the minimum level of separation provided according to OTM Book 18 Pre-Selection Nomograph - Rural Context (Figure 5.67) (for paved shoulders)	-	-			-	-			-	-			-	-			-	-			-	-		
	Facility Operation	-	-			-	Unidirectional			-	-			-	-			-	-			-	-		
	Pedestrian/Cyclist Volume	-	-			-	-			-	-			-	-			-	-			-	-		
	Facility Width	-	-			-	1.5m-1.79m			-	-			-	-			-	-			-	-		
	Boulevard/Buffer Width (excluding curb)	-	-			-	1.0-1.49m and no adjacent parking			-	-			-	-			-	-			-	-		
	Unsignalized Roadway Crossing Type (where cyclists are required to yield)	None	None			None	None			None	None			None	None			None	None			None	None		
	Number of Travel Lanes at Crossing	-	-			-	-			-	-			-	-			-	-			-	-		
	Crossing includes Median Refuge (≥ 2.7m)	-	-			-	-			-	-			-	-			-	-			-	-		
	Cross-street Posted Speed (km/h)	-	-			-	-			-	-			-	-			-	-			-	-		
	Cycling Path Blockages (e.g. bus stops and/or loading zones)	Frequent, Short Duration	Frequent, Short Duration			Frequent, Short Duration	-			Rare	Rare			Rare	Rare			Rare	Rare			Rare	Rare		
	Score	0.45	0.45	-	-	0.45	2.00	-	-	1.60	1.60	-	-	1.60	1.60	-	-	1.60	1.60	-	-	1.60	1.60	-	-
	BLOS	F	F	-	-	F	C	-	-	D	D	-	-	D	D	-	-	D	D	-	-	D	D	-	-
	Target TLOS	B				B				B				B				B				B			
Transit	TLOS Inputs																								
	Transit Facility	Mixed Traffic				TP - Continuous Lanes																			
	Facility Type	Mixed Traffic	Mixed Traffic			Continuous Curbside Bus Lane	Continuous Curbside Bus Lane																		
	Expected Transit Running Time	Significantly Impeded	Significantly Impeded			Moderately Impeded	Moderately Impeded																		
	Transit Travel Speed (if available)	Enter Speed (if available)	Enter Speed (if available)			-	-																		
	TLOS	E	E			B	B			-	-			-	-			-	-			-	-		
	Target TLOS	E (D for frequent transit routes)				B				-				-				-				-			
Public Realm	PRLOS Inputs																								
	Context	Mainstreet or active frontage street within a Hub, Special District, or Village	Mainstreet or active frontage street within a Hub, Special District, or Village			Mainstreet or active frontage street within a Hub, Special District, or Village				Other Streets	Other Streets			Other Streets	Other Streets			Other Streets	Other Streets			Other Streets	Other Streets		
	Inner Boulevard Width	≤ 0.6m	≤ 0.6m			0.6-1.19m				≤ 0.6m	≤ 0.6m			≤ 0.6m	≤ 0.6m			≤ 0.6m	≤ 0.6m			≤ 0.6m	≤ 0.6m		
	Middle Boulevard Width	≤ 0.5m	≤ 0.5m			Half-height curb serving as the boulevard				≤ 0.5m	≤ 0.5m			≤ 0.5m	≤ 0.5m			≤ 0.5m	≤ 0.5m			1.5-1.99m	≤ 0.5m		
	Outer Boulevard (Frontage) Width	-	-			≥ 3.0m				≤ 0.5m	≤ 0.5m			2.0-2.99m	≤ 0.5m			≤ 0.5m	≤ 0.5m			2.0-2.99m	≤ 0.5m		
	Transit Route on Segment?	Yes	Yes			Yes				No	No			No	No			No	No			No	No		
	Bus Stop Elements	Curbside landing zone with no shelter	Curbside landing zone with no shelter			Curbside platform with no shelter				-	-			-	-			-	-			-	-		
	Number of Mixtraffic Traffic Lanes (both travel directions)	≥ 6				≥ 6				≤ 2				≤ 2				≤ 2				≤ 2			
	Score	12.00	12.00	-	-	18.00				14.10	14.10			22.20	14.10			9.60	17.10			22.20	17.10		
	PRLOS	D	D			-	C			D	D			B	D			E	C			B	C		
		D				C				D				C				D				C			

Appendix H:

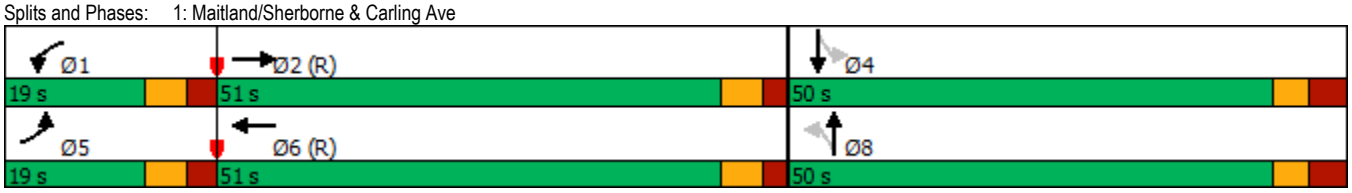
Synchro Reports

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	71	1180	269	295	132	99	81	235
Future Volume (vph)	71	1180	269	295	132	99	81	235
Lane Group Flow (vph)	79	1540	299	368	147	470	90	285
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.5	36.1	11.5	26.1	36.8	36.8	36.8	36.8
Total Split (s)	19.0	51.0	19.0	51.0	50.0	50.0	50.0	50.0
Total Split (%)	15.8%	42.5%	15.8%	42.5%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.8	2.4	2.8	2.4	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.1	6.5	6.1	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	10.4	53.2	14.9	60.4	32.5	32.5	32.5	32.5
Actuated g/C Ratio	0.09	0.44	0.12	0.50	0.27	0.27	0.27	0.27
v/c Ratio	0.54	0.73	0.73	0.22	0.75	0.89	1.48	0.60
Control Delay	65.8	30.9	62.0	11.1	61.3	46.5	317.9	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	30.9	62.0	11.1	61.3	46.5	317.9	41.5
LOS	E	C	E	B	E	D	F	D
Approach Delay		32.6		33.9		50.0		107.9
Approach LOS		C		C		D		F
Queue Length 50th (m)	18.0	109.4	37.6	13.4	31.5	75.2	~28.9	57.4
Queue Length 95th (m)	33.5	139.4	#62.4	22.3	50.3	105.8	#57.5	74.9
Internal Link Dist (m)		413.9		267.6		370.6		394.7
Turn Bay Length (m)	50.0		110.0		75.0		45.0	
Base Capacity (vph)	177	2116	409	1671	262	654	81	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.73	0.73	0.22	0.56	0.72	1.11	0.45

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 40 (33%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay: 44.8	Intersection LOS: D
Intersection Capacity Utilization 94.7%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: Maitland/Sherborne & Carling Ave

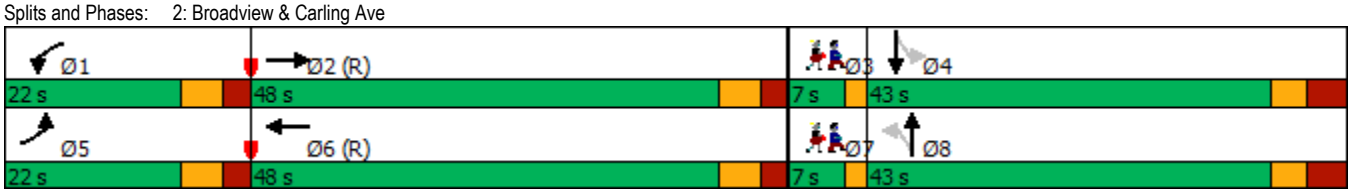


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations										
Traffic Volume (vph)	226	1344	68	465	101	43	138	14		
Future Volume (vph)	226	1344	68	465	101	43	138	14		
Lane Group Flow (vph)	251	1576	76	630	112	90	153	134		
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA		
Protected Phases	5	2	1	6		8		4	3	7
Permitted Phases					8		4			
Detector Phase	5	2	1	6	8	8	4	4		
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	11.2	23.2	11.2	23.2	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (s)	22.0	48.0	22.0	48.0	43.0	43.0	43.0	43.0	7.0	7.0
Total Split (%)	18.3%	40.0%	18.3%	40.0%	35.8%	35.8%	35.8%	35.8%	6%	6%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.7	3.7	3.7	3.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.0		
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None	None
Act Effct Green (s)	25.3	61.9	10.7	44.7	26.4	26.4	24.9	24.9		
Actuated g/C Ratio	0.21	0.52	0.09	0.37	0.22	0.22	0.21	0.21		
v/c Ratio	0.70	0.63	0.50	0.36	0.51	0.23	0.60	0.36		
Control Delay	66.1	17.2	60.0	33.9	49.0	23.8	52.6	11.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	66.1	17.2	60.0	33.9	49.0	23.8	52.6	11.7		
LOS	E	B	E	C	D	C	D	B		
Approach Delay		23.9		36.7		37.8		33.5		
Approach LOS		C		D		D		C		
Queue Length 50th (m)	62.9	45.5	17.8	45.0	22.9	9.8	31.8	3.0		
Queue Length 95th (m)	m#89.4	m73.9	m32.4	52.9	41.3	23.5	53.4	18.8		
Internal Link Dist (m)		267.6		198.5		167.0		238.2		
Turn Bay Length (m)	75.0		50.0		30.0		35.0			
Base Capacity (vph)	357	2482	223	1786	300	515	366	489		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.70	0.63	0.34	0.35	0.37	0.17	0.42	0.27		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 48 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 2: Broadview & Carling Ave



