# 3430 Carling Avenue

## TIA Strategy Report

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# TABLE OF CONTENTS

## LIST OF FIGURES



## LIST OF TABLES



## LIST OF APPENDICES

# STRATEGY REPORT

Parsons has been retained by 3430 Carling Inc. to prepare a Transportation Impact Assessment (TIA) in support of an Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBLA) applications for a residential development located at 108 Nepean Street. This document follows the TIA process, as outlined in the City Transportation Impact Assessment (TIA) Guidelines (2017). The following report represents Step 3 – Forecasting Report.

## 1. Screening Form

The screening form confirmed the need for a TIA Report based on the site meeting the trip generation, location, and safety triggers. The trip generation trigger is met due to the number of person trips anticipated to be generated by the development exceeding 60 person trips per hour. The safety trigger is met due to the horizontal curvature on a boundary street that limits sight lines of the site's proposed driveway. The Screening Form has been provided in Appendix A.

## 2. Scoping Report

### 2.1. Existing and Planned Conditions

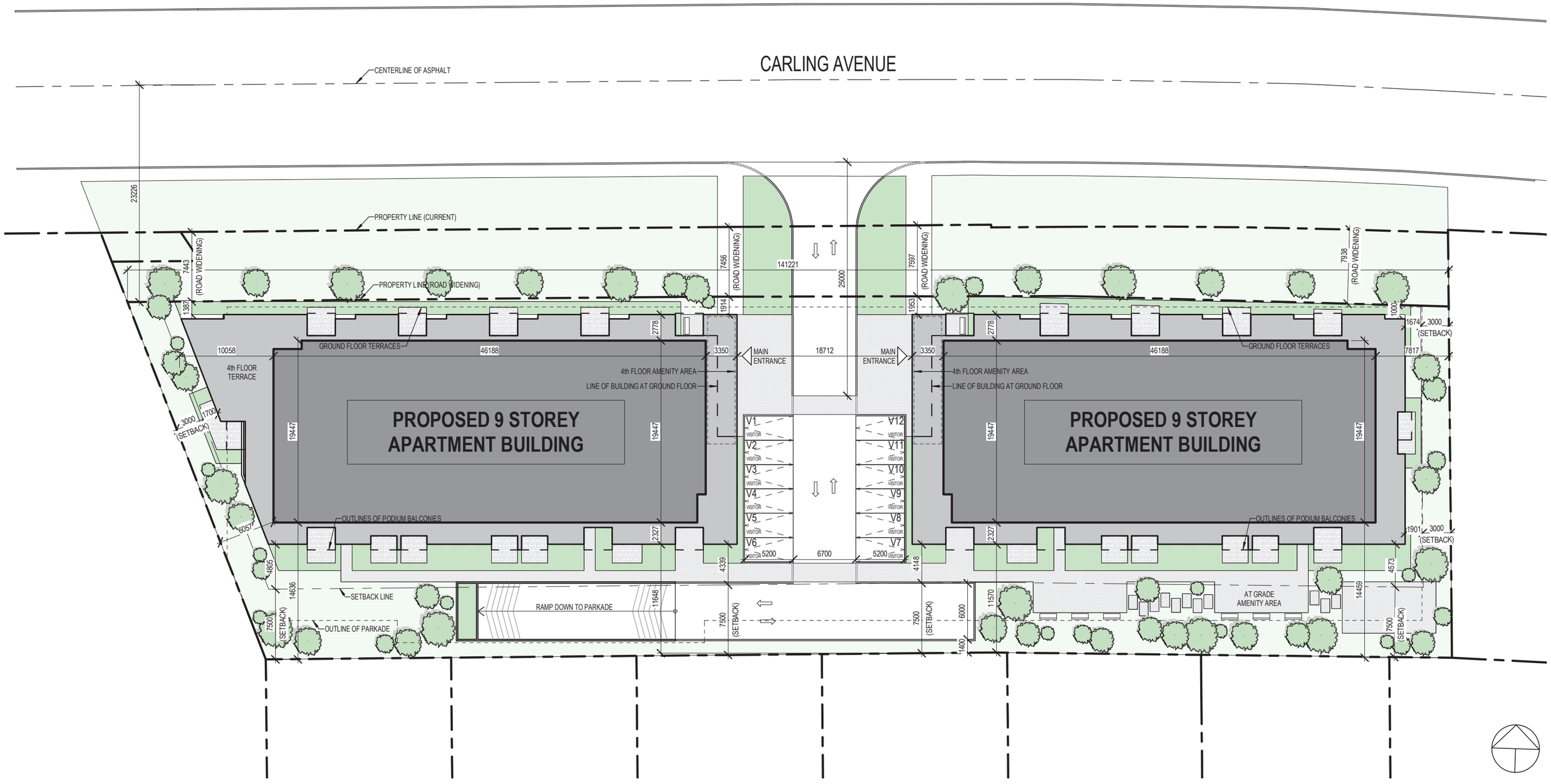
#### 2.1.1. Proposed Development

The proposed development is located on Carling Avenue, at the municipal addresses of 3430 Carling Ave. It is understood that the development proposes a 9-storey residential building that includes approximately 216 residential units with surface and underground parking, to be constructed in a single phase by 2022. 266 vehicle parking spaces are proposed, 12 spaces provided in a surface parking lot and 254 spaces provided in a two-level underground parking garage. A single driveway access to the site is proposed on Carling Avenue. The site is currently zoned as GM20[2628] H(18.5). The site is currently occupied by a single storey restaurant and surface parking lot. Local context is provided in Figure 1 and the Site Plan of the proposed development is illustrated in Figure 2.

Figure 1: Local Context


Source: Google Maps

Figure 2: Proposed Site Plan




**3430 CARLING AVE | SITE PLAN**

| 2103 | 1 : 400 | 2021/07/29

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### 2.1.2. Existing Conditions

**Area Road Network**

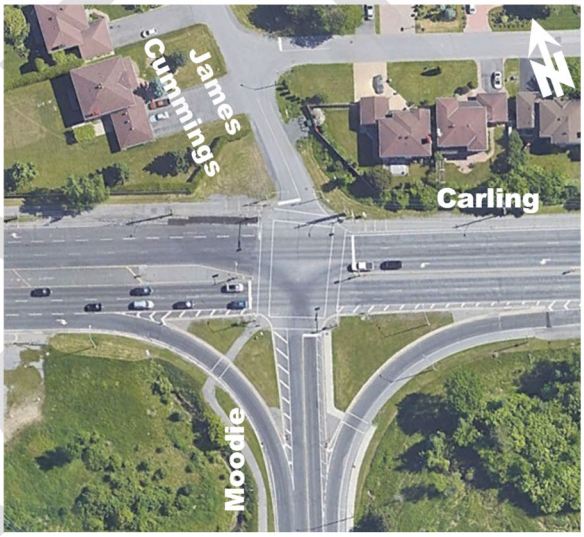
***Carling Avenue*** is an east-west municipal road that extends from March Road in the west to Bronson Avenue in the east. Within the study area, Carling Avenue is classified as an arterial road and operates with a four-lane undivided cross-section. Auxiliary turn lanes are provided at side streets and major intersections. The posted speed limit is 60km/h.

***Moodie Drive*** is a north-south municipal road that extends from Carling Avenue in the north to Brophy Drive in the south. Within the study area, Metcalfe St is classified as an arterial road and operates with a four-lane undivided cross-section. The posted speed limit is 80km/h.

***Bedale Drive*** is north-south municipal local road that extends from Carling Avenue in the north to Crystal Beach Drive in the south. Bedale Drive operates with a two-lane cross-section with on-street parking provided on the east side of the road. The posted speed limit is 40km/h.

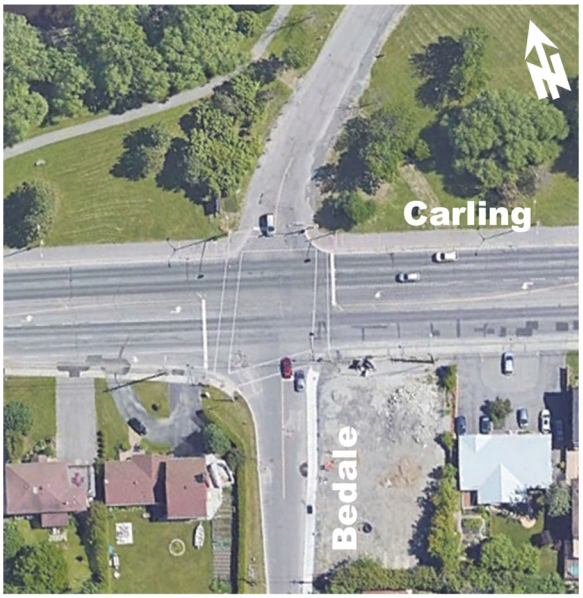
**Existing Study Area Intersections**

The following describes the existing physical geometry of the study area intersections.




Moodie/Carling

The Moodie/Carling intersection is a signalized four-legged intersection. The eastbound approach consists of a shared left-through lane, a through lane and a channelized right-turn lane. The westbound approach consists of an auxiliary left-turn lane, a through lane and shared through-right turn lane. The northbound approach consists of a shared left-through lane and a channelized right-turn lane. The southbound approach consists of a single all-movement lane. All movements are permitted at this location. Painted crosswalks are provided on all legs of this intersection.




Bedale/Carling

The Bedale/Carling intersection is a signalized four-legged intersection. The eastbound approach consists of an auxiliary left-turn lane, two through lanes and an auxiliary right-turn lane. The westbound approach consists of an auxiliary left-turn lane, through lane, and a shared through/right-turn lane. The north and southbound approaches consist of a single all-movement lane. All movements are permitted at this location. Painted crosswalks are provided on all legs of this intersection.

## Existing Driveways to Adjacent Developments

The subject site, which is currently a restaurant, has two driveways to Carling Avenue. The following provides a list of adjacent driveways located within 200m of the site along the boundary road (Carling Ave.):

**South Side of Roadway, Distance from East Site Access**

- 15 m - 3420 Carling Ave, Restaurant Entrance
- 70 m - 3420 Carling Ave, Restaurant & Gas Station Entrance
- 95 m - 3420 Carling Ave, Gas Station Entrance

**North Side of Roadway, Distance from East Site Access**

- 0 m - 3375 Carling Avenue, residential access
- 30 m - 3379 Carling Avenue, residential access
- 55 m - 3381 Carling Avenue, residential access
- 80 m - 3383 Carling Avenue, residential access
- 155 m - 3357 Carling Avenue, residential access

**North Side of Roadway, Distance from West Site Access**

- 10 m - 3401 Carling Avenue, residential access
- 55 m - 3405 Carling Avenue, residential access
- 95 m - 3409 Carling Avenue, residential access
- 145 m - 415 Carling Avenue, residential access

Figure 3: Adjacent Parking Lot Locations


## Existing Area Traffic Management Measures

Existing area traffic management measures within the study area include:

- Sidewalks;
- Multi-use pathway (MUP); and,
- Curbs.

## Pedestrian/Cycling Network

Figure 4 illustrates active transportation facilities within the study area. Sidewalks are provided on the south side Carling Avenue, and west side of Moodie Drive and Bedale Drive throughout the study area. A MUP is available along Carling Avenue and extends from Grandview Road in the west and Andrew Hayden Park in the east where it continues along the Ottawa River. Based on the City of Ottawa Transportation Master Plan (TMP),

Carling Avenue is classified as a Major Pathway, Moodie Drive is classified as a Spine Route and Bedale Drive is classified as a Local Route with regards to the overall cycling network.

Figure 4: Existing Pedestrian and Cycling Network


Source: https://maps.ottawa.ca/geoottawa/

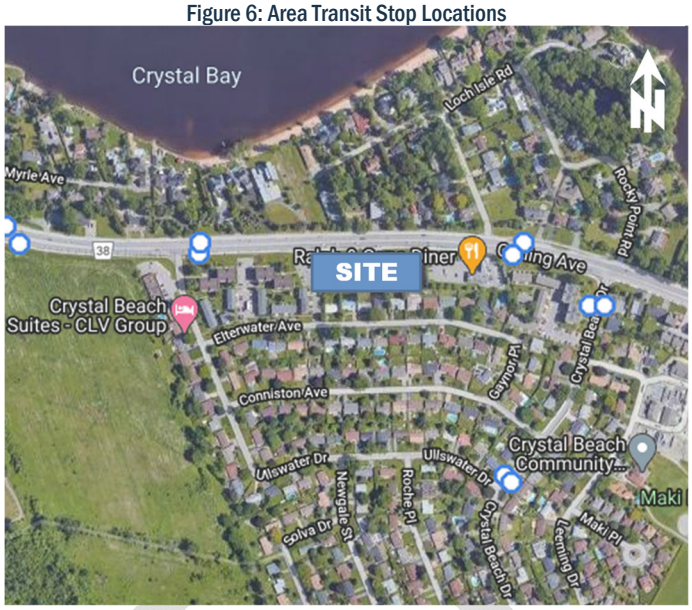
## Transit Network

The existing transit network surrounding the proposed development site is illustrated in Figure 5. Bus stops within walking distance to the site are approximately 170m to 205m in both directions. Transit stop locations are shown highlighted blue in Figure 6. Currently, Connection Route #258 and Local Route #58 service the site.

- **Route #58 (Moodie <-> Tunney's Pasture)**: Identified by OC Transpo as a 'local' route that operates approximately every 30 minutes and includes various additional stops depending on time of day. During peak periods, Route #55 provides service between Moodie and Tunney's Pasture with connection to Confederation Line 1. During the off-peak periods, the route provides service from Lincoln Fields through to Moodie. Nearest stops are located along Carling Avenue, approximately 125 meters east and west of the proposed site.
- **Route #258 (Elmvale <-> Bayshore)**: Identified by OC Transpo as a 'connexion' route that only operates during peak periods. It travels westbound during the morning peak period and eastbound during the afternoon peak period. When in operation, the bus runs on a schedule of approximately 30-minute interval. Route #258 provides service from Tunney's Pasture through to Grandview. Nearest stops are located along Carling Avenue, approximately 125 meters east and west of the proposed site.

Figure 5: Area Transit Network


Figure 6: Area Transit Stop Locations




## Peak Hour Travel Demands

The existing peak hour traffic volumes within the study area were obtained from the City of Ottawa for the following intersections:

- Moodie/Carling – conducted Wednesday, Mar. 30, 2016; and,
- Bedale/Carling – conducted Wednesday, Feb. 28, 2018.

Figure 7 displays the existing vehicle traffic volumes while Figure 8 shows the existing pedestrian and cyclist volumes. Peak hour count data is provided in Appendix B.

Figure 7: Existing Peak Hour Vehicle Traffic Volumes

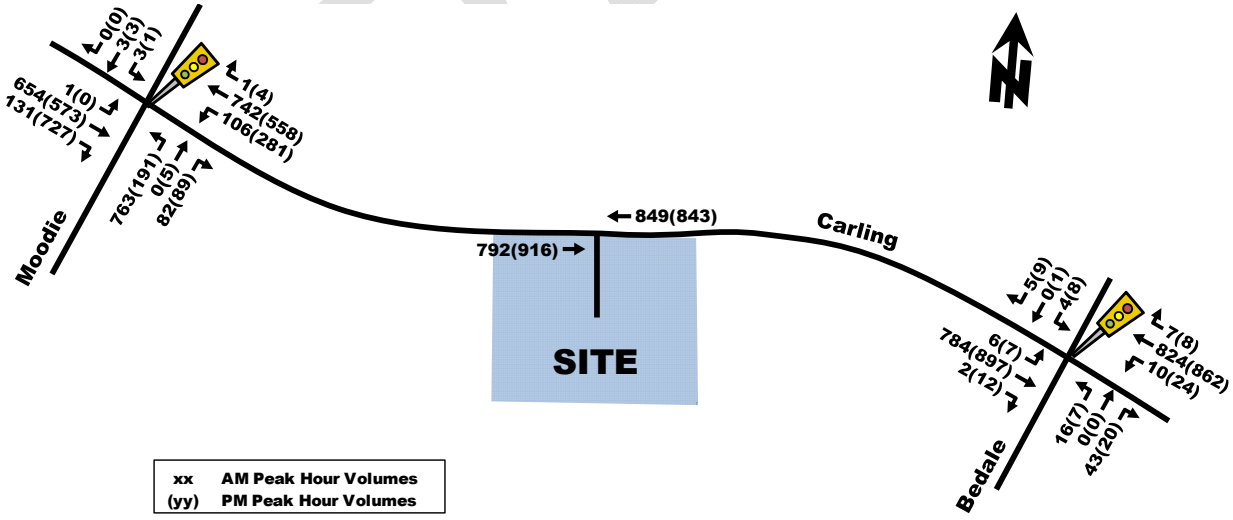
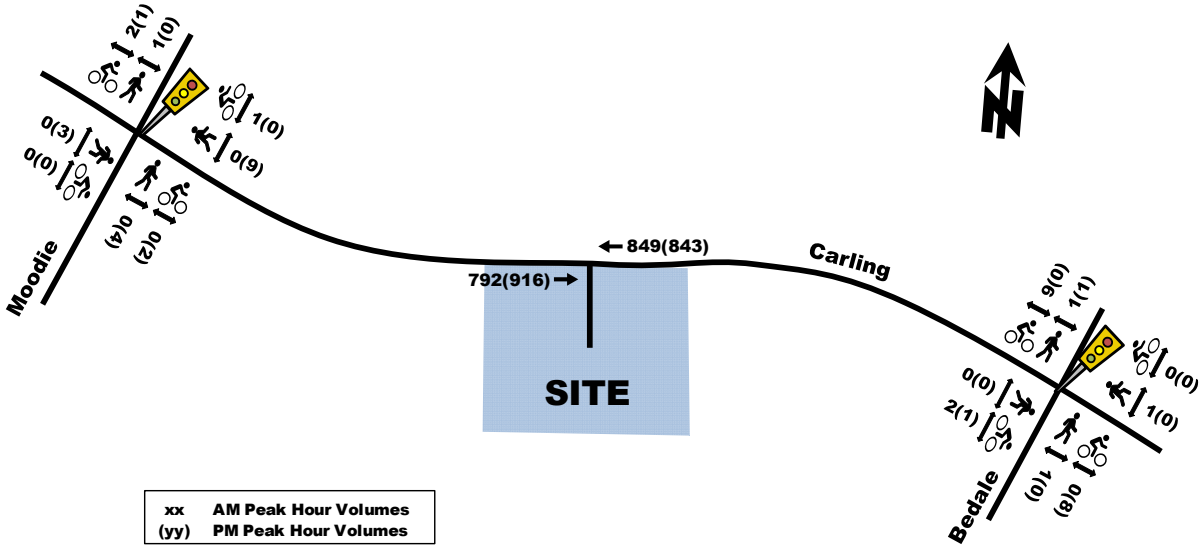


Figure 8: Existing Peak Hour Pedestrian and Cyclist Volumes




## Existing Road Safety Conditions

A five-year collision history data (2015-2019, inclusive) was requested and obtained from the City of Ottawa for all intersections and road segments within the study area. Upon analyzing the collision data, the total number of collisions occurring within the study area was determined to be 48 collisions within the past five-years. Of the reported collisions, 1 (2%) resulted in fatal injury, 35 (73%) resulted in property damage and 12 (25%) resulted in non-fatal injury. The types of impact were broken down into the following: 14 (29%) rear-end, 13 (27%) turning movement, 11 (23%) single vehicle (other), 6 (13%) angle, 2 (6%) sideswipe, and 1 (2%) other. It is noted that of the total collisions, 1 collision involved a pedestrian, 1 involved a cyclist, and 5 involved wild animals. These resulted in property damage or non-fatal injuries. The fatal collision occurred at the Carling/Moodie intersection and involved an WBL turning vehicle and EBT vehicle.

To help quantify the relative safety risk at intersections within the study area, an industry standard unit of measure for assessing collisions at an intersection was used based on the number of collisions per million entering vehicles (MEV). An MEV value greater than 1.00 indicates a relatively high frequency of collisions. Furthermore, the City of Ottawa TIA Guidelines identifies more than six collisions of the same nature occurring within a five-year period to be a collision pattern. Reported collisions have historically taken place at a rate of:

- Carling/Bedale: 0.17 collisions/MEV, with a total of 6 collisions occurring within the five-year period. No particular collision pattern is present.
- Carling/Moodie: 0.53 collisions/MEV, with a total of 27 collisions occurring within the five-year period. No particular collision pattern is present. The collisions consisted of 6 rear ends, 12 turning movement, 2 sideswipes, 1 angled, and 6 single vehicle (other) collisions. Of the 12 turning movement collisions, 4 occurred between EBL turning vehicles and WBT vehicles and 8 occurred between WBL turning vehicles and EBT vehicles. There appears to be a collision pattern between the WBL and EBT vehicle movements. This will be further explored in Section 4.3 – Boundary Road Design of the Step 4 Strategy Report. No other collision patterns are present.

With regards to road segments within the study area, the following collision data is identified:

- Carling Avenue between Moodie Drive and Bedale Drive: a total of 15 collisions occurred along this road segment within the past five-years. No particular collision pattern is present.

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

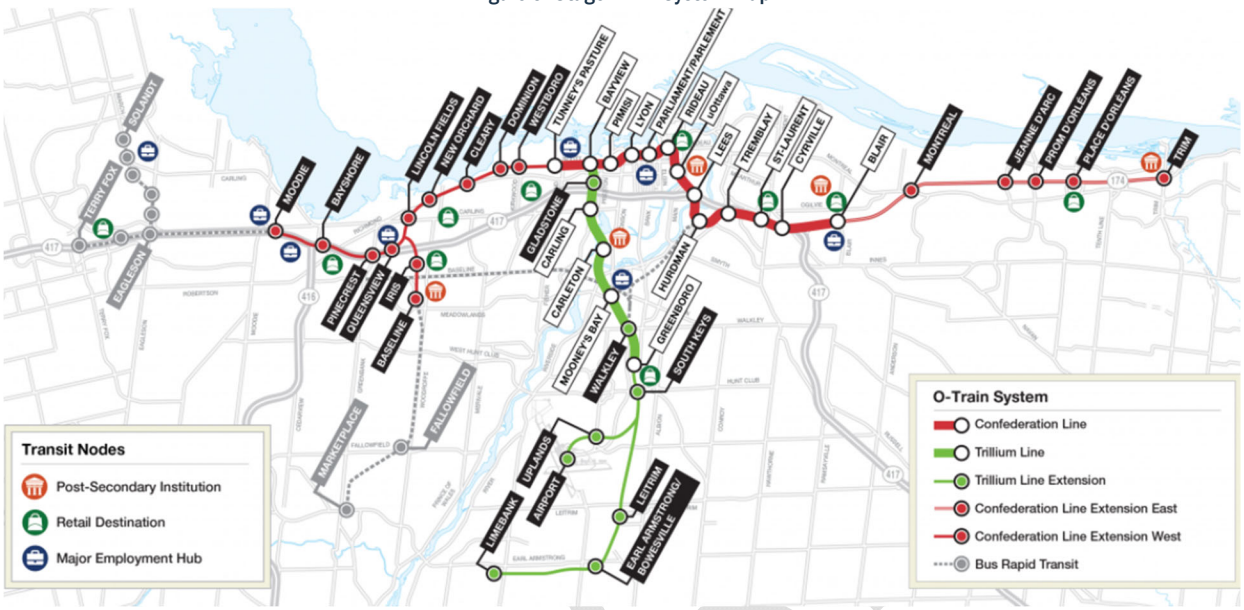
### 2.1.3. Planned Conditions

**Planned Study Area Transportation Network Changes**

*LRT Stage 2*

Stage 2 of the City of Ottawa LRT system is currently under construction. Stage 2, as shown in Figure 9, is a combination of three extensions – south, east, and west – totaling 44 km of new rail and 24 new LRT stations. The proposed development site is located approximately 2.4km driving distance of the LRT's Moodie Station.

Figure 9: Stage 2 LRT System Map




**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 is the proximity to the proposed development site and the potential impact to study area intersections. Developments that are either approved or have an active planning application in the City are included below.

#### 1) 3368 Carling Avenue

A Transportation Brief was prepared by Stantec in January 2016, for a residential development consisting of a three-storey apartment building with 15 units and 18 underground parking spaces. The development is not anticipated to generate a significant amount of traffic and impact study area intersections and as such, will not be included in the traffic analysis.

## 2.2. Study Area and Time Periods

Full buildout of the proposed residential development is assumed to be 2022. As such, the horizon years being analyzed in this report are 2022 and 2027 (five years after full buildout) horizon years, using the weekday morning and afternoon peak hour time periods.

Proposed study area intersections and boundary roads are outlined below and highlighted in Figure 10.

Figure 10: Study Area Intersections


- Carling/Moodie (signalized)
- Carling/Bedale (signalized)
- Carling Avenue adjacent to the site

## 2.3. Exemption Review

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

Table 1: Exemptions Review Summary

| Module | Element | Exemption Consideration |
|---|---|---|
| 4.1 – 4.4 Design Review Component | All elements | Not required for applications involving ZBLA or OPA. However, a brief description may be provided. |
| 4.8 Network Concept | 4.8 Network Concept | Only required if proposed development is anticipated to generate more than 200 person-trips over the permitted zoning |

# 3. Forecasting Report

## 3.1. Development Generated Travel Demand

### 3.1.1. Trip Generation and mode shares

The proposed development will consist of 216 residential units within a 9-storey high-rise apartment building. The appropriate trip generation rates for a high-rise apartment land use were obtained from the 2020 TRANS Trip Generation Manual. Table 3 in the Manual provides person-trip rates during the peak AM and PM periods (7am-9:30am and 3:30PM-6PM). The trip rates are summarized in Table 2 below.

Table 2: Trip Generation Trip Rates

| Land Use | Data Source | Trip Rates | |
|---|---|---|---|
| | | AM Peak Period (7-9:30am) | PM Peak Period (3:30-6pm) |
| High-Rise Apartments (9 floors) | TRANS 2020 | T = 0.8(du); | T = 0.9(du); |
| *Notes:* *T = Average Vehicle Trip Ends* *du = Dwelling unit* | | | |

Using the trip rates provided in Table 2, the total number of person trips generated during the morning and afternoon peak periods can be found in Table 3.