Lane Group	EBT	WBT	NBR
Lane Configurations			
Traffic Volume (vph)	1620	647	56
Future Volume (vph)	1620	647	56
Lane Group Flow (vph)	1654	647	56
Sign Control	Free	Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 44.2%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1620	34	0	647	0	56
Future Vol, veh/h	1620	34	0	647	0	56
Conflicting Peds, #/hr	0	16	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	1620	34	0	647	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	843
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	264
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	260
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.6
HCM LOS			C

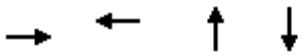
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	260	-	-	-
HCM Lane V/C Ratio	0.215	-	-	-
HCM Control Delay (s)	22.6	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.8	-	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations										
Traffic Volume (vph)	81	1574	225	466	117	92	30	88		
Future Volume (vph)	81	1574	225	466	117	92	30	88		
Lane Group Flow (vph)	90	1930	250	537	130	226	33	169		
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA		
Protected Phases	5	2	1	6		8		4	3	7
Permitted Phases					8		4			
Detector Phase	5	2	1	6	8	8	4	4		
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	1.0	1.0
Minimum Split (s)	9.3	29.3	9.3	29.3	28.3	28.3	28.3	28.3	6.0	6.0
Total Split (s)	25.0	58.0	25.0	58.0	31.0	31.0	31.0	31.0	6.0	6.0
Total Split (%)	20.8%	48.3%	20.8%	48.3%	25.8%	25.8%	25.8%	25.8%	5%	5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3		
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None	None
Act Effct Green (s)	11.7	59.9	20.6	68.8	21.5	21.5	24.2	24.2		
Actuated g/C Ratio	0.10	0.50	0.17	0.57	0.18	0.18	0.20	0.20		
v/c Ratio	0.55	0.80	0.86	0.19	0.76	0.70	0.29	0.48		
Control Delay	75.2	25.2	75.5	13.9	73.0	47.5	46.3	38.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	75.2	25.2	75.5	13.9	73.0	47.5	46.3	38.8		
LOS	E	C	E	B	E	D	D	D		
Approach Delay		27.4		33.5		56.8		40.0		
Approach LOS		C		C		E		D		
Queue Length 50th (m)	18.7	162.1	56.1	22.4	28.6	39.0	6.2	27.5		
Queue Length 95th (m)	m29.5	180.7	#101.3	33.3	49.6	63.8	16.5	49.6		
Internal Link Dist (m)		153.4		363.6		131.2		142.9		
Turn Bay Length (m)	75.0		125.0		100.0		20.0			
Base Capacity (vph)	292	2398	301	2777	212	388	127	396		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.31	0.80	0.83	0.19	0.61	0.58	0.26	0.43		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 32.7	Intersection LOS: C
Intersection Capacity Utilization 89.4%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 4: Clyde & Carling Ave



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	69	109	9	9
Future Volume (vph)	69	109	9	9
Lane Group Flow (vph)	126	134	40	27
Sign Control	Stop	Stop	Stop	Stop

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 30.5%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	69	18	12	109	13	25	9	6	5	9	13
Future Vol, veh/h	39	69	18	12	109	13	25	9	6	5	9	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	69	18	12	109	13	25	9	6	5	9	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

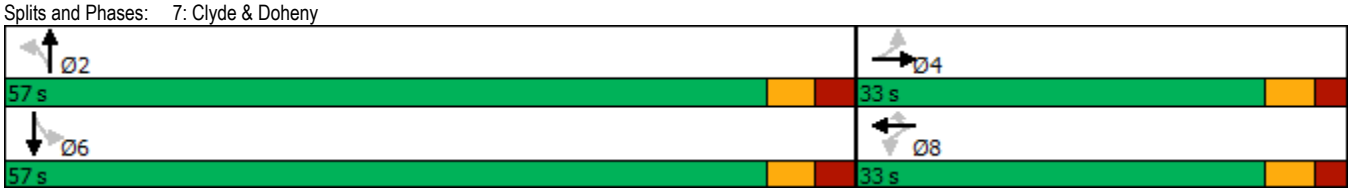
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.9	7.8	7.4
HCM LOS	A	A	A	A

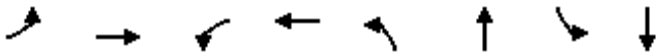
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	31%	9%	19%
Vol Thru, %	22%	55%	81%	33%
Vol Right, %	15%	14%	10%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	126	134	27
LT Vol	25	39	12	5
Through Vol	9	69	109	9
RT Vol	6	18	13	13
Lane Flow Rate	40	126	134	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.051	0.145	0.153	0.032
Departure Headway (Hd)	4.569	4.129	4.107	4.298
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	788	858	863	838
Service Time	2.57	2.205	2.181	2.3
HCM Lane V/C Ratio	0.051	0.147	0.155	0.032
HCM Control Delay	7.8	7.9	7.9	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.5	0.1

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	1	1	3	3	77	282	4	328
Future Volume (vph)	20	1	1	3	3	77	282	4	328
Lane Group Flow (vph)	0	101	0	4	3	86	317	4	472
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.6	28.6	28.6	28.6	28.6	29.0	29.0	29.0	29.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
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)	2.3	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.6		5.6	5.6	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Max	Max	Max	Max
Act Effct Green (s)		11.7		11.7	11.7	51.1	51.1	51.1	51.1
Actuated g/C Ratio		0.16		0.16	0.16	0.69	0.69	0.69	0.69
v/c Ratio		0.35		0.02	0.01	0.15	0.26	0.01	0.40
Control Delay		13.6		25.5	0.0	5.5	5.5	4.8	6.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.3
Total Delay		13.6		25.5	0.0	5.5	5.5	4.8	6.6
LOS		B		C	A	A	A	A	A
Approach Delay		13.6		14.6			5.5		6.6
Approach LOS		B		B			A		A
Queue Length 50th (m)		2.8		0.5	0.0	3.2	12.7	0.2	19.9
Queue Length 95th (m)		14.5		2.8	0.0	10.9	32.2	1.2	50.2
Internal Link Dist (m)		151.0		79.5			120.4		131.2
Turn Bay Length (m)					25.0	25.0			
Base Capacity (vph)		580		612	567	574	1222	679	1184
Starvation Cap Reductn		0		0	0	0	0	0	240
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.17		0.01	0.01	0.15	0.26	0.01	0.50

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 74.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 6.9		Intersection LOS: A	
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Clyde & Doheny



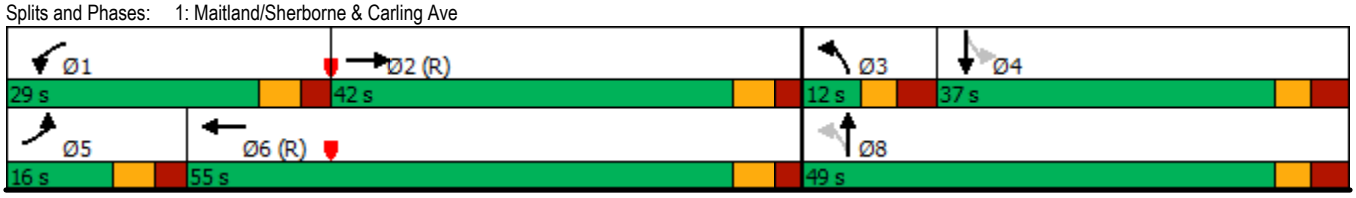


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	77	808	663	1180	250	199	73	187
Future Volume (vph)	77	808	663	1180	250	199	73	187
Lane Group Flow (vph)	86	1119	737	1358	278	567	81	245
Turn Type	Prot	NA	Prot	NA	pm+pt	NA	Perm	NA
Protected Phases	5	2	1	6	3	8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	3	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	11.5	36.1	11.5	26.1	11.8	36.8	36.8	36.8
Total Split (s)	16.0	42.0	29.0	55.0	12.0	49.0	37.0	37.0
Total Split (%)	13.3%	35.0%	24.2%	45.8%	10.0%	40.8%	30.8%	30.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.8	2.4	2.8	2.4	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.1	6.5	6.1	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	9.0	35.9	23.9	50.7	40.8	40.8	28.8	28.8
Actuated g/C Ratio	0.08	0.30	0.20	0.42	0.34	0.34	0.24	0.24
v/c Ratio	0.68	0.78	1.13	0.95	1.05	0.96	1.09	0.58
Control Delay	79.5	41.2	123.1	41.9	106.6	62.5	174.5	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	41.2	123.1	41.9	106.6	62.5	174.5	44.8
LOS	E	D	F	D	F	E	F	D
Approach Delay		44.0		70.5		77.0		77.1
Approach LOS		D		E		E		E
Queue Length 50th (m)	20.0	84.5	~111.8	100.7	~52.3	114.9	~20.5	48.9
Queue Length 95th (m)	#42.1	101.8	m#150.3	#208.5	#109.9	#184.9	#52.4	75.1
Internal Link Dist (m)		413.9		267.6		370.6		394.7
Turn Bay Length (m)	50.0		110.0		75.0		45.0	
Base Capacity (vph)	134	1433	653	1423	264	608	78	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.78	1.13	0.95	1.05	0.93	1.04	0.55

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 65.0	Intersection LOS: E
Intersection Capacity Utilization 103.4%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 1: Maitland/Sherborne & Carling Ave



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations										
Traffic Volume (vph)	121	1070	62	1568	156	34	63	32		
Future Volume (vph)	121	1070	62	1568	156	34	63	32		
Lane Group Flow (vph)	134	1248	69	1795	173	67	70	212		
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA		
Protected Phases	5	2	1	6		8		4	3	7
Permitted Phases					8		4			
Detector Phase	5	2	1	6	8	8	4	4		
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	3.0	1.0
Minimum Split (s)	11.2	23.2	11.2	23.2	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (s)	24.0	54.0	24.0	54.0	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (%)	20.0%	45.0%	20.0%	45.0%	29.2%	29.2%	29.2%	29.2%	6%	6%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.5	2.5	2.5	2.5	3.7	3.7	3.7	3.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.0		
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None	None
Act Effct Green (s)	14.2	61.0	10.2	54.5	27.7	27.7	26.3	26.3		
Actuated g/C Ratio	0.12	0.51	0.08	0.45	0.23	0.23	0.22	0.22		
v/c Ratio	0.67	0.51	0.48	0.82	0.91	0.17	0.26	0.46		
Control Delay	58.1	18.7	55.2	36.4	89.5	23.7	40.6	12.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	58.1	18.7	55.2	36.4	89.5	23.7	40.6	12.3		
LOS	E	B	E	D	F	C	D	B		
Approach Delay		22.5		37.1		71.1		19.4		
Approach LOS		C		D		E		B		
Queue Length 50th (m)	32.2	47.5	16.1	84.6	39.7	7.1	13.5	6.7		
Queue Length 95th (m)	m39.6	m66.2	m26.2	#155.8	#81.3	18.9	26.6	27.7		
Internal Link Dist (m)		267.6		198.5		167.0		238.2		
Turn Bay Length (m)	75.0		50.0		30.0		35.0			
Base Capacity (vph)	251	2450	251	2202	204	423	290	483		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.53	0.51	0.27	0.82	0.85	0.16	0.24	0.44		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 77 (64%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 32.6	Intersection LOS: C
Intersection Capacity Utilization 91.5%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 2: Broadview & Carling Ave

Lane Group	EBT	WBT	NBR
Lane Configurations			
Traffic Volume (vph)	1159	1598	81
Future Volume (vph)	1159	1598	81
Lane Group Flow (vph)	1332	1776	90
Sign Control	Free	Free	

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 36.6%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1159	40	0	1598	0	81
Future Vol, veh/h	1159	40	0	1598	0	81
Conflicting Peds, #/hr	0	16	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	1288	44	0	1776	0	90

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	682
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	336
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	331
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

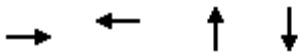
Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	331	-	-	-
HCM Lane V/C Ratio	0.272	-	-	-
HCM Control Delay (s)	19.9	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1.1	-	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations										
Traffic Volume (vph)	108	975	190	1397	141	94	24	83		
Future Volume (vph)	108	975	190	1397	141	94	24	83		
Lane Group Flow (vph)	120	1192	211	1593	157	267	27	159		
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA		
Protected Phases	5	2	1	6		8		4	3	7
Permitted Phases					8		4			
Detector Phase	5	2	1	6	8	8	4	4		
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	1.0	1.0
Minimum Split (s)	10.4	30.8	10.4	30.8	30.6	30.6	30.6	30.6	6.0	6.0
Total Split (s)	25.0	55.0	25.0	55.0	34.0	34.0	34.0	34.0	6.0	6.0
Total Split (%)	20.8%	45.8%	20.8%	45.8%	28.3%	28.3%	28.3%	28.3%	5%	5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.7	2.1	1.7	2.1	3.3	3.3	3.3	3.3	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.4	5.8	5.4	5.8	6.6	6.6	6.6	6.6		
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	None	C-Min	None	None	None	None	None	None
Act Effct Green (s)	13.8	56.2	18.4	60.8	22.1	22.1	25.1	25.1		
Actuated g/C Ratio	0.12	0.47	0.15	0.51	0.18	0.18	0.21	0.21		
v/c Ratio	0.62	0.53	0.81	0.65	0.75	0.79	0.25	0.43		
Control Delay	75.2	19.7	72.9	25.2	66.9	51.5	44.0	36.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	75.2	19.7	72.9	25.2	66.9	51.5	44.0	36.6		
LOS	E	B	E	C	E	D	D	D		
Approach Delay		24.8		30.8		57.2		37.7		
Approach LOS		C		C		E		D		
Queue Length 50th (m)	30.1	42.7	47.5	104.5	34.6	46.2	5.0	24.9		
Queue Length 95th (m)	49.5	28.4	#83.1	136.8	56.4	73.6	14.1	46.5		
Internal Link Dist (m)		153.4		363.6		131.2		142.9		
Turn Bay Length (m)	75.0		125.0		100.0		20.0			
Base Capacity (vph)	276	2258	281	2459	261	408	124	410		
Starvation Cap Reductn	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.43	0.53	0.75	0.65	0.60	0.65	0.22	0.39		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 93 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 32.0	Intersection LOS: C
Intersection Capacity Utilization 81.6%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 4: Clyde & Carling Ave



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	62	95	16	9
Future Volume (vph)	62	95	16	9
Lane Group Flow (vph)	126	129	56	55
Sign Control	Stop	Stop	Stop	Stop

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 24.7%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	62	9	6	95	14	25	16	9	17	9	23
Future Vol, veh/h	42	62	9	6	95	14	25	16	9	17	9	23
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	47	69	10	7	106	16	28	18	10	19	10	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

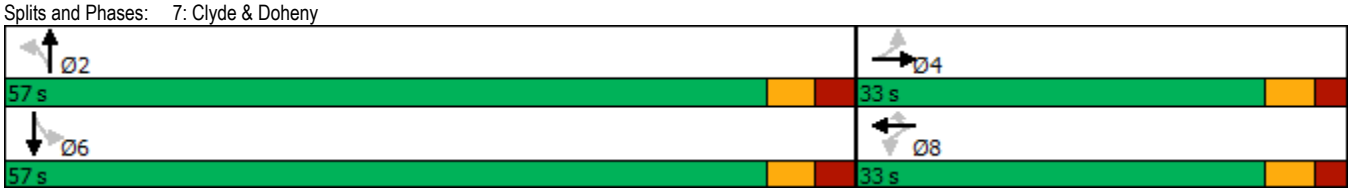
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8	7.9	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	37%	5%	35%
Vol Thru, %	32%	55%	83%	18%
Vol Right, %	18%	8%	12%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	113	115	49
LT Vol	25	42	6	17
Through Vol	16	62	95	9
RT Vol	9	9	14	23
Lane Flow Rate	56	126	128	54
Geometry Grp	1	1	1	1
Degree of Util (X)	0.07	0.152	0.151	0.066
Departure Headway (Hd)	4.554	4.349	4.259	4.353
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	789	827	845	825
Service Time	2.569	2.359	2.271	2.368
HCM Lane V/C Ratio	0.071	0.152	0.151	0.065
HCM Control Delay	7.9	8.1	8	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.5	0.2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	25	1	5	1	9	67	321	6	321
Future Volume (vph)	25	1	5	1	9	67	321	6	321
Lane Group Flow (vph)	0	89	0	7	10	74	366	7	427
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.6	28.6	28.6	28.6	28.6	29.0	29.0	29.0	29.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
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)	2.3	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.6		5.6	5.6	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Max	Max	Max	Max
Act Effct Green (s)		11.7		11.7	11.7	51.1	51.1	51.1	51.1
Actuated g/C Ratio		0.16		0.16	0.16	0.69	0.69	0.69	0.69
v/c Ratio		0.32		0.03	0.04	0.12	0.30	0.01	0.36
Control Delay		15.5		26.0	0.7	5.3	5.8	4.8	6.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.5		26.0	0.7	5.3	5.8	4.8	6.1
LOS		B		C	A	A	A	A	A
Approach Delay		15.5		11.1			5.7		6.1
Approach LOS		B		B			A		A
Queue Length 50th (m)		3.5		0.8	0.0	2.7	15.1	0.2	17.7
Queue Length 95th (m)		14.7		3.9	0.6	9.5	37.9	1.7	44.5
Internal Link Dist (m)		151.0		79.5			120.4		131.2
Turn Bay Length (m)					25.0	25.0			
Base Capacity (vph)		566		518	567	609	1219	649	1194
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.16		0.01	0.02	0.12	0.30	0.01	0.36

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 74.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 6.9		Intersection LOS: A	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Clyde & Doheny

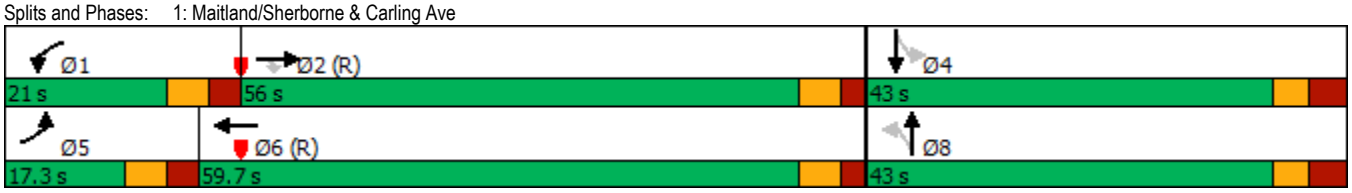


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	72	1181	218	278	349	143	99	82	235
Future Volume (vph)	72	1181	218	278	349	143	99	82	235
Lane Group Flow (vph)	72	1181	218	278	389	143	419	82	257
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.5	36.1	36.1	11.5	26.1	36.8	36.8	36.8	36.8
Total Split (s)	17.3	56.0	56.0	21.0	59.7	43.0	43.0	43.0	43.0
Total Split (%)	14.4%	46.7%	46.7%	17.5%	49.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.8	2.4	2.4	2.8	2.4	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.1	6.1	6.5	6.1	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	9.7	58.2	58.2	14.1	65.2	28.3	28.3	28.3	28.3
Actuated g/C Ratio	0.08	0.48	0.48	0.12	0.54	0.24	0.24	0.24	0.24
v/c Ratio	0.53	0.72	0.27	0.72	0.22	0.82	0.89	1.39	0.62
Control Delay	66.8	29.3	5.1	65.7	10.4	75.3	50.3	290.7	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	29.3	5.1	65.7	10.4	75.3	50.3	290.7	45.8
LOS	E	C	A	E	B	E	D	F	D
Approach Delay		27.6			33.4		56.6		105.0
Approach LOS		C			C		E		F
Queue Length 50th (m)	16.5	116.5	2.7	35.4	14.8	31.7	66.4	~25.2	53.0
Queue Length 95th (m)	31.4	158.3	17.7	50.1	20.1	#53.9	99.6	#54.0	73.8
Internal Link Dist (m)		413.9			267.6		370.6		394.7
Turn Bay Length (m)	50.0		75.0	110.0		75.0		45.0	
Base Capacity (vph)	156	1644	805	409	1806	224	563	75	532
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.72	0.27	0.68	0.22	0.64	0.74	1.09	0.48