Table 3: Apartment Units Peak Period Person Trip Generation

| Land Use | Dwelling Units | AM Peak Period Person Trips | PM Peak Period Person Trips |
|---|---|---|---|
| High-Rise Apartments (9 floors) | 216 | 173 | 194 |

The proposed development is anticipated to generate 200 and 225 person trips during the morning and afternoon peak periods, respectively. The total peak period person trips in Table 3 are then divided into different travel modes, as shown in Table 4, using mode share percentages obtained from the 2020 TRANS Manual.

Table 4: Peak Period Trips Mode Shares Breakdown

| Travel Mode | Mode Share | AM Peak Period Person Trip | Mode Share | PM Peak Period Person Trips |
|---|---|---|---|---|
| Auto Driver | 45% | 78 | 47% | 91 |
| Auto Passenger | 13% | 22 | 16% | 31 |
| Transit | 31% | 54 | 25% | 49 |
| Cycling | 2% | 3 | 1% | 2 |
| Walking | 9% | 16 | 11% | 21 |
| **Total Person Trips** | **100%** | **173** | **100%** | **194** |

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent a worst-case scenario. In the 2020 TRANS Manual, Table 4 provides conversions rates from peak period to peak hours for different mode shares. The conversion rates are provided in Table 5 below.

Table 5: Peak Period to Peak Hour Conversion Factors (2020 TRANS Manual)

| Travel Mode | Peak Period to Peak Hour Conversion Factors | |
|---|---|---|
| | AM | PM |
| Auto Driver | 0.48 | 0.44 |
| Passenger | 0.31 | 0.29 |
| Transit | 0.55 | 0.47 |
| Bike | 0.58 | 0.48 |
| Walk | 0.58 | 0.52 |

Note that conversion factors for auto passenger trips are not available in the 2020 TRANS Manual. To obtain the passenger trip factor it is assumed that the total person trip peak hour conversion factor is the average of the provided adjustment factors minus the passenger trip peak hour conversion factor and has been calculated as shown in the example below:

$$0.5 = \frac{x + 0.48 + 0.55 + 0.58 + 0.58}{5}$$

$$x = 2.5 - 0.48 - 0.55 - 0.58 - 0.58$$

$$x = 0.31 \rightarrow AM\ passenger\ trip\ peak\ hour\ conversion\ factor$$

Using the conversion rates in Table 5 and the peak period person trips for different travel modes in Table 4, the peak hour trips for different travel modes can be calculated as shown in Table 6. Inbound and outbound percentages were obtained from Table 9 of the 2020 TRANS Manual.

Table 6: Peak Hour Travel Mode Trips

| Travel Mode | AM Peak (Person Trips/h) | | | PM Peak (Person Trips/h) | | |
|---|---|---|---|---|---|---|
| | In (31%) | Out (69%) | Total | In (58%) | Out (42%) | Total |
| Auto Driver | 11 | 26 | 37 | 23 | 17 | 40 |
| Passenger | 2 | 5 | 7 | 5 | 4 | 9 |
| Transit | 9 | 21 | 30 | 13 | 10 | 23 |
| Bike | 1 | 1 | 2 | 1 | 0 | 1 |
| Walk | 3 | 6 | 9 | 6 | 5 | 11 |
| Total Person Trips | 26 | 59 | 85 | 48 | 36 | 84 |
| **Total "New" Vehicle Trips** | **11** | **26** | **37** | **23** | **17** | **40** |

As shown in Table 6, the total person trips anticipated to be generated by the proposed development are approximately 85 trips during both the morning and afternoon peak hours. Vehicle trips are anticipated to be approximately 40 veh/h during both the morning and afternoon peak hours. Approximately 25 to 35 new transit trips and approximately 10 new active mode trips are anticipated.

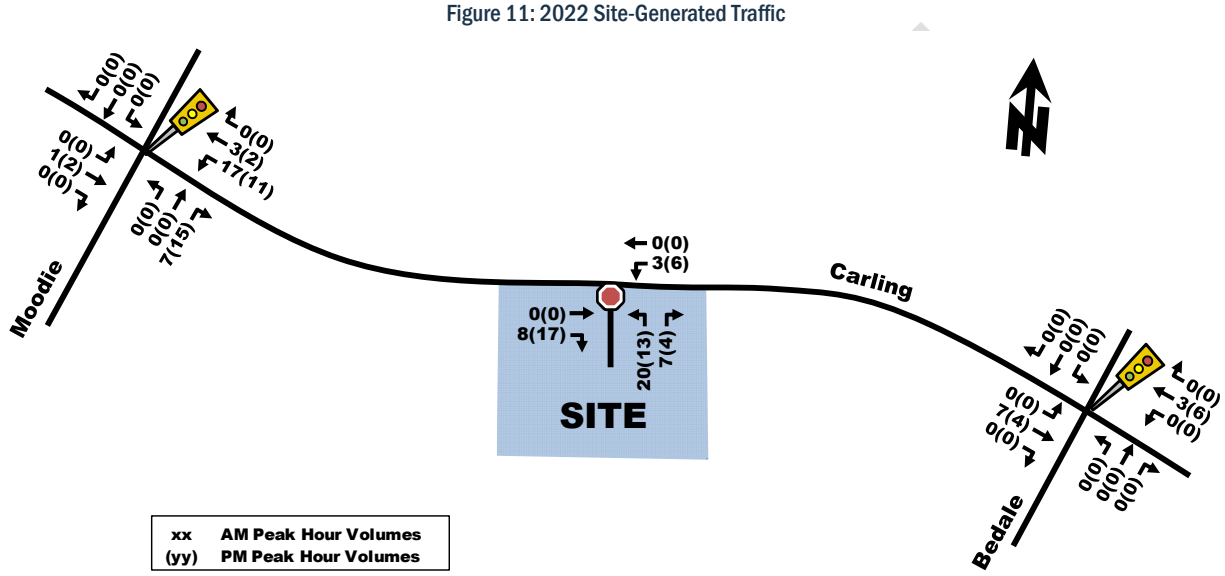
### 3.1.2. Trip Distribution and 3.1.2 Trip Assignment

Based on the 2011 OD Survey (Ottawa Inner Area district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 10% to/from the west, via Carling Avenue;
- 25% to/from the east, via Carling Avenue; and,
- 65% to/from the south, via Moodie Drive and HWY-417.

The anticipated site-generated auto trips for the proposed development from Table 6 were then assigned to the road networks as shown in Figure 11.

Figure 11: 2022 Site-Generated Traffic




## 3.2. Background Network Traffic

### 3.2.1. Transportation network plans

Refer to Section 2.1.3: Planned Study Area Transportation Network Changes.

### 3.2.2. Background Growth

Given that the proposed development will be located along the well-developed Carling Avenue and adjacent to the NCC Greenbelt, traffic along study area roadways is not anticipated to increase drastically within the future horizon years. Nonetheless, a background growth rate of 1% has been applied to the Carling Avenue to account for trips that may be generated by future other area developments that are minor or located outside the scope of the study area. Figure 12 provides the future background traffic in 2022 and Figure 13 provides the future background traffic in 2027.

Figure 12: Future Background 2022 Traffic Volumes

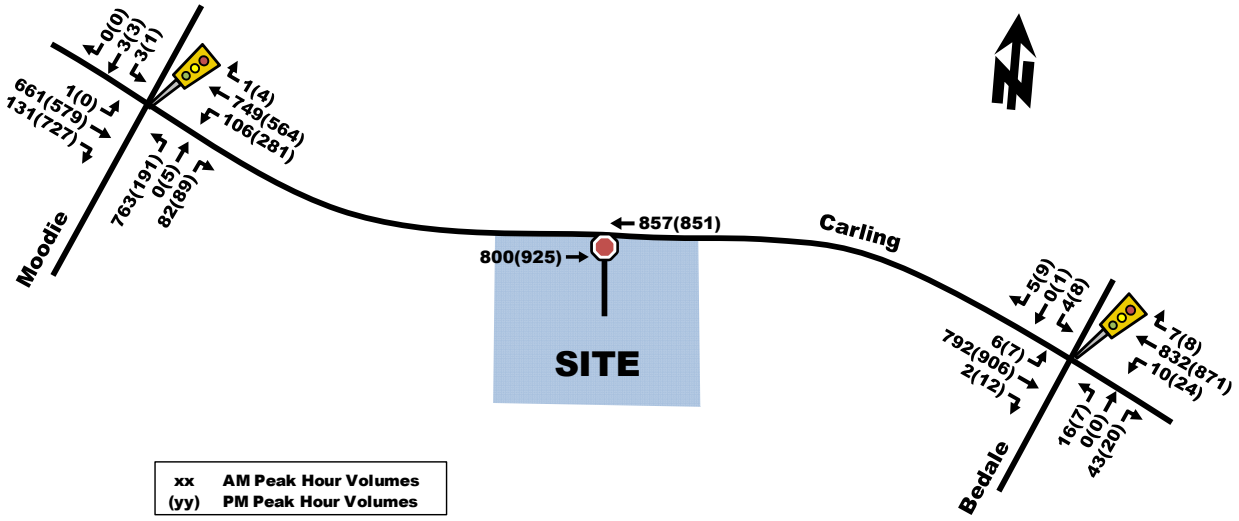
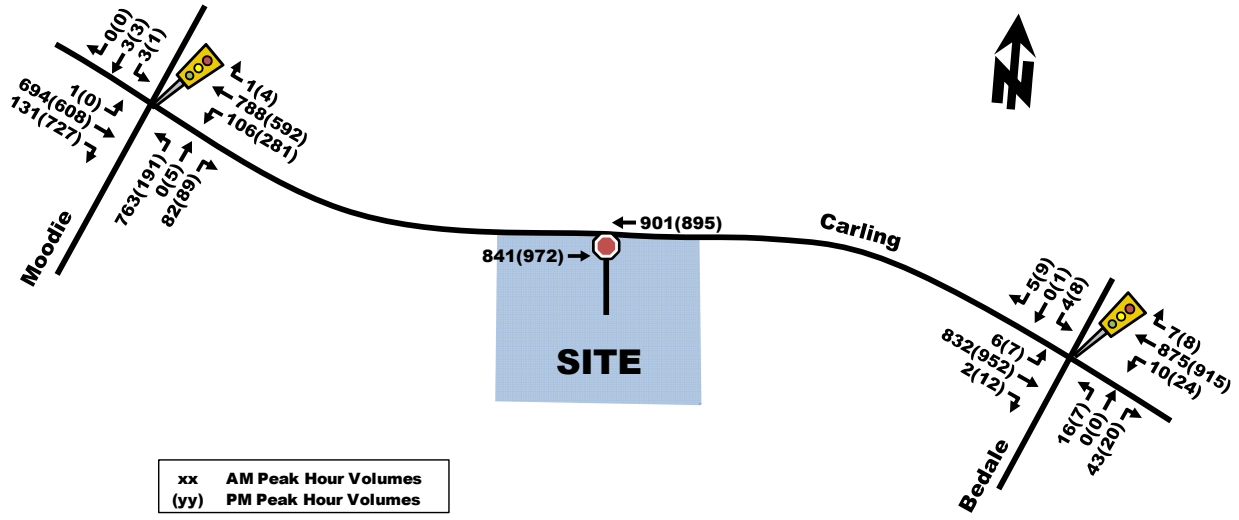



Figure 13: Future Background 2027 Traffic Volumes




### 3.2.3. Other Developments

Description of other area developments taking place within the study area was provided in Section 2.1.3: Other Area Developments. As mentioned previously, this development is not expected to generate significant traffic and as such, will not be included in background traffic.

## 3.3. Demand Rationalization

The total projected future traffic volumes can be determined by superimposing the site-generated traffic volumes in Figure 11, onto the total future background traffic volumes in Figure 12 and Figure 13, resulting in the total projected traffic volumes 2022 and 2027 illustrated in Figure 14 and Figure 15.

Since this site is anticipated to generate few vehicle trips during the morning and afternoon peak hours (i.e., approximately 45 two-way trips per peak hour or on averages of less than 1 vehicle a minute) it is anticipated that the additioplnal trips will have little impact on the vehicle operations along the study area intersections. Further analysis will be provided as part of Step 4 Strategy Report.

Figure 14: Total Projected 2022 Traffic Volumes

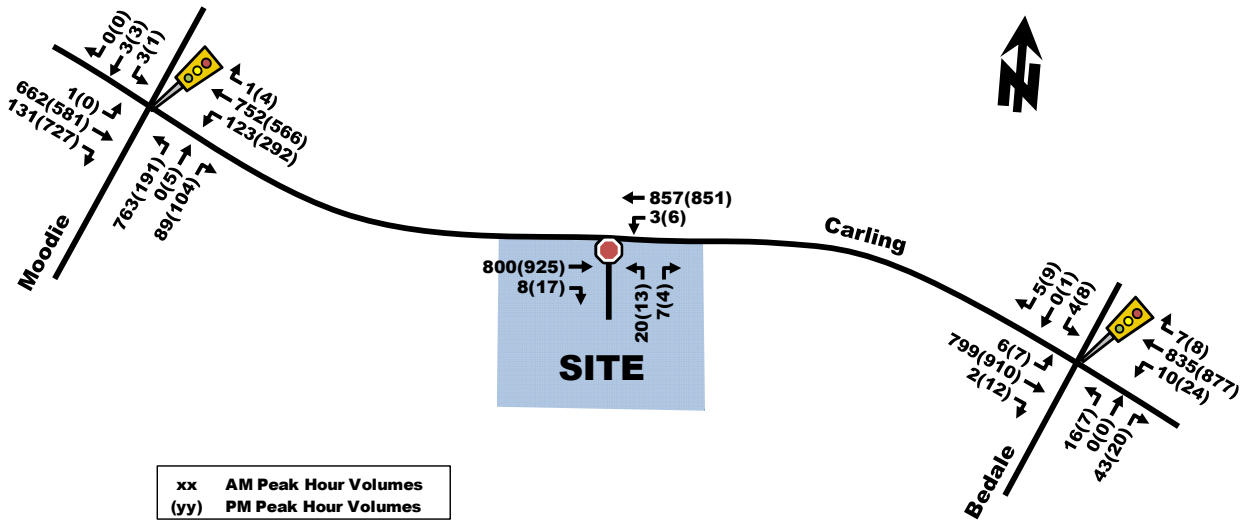
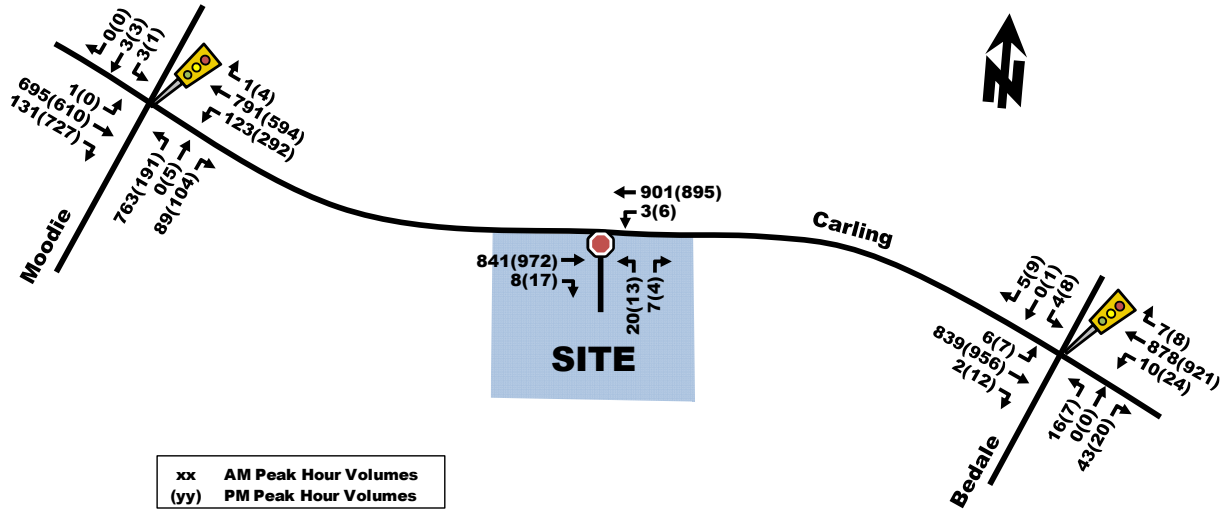



Figure 15: Total Projected 2027 Traffic Volumes




# 4. Analysis

## 4.1. Development Design

Exempt – see Section 2.3 Exemption Review.

## 4.2. Parking

Exempt – see Section 2.3 Exemption Review.
Currently 266 vehicle parking spaces are proposed, 12 spaces provided in a surface parking lot and 254 spaces provided in a two-level underground parking garage.

By-law requirements for vehicle and bicycle parking spaces will be confirmed in the subsequent Site Plan Application.

## 4.3. Boundary Street Design

Exempt – see Section 2.3 Exemption Review.

The detailed Multi-Modal Level of Service (MMLOS) analysis for boundary streets and signalized intersections will be provided in the future Site Plan Application.

## 4.4. Access Intersection Design

Exempt – see Section 2.3 Exemption Review.

## 4.5. Transportation Demand Management

### 4.5.1. Context for TDM

Based on the type of development, it is assumed that most trips generated by the proposed site will be residents leaving the site in the AM peak to go to work and returning from work to the proposed site in the PM peak. Sections 3.1.1 and 3.1.2 describe how many trips are anticipated per travel mode and anticipates the likely locations that they will travel to and from based on the OD-Survey 2011 for Ottawa. The site is not located in a Transit-Oriented Development (TOD) zone or the "Downtown Ottawa Urban Design Strategy" Design Priority Area (DPA) according to the Official Plan.

### 4.5.2. Need and Opportunity

The proposed development is located in a well-developed suburb area of the City of Ottawa, where transit and active transportation facilities, such as the bike tracks and the sidewalks, are well-maintained and developed. However, the distance from the City core and employment areas naturally results in higher auto mode shares. For this reason, a program of post-occupancy TDM measures is not likely in decrease auto mode shares significantly.

### 4.5.3. TDM Program

The TDM Infrastructure and TDM Measures Checklists have been provided in Appendix D. The proposed measures for each respective checklist are provided below.

<u>Proposed measures identified in the TDM Measures Checklist are:</u>

- Nothing has been checked as of the submission of this report.

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

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

- 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
- 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
- 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

## 4.6. Neighbourhood Traffic Management

As the site uses an arterial roadway (Carling Avenue) for access, this section is exempt.

## 4.7. Transit

Transit facilities are anticipated to continue operating in the future as mentioned in Section 2.1.2: Transit Network. The proposed development is anticipated to generate 34 and 24 two-way transit trips during the morning and afternoon peak hours respectively. As such, the proposed development will have little impact to the surrounding transit network.

## 4.8. Review of Network Concept

Exempt – see Section 2.3 Exemption Review.

## 4.9. Intersection Design

### 4.9.1. Intersection control

The site accesses to the surface and underground parking garage are assumed to use Stop control for vehicles exiting.

### 4.9.2. Intersection design

Synchro 10 Trafficware was used to analyze intersection performance of intersections within the study area. Critical movements at each of the intersections were assessed based on either the movement with the highest volume-to-capacity ratio (for signalized intersections), or the movement experiencing the highest average delay (for unsignalized intersections). It should be noted that, as per the TIA Guidelines, the Peak Hour Factor (PHF) used for analysis was 0.95 in existing conditions and 1.0 in all future scenario conditions. All Synchro report outputs for existing and future conditions have been provided in Appendix E.

**Existing Conditions**

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

Table 7: Existing Conditions Intersection Performance

| Intersection | Weekday AM Peak (PM Peak) | | | | | |
|---|---|---|---|---|---|---|
| | Critical Movement | | | Intersection 'As a Whole' | | |
| | LOS | max. v/c or avg. delay (s) | Movement | Delay (s) | LOS | v/c |
| Moodie/Carling (S) | F(C) | 1.09(0.75) | NBT(NBT) | 56.2(13.7) | E(B) | 0.95(0.69) |
| Bedale/Carling (S) | A(A) | 0.33(0.33) | WBT(EBT) | 5.5(4.7) | A(A) | 0.32(0.31) |

Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.
(S) – Signalized intersection, critical movement based on max v/c
(U) – Unsignalized Intersection, critical movement based on highest average delay

As shown in Table 7, signalized intersections 'as a whole' operate at a LOS 'B' or better during both peak hours, within City standards of LoS 'D' (v/c < 0.91). The exception is the Moodie/Carling intersection which operates at LoS 'E' during the morning peak hour. The critical movements operate at LOS 'C' or better with the exception of the NBT at the Moodie/Carling intersection where it operates at capacity with an LoS 'F'.

## Total Future Background 2022

Table 8 below summarizes the Synchro traffic operations at study area intersections, based on the total future background 2022 volumes presented in Figure 12.

Table 8: Future Background 2022 Intersection Performance

| Intersection | Weekday AM Peak (PM Peak) | | | | | |
|---|---|---|---|---|---|---|
| | Critical Movement | | | Intersection 'As a Whole' | | |
| | LOS | max. v/c or avg. delay (s) | Movement | Delay (s) | LOS | v/c |
| Moodie/Carling (S) | F(C) | 1.03(0.75) | NBT(NBT) | 49.5(13.1) | E(B) | 0.91(0.67) |
| Bedale/Carling (S) | A(A) | 0.31(0.31) | WBT(EBT) | 5.4(4.6) | A(A) | 0.30(0.29) |
| Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.<br>(S) – Signalized intersection, critical movement based on max v/c<br>(U) – Unsignalized Intersection, critical movement based on highest average delay | | | | | | |

As shown in Table 8, study area intersections are projected to operate similar or slightly better than existing conditions due to increasing the PHF to 1.0.

## Total Future Background 2027

Table 9 below summarizes the Synchro traffic operations at study area intersections, based on future background 2027 traffic volumes in Figure 13.

Table 9: Total Future Background 2027 Intersection Performance

| Intersection | Weekday AM Peak (PM Peak) | | | | | |
|---|---|---|---|---|---|---|
| | Critical Movement | | | Intersection 'As a Whole' | | |
| | LOS | max. v/c or avg. delay (s) | Movement | Delay (s) | LOS | v/c |
| Moodie/Carling (S) | F(C) | 1.04(0.75) | NBT(NBT) | 50.9(13.2) | E(B) | 0.92(0.67) |
| Bedale/Carling (S) | A(A) | 0.33(0.33) | WBT(EBT) | 5.5(4.7) | A(A) | 0.32(0.31) |
| Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.<br>(S) – Signalized intersection, critical movement based on max v/c<br>(U) – Unsignalized Intersection, critical movement based on highest average delay | | | | | | |

As indicated by Table 9, traffic operations are anticipated to be similar to the total future background 2022 traffic operations, with slightly higher delays and v/c ratios.

## Total Projected 2022

Based on total projected 2022 traffic volumes in Figure 14, study area intersections were analyzed using Synchro, with results summarized in Table 10 below.

Table 10: Total Projected 2022 Intersection Performance

| Intersection | Weekday AM Peak (PM Peak) | | | | | |
|---|---|---|---|---|---|---|
| | Critical Movement | | | Intersection 'As a Whole' | | |
| | LOS | max. v/c or avg. delay (s) | Movement | Delay (s) | LOS | v/c |
| Moodie/Carling (S) | F(C) | 1.03(0.75) | NBT(NBT) | 49.7(13.2) | E(B) | 0.91(0.67) |
| Bedale/Carling (S) | A(A) | 0.31(0.32) | WBT(EBT) | 5.4(4.6) | A(A) | 0.30(0.30) |
| Site Access/Carling (U) | D(D) | 27.7(32.6) | NB(NB) | 0.4(0.3) | A(A) | - |
| Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.<br>(S) – Signalized intersection, critical movement based on max v/c<br>(U) – Unsignalized Intersection, critical movement based on highest average delay | | | | | | |

As indicated by Table 10, traffic operations are anticipated to be similar to the total future background 2022 traffic operations, with slightly higher delays and v/c ratios. The unsignalized site access is projected to operate at an LoS 'A' with critical movements projected to operate at LoS 'D'.

### Total Projected 2027

Based on total projected 2027 traffic volumes in Figure 15, study are intersections were analyzed using Synchro, with results summarized in Table 11 below.

Table 11: Total Projected 2027 Intersection Performance

| Intersection | Weekday AM Peak (PM Peak) | | | | | |
|---|---|---|---|---|---|---|
| | Critical Movement | | | Intersection 'As a Whole' | | |
| | LOS | max. v/c or avg. delay (s) | Movement | Delay (s) | LOS | v/c |
| Moodie/Carling (S) | F(C) | 1.04(0.75) | NBT(NBT) | 51.1(13.3) | E(B) | 0.93(0.67) |
| Bedale/Carling (S) | A(A) | 0.33(0.33) | WBT(EBT) | 5.5(4.7) | A(A) | 0.32(0.31) |
| Site Access/Carling (U) | D(E) | 30.4(36.5) | NB(NB) | 0.5(0.4) | A(A) | - |
| Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.<br>(S) – Signalized intersection, critical movement based on max v/c<br>(U) – Unsignalized Intersection, critical movement based on highest average delay | | | | | | |

As indicated by Table 11, traffic operations are anticipated to be similar to the total future background 2027 traffic operations, with slightly higher delays and v/c ratios.

## 5. Findings, Conclusions and Recommendations

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

### Proposed Development

- The proposed development will be located at 3430 Carling Avenue.
- The development will consist of a high-rise residential building with 216 apartment units, constructed in a single phase by 2022.
- Access will be provided via a single driveway access located on Carling Avenue.
- Parking will be provided in a surface and underground parking lot. Currently 266 vehicle parking spaces are proposed, 12 spaces provided in a surface parking lot and 254 spaces provided in a two-level underground parking garage. Vehicle and bicycle parking numbers will be confirmed in the Site Plan Application.
- At full buildout in 2022, the development is anticipated to generate a total of 85 person trips during both peak hours. Vehicle trips are anticipated to be 40 veh/h during peak hours. Transit trips are anticipated to be 30 and 23 trips during the morning and afternoon peak hours respectively. Active transportation modes (bike and walk) are anticipated to generate 11 trips during the morning and afternoon peak hours.