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 40 (33%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 42.9	Intersection LOS: D
Intersection Capacity Utilization 100.0%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 1: Maitland/Sherborne & Carling Ave

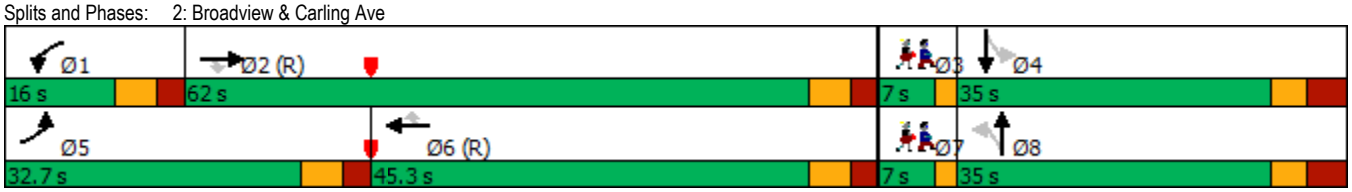


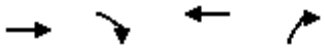
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	226	1342	75	79	532	106	101	43	135	14		
Future Volume (vph)	226	1342	75	79	532	106	101	43	135	14		
Lane Group Flow (vph)	226	1342	75	79	532	106	101	82	135	120		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	11.2	23.2	23.2	11.2	23.2	23.2	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (s)	32.7	62.0	62.0	16.0	45.3	45.3	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (%)	27.3%	51.7%	51.7%	13.3%	37.8%	37.8%	29.2%	29.2%	29.2%	29.2%	6%	6%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.7	3.7	3.7	3.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	20.8	63.7	63.7	9.2	49.5	49.5	26.0	26.0	24.5	24.5		
Actuated g/C Ratio	0.17	0.53	0.53	0.08	0.41	0.41	0.22	0.22	0.20	0.20		
v/c Ratio	0.77	0.75	0.10	0.61	0.38	0.15	0.45	0.22	0.54	0.33		
Control Delay	69.7	21.7	3.3	68.2	31.3	8.8	46.7	23.8	49.8	11.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	69.7	21.7	3.3	68.2	31.3	8.8	46.7	23.8	49.8	11.8		
LOS	E	C	A	E	C	A	D	C	D	B		
Approach Delay		27.5			32.0			36.4		31.9		
Approach LOS		C			C			D		C		
Queue Length 50th (m)	56.8	60.4	0.0	18.6	48.7	2.7	20.3	8.8	27.6	2.6		
Queue Length 95th (m)	m77.3	m109.6	m2.4	m32.3	m63.6	m8.9	37.7	22.1	47.6	17.8		
Internal Link Dist (m)		267.6			198.5			167.0		238.2		
Turn Bay Length (m)	75.0		32.0	50.0		32.0	30.0		35.0			
Base Capacity (vph)	374	1805	786	140	1399	685	254	426	287	397		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.60	0.74	0.10	0.56	0.38	0.15	0.40	0.19	0.47	0.30		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 48 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 29.6	Intersection LOS: C
Intersection Capacity Utilization 83.0%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 2: Broadview & Carling Ave





Lane Group	EBT	EBR	WBT	NBR
Lane Configurations				
Traffic Volume (vph)	1626	34	729	56
Future Volume (vph)	1626	34	729	56
Lane Group Flow (vph)	1626	34	729	56
Sign Control	Free		Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 57.8%		ICU Level of Service B
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1626	34	0	729	0	56
Future Vol, veh/h	1626	34	0	729	0	56
Conflicting Peds, #/hr	0	16	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	32	-	-	-	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	1626	34	0	729	0	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	829
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	314
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	309
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.2
HCM LOS			C

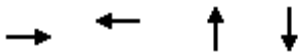
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	309	-	-	-
HCM Lane V/C Ratio	0.181	-	-	-
HCM Control Delay (s)	19.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	86	1572	185	243	481	46	165	92	30	88		
Future Volume (vph)	86	1572	185	243	481	46	165	92	30	88		
Lane Group Flow (vph)	86	1572	185	243	481	46	165	208	30	153		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	1.0	1.0
Minimum Split (s)	9.3	29.3	29.3	9.3	29.3	29.3	28.3	28.3	28.3	28.3	6.0	6.0
Total Split (s)	17.2	62.7	62.7	23.0	68.5	68.5	28.3	28.3	28.3	28.3	6.0	6.0
Total Split (%)	14.3%	52.3%	52.3%	19.2%	57.1%	57.1%	23.6%	23.6%	23.6%	23.6%	5%	5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	10.7	60.8	60.8	18.5	70.9	70.9	23.0	23.0	25.4	25.4		
Actuated g/C Ratio	0.09	0.51	0.51	0.15	0.59	0.59	0.19	0.19	0.21	0.21		
v/c Ratio	0.57	0.92	0.23	0.93	0.24	0.05	0.85	0.61	0.21	0.42		
Control Delay	70.2	35.3	6.7	90.5	13.6	1.5	82.1	42.2	43.6	36.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	70.2	35.3	6.7	90.5	13.6	1.5	82.1	42.2	43.6	36.9		
LOS	E	D	A	F	B	A	F	D	D	D		
Approach Delay		34.1			37.2			59.9		38.0		
Approach LOS		C			D			E		D		
Queue Length 50th (m)	17.3	200.2	14.8	57.1	30.0	0.0	37.4	34.5	5.6	24.1		
Queue Length 95th (m)	m27.1	#238.2	m20.8	#104.3	41.2	2.9	#74.0	59.8	15.1	46.3		
Internal Link Dist (m)		153.4			363.6			131.2		142.9		
Turn Bay Length (m)	75.0		60.0	125.0		32.0	100.0		20.0			
Base Capacity (vph)	182	1717	800	264	2001	888	203	353	146	382		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.47	0.92	0.23	0.92	0.24	0.05	0.81	0.59	0.21	0.40		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 38.1	Intersection LOS: D
Intersection Capacity Utilization 100.4%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 4: Clyde & Carling Ave



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	69	109	9	9
Future Volume (vph)	69	109	9	9
Lane Group Flow (vph)	126	134	40	27
Sign Control	Stop	Stop	Stop	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 30.5%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	69	18	12	109	13	25	9	6	5	9	13
Future Vol, veh/h	39	69	18	12	109	13	25	9	6	5	9	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	69	18	12	109	13	25	9	6	5	9	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

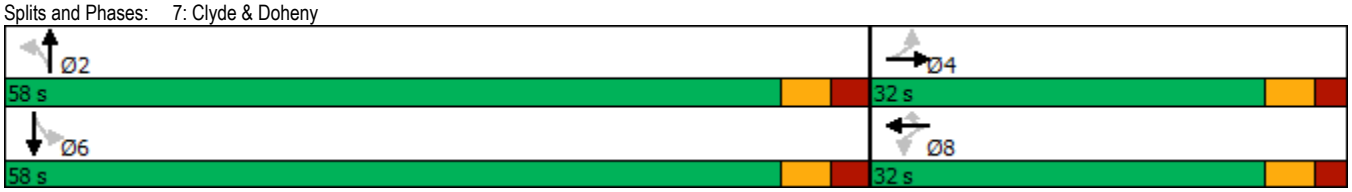
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.9	7.8	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	31%	9%	19%
Vol Thru, %	22%	55%	81%	33%
Vol Right, %	15%	14%	10%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	126	134	27
LT Vol	25	39	12	5
Through Vol	9	69	109	9
RT Vol	6	18	13	13
Lane Flow Rate	40	126	134	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.051	0.145	0.153	0.032
Departure Headway (Hd)	4.569	4.129	4.107	4.298
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	788	858	863	838
Service Time	2.57	2.205	2.181	2.3
HCM Lane V/C Ratio	0.051	0.147	0.155	0.032
HCM Control Delay	7.8	7.9	7.9	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.5	0.1

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	1	1	3	3	77	308	4	355
Future Volume (vph)	20	1	1	3	3	77	308	4	355
Lane Group Flow (vph)	0	91	0	4	3	77	312	4	452
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.6	28.6	28.6	28.6	28.6	29.0	29.0	29.0	29.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	58.0	58.0	58.0	58.0
Total Split (%)	35.6%	35.6%	35.6%	35.6%	35.6%	64.4%	64.4%	64.4%	64.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.6		5.6	5.6	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Max	Max	Max	Max
Act Effct Green (s)		11.7		11.7	11.7	52.1	52.1	52.1	52.1
Actuated g/C Ratio		0.16		0.16	0.16	0.69	0.69	0.69	0.69
v/c Ratio		0.32		0.02	0.01	0.13	0.25	0.01	0.38
Control Delay		13.9		26.0	0.0	5.3	5.4	4.8	6.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		13.9		26.0	0.0	5.3	5.4	4.8	6.1
LOS		B		C	A	A	A	A	A
Approach Delay		13.9		14.9			5.4		6.1
Approach LOS		B		B			A		A
Queue Length 50th (m)		2.6		0.5	0.0	2.8	12.5	0.2	18.7
Queue Length 95th (m)		13.9		2.8	0.0	9.8	31.6	1.2	47.2
Internal Link Dist (m)		151.0		79.5			120.4		131.2
Turn Bay Length (m)					25.0	25.0			
Base Capacity (vph)		550		583	541	594	1230	687	1194
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.17		0.01	0.01	0.13	0.25	0.01	0.38