### Existing and Background Conditions

- In existing conditions, intersections 'as a whole' operate at a LOS 'B' or better during both peak hours, within City standards. The exception is the Moodie/Carling intersection which operates at LoS 'E' during the morning peak hour. Critical movement operate at LOS 'C' or better with the exception of the NBT at the Moodie/Carling intersection which operates at an LoS 'F'.
- A background growth rate of 1% per year was conservatively applied to study area intersections at horizon years 2022 and 2027.
- As required by the TIA Guidelines, the PHF in future conditions is increased to 1.0, which results in improved or similar traffic operations for total future background 2022 and 2027 compared to existing conditions.

### Projected Conditions

- Total projected 2022 and 2027 traffic operations are similar to their respective future background operations, with slightly higher delays and v/c ratios.

In summary, the proposed development will have little impact on the surrounding road network and transit facilities and is recommended to proceed from a transportation perspective.

# APPENDIX A

SCREENING FORM

PARSONS

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

City of Ottawa 2017 TIA Guidelines

# TIA Screening Form

| | |
|---|---|
| Date | 8-Feb-21 |
| Project | 3430 Carling Avenue |
| Project Number | 908979 10052 |

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

| Module 1.1 - Description of Proposed Development | |
|---|---|
| Municipal Address | 3430 Carling Ave. |
| Description of location | Property currently occupied by a single storey building (restaurant) and surface parking |
| Land Use | GM 20 (H 18.5) |
| Development Size | 250 Residential units, 9-Storeys |
| Number of Accesses and Locations | 2 driveway (assumed) |
| Development Phasing | 1 phase (assumed) |
| Buildout Year | 2022 |
| Sketch Plan / Site Plan | See attached |

| Module 1.2 - Trip Generation Trigger | | |
|---|---|---|
| Land Use Type | Townhomes or Apartments | |
| Development Size | 250 | Units |
| Trip Generation Trigger Met? | Yes | |

| Module 1.3 - Location Triggers | |
|---|---|
| Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3) | No |
| Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3) | No |
| Location Trigger Met? | No |

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

# APPENDIX B

TRAFFIC COUNT DATA

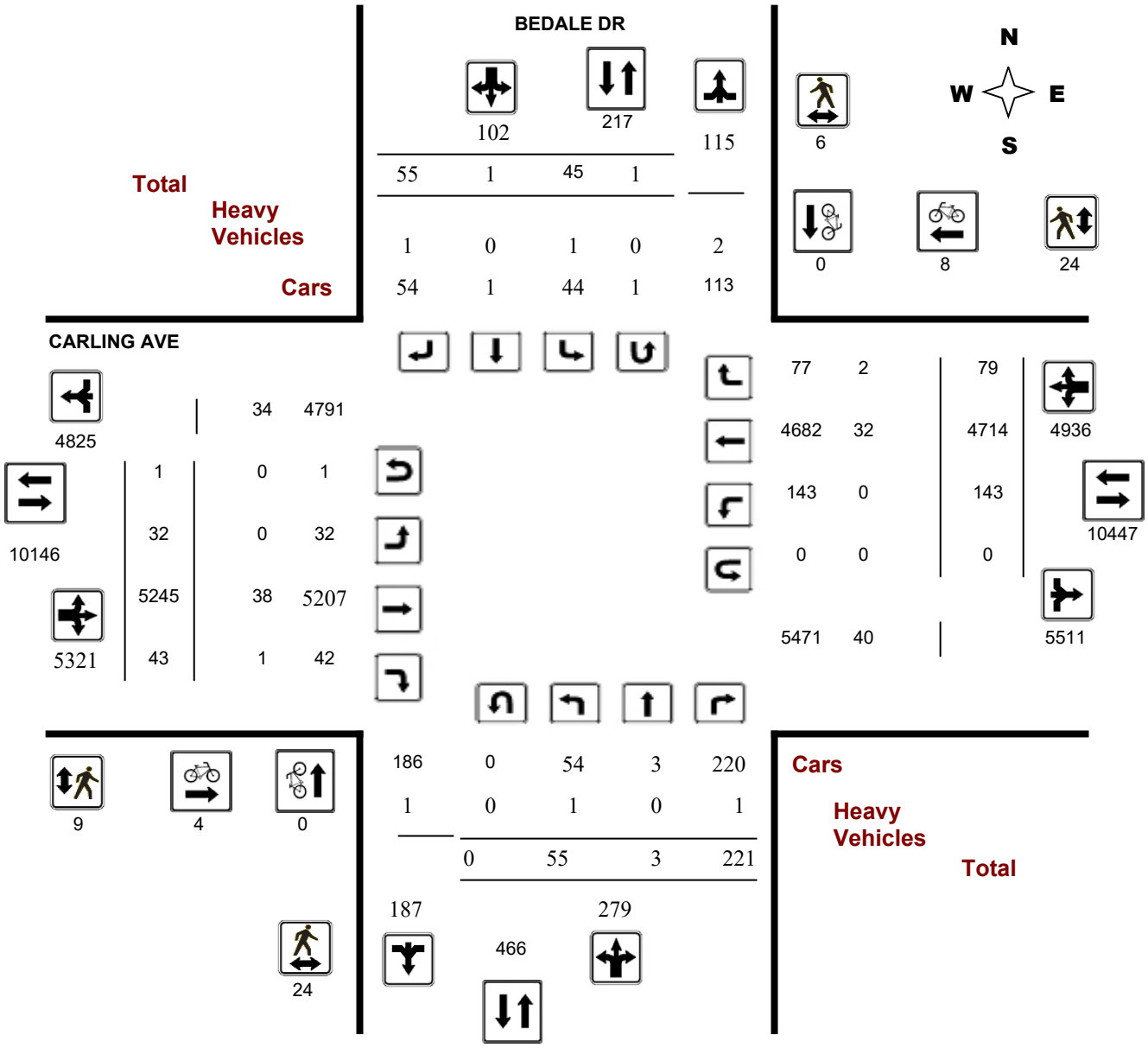
# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018
**Start Time:** 07:00
**WO No:** 37586
**Device:** Miovision

### Full Study Diagram



# Transportation Services - Traffic Services

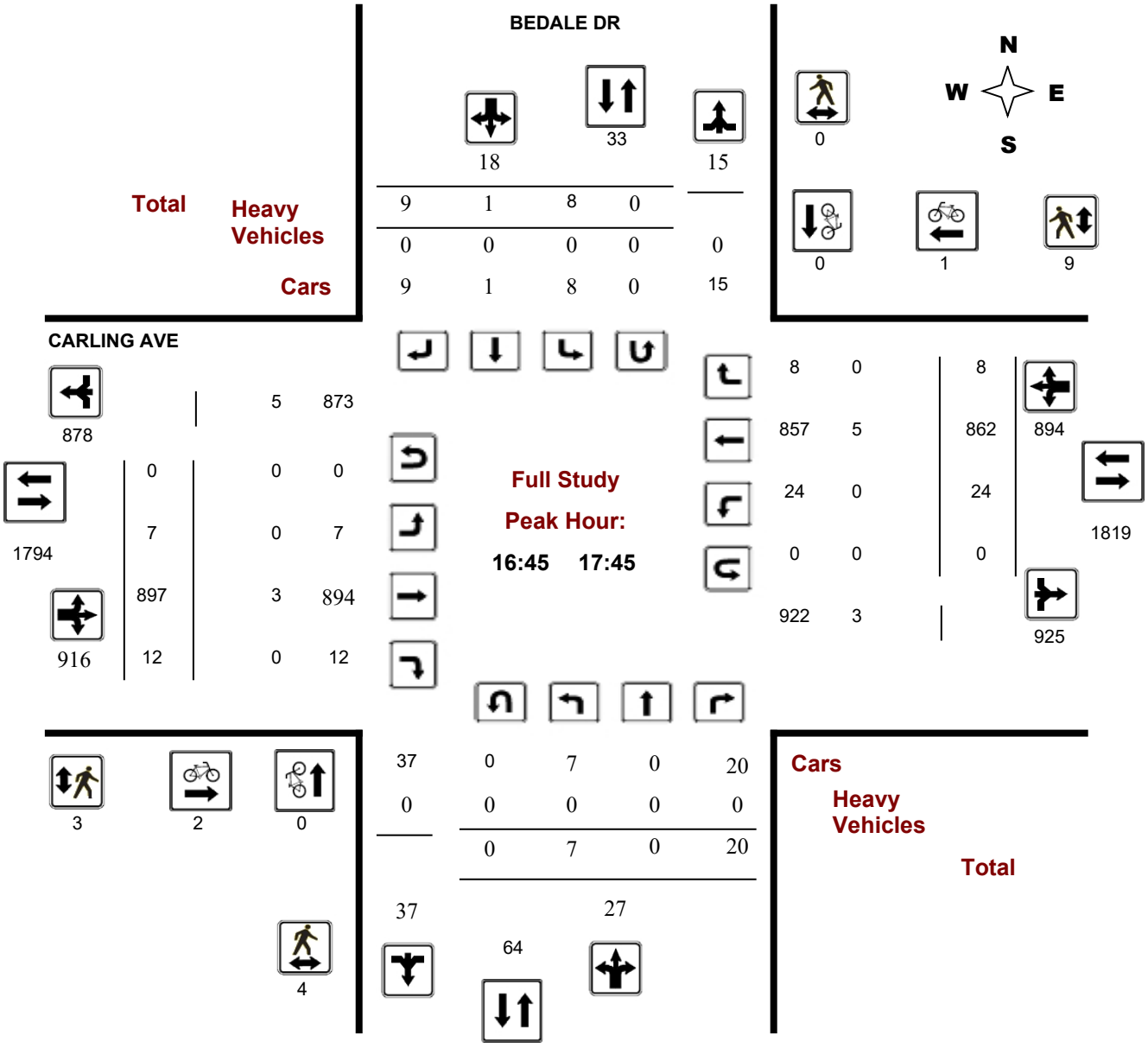
## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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

### Full Study Peak Hour Diagram



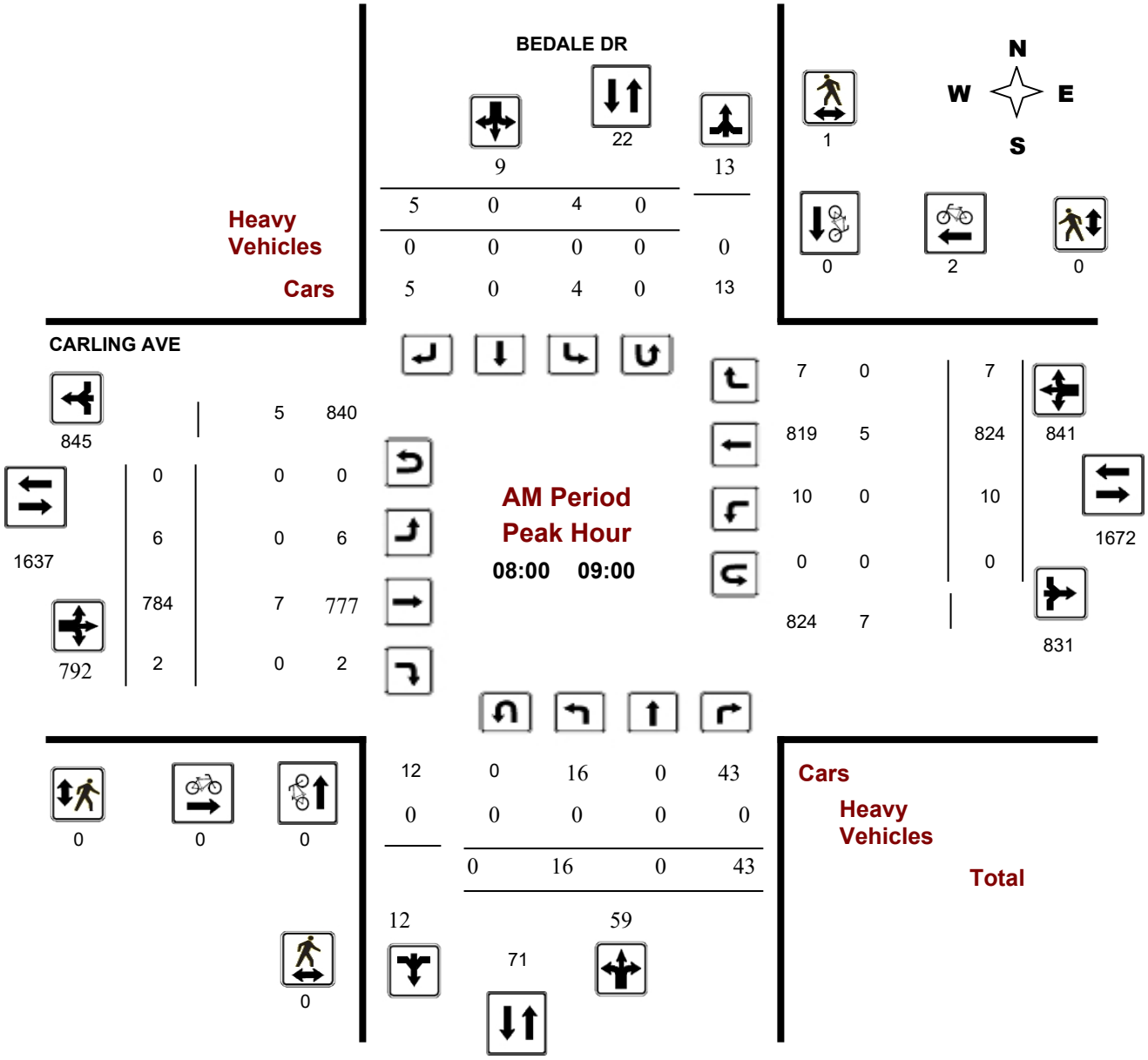
# Transportation Services - Traffic Services

## Turning Movement Count - Peak Hour Diagram

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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




**Comments**

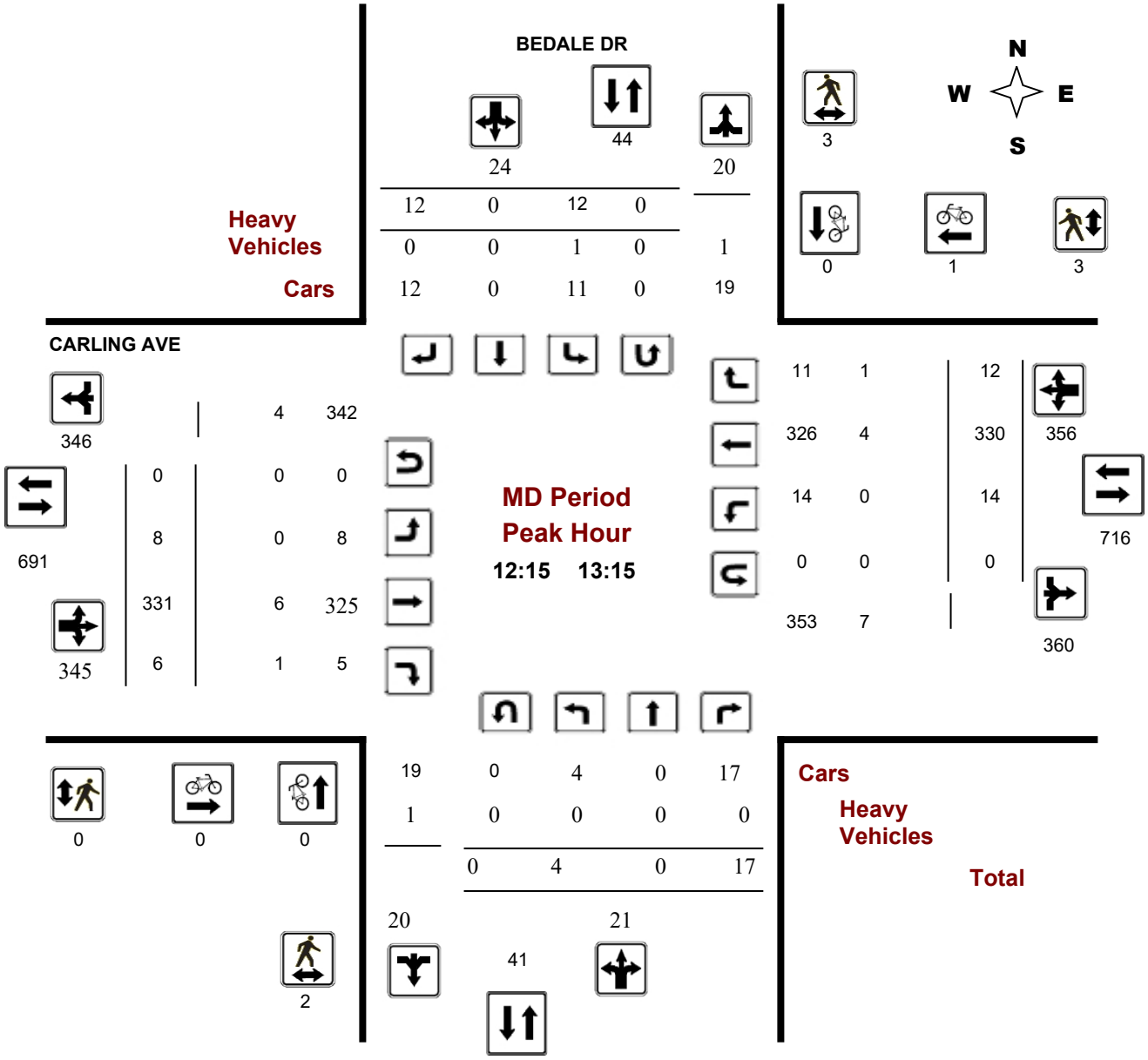
# Transportation Services - Traffic Services

## Turning Movement Count - Peak Hour Diagram

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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




**Comments**

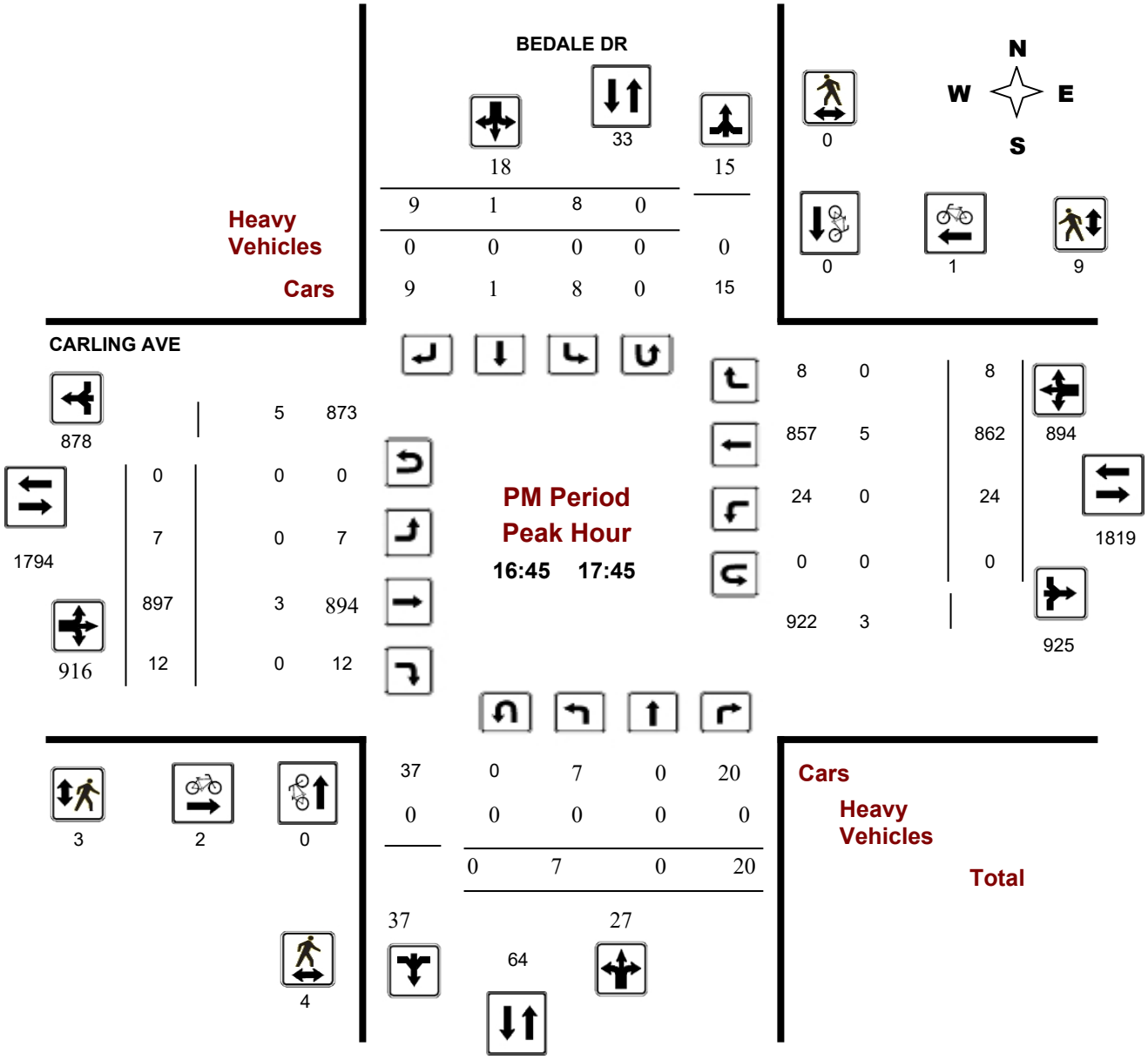
# Transportation Services - Traffic Services

## Turning Movement Count - Peak Hour Diagram

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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




**Comments**

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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

## Full Study Summary (8 HR Standard)

**Survey Date:** Wednesday, February 28, 2018

**Total Observed U-Turns**

Northbound: 0 Southbound: 1

Eastbound: 1 Westbound: 0

**AADT Factor**

1.00

| | BEDALE DR | | | | | | | | CARLING AVE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | | |
| Period | LT | ST | RT | NB TOT | LT | ST | RT | SB TOT | STR TOT | LT | ST | RT | EB TOT | LT | ST | RT | WB TOT | STR TOT | Grand Total |
| 07:00 08:00 | 3 | 0 | 41 | **44** | 0 | 0 | 2 | **2** | **46** | 0 | 1102 | 1 | **1103** | 2 | 495 | 2 | **499** | **1602** | **1648** |
| 08:00 09:00 | 16 | 0 | 43 | **59** | 4 | 0 | 5 | **9** | **68** | 6 | 784 | 2 | **792** | 10 | 824 | 7 | **841** | **1633** | **1701** |
| 09:00 10:00 | 9 | 0 | 39 | **48** | 3 | 0 | 5 | **8** | **56** | 3 | 457 | 3 | **463** | 9 | 505 | 10 | **524** | **987** | **1043** |
| 11:30 12:30 | 4 | 3 | 22 | **29** | 6 | 0 | 3 | **9** | **38** | 4 | 333 | 4 | **341** | 25 | 281 | 13 | **319** | **660** | **698** |
| 12:30 13:30 | 4 | 0 | 19 | **23** | 13 | 0 | 14 | **27** | **50** | 6 | 307 | 8 | **321** | 13 | 323 | 16 | **352** | **673** | **723** |
| 15:00 16:00 | 9 | 0 | 21 | **30** | 9 | 0 | 8 | **17** | **47** | 3 | 588 | 6 | **597** | 30 | 684 | 12 | **726** | **1323** | **1370** |
| 16:00 17:00 | 3 | 0 | 13 | **16** | 4 | 1 | 7 | **12** | **28** | 3 | 841 | 3 | **847** | 29 | 801 | 10 | **840** | **1687** | **1715** |
| 17:00 18:00 | 7 | 0 | 23 | **30** | 6 | 0 | 11 | **17** | **47** | 7 | 833 | 16 | **856** | 25 | 801 | 9 | **835** | **1691** | **1738** |
| **Sub Total** | 55 | 3 | 221 | **279** | 45 | 1 | 55 | **101** | **380** | 32 | 5245 | 43 | **5320** | 143 | 4714 | 79 | **4936** | **10256** | **10636** |
| **U Turns** | 0 | | | **0** | 1 | | | **1** | **1** | **1** | | | **1** | 0 | | | **0** | **1** | **2** |
| **Total** | 55 | 3 | 221 | **279** | 46 | 1 | 55 | **102** | **381** | 33 | 5245 | 43 | **5321** | 143 | 4714 | 79 | **4936** | **10257** | **10638** |
| **EQ 12Hr** | 76 | 4 | 307 | **387** | 64 | 1 | 76 | **141** | **528** | 46 | 7291 | 60 | **7397** | 199 | 6552 | 110 | **6861** | **14258** | **14786** |
| Note: These values are calculated by multiplying the totals by the appropriate expansion factor. | | | | | | | | | | | | | | **1.39** | | | | | |
| **AVG 12Hr** | 76 | 4 | 307 | **387** | 64 | 1 | 76 | **141** | **528** | 46 | 7291 | 60 | **7397** | 199 | 6552 | 110 | **6861** | **14258** | **14786** |
| Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. | | | | | | | | | | | | | | **1.00** | | | | | |
| **AVG 24Hr** | 100 | 5 | 402 | **507** | 84 | 1 | 100 | **185** | **692** | 60 | 9551 | 79 | **9690** | 261 | 8583 | 144 | **8988** | **18678** | **19370** |
| Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. | | | | | | | | | | | | | | **1.31** | | | | | |

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

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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

### Full Study 15 Minute Increments

| | | BEDALE DR | | | | | | | | | CARLING AVE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Northbound | | | | Southbound | | | | | Eastbound | | | | Westbound | | | | | |
| Time Period | | LT | ST | RT | N TOT | LT | ST | RT | S TOT | STR TOT | LT | ST | RT | E TOT | LT | ST | RT | W TOT | STR TOT | Grand Total |
| 07:00 | 07:15 | 1 | 0 | 15 | 16 | 0 | 0 | 0 | 0 | **16** | 0 | 284 | 0 | 284 | 0 | 99 | 0 | 99 | **383** | **399** |
| 07:15 | 07:30 | 2 | 0 | 7 | 9 | 0 | 0 | 0 | 0 | **9** | 0 | 312 | 0 | 312 | 1 | 111 | 0 | 112 | **424** | **433** |
| 07:30 | 07:45 | 0 | 0 | 10 | 10 | 0 | 0 | 2 | 2 | **12** | 0 | 274 | 1 | 275 | 1 | 125 | 2 | 128 | **403** | **415** |
| 07:45 | 08:00 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 0 | **9** | 0 | 232 | 0 | 232 | 0 | 160 | 0 | 160 | **392** | **401** |
| 08:00 | 08:15 | 5 | 0 | 12 | 17 | 0 | 0 | 0 | 0 | **17** | 1 | 239 | 0 | 240 | 3 | 157 | 1 | 161 | **401** | **418** |
| 08:15 | 08:30 | 2 | 0 | 11 | 13 | 1 | 0 | 1 | 2 | **15** | 0 | 224 | 0 | 224 | 1 | 207 | 1 | 209 | **433** | **448** |
| 08:30 | 08:45 | 5 | 0 | 9 | 14 | 0 | 0 | 1 | 1 | **15** | 1 | 162 | 2 | 165 | 3 | 218 | 3 | 224 | **389** | **404** |
| 08:45 | 09:00 | 4 | 0 | 11 | 15 | 3 | 0 | 3 | 6 | **21** | 4 | 159 | 0 | 163 | 3 | 242 | 2 | 247 | **410** | **431** |
| 09:00 | 09:15 | 1 | 0 | 10 | 11 | 0 | 0 | 2 | 2 | **13** | 2 | 137 | 0 | 139 | 5 | 173 | 3 | 181 | **320** | **333** |
| 09:15 | 09:30 | 3 | 0 | 16 | 19 | 2 | 0 | 1 | 3 | **22** | 0 | 121 | 0 | 121 | 3 | 127 | 1 | 131 | **252** | **274** |
| 09:30 | 09:45 | 2 | 0 | 8 | 10 | 0 | 0 | 1 | 1 | **11** | 2 | 104 | 0 | 106 | 1 | 117 | 0 | 118 | **224** | **235** |
| 09:45 | 10:00 | 3 | 0 | 5 | 8 | 1 | 0 | 1 | 2 | **10** | 0 | 95 | 3 | 98 | 0 | 88 | 6 | 94 | **192** | **202** |
| 11:30 | 11:45 | 1 | 3 | 10 | 14 | 1 | 0 | 0 | 1 | **15** | 0 | 79 | 1 | 80 | 6 | 65 | 1 | 72 | **152** | **167** |
| 11:45 | 12:00 | 0 | 0 | 3 | 3 | 2 | 0 | 0 | 2 | **5** | 1 | 74 | 1 | 76 | 4 | 66 | 5 | 75 | **151** | **156** |
| 12:00 | 12:15 | 1 | 0 | 4 | 5 | 1 | 0 | 1 | 2 | **7** | 1 | 84 | 1 | 86 | 11 | 67 | 6 | 84 | **170** | **177** |
| 12:15 | 12:30 | 2 | 0 | 5 | 7 | 2 | 0 | 2 | 4 | **11** | 2 | 96 | 1 | 99 | 4 | 83 | 1 | 88 | **187** | **198** |
| 12:30 | 12:45 | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 7 | **7** | 2 | 74 | 0 | 76 | 3 | 71 | 3 | 77 | **153** | **160** |
| 12:45 | 13:00 | 1 | 0 | 7 | 8 | 3 | 0 | 1 | 4 | **12** | 0 | 81 | 2 | 83 | 5 | 98 | 7 | 110 | **193** | **205** |
| 13:00 | 13:15 | 1 | 0 | 5 | 6 | 3 | 0 | 6 | 9 | **15** | 4 | 80 | 3 | 87 | 2 | 78 | 1 | 81 | **168** | **183** |
| 13:15 | 13:30 | 2 | 0 | 7 | 9 | 3 | 0 | 4 | 7 | **16** | 0 | 72 | 3 | 75 | 3 | 76 | 5 | 84 | **159** | **175** |
| 15:00 | 15:15 | 1 | 0 | 8 | 9 | 2 | 0 | 3 | 5 | **14** | 2 | 149 | 0 | 151 | 8 | 123 | 2 | 133 | **284** | **298** |
| 15:15 | 15:30 | 6 | 0 | 4 | 10 | 2 | 0 | 3 | 5 | **15** | 1 | 163 | 4 | 168 | 5 | 166 | 4 | 175 | **343** | **358** |
| 15:30 | 15:45 | 1 | 0 | 4 | 5 | 3 | 0 | 1 | 4 | **9** | 0 | 140 | 1 | 141 | 8 | 176 | 5 | 189 | **330** | **339** |
| 15:45 | 16:00 | 1 | 0 | 5 | 6 | 3 | 0 | 1 | 4 | **10** | 0 | 136 | 1 | 137 | 9 | 219 | 1 | 229 | **366** | **376** |
| 16:00 | 16:15 | 1 | 0 | 5 | 6 | 1 | 0 | 3 | 4 | **10** | 2 | 195 | 2 | 199 | 8 | 219 | 3 | 230 | **429** | **439** |
| 16:15 | 16:30 | 2 | 0 | 2 | 4 | 0 | 0 | 2 | 2 | **6** | 0 | 213 | 0 | 213 | 7 | 191 | 2 | 200 | **413** | **419** |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** | 0 | 197 | 0 | 197 | 6 | 162 | 3 | 171 | **368** | **368** |
| 16:45 | 17:00 | 0 | 0 | 6 | 6 | 3 | 1 | 2 | 6 | **12** | 1 | 236 | 1 | 238 | 8 | 229 | 2 | 239 | **477** | **489** |
| 17:00 | 17:15 | 3 | 0 | 1 | 4 | 3 | 0 | 2 | 5 | **9** | 4 | 203 | 2 | 209 | 6 | 217 | 1 | 224 | **433** | **442** |
| 17:15 | 17:30 | 1 | 0 | 7 | 8 | 2 | 0 | 1 | 3 | **11** | 1 | 235 | 5 | 241 | 6 | 241 | 4 | 251 | **492** | **503** |
| 17:30 | 17:45 | 3 | 0 | 6 | 9 | 0 | 0 | 4 | 4 | **13** | 1 | 223 | 4 | 228 | 4 | 175 | 1 | 180 | **408** | **421** |
| 17:45 | 18:00 | 0 | 0 | 9 | 9 | 1 | 0 | 4 | 5 | **14** | 1 | 172 | 5 | 178 | 9 | 168 | 3 | 180 | **358** | **372** |
| Total: | | 55 | 3 | 221 | 279 | 46 | 1 | 55 | 102 | **381** | 33 | 5245 | 43 | 5321 | 143 | 4714 | 79 | 4936 | **381** | **10,638** |

Note: U-Turns are included in Totals.

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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

### Full Study Cyclist Volume

| Time Period | | BEDALE DR | | | CARLING AVE | | | |
|---|---|---|---|---|---|---|---|---|
| | | Northbound | Southbound | Street Total | Eastbound | Westbound | Street Total | Grand Total |
| 07:00 | 07:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 07:15 | 07:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 07:30 | 07:45 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 07:45 | 08:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:00 | 08:15 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 08:15 | 08:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:30 | 08:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:45 | 09:00 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 09:00 | 09:15 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 09:15 | 09:30 | 0 | 0 | **0** | 0 | 2 | **2** | **2** |
| 09:30 | 09:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 09:45 | 10:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 11:30 | 11:45 | 0 | 0 | **0** | 1 | 0 | **1** | **1** |
| 11:45 | 12:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 12:00 | 12:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 12:15 | 12:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 12:30 | 12:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 12:45 | 13:00 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 13:00 | 13:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 13:15 | 13:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:00 | 15:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:15 | 15:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:30 | 15:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:45 | 16:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 16:00 | 16:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 16:15 | 16:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 16:30 | 16:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 16:45 | 17:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 17:00 | 17:15 | 0 | 0 | **0** | 1 | 1 | **2** | **2** |
| 17:15 | 17:30 | 0 | 0 | **0** | 1 | 0 | **1** | **1** |
| 17:30 | 17:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 17:45 | 18:00 | 0 | 0 | **0** | 1 | 0 | **1** | **1** |
| Total | | 0 | 0 | **0** | 4 | 8 | **12** | **12** |

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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

### Full Study Pedestrian Volume

| | BEDALE DR | | | CARLING AVE | | | |
|---|---|---|---|---|---|---|---|
| Time Period | NB Approach (E or W Crossing) | SB Approach (E or W Crossing) | **Total** | EB Approach (N or S Crossing) | WB Approach (N or S Crossing) | **Total** | **Grand Total** |
| 07:00 07:15 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 07:15 07:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 07:30 07:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 07:45 08:00 | 1 | 0 | **1** | 1 | 0 | **1** | **2** |
| 08:00 08:15 | 0 | 1 | **1** | 0 | 0 | **0** | **1** |
| 08:15 08:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:30 08:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:45 09:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 09:00 09:15 | 1 | 0 | **1** | 1 | 0 | **1** | **2** |
| 09:15 09:30 | 2 | 0 | **2** | 0 | 0 | **0** | **2** |
| 09:30 09:45 | 2 | 0 | **2** | 0 | 0 | **0** | **2** |
| 09:45 10:00 | 0 | 0 | **0** | 1 | 0 | **1** | **1** |
| 11:30 11:45 | 1 | 0 | **1** | 0 | 0 | **0** | **1** |
| 11:45 12:00 | 0 | 0 | **0** | 1 | 2 | **3** | **3** |
| 12:00 12:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 12:15 12:30 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 12:30 12:45 | 1 | 1 | **2** | 0 | 0 | **0** | **2** |
| 12:45 13:00 | 0 | 2 | **2** | 0 | 0 | **0** | **2** |
| 13:00 13:15 | 1 | 0 | **1** | 0 | 2 | **2** | **3** |
| 13:15 13:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:00 15:15 | 4 | 0 | **4** | 0 | 1 | **1** | **5** |
| 15:15 15:30 | 1 | 1 | **2** | 0 | 1 | **1** | **3** |
| 15:30 15:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:45 16:00 | 1 | 0 | **1** | 0 | 0 | **0** | **1** |
| 16:00 16:15 | 2 | 1 | **3** | 0 | 3 | **3** | **6** |
| 16:15 16:30 | 1 | 0 | **1** | 1 | 3 | **4** | **5** |
| 16:30 16:45 | 1 | 0 | **1** | 0 | 1 | **1** | **2** |
| 16:45 17:00 | 0 | 0 | **0** | 1 | 3 | **4** | **4** |
| 17:00 17:15 | 1 | 0 | **1** | 2 | 3 | **5** | **6** |
| 17:15 17:30 | 2 | 0 | **2** | 0 | 1 | **1** | **3** |
| 17:30 17:45 | 1 | 0 | **1** | 0 | 2 | **2** | **3** |
| 17:45 18:00 | 1 | 0 | **1** | 1 | 0 | **1** | **2** |
| Total ..... | 24 | 6 | **30** | 9 | 24 | **33** | **63** |

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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

## Full Study Heavy Vehicles

| | | BEDALE DR | | | | | | | | | CARLING AVE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Northbound | | | | Southbound | | | | | Eastbound | | | | Westbound | | | | | |
| Time Period | | LT | ST | RT | N TOT | LT | ST | RT | S TOT | STR TOT | LT | ST | RT | E TOT | LT | ST | RT | W TOT | STR TOT | Grand Total |
| 07:00 | 07:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 0 | 0 | **0** | **1** | **1** |
| 07:15 | 07:30 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 2 | 0 | **2** | 0 | 0 | 0 | **0** | **2** | **2** |
| 07:30 | 07:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 1 | 0 | **1** | **1** | **1** |
| 07:45 | 08:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 4 | 0 | **4** | 0 | 1 | 0 | **1** | **5** | **5** |
| 08:00 | 08:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 0 | 0 | **0** | **1** | **1** |
| 08:15 | 08:30 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 4 | 0 | **4** | **5** | **5** |
| 08:30 | 08:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 5 | 0 | **5** | 0 | 1 | 0 | **1** | **6** | **6** |
| 08:45 | 09:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| 09:00 | 09:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 2 | 0 | **2** | **3** | **3** |
| 09:15 | 09:30 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 3 | 0 | **3** | 0 | 1 | 0 | **1** | **4** | **4** |
| 09:30 | 09:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 2 | 0 | **2** | 0 | 0 | 0 | **0** | **2** | **2** |
| 09:45 | 10:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| 11:30 | 11:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 0 | 0 | **0** | **1** | **1** |
| 11:45 | 12:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 1 | 0 | **1** | **1** | **1** |
| 12:00 | 12:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 2 | 0 | **2** | **2** | **2** |
| 12:15 | 12:30 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 2 | 0 | **2** | **3** | **3** |
| 12:30 | 12:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 1 | 0 | **1** | **1** | **1** |
| 12:45 | 13:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 3 | 0 | **3** | 0 | 1 | 1 | **2** | **5** | **5** |
| 13:00 | 13:15 | 0 | 0 | 0 | **0** | 1 | 0 | 0 | **1** | **1** | 0 | 2 | 1 | **3** | 0 | 0 | 0 | **0** | **3** | **4** |
| 13:15 | 13:30 | 0 | 0 | 1 | **1** | 0 | 0 | 1 | **1** | **2** | 0 | 2 | 0 | **2** | 0 | 2 | 1 | **3** | **5** | **7** |
| 15:00 | 15:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 2 | 0 | **2** | **2** | **2** |
| 15:15 | 15:30 | 1 | 0 | 0 | **1** | 0 | 0 | 0 | **0** | **1** | 0 | 3 | 0 | **3** | 0 | 0 | 0 | **0** | **3** | **4** |
| 15:30 | 15:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 1 | 0 | **1** | **1** | **1** |
| 15:45 | 16:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 2 | 0 | **2** | **3** | **3** |
| 16:00 | 16:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| 16:15 | 16:30 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 2 | 0 | **2** | 0 | 2 | 0 | **2** | **4** | **4** |
| 16:30 | 16:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 1 | 0 | **1** | **1** | **1** |
| 16:45 | 17:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 2 | 0 | **2** | **3** | **3** |
| 17:00 | 17:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 1 | 0 | **1** | **2** | **2** |
| 17:15 | 17:30 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 0 | **1** | 0 | 2 | 0 | **2** | **3** | **3** |
| 17:30 | 17:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| 17:45 | 18:00 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | **0** |
| Total: | None | 1 | 0 | 1 | **2** | 1 | 0 | 1 | **2** | **4** | 0 | 38 | 1 | **39** | 0 | 32 | 2 | **34** | **73** | **77** |

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ BEDALE DR

**Survey Date:** Wednesday, February 28, 2018 **WO No:** 37586

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

### Full Study 15 Minute U-Turn Total

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

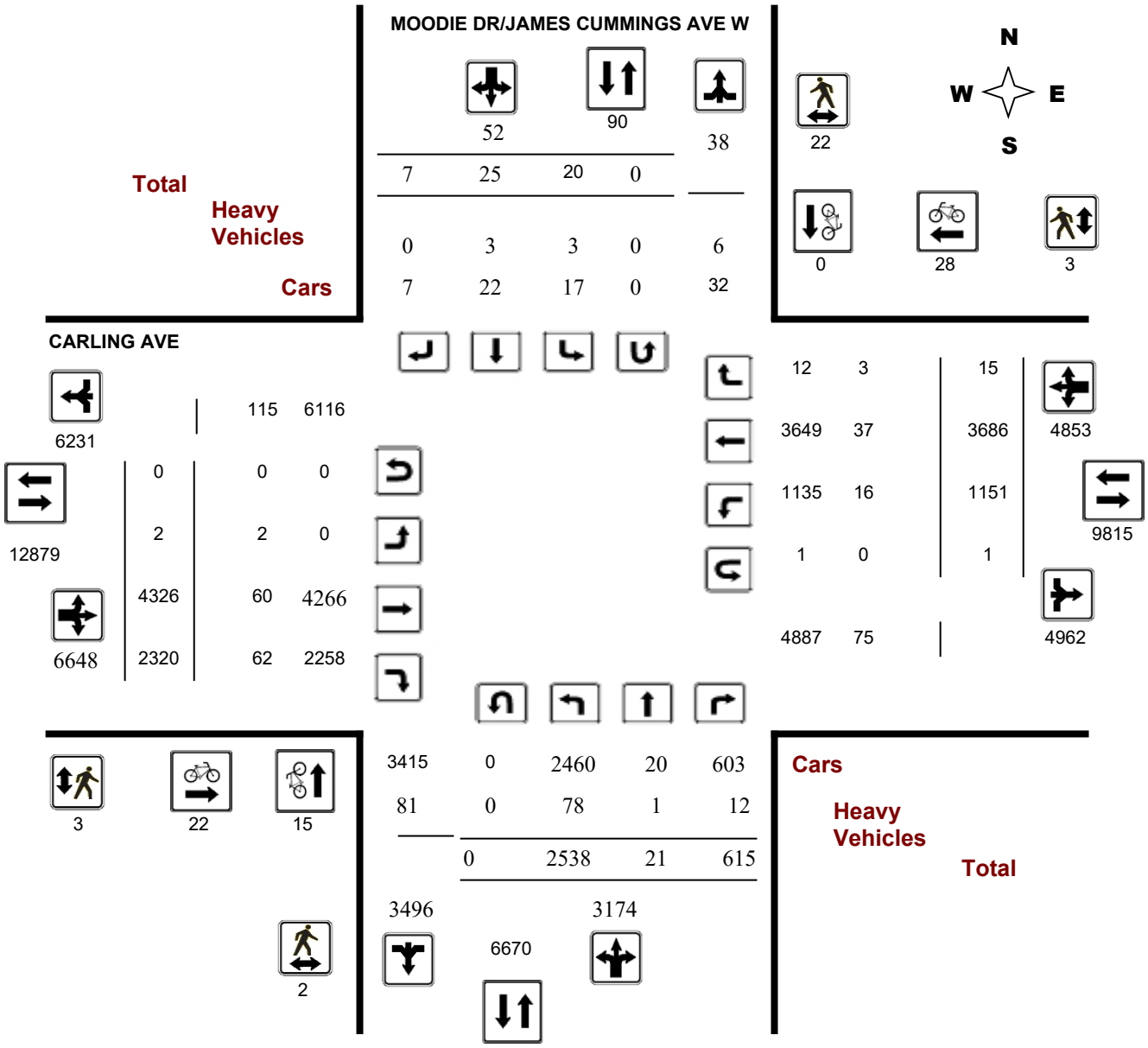
# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016
**Start Time:** 07:00
**WO No:** 35830
**Device:** Miovision

### Full Study Diagram



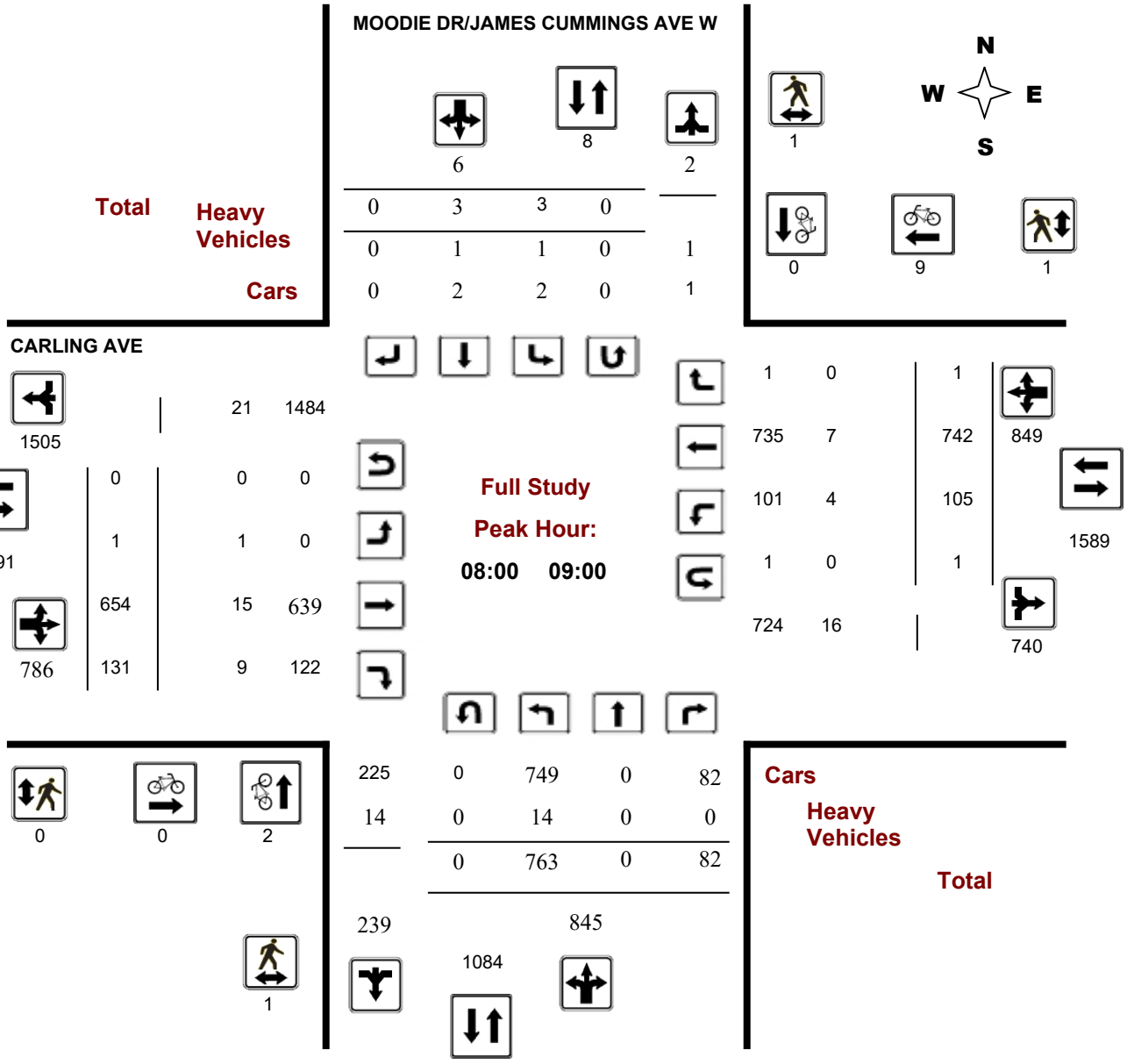
# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016
**Start Time:** 07:00
**WO No:** 35830
**Device:** Miovision

## Full Study Peak Hour Diagram



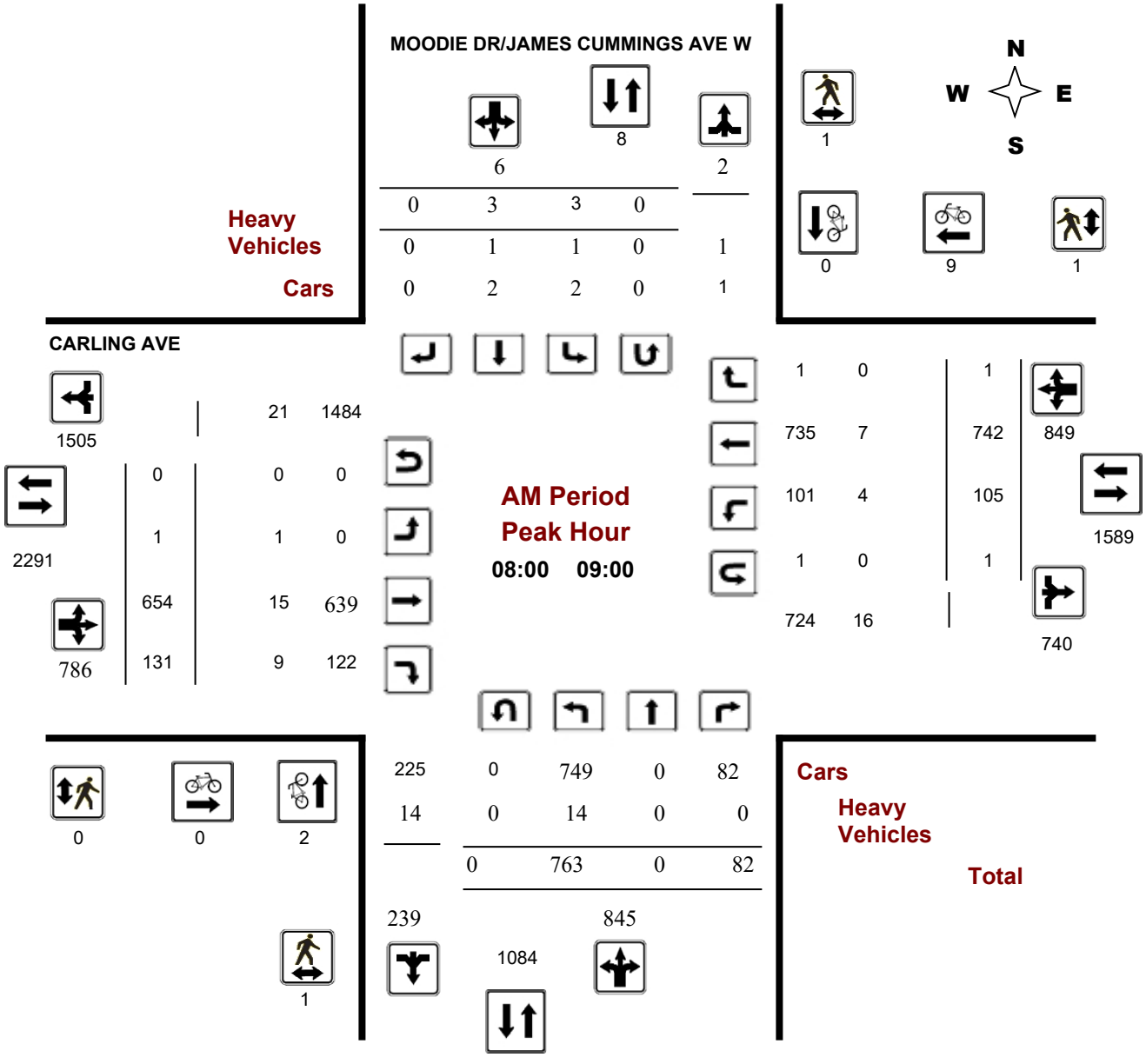
# Transportation Services - Traffic Services