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 75.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 63.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Clyde & Doheny



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	81	857	206	666	1207	280	199	77	187
Future Volume (vph)	81	857	206	666	1207	280	199	77	187
Lane Group Flow (vph)	81	857	206	666	1251	280	521	77	220
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6	3	8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	3	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	11.5	36.1	36.1	11.5	26.1	11.8	36.8	36.8	36.8
Total Split (s)	13.6	37.8	37.8	31.0	55.2	14.4	51.2	36.8	36.8
Total Split (%)	11.3%	31.5%	31.5%	25.8%	46.0%	12.0%	42.7%	30.7%	30.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.8	2.4	2.4	2.8	2.4	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.1	6.1	6.5	6.1	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	8.6	34.1	34.1	27.2	52.7	39.3	39.3	24.3	24.3
Actuated g/C Ratio	0.07	0.28	0.28	0.23	0.44	0.33	0.33	0.20	0.20
v/c Ratio	0.68	0.89	0.37	0.90	0.85	1.00	0.91	0.84	0.62
Control Delay	81.4	54.3	6.0	62.8	38.7	92.1	53.1	103.0	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.4	54.3	6.0	62.8	38.7	92.1	53.1	103.0	48.8
LOS	F	D	A	E	D	F	D	F	D
Approach Delay		47.5			47.1		66.7		62.8
Approach LOS		D			D		E		E
Queue Length 50th (m)	18.6	104.8	0.0	86.2	110.6	51.5	99.9	17.1	44.8
Queue Length 95th (m)	#47.0	#144.7	16.1	m#101.1	m119.4	#100.5	#151.8	#40.7	67.7
Internal Link Dist (m)		413.9			267.6		370.6		394.7
Turn Bay Length (m)	50.0		75.0	110.0		75.0		45.0	
Base Capacity (vph)	120	963	560	744	1478	279	638	113	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.89	0.37	0.90	0.85	1.00	0.82	0.68	0.50

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 52.1	Intersection LOS: D
Intersection Capacity Utilization 107.6%	ICU Level of Service G
Analysis Period (min) 15	

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

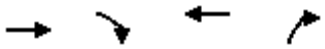
Splits and Phases: 1: Maitland/Sherborne & Carling Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	121	1134	53	68	1600	50	156	34	66	32		
Future Volume (vph)	121	1134	53	68	1600	50	156	34	66	32		
Lane Group Flow (vph)	121	1134	53	68	1600	50	156	62	66	190		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	1.0
Minimum Split (s)	11.2	23.2	23.2	11.2	23.2	23.2	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (s)	15.3	61.2	61.2	16.8	62.7	62.7	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (%)	12.8%	51.0%	51.0%	14.0%	52.3%	52.3%	29.2%	29.2%	29.2%	29.2%	6%	6%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.7	3.7	3.7	3.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	9.7	63.0	63.0	9.2	60.0	60.0	26.7	26.7	25.3	25.3		
Actuated g/C Ratio	0.08	0.52	0.52	0.08	0.50	0.50	0.22	0.22	0.21	0.21		
v/c Ratio	0.89	0.64	0.07	0.53	0.94	0.07	0.79	0.16	0.25	0.43		
Control Delay	90.0	13.7	0.1	63.3	35.3	2.1	70.6	23.4	40.5	12.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	90.0	13.7	0.1	63.3	35.3	2.1	70.6	23.4	40.5	12.4		
LOS	F	B	A	E	D	A	E	C	D	B		
Approach Delay		20.2			35.5			57.1		19.7		
Approach LOS		C			D			E		B		
Queue Length 50th (m)	30.5	47.6	0.0	16.1	~89.3	0.0	34.3	6.3	12.7	5.9		
Queue Length 95th (m)	m#40.9	m55.1	m0.0	m22.6	#244.4	m0.6	#67.5	17.7	25.2	25.5		
Internal Link Dist (m)		267.6			198.5			167.0		238.2		
Turn Bay Length (m)	75.0		32.0	50.0		32.0	30.0		35.0			
Base Capacity (vph)	136	1778	769	149	1695	756	218	421	292	469		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.89	0.64	0.07	0.46	0.94	0.07	0.72	0.15	0.23	0.41		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 77 (64%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 105.0%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 2: Broadview & Carling Ave



Lane Group	EBT	EBR	WBT	NBR
Lane Configurations				
Traffic Volume (vph)	1232	40	1638	81
Future Volume (vph)	1232	40	1638	81
Lane Group Flow (vph)	1232	40	1638	81
Sign Control	Free		Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 51.1%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1232	40	0	1638	0	81
Future Vol, veh/h	1232	40	0	1638	0	81
Conflicting Peds, #/hr	0	16	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	32	-	-	-	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	1232	40	0	1638	0	81

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	632
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	423
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	417
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

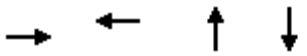
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	417	-	-	-
HCM Lane V/C Ratio	0.194	-	-	-
HCM Control Delay (s)	15.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	120	974	143	226	1408	51	163	94	24	83		
Future Volume (vph)	120	974	143	226	1408	51	163	94	24	83		
Lane Group Flow (vph)	120	974	143	226	1408	51	163	242	24	144		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	1.0	1.0
Minimum Split (s)	9.3	29.3	29.3	9.3	29.3	29.3	28.3	28.3	28.3	28.3	6.0	6.0
Total Split (s)	18.0	53.0	53.0	30.0	65.0	65.0	31.0	31.0	31.0	31.0	6.0	6.0
Total Split (%)	15.0%	44.2%	44.2%	25.0%	54.2%	54.2%	25.8%	25.8%	25.8%	25.8%	5%	5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	12.3	58.2	58.2	20.6	66.5	66.5	22.9	22.9	25.9	25.9		
Actuated g/C Ratio	0.10	0.48	0.48	0.17	0.55	0.55	0.19	0.19	0.22	0.22		
v/c Ratio	0.69	0.59	0.18	0.78	0.75	0.06	0.78	0.69	0.21	0.38		
Control Delay	68.7	28.3	8.3	65.3	25.2	2.2	70.6	43.6	42.4	34.5		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	68.7	28.3	8.3	65.3	25.2	2.2	70.6	43.6	42.4	34.5		
LOS	E	C	A	E	C	A	E	D	D	C		
Approach Delay		29.9			29.9			54.5		35.6		
Approach LOS		C			C			D		D		
Queue Length 50th (m)	29.9	66.4	7.3	51.1	142.8	0.0	35.9	39.1	4.3	21.4		
Queue Length 95th (m)	m47.8	67.5	m9.0	75.0	173.6	4.1	#62.8	65.7	12.7	42.2		
Internal Link Dist (m)		153.4			363.6			131.2		142.9		
Turn Bay Length (m)	75.0		60.0	125.0		32.0	100.0		20.0			
Base Capacity (vph)	193	1644	784	363	1880	837	243	399	127	410		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.62	0.59	0.18	0.62	0.75	0.06	0.67	0.61	0.19	0.35		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 93 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 88.0%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 4: Clyde & Carling Ave



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	62	95	16	9
Future Volume (vph)	62	95	16	9
Lane Group Flow (vph)	113	115	50	49
Sign Control	Stop	Stop	Stop	Stop

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 24.7%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	42	62	9	6	95	14	25	16	9	17	9	23
Future Vol, veh/h	42	62	9	6	95	14	25	16	9	17	9	23
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	62	9	6	95	14	25	16	9	17	9	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

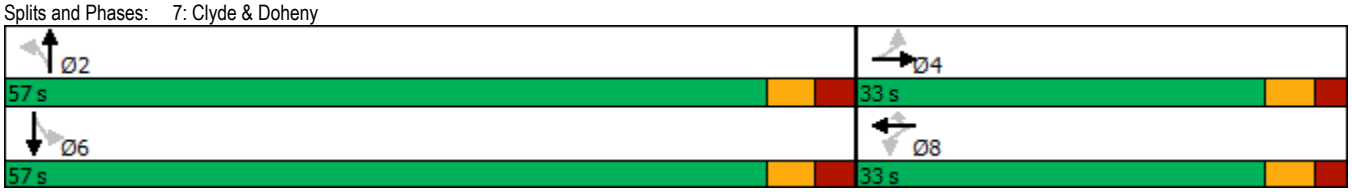
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	7.9	7.8	7.5
HCM LOS	A	A	A	A