## Turning Movement Count - Peak Hour Diagram

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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




**Comments**

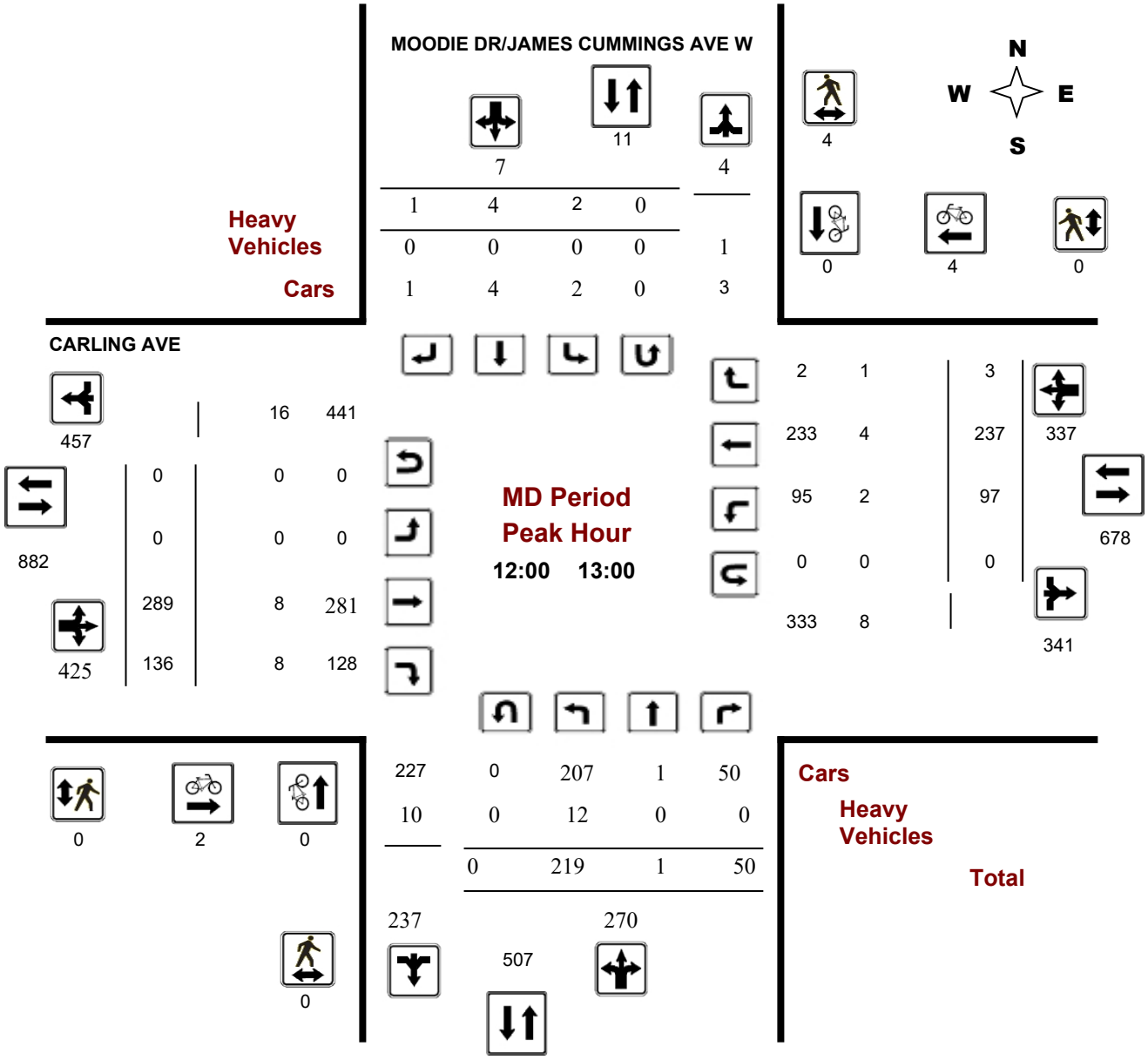
# Transportation Services - Traffic Services

## Turning Movement Count - Peak Hour Diagram

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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




**Comments**

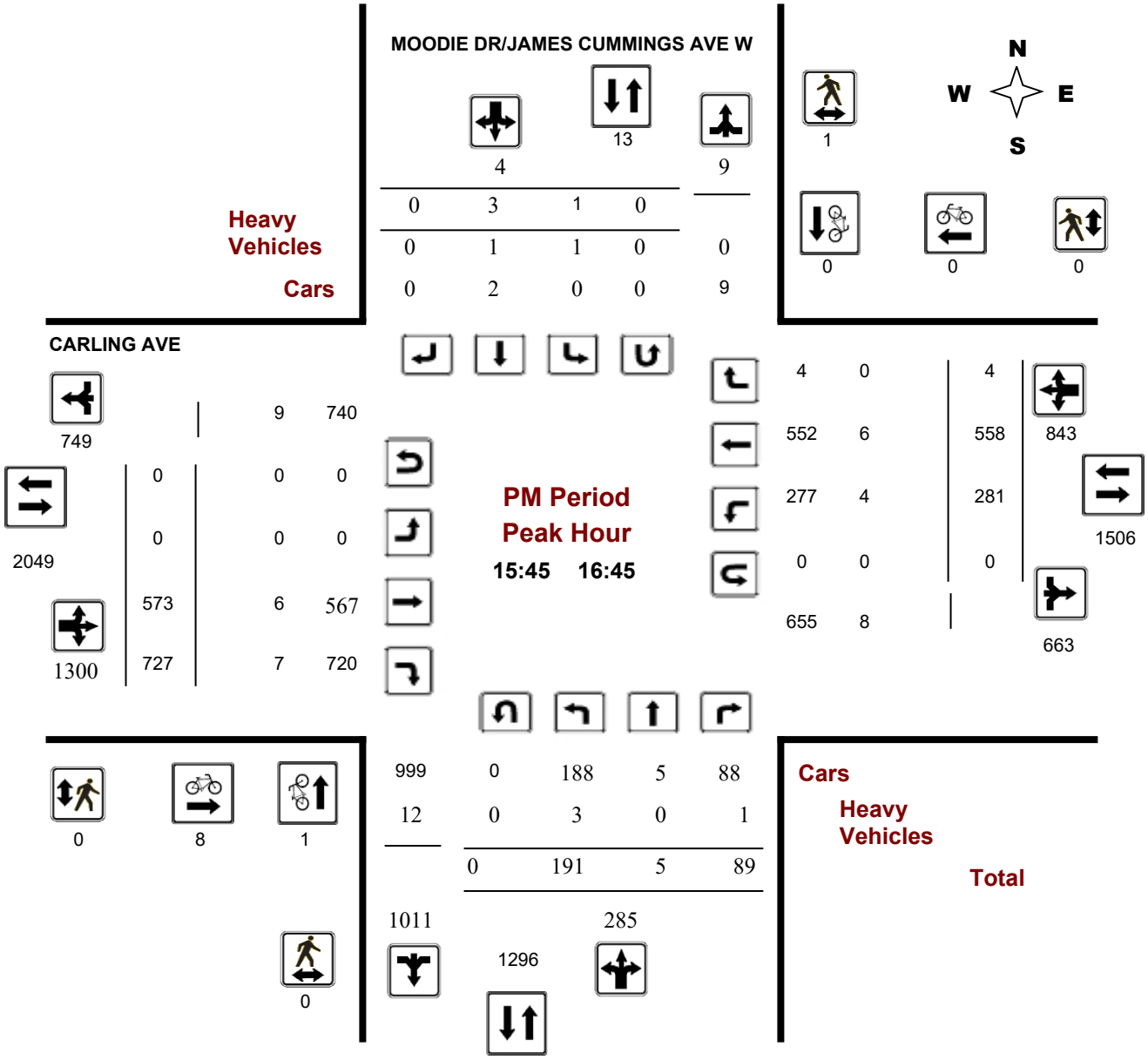
# Transportation Services - Traffic Services

## Turning Movement Count - Peak Hour Diagram

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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




**Comments**

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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

## Full Study Summary (8 HR Standard)

**Survey Date:** Wednesday, March 30, 2016

**Total Observed U-Turns**

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 1

**AADT Factor**

1.00

| | MOODIE DR/JAMES CUMMINGS AVE W | | | | | | | | CARLING AVE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | | |
| Period | LT | ST | RT | **NB TOT** | LT | ST | RT | **SB TOT** | **STR TOT** | LT | ST | RT | **EB TOT** | LT | ST | RT | **WB TOT** | **STR TOT** | **Grand Total** |
| 07:00 08:00 | 386 | 0 | 120 | **506** | 4 | 4 | 1 | **9** | **515** | 0 | 987 | 140 | **1127** | 69 | 455 | 0 | **524** | **1651** | **2166** |
| 08:00 09:00 | 763 | 0 | 82 | **845** | 3 | 3 | 0 | **6** | **851** | 1 | 654 | 131 | **786** | 105 | 742 | 1 | **848** | **1634** | **2485** |
| 09:00 10:00 | 500 | 4 | 56 | **560** | 2 | 4 | 4 | **10** | **570** | 1 | 287 | 150 | **438** | 94 | 499 | 1 | **594** | **1032** | **1602** |
| 11:30 12:30 | 185 | 4 | 53 | **242** | 0 | 4 | 1 | **5** | **247** | 0 | 269 | 143 | **412** | 101 | 200 | 4 | **305** | **717** | **964** |
| 12:30 13:30 | 217 | 1 | 51 | **269** | 2 | 3 | 0 | **5** | **274** | 0 | 225 | 157 | **382** | 93 | 239 | 1 | **333** | **715** | **989** |
| 15:00 16:00 | 148 | 3 | 91 | **242** | 4 | 3 | 0 | **7** | **249** | 0 | 480 | 608 | **1088** | 222 | 457 | 2 | **681** | **1769** | **2018** |
| 16:00 17:00 | 191 | 5 | 81 | **277** | 3 | 3 | 0 | **6** | **283** | 0 | 644 | 648 | **1292** | 258 | 579 | 5 | **842** | **2134** | **2417** |
| 17:00 18:00 | 148 | 4 | 81 | **233** | 2 | 1 | 1 | **4** | **237** | 0 | 780 | 343 | **1123** | 209 | 515 | 1 | **725** | **1848** | **2085** |
| **Sub Total** | 2538 | 21 | 615 | **3174** | 20 | 25 | 7 | **52** | **3226** | 2 | 4326 | 2320 | **6648** | 1151 | 3686 | 15 | **4852** | **11500** | **14726** |
| **U Turns** | 0 | | | **0** | 0 | | | **0** | **0** | **0** | | | **0** | 1 | | | **1** | **1** | **1** |
| **Total** | 2538 | 21 | 615 | **3174** | 20 | 25 | 7 | **52** | **3226** | 2 | 4326 | 2320 | **6648** | 1152 | 3686 | 15 | **4853** | **11501** | **14727** |
| **EQ 12Hr** | 3528 | 29 | 855 | **4412** | 28 | 35 | 10 | **73** | **4485** | 3 | 6013 | 3225 | **9241** | 1601 | 5124 | 21 | **6746** | **15987** | **20472** |
| Note: These values are calculated by multiplying the totals by the appropriate expansion factor. | | | | | | | | | | | | | | **1.39** | | | | | |
| **AVG 12Hr** | 3528 | 29 | 855 | **4412** | 28 | 35 | 10 | **73** | **4485** | 3 | 6013 | 3225 | **9241** | 1601 | 5124 | 21 | **6746** | **15987** | **20472** |
| Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. | | | | | | | | | | | | | | **1.00** | | | | | |
| **AVG 24Hr** | 4622 | 38 | 1120 | **5780** | 37 | 46 | 13 | **96** | **5876** | 4 | 7877 | 4225 | **12106** | 2097 | 6712 | 28 | **8837** | **20943** | **26819** |
| Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. | | | | | | | | | | | | | | **1.31** | | | | | |

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

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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

### Full Study 15 Minute Increments

| | | MOODIE DR/JAMES CUMMINGS AVE W | | | | | | | | | CARLING AVE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Northbound | | | | Southbound | | | | | Eastbound | | | | Westbound | | | | | |
| Time Period | | LT | ST | RT | N TOT | LT | ST | RT | S TOT | STR TOT | LT | ST | RT | E TOT | LT | ST | RT | W TOT | STR TOT | Grand Total |
| 07:00 | 07:15 | 57 | 0 | 33 | 90 | 2 | 1 | 1 | 4 | **94** | 0 | 218 | 33 | 251 | 10 | 103 | 0 | 113 | **364** | **458** |
| 07:15 | 07:30 | 67 | 0 | 32 | 99 | 1 | 1 | 0 | 2 | **101** | 0 | 262 | 46 | 308 | 20 | 109 | 0 | 129 | **437** | **538** |
| 07:30 | 07:45 | 115 | 0 | 33 | 148 | 0 | 1 | 0 | 1 | **149** | 0 | 272 | 27 | 299 | 24 | 106 | 0 | 130 | **429** | **578** |
| 07:45 | 08:00 | 147 | 0 | 22 | 169 | 1 | 1 | 0 | 2 | **171** | 0 | 235 | 34 | 269 | 15 | 137 | 0 | 152 | **421** | **592** |
| 08:00 | 08:15 | 131 | 0 | 31 | 162 | 1 | 0 | 0 | 1 | **163** | 0 | 233 | 19 | 252 | 24 | 153 | 0 | 177 | **429** | **592** |
| 08:15 | 08:30 | 199 | 0 | 17 | 216 | 1 | 1 | 0 | 2 | **218** | 0 | 160 | 42 | 202 | 24 | 183 | 0 | 207 | **409** | **627** |
| 08:30 | 08:45 | 237 | 0 | 16 | 253 | 0 | 1 | 0 | 1 | **254** | 0 | 162 | 36 | 198 | 18 | 203 | 1 | 222 | **420** | **674** |
| 08:45 | 09:00 | 196 | 0 | 18 | 214 | 1 | 1 | 0 | 2 | **216** | 1 | 99 | 34 | 134 | 40 | 203 | 0 | 243 | **377** | **593** |
| 09:00 | 09:15 | 197 | 1 | 15 | 213 | 0 | 1 | 3 | 4 | **217** | 0 | 76 | 28 | 104 | 26 | 188 | 0 | 214 | **318** | **535** |
| 09:15 | 09:30 | 135 | 1 | 14 | 150 | 0 | 2 | 1 | 3 | **153** | 0 | 98 | 37 | 135 | 20 | 133 | 0 | 153 | **288** | **441** |
| 09:30 | 09:45 | 92 | 1 | 9 | 102 | 1 | 1 | 0 | 2 | **104** | 0 | 59 | 49 | 108 | 22 | 103 | 1 | 126 | **234** | **338** |
| 09:45 | 10:00 | 76 | 1 | 18 | 95 | 1 | 0 | 0 | 1 | **96** | 1 | 54 | 36 | 91 | 26 | 75 | 0 | 101 | **192** | **288** |
| 11:30 | 11:45 | 47 | 3 | 12 | 62 | 0 | 2 | 0 | 2 | **64** | 0 | 58 | 25 | 83 | 31 | 44 | 0 | 75 | **158** | **222** |
| 11:45 | 12:00 | 35 | 0 | 11 | 46 | 0 | 0 | 0 | 0 | **46** | 0 | 60 | 41 | 101 | 26 | 48 | 2 | 76 | **177** | **223** |
| 12:00 | 12:15 | 43 | 0 | 18 | 61 | 0 | 0 | 0 | 0 | **61** | 0 | 86 | 44 | 130 | 20 | 45 | 1 | 66 | **196** | **257** |
| 12:15 | 12:30 | 60 | 1 | 12 | 73 | 0 | 2 | 1 | 3 | **76** | 0 | 65 | 33 | 98 | 24 | 63 | 1 | 88 | **186** | **262** |
| 12:30 | 12:45 | 56 | 0 | 10 | 66 | 0 | 2 | 0 | 2 | **68** | 0 | 79 | 38 | 117 | 23 | 65 | 1 | 89 | **206** | **274** |
| 12:45 | 13:00 | 60 | 0 | 10 | 70 | 2 | 0 | 0 | 2 | **72** | 0 | 59 | 21 | 80 | 30 | 64 | 0 | 94 | **174** | **246** |
| 13:00 | 13:15 | 55 | 0 | 14 | 69 | 0 | 0 | 0 | 0 | **69** | 0 | 45 | 45 | 90 | 24 | 59 | 0 | 83 | **173** | **242** |
| 13:15 | 13:30 | 46 | 1 | 17 | 64 | 0 | 1 | 0 | 1 | **65** | 0 | 42 | 53 | 95 | 16 | 51 | 0 | 67 | **162** | **227** |
| 15:00 | 15:15 | 37 | 0 | 26 | 63 | 2 | 0 | 0 | 2 | **65** | 0 | 132 | 118 | 250 | 36 | 74 | 2 | 112 | **362** | **427** |
| 15:15 | 15:30 | 33 | 0 | 23 | 56 | 2 | 2 | 0 | 4 | **60** | 0 | 117 | 151 | 268 | 49 | 115 | 0 | 164 | **432** | **492** |
| 15:30 | 15:45 | 28 | 2 | 18 | 48 | 0 | 1 | 0 | 1 | **49** | 0 | 113 | 144 | 257 | 61 | 140 | 0 | 201 | **458** | **507** |
| 15:45 | 16:00 | 50 | 1 | 24 | 75 | 0 | 0 | 0 | 0 | **75** | 0 | 118 | 195 | 313 | 76 | 128 | 0 | 204 | **517** | **592** |
| 16:00 | 16:15 | 51 | 2 | 25 | 78 | 1 | 2 | 0 | 3 | **81** | 0 | 164 | 179 | 343 | 64 | 130 | 0 | 194 | **537** | **618** |
| 16:15 | 16:30 | 47 | 0 | 18 | 65 | 0 | 1 | 0 | 1 | **66** | 0 | 134 | 187 | 321 | 81 | 159 | 1 | 241 | **562** | **628** |
| 16:30 | 16:45 | 43 | 2 | 22 | 67 | 0 | 0 | 0 | 0 | **67** | 0 | 157 | 166 | 323 | 60 | 141 | 3 | 204 | **527** | **594** |
| 16:45 | 17:00 | 50 | 1 | 16 | 67 | 2 | 0 | 0 | 2 | **69** | 0 | 189 | 116 | 305 | 53 | 149 | 1 | 203 | **508** | **577** |
| 17:00 | 17:15 | 42 | 1 | 21 | 64 | 0 | 0 | 0 | 0 | **64** | 0 | 228 | 110 | 338 | 70 | 153 | 0 | 223 | **561** | **625** |
| 17:15 | 17:30 | 40 | 1 | 21 | 62 | 0 | 1 | 1 | 2 | **64** | 0 | 210 | 105 | 315 | 49 | 130 | 0 | 179 | **494** | **558** |
| 17:30 | 17:45 | 38 | 1 | 19 | 58 | 1 | 0 | 0 | 1 | **59** | 0 | 191 | 68 | 259 | 54 | 135 | 1 | 190 | **449** | **508** |
| 17:45 | 18:00 | 28 | 1 | 20 | 49 | 1 | 0 | 0 | 1 | **50** | 0 | 151 | 60 | 211 | 36 | 97 | 0 | 133 | **344** | **394** |
| Total: | | 2538 | 21 | 615 | 3174 | 20 | 25 | 7 | 52 | **3226** | 2 | 4326 | 2320 | 6648 | 1152 | 3686 | 15 | 4853 | **3226** | **14,727** |

Note: U-Turns are included in Totals.

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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

### Full Study Cyclist Volume

| Time Period | | MOODIE DR/JAMES CUMMINGS AVE W | | | CARLING AVE | | | |
|---|---|---|---|---|---|---|---|---|
| | | Northbound | Southbound | Street Total | Eastbound | Westbound | Street Total | Grand Total |
| 07:00 | 07:15 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 07:15 | 07:30 | 2 | 0 | **2** | 0 | 1 | **1** | **3** |
| 07:30 | 07:45 | 0 | 0 | **0** | 0 | 4 | **4** | **4** |
| 07:45 | 08:00 | 4 | 0 | **4** | 0 | 0 | **0** | **4** |
| 08:00 | 08:15 | 2 | 0 | **2** | 0 | 1 | **1** | **3** |
| 08:15 | 08:30 | 0 | 0 | **0** | 0 | 2 | **2** | **2** |
| 08:30 | 08:45 | 0 | 0 | **0** | 0 | 5 | **5** | **5** |
| 08:45 | 09:00 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 09:00 | 09:15 | 1 | 0 | **1** | 0 | 3 | **3** | **4** |
| 09:15 | 09:30 | 0 | 0 | **0** | 0 | 1 | **1** | **1** |
| 09:30 | 09:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 09:45 | 10:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 11:30 | 11:45 | 1 | 0 | **1** | 0 | 1 | **1** | **2** |
| 11:45 | 12:00 | 1 | 0 | **1** | 0 | 0 | **0** | **1** |
| 12:00 | 12:15 | 0 | 0 | **0** | 0 | 2 | **2** | **2** |
| 12:15 | 12:30 | 0 | 0 | **0** | 0 | 2 | **2** | **2** |
| 12:30 | 12:45 | 0 | 0 | **0** | 1 | 0 | **1** | **1** |
| 12:45 | 13:00 | 0 | 0 | **0** | 1 | 0 | **1** | **1** |
| 13:00 | 13:15 | 0 | 0 | **0** | 1 | 1 | **2** | **2** |
| 13:15 | 13:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:00 | 15:15 | 1 | 0 | **1** | 1 | 0 | **1** | **2** |
| 15:15 | 15:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:30 | 15:45 | 1 | 0 | **1** | 0 | 0 | **0** | **1** |
| 15:45 | 16:00 | 0 | 0 | **0** | 3 | 0 | **3** | **3** |
| 16:00 | 16:15 | 0 | 0 | **0** | 2 | 0 | **2** | **2** |
| 16:15 | 16:30 | 1 | 0 | **1** | 0 | 0 | **0** | **1** |
| 16:30 | 16:45 | 0 | 0 | **0** | 3 | 0 | **3** | **3** |
| 16:45 | 17:00 | 1 | 0 | **1** | 2 | 0 | **2** | **3** |
| 17:00 | 17:15 | 0 | 0 | **0** | 2 | 1 | **3** | **3** |
| 17:15 | 17:30 | 0 | 0 | **0** | 3 | 1 | **4** | **4** |
| 17:30 | 17:45 | 0 | 0 | **0** | 2 | 1 | **3** | **3** |
| 17:45 | 18:00 | 0 | 0 | **0** | 1 | 0 | **1** | **1** |
| Total | | 15 | 0 | **15** | 22 | 28 | **50** | **65** |

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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

### Full Study Pedestrian Volume

| | MOODIE DR/JAMES CUMMINGS AVE W | | | CARLING AVE | | | |
|---|---|---|---|---|---|---|---|
| Time Period | NB Approach (E or W Crossing) | SB Approach (E or W Crossing) | **Total** | EB Approach (N or S Crossing) | WB Approach (N or S Crossing) | **Total** | **Grand Total** |
| 07:00 07:15 | 0 | 0 | **0** | 3 | 0 | **3** | **3** |
| 07:15 07:30 | 0 | 1 | **1** | 0 | 0 | **0** | **1** |
| 07:30 07:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 07:45 08:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:00 08:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:15 08:30 | 1 | 1 | **2** | 0 | 1 | **1** | **3** |
| 08:30 08:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 08:45 09:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 09:00 09:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 09:15 09:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 09:30 09:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 09:45 10:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 11:30 11:45 | 0 | 1 | **1** | 0 | 0 | **0** | **1** |
| 11:45 12:00 | 0 | 1 | **1** | 0 | 0 | **0** | **1** |
| 12:00 12:15 | 0 | 4 | **4** | 0 | 0 | **0** | **4** |
| 12:15 12:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 12:30 12:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 12:45 13:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 13:00 13:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 13:15 13:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:00 15:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:15 15:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:30 15:45 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 15:45 16:00 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 16:00 16:15 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 16:15 16:30 | 0 | 0 | **0** | 0 | 0 | **0** | **0** |
| 16:30 16:45 | 0 | 1 | **1** | 0 | 0 | **0** | **1** |
| 16:45 17:00 | 0 | 1 | **1** | 0 | 0 | **0** | **1** |
| 17:00 17:15 | 0 | 2 | **2** | 0 | 0 | **0** | **2** |
| 17:15 17:30 | 1 | 5 | **6** | 0 | 2 | **2** | **8** |
| 17:30 17:45 | 0 | 3 | **3** | 0 | 0 | **0** | **3** |
| 17:45 18:00 | 0 | 2 | **2** | 0 | 0 | **0** | **2** |
| Total ..... | 2 | 22 | **24** | 3 | 3 | **6** | **30** |

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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