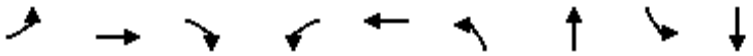
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	37%	5%	35%
Vol Thru, %	32%	55%	83%	18%
Vol Right, %	18%	8%	12%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	113	115	49
LT Vol	25	42	6	17
Through Vol	16	62	95	9
RT Vol	9	9	14	23
Lane Flow Rate	50	113	115	49
Geometry Grp	1	1	1	1
Degree of Util (X)	0.062	0.132	0.132	0.058
Departure Headway (Hd)	4.486	4.221	4.13	4.285
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	803	837	854	841
Service Time	2.487	2.311	2.221	2.286
HCM Lane V/C Ratio	0.062	0.135	0.135	0.058
HCM Control Delay	7.8	8	7.9	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.5	0.2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	25	1	5	1	9	67	350	6	356
Future Volume (vph)	25	1	5	1	9	67	350	6	356
Lane Group Flow (vph)	0	80	0	6	9	67	358	6	419
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.6	28.6	28.6	28.6	28.6	29.0	29.0	29.0	29.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
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)	2.3	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.6		5.6	5.6	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Max	Max	Max	Max
Act Effct Green (s)		11.7		11.7	11.7	51.1	51.1	51.1	51.1
Actuated g/C Ratio		0.16		0.16	0.16	0.69	0.69	0.69	0.69
v/c Ratio		0.30		0.03	0.03	0.11	0.29	0.01	0.35
Control Delay		15.4		25.8	0.2	5.2	5.8	4.8	6.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.4		25.8	0.2	5.2	5.8	4.8	6.0
LOS		B		C	A	A	A	A	A
Approach Delay		15.4		10.5			5.7		6.0
Approach LOS		B		B			A		A
Queue Length 50th (m)		3.2		0.7	0.0	2.4	14.7	0.2	17.3
Queue Length 95th (m)		13.7		3.7	0.3	8.6	36.9	1.6	43.6
Internal Link Dist (m)		151.0		79.5			120.4		131.2
Turn Bay Length (m)					25.0	25.0			
Base Capacity (vph)		563		528	567	617	1220	654	1195
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.14		0.01	0.02	0.11	0.29	0.01	0.35

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 74.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.35			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 59.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Clyde & Doheny



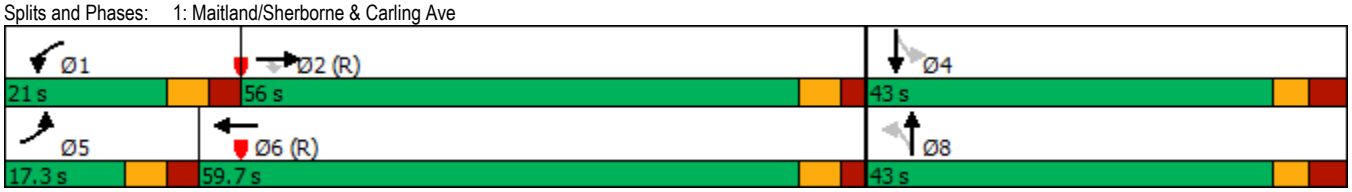


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	72	1189	218	294	366	143	99	82	235
Future Volume (vph)	72	1189	218	294	366	143	99	82	235
Lane Group Flow (vph)	72	1189	218	294	406	143	426	82	257
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.5	36.1	36.1	11.5	26.1	36.8	36.8	36.8	36.8
Total Split (s)	17.3	56.0	56.0	21.0	59.7	43.0	43.0	43.0	43.0
Total Split (%)	14.4%	46.7%	46.7%	17.5%	49.8%	35.8%	35.8%	35.8%	35.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.8	2.4	2.4	2.8	2.4	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.1	6.1	6.5	6.1	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	9.5	57.5	57.5	14.3	64.9	28.8	28.8	28.8	28.8
Actuated g/C Ratio	0.08	0.48	0.48	0.12	0.54	0.24	0.24	0.24	0.24
v/c Ratio	0.54	0.73	0.27	0.75	0.23	0.79	0.89	1.39	0.61
Control Delay	68.0	30.1	5.2	65.6	11.3	70.9	49.6	286.7	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.0	30.1	5.2	65.6	11.3	70.9	49.6	286.7	45.0
LOS	E	C	A	E	B	E	D	F	D
Approach Delay		28.3			34.1		54.9		103.4
Approach LOS		C			C		D		F
Queue Length 50th (m)	16.5	120.5	3.1	37.3	16.6	31.4	67.2	~25.2	52.7
Queue Length 95th (m)	31.4	159.8	18.1	#53.4	23.1	53.1	101.6	#54.3	73.8
Internal Link Dist (m)		413.9			267.6		370.6		394.7
Turn Bay Length (m)	50.0		75.0	110.0		75.0		45.0	
Base Capacity (vph)	153	1624	797	407	1797	227	565	74	532
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.73	0.27	0.72	0.23	0.63	0.75	1.11	0.48

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 40 (33%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 42.8	Intersection LOS: D
Intersection Capacity Utilization 101.2%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 1: Maitland/Sherborne & Carling Ave

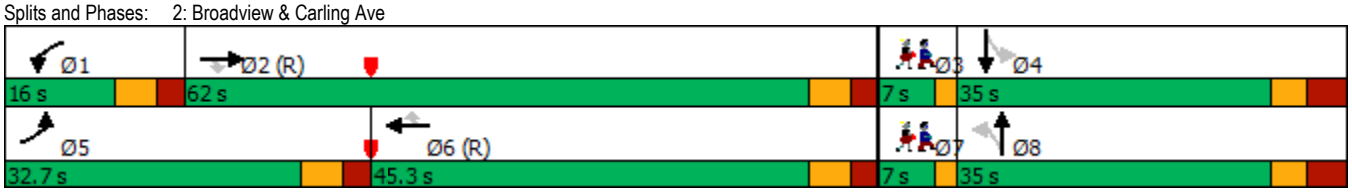


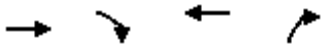
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	226	1355	77	79	532	106	134	43	135	14		
Future Volume (vph)	226	1355	77	79	532	106	134	43	135	14		
Lane Group Flow (vph)	226	1355	77	79	532	106	134	82	135	120		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	3.0
Minimum Split (s)	11.2	23.2	23.2	11.2	23.2	23.2	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (s)	32.7	62.0	62.0	16.0	45.3	45.3	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (%)	27.3%	51.7%	51.7%	13.3%	37.8%	37.8%	29.2%	29.2%	29.2%	29.2%	6%	6%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.7	3.7	3.7	3.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	20.8	63.7	63.7	9.1	49.4	49.4	26.1	26.1	24.6	24.6		
Actuated g/C Ratio	0.17	0.53	0.53	0.08	0.41	0.41	0.22	0.22	0.20	0.20		
v/c Ratio	0.77	0.75	0.10	0.62	0.38	0.16	0.60	0.22	0.54	0.33		
Control Delay	69.0	21.7	3.4	69.2	31.1	8.8	53.1	23.8	49.6	11.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	69.0	21.7	3.4	69.2	31.1	8.8	53.1	23.8	49.6	11.8		
LOS	E	C	A	E	C	A	D	C	D	B		
Approach Delay		27.3			32.0			42.0		31.8		
Approach LOS		C			C			D		C		
Queue Length 50th (m)	56.7	61.7	0.0	18.7	48.7	2.7	28.0	8.8	27.6	2.6		
Queue Length 95th (m)	m76.0	m110.7	m2.4	m32.3	m63.6	m8.9	49.0	22.1	47.6	17.8		
Internal Link Dist (m)		267.6			198.5			167.0		238.2		
Turn Bay Length (m)	75.0		32.0	50.0		32.0	30.0		35.0			
Base Capacity (vph)	374	1801	784	138	1395	683	254	426	287	397		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.60	0.75	0.10	0.57	0.38	0.16	0.53	0.19	0.47	0.30		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 48 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 83.4%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 2: Broadview & Carling Ave





Lane Group	EBT	EBR	WBT	NBR
Lane Configurations				
Traffic Volume (vph)	1626	47	729	101
Future Volume (vph)	1626	47	729	101
Lane Group Flow (vph)	1626	47	729	101
Sign Control	Free		Free	

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1626	47	0	729	0	101
Future Vol, veh/h	1626	47	0	729	0	101
Conflicting Peds, #/hr	0	16	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	32	-	-	-	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	1626	47	0	729	0	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	829
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	314
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	309
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.2
HCM LOS			C

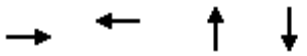
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	309	-	-	-
HCM Lane V/C Ratio	0.327	-	-	-
HCM Control Delay (s)	22.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1.4	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	86	1617	185	263	481	46	165	92	30	88		
Future Volume (vph)	86	1617	185	263	481	46	165	92	30	88		
Lane Group Flow (vph)	86	1617	185	263	481	46	165	208	30	153		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	1.0	1.0
Minimum Split (s)	9.3	29.3	29.3	9.3	29.3	29.3	28.3	28.3	28.3	28.3	6.0	6.0
Total Split (s)	17.2	62.7	62.7	23.0	68.5	68.5	28.3	28.3	28.3	28.3	6.0	6.0
Total Split (%)	14.3%	52.3%	52.3%	19.2%	57.1%	57.1%	23.6%	23.6%	23.6%	23.6%	5%	5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	10.7	59.7	59.7	19.7	70.9	70.9	23.0	23.0	25.4	25.4		
Actuated g/C Ratio	0.09	0.50	0.50	0.16	0.59	0.59	0.19	0.19	0.21	0.21		
v/c Ratio	0.57	0.96	0.24	0.95	0.24	0.05	0.85	0.61	0.21	0.42		
Control Delay	69.7	41.7	6.6	92.8	13.6	1.5	82.1	42.2	43.6	36.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	69.7	41.7	6.6	92.8	13.6	1.5	82.1	42.2	43.6	36.9		
LOS	E	D	A	F	B	A	F	D	D	D		
Approach Delay		39.6			39.2			59.9		38.0		
Approach LOS		D			D			E		D		
Queue Length 50th (m)	17.3	208.4	13.3	62.7	30.0	0.0	37.4	34.5	5.6	24.1		
Queue Length 95th (m)	m27.1	#250.3	m20.4	#115.6	41.2	2.9	#74.0	59.8	15.1	46.3		
Internal Link Dist (m)		153.4			363.6			131.2		142.9		
Turn Bay Length (m)	75.0		60.0	125.0		32.0	100.0		20.0			
Base Capacity (vph)	182	1685	786	277	2001	888	203	353	146	382		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.47	0.96	0.24	0.95	0.24	0.05	0.81	0.59	0.21	0.40		