### Full Study Heavy Vehicles

| | | MOODIE DR/JAMES CUMMINGS AVE W | | | | | | | | | CARLING AVE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Northbound | | | | Southbound | | | | | Eastbound | | | | Westbound | | | | | |
| Time Period | | LT | ST | RT | N TOT | LT | ST | RT | S TOT | STR TOT | LT | ST | RT | E TOT | LT | ST | RT | W TOT | STR TOT | Grand Total |
| 07:00 | 07:15 | 6 | 0 | 2 | **8** | 0 | 0 | 0 | **0** | **8** | 0 | 3 | 2 | **5** | 0 | 0 | 0 | **0** | **5** | **13** |
| 07:15 | 07:30 | 5 | 0 | 2 | **7** | 0 | 0 | 0 | **0** | **7** | 0 | 1 | 3 | **4** | 0 | 1 | 0 | **1** | **5** | **12** |
| 07:30 | 07:45 | 1 | 0 | 3 | **4** | 0 | 0 | 0 | **0** | **4** | 0 | 2 | 2 | **4** | 0 | 2 | 0 | **2** | **6** | **10** |
| 07:45 | 08:00 | 7 | 0 | 0 | **7** | 0 | 0 | 0 | **0** | **7** | 0 | 2 | 2 | **4** | 0 | 1 | 0 | **1** | **5** | **12** |
| 08:00 | 08:15 | 3 | 0 | 0 | **3** | 0 | 0 | 0 | **0** | **3** | 0 | 3 | 1 | **4** | 1 | 2 | 0 | **3** | **7** | **10** |
| 08:15 | 08:30 | 4 | 0 | 0 | **4** | 0 | 0 | 0 | **0** | **4** | 0 | 3 | 2 | **5** | 2 | 1 | 0 | **3** | **8** | **12** |
| 08:30 | 08:45 | 2 | 0 | 0 | **2** | 0 | 0 | 0 | **0** | **2** | 0 | 5 | 3 | **8** | 0 | 1 | 0 | **1** | **9** | **11** |
| 08:45 | 09:00 | 5 | 0 | 0 | **5** | 1 | 1 | 0 | **2** | **7** | 1 | 4 | 3 | **8** | 1 | 3 | 0 | **4** | **12** | **19** |
| 09:00 | 09:15 | 2 | 0 | 1 | **3** | 0 | 0 | 0 | **0** | **3** | 0 | 4 | 1 | **5** | 0 | 0 | 0 | **0** | **5** | **8** |
| 09:15 | 09:30 | 4 | 0 | 0 | **4** | 0 | 0 | 0 | **0** | **4** | 0 | 2 | 1 | **3** | 0 | 1 | 0 | **1** | **4** | **8** |
| 09:30 | 09:45 | 1 | 0 | 0 | **1** | 0 | 0 | 0 | **0** | **1** | 0 | 0 | 2 | **2** | 0 | 1 | 0 | **1** | **3** | **4** |
| 09:45 | 10:00 | 5 | 0 | 0 | **5** | 1 | 0 | 0 | **1** | **6** | 1 | 2 | 2 | **5** | 0 | 0 | 0 | **0** | **5** | **11** |
| 11:30 | 11:45 | 4 | 0 | 0 | **4** | 0 | 0 | 0 | **0** | **4** | 0 | 2 | 2 | **4** | 2 | 2 | 0 | **4** | **8** | **12** |
| 11:45 | 12:00 | 2 | 0 | 0 | **2** | 0 | 0 | 0 | **0** | **2** | 0 | 4 | 0 | **4** | 2 | 1 | 0 | **3** | **7** | **9** |
| 12:00 | 12:15 | 2 | 0 | 0 | **2** | 0 | 0 | 0 | **0** | **2** | 0 | 1 | 4 | **5** | 0 | 3 | 1 | **4** | **9** | **11** |
| 12:15 | 12:30 | 3 | 0 | 0 | **3** | 0 | 0 | 0 | **0** | **3** | 0 | 3 | 1 | **4** | 0 | 0 | 0 | **0** | **4** | **7** |
| 12:30 | 12:45 | 4 | 0 | 0 | **4** | 0 | 0 | 0 | **0** | **4** | 0 | 3 | 3 | **6** | 1 | 0 | 0 | **1** | **7** | **11** |
| 12:45 | 13:00 | 3 | 0 | 0 | **3** | 0 | 0 | 0 | **0** | **3** | 0 | 1 | 0 | **1** | 1 | 1 | 0 | **2** | **3** | **6** |
| 13:00 | 13:15 | 2 | 0 | 1 | **3** | 0 | 0 | 0 | **0** | **3** | 0 | 1 | 0 | **1** | 0 | 1 | 0 | **1** | **2** | **5** |
| 13:15 | 13:30 | 0 | 0 | 1 | **1** | 0 | 0 | 0 | **0** | **1** | 0 | 2 | 2 | **4** | 0 | 2 | 0 | **2** | **6** | **7** |
| 15:00 | 15:15 | 3 | 0 | 1 | **4** | 0 | 0 | 0 | **0** | **4** | 0 | 2 | 5 | **7** | 1 | 1 | 2 | **4** | **11** | **15** |
| 15:15 | 15:30 | 2 | 0 | 0 | **2** | 0 | 0 | 0 | **0** | **2** | 0 | 1 | 5 | **6** | 0 | 2 | 0 | **2** | **8** | **10** |
| 15:30 | 15:45 | 1 | 1 | 0 | **2** | 0 | 1 | 0 | **1** | **3** | 0 | 1 | 3 | **4** | 1 | 0 | 0 | **1** | **5** | **8** |
| 15:45 | 16:00 | 1 | 0 | 1 | **2** | 0 | 0 | 0 | **0** | **2** | 0 | 0 | 2 | **2** | 0 | 2 | 0 | **2** | **4** | **6** |
| 16:00 | 16:15 | 2 | 0 | 0 | **2** | 1 | 0 | 0 | **1** | **3** | 0 | 2 | 3 | **5** | 1 | 2 | 0 | **3** | **8** | **11** |
| 16:15 | 16:30 | 0 | 0 | 0 | **0** | 0 | 1 | 0 | **1** | **1** | 0 | 2 | 0 | **2** | 3 | 1 | 0 | **4** | **6** | **7** |
| 16:30 | 16:45 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 2 | 2 | **4** | 0 | 1 | 0 | **1** | **5** | **5** |
| 16:45 | 17:00 | 1 | 0 | 0 | **1** | 0 | 0 | 0 | **0** | **1** | 0 | 0 | 3 | **3** | 0 | 2 | 0 | **2** | **5** | **6** |
| 17:00 | 17:15 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 1 | 1 | **2** | 0 | 0 | 0 | **0** | **2** | **2** |
| 17:15 | 17:30 | 0 | 0 | 0 | **0** | 0 | 0 | 0 | **0** | **0** | 0 | 0 | 0 | **0** | 0 | 1 | 0 | **1** | **1** | **1** |
| 17:30 | 17:45 | 1 | 0 | 0 | **1** | 0 | 0 | 0 | **0** | **1** | 0 | 1 | 1 | **2** | 0 | 1 | 0 | **1** | **3** | **4** |
| 17:45 | 18:00 | 2 | 0 | 0 | **2** | 0 | 0 | 0 | **0** | **2** | 0 | 0 | 1 | **1** | 0 | 1 | 0 | **1** | **2** | **4** |
| Total: | None | 78 | 1 | 12 | **91** | 3 | 3 | 0 | **6** | **97** | 2 | 60 | 62 | **124** | 16 | 37 | 3 | **56** | **180** | **277** |

# Transportation Services - Traffic Services

## Turning Movement Count - Study Results

## CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Survey Date:** Wednesday, March 30, 2016 **WO No:** 35830

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

### Full Study 15 Minute U-Turn Total

| Time Period | | MOODIE DR/JAMES CUMMINGS AVE W | | CARLING AVE | | |
|---|---|---|---|---|---|---|
| | | Northbound U-Turn Total | Southbound U-Turn Total | Eastbound U-Turn Total | Westbound U-Turn Total | Total |
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | **0** |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | **0** |
| 07:30 | 07:45 | 0 | 0 | 0 | 0 | **0** |
| 07:45 | 08:00 | 0 | 0 | 0 | 0 | **0** |
| 08:00 | 08:15 | 0 | 0 | 0 | 0 | **0** |
| 08:15 | 08:30 | 0 | 0 | 0 | 0 | **0** |
| 08:30 | 08:45 | 0 | 0 | 0 | 0 | **0** |
| 08:45 | 09:00 | 0 | 0 | 0 | 1 | **1** |
| 09:00 | 09:15 | 0 | 0 | 0 | 0 | **0** |
| 09:15 | 09:30 | 0 | 0 | 0 | 0 | **0** |
| 09:30 | 09:45 | 0 | 0 | 0 | 0 | **0** |
| 09:45 | 10:00 | 0 | 0 | 0 | 0 | **0** |
| 11:30 | 11:45 | 0 | 0 | 0 | 0 | **0** |
| 11:45 | 12:00 | 0 | 0 | 0 | 0 | **0** |
| 12:00 | 12:15 | 0 | 0 | 0 | 0 | **0** |
| 12:15 | 12:30 | 0 | 0 | 0 | 0 | **0** |
| 12:30 | 12:45 | 0 | 0 | 0 | 0 | **0** |
| 12:45 | 13:00 | 0 | 0 | 0 | 0 | **0** |
| 13:00 | 13:15 | 0 | 0 | 0 | 0 | **0** |
| 13:15 | 13:30 | 0 | 0 | 0 | 0 | **0** |
| 15:00 | 15:15 | 0 | 0 | 0 | 0 | **0** |
| 15:15 | 15:30 | 0 | 0 | 0 | 0 | **0** |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | **0** |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | **0** |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | **0** |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | **0** |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | **0** |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | **0** |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | **0** |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | **0** |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | **0** |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | **0** |
| Total | | 0 | 0 | 0 | 1 | **1** |

# APPENDIX C

COLLISION DATA

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

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

**Location:** CARLING AVE @ BEDALE DR

**Traffic Control:** Traffic signal **Total Collisions:** 6

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2015-Mar-03, Tue,07:53 | Clear | Rear end | P.D. only | Dry | East | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | East | Stopped | Pick-up truck | Other motor vehicle | |
| 2017-Feb-16, Thu,08:54 | 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 | |
| 2018-Jan-02, Tue,12:45 | Clear | Angle | Non-fatal injury | Packed snow | West | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | South | Turning left | Snow plow | Other motor vehicle | |
| 2019-Aug-14, Wed,16:14 | Clear | Angle | Non-fatal injury | Dry | East | Going ahead | Bicycle | Other motor vehicle | 0 |
| | | | | | South | Turning right | Automobile, station wagon | Cyclist | |
| 2019-Dec-02, Mon,00:10 | Clear | SMV other | P.D. only | Wet | West | Going ahead | Automobile, station wagon | Pole (utility, power) | 0 |
| 2019-Dec-09, Mon,19:00 | Rain | SMV other | Non-fatal injury | Wet | South | Turning left | Automobile, station wagon | Pedestrian | 1 |

**Location:** CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Traffic Control:** Traffic signal **Total Collisions:** 27

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2015-Jan-06, Tue,08:50 | Clear | Rear end | P.D. only | Dry | North | Turning right | Pick-up truck | Other motor vehicle | 0 |
| | | | | | North | Turning right | Pick-up truck | Other motor vehicle | |
| 2015-Feb-12, Thu,06:40 | Snow | SMV other | P.D. only | Slush | East | Overtaking | Pick-up truck | Snowbank/drift | 0 |
| 2015-Mar-09, Mon,18:00 | Clear | Rear end | P.D. only | Dry | West | Turning left | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | West | Turning left | Automobile, station wagon | Other motor vehicle | |
| 2015-Sep-14, Mon,18:38 | 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 | |
| | | | | | North | Turning left | Automobile, station wagon | Other motor vehicle | |
| 2016-Jan-20, Wed,13:21 | 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 | |

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

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

**Location:** CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Traffic Control:** Traffic signal **Total Collisions:** 27

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2016-Apr-19, Tue,17:35 | Clear | Turning movement | Non-fatal injury | Dry | East | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | West | Turning left | Automobile, station wagon | Other motor vehicle | |
| 2016-Nov-24, Thu,20:03 | Clear | SMV other | P.D. only | Slush | East | Going ahead | Automobile, station wagon | Animal - wild | 0 |
| 2017-Jan-13, Fri,17:03 | 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 | |
| 2017-Feb-17, Fri,16:43 | Clear | Angle | P.D. only | Dry | West | Turning left | Pick-up truck | Other motor vehicle | 0 |
| | | | | | South | Going ahead | Automobile, station wagon | Other motor vehicle | |
| 2017-Feb-22, Wed,05:15 | Clear | SMV other | P.D. only | Wet | West | Turning left | Pick-up truck | Animal - wild | 0 |
| 2017-May-02, Tue,12:47 | 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 | |
| 2017-Aug-24, Thu,20:30 | Clear | SMV other | P.D. only | Dry | West | Going ahead | Automobile, station wagon | Animal - wild | 0 |
| 2017-Sep-09, Sat,14:15 | 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 | |
| 2017-Nov-24, Fri,16:57 | 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 | |
| 2017-Nov-27, Mon,09:02 | Clear | Rear end | P.D. only | Dry | North | Going ahead | Construction equipment | Other motor vehicle | 0 |
| | | | | | North | Stopped | Automobile, station wagon | Other motor vehicle | |
| 2017-Dec-12, Tue,09:15 | Snow | Rear end | P.D. only | Slush | West | Going ahead | Passenger van | Other motor vehicle | 0 |
| | | | | | West | Stopped | Automobile, station wagon | Other motor vehicle | |
| 2018-Feb-14, Wed,18:01 | 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 | |
| 2018-May-31, Thu,09:00 | Clear | 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 | |

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

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

**Location:** CARLING AVE @ MOODIE DR/JAMES CUMMINGS AVE W

**Traffic Control:** Traffic signal **Total Collisions:** 27

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2018-Sep-30, Sun,01:05 | Clear | SMV other | P.D. only | Wet | North | Turning right | Automobile, station wagon | Pole (utility, power) | 0 |
| 2018-Nov-23, Fri,12:08 | 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 | |
| 2019-Jan-18, Fri,07:23 | Snow | Turning movement | Non-fatal injury | Loose snow | West | Turning left | Pick-up truck | Other motor vehicle | 0 |
| | | | | | East | Going ahead | Automobile, station wagon | Other motor vehicle | |
| 2019-Feb-08, Fri,11:38 | 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 | |
| 2019-May-21, Tue,08:34 | Clear | Sideswipe | Non-fatal injury | Dry | West | Pulling away from shoulder or curb | Bicycle | Other motor vehicle | 0 |
| | | | | | West | Overtaking | Automobile, station wagon | Cyclist | |
| 2019-Jul-15, Mon,20:52 | Clear | Turning movement | Fatal injury | Dry | East | Turning left | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | West | Going ahead | Motorcycle | Other motor vehicle | |
| 2019-Jul-19, Fri,18:19 | 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 | |
| 2019-Aug-24, Sat,13:35 | 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-Oct-18, Fri,12:00 | Clear | SMV other | P.D. only | Dry | North | Turning right | Automobile, station wagon | Ran off road | 0 |

**Location:** CARLING AVE @ ROCKY POINT RD

**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 |
|---|---|---|---|---|---|---|---|---|---|
| 2017-Jan-05, Thu,07:56 | Snow | Angle | P.D. only | Slush | South | Turning left | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | West | Going ahead | Snow plow | Other motor vehicle | |

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

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

**Location:** CARLING AVE btwn HARBOUR LANDING PRIV & BEDALE DR

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

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2019-Aug-15, Thu,09:08 | Clear | Angle | P.D. only | Dry | North | Turning left | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | East | Going ahead | Pick-up truck | Other motor vehicle | |

**Location:** CARLING AVE btwn MOODIE DR & JAMES CUMMINGS AVE

**Traffic Control:** No control **Total Collisions:** 6

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2015-Jan-09, Fri,08:07 | Clear | Rear end | P.D. only | Loose snow | East | Going ahead | Truck and trailer | Other motor vehicle | 0 |
| | | | | | East | Stopped | Automobile, station wagon | Other motor vehicle | |
| 2016-Jul-30, Sat,05:29 | Clear | SMV other | P.D. only | Dry | West | Going ahead | Pick-up truck | Ran off road | 0 |
| 2016-Aug-15, Mon,16:55 | Clear | Other | P.D. only | Dry | West | Going ahead | Automobile, station wagon | Debris falling off vehicle | 0 |
| | | | | | East | Going ahead | Car and trailer | Other | |
| 2016-Sep-26, Mon,08:44 | Clear | Sideswipe | Non-fatal injury | Dry | East | Changing lanes | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | East | Going ahead | Automobile, station wagon | Other motor vehicle | |
| 2017-Feb-28, Tue,16:05 | Clear | SMV other | P.D. only | Dry | West | Going ahead | Automobile, station wagon | Animal - wild | 0 |
| 2017-Dec-05, Tue,17:24 | Clear | SMV other | P.D. only | Dry | West | Going ahead | Automobile, station wagon | Animal - wild | 0 |

**Location:** CARLING AVE btwn ROCKY POINT RD & HARBOUR LANDING 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 |
|---|---|---|---|---|---|---|---|---|---|
| 2015-Mar-03, Tue,07:35 | Clear | Rear end | P.D. only | Dry | East | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | East | Slowing or stopping | Automobile, station wagon | Other motor vehicle | |

**Location:** CARLING AVE btwn SUNNY BRAE AVE & CRYSTAL BEACH DR

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

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

# Transportation Services - Traffic Services

## Collision Details Report - Public Version

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

**Location:** CARLING AVE btwn SUNNY BRAE AVE & CRYSTAL BEACH DR

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

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2019-Jan-21, Mon,12:13 | Drifting Snow | Turning movement | P.D. only | Packed snow | East | Turning right | Pick-up truck | Other motor vehicle | 0 |
| | | | | | East | Going ahead | Automobile, station wagon | Other motor vehicle | |

**Location:** CARLING AVE btwn ULLSWATER DR & SUNNY BRAE AVE

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

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|---|---|---|---|---|---|---|---|---|---|
| 2016-Feb-16, Tue,07:38 | Snow | Rear end | P.D. only | Slush | West | Slowing or stopping | Pick-up truck | Other motor vehicle | 0 |
| | | | | | West | Turning left | Pick-up truck | Other motor vehicle | |
| 2016-May-12, Thu,10:30 | Clear | Angle | P.D. only | Dry | North | Turning right | Unknown | Other motor vehicle | 0 |
| | | | | | East | Going ahead | Automobile, station wagon | Other motor vehicle | |
| 2016-Sep-12, Mon,07:40 | Clear | Rear end | Non-fatal injury | Dry | East | Slowing or stopping | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | East | Slowing or stopping | Truck - tractor | Other motor vehicle | |
| 2017-Jun-14, Wed,13:35 | Clear | Rear end | P.D. only | Dry | West | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | West | Turning left | Automobile, station wagon | Other motor vehicle | |

**Location:** ULLSWATER DR @ CARLING 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 |
|---|---|---|---|---|---|---|---|---|---|
| 2016-Oct-07, Fri,14:50 | Clear | Rear end | P.D. only | Dry | East | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | East | Stopped | Delivery van | Other motor vehicle | |

# APPENDIX D

TDM Checklists

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

***Legend***

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

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

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

| | TDM-supportive design & infrastructure measures: *Residential developments* | | Check if completed & add descriptions, explanations or plan/drawing references |
|---|---|---|---|
| | **2.** | **WALKING & CYCLING: END-OF-TRIP FACILITIES** | |
| | **2.1** | **Bicycle parking** | |
| REQUIRED | 2.1.1 | Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)* | ☐ To be confirmed in SPA |
| 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)* | ☐ To be confirmed in SPA |
| REQUIRED | 2.1.3 | Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)* | ☐ To be confirmed in SPA |
| 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)* | ☐ To be confirmed in SPA |
| BETTER | 2.2.2 | Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments | ☐ |
| | **2.3** | **Bicycle repair station** | |
| BETTER | 2.3.1 | Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided) | ☐ |
| | **3.** | **TRANSIT** | |
| | **3.1** | **Customer amenities** | |
| BASIC | 3.1.1 | Provide shelters, lighting and benches at any on-site transit stops | ☐ |
| BASIC | 3.1.2 | Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter | ☐ |
| BETTER | 3.1.3 | Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building | ☐ |

| | TDM-supportive design & infrastructure measures: *Residential developments* | | Check if completed & add descriptions, explanations or plan/drawing references |
|---|---|---|---|
| | **4.** | **RIDESHARING** | |
| | **4.1** | **Pick-up & drop-off facilities** | |
| BASIC | 4.1.1 | Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones | ☐ |
| | **5.** | **CARSHARING & BIKESHARING** | |
| | **5.1** | **Carshare parking spaces** | |
| BETTER | 5.1.1 | Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)* | ☐ |
| | **5.2** | **Bikeshare station location** | |
| BETTER | 5.2.1 | Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection | ☐ |
| | **6.** | **PARKING** | |
| | **6.1** | **Number of parking spaces** | |
| REQUIRED | 6.1.1 | Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for | ☐ To be confirmed in SPA |
| 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 E

Synchro Analysis

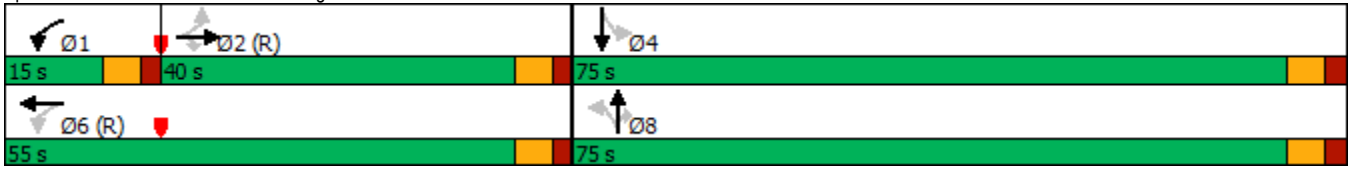
# Existing Conditions

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 654 | 131 | 106 | 742 | 763 | 0 | 82 | 3 | 3 |
| Future Volume (vph) | 1 | 654 | 131 | 106 | 742 | 763 | 0 | 82 | 3 | 3 |
| Lane Group Flow (vph) | 0 | 689 | 138 | 112 | 782 | 0 | 803 | 86 | 0 | 6 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 40.0 | 15.0 | 55.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 30.8% | 30.8% | 30.8% | 11.5% | 42.3% | 57.7% | 57.7% | 57.7% | 57.7% | 57.7% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| Lost Time Adjust (s) | | -1.6 | -1.6 | -1.6 | -1.6 | | -2.0 | -2.0 | | -2.0 |
| Total Lost Time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | | 34.1 | 34.1 | 48.7 | 48.7 | | 73.3 | 73.3 | | 73.3 |
| Actuated g/C Ratio | | 0.26 | 0.26 | 0.37 | 0.37 | | 0.56 | 0.56 | | 0.56 |
| v/c Ratio | | 0.81 | 0.28 | 0.53 | 0.62 | | 1.06 | 0.10 | | 0.01 |
| Control Delay | | 53.4 | 7.1 | 35.8 | 35.2 | | 78.8 | 4.5 | | 13.5 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | | 53.4 | 7.1 | 35.8 | 35.2 | | 78.8 | 4.5 | | 13.5 |
| LOS | | D | A | D | D | | E | A | | B |
| Approach Delay | | 45.6 | | | 35.3 | | 71.6 | | | 13.5 |
| Approach LOS | | D | | | D | | E | | | B |
| Queue Length 50th (m) | | 85.9 | 0.0 | 18.6 | 82.7 | | ~231.1 | 1.6 | | 0.7 |
| Queue Length 95th (m) | | 108.1 | 15.3 | 31.8 | 102.7 | | #306.4 | 9.1 | | 2.7 |
| Internal Link Dist (m) | | 229.2 | | | 650.7 | | 185.4 | | | 48.7 |
| Turn Bay Length (m) | | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | | 895 | 519 | 216 | 1329 | | 757 | 886 | | 868 |
| 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 | | 0.77 | 0.27 | 0.52 | 0.59 | | 1.06 | 0.10 | | 0.01 |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.06 | |
| Intersection Signal Delay: 50.9 | Intersection LOS: D |
| Intersection Capacity Utilization 102.1% | ICU Level of Service G |
| Analysis Period (min) 15 | |