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 84 (70%), Referenced to phase 2:EBT and 6:WBT, Start of Green		
Natural Cycle: 120		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.96		
Intersection Signal Delay: 41.7	Intersection LOS: D	
Intersection Capacity Utilization 102.9%	ICU Level of Service G	
Analysis Period (min) 15		

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

Splits and Phases: 4: Clyde & Carling Ave



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	69	111	9	9
Future Volume (vph)	69	111	9	9
Lane Group Flow (vph)	130	156	40	60
Sign Control	Stop	Stop	Stop	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 34.2%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	69	18	12	111	33	25	9	6	9	9	42
Future Vol, veh/h	43	69	18	12	111	33	25	9	6	9	9	42
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	69	18	12	111	33	25	9	6	9	9	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

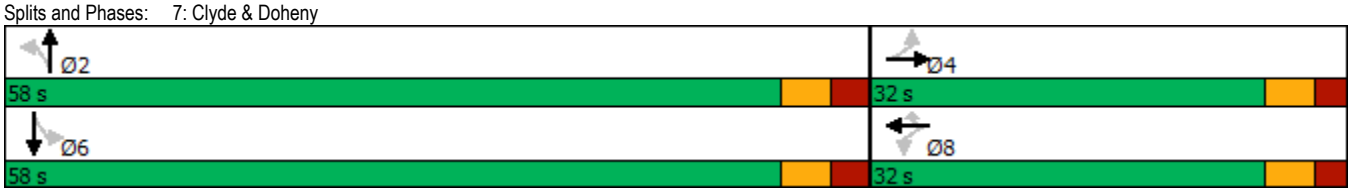
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.1	7.9	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	62%	33%	8%	15%
Vol Thru, %	22%	53%	71%	15%
Vol Right, %	15%	14%	21%	70%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	130	156	60
LT Vol	25	43	12	9
Through Vol	9	69	111	9
RT Vol	6	18	33	42
Lane Flow Rate	40	130	156	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.156	0.178	0.07
Departure Headway (Hd)	4.666	4.312	4.097	4.22
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	771	837	860	852
Service Time	2.675	2.312	2.197	2.229
HCM Lane V/C Ratio	0.052	0.155	0.181	0.07
HCM Control Delay	7.9	8.1	8.1	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.6	0.6	0.2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	1	1	3	3	79	308	4	355
Future Volume (vph)	20	1	1	3	3	79	308	4	355
Lane Group Flow (vph)	0	95	0	4	3	79	312	4	472
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.6	28.6	28.6	28.6	28.6	29.0	29.0	29.0	29.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	58.0	58.0	58.0	58.0
Total Split (%)	35.6%	35.6%	35.6%	35.6%	35.6%	64.4%	64.4%	64.4%	64.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.6		5.6	5.6	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Max	Max	Max	Max
Act Effct Green (s)		11.7		11.7	11.7	52.1	52.1	52.1	52.1
Actuated g/C Ratio		0.16		0.16	0.16	0.69	0.69	0.69	0.69
v/c Ratio		0.33		0.02	0.01	0.14	0.25	0.01	0.40
Control Delay		13.6		26.0	0.0	5.4	5.4	4.8	6.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.3
Total Delay		13.6		26.0	0.0	5.4	5.4	4.8	6.5
LOS		B		C	A	A	A	A	A
Approach Delay		13.6		14.9			5.4		6.5
Approach LOS		B		B			A		A
Queue Length 50th (m)		2.6		0.5	0.0	2.9	12.5	0.2	19.6
Queue Length 95th (m)		14.1		2.8	0.0	10.1	31.6	1.2	49.7
Internal Link Dist (m)		151.0		79.5			120.4		131.2
Turn Bay Length (m)					25.0	25.0			
Base Capacity (vph)		553		583	541	578	1230	687	1187
Starvation Cap Reductn		0		0	0	0	0	0	248
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.17		0.01	0.01	0.14	0.25	0.01	0.50

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 75.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 6.8		Intersection LOS: A	
Intersection Capacity Utilization 64.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Clyde & Doheny



Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	45	0	0
Future Volume (vph)	45	0	0
Lane Group Flow (vph)	74	20	13
Sign Control	Stop	Stop	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 19.0%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	29	20	0	0	13
Future Vol, veh/h	45	29	20	0	0	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	29	20	0	0	13
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	7.4	6.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	100%	61%	0%
Vol Thru, %	0%	0%	0%
Vol Right, %	0%	39%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	20	74	13
LT Vol	20	45	0
Through Vol	0	0	0
RT Vol	0	29	13
Lane Flow Rate	20	74	13
Geometry Grp	1	1	1
Degree of Util (X)	0.024	0.08	0.013
Departure Headway (Hd)	4.275	3.879	3.479
Convergence, Y/N	Yes	Yes	Yes
Cap	837	926	1025
Service Time	2.303	1.892	1.512
HCM Lane V/C Ratio	0.024	0.08	0.013
HCM Control Delay	7.4	7.2	6.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.3	0

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	0	29	4
Future Volume (vph)	0	29	4
Lane Group Flow (vph)	2	31	8
Sign Control	Stop	Stop	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 13.3%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	0	29	2	4	4
Future Vol, veh/h	2	0	29	2	4	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	0	29	2	4	4
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.2	7.1	6.8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	50%
Vol Thru, %	0%	94%	0%
Vol Right, %	0%	6%	50%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	2	31	8
LT Vol	2	0	4
Through Vol	0	29	0
RT Vol	0	2	4
Lane Flow Rate	2	31	8
Geometry Grp	1	1	1
Degree of Util (X)	0.002	0.034	0.008
Departure Headway (Hd)	4.171	3.911	3.792
Convergence, Y/N	Yes	Yes	Yes
Cap	862	920	946
Service Time	2.178	1.913	1.804
HCM Lane V/C Ratio	0.002	0.034	0.008
HCM Control Delay	7.2	7.1	6.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.1	0

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	81	871	206	676	1217	280	199	77	187
Future Volume (vph)	81	871	206	676	1217	280	199	77	187
Lane Group Flow (vph)	81	871	206	676	1261	280	535	77	220
Turn Type	Prot	NA	Perm	Prot	NA	pm+pt	NA	Perm	NA
Protected Phases	5	2		1	6	3	8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	3	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	11.5	36.1	36.1	11.5	26.1	11.8	36.8	36.8	36.8
Total Split (s)	13.6	37.8	37.8	31.0	55.2	14.4	51.2	36.8	36.8
Total Split (%)	11.3%	31.5%	31.5%	25.8%	46.0%	12.0%	42.7%	30.7%	30.7%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3
All-Red Time (s)	2.8	2.4	2.4	2.8	2.4	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.1	6.1	6.5	6.1	6.8	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	8.3	33.4	33.4	27.4	52.5	39.7	39.7	25.1	25.1
Actuated g/C Ratio	0.07	0.28	0.28	0.23	0.44	0.33	0.33	0.21	0.21
v/c Ratio	0.69	0.92	0.37	0.90	0.86	1.00	0.92	0.90	0.60
Control Delay	84.0	58.5	6.1	62.5	38.9	88.9	54.8	117.4	47.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.0	58.5	6.1	62.5	38.9	88.9	54.8	117.4	47.5
LOS	F	E	A	E	D	F	D	F	D
Approach Delay		51.0			47.1		66.5		65.6
Approach LOS		D			D		E		E
Queue Length 50th (m)	18.8	107.1	0.0	87.7	112.0	50.8	102.3	17.2	44.2
Queue Length 95th (m)	#47.0	#148.3	16.1	m#102.7	m120.0	#99.0	#158.5	#43.4	67.7
Internal Link Dist (m)		413.9			267.6		370.6		394.7
Turn Bay Length (m)	50.0		75.0	110.0		75.0		45.0	
Base Capacity (vph)	117	944	554	751	1473	281	639	103	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.92	0.37	0.90	0.86	1.00	0.84	0.75	0.50

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 53.2	Intersection LOS: D
Intersection Capacity Utilization 109.3%	ICU Level of Service H
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.

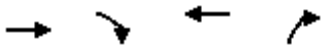
Splits and Phases: 1: Maitland/Sherborne & Carling Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	121	1159	57	68	1600	50	177	34	66	32		
Future Volume (vph)	121	1159	57	68	1600	50	177	34	66	32		
Lane Group Flow (vph)	121	1159	57	68	1600	50	177	62	66	190		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	3.0	1.0
Minimum Split (s)	11.2	23.2	23.2	11.2	23.2	23.2	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (s)	15.3	61.2	61.2	16.8	62.7	62.7	35.0	35.0	35.0	35.0	7.0	7.0
Total Split (%)	12.8%	51.0%	51.0%	14.0%	52.3%	52.3%	29.2%	29.2%	29.2%	29.2%	6%	6%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	3.7	3.7	3.7	3.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	7.0	7.0	7.0	7.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	9.7	62.4	62.4	9.2	59.4	59.4	27.3	27.3	25.9	25.9		
Actuated g/C Ratio	0.08	0.52	0.52	0.08	0.50	0.50	0.23	0.23	0.22	0.22		
v/c Ratio	0.89	0.66	0.07	0.53	0.95	0.07	0.86	0.16	0.24	0.43		
Control Delay	87.5	14.1	0.1	63.4	36.8	2.1	80.6	23.3	40.3	12.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	87.5	14.1	0.1	63.4	36.8	2.1	80.6	23.3	40.3	12.3		
LOS	F	B	A	E	D	A	F	C	D	B		
Approach Delay		20.1			36.9			65.7		19.5		
Approach LOS		C			D			E		B		
Queue Length 50th (m)	30.7	49.4	0.0	16.1	~89.3	0.0	40.0	6.3	12.7	5.9		
Queue Length 95th (m)	m#38.0	m55.4	m0.0	m22.6	#244.4	m0.6	#79.3	17.7	25.2	25.5		
Internal Link Dist (m)		267.6			198.5			167.0		238.2		
Turn Bay Length (m)	75.0		32.0	50.0		32.0	30.0		35.0			
Base Capacity (vph)	136	1761	763	149	1678	749	220	421	292	469		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.89	0.66	0.07	0.46	0.95	0.07	0.80	0.15	0.23	0.41		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 77 (64%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 106.3%	ICU Level of Service G
Analysis Period (min) 15	

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

Splits and Phases: 2: Broadview & Carling Ave



Lane Group	EBT	EBR	WBT	NBR
Lane Configurations				
Traffic Volume (vph)	1232	65	1638	110
Future Volume (vph)	1232	65	1638	110
Lane Group Flow (vph)	1232	65	1638	110
Sign Control	Free		Free	

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 51.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1232	65	0	1638	0	110
Future Vol, veh/h	1232	65	0	1638	0	110
Conflicting Peds, #/hr	0	16	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	32	-	-	-	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	1232	65	0	1638	0	110

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	632
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	423
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	417
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

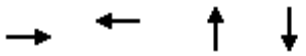
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	417	-	-	-
HCM Lane V/C Ratio	0.264	-	-	-
HCM Control Delay (s)	16.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1	-	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations												
Traffic Volume (vph)	120	1003	143	265	1408	51	163	94	24	83		
Future Volume (vph)	120	1003	143	265	1408	51	163	94	24	83		
Lane Group Flow (vph)	120	1003	143	265	1408	51	163	242	24	144		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA		
Protected Phases	5	2		1	6			8		4	3	7
Permitted Phases			2			6	8		4			
Detector Phase	5	2	2	1	6	6	8	8	4	4		
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	1.0	1.0
Minimum Split (s)	9.3	29.3	29.3	9.3	29.3	29.3	28.3	28.3	28.3	28.3	6.0	6.0
Total Split (s)	18.0	53.0	53.0	30.0	65.0	65.0	31.0	31.0	31.0	31.0	6.0	6.0
Total Split (%)	15.0%	44.2%	44.2%	25.0%	54.2%	54.2%	25.8%	25.8%	25.8%	25.8%	5%	5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	12.3	56.3	56.3	22.5	66.5	66.5	22.9	22.9	25.9	25.9		
Actuated g/C Ratio	0.10	0.47	0.47	0.19	0.55	0.55	0.19	0.19	0.22	0.22		
v/c Ratio	0.69	0.63	0.19	0.83	0.75	0.06	0.78	0.69	0.21	0.38		
Control Delay	68.5	29.7	8.5	68.6	25.2	2.2	70.6	43.6	42.4	34.5		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	68.5	29.7	8.5	68.6	25.2	2.2	70.6	43.6	42.4	34.5		
LOS	E	C	A	E	C	A	E	D	D	C		
Approach Delay		31.0			31.2			54.5		35.6		
Approach LOS		C			C			D		D		
Queue Length 50th (m)	30.0	69.4	7.3	59.6	142.8	0.0	35.9	39.1	4.3	21.4		
Queue Length 95th (m)	m46.5	72.8	m8.4	#92.9	173.6	4.1	#62.8	65.7	12.7	42.2		
Internal Link Dist (m)		153.4			363.6			131.2		142.9		
Turn Bay Length (m)	75.0		60.0	125.0		32.0	100.0		20.0			
Base Capacity (vph)	193	1589	760	363	1880	837	243	399	127	410		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	0.62	0.63	0.19	0.73	0.75	0.06	0.67	0.61	0.19	0.35		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 93 (78%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 34.0	Intersection LOS: C
Intersection Capacity Utilization 88.0%	ICU Level of Service E
Analysis Period (min) 15	

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

Splits and Phases: 4: Clyde & Carling Ave



Lane Group	EBT	WBT	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	62	100	16	9
Future Volume (vph)	62	100	16	9
Lane Group Flow (vph)	116	157	50	70
Sign Control	Stop	Stop	Stop	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 32.1%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	62	9	6	100	51	25	16	9	20	9	41
Future Vol, veh/h	45	62	9	6	100	51	25	16	9	20	9	41
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	45	62	9	6	100	51	25	16	9	20	9	41
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

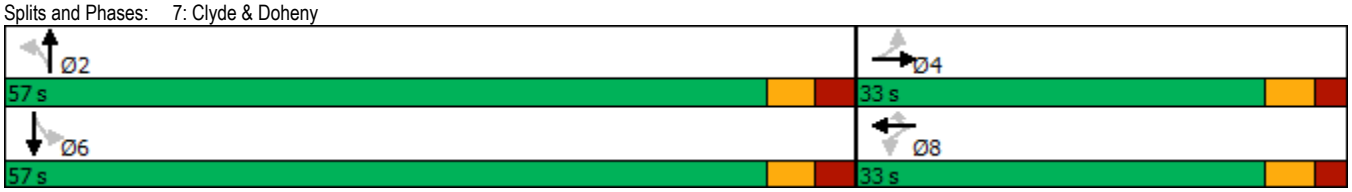
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.1	7.9	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	39%	4%	29%
Vol Thru, %	32%	53%	64%	13%
Vol Right, %	18%	8%	32%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	116	157	70
LT Vol	25	45	6	20
Through Vol	16	62	100	9
RT Vol	9	9	51	41
Lane Flow Rate	50	116	157	70
Geometry Grp	1	1	1	1
Degree of Util (X)	0.064	0.142	0.181	0.084
Departure Headway (Hd)	4.605	4.4	4.147	4.298
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	779	817	868	835
Service Time	2.625	2.415	2.161	2.317
HCM Lane V/C Ratio	0.064	0.142	0.181	0.084
HCM Control Delay	7.9	8.1	8.1	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	0.7	0.3

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	25	1	5	1	9	70	350	6	356
Future Volume (vph)	25	1	5	1	9	70	350	6	356
Lane Group Flow (vph)	0	83	0	6	9	70	358	6	458
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		4		8			2		6
Permitted Phases	4		8		8	2		6	
Detector Phase	4	4	8	8	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	28.6	28.6	28.6	28.6	28.6	29.0	29.0	29.0	29.0
Total Split (s)	33.0	33.0	33.0	33.0	33.0	57.0	57.0	57.0	57.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	63.3%	63.3%	63.3%	63.3%
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)	2.3	2.3	2.3	2.3	2.3	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.6		5.6	5.6	6.0	6.0	6.0	6.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	Max	Max	Max	Max
Act Effct Green (s)		11.7		11.7	11.7	51.1	51.1	51.1	51.1
Actuated g/C Ratio		0.16		0.16	0.16	0.69	0.69	0.69	0.69
v/c Ratio		0.31		0.03	0.03	0.12	0.29	0.01	0.39
Control Delay		15.3		25.8	0.2	5.3	5.8	4.8	6.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		15.3		25.8	0.2	5.3	5.8	4.8	6.3
LOS		B		C	A	A	A	A	A
Approach Delay		15.3		10.5			5.7		6.2
Approach LOS		B		B			A		A
Queue Length 50th (m)		3.2		0.7	0.0	2.5	14.7	0.2	19.0
Queue Length 95th (m)		14.0		3.7	0.3	9.1	36.9	1.6	48.2
Internal Link Dist (m)		151.0		79.5			120.4		131.2
Turn Bay Length (m)					25.0	25.0			
Base Capacity (vph)		566		527	567	584	1220	654	1184
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.15		0.01	0.02	0.12	0.29	0.01	0.39

Intersection Summary			
Cycle Length: 90			
Actuated Cycle Length: 74.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 6.8		Intersection LOS: A	
Intersection Capacity Utilization 61.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Clyde & Doheny



Lane Group	EBL	NBT	SBT
Lane Configurations			
Traffic Volume (vph)	29	0	0
Future Volume (vph)	29	0	0
Lane Group Flow (vph)	47	39	25
Sign Control	Stop	Stop	Stop

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 18.9%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	18	39	0	0	25
Future Vol, veh/h	29	18	39	0	0	25
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	18	39	0	0	25
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	7.5	6.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	100%	62%	0%
Vol Thru, %	0%	0%	0%
Vol Right, %	0%	38%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	39	47	25
LT Vol	39	29	0
Through Vol	0	0	0
RT Vol	0	18	25
Lane Flow Rate	39	47	25
Geometry Grp	1	1	1
Degree of Util (X)	0.046	0.051	0.024
Departure Headway (Hd)	4.236	3.938	3.446
Convergence, Y/N	Yes	Yes	Yes
Cap	847	909	1037
Service Time	2.255	1.964	1.473
HCM Lane V/C Ratio	0.046	0.052	0.024
HCM Control Delay	7.5	7.2	6.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.2	0.1

Lane Group	EBT	WBT	SBL
Lane Configurations			
Traffic Volume (vph)	0	18	3
Future Volume (vph)	0	18	3
Lane Group Flow (vph)	4	22	6
Sign Control	Stop	Stop	Stop

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 13.5%		ICU Level of Service A
Analysis Period (min) 15		

Intersection	
Intersection Delay, s/veh	6.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	18	4	3	3
Future Vol, veh/h	4	0	18	4	3	3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	18	4	3	3
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.2	6.9	6.8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	100%	0%	50%
Vol Thru, %	0%	82%	0%
Vol Right, %	0%	18%	50%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	4	22	6
LT Vol	4	0	3
Through Vol	0	18	0
RT Vol	0	4	3
Lane Flow Rate	4	22	6
Geometry Grp	1	1	1
Degree of Util (X)	0.005	0.023	0.006
Departure Headway (Hd)	4.161	3.838	3.781
Convergence, Y/N	Yes	Yes	Yes
Cap	864	938	950
Service Time	2.165	1.841	1.789
HCM Lane V/C Ratio	0.005	0.023	0.006
HCM Control Delay	7.2	6.9	6.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.1	0