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

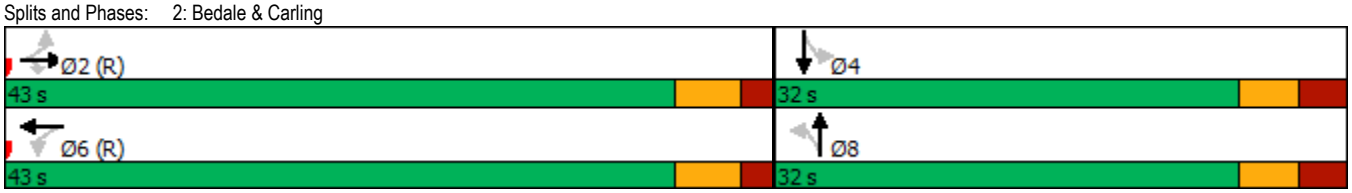
Splits and Phases: 1: Moodie & Carling



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 6 | 784 | 2 | 10 | 824 | 16 | 0 | 4 | 0 |
| Future Volume (vph) | 6 | 784 | 2 | 10 | 824 | 16 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 6 | 825 | 2 | 11 | 874 | 0 | 62 | 0 | 9 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| Lost Time Adjust (s) | -1.6 | -1.6 | -1.6 | -1.6 | -1.6 | | -2.1 | | -2.1 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 60.3 | 60.3 | 60.3 | 60.3 | 60.3 | | 14.7 | | 14.7 |
| Actuated g/C Ratio | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | | 0.20 | | 0.20 |
| v/c Ratio | 0.01 | 0.30 | 0.00 | 0.02 | 0.32 | | 0.19 | | 0.03 |
| Control Delay | 5.7 | 4.6 | 0.0 | 5.6 | 4.7 | | 11.5 | | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 5.7 | 4.6 | 0.0 | 5.6 | 4.7 | | 11.5 | | 0.2 |
| LOS | A | A | A | A | A | | B | | A |
| Approach Delay | | 4.6 | | | 4.7 | | 11.5 | | 0.2 |
| Approach LOS | | A | | | A | | B | | A |
| Queue Length 50th (m) | 0.2 | 17.1 | 0.0 | 0.3 | 18.3 | | 2.1 | | 0.0 |
| Queue Length 95th (m) | 1.9 | 45.0 | 0.0 | 2.7 | 48.3 | | 9.1 | | 0.1 |
| Internal Link Dist (m) | | 432.6 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 446 | 2727 | 1229 | 472 | 2725 | | 579 | | 565 |
| 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 | 0.01 | 0.30 | 0.00 | 0.02 | 0.32 | | 0.11 | | 0.02 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.32 | |
| Intersection Signal Delay: 4.9 | Intersection LOS: A |
| Intersection Capacity Utilization 39.3% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



| Lane Group | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 573 | 727 | 281 | 558 | 191 | 5 | 89 | 1 | 3 |
| Future Volume (vph) | 573 | 727 | 281 | 558 | 191 | 5 | 89 | 1 | 3 |
| Lane Group Flow (vph) | 603 | 765 | 296 | 591 | 0 | 206 | 94 | 0 | 4 |
| Turn Type | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 25.0 | 65.0 | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Total Split (%) | 40.0% | 40.0% | 25.0% | 65.0% | 35.0% | 35.0% | 35.0% | 35.0% | 35.0% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| Lost Time Adjust (s) | -1.6 | -1.6 | -1.6 | -1.6 | | -2.0 | -2.0 | | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 |
| Lead/Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | 50.8 | 50.8 | 69.0 | 69.0 | | 23.0 | 23.0 | | 23.0 |
| Actuated g/C Ratio | 0.51 | 0.51 | 0.69 | 0.69 | | 0.23 | 0.23 | | 0.23 |
| v/c Ratio | 0.35 | 0.67 | 0.52 | 0.25 | | 0.69 | 0.22 | | 0.01 |
| Control Delay | 17.4 | 5.0 | 10.2 | 6.9 | | 46.5 | 7.1 | | 25.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 17.4 | 5.0 | 10.2 | 6.9 | | 46.5 | 7.1 | | 25.8 |
| LOS | B | A | B | A | | D | A | | C |
| Approach Delay | 10.5 | | | 8.0 | | 34.1 | | | 25.8 |
| Approach LOS | B | | | A | | C | | | C |
| Queue Length 50th (m) | 34.7 | 0.0 | 19.0 | 19.9 | | 36.6 | 0.0 | | 0.6 |
| Queue Length 95th (m) | 62.3 | 28.2 | 38.9 | 35.1 | | 54.8 | 10.8 | | 3.0 |
| Internal Link Dist (m) | 229.2 | | | 650.7 | | 185.4 | | | 41.8 |
| Turn Bay Length (m) | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | 1722 | 1146 | 648 | 2337 | | 403 | 535 | | 524 |
| 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 | 0.35 | 0.67 | 0.46 | 0.25 | | 0.51 | 0.18 | | 0.01 |

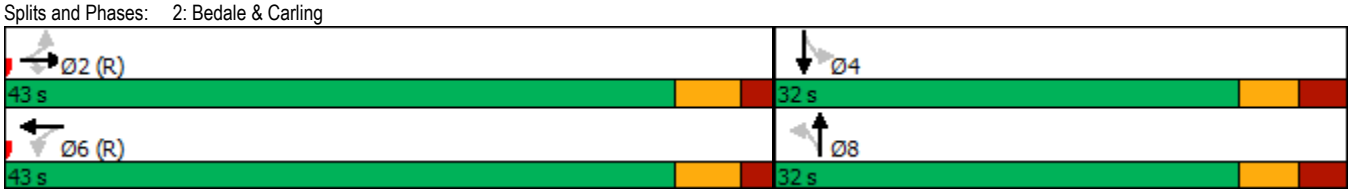
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.69 | |
| Intersection Signal Delay: 12.4 | Intersection LOS: B |
| Intersection Capacity Utilization 82.3% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Moodie & Carling

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 7 | 897 | 12 | 24 | 862 | 7 | 0 | 8 | 1 |
| Future Volume (vph) | 7 | 897 | 12 | 24 | 862 | 7 | 0 | 8 | 1 |
| Lane Group Flow (vph) | 7 | 944 | 13 | 25 | 915 | 0 | 28 | 0 | 18 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| Lost Time Adjust (s) | -1.6 | -1.6 | -1.6 | -1.6 | -1.6 | | -2.1 | | -2.1 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 64.4 | 64.4 | 64.4 | 64.4 | 64.4 | | 14.7 | | 14.7 |
| Actuated g/C Ratio | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | | 0.20 | | 0.20 |
| v/c Ratio | 0.02 | 0.32 | 0.01 | 0.06 | 0.31 | | 0.09 | | 0.06 |
| Control Delay | 5.3 | 4.1 | 0.0 | 5.1 | 4.0 | | 6.0 | | 15.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 5.3 | 4.1 | 0.0 | 5.1 | 4.0 | | 6.0 | | 15.8 |
| LOS | A | A | A | A | A | | A | | B |
| Approach Delay | | 4.1 | | | 4.1 | | 6.0 | | 15.8 |
| Approach LOS | | A | | | A | | A | | B |
| Queue Length 50th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 1.1 |
| Queue Length 95th (m) | 2.0 | 53.5 | 0.3 | 5.0 | 51.2 | | 3.9 | | 4.8 |
| Internal Link Dist (m) | | 432.6 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 461 | 2909 | 1308 | 445 | 2907 | | 574 | | 540 |
| 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 | 0.02 | 0.32 | 0.01 | 0.06 | 0.31 | | 0.05 | | 0.03 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.32 | |
| Intersection Signal Delay: 4.2 | Intersection LOS: A |
| Intersection Capacity Utilization 41.2% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



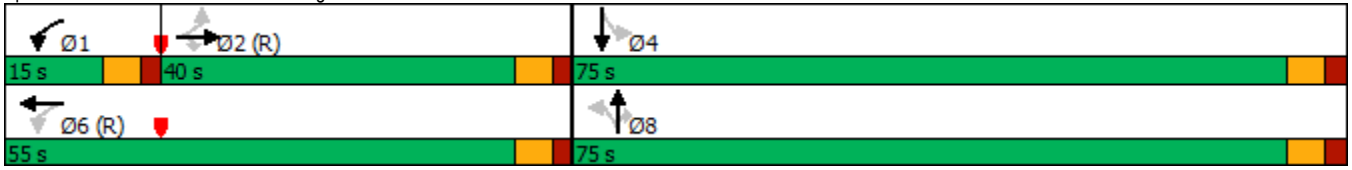
# Future Background 2022

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 661 | 131 | 106 | 749 | 763 | 0 | 82 | 3 | 3 |
| Future Volume (vph) | 1 | 661 | 131 | 106 | 749 | 763 | 0 | 82 | 3 | 3 |
| Lane Group Flow (vph) | 0 | 662 | 131 | 106 | 750 | 0 | 763 | 82 | 0 | 6 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 40.0 | 15.0 | 55.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 30.8% | 30.8% | 30.8% | 11.5% | 42.3% | 57.7% | 57.7% | 57.7% | 57.7% | 57.7% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | | 31.8 | 31.8 | 46.4 | 46.4 | | 72.0 | 72.0 | | 72.0 |
| Actuated g/C Ratio | | 0.24 | 0.24 | 0.36 | 0.36 | | 0.55 | 0.55 | | 0.55 |
| v/c Ratio | | 0.84 | 0.28 | 0.55 | 0.62 | | 1.03 | 0.09 | | 0.01 |
| Control Delay | | 56.9 | 7.6 | 38.9 | 36.7 | | 69.3 | 4.6 | | 14.5 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | | 56.9 | 7.6 | 38.9 | 36.7 | | 69.3 | 4.6 | | 14.5 |
| LOS | | E | A | D | D | | E | A | | B |
| Approach Delay | | 48.7 | | | 37.0 | | 63.0 | | | 14.5 |
| Approach LOS | | D | | | D | | E | | | B |
| Queue Length 50th (m) | | 84.1 | 0.0 | 18.1 | 81.2 | | ~212.5 | 1.4 | | 0.7 |
| Queue Length 95th (m) | | 105.3 | 15.1 | 30.9 | 99.7 | | #290.1 | 9.0 | | 2.8 |
| Internal Link Dist (m) | | 229.2 | | | 650.7 | | 182.2 | | | 48.7 |
| Turn Bay Length (m) | | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | | 855 | 497 | 197 | 1288 | | 744 | 871 | | 854 |
| 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 | | 0.77 | 0.26 | 0.54 | 0.58 | | 1.03 | 0.09 | | 0.01 |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.03 | |
| Intersection Signal Delay: 49.5 | Intersection LOS: D |
| Intersection Capacity Utilization 106.8% | 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.

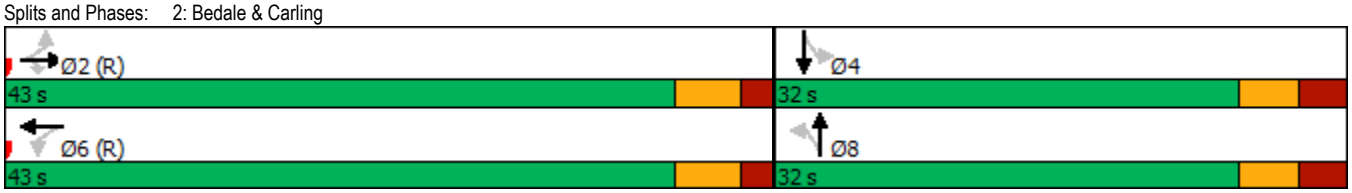
Splits and Phases: 1: Moodie & Carling



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 6 | 792 | 2 | 10 | 832 | 16 | 0 | 4 | 0 |
| Future Volume (vph) | 6 | 792 | 2 | 10 | 832 | 16 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 6 | 792 | 2 | 10 | 839 | 0 | 59 | 0 | 9 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 59.4 | 59.4 | 59.4 | 59.4 | 59.4 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | | 0.17 | | 0.17 |
| v/c Ratio | 0.01 | 0.30 | 0.00 | 0.02 | 0.31 | | 0.21 | | 0.03 |
| Control Delay | 6.2 | 5.1 | 0.0 | 6.2 | 5.2 | | 12.7 | | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 6.2 | 5.1 | 0.0 | 6.2 | 5.2 | | 12.7 | | 0.2 |
| LOS | A | A | A | A | A | | B | | A |
| Approach Delay | | 5.1 | | | 5.2 | | 12.7 | | 0.2 |
| Approach LOS | | A | | | A | | B | | A |
| Queue Length 50th (m) | 0.2 | 18.1 | 0.0 | 0.3 | 19.4 | | 2.0 | | 0.0 |
| Queue Length 95th (m) | 2.0 | 45.3 | 0.0 | 2.7 | 48.6 | | 9.2 | | 0.1 |
| Internal Link Dist (m) | | 432.6 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 466 | 2684 | 1210 | 493 | 2682 | | 531 | | 509 |
| 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 | 0.01 | 0.30 | 0.00 | 0.02 | 0.31 | | 0.11 | | 0.02 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.31 | |
| Intersection Signal Delay: 5.4 | Intersection LOS: A |
| Intersection Capacity Utilization 42.6% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



| Lane Group | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 579 | 727 | 281 | 564 | 191 | 5 | 89 | 1 | 3 |
| Future Volume (vph) | 579 | 727 | 281 | 564 | 191 | 5 | 89 | 1 | 3 |
| Lane Group Flow (vph) | 579 | 727 | 281 | 568 | 0 | 196 | 89 | 0 | 4 |
| Turn Type | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 25.0 | 65.0 | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Total Split (%) | 40.0% | 40.0% | 25.0% | 65.0% | 35.0% | 35.0% | 35.0% | 35.0% | 35.0% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | 50.2 | 50.2 | 68.2 | 68.2 | | 20.2 | 20.2 | | 20.2 |
| Actuated g/C Ratio | 0.50 | 0.50 | 0.68 | 0.68 | | 0.20 | 0.20 | | 0.20 |
| v/c Ratio | 0.34 | 0.65 | 0.50 | 0.25 | | 0.75 | 0.24 | | 0.01 |
| Control Delay | 17.6 | 4.8 | 10.4 | 7.1 | | 53.8 | 7.9 | | 27.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 17.6 | 4.8 | 10.4 | 7.1 | | 53.8 | 7.9 | | 27.8 |
| LOS | B | A | B | A | | D | A | | C |
| Approach Delay | 10.5 | | | 8.2 | | 39.5 | | | 27.8 |
| Approach LOS | B | | | A | | D | | | C |
| Queue Length 50th (m) | 33.6 | 0.0 | 18.4 | 19.6 | | 35.9 | 0.0 | | 0.6 |
| Queue Length 95th (m) | 59.8 | 27.0 | 37.6 | 34.4 | | 54.4 | 11.0 | | 3.1 |
| Internal Link Dist (m) | 229.2 | | | 650.7 | | 185.4 | | | 41.8 |
| Turn Bay Length (m) | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | 1702 | 1123 | 637 | 2308 | | 377 | 503 | | 488 |
| 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 | 0.34 | 0.65 | 0.44 | 0.25 | | 0.52 | 0.18 | | 0.01 |

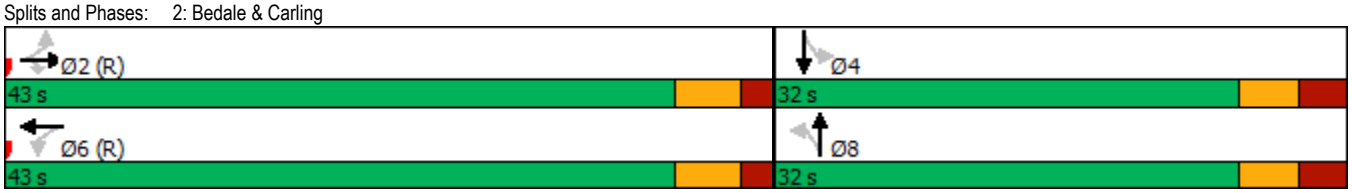
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.75 | |
| Intersection Signal Delay: 13.1 | Intersection LOS: B |
| Intersection Capacity Utilization 86.8% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Moodie & Carling

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 7 | 906 | 12 | 24 | 871 | 7 | 0 | 8 | 1 |
| Future Volume (vph) | 7 | 906 | 12 | 24 | 871 | 7 | 0 | 8 | 1 |
| Lane Group Flow (vph) | 7 | 906 | 12 | 24 | 879 | 0 | 27 | 0 | 18 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 63.7 | 63.7 | 63.7 | 63.7 | 63.7 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | | 0.17 | | 0.17 |
| v/c Ratio | 0.01 | 0.31 | 0.01 | 0.05 | 0.31 | | 0.10 | | 0.07 |
| Control Delay | 5.7 | 4.5 | 0.0 | 5.7 | 4.4 | | 6.4 | | 17.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 5.7 | 4.5 | 0.0 | 5.7 | 4.4 | | 6.4 | | 17.1 |
| LOS | A | A | A | A | A | | A | | B |
| Approach Delay | | 4.4 | | | 4.4 | | 6.4 | | 17.1 |
| Approach LOS | | A | | | A | | A | | B |
| Queue Length 50th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 1.1 |
| Queue Length 95th (m) | 2.1 | 53.7 | 0.1 | 5.0 | 51.5 | | 3.9 | | 5.0 |
| Internal Link Dist (m) | | 432.6 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 483 | 2880 | 1295 | 468 | 2878 | | 527 | | 490 |
| 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 | 0.01 | 0.31 | 0.01 | 0.05 | 0.31 | | 0.05 | | 0.04 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.31 | |
| Intersection Signal Delay: 4.6 | Intersection LOS: A |
| Intersection Capacity Utilization 44.5% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



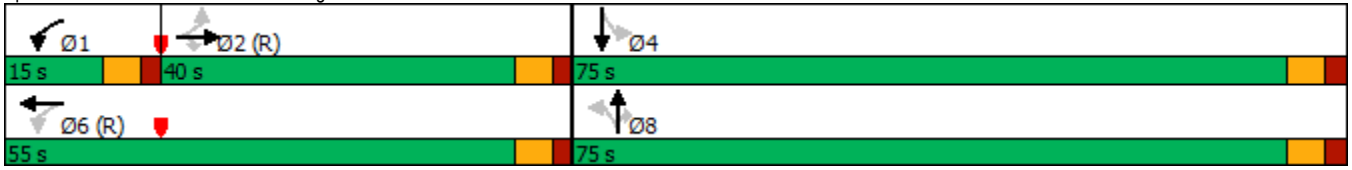
# Future Background 2027

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 694 | 131 | 106 | 788 | 763 | 0 | 82 | 3 | 3 |
| Future Volume (vph) | 1 | 694 | 131 | 106 | 788 | 763 | 0 | 82 | 3 | 3 |
| Lane Group Flow (vph) | 0 | 695 | 131 | 106 | 789 | 0 | 763 | 82 | 0 | 6 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 40.0 | 15.0 | 55.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 30.8% | 30.8% | 30.8% | 11.5% | 42.3% | 57.7% | 57.7% | 57.7% | 57.7% | 57.7% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | | 32.7 | 32.7 | 47.3 | 47.3 | | 71.1 | 71.1 | | 71.1 |
| Actuated g/C Ratio | | 0.25 | 0.25 | 0.36 | 0.36 | | 0.55 | 0.55 | | 0.55 |
| v/c Ratio | | 0.85 | 0.27 | 0.56 | 0.64 | | 1.04 | 0.10 | | 0.01 |
| Control Delay | | 57.5 | 7.5 | 39.2 | 36.8 | | 73.7 | 4.6 | | 14.5 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | | 57.5 | 7.5 | 39.2 | 36.8 | | 73.7 | 4.6 | | 14.5 |
| LOS | | E | A | D | D | | E | A | | B |
| Approach Delay | | 49.6 | | | 37.0 | | 67.0 | | | 14.5 |
| Approach LOS | | D | | | D | | E | | | B |
| Queue Length 50th (m) | | 88.1 | 0.0 | 17.8 | 85.2 | | ~216.1 | 1.4 | | 0.7 |
| Queue Length 95th (m) | | 111.3 | 15.1 | 30.9 | 106.1 | | #290.1 | 9.0 | | 2.8 |
| Internal Link Dist (m) | | 229.2 | | | 650.7 | | 182.2 | | | 48.7 |
| Turn Bay Length (m) | | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | | 855 | 497 | 193 | 1288 | | 735 | 861 | | 842 |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | | 0.81 | 0.26 | 0.55 | 0.61 | | 1.04 | 0.10 | | 0.01 |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.04 | |
| Intersection Signal Delay: 50.9 | Intersection LOS: D |
| Intersection Capacity Utilization 108.9% | 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.

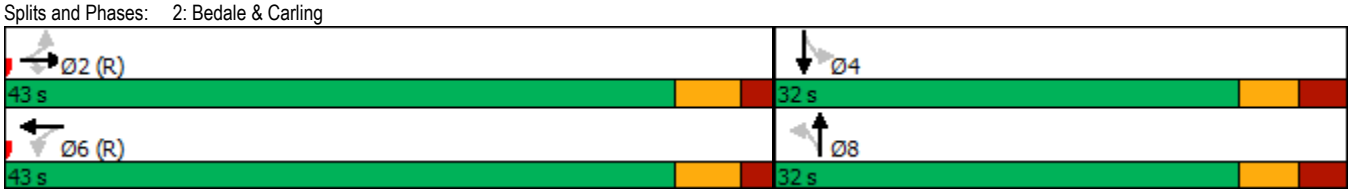
Splits and Phases: 1: Moodie & Carling



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 6 | 832 | 2 | 10 | 875 | 16 | 0 | 4 | 0 |
| Future Volume (vph) | 6 | 832 | 2 | 10 | 875 | 16 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 6 | 832 | 2 | 10 | 882 | 0 | 59 | 0 | 9 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 59.4 | 59.4 | 59.4 | 59.4 | 59.4 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | | 0.17 | | 0.17 |
| v/c Ratio | 0.01 | 0.31 | 0.00 | 0.02 | 0.33 | | 0.21 | | 0.03 |
| Control Delay | 6.2 | 5.2 | 0.0 | 6.2 | 5.3 | | 12.7 | | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 6.2 | 5.2 | 0.0 | 6.2 | 5.3 | | 12.7 | | 0.2 |
| LOS | A | A | A | A | A | | B | | A |
| Approach Delay | | 5.2 | | | 5.3 | | 12.7 | | 0.2 |
| Approach LOS | | A | | | A | | B | | A |
| Queue Length 50th (m) | 0.2 | 19.2 | 0.0 | 0.3 | 20.7 | | 2.0 | | 0.0 |
| Queue Length 95th (m) | 2.0 | 48.2 | 0.0 | 2.7 | 51.8 | | 9.2 | | 0.1 |
| Internal Link Dist (m) | | 432.6 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 443 | 2684 | 1210 | 470 | 2682 | | 531 | | 509 |
| 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 | 0.01 | 0.31 | 0.00 | 0.02 | 0.33 | | 0.11 | | 0.02 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.33 | |
| Intersection Signal Delay: 5.5 | Intersection LOS: A |
| Intersection Capacity Utilization 43.8% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



| Lane Group | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 608 | 727 | 281 | 592 | 191 | 5 | 89 | 1 | 3 |
| Future Volume (vph) | 608 | 727 | 281 | 592 | 191 | 5 | 89 | 1 | 3 |
| Lane Group Flow (vph) | 608 | 727 | 281 | 596 | 0 | 196 | 89 | 0 | 4 |
| Turn Type | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 25.0 | 65.0 | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Total Split (%) | 40.0% | 40.0% | 25.0% | 65.0% | 35.0% | 35.0% | 35.0% | 35.0% | 35.0% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | 50.2 | 50.2 | 68.2 | 68.2 | | 20.2 | 20.2 | | 20.2 |
| Actuated g/C Ratio | 0.50 | 0.50 | 0.68 | 0.68 | | 0.20 | 0.20 | | 0.20 |
| v/c Ratio | 0.36 | 0.65 | 0.51 | 0.26 | | 0.75 | 0.24 | | 0.01 |
| Control Delay | 17.8 | 4.8 | 10.6 | 7.2 | | 53.8 | 7.9 | | 27.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 17.8 | 4.8 | 10.6 | 7.2 | | 53.8 | 7.9 | | 27.8 |
| LOS | B | A | B | A | | D | A | | C |
| Approach Delay | 10.7 | | | 8.3 | | 39.5 | | | 27.8 |
| Approach LOS | B | | | A | | D | | | C |
| Queue Length 50th (m) | 35.6 | 0.0 | 18.4 | 20.7 | | 35.9 | 0.0 | | 0.6 |
| Queue Length 95th (m) | 63.3 | 27.0 | 37.6 | 36.3 | | 54.4 | 11.0 | | 3.1 |
| Internal Link Dist (m) | 229.2 | | | 650.7 | | 185.4 | | | 41.8 |
| Turn Bay Length (m) | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | 1702 | 1123 | 624 | 2308 | | 377 | 503 | | 488 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.36 | 0.65 | 0.45 | 0.26 | | 0.52 | 0.18 | | 0.01 |

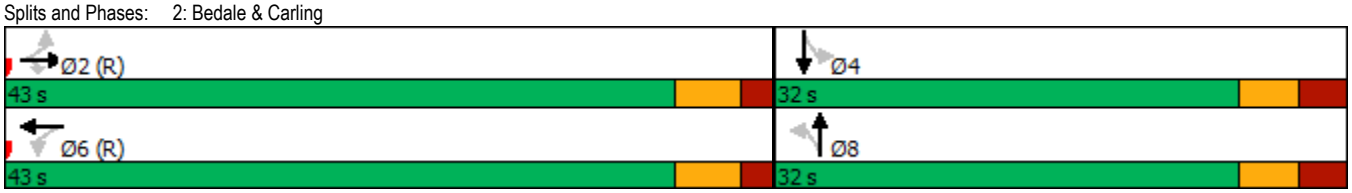
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.75 | |
| Intersection Signal Delay: 13.2 | Intersection LOS: B |
| Intersection Capacity Utilization 87.6% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Moodie & Carling

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 7 | 952 | 12 | 24 | 915 | 7 | 0 | 8 | 1 |
| Future Volume (vph) | 7 | 952 | 12 | 24 | 915 | 7 | 0 | 8 | 1 |
| Lane Group Flow (vph) | 7 | 952 | 12 | 24 | 923 | 0 | 27 | 0 | 18 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 63.7 | 63.7 | 63.7 | 63.7 | 63.7 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | | 0.17 | | 0.17 |
| v/c Ratio | 0.02 | 0.33 | 0.01 | 0.05 | 0.32 | | 0.10 | | 0.07 |
| Control Delay | 5.9 | 4.6 | 0.0 | 5.7 | 4.5 | | 6.4 | | 17.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 5.9 | 4.6 | 0.0 | 5.7 | 4.5 | | 6.4 | | 17.1 |
| LOS | A | A | A | A | A | | A | | B |
| Approach Delay | | 4.5 | | | 4.5 | | 6.4 | | 17.1 |
| Approach LOS | | A | | | A | | A | | B |
| Queue Length 50th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 1.1 |
| Queue Length 95th (m) | 2.1 | 57.3 | 0.1 | 5.1 | 54.9 | | 3.9 | | 5.0 |
| Internal Link Dist (m) | | 432.6 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 459 | 2880 | 1295 | 444 | 2878 | | 527 | | 490 |
| 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 | 0.02 | 0.33 | 0.01 | 0.05 | 0.32 | | 0.05 | | 0.04 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.33 | |
| Intersection Signal Delay: 4.7 | Intersection LOS: A |
| Intersection Capacity Utilization 45.9% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



# Total Projected 2022

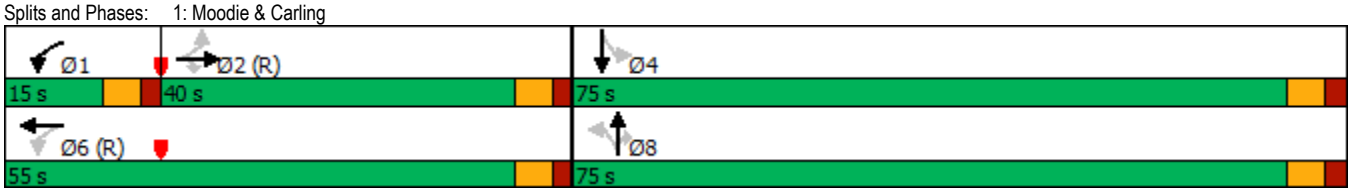
| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 662 | 131 | 126 | 752 | 763 | 0 | 90 | 3 | 3 |
| Future Volume (vph) | 1 | 662 | 131 | 126 | 752 | 763 | 0 | 90 | 3 | 3 |
| Lane Group Flow (vph) | 0 | 663 | 131 | 126 | 753 | 0 | 763 | 90 | 0 | 6 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 40.0 | 15.0 | 55.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 30.8% | 30.8% | 30.8% | 11.5% | 42.3% | 57.7% | 57.7% | 57.7% | 57.7% | 57.7% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | | 31.7 | 31.7 | 46.5 | 46.5 | | 71.9 | 71.9 | | 71.9 |
| Actuated g/C Ratio | | 0.24 | 0.24 | 0.36 | 0.36 | | 0.55 | 0.55 | | 0.55 |
| v/c Ratio | | 0.84 | 0.28 | 0.65 | 0.62 | | 1.03 | 0.10 | | 0.01 |
| Control Delay | | 57.2 | 7.6 | 44.7 | 36.8 | | 69.6 | 4.5 | | 14.5 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | | 57.2 | 7.6 | 44.7 | 36.8 | | 69.6 | 4.5 | | 14.5 |
| LOS | | E | A | D | D | | E | A | | B |
| Approach Delay | | 49.0 | | | 37.9 | | 62.8 | | | 14.5 |
| Approach LOS | | D | | | D | | E | | | B |
| Queue Length 50th (m) | | 84.1 | 0.0 | 21.8 | 81.5 | | ~212.8 | 1.5 | | 0.7 |
| Queue Length 95th (m) | | 105.3 | 15.1 | 35.9 | 100.3 | | #290.1 | 9.6 | | 2.8 |
| Internal Link Dist (m) | | 229.2 | | | 716.2 | | 182.2 | | | 48.7 |
| Turn Bay Length (m) | | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | | 855 | 497 | 196 | 1288 | | 744 | 873 | | 852 |
| 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 | | 0.78 | 0.26 | 0.64 | 0.58 | | 1.03 | 0.10 | | 0.01 |

**Intersection Summary**

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 49.7 — Intersection LOS: D
Intersection Capacity Utilization 106.9% — 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.

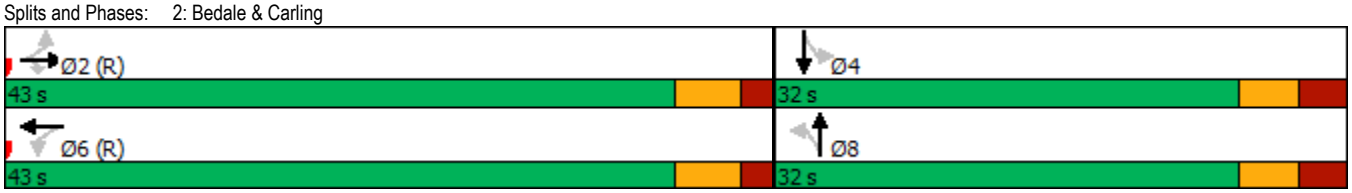
Splits and Phases: 1: Moodie & Carling



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 6 | 800 | 2 | 10 | 835 | 16 | 0 | 4 | 0 |
| Future Volume (vph) | 6 | 800 | 2 | 10 | 835 | 16 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 6 | 800 | 2 | 10 | 842 | 0 | 59 | 0 | 9 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 59.4 | 59.4 | 59.4 | 59.4 | 59.4 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | | 0.17 | | 0.17 |
| v/c Ratio | 0.01 | 0.30 | 0.00 | 0.02 | 0.31 | | 0.21 | | 0.03 |
| Control Delay | 6.2 | 5.1 | 0.0 | 6.2 | 5.2 | | 12.7 | | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 6.2 | 5.1 | 0.0 | 6.2 | 5.2 | | 12.7 | | 0.2 |
| LOS | A | A | A | A | A | | B | | A |
| Approach Delay | | 5.1 | | | 5.2 | | 12.7 | | 0.2 |
| Approach LOS | | A | | | A | | B | | A |
| Queue Length 50th (m) | 0.2 | 18.3 | 0.0 | 0.3 | 19.4 | | 2.0 | | 0.0 |
| Queue Length 95th (m) | 2.0 | 45.9 | 0.0 | 2.7 | 48.7 | | 9.2 | | 0.1 |
| Internal Link Dist (m) | | 488.1 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 465 | 2684 | 1210 | 488 | 2682 | | 531 | | 509 |
| 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 | 0.01 | 0.30 | 0.00 | 0.02 | 0.31 | | 0.11 | | 0.02 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.31 | |
| Intersection Signal Delay: 5.4 | Intersection LOS: A |
| Intersection Capacity Utilization 42.7% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 800 | 8 | 3 | 857 | 20 | 7 |
| Future Volume (Veh/h) | 800 | 8 | 3 | 857 | 20 | 7 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 842 | 8 | 3 | 902 | 21 | 7 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 850 | | 1303 | 425 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 850 | | 1303 | 425 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 86 | 99 |
| cM capacity (veh/h) | | | 784 | | 152 | 578 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 561 | 289 | 304 | 601 | 28 |
| Volume Left | 0 | 0 | 3 | 0 | 21 |
| Volume Right | 0 | 8 | 0 | 0 | 7 |
| cSH | 1700 | 1700 | 784 | 1700 | 186 |
| Volume to Capacity | 0.33 | 0.17 | 0.00 | 0.35 | 0.15 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.1 | 0.0 | 3.9 |
| Control Delay (s) | 0.0 | 0.0 | 0.1 | 0.0 | 27.8 |
| Lane LOS | | | A | | D |
| Approach Delay (s) | 0.0 | | 0.0 | | 27.8 |
| Approach LOS | | | | | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.5 | | | |
| Intersection Capacity Utilization | 37.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 582 | 727 | 294 | 566 | 191 | 5 | 107 | 1 | 3 |
| Future Volume (vph) | 582 | 727 | 294 | 566 | 191 | 5 | 107 | 1 | 3 |
| Lane Group Flow (vph) | 582 | 727 | 294 | 570 | 0 | 196 | 107 | 0 | 4 |
| Turn Type | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 25.0 | 65.0 | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Total Split (%) | 40.0% | 40.0% | 25.0% | 65.0% | 35.0% | 35.0% | 35.0% | 35.0% | 35.0% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | 49.8 | 49.8 | 68.2 | 68.2 | | 20.2 | 20.2 | | 20.2 |
| Actuated g/C Ratio | 0.50 | 0.50 | 0.68 | 0.68 | | 0.20 | 0.20 | | 0.20 |
| v/c Ratio | 0.34 | 0.65 | 0.52 | 0.25 | | 0.75 | 0.27 | | 0.01 |
| Control Delay | 17.9 | 4.9 | 10.7 | 7.1 | | 53.8 | 7.6 | | 27.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 17.9 | 4.9 | 10.7 | 7.1 | | 53.8 | 7.6 | | 27.8 |
| LOS | B | A | B | A | | D | A | | C |
| Approach Delay | 10.7 | | | 8.3 | | 37.5 | | | 27.8 |
| Approach LOS | B | | | A | | D | | | C |
| Queue Length 50th (m) | 34.0 | 0.0 | 19.5 | 19.6 | | 35.9 | 0.0 | | 0.6 |
| Queue Length 95th (m) | 61.0 | 27.6 | 39.5 | 34.6 | | 54.4 | 11.9 | | 3.1 |
| Internal Link Dist (m) | 229.2 | | | 691.7 | | 185.4 | | | 41.8 |
| Turn Bay Length (m) | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | 1689 | 1120 | 635 | 2308 | | 377 | 515 | | 488 |
| 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 | 0.34 | 0.65 | 0.46 | 0.25 | | 0.52 | 0.21 | | 0.01 |

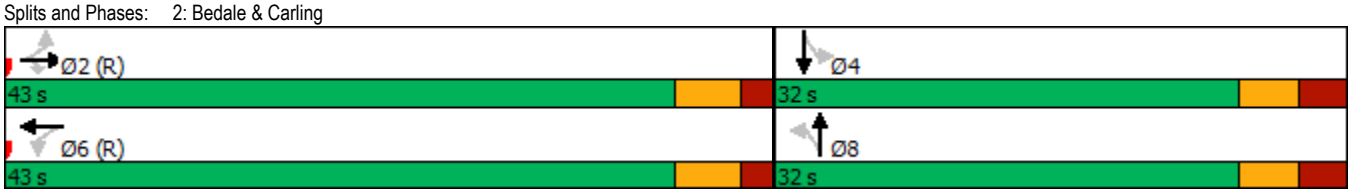
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.75 | |
| Intersection Signal Delay: 13.2 | Intersection LOS: B |
| Intersection Capacity Utilization 87.4% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Moodie & Carling

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 7 | 911 | 12 | 24 | 878 | 7 | 0 | 8 | 1 |
| Future Volume (vph) | 7 | 911 | 12 | 24 | 878 | 7 | 0 | 8 | 1 |
| Lane Group Flow (vph) | 7 | 911 | 12 | 24 | 886 | 0 | 27 | 0 | 18 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 63.7 | 63.7 | 63.7 | 63.7 | 63.7 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | | 0.17 | | 0.17 |
| v/c Ratio | 0.01 | 0.32 | 0.01 | 0.05 | 0.31 | | 0.10 | | 0.07 |
| Control Delay | 5.7 | 4.5 | 0.0 | 5.7 | 4.4 | | 6.4 | | 17.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 5.7 | 4.5 | 0.0 | 5.7 | 4.4 | | 6.4 | | 17.1 |
| LOS | A | A | A | A | A | | A | | B |
| Approach Delay | | 4.4 | | | 4.4 | | 6.4 | | 17.1 |
| Approach LOS | | A | | | A | | A | | B |
| Queue Length 50th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 1.1 |
| Queue Length 95th (m) | 2.1 | 54.0 | 0.1 | 5.0 | 52.0 | | 3.9 | | 5.0 |
| Internal Link Dist (m) | | 515.4 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 479 | 2880 | 1295 | 465 | 2878 | | 527 | | 490 |
| 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 | 0.01 | 0.32 | 0.01 | 0.05 | 0.31 | | 0.05 | | 0.04 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.32 | |
| Intersection Signal Delay: 4.6 | Intersection LOS: A |
| Intersection Capacity Utilization 44.7% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 925 | 17 | 6 | 851 | 13 | 4 |
| Future Volume (Veh/h) | 925 | 17 | 6 | 851 | 13 | 4 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 974 | 18 | 6 | 896 | 14 | 4 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 992 | | 1443 | 496 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 992 | | 1443 | 496 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 89 | 99 |
| cM capacity (veh/h) | | | 693 | | 122 | 519 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 649 | 343 | 305 | 597 | 18 |
| Volume Left | 0 | 0 | 6 | 0 | 14 |
| Volume Right | 0 | 18 | 0 | 0 | 4 |
| cSH | 1700 | 1700 | 693 | 1700 | 147 |
| Volume to Capacity | 0.38 | 0.20 | 0.01 | 0.35 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.2 | 0.0 | 3.1 |
| Control Delay (s) | 0.0 | 0.0 | 0.3 | 0.0 | 32.9 |
| Lane LOS | | | A | | D |
| Approach Delay (s) | 0.0 | | 0.1 | | 32.9 |
| Approach LOS | | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 39.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

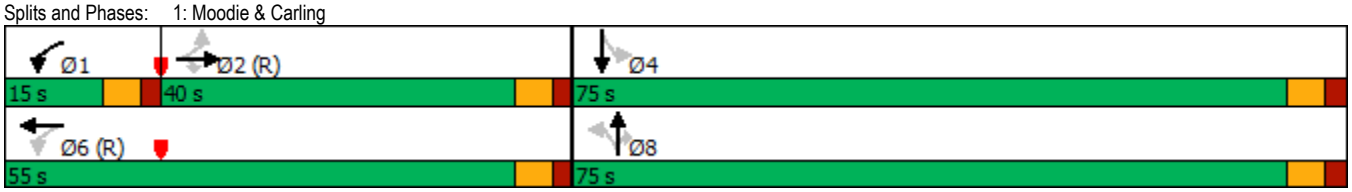
# Total Projected 2027

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 695 | 131 | 126 | 791 | 763 | 0 | 90 | 3 | 3 |
| Future Volume (vph) | 1 | 695 | 131 | 126 | 791 | 763 | 0 | 90 | 3 | 3 |
| Lane Group Flow (vph) | 0 | 696 | 131 | 126 | 792 | 0 | 763 | 90 | 0 | 6 |
| Turn Type | Perm | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 40.0 | 15.0 | 55.0 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 30.8% | 30.8% | 30.8% | 11.5% | 42.3% | 57.7% | 57.7% | 57.7% | 57.7% | 57.7% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | | 32.6 | 32.6 | 47.4 | 47.4 | | 71.0 | 71.0 | | 71.0 |
| Actuated g/C Ratio | | 0.25 | 0.25 | 0.36 | 0.36 | | 0.55 | 0.55 | | 0.55 |
| v/c Ratio | | 0.86 | 0.27 | 0.66 | 0.64 | | 1.04 | 0.10 | | 0.01 |
| Control Delay | | 57.9 | 7.5 | 45.4 | 36.8 | | 74.0 | 4.5 | | 14.5 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | | 57.9 | 7.5 | 45.4 | 36.8 | | 74.0 | 4.5 | | 14.5 |
| LOS | | E | A | D | D | | E | A | | B |
| Approach Delay | | 49.9 | | | 38.0 | | 66.7 | | | 14.5 |
| Approach LOS | | D | | | D | | E | | | B |
| Queue Length 50th (m) | | 88.3 | 0.0 | 21.4 | 85.6 | | ~216.1 | 1.5 | | 0.7 |
| Queue Length 95th (m) | | 111.5 | 15.1 | #37.0 | 106.6 | | #290.1 | 9.6 | | 2.8 |
| Internal Link Dist (m) | | 229.2 | | | 687.9 | | 182.2 | | | 48.7 |
| Turn Bay Length (m) | | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | | 855 | 497 | 193 | 1288 | | 734 | 863 | | 841 |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | | 0.81 | 0.26 | 0.65 | 0.61 | | 1.04 | 0.10 | | 0.01 |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 130 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 100 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.04 | |
| Intersection Signal Delay: 51.1 | Intersection LOS: D |
| Intersection Capacity Utilization 109.0% | ICU Level of Service H |
| 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.

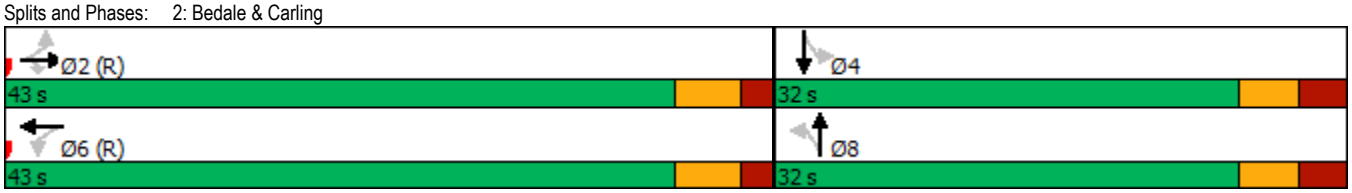
Splits and Phases: 1: Moodie & Carling



| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 6 | 840 | 2 | 10 | 878 | 16 | 0 | 4 | 0 |
| Future Volume (vph) | 6 | 840 | 2 | 10 | 878 | 16 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 6 | 840 | 2 | 10 | 885 | 0 | 59 | 0 | 9 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 59.4 | 59.4 | 59.4 | 59.4 | 59.4 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | | 0.17 | | 0.17 |
| v/c Ratio | 0.01 | 0.31 | 0.00 | 0.02 | 0.33 | | 0.21 | | 0.03 |
| Control Delay | 6.2 | 5.2 | 0.0 | 6.2 | 5.3 | | 12.7 | | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 6.2 | 5.2 | 0.0 | 6.2 | 5.3 | | 12.7 | | 0.2 |
| LOS | A | A | A | A | A | | B | | A |
| Approach Delay | | 5.2 | | | 5.3 | | 12.7 | | 0.2 |
| Approach LOS | | A | | | A | | B | | A |
| Queue Length 50th (m) | 0.2 | 19.5 | 0.0 | 0.3 | 20.8 | | 2.0 | | 0.0 |
| Queue Length 95th (m) | 2.0 | 48.7 | 0.0 | 2.7 | 52.2 | | 9.2 | | 0.1 |
| Internal Link Dist (m) | | 518.9 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 441 | 2684 | 1210 | 466 | 2682 | | 531 | | 509 |
| 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 | 0.01 | 0.31 | 0.00 | 0.02 | 0.33 | | 0.11 | | 0.02 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.33 | |
| Intersection Signal Delay: 5.5 | Intersection LOS: A |
| Intersection Capacity Utilization 43.9% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 841 | 8 | 3 | 901 | 20 | 7 |
| Future Volume (Veh/h) | 841 | 8 | 3 | 901 | 20 | 7 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 885 | 8 | 3 | 948 | 21 | 7 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 893 | | 1369 | 446 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 893 | | 1369 | 446 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 85 | 99 |
| cM capacity (veh/h) | | | 755 | | 137 | 559 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 590 | 303 | 319 | 632 | 28 |
| Volume Left | 0 | 0 | 3 | 0 | 21 |
| Volume Right | 0 | 8 | 0 | 0 | 7 |
| cSH | 1700 | 1700 | 755 | 1700 | 169 |
| Volume to Capacity | 0.35 | 0.18 | 0.00 | 0.37 | 0.17 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.1 | 0.0 | 4.4 |
| Control Delay (s) | 0.0 | 0.0 | 0.1 | 0.0 | 30.5 |
| Lane LOS | | | A | | D |
| Approach Delay (s) | 0.0 | | 0.0 | | 30.5 |
| Approach LOS | | | | | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.5 | | | |
| Intersection Capacity Utilization | 38.5% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 611 | 727 | 294 | 594 | 191 | 5 | 107 | 1 | 3 |
| Future Volume (vph) | 611 | 727 | 294 | 594 | 191 | 5 | 107 | 1 | 3 |
| Lane Group Flow (vph) | 611 | 727 | 294 | 598 | 0 | 196 | 107 | 0 | 4 |
| Turn Type | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA |
| Protected Phases | 2 | | 1 | 6 | | 8 | | | 4 |
| Permitted Phases | | 2 | 6 | | 8 | | 8 | 4 | |
| Detector Phase | 2 | 2 | 1 | 6 | 8 | 8 | 8 | 4 | 4 |
| Switch Phase | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 5.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Minimum Split (s) | 28.6 | 28.6 | 10.6 | 28.6 | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 |
| Total Split (s) | 40.0 | 40.0 | 25.0 | 65.0 | 35.0 | 35.0 | 35.0 | 35.0 | 35.0 |
| Total Split (%) | 40.0% | 40.0% | 25.0% | 65.0% | 35.0% | 35.0% | 35.0% | 35.0% | 35.0% |
| Yellow Time (s) | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 1.9 | 1.9 | 1.9 | 1.9 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| 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 | 5.6 | | 6.0 | 6.0 | | 6.0 |
| Lead/Lag | Lag | Lag | Lead | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | | |
| Recall Mode | C-Min | C-Min | None | C-Min | None | None | None | None | None |
| Act Effct Green (s) | 49.8 | 49.8 | 68.2 | 68.2 | | 20.2 | 20.2 | | 20.2 |
| Actuated g/C Ratio | 0.50 | 0.50 | 0.68 | 0.68 | | 0.20 | 0.20 | | 0.20 |
| v/c Ratio | 0.36 | 0.65 | 0.54 | 0.26 | | 0.75 | 0.27 | | 0.01 |
| Control Delay | 18.1 | 4.9 | 11.0 | 7.2 | | 53.8 | 7.6 | | 27.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Total Delay | 18.1 | 4.9 | 11.0 | 7.2 | | 53.8 | 7.6 | | 27.8 |
| LOS | B | A | B | A | | D | A | | C |
| Approach Delay | 10.9 | | | 8.5 | | 37.5 | | | 27.8 |
| Approach LOS | B | | | A | | D | | | C |
| Queue Length 50th (m) | 36.1 | 0.0 | 19.5 | 20.8 | | 35.9 | 0.0 | | 0.6 |
| Queue Length 95th (m) | 64.4 | 27.6 | 39.5 | 36.4 | | 54.4 | 11.9 | | 3.1 |
| Internal Link Dist (m) | 229.2 | | | 650.7 | | 185.4 | | | 41.8 |
| Turn Bay Length (m) | | 125.0 | 75.0 | | | | | | |
| Base Capacity (vph) | 1689 | 1120 | 622 | 2308 | | 377 | 515 | | 488 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 |
| Reduced v/c Ratio | 0.36 | 0.65 | 0.47 | 0.26 | | 0.52 | 0.21 | | 0.01 |

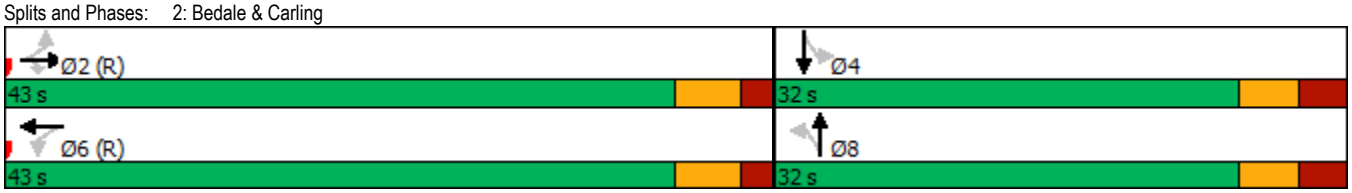
| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 100 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.75 | |
| Intersection Signal Delay: 13.3 | Intersection LOS: B |
| Intersection Capacity Utilization 87.6% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Moodie & Carling

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | |
| Traffic Volume (vph) | 7 | 957 | 12 | 24 | 922 | 7 | 0 | 8 | 1 |
| Future Volume (vph) | 7 | 957 | 12 | 24 | 922 | 7 | 0 | 8 | 1 |
| Lane Group Flow (vph) | 7 | 957 | 12 | 24 | 930 | 0 | 27 | 0 | 18 |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 2 | | | 6 | | 8 | | 4 |
| Permitted Phases | 2 | | 2 | 6 | | 8 | | 4 | |
| Detector Phase | 2 | 2 | 2 | 6 | 6 | 8 | 8 | 4 | 4 |
| 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) | 25.6 | 25.6 | 25.6 | 25.6 | 25.6 | 29.1 | 29.1 | 29.1 | 29.1 |
| Total Split (s) | 43.0 | 43.0 | 43.0 | 43.0 | 43.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| Total Split (%) | 57.3% | 57.3% | 57.3% | 57.3% | 57.3% | 42.7% | 42.7% | 42.7% | 42.7% |
| 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) | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| 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 | 5.6 | 5.6 | | 6.1 | | 6.1 |
| Lead/Lag | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | |
| Recall Mode | C-Min | C-Min | C-Min | C-Min | C-Min | None | None | None | None |
| Act Effct Green (s) | 63.7 | 63.7 | 63.7 | 63.7 | 63.7 | | 12.6 | | 12.6 |
| Actuated g/C Ratio | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | | 0.17 | | 0.17 |
| v/c Ratio | 0.02 | 0.33 | 0.01 | 0.05 | 0.32 | | 0.10 | | 0.07 |
| Control Delay | 5.9 | 4.6 | 0.0 | 5.8 | 4.5 | | 6.4 | | 17.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 |
| Total Delay | 5.9 | 4.6 | 0.0 | 5.8 | 4.5 | | 6.4 | | 17.1 |
| LOS | A | A | A | A | A | | A | | B |
| Approach Delay | | 4.5 | | | 4.5 | | 6.4 | | 17.1 |
| Approach LOS | | A | | | A | | A | | B |
| Queue Length 50th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 1.1 |
| Queue Length 95th (m) | 2.1 | 57.7 | 0.1 | 5.1 | 55.4 | | 3.9 | | 5.0 |
| Internal Link Dist (m) | | 556.4 | | | 93.8 | | 51.2 | | 59.5 |
| Turn Bay Length (m) | 30.0 | | 15.0 | 30.0 | | | | | |
| Base Capacity (vph) | 456 | 2880 | 1295 | 441 | 2878 | | 527 | | 490 |
| 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 | 0.02 | 0.33 | 0.01 | 0.05 | 0.32 | | 0.05 | | 0.04 |

| Intersection Summary | |
|---|---|
| Cycle Length: 75 | |
| Actuated Cycle Length: 75 | |
| Offset: 7 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 55 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.33 | |
| Intersection Signal Delay: 4.7 | Intersection LOS: A |
| Intersection Capacity Utilization 46.0% | ICU Level of Service A |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Bedale & Carling



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 972 | 17 | 6 | 895 | 13 | 4 |
| Future Volume (Veh/h) | 972 | 17 | 6 | 895 | 13 | 4 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 1023 | 18 | 6 | 942 | 14 | 4 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 1041 | | 1515 | 520 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1041 | | 1515 | 520 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 87 | 99 |
| cM capacity (veh/h) | | | 664 | | 109 | 501 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 682 | 359 | 320 | 628 | 18 |
| Volume Left | 0 | 0 | 6 | 0 | 14 |
| Volume Right | 0 | 18 | 0 | 0 | 4 |
| cSH | 1700 | 1700 | 664 | 1700 | 132 |
| Volume to Capacity | 0.40 | 0.21 | 0.01 | 0.37 | 0.14 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.2 | 0.0 | 3.5 |
| Control Delay (s) | 0.0 | 0.0 | 0.3 | 0.0 | 36.5 |
| Lane LOS | | | A | | E |
| Approach Delay (s) | 0.0 | | 0.1 | | 36.5 |
| Approach LOS | | | | | E |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.4 | | | |
| Intersection Capacity Utilization | 40.5% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |