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Residential

Commercial &
Institutional

Environmental
Restoration



Proposed Development 3711, 3715, 3719, and 3725 Carp Road, Ottawa

Transportation Impact Assessment

3711 - 3725 Carp Road
Transportation Impact Assessment

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
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May 2023

Novatech File: 121173
Ref: R-2023-055

May 12, 2023

City of Ottawa
Planning, Real Estate, and Economic Development Department
110 Laurier Ave. W., 4th Floor,
Ottawa, Ontario K1P 1J1

Attention: Ms. Josiane Gervais
Project Manager, Infrastructure Approvals

Dear Ms. Gervais:

Reference: 3711, 3715, 3719, and 3725 Carp Road
Transportation Impact Assessment
Novatech File No. 121173

We are pleased to submit the following Transportation Impact Assessment (TIA) in support of a Draft Plan of Subdivision application on a site with four municipal addresses – 3711, 3715, 3719, and 3725 Carp Road, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

If you have any questions or comments regarding this report, please feel free to contact Jennifer Luong, or the undersigned.

Yours truly,

NOVATECH



Joshua Audia, P.Eng., for Rochelle Fortier, P.Eng.
Project Engineer | Transportation



TIA Plan Reports

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

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

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

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed¹ or registered² professional in good standing, whose field of expertise [check appropriate field(s)] is either transportation engineering or transportation planning .

1,2 License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

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Dated at Ottawa this 12th day of May, 2023.
(City)

Name: Jennifer Luong, P.Eng.
(Please Print)

Professional Title: Senior Project Manager, Transportation



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

| Office Contact Information (Please Print) | |
|--|---------------------------------------|
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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared in support of a Draft Plan of Subdivision application on a site with four municipal addresses - 3711, 3715, 3719, and 3725 Carp Road (together the "Subject Site").

The proposed mixed-use development conceptually includes seven buildings. A total of 78 residential units and 18 commercial units (1,606m² of GFA) are proposed. Two of the buildings fronting Carp Road are proposed to include 9 "lifestyle units" each which have ground floor commercial use with two levels of residential above. Behind these, the other five buildings are proposed to include 12 stacked dwellings each. Vehicular and pedestrian access is from Carp Road and access through the site would be via private streets. A total of 146 surface parking spaces are proposed throughout the site. The proposed development will be completed in a single phase, with anticipated buildout by 2027.

The main conclusions and recommendations of this TIA are summarized below:

Existing and Background Intersection Operations

- All study area intersections are anticipated to operate with delays of 13 seconds or less (LOS B or better). No queueing issues are anticipated.
- The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 35m during the Saturday peak hour and is not anticipated to reach the railway crossing.

Development and Access Design

- Access to the development is provided by a private street that connects to Carp Road, approximately 70m north of Rivington Street, measured from nearest edge to nearest edge. Stop control will be provided at the access, with free flow on Carp Road. The width of the private street is proposed to be 6.7m.
- The proposed access meets all requirements of the City's Zoning By-Law, as well as TAC Geometric Design Guidelines.
- Sidewalks are shown on the Concept Plan and are proposed throughout the site, linking the main building entrances with the parking areas and connecting to the existing sidewalk along the Carp Road. The sidewalk along Carp Road will be continuous and depressed across the site access.

Boundary Streets

- Carp Road meets the target Truck Level of Service (TkLOS) but does not meet the target Pedestrian Level of Service (PLOS) or Bicycle Level of Service (BLOS).
- The target PLOS C is only achievable for an operating speed of 60km/h, no parking, and an AADT above 3,000vpd through the provision of a 2.0m sidewalk with a 2.0m boulevard. This is identified for the City's consideration.

- The target BLOS C is not achievable for mixed traffic on roadways with an operating speed of 60km/h. A minimum 1.2m wide bike lane would achieve the target BLOS. The Ontario Traffic Manual (OTM) – Book 18 *Desirable Cycling Facility Pre-Selection Nomograph (Urban Context)* suggests that a designated facility (such a bike lanes) should be considered. This is identified for the City’s consideration.
- As part of the draft 2024 Transportation Master Plan, Carp Road from Galetta Side Road to Highway 417 and Donald B. Munro Drive east of Carp Road are shown as part of the proposed paved shoulder network (rural active transportation network).

Transportation Demand Management

- The proposed development conforms to the City’s TDM initiatives by providing connections to the local pedestrian network and the provision of bicycle parking on-site.

Transit

- The proposed subdivision is not anticipated to generate any new transit trips. This is due to the limited transit service currently provided in the Village of Carp. Any transit users were accounted for as vehicle trips for this study, as they are anticipated to travel to Park-n-Ride facilities in order to access more reliable transit.
- The nearest facility is the Carp Park-n-Ride which is located north of Stittsville at Highway 417 on Westbrook Road (approximately 10km south of the subject site). It offers easy access to Connexion routes and free parking with up to 156 spaces.

Total Intersection Operations

- All study area intersections are anticipated to operate with a delay of 14 seconds or less (LOS B or better).
- The site access is anticipated to operate acceptably under side street stop control. Queues of less than one vehicle are anticipated leaving the site. A review of the MTO left turn lane warrant graphs indicates that no northbound left turn lane is required for the site.
- The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 40m during the Saturday peak hour and is not anticipated to reach the railway crossing.
- The addition of traffic generated by the proposed development is not anticipated to have a significant impact on the overall intersection operations within the study area.

1.0 INTRODUCTION

This Transportation Impact Assessment (TIA) has been prepared in support of a Draft Plan of Subdivision application on a site with four municipal addresses - 3711, 3715, 3719, and 3725 Carp Road (together the "Subject Site").

The subject site comprises 2.28 hectares of land on the west side of Carp Road and on the north bank of the Carp River. Historically it has been developed with a number of detached dwellings and was previously (between 1976 and 2014) occupied by the office and depot for Karson Cartage. By 2015 all of the structures on-site (houses/depot buildings) have been removed, and it has been vacant of development since.

The subject site is surrounded by the following:

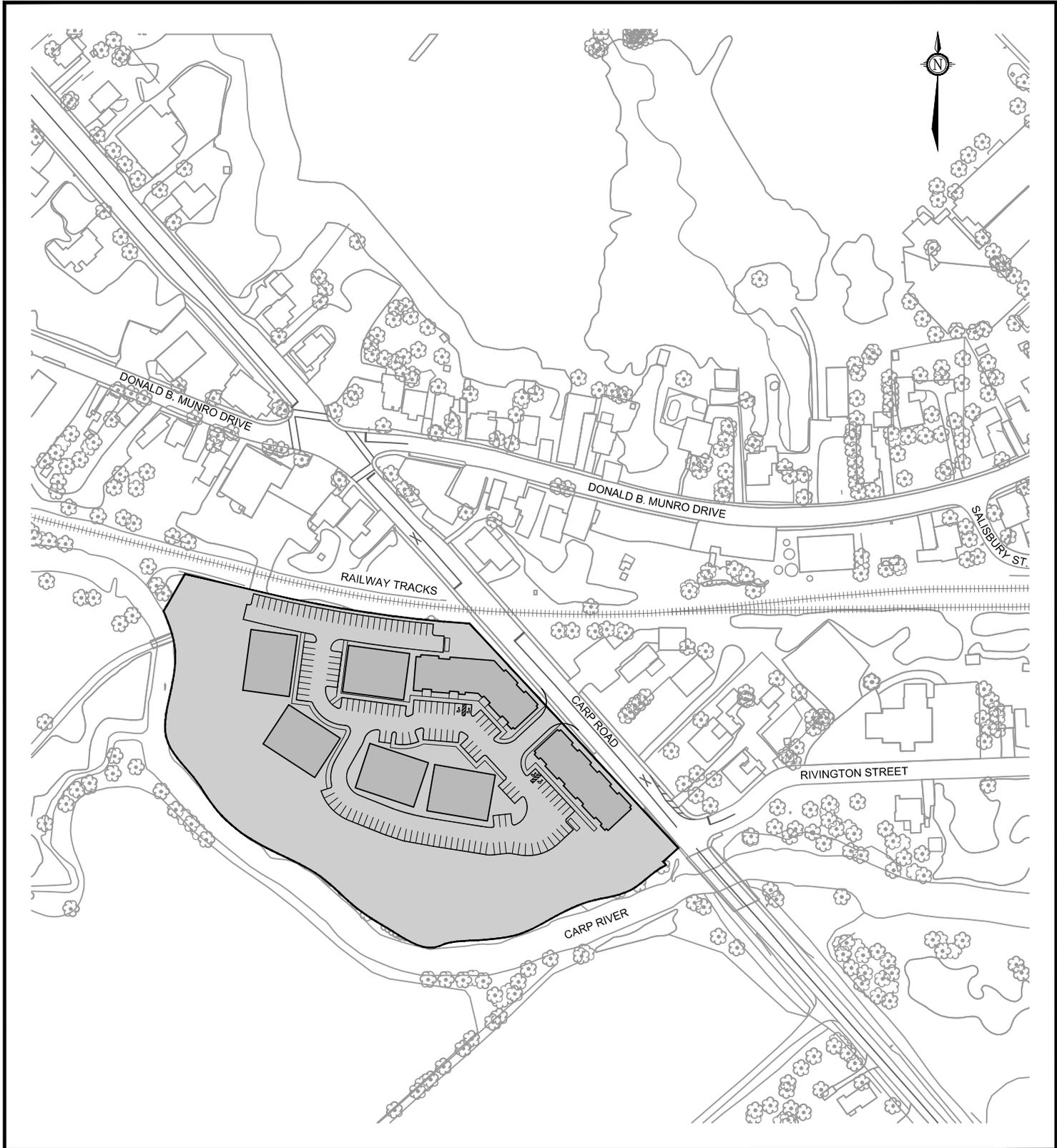
- An active rail line (Renfrew Rail Corridor) to the north;
- Carp Road to the east;
- The Carp River to the south and west.

The most recent aerial view of the subject site is provided in **Figure 1**. A context plan is included as **Figure 2**.

Figure 1: View of the Subject Site



GeoOttawa (2021 aerial)



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3725 CARP ROAD

CONTEXT PLAN

SCALE N.T.S.

DATE FEB 2023

JOB 121173

FIGURE FIGURE 2

2.0 PROPOSED DEVELOPMENT

The subject site is zoned Village Mixed Use with an exception – VM [666r]. Stacked dwelling is a permitted use. A future Zoning By-law Amendment will be required to permit this Planned Unit Development and to permit increased height and a reduced railway setback but is not being filed at this time. Schedule B9 of the Official Plan designates the subject site as Village Core. Schedule A of the Carp Secondary Plan designates the majority of the subject site as Village Core and the area abutting the Carp River as Village Greenspace.

The proposed mixed-use development conceptually includes seven buildings. A total of 78 residential units and 18 commercial units (1,606m² of GFA) are proposed. Two of the buildings fronting Carp Road are proposed to include 9 “lifestyle units” each which have ground floor commercial use with two levels of residential above. Behind these, the other five buildings are proposed to include 12 stacked dwellings each. Vehicular and pedestrian access is from Carp Road and access through the site would be via private streets. A total of 146 surface parking spaces are proposed throughout the site.

The proposed development will be completed in a single phase, with anticipated buildout by 2027.

Copies of the draft plan and concept plan are included in **Appendix A**.

3.0 SCREENING

The City’s 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City’s TIA Screening Form, which is included in **Appendix B**. The trigger results are as follows.

- Trip Generation Trigger – The development is anticipated to generate over 60 peak hour person trips; further assessment is required based on this trigger.
- Location Triggers – The development is located within the Carp Village Core Design Priority Area (DPA) and proposes a new connection to a Spine Cycling Route (Carp Road); further assessment is required based on this trigger.
- Safety Triggers – The site abuts an active rail line which is a safety concern within 500m of the development; further assessment is required based on this trigger.

4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

All roadways discussed below fall under the jurisdiction of the City of Ottawa. The roadway network of the greater area surrounding the subject site is illustrated in **Figure 3**.

Carp Road is an arterial roadway that generally runs on a north-south alignment between Galetta Side Road and Stittsville Main Street. Within the study area, Carp Road has a two-lane undivided urban cross-section and a posted speed of 50km/h. A concrete sidewalk is provided on the west side

of the road, north of the subject site's current driveway, and an asphalt sidewalk is provided on the east side north of Rivington Street, changing to concrete near Donald B. Munro Drive. Carp Road is classified as a truck route, allowing full loads. On-street parking is permitted on the east side of Carp Road opposite the subject site and on both sides of the road north of Donald B. Munro Drive, near the Carp Fairgrounds. The City of Ottawa's Official Plan identifies a right-of-way (ROW) protection of 23m for Carp Road between 600m south of Craig Side Road and 600m north of March Road. A road widening will be required as part of this application and is shown on the Draft Plan.

Donald B. Munro Drive is a collector roadway that generally runs on an east-west alignment within the study area, running between Kinburn Side Road and March Road. Within the study area, Donald B. Munro Drive has a two-lane undivided urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit of 40km/h. Donald B. Munro Drive is not classified as a truck route. Street parking is permitted on the south side east of Carp Road.

Rivington Street is a local roadway which runs from Carp Road and continues east for approximately 600m, where it terminates in a cul-de-sac. This roadway has a two-lane cross-section, primarily urban, with a posted speed limit of 40km/h.

Figure 3: Roadway Network



4.1.2 Pedestrian and Cycling Facilities

The pedestrian and cycling network of the greater area surrounding the subject site is illustrated in Figure 4.

Figure 4: Pedestrian and Cycling Network



In the City of Ottawa’s Ultimate Cycling Network, Carp Road is classified as a Spine Route south of Donald B. Munro Drive, and Donald B. Munro Drive is classified as a Local Route east of Carp Road. To the north and west of the Carp Road/Donald B. Munro Drive intersection, the study area roadways have no cycling route designation. The Renfrew Rail Corridor north of the subject site is classified as a Major Pathway.

Within the existing cycling network, Carp Road south of Donald B. Munro Drive is noted as having paved shoulders, and Donald B. Munro Drive east of Carp Road is noted as a Suggested Route.

Within the study area, concrete sidewalks are provided on both sides of Donald B. Munro Drive and on the west side of Carp Road. The sidewalks on the east side of Carp Road are concrete within proximity of the intersection with Donald B. Munro Drive, before transitioning to asphalt sidewalks to the south of the intersection and terminating at Rivington Street. A pedestrian crossover is provided on Carp Road near the Carp Fairgrounds (at Falldown Lane).

No dedicated pedestrian or cycling facilities are provided on Rivington Street.

4.1.3 Intersections

Carp Road/Donald B. Munro Drive

- Unsignalized four-legged intersection
- All-way stop controlled
- Single lane approaches on all legs
- Marked pedestrian crossings on all four approaches



Carp Road/Rivington Street

- Unsignalized three-legged intersection
- Stop control on Rivington Street with free flow on Carp Road
- Single lane approaches on all legs



Carp Road/Renfrew Rail Corridor

A railway corridor owned by the City of Ottawa crosses Carp Road north of the subject site and this intersection is controlled by a level crossing with bells and lights, but no gate.



4.1.4 Driveways

The City's 2017 TIA Guidelines requires a review of driveways on the boundary streets within 200m of any proposed access. The existing driveways in proximity to the subject site are described below.

Carp Road, east side:

- One shared driveway to the dwellings at 3696, 3698, and 3700 Carp Road
- One driveway to the Masonic Lodge at 3704 Carp Road
- One driveway to the animal hospital at 3710 Carp Road
- One driveway to the dwelling at 3722 Carp Road
- Two driveways to the restaurant at 421 Donald B. Munro Drive

Carp Road, west side:

- Two driveways serving the dwellings at 3667 and 3679 Carp Road
- One access to the farm at 3673 Carp Road
- One driveway to the vacant gravel lot at 3727 Carp Road
- One driveway to the dwelling at 3729 Carp Road
- One shared driveway serving the post office at 3731 Carp Road, the subject site, and the convenience store at 429 Donald B. Munro Drive

4.1.5 Area Traffic Management

There are no Area Traffic Management (ATM) studies within the study area that have been completed or are currently in progress.

There is a speed display board for the northbound direction along Carp Road, located approximately 80m south of Rivington Street, just after the posted speed reduces from 80km/h to 50km/h (for traffic entering the Village of Carp).

4.1.6 Transit

There are two bus stops located at the Carp Road/Donald B. Munro Drive intersection. Stop #6982 is located at the northwest corner and stop #6983 is located at the northeast corner of the intersection.

These stops serve OC Transpo Route 303 which is a free shopper route for residents of rural communities. Route 303 travels from Dunrobin and Carp to Bayshore, Lincoln Fields Shopping Centre, Kanata Centrum and Carlingwood Shopping Centre on Wednesdays, with one outbound trip in the morning and one inbound trip in the afternoons.

The OC Transpo Route map for Route 303 is included in **Appendix C** for reference.

4.1.7 Existing Traffic Volumes

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

- Carp Road/Donald B. Munro Drive Tuesday April 2, 2019
- Carp Road/Donald B. Munro Drive Saturday September 17, 2022
- Carp Road/Rivington Street Wednesday August 16, 2017
- Carp Road/Rivington Street Saturday September 17, 2022

The Carp Farmer’s Market, located at the Carp Fairgrounds, is open every Saturday between the months of May and October from 8AM to 1PM. This event is the most prolific trip generator in the Village of Carp that occurs on a regular basis, attracting a large number of trips from within the village and the outlying areas. The traffic volumes on the adjacent road network when the Farmer’s Market is open are the heaviest volumes regularly encountered in the Village of Carp. The Carp Fair generates the absolute heaviest volumes of traffic within the Village of Carp; however, it is held annually during a short period and is not a regularly occurring event and as such is not considered to be within the scope of this study. The above listed Saturday traffic counts were performed between the hours of 8AM and 2PM and captured traffic from the Carp Farmer’s Market.

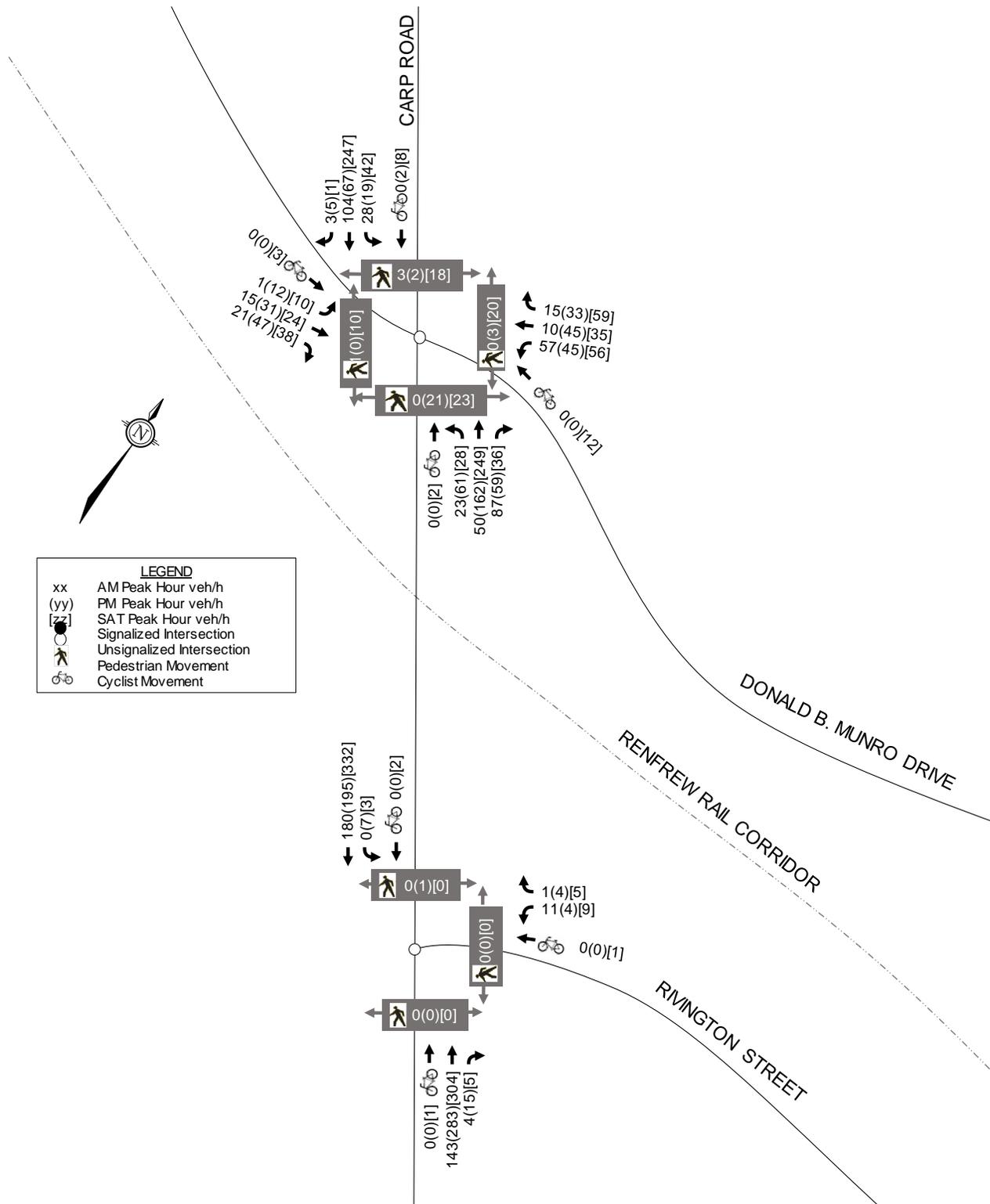
The following table indicates the observed peak hours at each study area intersection, based on the above-noted traffic counts.

Table 1: Peak Hours

| Intersection | AM Peak Hour | PM Peak Hour | Saturday Peak Hour |
|---------------------------------|--------------|--------------|--------------------|
| Carp Road/Donald B. Munro Drive | 7:30-8:30 | 4:30-5:30 | 11:15-12:15 |
| Carp Road/Rivington Street | 8:30-9:30 | 3:45-4:45 | 11:30-12:30 |

As there is a variation of weekday peak hours at the study area intersections, a consistent peak hour of 7:30-8:30AM and 4:30-5:30PM was chosen for the weekday analysis. Volumes have been balanced to within 10% of the higher adjacent intersection traffic volume. Traffic count data is included in **Appendix D**. Pedestrian, cyclist, and vehicular traffic volumes within the study area are shown in **Figure 5**.

Figure 5: Existing Network Traffic Volumes



4.1.8 Collision Records

Historical collision data from the last five years (January 1st, 2016 - December 31st, 2020) was obtained from the City’s Public Works and Service Department for each study area intersection. A copy of the collision summary records is included in **Appendix E**.

The collision data has been evaluated to determine if there are any identifiable collision patterns, defined in the 2017 TIA Guidelines as ‘more than six collisions in five years’ for any one movement. The number of collisions reported at each intersection from January 1, 2016 to December 31, 2020 is summarized in **Table 2**.

Table 2: Reported Collisions

| Intersection | Angle | Rear End | Sideswipe | Single/ Other | Turning | Total |
|--|-------|----------|-----------|---------------|---------|-------|
| Carp Road/Donald B. Munro Drive | 2 | 1 | - | - | - | 3 |
| Carp Road between Donald B. Munro Drive and Rivington Street | 2 | - | - | - | 1 | 3 |
| Carp Road/Rivington Street | 1 | - | - | - | - | 1 |

Carp Road/Donald B. Munro Drive

A total of three collisions were reported at this intersection over the course of the last five years. Of these, there were two angle impacts and one rear end impact. One of the angle impacts caused injuries but no fatalities and the other two collisions were classified as causing property damage only. No pedestrians or cyclists were involved.

Carp Road between Donald B. Munro Drive and Rivington Street

A total of three collisions were reported at this location over the course of the last five years. Of these, there were two angle impacts and one turning movement impact between a southbound left turning cyclist and a southbound travelling motorcyclist. The turning movement impact caused injuries, but no fatalities and the other two collisions were classified as causing property damage only.

Carp Road/Rivington Street

One collision was reported at this intersection over the course of the last five years. It was an angle impact that occurred in snowy conditions. The collisions caused property damage only and no injuries.

4.2 Planned Conditions

The City of Ottawa’s 2013 Transportation Master Plan (TMP) does not identify any upcoming projects within the study area in its Affordable Rapid Transit and Transit Priority (RTTP) or Affordable Road Networks. The City’s 2013 Pedestrian and Cycling Plans do not identify any projects within the study area.

As part of the draft 2024 Transportation Master Plan, Carp Road from Galetta Side Road to Highway 417 and Donald B. Munro Drive east of Carp Road are shown as part of the proposed paved shoulder network (rural active transportation network).

The City’s interactive capital construction forecast map identifies that Donald B. Munro Drive is planned for road resurfacing with a targeted start of this year and sidewalk renewal within the next

1-2 years. Carp Road north of Donald B. Munro Drive is also shown as planned for road resurfacing within the next 2-3 years.

A review of the City’s Development Application search tool identifies the following developments in proximity of the subject site that are under construction, approved, or in the approval process.

147 Langstaff Drive

A Transportation Impact Study (August 2020, revised in April 2021 and May 2022 by McIntosh Perry) was submitted in support of a Draft Plan of Subdivision application for a new residential subdivision located at 147 Langstaff Road. A total of 128 mid-rise apartment units and 68 semi-detached townhome units are proposed. A buildout year of 2023 is anticipated.

437 Donald B. Munro Drive

A Traffic Impact Assessment (May 2019, by Novatech) was submitted in support of a Site Plan application at 437 Donald B. Munro Drive. The proposed development would include two office spaces on the ground floor (total GFA of 4,200ft²) as well as two residential units on the second floor. A buildout of 2020 was anticipated; however, this development has not yet been constructed and is still in the approvals process.

4.3 Study Area and Time Periods

The study area for this report includes the boundary roadway (Carp Road) as well as the intersections of Carp Road/Donald B. Munro Drive and Carp Road/Rivington Street.

The selected time periods for the analysis are the weekday AM and PM peak hours as well as the Saturday peak hour, as they represent the ‘worst case’ combination of site generated traffic and adjacent street traffic. As the buildout year is anticipated to be 2027, this TIA will consider the buildout year 2027 and the horizon year 2032.

4.4 Exemptions Review

This module reviews possible exemptions from the final Transportation Impact Assessment, as outlined in the TIA guidelines. The applicable exemptions for this site are shown in **Table 3**.

Table 3: TIA Exemptions

| Module | Element | Exemption Criteria | Exemption Status |
|----------------------------------|---------------------------------|---|------------------|
| Design Review Component | | | |
| 4.1 Development Design | 4.1.2 Circulation and Access | <ul style="list-style-type: none"> Only required for site plans | Exempt |
| | 4.1.3 New Street Networks | <ul style="list-style-type: none"> Only required for plans of subdivision | Not Exempt |
| 4.2 Parking | 4.2.1 Parking Supply | <ul style="list-style-type: none"> Only required for site plans | Exempt |
| | 4.2.2 Spillover Parking | <ul style="list-style-type: none"> Only required for site plans where parking supply is 15% below unconstrained demand | Exempt |

| Module | Element | Exemption Criteria | Exemption Status |
|---|----------------------------------|--|------------------|
| Network Impact Component | | | |
| 4.5 Transportation Demand Management | All elements | <ul style="list-style-type: none"> Not required for non-residential site plans expected to have fewer than 60 employees and/or students on location at any given time | Not Exempt |
| 4.6 Neighbourhood Traffic Management | 4.6.1 Adjacent Neighbourhoods | <ul style="list-style-type: none"> Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds | Exempt |
| 4.8 Network Concept | All elements | <ul style="list-style-type: none"> Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning | Exempt |

It is anticipated that the scope of this TIA will also meet the requirements of the future zoning application provided there are no significant changes to the concept plan.

5.0 FORECASTING

5.1 Development-Generated Travel Demand

5.1.1 Trip Generation

The subject site would conceptually include a total of 78 stacked dwellings and 1,606m² (17,285ft²) of commercial at-grade.

Trips generated by the residential portion of the proposed development during the weekday AM and PM peak period have been estimated based on relevant rates presented in the City’s 2020 TRANS *Trip Generation Manual Summary Report*, prepared in October 2020 by WSP. The manual includes data to estimate the trip generation and mode share for residential uses, divided into single-family detached housing, low-rise multifamily housing (one to two storeys), and mid- to high-rise multifamily housing (three or more storeys). The person trips generated by the proposed residences during the weekday AM and PM peak hour are based on the Mid- to High-Rise Multifamily Housing rates for the Rural West District.

As there are no rates identified for the Saturday peak hour in the TRANS report, the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition) has been used to identify a ratio of Saturday trips to PM trips. ITE Land Use 220 Multifamily Housing (Low-Rise) includes apartments, townhouses, and condominiums that are located within the same building with at least three other dwelling units and have two or three floors. However, there is only one survey for Saturdays for this land use code. Instead, the Land Use 221 Multifamily Housing (Mid-Rise) was used to identify a ratio of Saturday trips to PM trips, as there is more data available. The directional split between inbound and outbound trips for the Saturday peak hour is based on the splits identified in the ITE manual. The ratio of Saturday trips to PM trips was then applied to the TRANS PM rate to estimate Saturday trips.

Trips generated by the proposed commercial uses have been estimated based on relevant rates presented in the ITE *Trip Generation Manual*. Peak hour trips, based on Land Use 820 Shopping

Centre, have been converted to person trips using an ITE Trip to Person Trip factor of 1.28, consistent with the 2017 TIA Guidelines.

Table 4: Peak Hour Person Trip Generation

| Land Use | Units | AM Peak Hour (pph ⁽¹⁾) | | | PM Peak Hour (pph) | | | SAT Peak Hour (pph) | | |
|----------------------|---------------------|------------------------------------|-----------|-----------|--------------------|-----------|------------|---------------------|-----------|------------|
| | | IN | OUT | TOT | IN | OUT | TOT | IN | OUT | TOT |
| Mid-Rise Multifamily | 78 | 10 | 21 | 31 | 18 | 13 | 31 | 16 | 15 | 31 |
| Shopping Centre | 1,606m ² | 11 | 8 | 19 | 36 | 40 | 76 | 51 | 46 | 97 |
| Total | | 21 | 29 | 50 | 54 | 53 | 107 | 67 | 61 | 128 |

1. pph: Person Trips per Peak Hour

Table 8 and 13 of the TRANS report includes data to estimate the mode shares for the AM and PM peak periods based on district. Based on the TRANS report, the residential and commercial mode shares in the Rural West District are summarized in the following table.

Table 5: Modal Shares in the Rural Districts

| Type | Period | Mode | | | | |
|------------------------------|--------|-------------|-----------|---------|---------|---------|
| | | Auto Driver | Auto Pass | Transit | Cycling | Walking |
| Mid-Rise Multifamily Housing | AM | 63% | 15% | 19% | 0% | 3% |
| | PM | 64% | 18% | 16% | 0% | 1% |
| Commercial | AM | 87% | 9% | 0% | 0% | 3% |
| | PM | 80% | 14% | 1% | 2% | 4% |

For the proposed development, one set of mode shares has been assumed for both peak hours, based on the above shares. As there is currently limited transit service for the Village of Carp, a 0% transit share has been assumed for this development. Transit users have been accounted for as vehicle trips as they are likely to travel to the Carp Park-n-Ride facility to access transit. A breakdown of the peak period person trips by modal share is shown in the following table.

Table 6: Peak Hour Person Trips by Modal Share

| Travel Mode | Mode Share | AM Peak Hour | | | PM Peak Hour | | | SAT Peak Hour | | |
|-------------------------------|------------|--------------|-----------|-----------|--------------|-----------|------------|---------------|-----------|------------|
| | | IN | OUT | TOT | IN | OUT | TOT | IN | OUT | TOT |
| Residential Person Trips | | 10 | 21 | 31 | 18 | 13 | 31 | 16 | 15 | 31 |
| Auto Driver | 80% | 8 | 17 | 25 | 15 | 10 | 25 | 13 | 12 | 25 |
| Auto Passenger | 15% | 2 | 3 | 5 | 2 | 2 | 4 | 2 | 2 | 4 |
| Cyclist | 2% | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| Pedestrian | 3% | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| Commercial Person Trips | | 11 | 8 | 19 | 36 | 40 | 76 | 51 | 46 | 97 |
| Auto Driver | 80% | 9 | 6 | 15 | 29 | 32 | 61 | 41 | 37 | 78 |
| Auto Passenger | 15% | 2 | 1 | 3 | 5 | 6 | 11 | 8 | 7 | 15 |
| Cyclist | 2% | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 2 |
| Pedestrian | 3% | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 |
| Total Person Trips | | 21 | 29 | 50 | 54 | 53 | 107 | 67 | 61 | 128 |
| Auto Driver (Total) | | 17 | 23 | 40 | 44 | 42 | 86 | 54 | 49 | 103 |
| Auto Passenger (Total) | | 4 | 4 | 8 | 7 | 8 | 15 | 10 | 9 | 19 |
| Cyclist (Total) | | 0 | 0 | 0 | 2 | 1 | 3 | 2 | 1 | 3 |
| Pedestrian (Total) | | 0 | 2 | 2 | 1 | 2 | 3 | 1 | 2 | 3 |

From the previous table, the proposed development is estimated to generate 50 person trips (including 40 vehicle trips) during the AM peak hour, 107 person trips (including 86 vehicle trips) during the PM peak hour, and 128 person trips (including 103 vehicle trips) during the Saturday peak hour.

The commercial land use is expected to generate two types of external peak hour trips: primary and pass-by trips. Primary trips are made for the specific purpose of visiting the site, and pass-by trips are made as intermediate stops on the way to another destination. Peak hour pass-by trips have been estimated based on a pass-by rate of 34% for the PM peak hour and 26% for the Saturday peak hour. The ITE *Trip Generation Handbook* (3rd Edition) identifies these percentages as an average rate for Shopping Centre. The pass-by trips generated by the development are part of the observed background traffic and do not constitute new trips on the adjacent road network. The primary and pass-by trip generation for the development is summarized in the following table.

Table 7: Primary and Pass-By Trips (Commercial)

| Travel Mode | AM Peak Hour (pph ⁽¹⁾) | | | PM Peak Hour (pph) | | | SAT Peak Hour (pph) | | |
|-------------------|------------------------------------|----------|-----------|--------------------|-----------|-----------|---------------------|-----------|-----------|
| | IN | OUT | TOT | IN | OUT | TOT | IN | OUT | TOT |
| Auto Driver Trips | 9 | 6 | 15 | 29 | 32 | 61 | 41 | 37 | 78 |
| Pass-By | 0 | 0 | 0 | 10 | 10 | 20 | 10 | 10 | 20 |
| Primary | 9 | 6 | 15 | 19 | 22 | 41 | 31 | 27 | 58 |

Due to the nature of the proposed land uses of the development, it is possible that some of the total volume of site-generated trips will be internally captured within the site (i.e., residents of the stacked dwellings that frequent the commercial uses). With respect to the adjacent road network, this would result in only a single vehicle entering and exiting the site. However, in the interest of making a conservative estimate of the likely traffic impact associated with the development, the possibility of traffic being internally captured has been ignored. The analysis presented in this study assumes that all trips generated by the proposed development are ‘external’ trips.

5.1.2 Trip Distribution

The distribution of traffic generated by the proposed residential component has been estimated based on logical trip routing, existing outbound traffic patterns during the AM peak hour, and existing inbound traffic patterns during the PM peak hour. The distribution of traffic generated by the proposed commercial component has been estimated based on logical trip routing and existing total traffic during the Saturday peak hour.

The trip distribution can be described as follows:

Residential Distribution

- 15% to/from the north via Carp Road
- 10% to/from the west via Donald B. Munro Drive
- 25% to/from the east via Donald B. Munro Drive
- 50% to/from the south via Carp Road

Commercial Distribution

- 40% to/from the north via Carp Road
- 5% to/from the west via Donald B. Munro Drive
- 15% to/from the east via Donald B. Munro Drive
- 40% to/from the south via Carp Road

Pass-by trips from the commercial uses have been distributed based on existing patterns along Carp Road.

Primary trips generated by the proposed residential and commercial can be found in **Figures 6 and 7**, respectively. Pass-by trips can be found in **Figure 8**. Total site generated traffic volumes are shown in **Figure 9**.

Figure 6: Residential Site-Generated Traffic Volumes

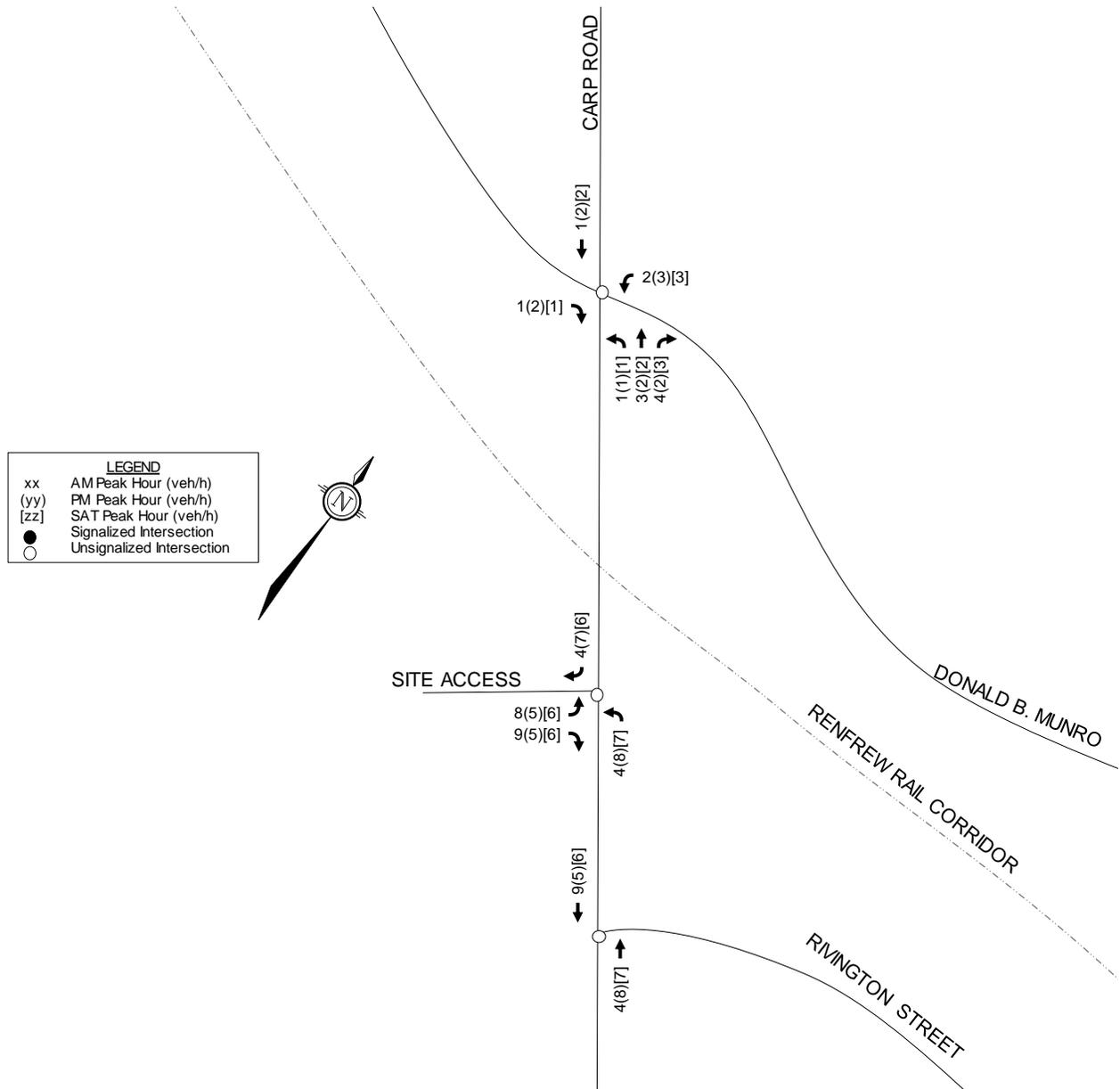


Figure 7: Primary Commercial Site-Generated Traffic Volumes

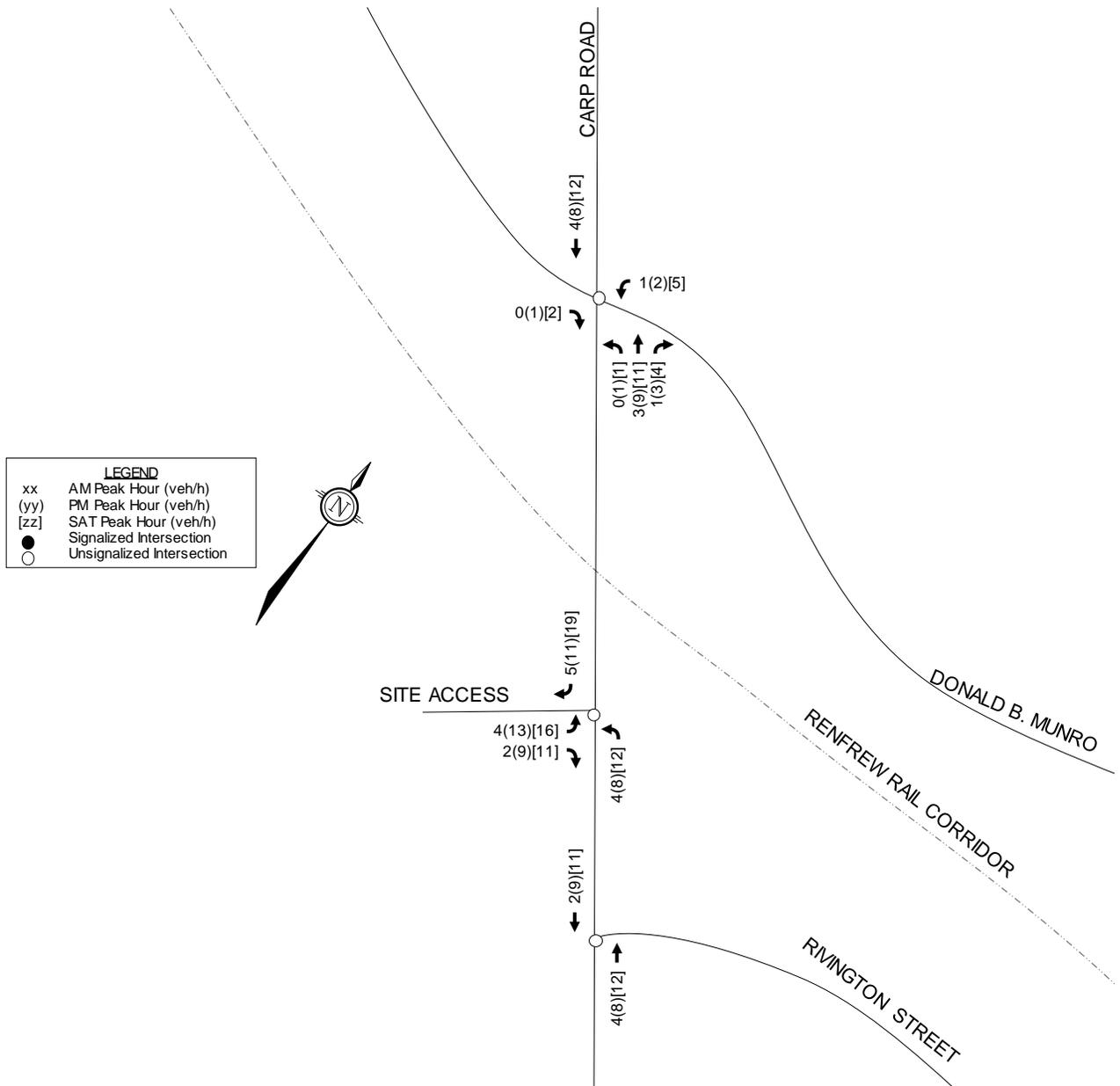


Figure 8: Pass-By Commercial Site-Generated Traffic Volumes

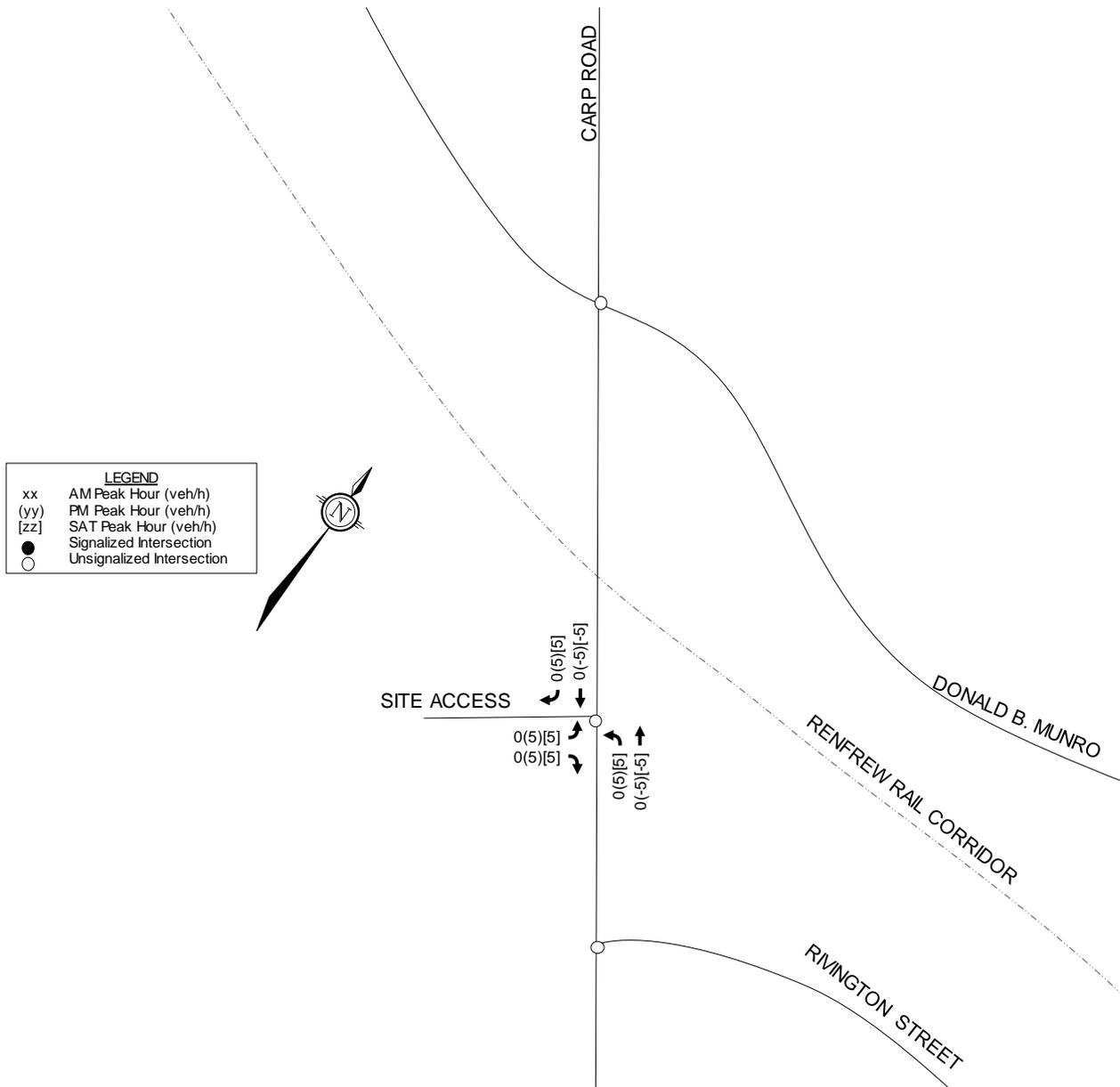
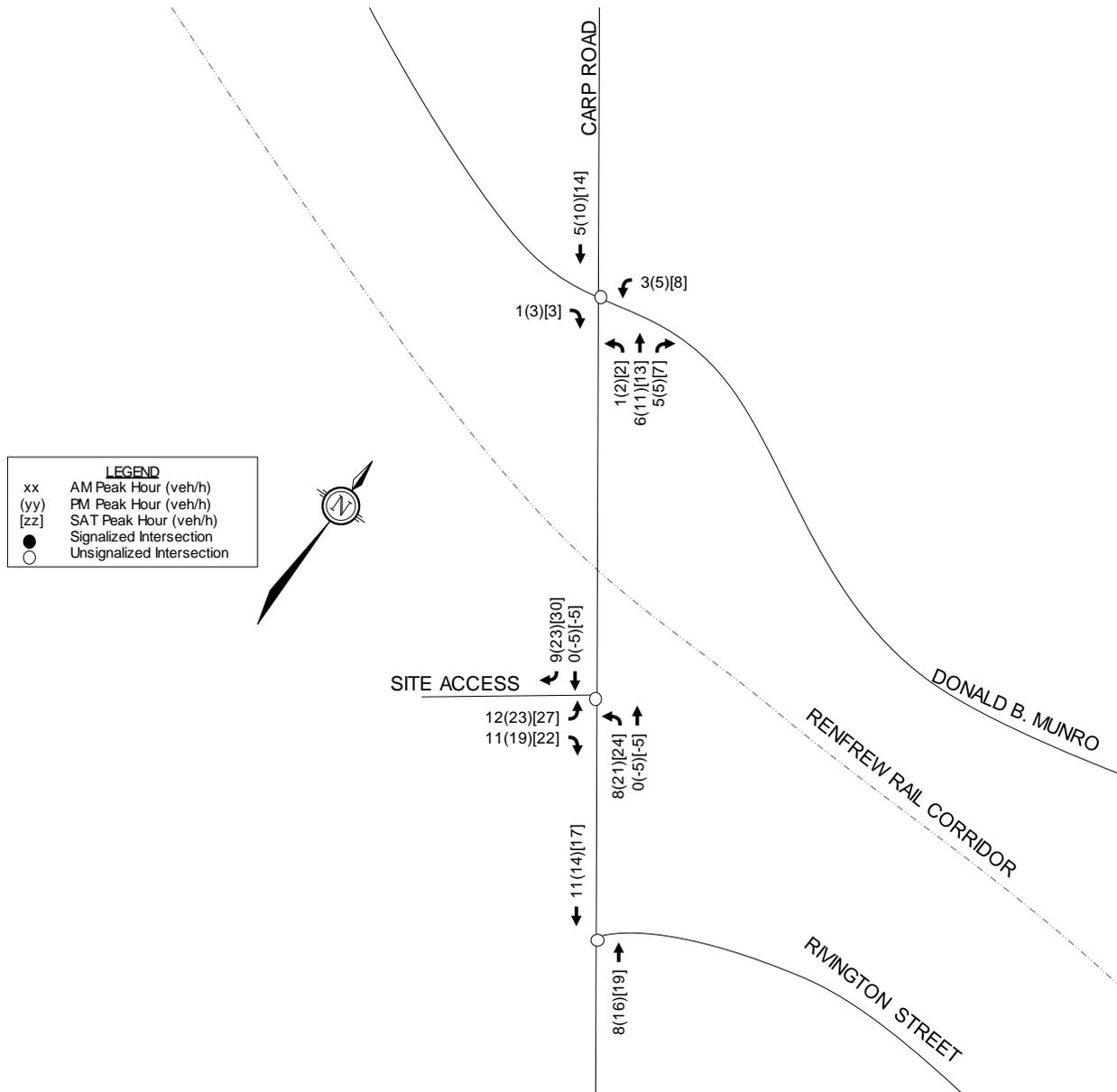


Figure 9: Total Site-Generated Traffic Volumes



5.2 Background Traffic

5.2.1 Other Area Developments

A description of other study area development is included in Section 4.2.

Buildout of the residential subdivision at 147 Langstaff Road is anticipated for 2023. Traffic generated by this development has been added to the 2027 buildout and 2032 horizon years, using the distribution as outlined in the May 2022 TIA. Saturday traffic for this development has been estimated using the methodology described in Section 5.1.1 and added to the area roadways using the

distribution outlined in the May 2022 TIA. Relevant excerpts from the TIA for this development are included in **Appendix F**.

Traffic generated by the 437 Donald B. Munro Drive development is expected to have a negligible impact on the adjacent roadways. As the trip generation trigger for this development was not met, traffic generated by this development has been considered negligible and has not been explicitly added to background traffic.

5.2.2 General Background Growth Rate

A review of the City's *Strategic Long-Range Model* (comparing snapshots of the 2011 and 2031 AM peak hour traffic volumes), Section 2.3 of the City's 2013 TMP (comparing 2011 and 2031 population and employment projections), and other recent studies, was completed to establish general background growth. The long-range snapshots and Section 2.3 of the 2013 TMP are included in **Appendix G**.

A comparison of the 2011 AM and 2031 AM peak hour volumes included in the long-range model along the study area roadways indicates that Carp Road and Donald B. Munro Drive are anticipated to increase at a rate of 1.2% per year.

Section 2.3 of the City's 2013 TMP projects a 22% growth in the population of Rural Ottawa between 2011 and 2031, which translates to an annual linear growth rate of 1% per annum.

The May 2022 TIA for the 147 Langstaff Road development utilized an annual background growth rate of 1% for the study area roads (including Carp Road and Donald B. Munro Drive), based on population growth calculated from the TRANS O-D survey for the Rural West region.

Based on the foregoing, a 1% annual growth rate has been applied to Carp Road and Donald B. Munro Drive. No growth rate was applied to Rivington Street as the background growth rate is intended to account for growth in regional traffic which is not anticipated on lower class roads. Other area developments have been accounted for separately.

5.3 Future Traffic Conditions

The figures listed below present the following future traffic conditions:

- Background traffic volumes in 2027 are shown in **Figure 10**;
- Background traffic volumes in 2032 are shown in **Figure 11**;
- Total traffic volumes in 2027 are shown in **Figure 12**;
- Total traffic volumes in 2032 are shown in **Figure 13**.

Figure 10: 2027 Background Traffic Volumes

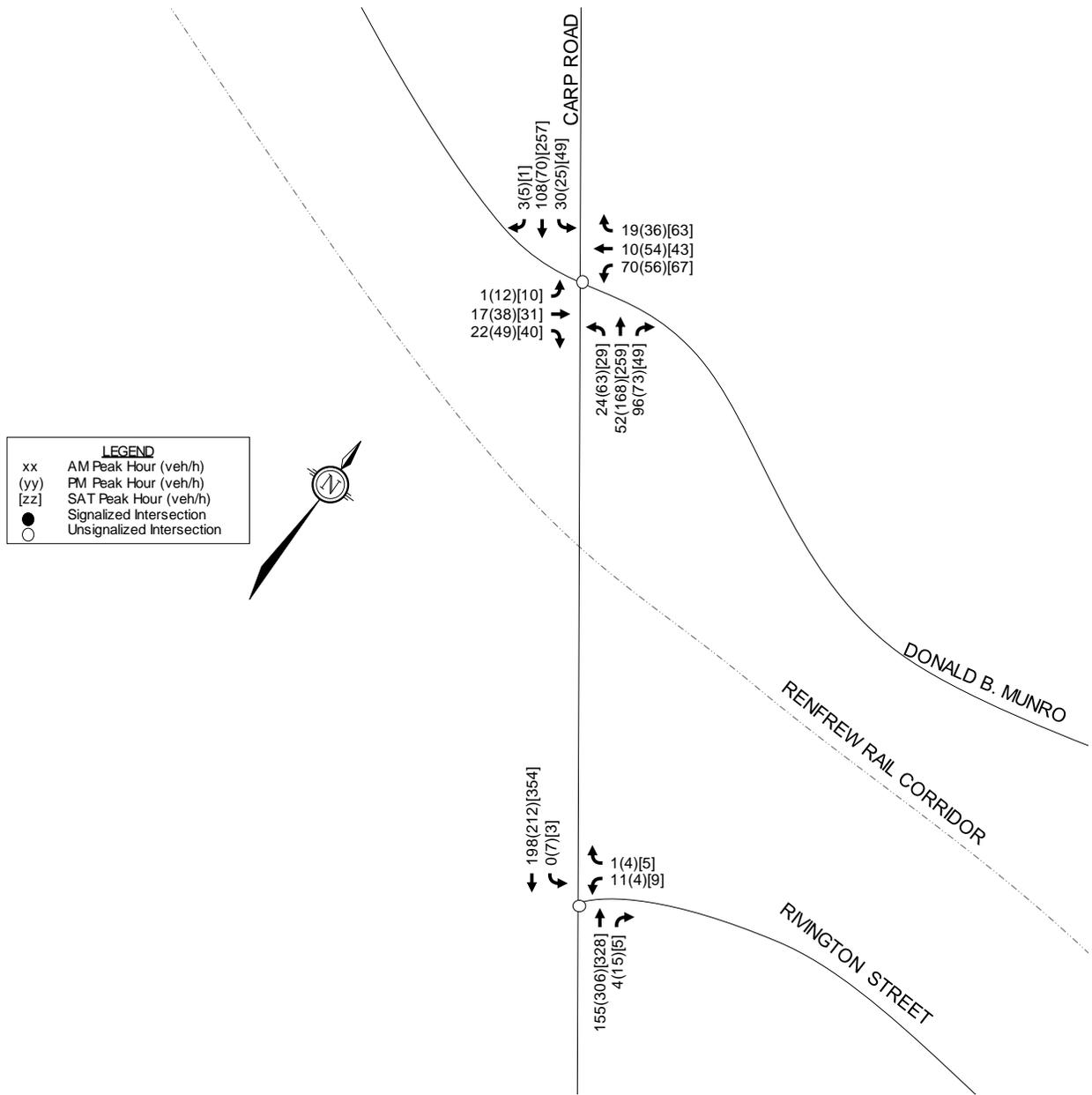


Figure 11: 2032 Background Traffic Volumes

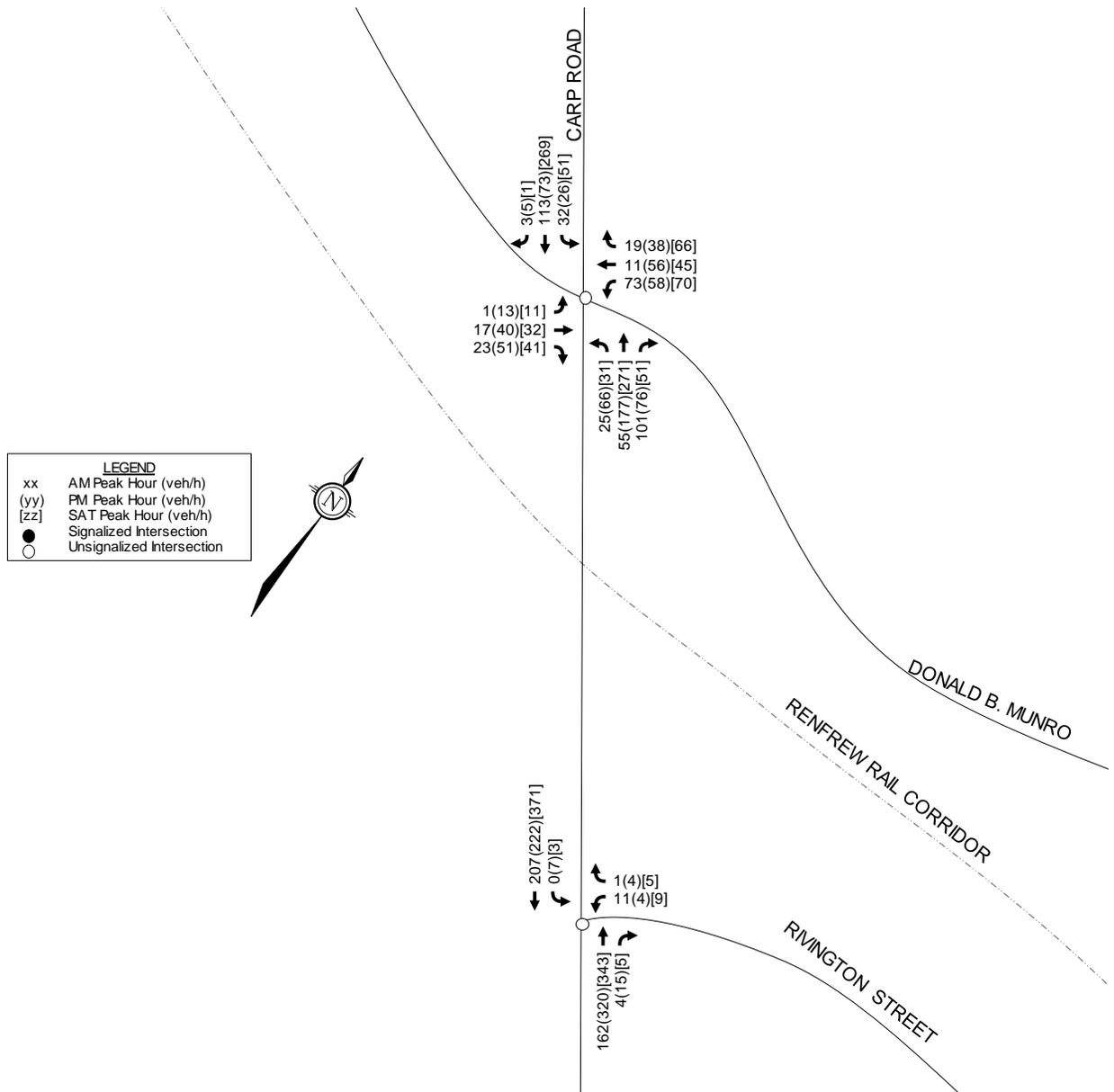


Figure 12: 2027 Total Traffic Volumes

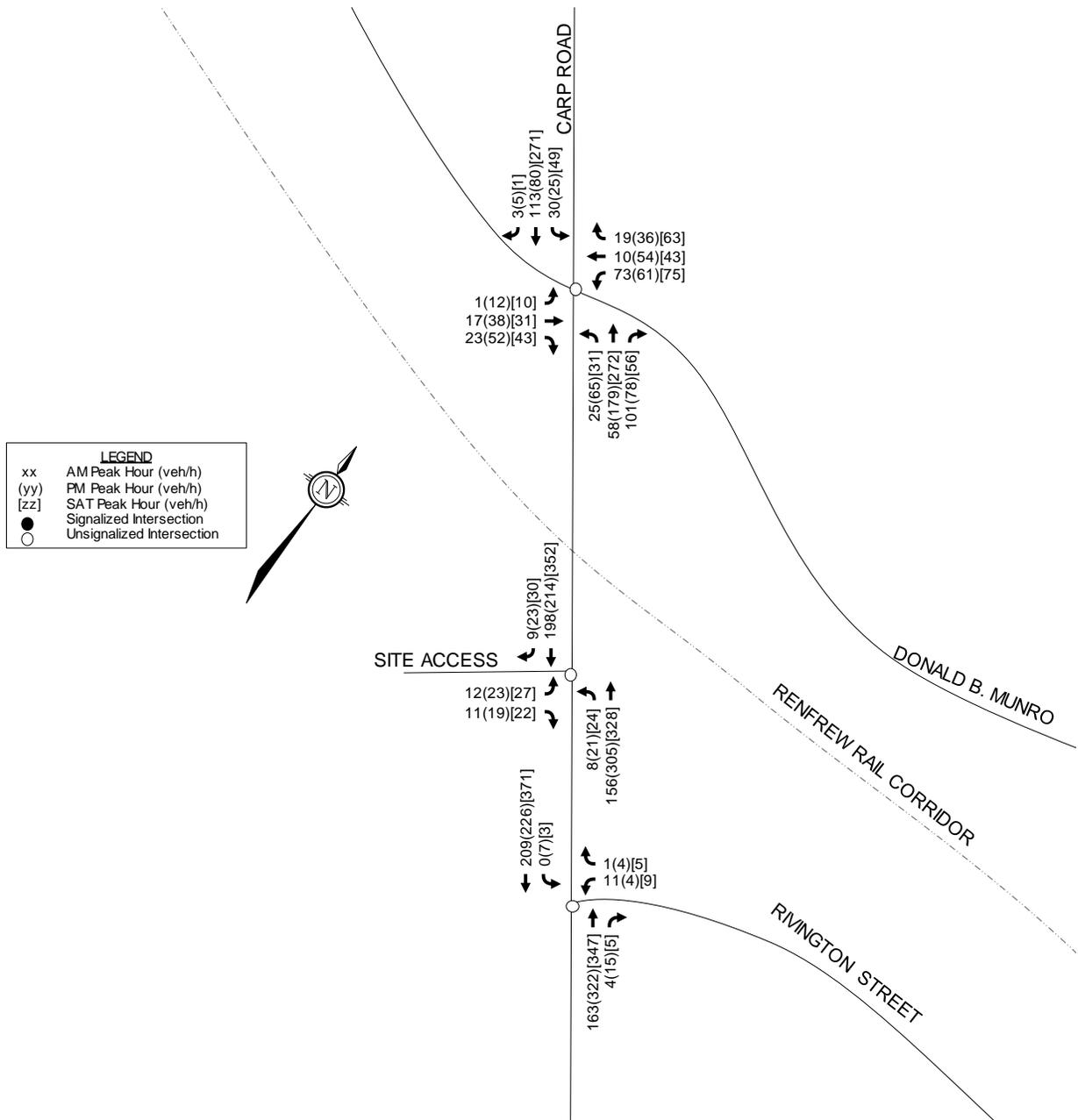
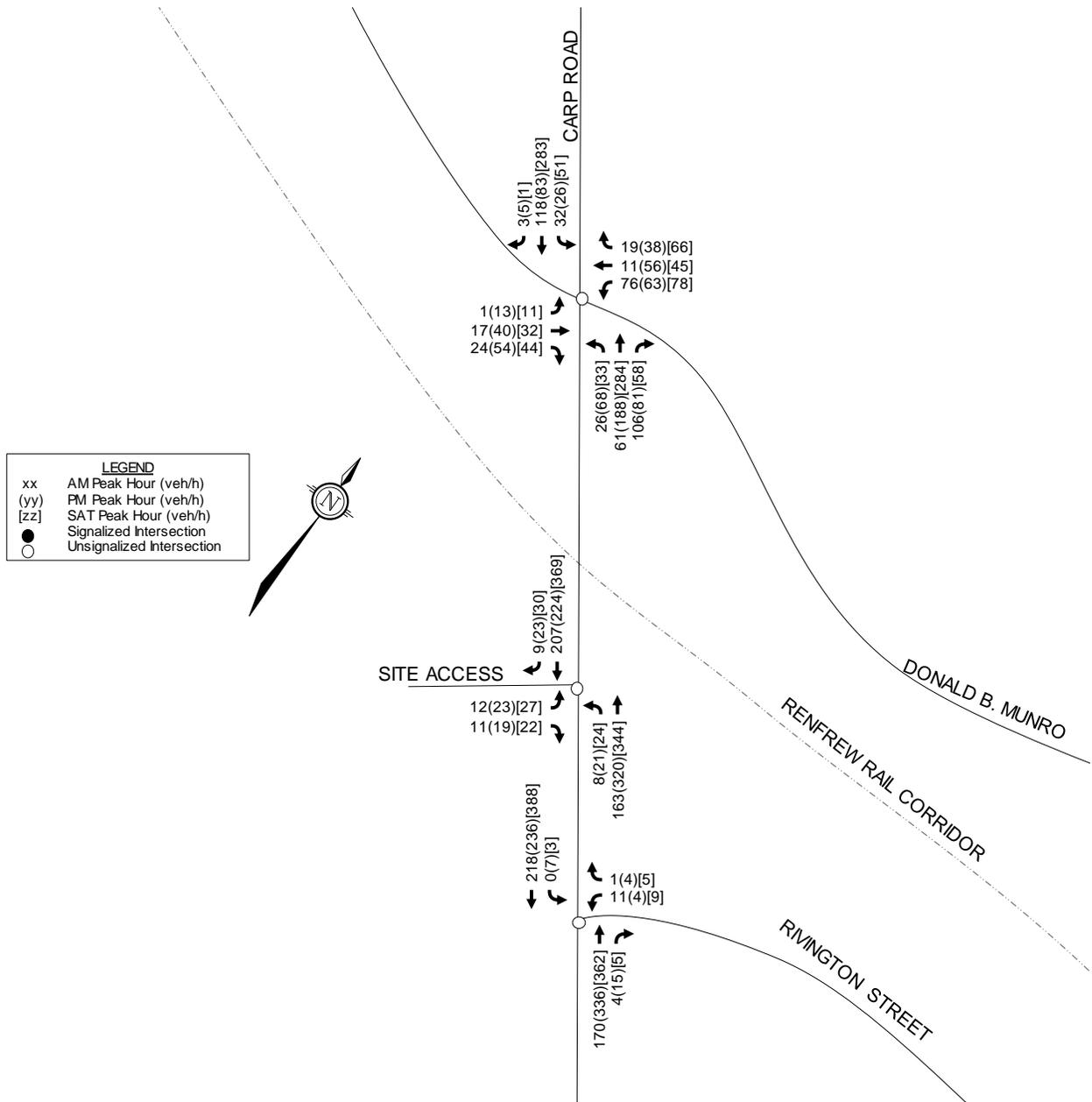


Figure 13: 2032 Total Traffic Volumes



5.4 Demand Rationalization

A review of the existing and background intersection operations (using Synchro software) has been conducted to determine if observed traffic volumes or projected background traffic volumes will exceed capacity within the study area. The intersection parameters used in the analysis are consistent with the TIA Guidelines (Saturation Flow Rate: 1,800 vphpl, Peak Hour Factor: 0.9 for existing conditions and 1.0 for future conditions). Detailed Synchro reports are included in **Appendix H**.

5.4.1 Existing Intersection Operations

Intersection capacity analysis has been conducted for the existing traffic conditions. The results of the analysis are summarized in the following table for the weekday AM and PM peak hours.

Table 8: Existing Traffic Operations

| Intersection | AM Peak | | | PM Peak | | | SAT Peak | | |
|-------------------------------------|-----------|-----|-------|-----------|-----|------|-----------|-----|------|
| | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt |
| Carp Road/ Donald B. Munro Drive | 9 sec. | A | WB/SB | 10 sec. | B | NB | 13 sec. | B | NB |
| Carp Road/ Rivington Street | 11 sec. | B | WB | 11 sec. | B | WB | 13 sec. | B | WB |

Under existing traffic conditions, all study area intersections are operating with delays of 13 seconds or less (LOS B or better). No queueing issues are anticipated.

A further review of intersection operations was conducted using the SimTraffic 11 software. The SimTraffic software is designed to model networks of signalized and unsignalized intersection and is useful for analyzing complex situations including closely spaced intersection with queuing or blocking problems. The SimTraffic software was used to run ten models with a 15-minute seed period and a 60-minute run time representing the AM, PM, and Saturday peak hours in order to verify queueing near the rail crossing on Carp Road. The 95th percentile queue length (averaged over ten models) is provided in the following table for critical movements. Detailed results from the SimTraffic software are included in **Appendix H**.

Table 9: SimTraffic Queues – Existing Traffic

| Intersection | Mvmt | 95 th Percentile Queue (m) | | |
|---------------------------------|------|---------------------------------------|---------|----------|
| | | AM Peak | PM Peak | SAT Peak |
| Carp Road/Donald B. Munro Drive | NB | 20 | 26 | 31 |

The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is approximately 30m during the Saturday peak hour and is not anticipated to reach the railway crossing. The spacing between the Carp Road/Donald B. Munro Drive stop bar and the rail line is approximately 75m.

5.4.2 2027 Background Intersection Operations

Intersection capacity analysis has been conducted for the 2027 background traffic conditions. The results of the analysis are summarized in the following table for the weekday AM and PM peak hours.

Table 10: 2027 Background Traffic Operations

| Intersection | AM Peak | | | PM Peak | | | SAT Peak | | |
|-------------------------------------|-----------|-----|------|-----------|-----|------|-----------|-----|------|
| | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt |
| Carp Road/ Donald B. Munro Drive | 9 sec. | A | WB | 11 sec. | B | NB | 13 sec. | B | NB |
| Carp Road/ Rivington Street | 11 sec. | B | WB | 11 sec. | B | WB | 13 sec. | B | WB |

Under 2027 background traffic conditions, all study area intersections are anticipated to operate with delays of 13 seconds or less (LOS B or better). No queueing issues are anticipated.

A further review of intersection operations was conducted using the SimTraffic 11 software to verify queueing near the rail crossing on Carp Road. The 95th percentile queue length (averaged over ten models) is provided in the following table for critical movements.

Table 11: SimTraffic Queues – 2027 Background Traffic

| Intersection | Mvmt | 95 th Percentile Queue (m) | | |
|---------------------------------|------|---------------------------------------|---------|----------|
| | | AM Peak | PM Peak | SAT Peak |
| Carp Road/Donald B. Munro Drive | NB | 20 | 28 | 36 |

The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 35m during the Saturday peak hour and is not anticipated to reach the railway crossing. The spacing between the Carp Road/Donald B. Munro Drive stop bar and the rail line is approximately 75m.

5.4.3 2032 Background Intersection Operations

Intersection capacity analysis has been conducted for the 2032 background traffic conditions. The results of the analysis are summarized in the following table for the weekday AM and PM peak hours.

Table 12: 2032 Background Traffic Operations

| Intersection | AM Peak | | | PM Peak | | | SAT Peak | | |
|-------------------------------------|-----------|-----|------|-----------|-----|------|-----------|-----|------|
| | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt |
| Carp Road/ Donald B. Munro Drive | 9 sec. | A | WB | 11 sec. | B | NB | 13 sec. | B | NB |
| Carp Road/ Rivington Street | 11 sec. | B | WB | 11 sec. | B | WB | 13 sec. | B | WB |

Under 2032 background traffic conditions, all study area intersections are anticipated to operate with delays of 13 seconds or less (LOS B or better). No queueing issues are anticipated.

A further review of intersection operations was conducted using the SimTraffic 11 software to verify queueing near the rail crossing on Carp Road. The 95th percentile queue length (averaged over ten models) is provided in the following table for critical movements.

Table 13: SimTraffic Queues – 2032 Background Traffic

| Intersection | Mvmt | 95 th Percentile Queue (m) | | |
|---------------------------------|------|---------------------------------------|---------|----------|
| | | AM Peak | PM Peak | SAT Peak |
| Carp Road/Donald B. Munro Drive | NB | 20 | 28 | 34 |

The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 35m during the Saturday peak hour and is not anticipated to reach the railway crossing. The spacing between the Carp Road/Donald B. Munro Drive stop bar and the rail line is approximately 75m.

6.0 ANALYSIS

6.1 Development and Access Design

This section provides a review of the development design in terms of the road network and roadway cross-section. A review of the City’s *Transportation Demand Management (TDM)-Supportive Development Design and Infrastructure Checklist* is exempt from Draft Plan of Subdivision applications.

6.1.1 Access

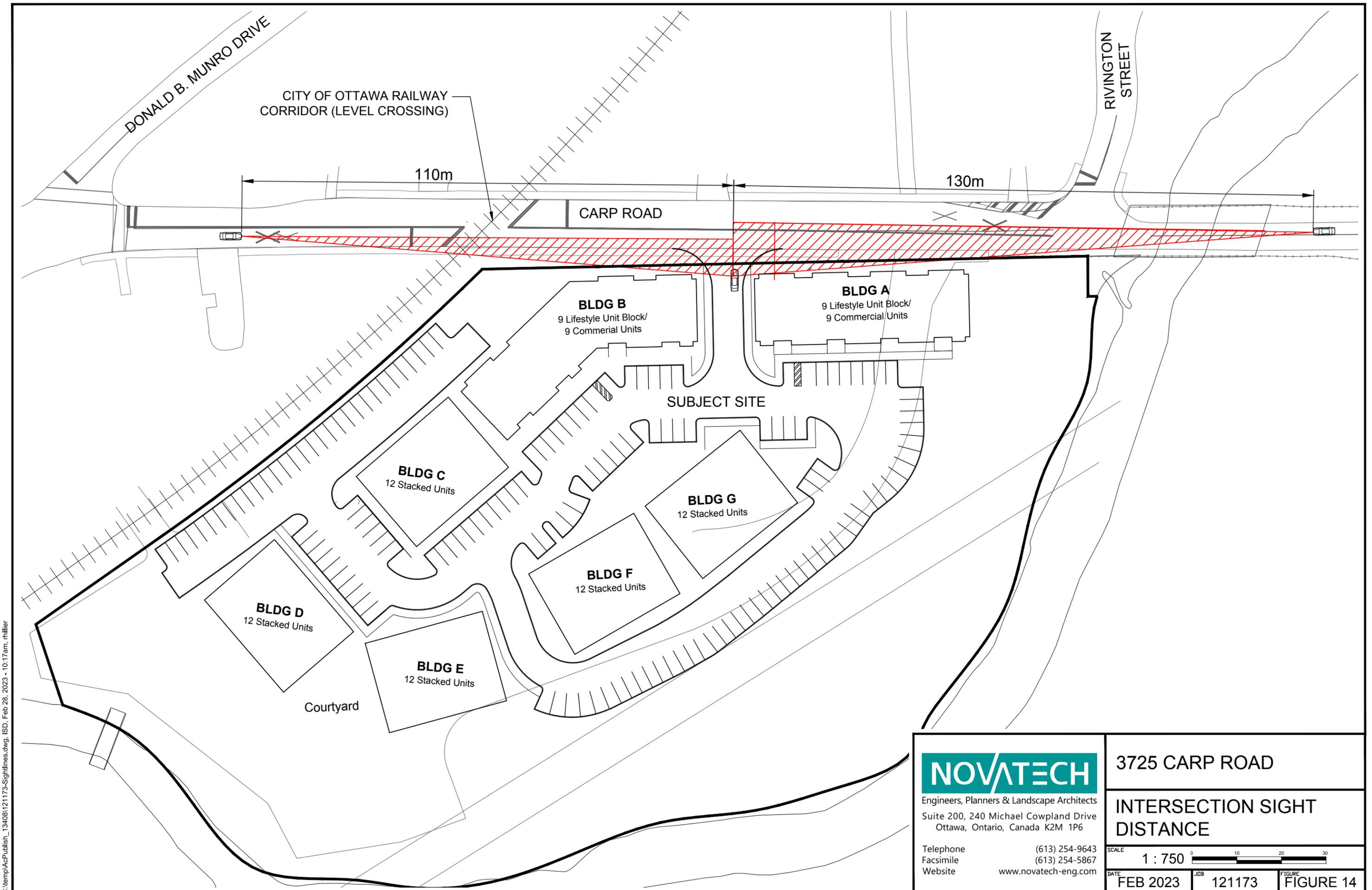
Access to the development is provided by a private street that connects to Carp Road, approximately 70m north of Rivington Street, measured from nearest edge to nearest edge. Stop control will be provided at the access, with free flow on Carp Road. The access is located approximately 45m south of the railway and 140m south of Donald B. Munro Drive, measured from nearest edge to nearest edge. The width of the private street is proposed to be 6.7m.

A review of sight distances was completed for the proposed intersection of Carp Road/Site Access, using the relevant standards presented in the Transportation of Canada (TAC) *Geometric Design Guide for Canadian Roads*.

Carp Road has a posted speed limit of 50km/h along the site’s frontage. For a design speed of 60km/h (10km/h over the posted speed), the required sight distances are as follows:

- Stopping Sight Distance (SSD): 85m
- Intersection Sight Distance (ISD):
 - Left turn from stop (looking right): 130m
 - Right turn from stop (looking left): 110m

The required stopping sight distance is available on the north and south Carp Road approaches to the proposed site access and there is adequate intersection sight distance north and south of the intersection for vehicles to safely turn left and right. The required sight distances are shown in **Figures 14** and **15** and the proposed buildings do not encroach on the required sightlines.



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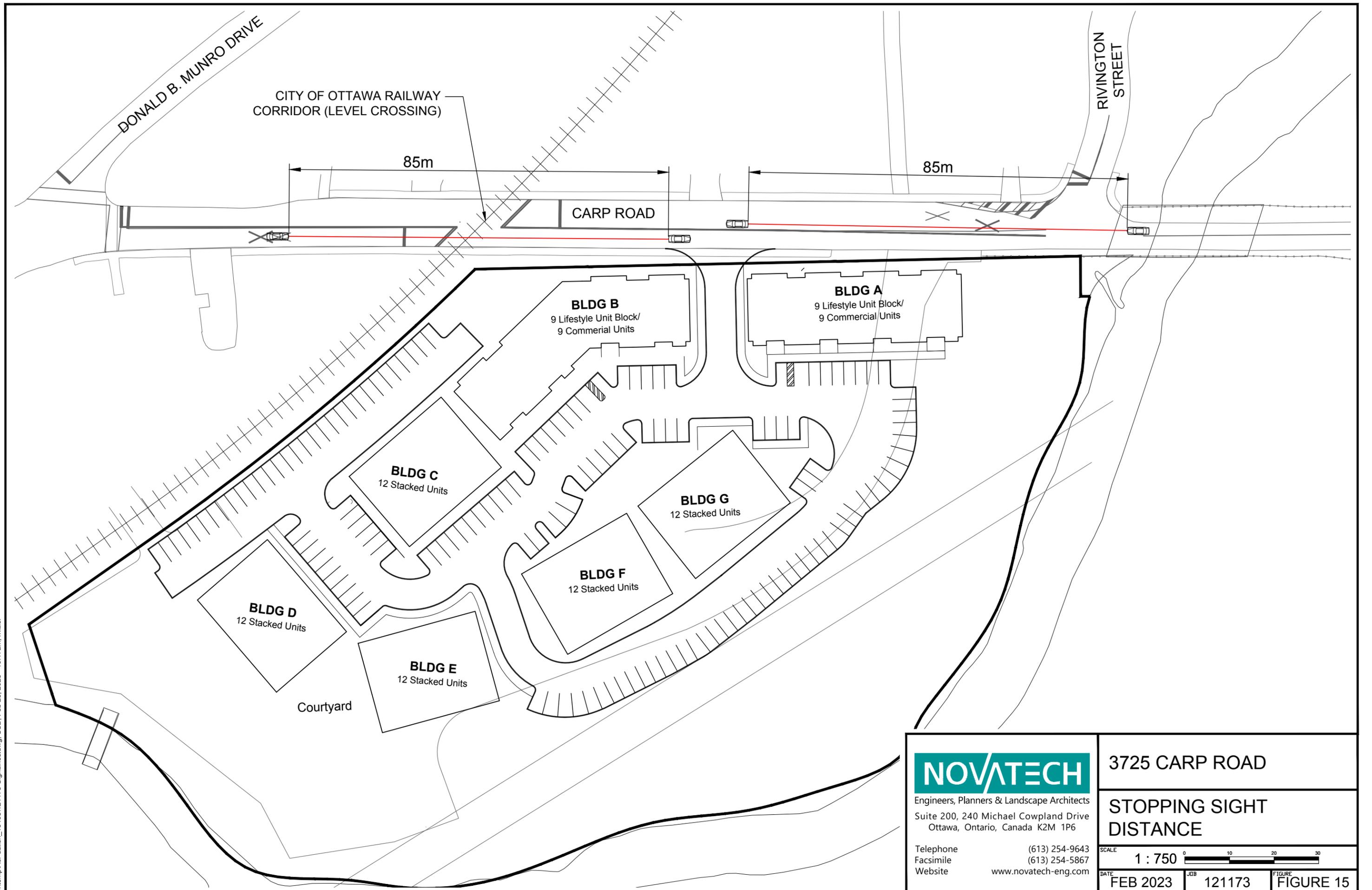
3725 CARP ROAD

INTERSECTION SIGHT DISTANCE

SCALE 1 : 750

DATE FEB 2023 JDB 121173 FIGURE 14

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3725 CARP ROAD

STOPPING SIGHT DISTANCE

SCALE 1 : 750

DATE FEB 2023 JDB 121173 FIGURE 15

Section 68 of the Zoning By-law states that no obstructions higher than 1m are permitted on a lot abutting an at-grade intersection of a street and a railway track within the triangle formed by connecting to a point 45m from the intersection of the centerline of the street and the centerline of the railway right-of-way. Carp Road and the Renfrew Rail Corridor intersect adjacent to the northeast corner of the site. No parking areas or other obstructions are proposed within this triangle, thereby meeting the requirements.

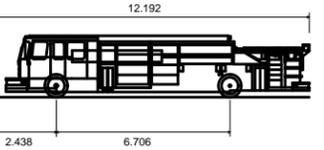
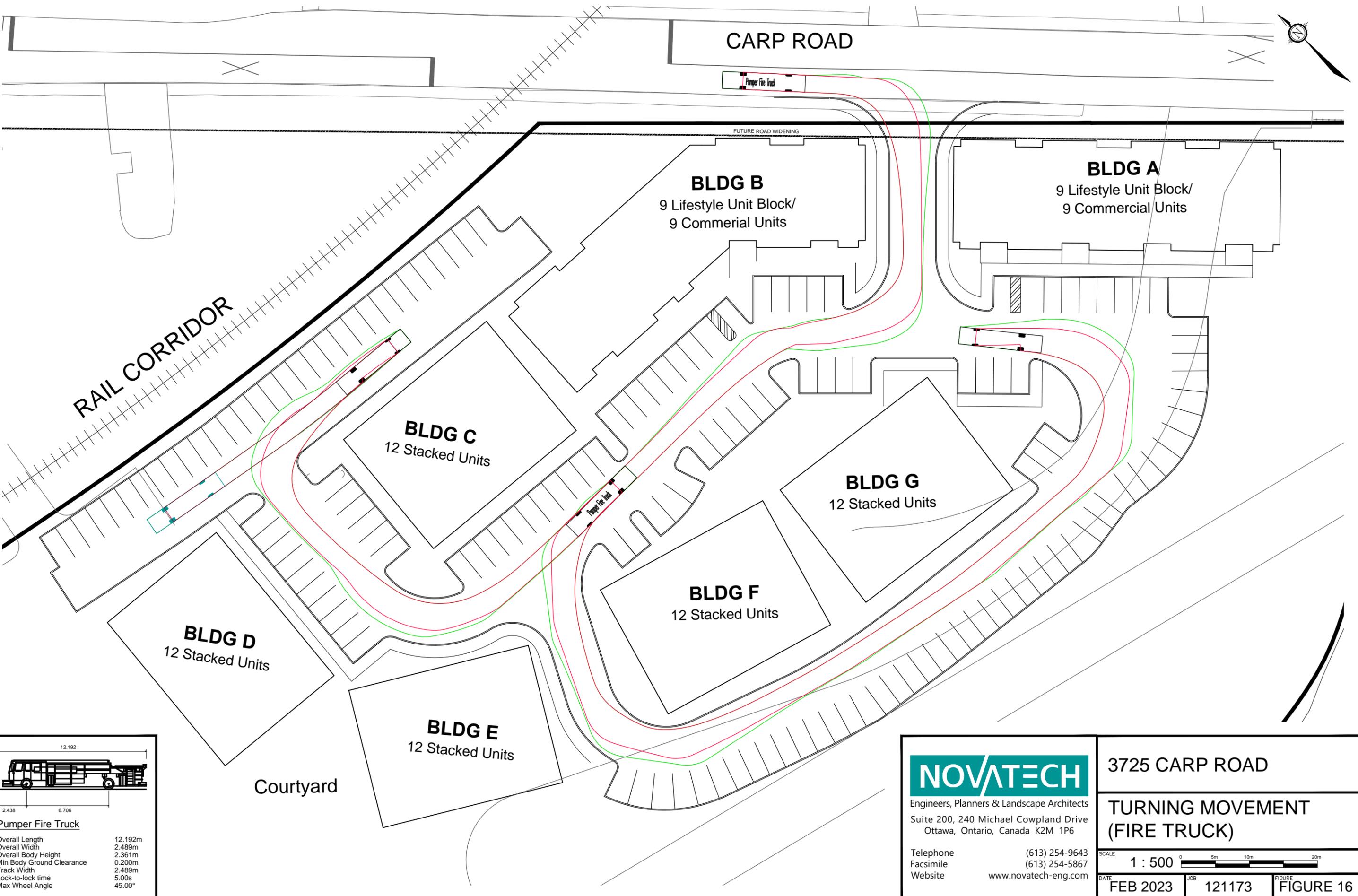
The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads* identifies a minimum clear throat length of 15m for driveways serving apartments with less than 100 units and for driveways serving shopping centres with less than 25,000m² on arterial roadways. The proposed plan exceeds the minimum required clear throat length.

The TAC guidelines a minimum corner clearance of 35m is suggested for an access to an arterial roadway from an intersection with stop control on the arterial road. The proposed access is located approximately 70m from Rivington Street (measured from nearest edge to nearest edge) and approximately 45m from the railway crossing (measured from nearest edge of access to the railway crossing stop bar), thereby meeting this requirement.

A minimum centreline radius of 12m is required to accommodate a fire truck. The proposed fire route is shown on the concept plan. Curb radii of 9m on either side of the access are proposed and are sufficient to accommodate a fire truck.

Sidewalks are shown on the Concept Plan and are proposed throughout the site, linking the main building entrances with the parking areas and connecting to the existing sidewalk along Carp Road. The sidewalk along Carp Road will be continuous and depressed across the site access.

Turning movements for a fire truck are shown in **Figure 16**. Turning movements for a Medium Single Unit (MSU) truck are shown in **Figures 17** and **18**. The MSU represents a garbage truck or delivery/moving truck.



Pumper Fire Truck

| | |
|---------------------------|---------|
| Overall Length | 12.192m |
| Overall Width | 2.438m |
| Overall Body Height | 6.706m |
| Min Body Ground Clearance | 0.200m |
| Track Width | 2.489m |
| Lock-to-lock time | 5.00s |
| Max Wheel Angle | 45.00° |



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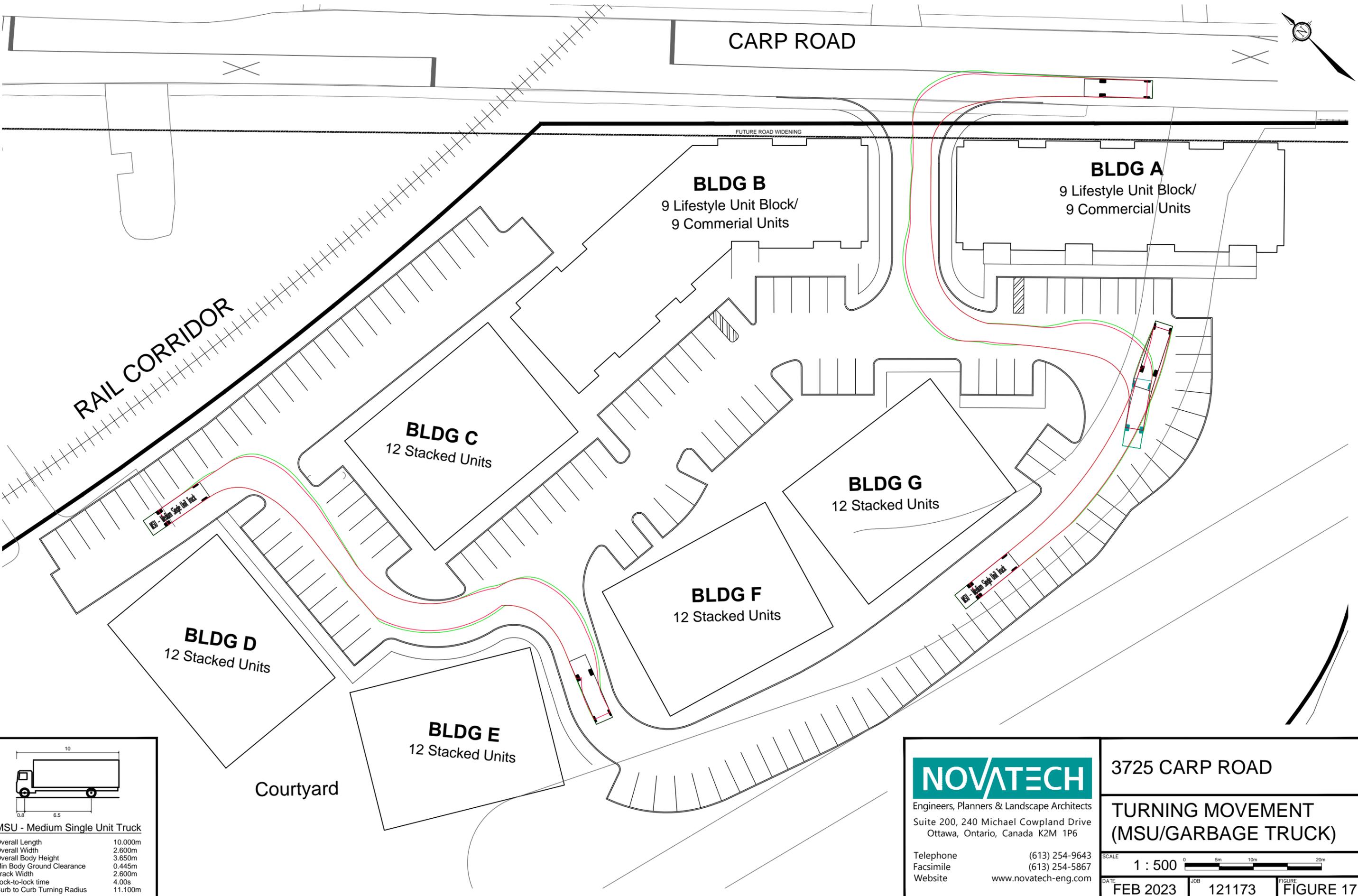
3725 CARP ROAD

**TURNING MOVEMENT
 (FIRE TRUCK)**

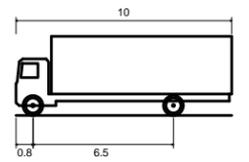


DATE FEB 2023 JOB 121173 FIGURE FIGURE 16

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| | |
|-----------------------------|---------|
| Overall Length | 10.000m |
| Overall Width | 2.600m |
| Overall Body Height | 3.650m |
| Min Body Ground Clearance | 0.445m |
| Track Width | 2.600m |
| Lock-to-lock time | 4.00s |
| Curb to Curb Turning Radius | 11.100m |

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3725 CARP ROAD

**TURNING MOVEMENT
(MSU/GARBAGE TRUCK)**

SCALE 1 : 500

DATE FEB 2023 JOB 121173 FIGURE FIGURE 17



CARP ROAD

MSU - Medium Single Unit Truck

FUTURE ROAD WIDENING

BLDG B
9 Lifestyle Unit Block/
9 Commercial Units

BLDG A
9 Lifestyle Unit Block/
9 Commercial Units

RAIL CORRIDOR

MSU - Medium Single Unit Truck

BLDG C
12 Stacked Units

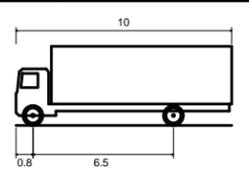
BLDG G
12 Stacked Units

BLDG F
12 Stacked Units

BLDG D
12 Stacked Units

BLDG E
12 Stacked Units

Courtyard



MSU - Medium Single Unit Truck

| | |
|-----------------------------|---------|
| Overall Length | 10.000m |
| Overall Width | 2.600m |
| Overall Body Height | 3.650m |
| Min Body Ground Clearance | 0.445m |
| Track Width | 2.600m |
| Lock-to-lock time | 4.00s |
| Curb to Curb Turning Radius | 11.100m |

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3725 CARP ROAD

**TURNING MOVEMENT
(MSU/GARBAGE TRUCK)**

SCALE 1 : 500

DATE FEB 2023 JOB 121173 FIGURE 18

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6.1.2 Parking

The subject site is located within Area D of Schedule 1A of the City's 2013 Official Plan. Parking requirements are identified in the City's Zoning By-law and are summarized in the following table.

Table 14: Parking Requirements

| Land Use | Rate | Units/GFA | Required | Provided |
|---|---|---------------------|------------|------------|
| <i>Vehicular Parking</i> | | | | |
| Stacked Dwellings | Resident: 1 per dwelling unit Visitor: 0.2 per dwelling unit | 78 | 94 | 94 |
| Commercial (Retail Store) | 3.4 per 100m ² GFA | 1,606m ² | 55 | 52 |
| Total | | | 149 | 146 |
| <i>Bicycle Parking</i> | | | | |
| Stacked Dwellings (without a garage) | 0.5 per dwelling unit | 78 | 39 | TBD |
| Commercial (Retail Store) | 1 per 250m ² GFA | 1,606m ² | 6 | TBD |
| Total | | | 45 | TBD |

The site is proposed to provide a total of 146 vehicular parking spaces while 149 spaces are required. A further review of vehicular parking will be conducted at site plan.

A total of 45 bicycle parking spaces are required for the proposed land uses. Bicycle parking will be provided on-site and will be further reviewed at site plan.

A total of 71 spaces are required for the visitor and commercial land uses. Of these 71 parking spaces, 3 accessible spaces are required (one Type A, two Type B). Two Type A and two Type B spaces are shown, thereby meeting this requirement.

For retail stores with less than 2,000m² of GFA, no loading spaces are required.

6.2 Boundary Streets

A review of the boundary street (Carp Road) has been conducted, using complete streets principles. The *Multi-Modal Level of Service (MMLOS) Guidelines*, produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation. Schedule B9 of the Official Plan designates the subject site as Village Core.

Targets for pedestrian level of service (PLOS), bicycle level of service (BLOS), and truck level of service (TkLOS) adhere to those outlined in Exhibit 22 of the MMLOS Guidelines for the Village OP Designation/Policy Area. There are no targets for transit level of service (TLOS) for Carp Road.

The boundary street review evaluates the MMLOS for the boundary roadways based on existing conditions. A detailed MMLOS review is included in **Appendix I**, and a summary of the segment MMLOS analysis is included in **Table 15**.

Table 15: Segment MMLOS Summary

| Segment | PLOS | BLOS | TkLOS |
|---------------|----------|----------|----------|
| Carp Road | F | F | B |
| Target | C | C | D |

Carp Road meets the target TkLOS but does not meet the target PLOS and BLOS.

The asphalt sidewalk along the east side of Carp Road is 1.8m and achieves a PLOS F. The concrete sidewalk along the west side of Carp Road is 1.8m and achieves a PLOS F. Exhibit 4 of the MMLOS guidelines suggests that a PLOS C is only achievable for an operating speed of 60km/h, no parking, and an AADT above 3,000vpd through the provision of a 2.0m sidewalk with a 2.0m boulevard. This is identified for the City’s consideration.

Exhibit 11 of the MMLOS guidelines suggest that a BLOS C is not achievable for mixed traffic on roadways with an operating speed of 60km/h. A minimum 1.2m wide bike lane would achieve the target BLOS. The Ontario Traffic Manual (OTM) – Book 18 *Desirable Cycling Facility Pre-Selection Nomograph (Urban Context)* suggests that a designated cycling facility (such as bike lanes) should be considered. This is identified for the City’s consideration.

As part of the draft 2024 Transportation Master Plan, Carp Road from Galetta Side Road to Highway 417 and Donald B. Munro Drive east of Carp Road are shown as part of the proposed paved shoulder network (rural active transportation network).

6.3 Transportation Demand Management

A review of the City’s *TDM Measures Checklist* has been conducted. However, due to the location of the subject site and the lack of available transit, many of the TDM measures are not applicable or would have minimal impacts. The proposed development conforms to the City’s TDM initiatives by providing connections to the local pedestrian network and the provision of bicycle parking on-site. A copy of the *TDM Measures Checklist* is included in **Appendix J**.

Transportation Demand Management measures will be further reviewed at site plan.

6.4 Transit

Based on the trip generation estimates presented in Section 5.1.1, the proposed subdivision is not anticipated to generate any new transit trips. This is due to the limited transit service currently provided in the Village of Carp. Any transit users were accounted for as vehicle trips for this study, as they are anticipated to travel to Park-n-Ride facilities in order to access more reliable transit. The nearest facility is the Carp Park-n-Ride which is located north of Stittsville at Highway 417 on Westbrook Road (approximately 10km south of the subject site). It offers easy access to Connexion routes and free parking with up to 156 spaces.

6.5 Intersection Design

6.5.1 2027 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2027 total traffic conditions. The results of the analysis are summarized in the following table for the weekday AM and PM peak hours. Detailed reports are included in **Appendix K**.

Table 16: 2027 Total Traffic Operations

| Intersection | AM Peak | | | PM Peak | | | SAT Peak | | |
|-------------------------------------|-----------|-----|-------|-----------|-----|------|-----------|-----|------|
| | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt |
| Carp Road/ Donald B. Munro Drive | 9 sec. | A | WB/SB | 11 sec. | B | NB | 14 sec. | B | NB |
| Carp Road/ Rivington Street | 11 sec. | B | WB | 11 sec. | B | WB | 13 sec. | B | WB |
| Carp Road/ Site Access | 10 sec. | B | EB | 11 sec. | B | EB | 14 sec. | B | EB |

Under 2027 total traffic, all study area intersections are anticipated to operate with a delay of 14 seconds or less (LOS B or better).

The site access is anticipated to operate acceptably under side street stop control. Queues of less than one vehicle are anticipated leaving the site.

A further review of intersection operations was conducted using the SimTraffic 11 software to verify queueing near the rail crossing on Carp Road. The 95th percentile queue length (averaged over ten models) is provided in the following table for critical movements.

Table 17: SimTraffic Queues – 2027 Total Traffic

| Intersection | Mvmt | 95 th Percentile Queue (m) | | |
|---------------------------------|------|---------------------------------------|---------|----------|
| | | AM Peak | PM Peak | SAT Peak |
| Carp Road/Donald B. Munro Drive | NB | 21 | 28 | 37 |

The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 40m during the Saturday peak hour and is not anticipated to reach the railway crossing. The spacing between the Carp Road/Donald B. Munro Drive stop bar and the rail line is approximately 75m.

6.5.2 2032 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2032 total traffic conditions. The results of the analysis are summarized in the following table for the weekday AM and PM peak hours. Detailed reports are included in **Appendix K**.

Table 18: 2032 Total Traffic Operations

| Intersection | AM Peak | | | PM Peak | | | SAT Peak | | |
|-------------------------------------|------------|-----|-------|------------|-----|------|------------|-----|------|
| | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt | Max Delay | LOS | Mvmt |
| Carp Road/ Donald B. Munro Drive | 9 sec. | A | WB/SB | 11 sec. | B | NB | 14 sec. | B | NB |
| Carp Road/ Rivington Street | 11 sec. | B | WB | 12 sec. | B | WB | 13 sec. | B | WB |
| Carp Road/ Site Access | 10 sec. | B | EB | 12 sec. | B | EB | 14 sec. | B | EB |

Under 2032 total traffic, all study area intersections are anticipated to operate with a delay of 14 seconds or less (LOS B or better).

The site access is anticipated to operate acceptably under side street stop control. Queues of less than one vehicle are anticipated leaving the site. A review of the MTO left turn lane warrant graphs (included in **Appendix L**) indicates that no northbound left turn lane is required for the site.

The addition of traffic generated by the proposed development is not anticipated to have a significant impact on the overall intersection operations within the study area.

A further review of intersection operations was conducted using the SimTraffic 11 software to verify queueing near the rail crossing on Carp Road. The 95th percentile queue length (averaged over ten models) is provided in the following table for critical movements.

Table 19: SimTraffic Queues – 2032 Total Traffic

| Intersection | Mvmt | 95 th Percentile Queue (m) | | |
|---------------------------------|------|---------------------------------------|---------|----------|
| | | AM Peak | PM Peak | SAT Peak |
| Carp Road/Donald B. Munro Drive | NB | 21 | 28 | 40 |

The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 40m during the Saturday peak hour and is not anticipated to reach the railway crossing. The spacing between the Carp Road/Donald B. Munro Drive stop bar and the rail line is approximately 75m.

7.0 CONCLUSIONS AND RECOMMENDATIONS

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

Existing and Background Intersection Operations

- All study area intersections are anticipated to operate with delays of 13 seconds or less (LOS B or better). No queueing issues are anticipated.
- The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 35m during the Saturday peak hour and is not anticipated to reach the railway crossing.

Development and Access Design

- Access to the development is provided by a private street that connects to Carp Road, approximately 70m north of Rivington Street, measured from nearest edge to nearest edge. Stop control will be provided at the access, with free flow on Carp Road. The width of the private street is proposed to be 6.7m.
- The proposed access meets all requirements of the City's Zoning By-Law, as well as TAC Geometric Design Guidelines.
- Sidewalks are shown on the Concept Plan and are proposed throughout the site, linking the main building entrances with the parking areas and connecting to the existing sidewalk along the Carp Road. The sidewalk along Carp Road will be continuous and depressed across the site access.

Boundary Streets

- Carp Road meets the target Truck Level of Service (TkLOS) but does not meet the target Pedestrian Level of Service (PLOS) or Bicycle Level of Service (BLOS).
- The target PLOS C is only achievable for an operating speed of 60km/h, no parking, and an AADT above 3,000vpd through the provision of a 2.0m sidewalk with a 2.0m boulevard. This is identified for the City's consideration.
- The target BLOS C is not achievable for mixed traffic on roadways with an operating speed of 60km/h. A minimum 1.2m wide bike lane would achieve the target BLOS. The Ontario Traffic Manual (OTM) – Book 18 *Desirable Cycling Facility Pre-Selection Nomograph (Urban Context)* suggests that a designated facility (such a bike lanes) should be considered. This is identified for the City's consideration.
- As part of the draft 2024 Transportation Master Plan, Carp Road from Galetta Side Road to Highway 417 and Donald B. Munro Drive east of Carp Road are shown as part of the proposed paved shoulder network (rural active transportation network).

Transportation Demand Management

- The proposed development conforms to the City's TDM initiatives by providing connections to the local pedestrian network and the provision of bicycle parking on-site.

Transit

- The proposed subdivision is not anticipated to generate any new transit trips. This is due to the limited transit service currently provided in the Village of Carp. Any transit users were accounted for as vehicle trips for this study, as they are anticipated to travel to Park-n-Ride facilities in order to access more reliable transit.
- The nearest facility is the Carp Park-n-Ride which is located north of Stittsville at Highway 417 on Westbrook Road (approximately 10km south of the subject site). It offers easy access to Connexion routes and free parking with up to 156 spaces.

Total Intersection Operations

- All study area intersections are anticipated to operate with a delay of 14 seconds or less (LOS B or better).
- The site access is anticipated to operate acceptably under side street stop control. Queues of less than one vehicle are anticipated leaving the site. A review of the MTO left turn lane warrant graphs indicates that no northbound left turn lane is required for the site.
- The maximum northbound queue at the Carp Road/Donald B. Munro Drive intersection is anticipated to be approximately 40m during the Saturday peak hour and is not anticipated to reach the railway crossing.
- The addition of traffic generated by the proposed development is not anticipated to have a significant impact on the overall intersection operations within the study area.

NOVATECH

Prepared by:

Reviewed by:

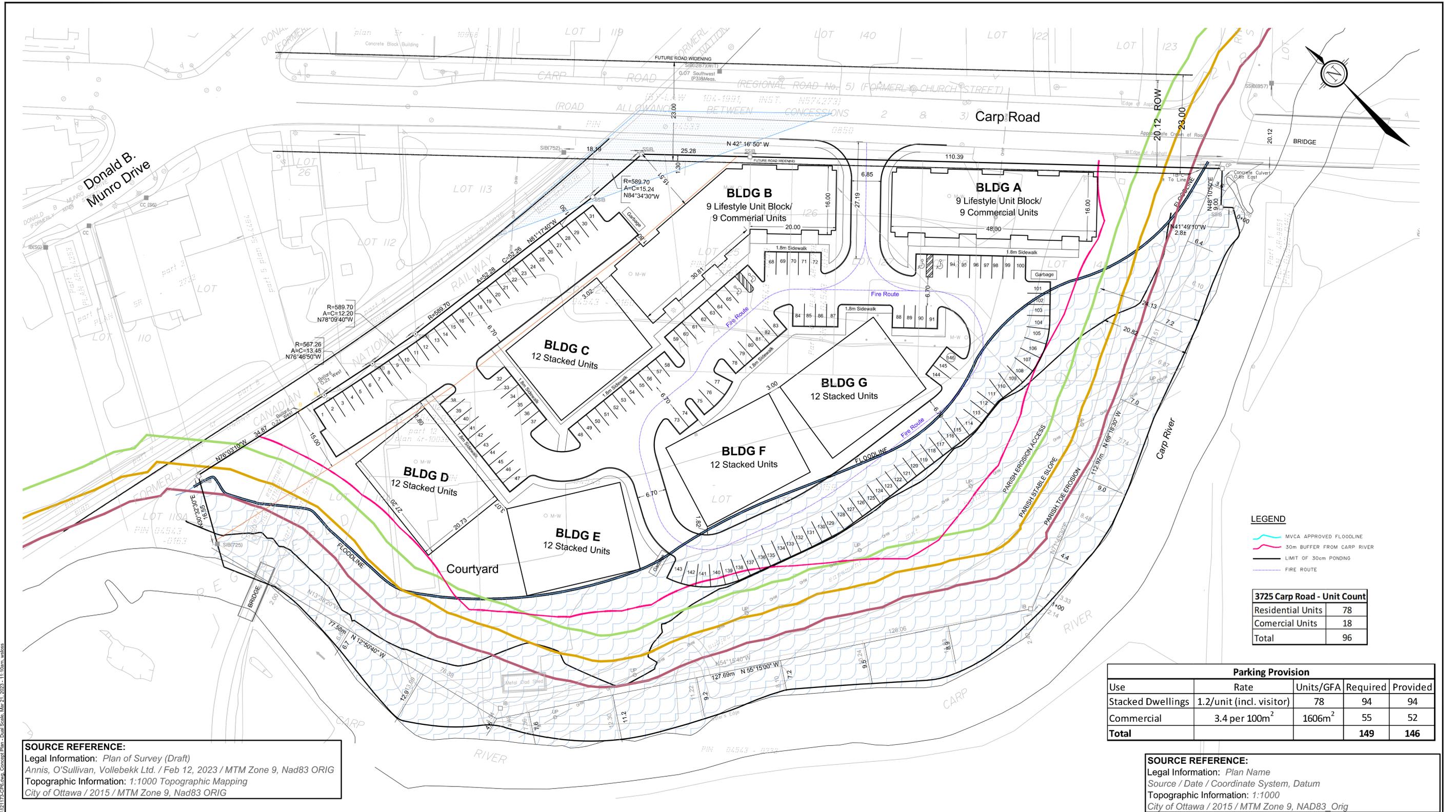


Rochelle Fortier, P.Eng.
Project Engineer | Transportation

Jennifer Luong, P.Eng.
Senior Project Manager | Transportation

APPENDIX A

Draft Plan and Concept Plan



LEGEND

- MVCA APPROVED FLOODLINE
- 30m BUFFER FROM CARP RIVER
- LIMIT OF 30cm PONDING
- FIRE ROUTE

3725 Carp Road - Unit Count

| | |
|-------------------|-----------|
| Residential Units | 78 |
| Commercial Units | 18 |
| Total | 96 |

Parking Provision

| Use | Rate | Units/GFA | Required | Provided |
|-------------------|---------------------------|--------------------|------------|------------|
| Stacked Dwellings | 1.2/unit (incl. visitor) | 78 | 94 | 94 |
| Commercial | 3.4 per 100m ² | 1606m ² | 55 | 52 |
| Total | | | 149 | 146 |

SOURCE REFERENCE:
 Legal Information: Plan of Survey (Draft)
 Annis, O'Sullivan, Vollebakk Ltd. / Feb 12, 2023 / MTM Zone 9, Nad83 ORIG
 Topographic Information: 1:1000 Topographic Mapping
 City of Ottawa / 2015 / MTM Zone 9, Nad83 ORIG

SOURCE REFERENCE:
 Legal Information: Plan Name
 Source / Date / Coordinate System, Datum
 Topographic Information: 1:1000
 City of Ottawa / 2015 / MTM Zone 9, NAD83 Orig

NOTE:
 THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

SCALE

1:400 (A1)

| | | |
|---------------------------|-----------|----|
| 2. GENERAL REVISION | MAR 21/23 | JL |
| 1. UPDATED LEGAL BOUNDARY | MAR 15/23 | JL |

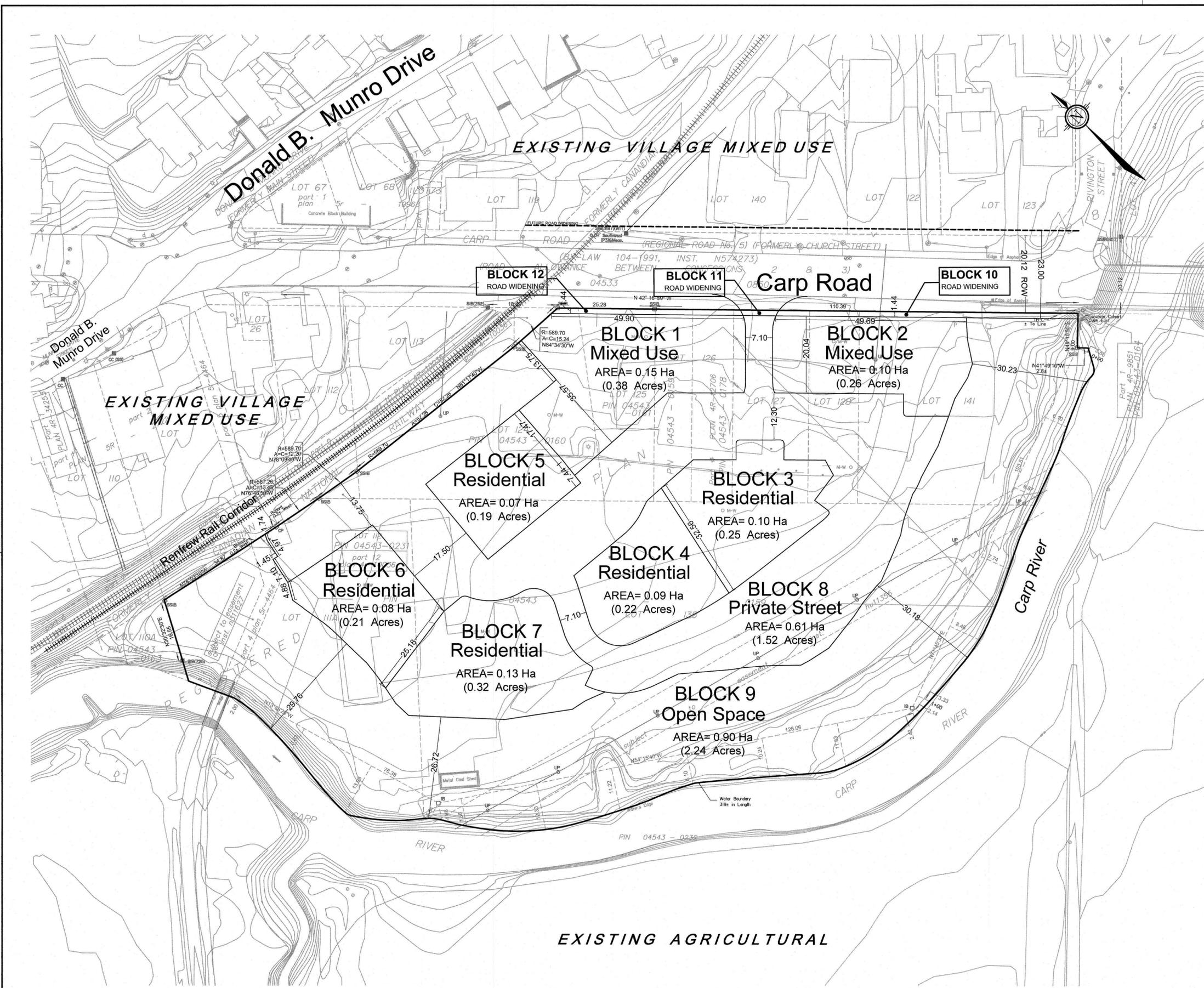
NOVATECH
 Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 1P6

Telephone: (613) 254-9643
 Facsimile: (613) 254-5867
 Website: www.novatech-eng.com

CITY OF OTTAWA
 3725 CARP ROAD

DRAWING NAME
 CONCEPT PLAN 6

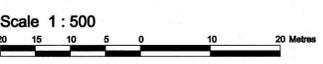
PROJECT No. 121173-00
 REV 02
 DRAWING No. 121173-CP6



KEY MAP
NOT TO SCALE

METRIC: MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

**DRAFT PLAN OF SUBDIVISION OF
LOTS 111A, 124, 125, 126, 127, 128, 135
AND PART OF LOTS 112, 141
REGISTERED PLAN 218
CITY OF OTTAWA**



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJOINING LANDS ARE CORRECTLY SHOWN.

DATED March 31, 2023

J. Cody Anderson
J. Cody Anderson
ONTARIO LAND SURVEYOR

Annis O'Sullivan, Vollebek Ltd.
ONTARIO LAND SURVEYORS
Job No. 23130-23

OWNER'S CERTIFICATE

I, ME, KARSON HOLDINGS INC. BEING THE REGISTERED OWNER(S), HEREBY AUTHORIZE NOVATECH TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF OTTAWA FOR REVIEW AND APPROVAL.

DATED _____ owner name _____

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT.

- A) The boundaries of the land proposed to be subdivided, certified by an Ontario Land Surveyor.
As shown on Draft Plan
- B) The location, width & names of the proposed highways within the proposed subdivision & of existing highways on which the proposed subdivision abuts.
As shown on Draft Plan
- C) On a small portion, on a scale of not less than 1 cm to 100 m, all of the land adjacent to the proposed subdivision that is owned by the applicant or in which the applicant has an interest, every subdivision adjacent to the proposed subdivision & the relationship of the boundaries of the lands to be subdivided to the boundaries of the township lot of other original grant of which the land forms the whole part.
As shown on Draft Plan
- D) The purpose for which the proposed lots are to be used.
Residential and Mixed Use shown on Draft Plan
- E) The existing uses of all adjoining lands.
Village Mixed Use and Agricultural shown on Draft Plan
- F) The approximate dimensions & layout of the proposed lots.
As shown on Draft Plan
- G) Natural & artificial features such as buildings or other structures or installations, railways, highways, watercourses, drainage ditches, wetlands & wooded areas within or adjacent to the land proposed to be subdivided.
As shown on Draft Plan
- H) The availability and nature of domestic water supplies.
Development will be supplied with full municipal piped water service
- I) The nature & capacity of the soil.
Refer to Geotechnical Report submitted with application
- J) Existing contours or elevations as may be required to determine the grade of the highways and the drainage of the land proposed to be subdivided.
Contours shown at 0.25 metre intervals on Draft Plan
- K) The municipal services available or to be available to the land proposed to be subdivided.
Development will be supplied with full sanitary and storm water sewer services.
- L) The nature & extent of any restrictions affecting the land proposed to be subdivided, including restrictive covenants or easements, 1994, c. 28, s. 30, 1996, c. 4, s. 29(2).
As shown on Draft Plan.

3725 CARP ROAD

SOURCE REFERENCE:
Legal Information: Plan of Survey
Annis O'Sullivan Vollebek Ltd. / March 17, 2023
Topographic Information: 1:1000
City of Ottawa / 2015 / MTM Zone 9, NAD83 Orig

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED _____ THIS DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER SECTION 51 OF THE PLANNING ACT THIS _____ DAY OF _____, 20__

DERRICK MOODIE, MANAGER
DEVELOPMENT REVIEW WEST
PLANNING, INFRASTRUCTURE AND ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 243 Michael Cowland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone: (613) 254-9643
Facsimile: (613) 254-5867
Website: www.novatech-eng.com

PROJECT No. 121173

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

| | |
|------------------------------------|---|
| Municipal Address | 3725 Carp Road |
| Description of Location | Bound by the Carp River to the south and west, the Renfrew Rail Corridor to the north, and Carp Road to the east |
| Land Use Classification | Residential Townhouses and Mixed-Use Commercial |
| Development Size (units) | 78 dwellings |
| Development Size (m ²) | Approx. 1,605 m² GFA of ground-floor commercial or retail space |
| Number of Accesses and Locations | One proposed access to Carp Road |
| Phase of Development | 1 |
| Buildout Year | 2027 |

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

| Land Use Type | Minimum Development Size |
|-------------------------------------|-----------------------------------|
| Single-family homes | 40 units |
| Townhomes or apartments | 90 units |
| Office | 3,500 m ² |
| Industrial | 5,000 m ² |
| Fast-food restaurant or coffee shop | 100 m ² |
| <i>Destination retail</i> | <i>1,000 m²</i> |
| Gas station or convenience market | 75 m ² |

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.

3. Location Triggers

| | Yes | No |
|--|-----|----|
| Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks? | ✓ | |
| Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?* | ✓ | |

*DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

| | Yes | No |
|--|-----|----|
| Are posted speed limits on a boundary street are 80 km/hr or greater? | | ✓ |
| Are there any horizontal/vertical curvatures on a boundary street limiting sight lines at a proposed driveway? | | ✓ |
| Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/suburban conditions)? | | ✓ |
| Is the proposed driveway within auxiliary lanes of an intersection? | | ✓ |
| Does the proposed driveway make use of an existing median break that serves an existing site? | | ✓ |
| Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development? | ✓ | |
| Does the development include a drive-thru facility? | | ✓ |

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

5. Summary

| | Yes | No |
|---|-----|----|
| Does the development satisfy the Trip Generation Trigger? | ✓ | |
| Does the development satisfy the Location Trigger? | ✓ | |
| Does the development satisfy the Safety Trigger? | ✓ | |

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

APPENDIX C

OC Transpo Route Maps

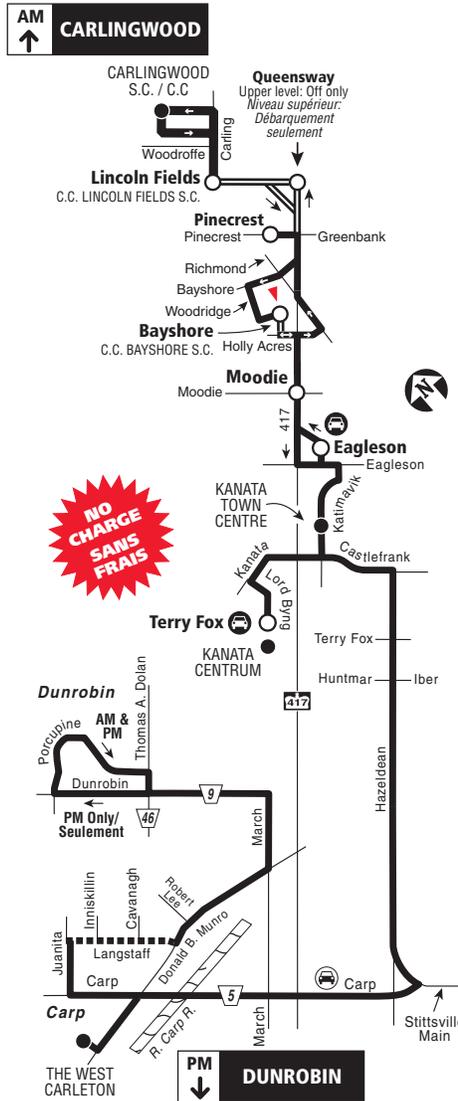
303

CARLINGWOOD DUNROBIN, CARP

Local

Wednesday only / Mercredi seulement

Selected time periods
Périodes sélectionnées



2022.04



2022.04



Schedule / Horaire 613-560-1000

Text / Texto* 560560

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

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

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

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

Security / Sécurité **613-741-2478**

Effective April 24, 2022

En vigueur 24 avril 2022



INFO 613-560-5000
octranspo.com

APPENDIX D

Traffic Count Data

Turning Movement Count - Peak Hour Diagram

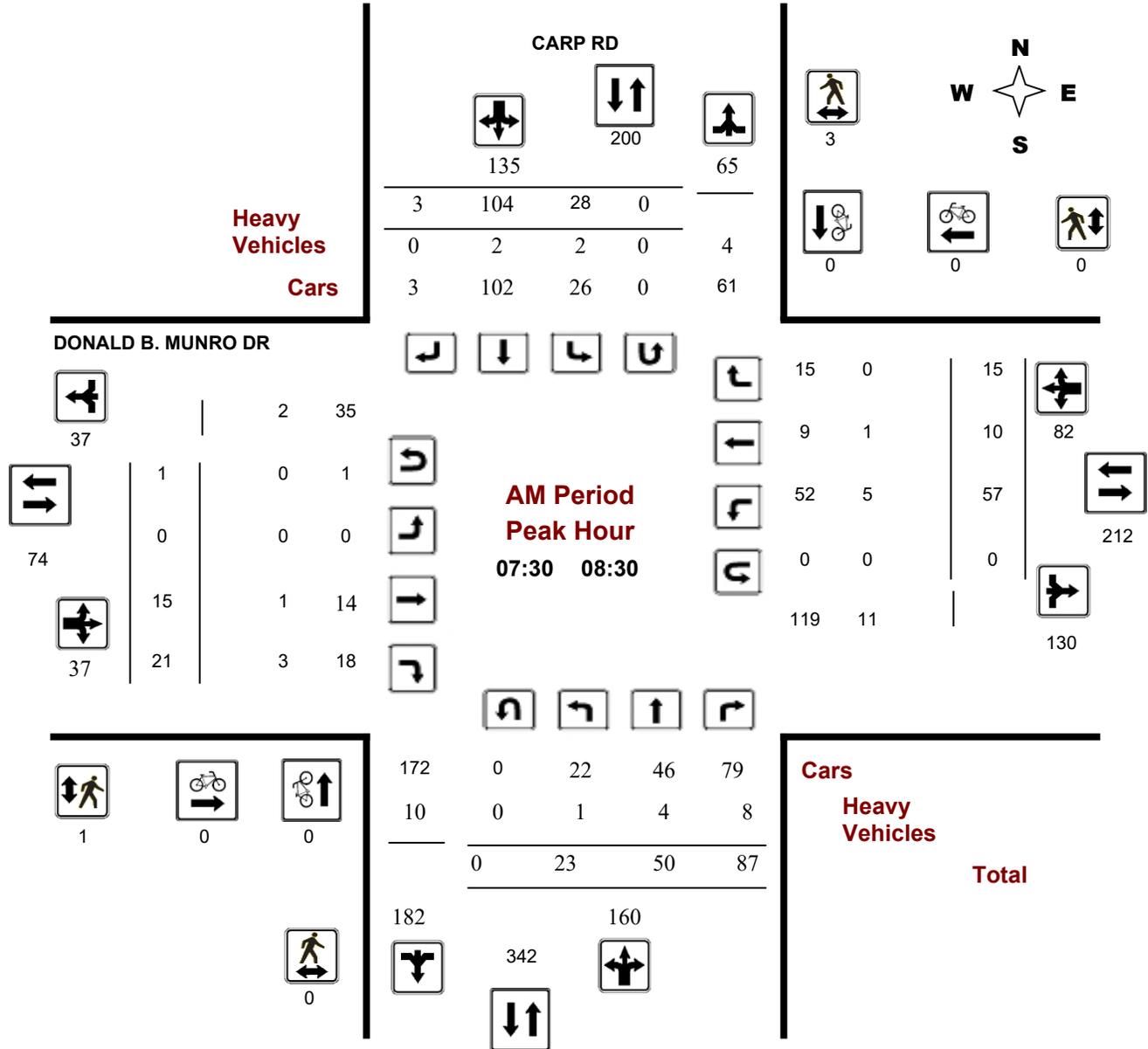
CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

Start Time: 07:00

WO No: 38471

Device: Miovision



Turning Movement Count - Peak Hour Diagram

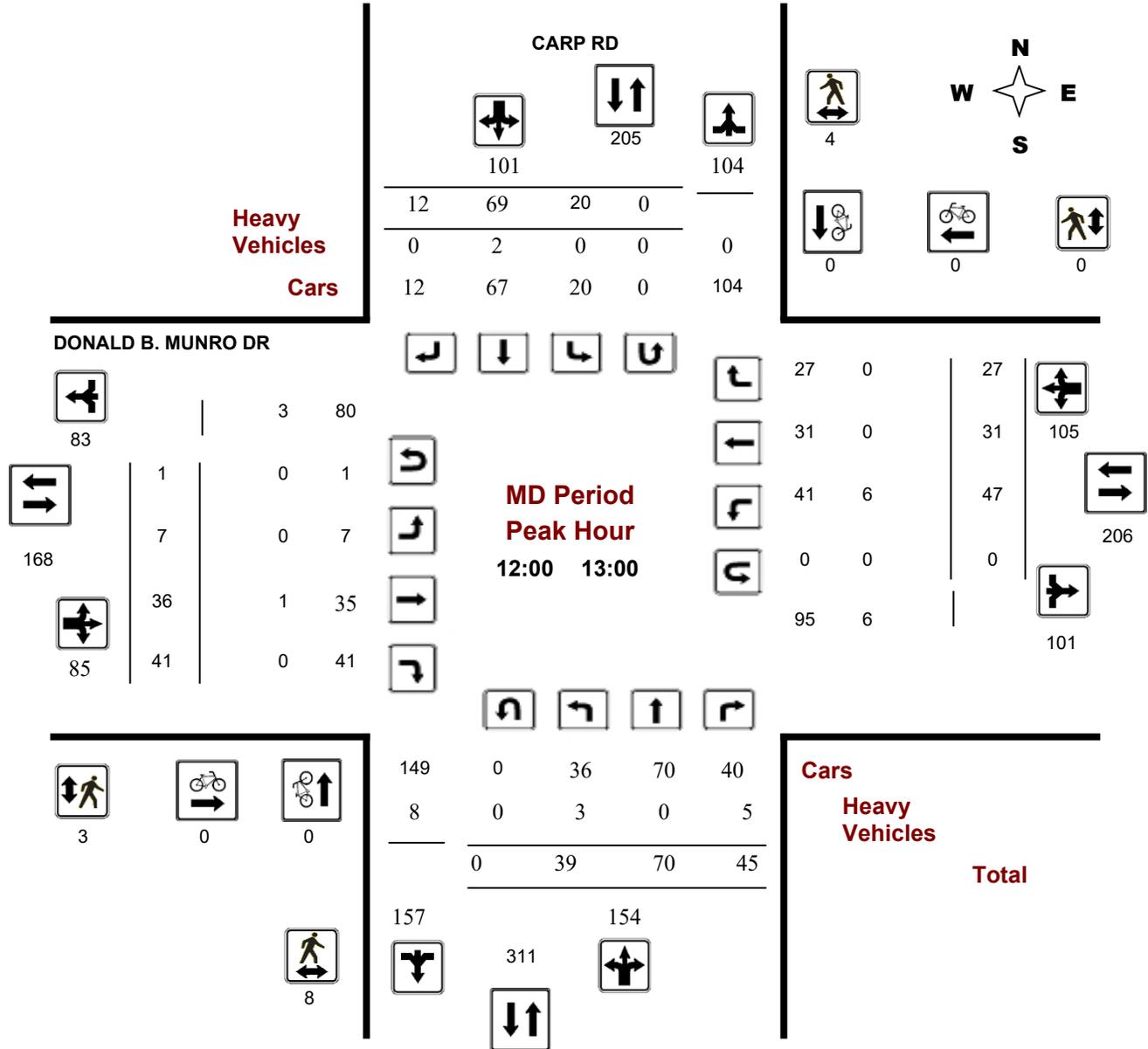
CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

Start Time: 07:00

WO No: 38471

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

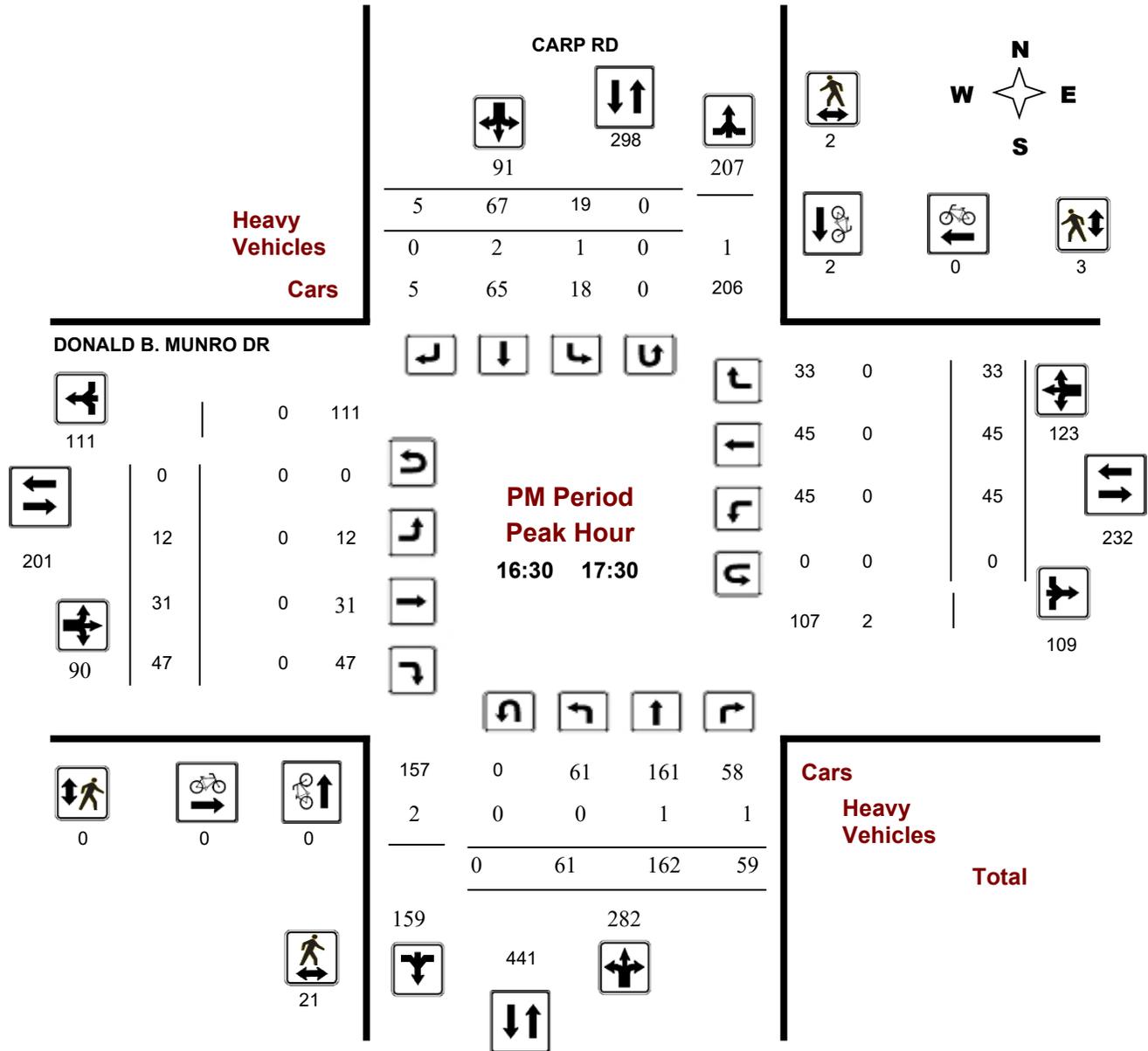
CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

Start Time: 07:00

WO No: 38471

Device: Miovision



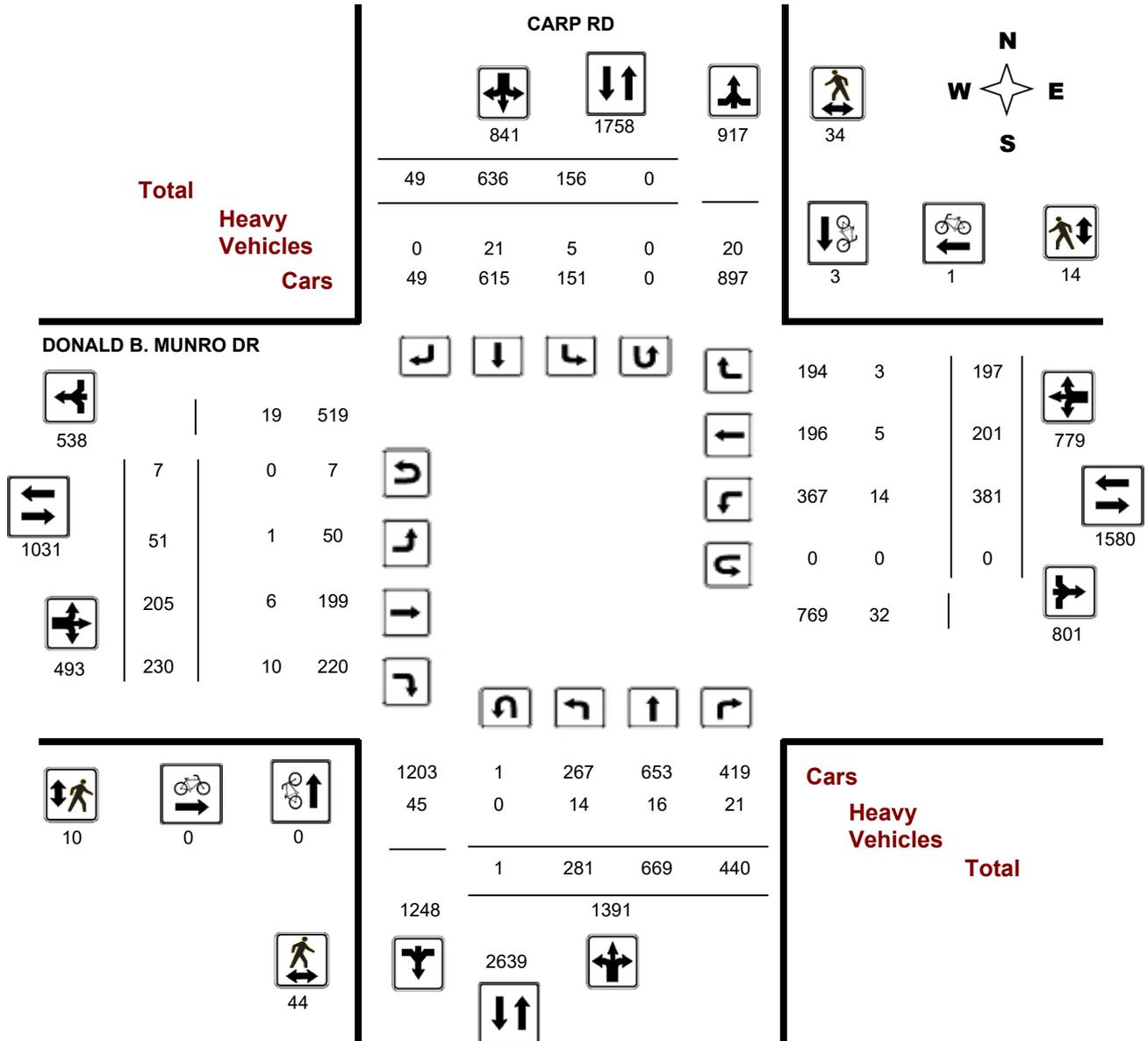
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

WO#: 38471
Device: Miovision



Comments



Turning Movement Count - Full Study Summary Report

CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

Total Observed U-Turns
 Northbound: 1 Southbound: 0
 Eastbound: 7 Westbound: 0

AADT Factor
.90

Full Study

| Period | CARP RD | | | | | | | | | DONALD B. MUNRO DR | | | | | | | | | Grand Total |
|---|------------|------|-----|--------|------------|------|----|--------|---------|--------------------|-----|-----|-------------|-----------|-----|-----|--------|---------|-------------|
| | Northbound | | | NB TOT | Southbound | | | SB TOT | STR TOT | Eastbound | | | EB TOT | Westbound | | | WB TOT | STR TOT | |
| | LT | ST | RT | | LT | ST | RT | | | LT | ST | RT | | LT | ST | RT | | | |
| 07:00 08:00 | 25 | 46 | 60 | 131 | 25 | 138 | 3 | 166 | 297 | 1 | 10 | 16 | 27 | 41 | 5 | 7 | 53 | 80 | 377 |
| 08:00 09:00 | 21 | 55 | 61 | 137 | 27 | 87 | 2 | 116 | 253 | 1 | 23 | 17 | 41 | 56 | 12 | 22 | 90 | 131 | 384 |
| 09:00 10:00 | 20 | 45 | 50 | 115 | 15 | 81 | 11 | 107 | 222 | 5 | 16 | 24 | 45 | 29 | 19 | 17 | 65 | 110 | 332 |
| 11:30 12:30 | 36 | 58 | 54 | 148 | 15 | 65 | 10 | 90 | 238 | 10 | 23 | 38 | 71 | 49 | 35 | 19 | 103 | 174 | 412 |
| 12:30 13:30 | 30 | 63 | 45 | 138 | 23 | 78 | 9 | 110 | 248 | 10 | 36 | 33 | 79 | 37 | 27 | 37 | 101 | 180 | 428 |
| 15:00 16:00 | 53 | 134 | 49 | 236 | 16 | 71 | 6 | 93 | 329 | 8 | 29 | 25 | 62 | 68 | 29 | 23 | 120 | 182 | 511 |
| 16:00 17:00 | 54 | 149 | 64 | 267 | 17 | 76 | 5 | 98 | 365 | 5 | 41 | 44 | 90 | 59 | 37 | 33 | 129 | 219 | 584 |
| 17:00 18:00 | 42 | 119 | 57 | 218 | 18 | 40 | 3 | 61 | 279 | 11 | 27 | 33 | 71 | 42 | 37 | 39 | 118 | 189 | 468 |
| Sub Total | 281 | 669 | 440 | 1390 | 156 | 636 | 49 | 841 | 2231 | 51 | 205 | 230 | 486 | 381 | 201 | 197 | 779 | 1265 | 3496 |
| U Turns | | | | 1 | | | | 0 | 1 | | | | 7 | | | | 0 | 7 | 8 |
| Total | 281 | 669 | 440 | 1391 | 156 | 636 | 49 | 841 | 2232 | 51 | 205 | 230 | 493 | 381 | 201 | 197 | 779 | 1272 | 3504 |
| EQ 12Hr | 391 | 930 | 612 | 1933 | 217 | 884 | 68 | 1169 | 3102 | 71 | 285 | 320 | 685 | 530 | 279 | 274 | 1083 | 1768 | 4870 |
| Note: These values are calculated by multiplying the totals by the appropriate expansion factor. | | | | | | | | | | | | | 1.39 | | | | | | |
| AVG 12Hr | 352 | 837 | 550 | 1740 | 195 | 796 | 61 | 1052 | 2792 | 64 | 256 | 288 | 617 | 477 | 251 | 246 | 975 | 1592 | 4384 |
| Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. | | | | | | | | | | | | | .90 | | | | | | |
| AVG 24Hr | 461 | 1096 | 721 | 2280 | 256 | 1042 | 80 | 1378 | 3658 | 84 | 336 | 377 | 808 | 624 | 329 | 323 | 1277 | 2085 | 5743 |
| Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. | | | | | | | | | | | | | 1.31 | | | | | | |

Comments:

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



Turning Movement Count - 15 Minute Summary Report

CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

Total Observed U-Turns

Northbound: 1 Southbound: 0
Eastbound: 7 Westbound: 0

CARP RD

DONALD B. MUNRO DR

Table with columns: Time Period, Northbound (LT, ST, RT, N TOT), Southbound (LT, ST, RT, S TOT, STR TOT), Eastbound (LT, ST, RT, E TOT), Westbound (LT, ST, RT, W TOT, STR TOT), Grand Total. Rows include 15-minute intervals from 07:00 to 18:00 and a final TOTAL row.

Note: U-Turns are included in Totals.

Comment:



Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
38471

CARP RD @ DONALD B. MUNRO DR

Count Date: Tuesday, April 02, 2019

Start Time: 07:00

| Time Period | CARP RD | | | DONALD B. MUNRO DR | | | Grand Total |
|--------------------|------------|------------|--------------|--------------------|-----------|--------------|-------------|
| | Northbound | Southbound | Street Total | Eastbound | Westbound | Street Total | |
| 07:00 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 10:00 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 11:30 12:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:30 13:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:00 16:00 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 16:00 17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 18:00 | 0 | 2 | 2 | 0 | 0 | 0 | 2 |
| Total | 0 | 3 | 3 | 0 | 1 | 1 | 4 |

Comment:

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



Transportation Services - Traffic Services

W.O.
38471

Turning Movement Count - Heavy Vehicle Report

CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

| Time Period | CARP RD | | | | | | | | | DONALD B. MUNRO DR | | | | | | | | | Grand Total |
|---------------------------------|------------|-----------|-----------|------------|----------|-----------|----------|------------|-----------|--------------------|----------|-----------|-----------|-----------|----------|------------|-----------|-----------|-------------|
| | Northbound | | | Southbound | | | S TOT | STR TOT | Eastbound | | | Westbound | | | W TOT | STR TOT | | | |
| | LT | ST | RT | N TOT | LT | ST | | | RT | LT | ST | RT | E TOT | LT | | | ST | RT | |
| 07:00 08:00 | 3 | 5 | 5 | 13 | 0 | 2 | 0 | 2 | 15 | 1 | 2 | 2 | 5 | 0 | 0 | 0 | 0 | 5 | 20 |
| 08:00 09:00 | 3 | 6 | 5 | 14 | 2 | 3 | 0 | 5 | 19 | 0 | 1 | 2 | 3 | 5 | 3 | 1 | 9 | 12 | 31 |
| 09:00 10:00 | 3 | 3 | 0 | 6 | 1 | 7 | 0 | 8 | 14 | 0 | 0 | 4 | 4 | 1 | 1 | 0 | 2 | 6 | 20 |
| 11:30 12:30 | 0 | 0 | 4 | 4 | 0 | 3 | 0 | 3 | 7 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 11 |
| 12:30 13:30 | 4 | 0 | 5 | 9 | 0 | 2 | 0 | 2 | 11 | 0 | 1 | 1 | 2 | 4 | 0 | 0 | 4 | 6 | 17 |
| 15:00 16:00 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 2 | 5 |
| 16:00 17:00 | 0 | 2 | 2 | 4 | 0 | 3 | 0 | 3 | 7 | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 2 | 4 | 11 |
| 17:00 18:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Sub Total | 14 | 16 | 21 | 51 | 5 | 21 | 0 | 26 | 77 | 1 | 6 | 10 | 17 | 14 | 5 | 3 | 22 | 39 | 116 |
| U-Turns (Heavy Vehicles) | | | | 0 | | | | 0 | 0 | | | | 0 | | | | 0 | 0 | 0 |
| Total | 14 | 16 | 21 | 0 | 5 | 21 | 0 | 26 | 77 | 1 | 6 | 10 | 17 | 14 | 5 | 3 | 22 | 39 | 116 |

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



Transportation Services - Traffic Services

Work Order

38471

Turning Movement Count - Pedestrian Volume Report

CARP RD @ DONALD B. MUNRO DR

Count Date: Tuesday, April 02, 2019

Start Time: 07:00

| Time Period | NB Approach (E or W Crossing) | SB Approach (E or W Crossing) | Total | EB Approach (N or S Crossing) | WB Approach (N or S Crossing) | Total | Grand Total |
|--------------------|----------------------------------|----------------------------------|-----------|----------------------------------|----------------------------------|-----------|-------------|
| 07:00 07:15 | 0 | 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 | 0 | 0 | 0 |
| 07:45 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 08:15 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 08:15 08:30 | 0 | 2 | 2 | 1 | 0 | 1 | 3 |
| 08:30 08:45 | 1 | 2 | 3 | 0 | 0 | 0 | 3 |
| 08:45 09:00 | 1 | 3 | 4 | 1 | 0 | 1 | 5 |
| 08:00 09:00 | 2 | 8 | 10 | 2 | 0 | 2 | 12 |
| 09:00 09:15 | 0 | 1 | 1 | 0 | 1 | 1 | 2 |
| 09:15 09:30 | 0 | 12 | 12 | 0 | 0 | 0 | 12 |
| 09:30 09:45 | 0 | 2 | 2 | 0 | 0 | 0 | 2 |
| 09:45 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 10:00 | 0 | 15 | 15 | 0 | 1 | 1 | 16 |
| 11:30 11:45 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 11:45 12:00 | 1 | 0 | 1 | 0 | 3 | 3 | 4 |
| 12:00 12:15 | 1 | 1 | 2 | 1 | 0 | 1 | 3 |
| 12:15 12:30 | 4 | 1 | 5 | 0 | 0 | 0 | 5 |
| 11:30 12:30 | 6 | 3 | 9 | 1 | 3 | 4 | 13 |
| 12:30 12:45 | 2 | 2 | 4 | 2 | 0 | 2 | 6 |
| 12:45 13:00 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 13:00 13:15 | 1 | 0 | 1 | 2 | 0 | 2 | 3 |
| 13:15 13:30 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 12:30 13:30 | 5 | 2 | 7 | 4 | 0 | 4 | 11 |
| 15:00 15:15 | 1 | 1 | 2 | 2 | 2 | 4 | 6 |
| 15:15 15:30 | 2 | 0 | 2 | 0 | 0 | 0 | 2 |
| 15:30 15:45 | 2 | 1 | 3 | 1 | 1 | 2 | 5 |
| 15:45 16:00 | 0 | 1 | 1 | 0 | 1 | 1 | 2 |
| 15:00 16:00 | 5 | 3 | 8 | 3 | 4 | 7 | 15 |
| 16:00 16:15 | 0 | 1 | 1 | 0 | 2 | 2 | 3 |
| 16:15 16:30 | 2 | 0 | 2 | 0 | 0 | 0 | 2 |
| 16:30 16:45 | 9 | 0 | 9 | 0 | 2 | 2 | 11 |
| 16:45 17:00 | 3 | 2 | 5 | 0 | 0 | 0 | 5 |
| 16:00 17:00 | 14 | 3 | 17 | 0 | 4 | 4 | 21 |
| 17:00 17:15 | 2 | 0 | 2 | 0 | 1 | 1 | 3 |
| 17:15 17:30 | 7 | 0 | 7 | 0 | 0 | 0 | 7 |
| 17:30 17:45 | 2 | 0 | 2 | 0 | 0 | 0 | 2 |
| 17:45 18:00 | 1 | 0 | 1 | 0 | 1 | 1 | 2 |
| 17:00 18:00 | 12 | 0 | 12 | 0 | 2 | 2 | 14 |
| Total | 44 | 34 | 78 | 10 | 14 | 24 | 102 |

Comment:

Turning Movement Count - 15 Min U-Turn Total Report

CARP RD @ DONALD B. MUNRO DR

Survey Date: Tuesday, April 02, 2019

| Time Period | | Northbound U-Turn Total | Southbound U-Turn Total | Eastbound U-Turn Total | Westbound U-Turn Total | Total |
|--------------|-------|----------------------------|----------------------------|---------------------------|---------------------------|----------|
| 07:00 | 07:15 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 0 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 0 | 0 | 1 | 0 | 1 |
| 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 | 2 | 0 | 2 |
| 11:45 | 12:00 | 0 | 0 | 1 | 0 | 1 |
| 12:00 | 12:15 | 0 | 0 | 0 | 0 | 0 |
| 12:15 | 12:30 | 0 | 0 | 1 | 0 | 1 |
| 12:30 | 12:45 | 0 | 0 | 0 | 0 | 0 |
| 12:45 | 13:00 | 0 | 0 | 0 | 0 | 0 |
| 13:00 | 13:15 | 0 | 0 | 1 | 0 | 1 |
| 13:15 | 13:30 | 0 | 0 | 0 | 0 | 0 |
| 15:00 | 15:15 | 0 | 0 | 0 | 0 | 0 |
| 15:15 | 15:30 | 0 | 0 | 0 | 0 | 0 |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 1 | 0 | 0 | 0 | 1 |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 0 | 0 | 0 | 0 | 0 |
| Total | | 1 | 0 | 7 | 0 | 8 |

Turning Movement Count - Study Results

CARP RD @ RIVINGTON ST

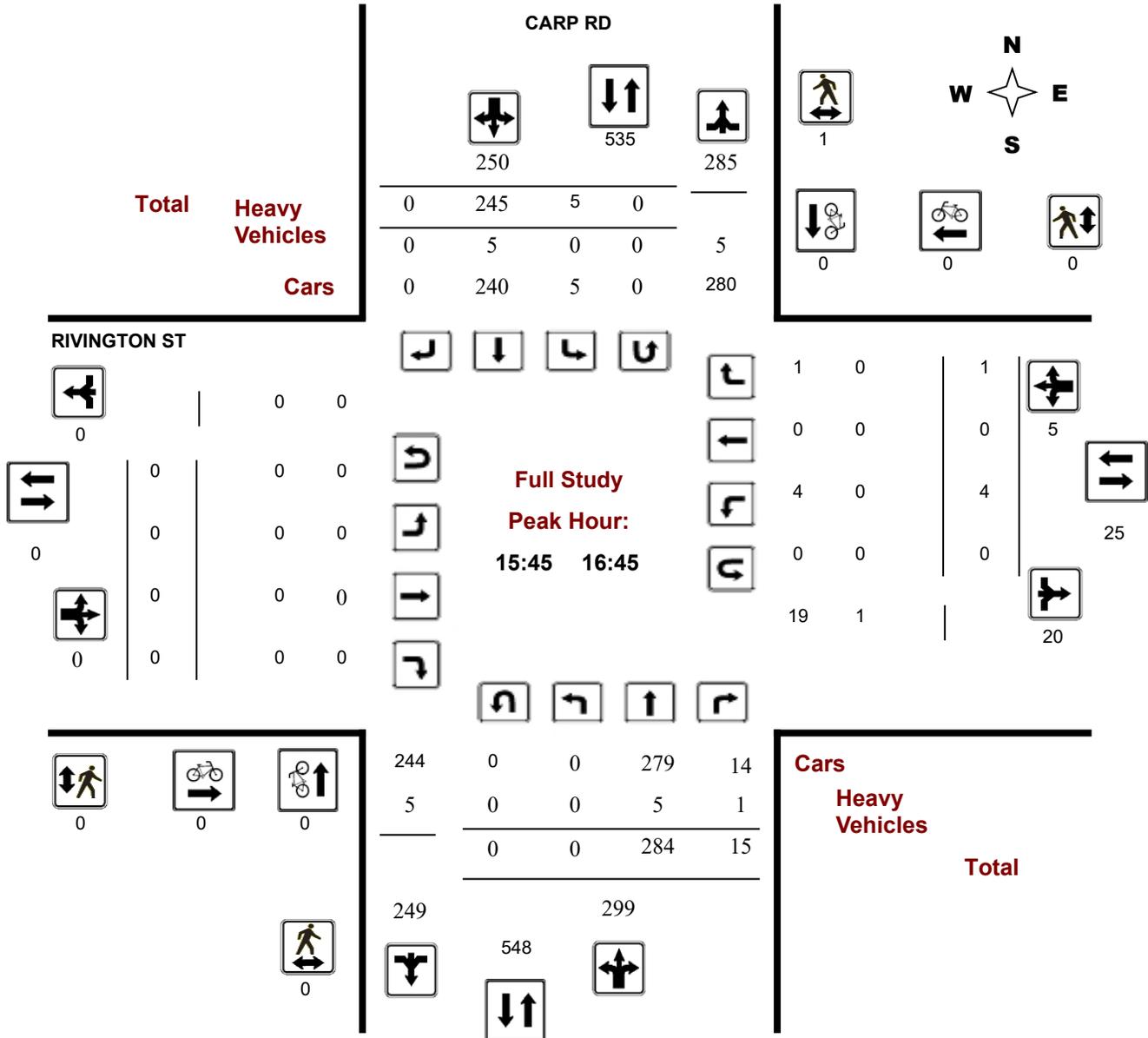
Survey Date: Wednesday, August 16, 2017

WO No: 37207

Start Time: 07:00

Device: Miovision

Full Study Peak Hour Diagram



Turning Movement Count - Peak Hour Diagram

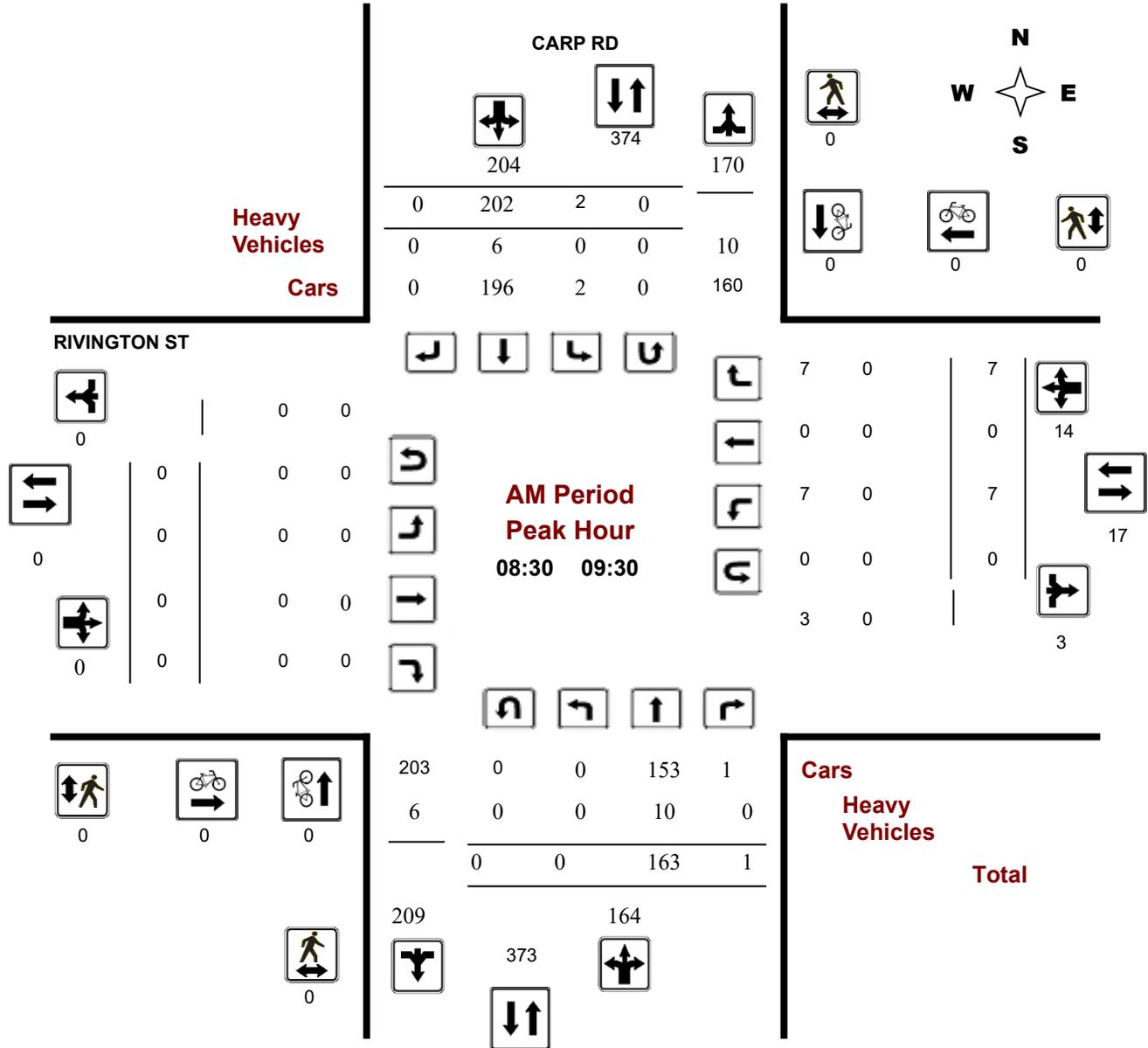
CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

Start Time: 07:00

WO No: 37207

Device: Miovision



Turning Movement Count - Peak Hour Diagram

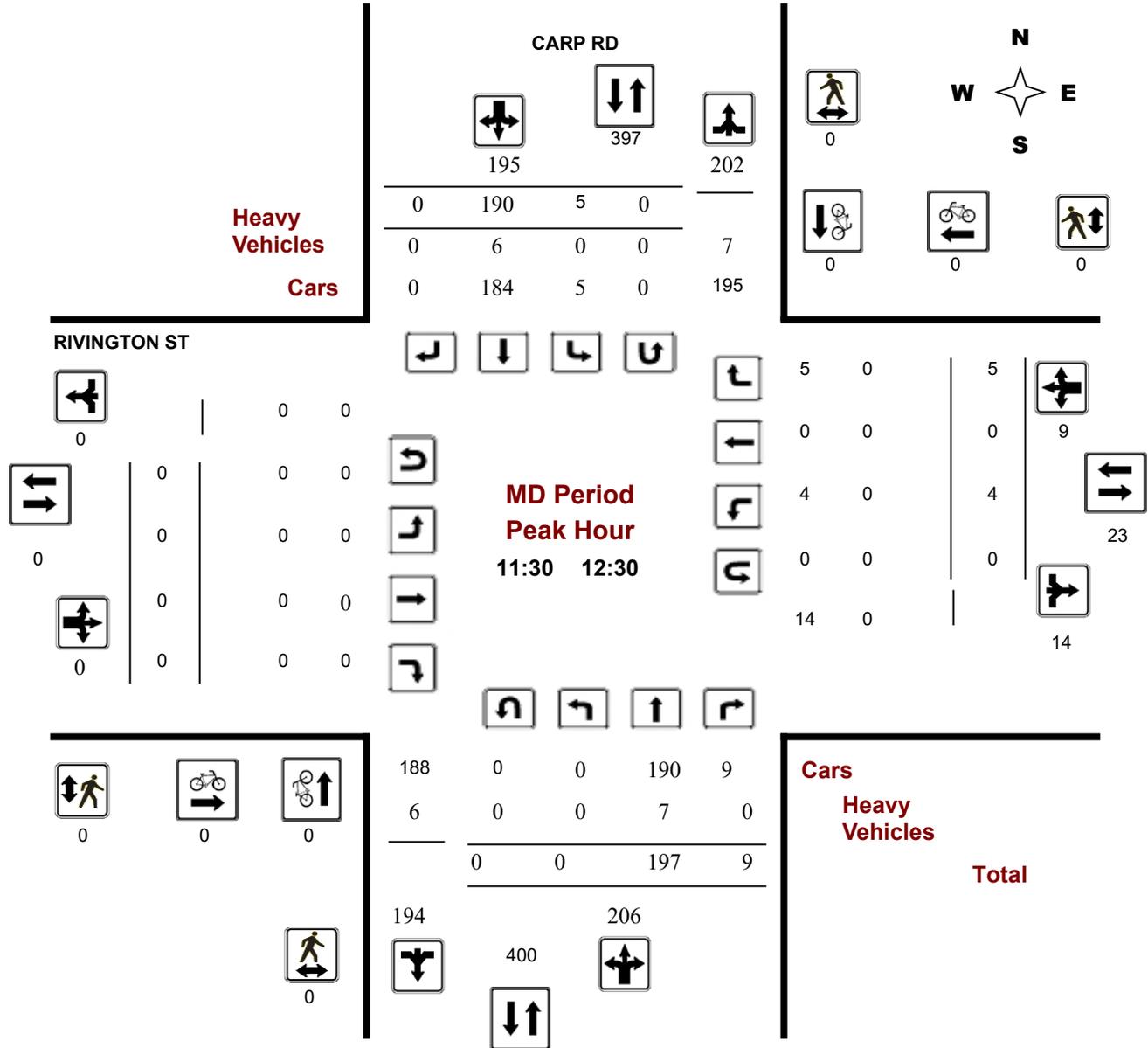
CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

Start Time: 07:00

WO No: 37207

Device: Miovision



Turning Movement Count - Peak Hour Diagram

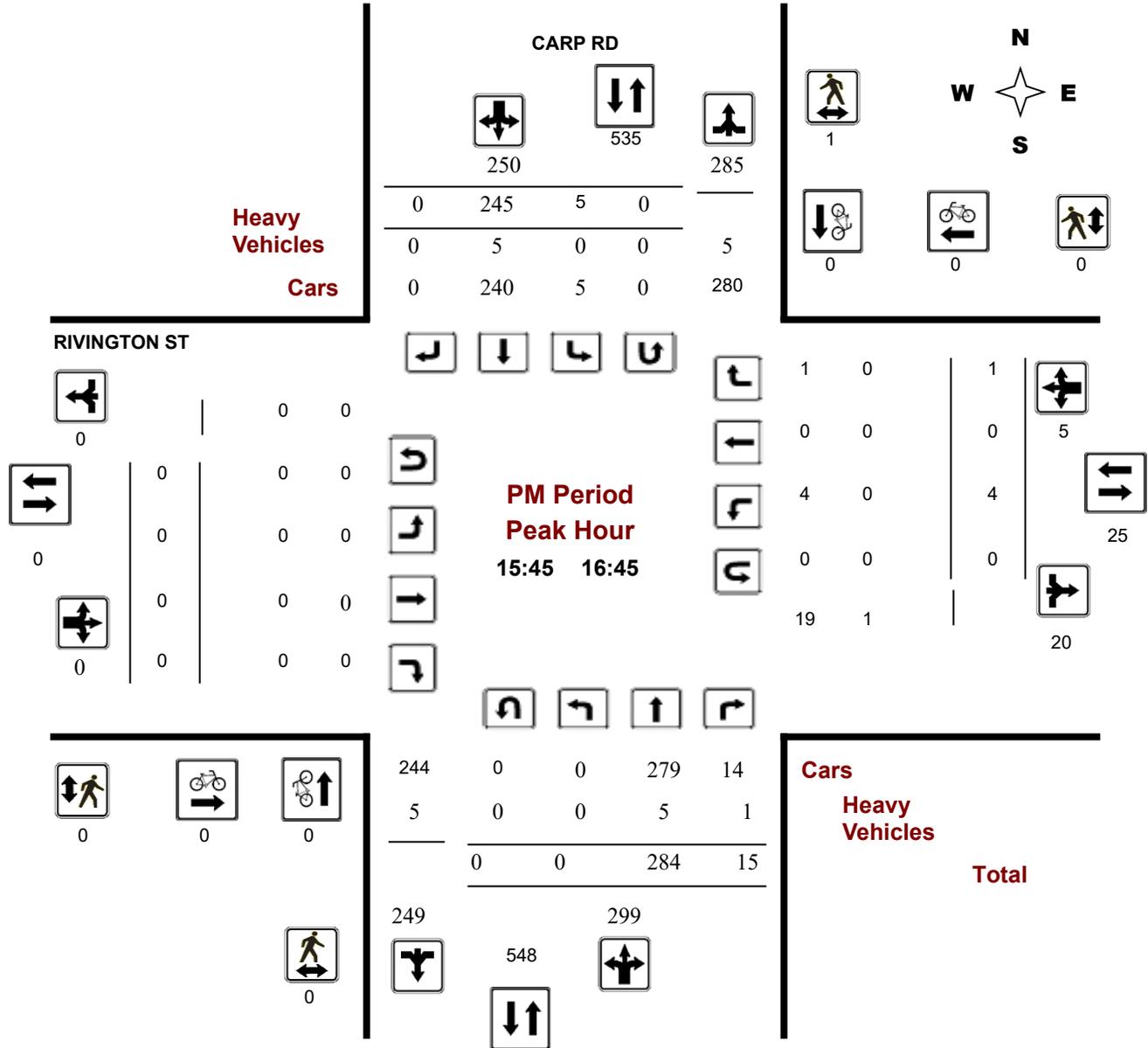
CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

Start Time: 07:00

WO No: 37207

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

WO No: 37207

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, August 16, 2017

Total Observed U-Turns

AADT Factor

Northbound: 0 Southbound: 0

.90

Eastbound: 0 Westbound: 0

| Period | CARP RD | | | | | | | | | | RIVINGTON ST | | | | | | | | | | Grand Total |
|---|------------|------|----|--------|---------|------------|------|----|--------|---------|--------------|----|----|-------------|---------|-----------|----|-----|--------|---------|-------------|
| | Northbound | | | | | Southbound | | | | | Eastbound | | | | | Westbound | | | | | |
| | LT | ST | RT | NB TOT | STR TOT | LT | ST | RT | SB TOT | STR TOT | LT | ST | RT | EB TOT | STR TOT | LT | ST | RT | WB TOT | STR TOT | |
| 07:00 08:00 | 0 | 102 | 3 | 105 | 305 | 1 | 199 | 0 | 200 | 305 | 0 | 0 | 0 | 0 | 11 | 0 | 1 | 12 | 12 | 317 | |
| 08:00 09:00 | 0 | 137 | 3 | 140 | 344 | 2 | 202 | 0 | 204 | 344 | 0 | 0 | 0 | 0 | 12 | 0 | 6 | 18 | 18 | 362 | |
| 09:00 10:00 | 0 | 162 | 2 | 164 | 339 | 1 | 174 | 0 | 175 | 339 | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 7 | 7 | 346 | |
| 11:30 12:30 | 0 | 197 | 9 | 206 | 401 | 5 | 190 | 0 | 195 | 401 | 0 | 0 | 0 | 0 | 4 | 0 | 5 | 9 | 9 | 410 | |
| 12:30 13:30 | 0 | 200 | 2 | 202 | 371 | 5 | 164 | 0 | 169 | 371 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4 | 4 | 375 | |
| 15:00 16:00 | 0 | 242 | 7 | 249 | 454 | 4 | 201 | 0 | 205 | 454 | 0 | 0 | 0 | 0 | 12 | 0 | 4 | 16 | 16 | 470 | |
| 16:00 17:00 | 0 | 284 | 15 | 299 | 547 | 6 | 242 | 0 | 248 | 547 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 4 | 4 | 551 | |
| 17:00 18:00 | 0 | 258 | 14 | 272 | 426 | 4 | 150 | 0 | 154 | 426 | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 7 | 7 | 433 | |
| Sub Total | 0 | 1582 | 55 | 1637 | 3187 | 28 | 1522 | 0 | 1550 | 3187 | 0 | 0 | 0 | 0 | 49 | 0 | 28 | 77 | 77 | 3264 | |
| U Turns | 0 | | | | 0 | | 0 | | 0 | | | | 0 | | 0 | | 0 | | 0 | | 0 |
| Total | 0 | 1582 | 55 | 1637 | 3187 | 28 | 1522 | 0 | 1550 | 3187 | 0 | 0 | 0 | 0 | 49 | 0 | 28 | 77 | 77 | 3264 | |
| EQ 12Hr | 0 | 2199 | 76 | 2275 | 4430 | 39 | 2116 | 0 | 2154 | 4430 | 0 | 0 | 0 | 0 | 68 | 0 | 39 | 107 | 107 | 4537 | |
| Note: These values are calculated by multiplying the totals by the appropriate expansion factor. | | | | | | | | | | | | | | 1.39 | | | | | | | |
| AVG 12Hr | 0 | 1979 | 68 | 2048 | 3987 | 35 | 2494 | 0 | 1939 | 3987 | 0 | 0 | 0 | 0 | 61 | 0 | 35 | 96 | 96 | 4083 | |
| Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. | | | | | | | | | | | | | | .90 | | | | | | | |
| AVG 24Hr | 0 | 2592 | 89 | 2683 | 5223 | 46 | 3267 | 0 | 2540 | 5223 | 0 | 0 | 0 | 0 | 80 | 0 | 46 | 126 | 126 | 5349 | |
| 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

CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

WO No: 37207

Start Time: 07:00

Device: Miovision

Full Study 15 Minute Increments

CARP RD

RIVINGTON ST

Northbound

Southbound

Eastbound

Westbound

| Time Period | LT | ST | RT | N TOT | LT | ST | RT | S TOT | STR TOT | LT | ST | RT | E TOT | LT | ST | RT | W TOT | STR TOT | Grand Total |
|---------------|----------|-------------|-----------|-------------|-----------|-------------|----------|-------------|-------------|----------|----------|----------|----------|-----------|----------|-----------|-----------|------------|----------------|
| 07:00 07:15 | 0 | 17 | 1 | 18 | 1 | 50 | 0 | 51 | 69 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 5 | 5 | 74 |
| 07:15 07:30 | 0 | 18 | 1 | 19 | 0 | 60 | 0 | 60 | 79 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 81 |
| 07:30 07:45 | 0 | 25 | 0 | 25 | 0 | 39 | 0 | 39 | 64 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 3 | 67 |
| 07:45 08:00 | 0 | 42 | 1 | 43 | 0 | 50 | 0 | 50 | 93 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 95 |
| 08:00 08:15 | 0 | 29 | 1 | 30 | 0 | 45 | 0 | 45 | 75 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 77 |
| 08:15 08:30 | 0 | 31 | 2 | 33 | 0 | 46 | 0 | 46 | 79 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 5 | 5 | 84 |
| 08:30 08:45 | 0 | 47 | 0 | 47 | 0 | 62 | 0 | 62 | 109 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 5 | 5 | 114 |
| 08:45 09:00 | 0 | 30 | 0 | 30 | 2 | 49 | 0 | 51 | 81 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 6 | 6 | 87 |
| 09:00 09:15 | 0 | 45 | 1 | 46 | 0 | 44 | 0 | 44 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 91 |
| 09:15 09:30 | 0 | 41 | 0 | 41 | 0 | 47 | 0 | 47 | 88 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 2 | 90 |
| 09:30 09:45 | 0 | 38 | 1 | 39 | 0 | 45 | 0 | 45 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 |
| 09:45 10:00 | 0 | 38 | 0 | 38 | 1 | 38 | 0 | 39 | 77 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4 | 4 | 81 |
| 11:30 11:45 | 0 | 42 | 0 | 42 | 2 | 62 | 0 | 64 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 108 |
| 11:45 12:00 | 0 | 54 | 2 | 56 | 1 | 42 | 0 | 43 | 99 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 3 | 102 |
| 12:00 12:15 | 0 | 64 | 0 | 64 | 0 | 45 | 0 | 45 | 109 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 111 |
| 12:15 12:30 | 0 | 37 | 7 | 44 | 2 | 41 | 0 | 43 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 89 |
| 12:30 12:45 | 0 | 54 | 0 | 54 | 2 | 46 | 0 | 48 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 103 |
| 12:45 13:00 | 0 | 51 | 1 | 52 | 1 | 36 | 0 | 37 | 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 |
| 13:00 13:15 | 0 | 49 | 1 | 50 | 0 | 34 | 0 | 34 | 84 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 85 |
| 13:15 13:30 | 0 | 46 | 0 | 46 | 2 | 48 | 0 | 50 | 96 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 2 | 98 |
| 15:00 15:15 | 0 | 43 | 2 | 45 | 0 | 54 | 0 | 54 | 99 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 5 | 5 | 104 |
| 15:15 15:30 | 0 | 56 | 1 | 57 | 2 | 42 | 0 | 44 | 101 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 3 | 104 |
| 15:30 15:45 | 0 | 72 | 1 | 73 | 1 | 44 | 0 | 45 | 118 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 6 | 6 | 124 |
| 15:45 16:00 | 0 | 71 | 3 | 74 | 1 | 61 | 0 | 62 | 136 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 138 |
| 16:00 16:15 | 0 | 62 | 5 | 67 | 2 | 70 | 0 | 72 | 139 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 140 |
| 16:15 16:30 | 0 | 68 | 2 | 70 | 0 | 64 | 0 | 64 | 134 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 135 |
| 16:30 16:45 | 0 | 83 | 5 | 88 | 2 | 50 | 0 | 52 | 140 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 141 |
| 16:45 17:00 | 0 | 71 | 3 | 74 | 2 | 58 | 0 | 60 | 134 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 135 |
| 17:00 17:15 | 0 | 59 | 2 | 61 | 1 | 48 | 0 | 49 | 110 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 3 | 3 | 113 |
| 17:15 17:30 | 0 | 70 | 5 | 75 | 2 | 39 | 0 | 41 | 116 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 3 | 3 | 119 |
| 17:30 17:45 | 0 | 59 | 2 | 61 | 1 | 31 | 0 | 32 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 94 |
| 17:45 18:00 | 0 | 70 | 5 | 75 | 0 | 32 | 0 | 32 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107 |
| Total: | 0 | 1582 | 55 | 1637 | 28 | 1522 | 0 | 1550 | 3187 | 0 | 0 | 0 | 0 | 49 | 0 | 28 | 77 | 77 | 3,264 |

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

WO No: 37207

Start Time: 07:00

Device: Miovision

Full Study Cyclist Volume

| Time Period | CARP RD | | | RIVINGTON ST | | | Grand Total |
|--------------|------------|------------|--------------|--------------|-----------|--------------|-------------|
| | Northbound | Southbound | Street Total | Eastbound | Westbound | Street 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 | 1 | 1 | 0 | 0 | 0 | 1 |
| 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 | 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 | 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 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:45-12:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:00-12:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:15-12:30 | 0 | 0 | 0 | 0 | 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 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45-17:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00-17:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15-17:30 | 0 | 0 | 0 | 0 | 2 | 2 | 2 |
| 17:30-17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45-18:00 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| Total | 0 | 1 | 1 | 0 | 3 | 3 | 4 |



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

WO No: 37207

Start Time: 07:00

Device: Miovision

Full Study Pedestrian Volume

CARP RD

RIVINGTON ST

| Time Period | NB Approach (E or W Crossing) | SB Approach (E or W Crossing) | Total | EB Approach (N or S Crossing) | WB Approach (N or S Crossing) | Total | Grand Total |
|--------------------|----------------------------------|----------------------------------|----------|----------------------------------|----------------------------------|----------|-------------|
| 07:00 07:15 | 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 | 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 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:45 12:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:00 12:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:15 12:30 | 0 | 0 | 0 | 0 | 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 | 1 | 1 | 0 | 0 | 0 | 1 |
| 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 | 0 | 0 | 0 | 0 |
| 17:15 17:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 17:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 18:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 1 | 1 | 0 | 2 | 2 | 3 |



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

WO No: 37207

Start Time: 07:00

Device: Miovision

Full Study Heavy Vehicles

CARP RD

RIVINGTON ST

Northbound

Southbound

Eastbound

Westbound

| Time Period | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Grand Total | | |
|-------------|------------|----|----|-------|------------|----|----|-------|-----------|----|----|----|-----------|----|----|----|-------------|-------|---------|
| | LT | ST | RT | N TOT | LT | ST | RT | S TOT | STR TOT | LT | ST | RT | E TOT | LT | ST | RT | | W TOT | STR TOT |
| 07:00 07:15 | 0 | 2 | 0 | 3 | 0 | 1 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 07:15 07:30 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:30 07:45 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 07:45 08:00 | 0 | 5 | 0 | 6 | 0 | 1 | 0 | 6 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 08:00 08:15 | 0 | 2 | 0 | 4 | 0 | 2 | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 08:15 08:30 | 0 | 2 | 0 | 4 | 0 | 2 | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 08:30 08:45 | 0 | 3 | 0 | 5 | 0 | 2 | 0 | 5 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 08:45 09:00 | 0 | 2 | 0 | 4 | 0 | 2 | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 09:00 09:15 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 09:15 09:30 | 0 | 3 | 0 | 5 | 0 | 2 | 0 | 5 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 09:30 09:45 | 0 | 2 | 0 | 9 | 0 | 7 | 0 | 9 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 09:45 10:00 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 11:30 11:45 | 0 | 2 | 0 | 4 | 0 | 2 | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 11:45 12:00 | 0 | 2 | 0 | 5 | 0 | 3 | 0 | 5 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 12:00 12:15 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12:15 12:30 | 0 | 2 | 0 | 3 | 0 | 1 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 12:30 12:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:45 13:00 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 13:00 13:15 | 0 | 3 | 0 | 4 | 0 | 1 | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 13:15 13:30 | 0 | 3 | 0 | 6 | 0 | 3 | 0 | 6 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 15:00 15:15 | 0 | 2 | 0 | 3 | 0 | 1 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 15:15 15:30 | 0 | 2 | 0 | 4 | 0 | 2 | 0 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 15:30 15:45 | 0 | 1 | 0 | 3 | 0 | 2 | 0 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 15:45 16:00 | 0 | 2 | 0 | 5 | 0 | 3 | 0 | 5 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 16:00 16:15 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 16:15 16:30 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 16:30 16:45 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 16:45 17:00 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 17:00 17:15 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 3 |
| 17:15 17:30 | 0 | 1 | 1 | 3 | 0 | 1 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 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 | 0 | 55 | 2 | 102 | 0 | 44 | 0 | 99 | 201 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 3 | 102 |



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ RIVINGTON ST

Survey Date: Wednesday, August 16, 2017

WO No: 37207

Start Time: 07:00

Device: Miovision

Full Study 15 Minute U-Turn Total

CARP RD

RIVINGTON ST

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



Turning Movement Count

Summary, AM and PM Peak Hour

Flow Diagrams

All Vehicles Except Bicycles



Carp Road & Rivington Street

Carp, ON

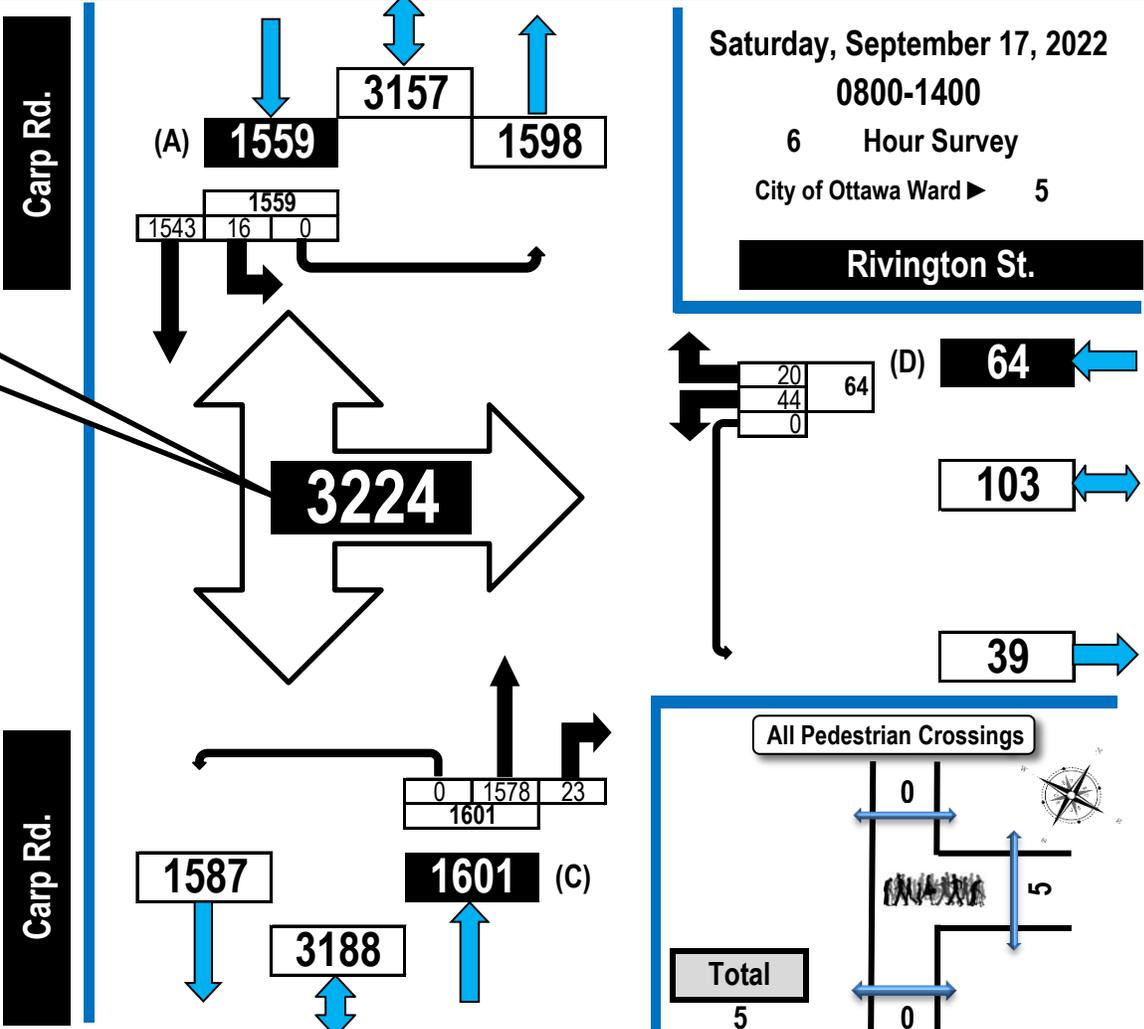
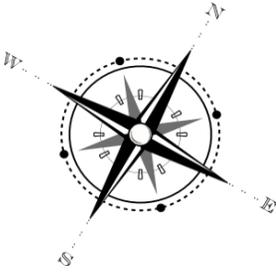
All Vehicles
(Except Bicycles & Electric Scooters)

Saturday, September 17, 2022
0800-1400
6 Hour Survey
City of Ottawa Ward ▶ 5

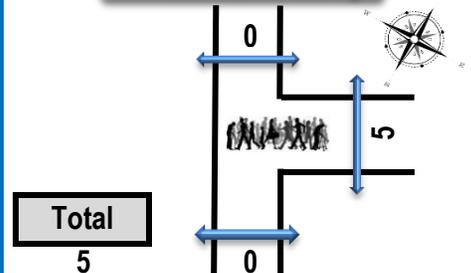
Rivington St.

Total vehicle volume, all approaches. (A + C + D)

3224

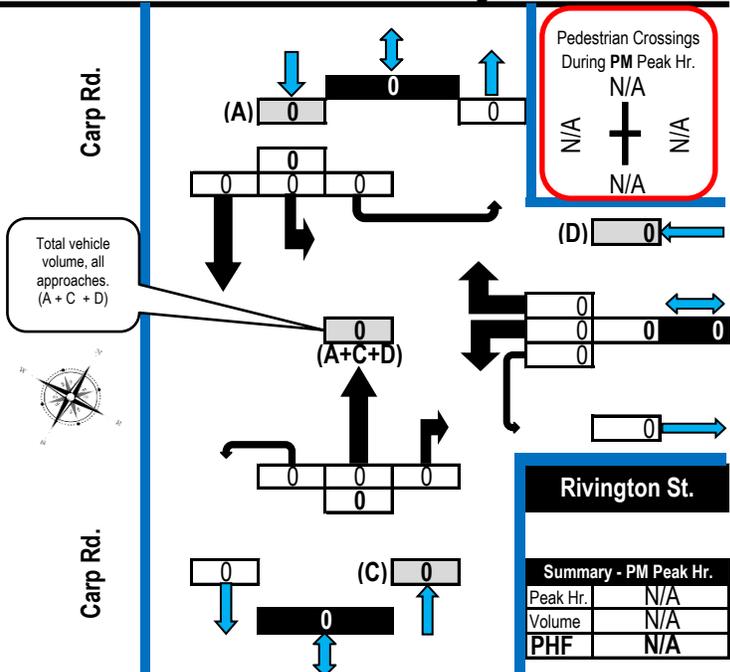
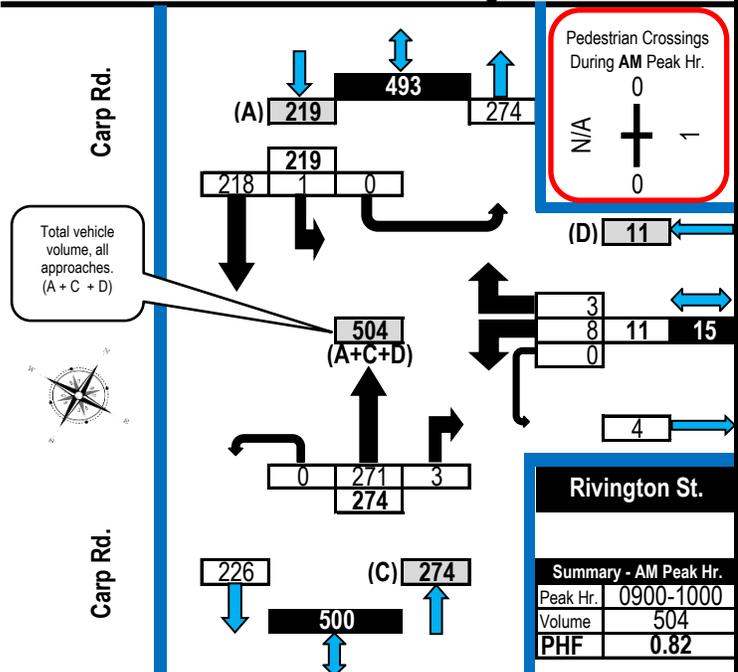


All Pedestrian Crossings



AM Peak Hour Flow Diagram

PM Peak Hour Flow Diagram





Turning Movement Count

Summary, OFF and EVENING Peak Hour

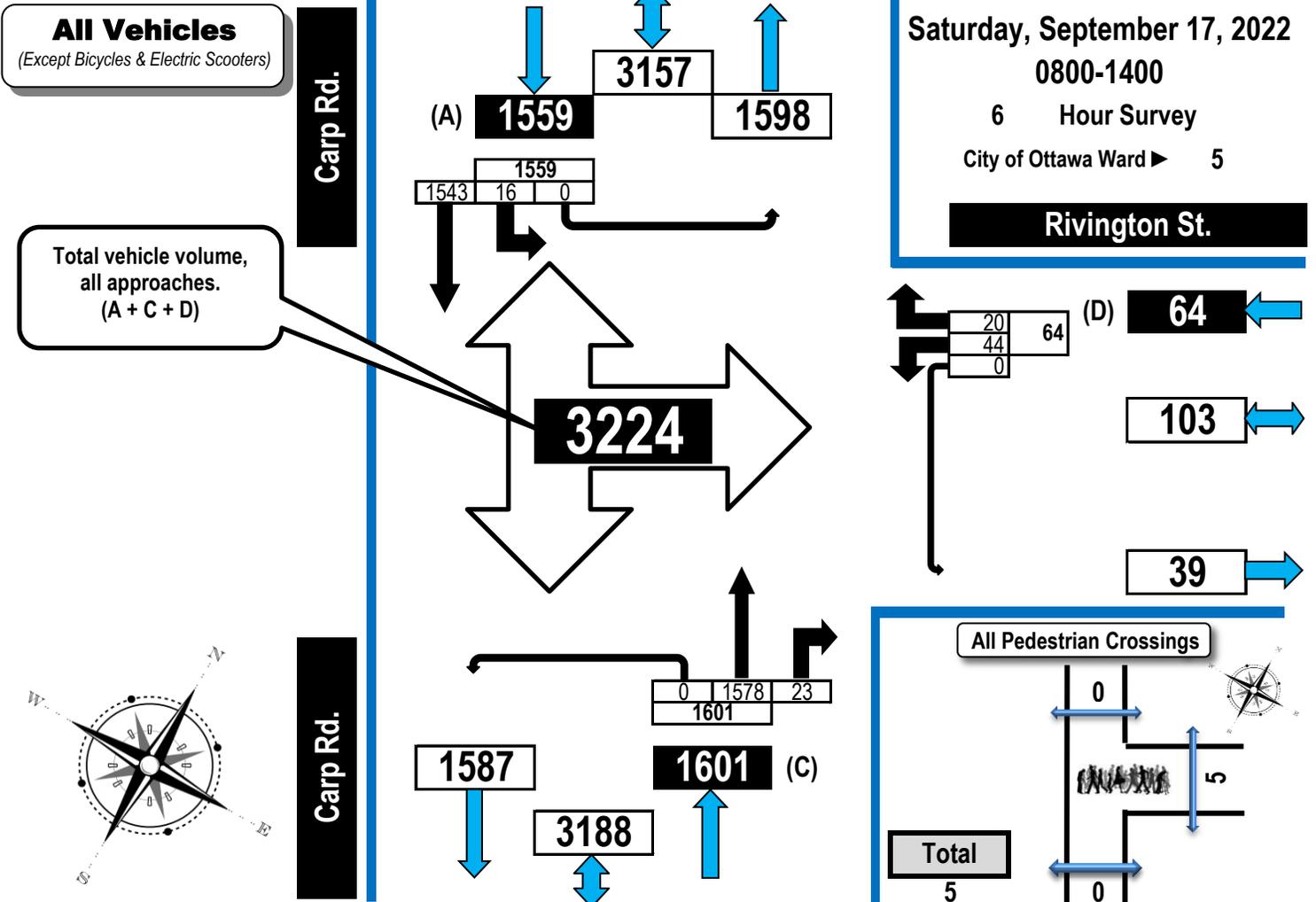
Flow Diagrams

All Vehicles Except Bicycles

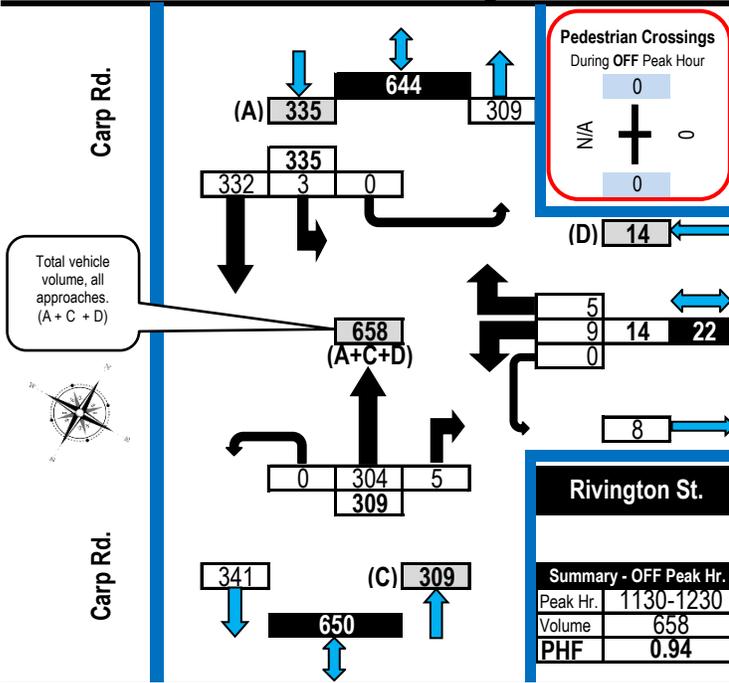


Carp Road & Rivington Street

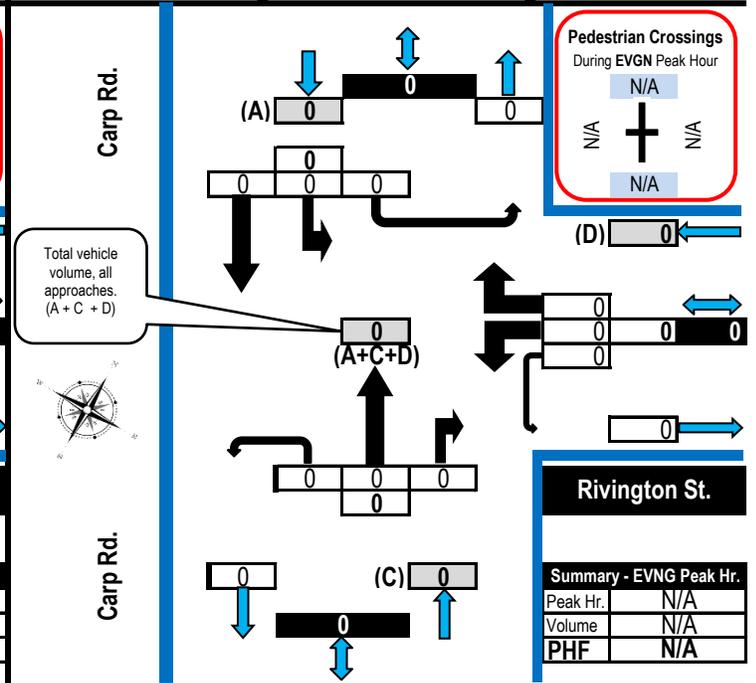
Carp, ON



Off Peak Hour Flow Diagram



Evening Peak Hour Flow Diagram



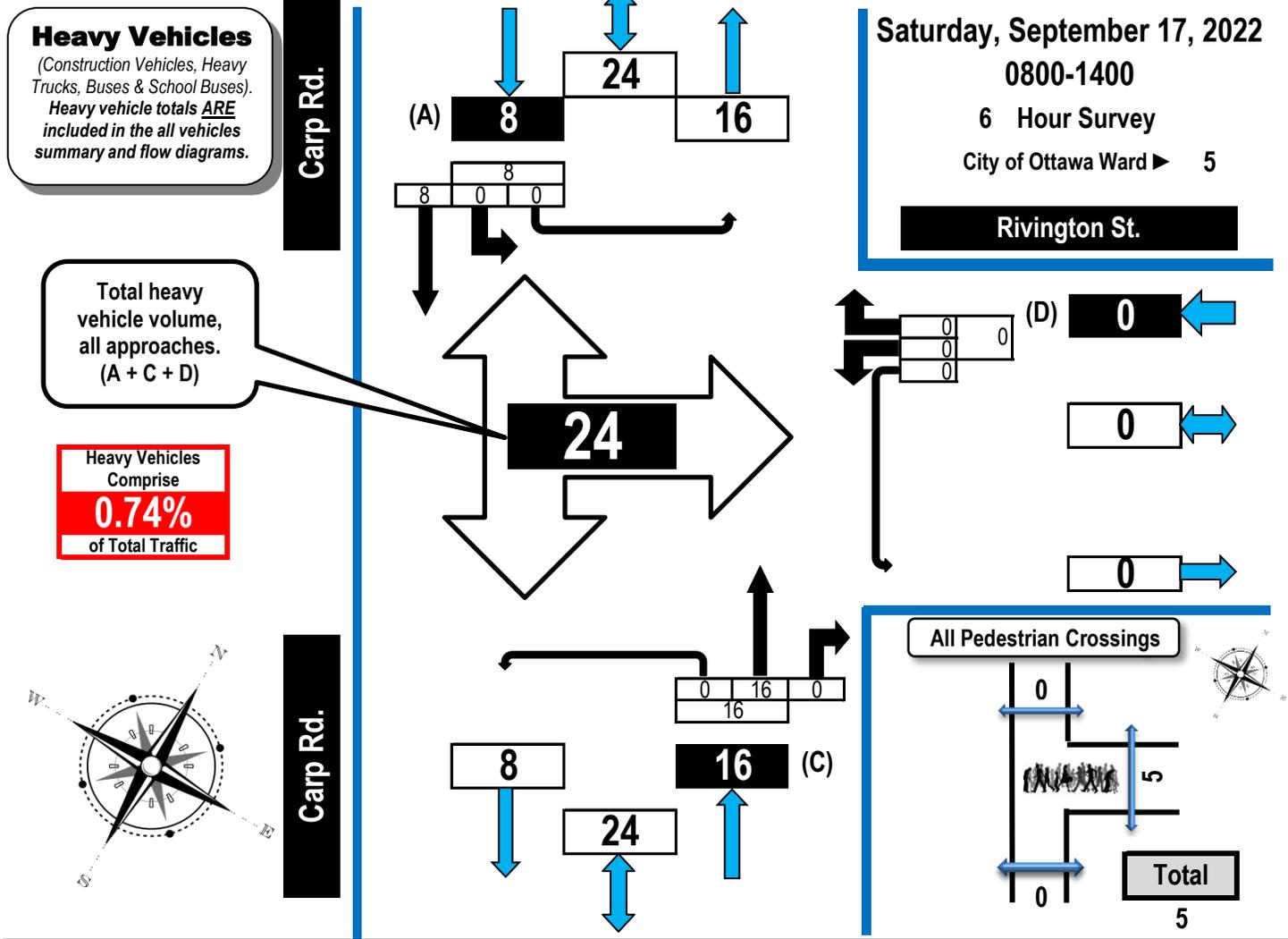
Turning Movement Count

Heavy Vehicle Summary (FHWA Class 4 to 13)

Flow Diagram



Carp Road & Rivington Street Carp, ON



| N/A | Rivington St. | | | | | Carp Rd. | | | | | Carp Rd. | | | | | |
|-----|---------------|--|-----------|--|--|------------|--|------------|--|--|----------|-----------|--|-----------|--|--|
| | Eastbound | | Westbound | | | Northbound | | Southbound | | | | Eastbound | | Westbound | | |

| Time Period | LT | ST | RT | UT | EB Tot | LT | ST | RT | UT | WB Tot | LT | ST | RT | UT | NB Tot | LT | ST | RT | UT | SB Tot | GR Tot |
|---------------|-----------|----|----|----|--------|----|----|----|----|--------|----|----|----|----|--------|----|----|----|----|--------|--------|
| | 0800-0900 | | | | | | 0 | | 0 | 0 | 0 | | 4 | 0 | 0 | 4 | 0 | 2 | | 0 | 2 |
| 0900-1000 | | | | | | 0 | | 0 | 0 | 0 | | 3 | 0 | 0 | 3 | 0 | 1 | | 0 | 1 | 4 |
| 1000-1100 | | | | | | 0 | | 0 | 0 | 0 | | 5 | 0 | 0 | 5 | 0 | 1 | | 0 | 1 | 6 |
| 1100-1200 | | | | | | 0 | | 0 | 0 | 0 | | 1 | 0 | 0 | 1 | 0 | 1 | | 0 | 1 | 2 |
| 1200-1300 | | | | | | 0 | | 0 | 0 | 0 | | 3 | 0 | 0 | 3 | 0 | 2 | | 0 | 2 | 5 |
| 1300-1400 | | | | | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 1 | | 0 | 1 | 1 |
| Totals | | | | | | 0 | | 0 | 0 | 0 | | 16 | 0 | 0 | 16 | 0 | 8 | | 0 | 8 | 24 |

Turning Movement Count Bicycle Summary Flow Diagram



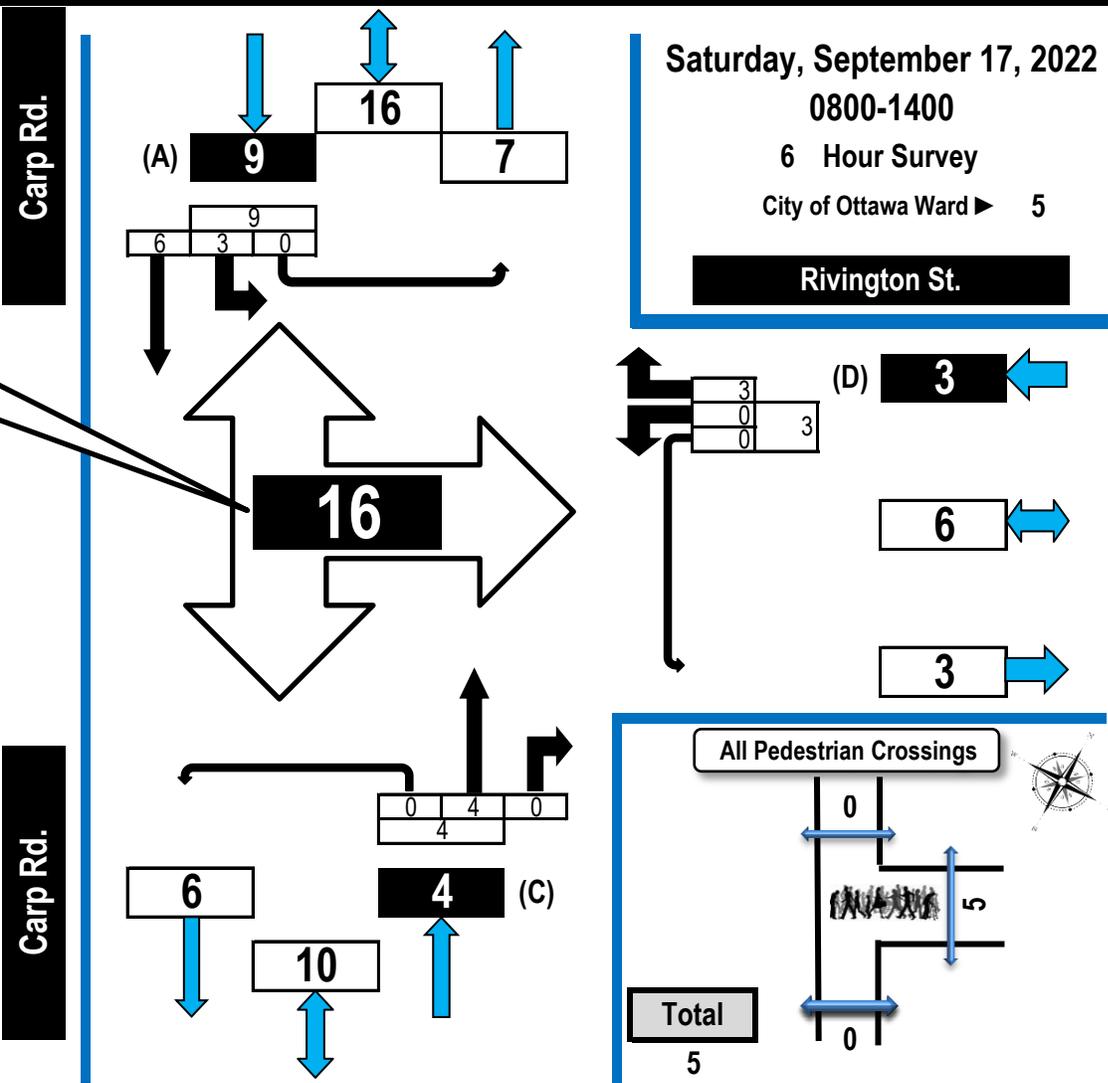
Carp Road & Rivington Street Carp, ON

Bicycles
(Including electric bicycles and electric scooters)
Note:
Bicycle volumes are **NOT** included in vehicle totals.

Total bicycle volume, all approaches.
(A + C + D)

Bicycles comprise
0.49%
of total traffic

Includes all bicycles travelling on sidewalks.



| N/A | Rivington St. | | | | Carp Rd. | | | | Carp Rd. | | | | | | | | | | | |
|-----------|---------------|----|----|------------|----------|----|----|------------|----------|----|----|----|----|--------|----|----|----|----|--------|--------|
| Eastbound | Westbound | | | Northbound | | | | Southbound | | | | | | | | | | | | |
| LT | ST | RT | UT | EB Tot | LT | ST | RT | UT | WB Tot | LT | ST | RT | UT | NB Tot | LT | ST | RT | UT | SB Tot | GR Tot |

| Time Period | LT | ST | RT | UT | EB Tot | LT | ST | RT | UT | WB Tot | LT | ST | RT | UT | NB Tot | LT | ST | RT | UT | SB Tot | GR Tot |
|---------------|----|----|----|----|--------|----|----|----|----|--------|----|----|----|----|--------|----|----|----|----|--------|--------|
| 0800-0900 | | | | | | 0 | 0 | 0 | 0 | 0 | | 2 | 0 | 0 | 2 | 0 | 0 | | 0 | 0 | 2 |
| 0900-1000 | | | | | | 0 | 2 | 0 | 2 | 2 | | 1 | 0 | 0 | 1 | 2 | 1 | | 0 | 3 | 6 |
| 1000-1100 | | | | | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 |
| 1100-1200 | | | | | | 0 | 1 | 0 | 1 | 1 | | 1 | 0 | 0 | 1 | 1 | 1 | | 0 | 2 | 4 |
| 1200-1300 | | | | | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 2 | | 0 | 2 | 2 |
| 1300-1400 | | | | | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 2 | | 0 | 2 | 2 |
| Totals | | | | | | 0 | 3 | 0 | 3 | 3 | | 4 | 0 | 0 | 4 | 3 | 6 | | 0 | 9 | 16 |

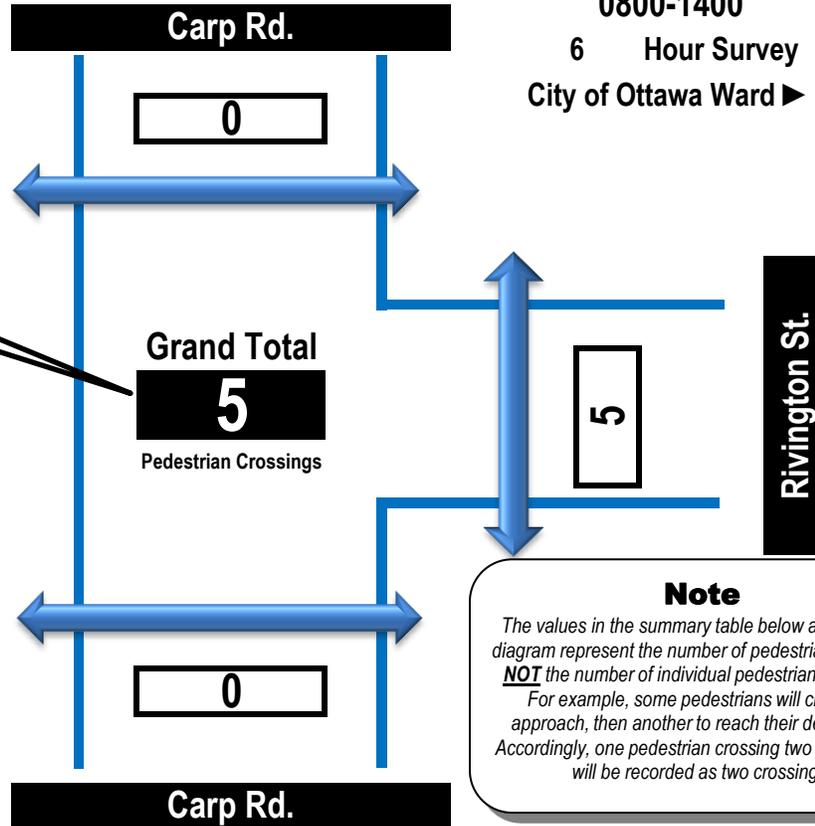
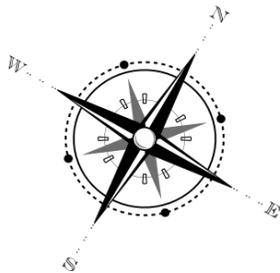


Carp Road & Rivington Street Carp, ON

Saturday, September 17, 2022
 0800-1400
 6 Hour Survey
 City of Ottawa Ward ▶ 5

Pedestrian Crossings

Total number of all pedestrian crossings



Note
 The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.

| Time Period | West Side Crossing N/A | East Side Crossing Rivington St. | Street Total | South Side Crossing Carp Rd. | North Side Crossing Carp Rd. | Street Total | Grand Total |
|---------------|---------------------------|-------------------------------------|-----------------|---------------------------------|---------------------------------|-----------------|----------------|
| 0800-0900 | | 1 | 1 | 0 | 0 | 0 | 1 |
| 0900-1000 | | 1 | 1 | 0 | 0 | 0 | 1 |
| 1000-1100 | | 3 | 3 | 0 | 0 | 0 | 3 |
| 1100-1200 | | 0 | 0 | 0 | 0 | 0 | 0 |
| 1200-1300 | | 0 | 0 | 0 | 0 | 0 | 0 |
| 1300-1400 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | | 5 | 5 | 0 | 0 | 0 | 5 |

Comments:
 Traffic count conducted when the Carp Farmers' Market was open.



Turning Movement Count

Summary Report Including AM, OFF Peak and PM Peak Hours Including PHF

All Vehicles Except Bicycles



Carp Road & Rivington Street

Carp, ON

Survey Date: Saturday, September 17, 2022 **Start Time:** 0800 **AADT Factor:** 1.2
Weather AM: Mostly Cloudy 9° C **Survey Duration:** 6 Hrs. **Survey Hours:** 0800-1400
Weather PM: Mostly Cloudy 20° C **Surveyor(s):** J. Mousseau

| Time Period | N/A | | | | | Rivington St. | | | | | Carp Rd. | | | | | Carp Rd. | | | | | Street Total | Grand Total |
|---------------|-----------|----|----|----|---------|---------------|----|----|----|---------|------------|------|----|----|---------|------------|------|----|----|---------|--------------|-------------|
| | Eastbound | | | | | Westbound | | | | | Northbound | | | | | Southbound | | | | | | |
| | LT | ST | RT | UT | E/B Tot | LT | ST | RT | UT | W/B Tot | LT | ST | RT | UT | N/B Tot | LT | ST | RT | UT | S/B Tot | | |
| 0800-0900 | | | | | | 8 | | 1 | 0 | 9 | 9 | 200 | 4 | 0 | 204 | 1 | 130 | | 0 | 131 | 335 | 344 |
| 0900-1000 | | | | | | 8 | | 3 | 0 | 11 | 11 | 271 | 3 | 0 | 274 | 1 | 218 | | 0 | 219 | 493 | 504 |
| 1000-1100 | | | | | | 5 | | 5 | 0 | 10 | 10 | 334 | 3 | 0 | 337 | 2 | 273 | | 0 | 275 | 612 | 622 |
| 1100-1200 | | | | | | 9 | | 2 | 0 | 11 | 11 | 303 | 4 | 0 | 307 | 3 | 316 | | 0 | 319 | 626 | 637 |
| 1200-1300 | | | | | | 7 | | 4 | 0 | 11 | 11 | 281 | 4 | 0 | 285 | 5 | 330 | | 0 | 335 | 620 | 631 |
| 1300-1400 | | | | | | 7 | | 5 | 0 | 12 | 12 | 189 | 5 | 0 | 194 | 4 | 276 | | 0 | 280 | 474 | 486 |
| Totals | | | | | | 44 | | 20 | 0 | 64 | 64 | 1578 | 23 | 0 | 1601 | 16 | 1543 | | 0 | 1559 | 3160 | 3224 |

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the 12-hour totals by the AADT factor of: 1.2

| | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AADT 12 Hr | N/A |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31

| | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AADT 24 Hr | N/A |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

AADT and Expansion Factors provided by the City of Ottawa

| AM Peak Hour Factor → 0.82 | | | | | | | | | | | Highest Hourly Vehicle Volume between 0700h & 1000h | | | | | | | | | | | | |
|-----------------------------|----|----|----|----|-------|----|----|----|----|-------|---|----|-----|----|----|-------|----|-----|----|----|-------|-----------|----------|
| AM Peak Hr | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| 0900-1000 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 3 | 0 | 11 | 11 | 0 | 271 | 3 | 0 | 274 | 1 | 218 | 0 | 0 | 219 | 493 | 504 |
| OFF Peak Hour Factor → 0.94 | | | | | | | | | | | Highest Hourly Vehicle Volume Between 1000h & 1500h | | | | | | | | | | | | |
| OFF Peak Hr | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| 1130-1230 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 5 | 0 | 14 | 14 | 0 | 304 | 5 | 0 | 309 | 3 | 332 | 0 | 0 | 335 | 644 | 658 |
| PM Peak Hour Factor → N/A | | | | | | | | | | | Highest Hourly Vehicle Volume Between 1500h & 1900h | | | | | | | | | | | | |
| PM Peak Hr | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Comments:
 Traffic count conducted when the Carp Farmers' Market was open.

- Notes:**
1. Includes all vehicle types except bicycles and electric scooters.
 2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.



Turning Movement Count

Summary Report Including AM, OFF Peak and PM Peak Hours Including PHF

All Vehicles Except Bicycles



Carp Road & Donald B. Munro Drive

Carp, ON

Survey Date: Saturday, September 17, 2022 **Start Time:** 0800 **AADT Factor:** 1.2
Weather AM: Mostly Cloudy 9° C **Survey Duration:** 6 Hrs. **Survey Hours:** 0800-1400
Weather PM: Mostly Cloudy 20° C **Surveyor(s):** T. Carmody

| Time Period | Donald B. Munro Dr. | | | | | Donald B. Munro Dr. | | | | | Carp Rd. | | | | | Carp Rd. | | | | | S/B Tot | Street Total | Grand Total |
|-------------|---------------------|-----|-----|----|---------|---------------------|-----|-----|----|---------|--------------|-----|------|-----|----|------------|-----|------|----|----|---------|--------------|-------------|
| | Eastbound | | | | | Westbound | | | | | Northbound | | | | | Southbound | | | | | | | |
| | LT | ST | RT | UT | E/B Tot | LT | ST | RT | UT | W/B Tot | Street Total | LT | ST | RT | UT | N/B Tot | LT | ST | RT | UT | | | |
| 0800-0900 | 6 | 6 | 7 | 0 | 19 | 21 | 13 | 33 | 0 | 67 | 86 | 15 | 161 | 17 | 0 | 193 | 14 | 107 | 3 | 0 | 124 | 317 | 403 |
| 0900-1000 | 6 | 17 | 18 | 0 | 41 | 43 | 16 | 41 | 0 | 100 | 141 | 21 | 220 | 23 | 0 | 264 | 32 | 159 | 5 | 0 | 196 | 460 | 601 |
| 1000-1100 | 22 | 19 | 28 | 0 | 69 | 49 | 26 | 65 | 0 | 140 | 209 | 31 | 266 | 36 | 0 | 333 | 45 | 193 | 1 | 0 | 239 | 572 | 781 |
| 1100-1200 | 14 | 30 | 36 | 0 | 80 | 58 | 30 | 60 | 0 | 148 | 228 | 31 | 244 | 29 | 0 | 304 | 51 | 235 | 1 | 0 | 287 | 591 | 819 |
| 1200-1300 | 13 | 16 | 44 | 0 | 73 | 55 | 28 | 43 | 0 | 126 | 199 | 30 | 233 | 27 | 0 | 290 | 51 | 243 | 0 | 0 | 294 | 584 | 783 |
| 1300-1400 | 15 | 23 | 37 | 0 | 75 | 37 | 40 | 27 | 0 | 104 | 179 | 34 | 138 | 23 | 0 | 195 | 41 | 208 | 2 | 0 | 251 | 446 | 625 |
| Totals | 76 | 111 | 170 | 0 | 357 | 263 | 153 | 269 | 0 | 685 | 1042 | 162 | 1262 | 155 | 0 | 1579 | 234 | 1145 | 12 | 0 | 1391 | 2970 | 4012 |

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the 12-hour totals by the AADT factor of: 1.2

| | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AADT 12 Hr | N/A |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31

| | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AADT 24 Hr | N/A |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

AADT and Expansion Factors provided by the City of Ottawa

| AM Peak Hour Factor → 0.90 | | | | | | | | | | | Highest Hourly Vehicle Volume between 0700h & 1000h | | | | | | | | | | | | |
|-----------------------------|----|----|----|----|-------|----|----|----|----|-------|---|----|-----|----|----|-------|----|-----|----|----|-------|-----------|----------|
| AM Peak Hr | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| 0900-1000 | 6 | 17 | 18 | 0 | 41 | 43 | 16 | 41 | 0 | 100 | 141 | 21 | 220 | 23 | 0 | 264 | 32 | 159 | 5 | 0 | 196 | 460 | 601 |
| OFF Peak Hour Factor → 0.97 | | | | | | | | | | | Highest Hourly Vehicle Volume Between 1000h & 1500h | | | | | | | | | | | | |
| OFF Peak Hr | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| 1115-1215 | 10 | 24 | 38 | 0 | 72 | 56 | 35 | 59 | 0 | 150 | 222 | 28 | 249 | 36 | 0 | 313 | 42 | 247 | 1 | 0 | 290 | 603 | 825 |
| PM Peak Hour Factor → N/A | | | | | | | | | | | Highest Hourly Vehicle Volume Between 1500h & 1900h | | | | | | | | | | | | |
| PM Peak Hr | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Comments:

Traffic count was conducted when the Carp Farmers' Market was open. There is a Canada Post Office access on the west side of Carp Road within the intersection and during this 6-hour traffic count, 26 vehicles entered the parking lot and 35 exited.

Notes:

1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.



Turning Movement Count

Summary, AM and PM Peak Hour

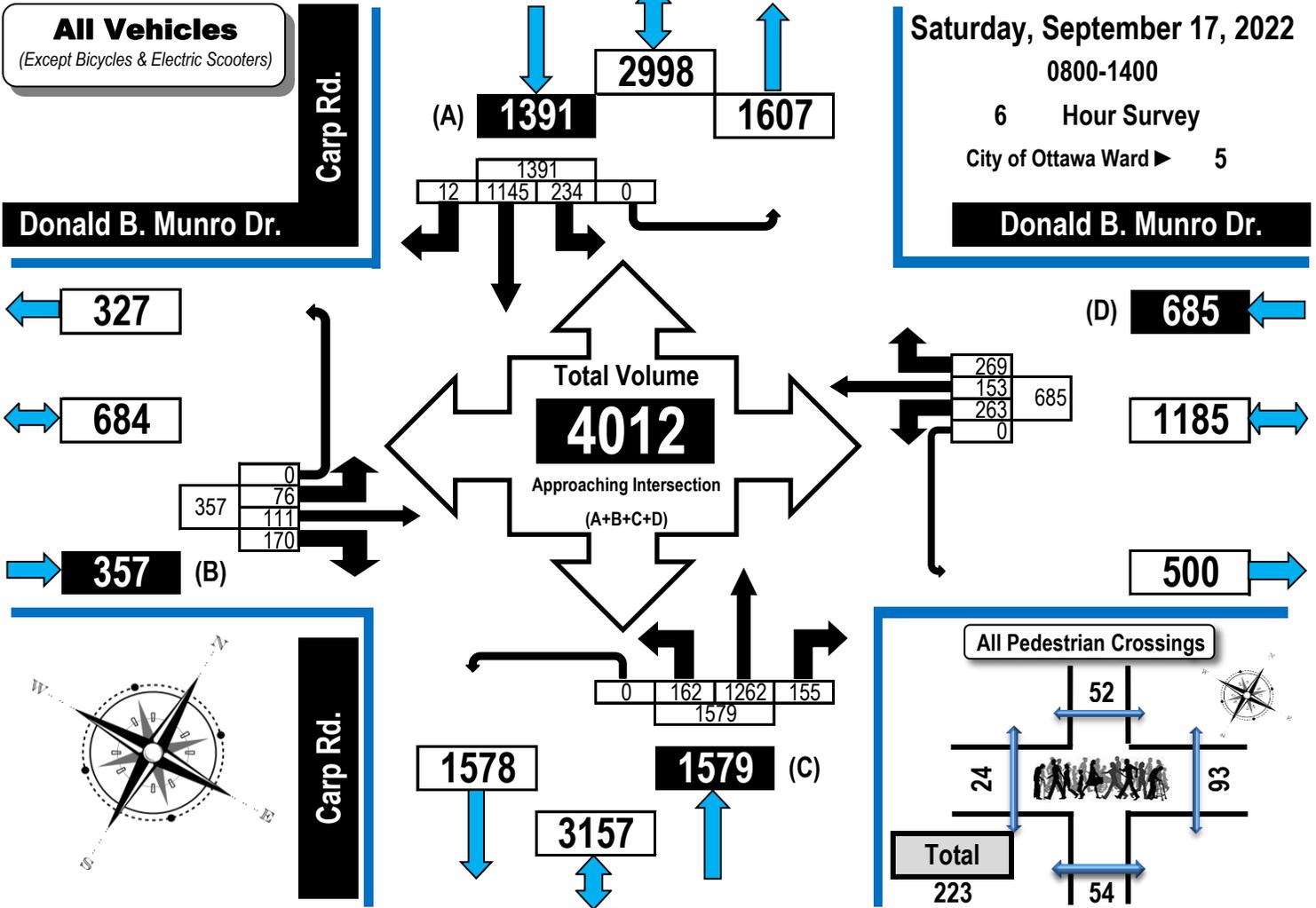
Flow Diagrams

All Vehicles Except Bicycles

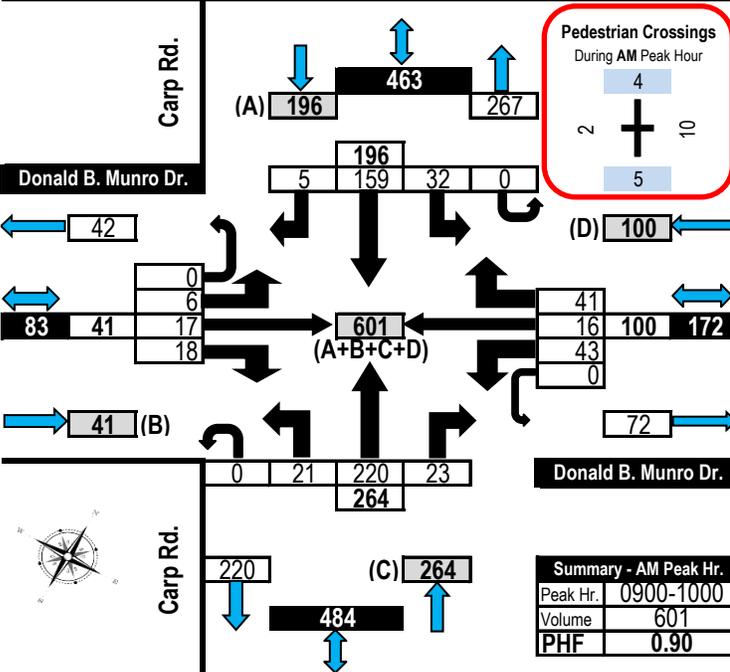


Carp Road & Donald B. Munro Drive

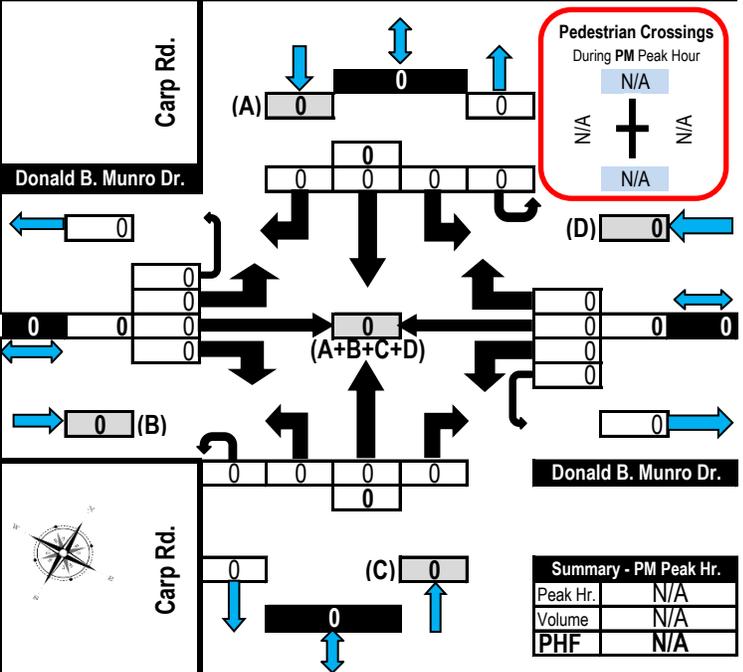
Carp, ON



AM Peak Hour Flow Diagram



PM Peak Hour Flow Diagram





Turning Movement Count

Summary, OFF and EVENING Peak Hour

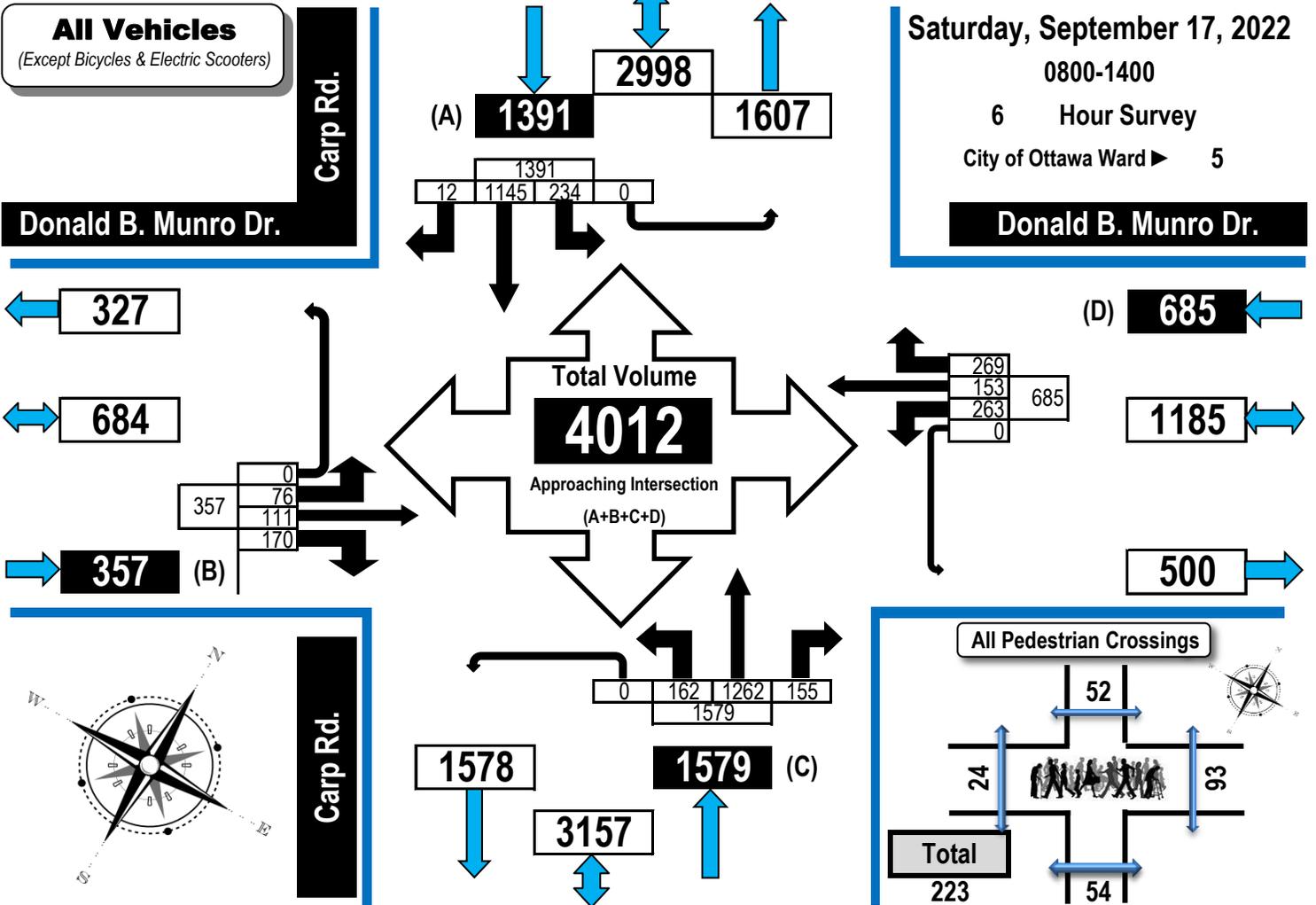
Flow Diagrams

All Vehicles Except Bicycles

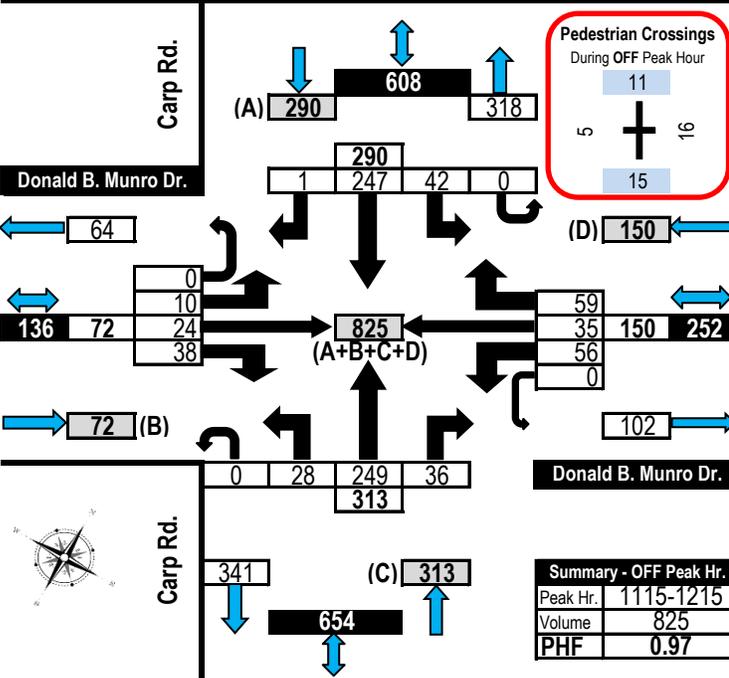


Carp Road & Donald B. Munro Drive

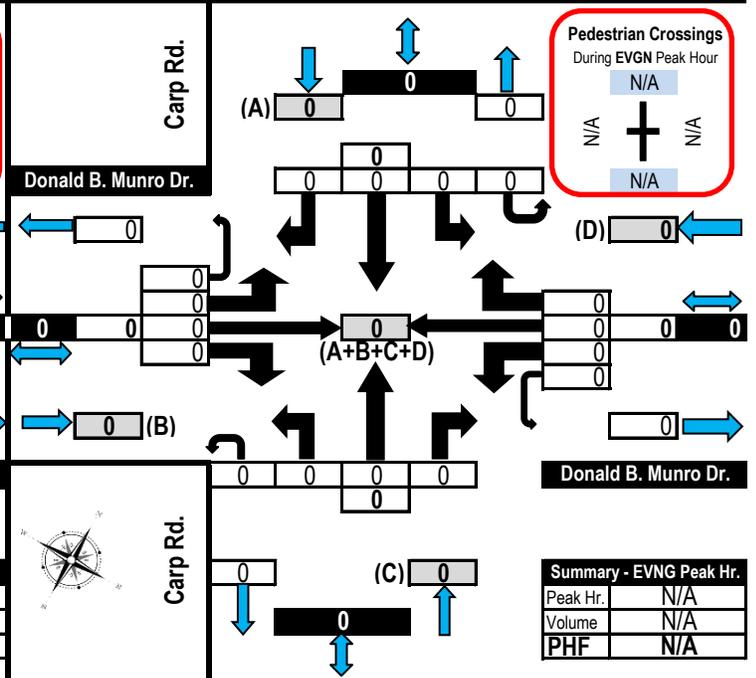
Carp, ON



Off Peak Hour Flow Diagram



Evening Peak Hour Flow Diagram

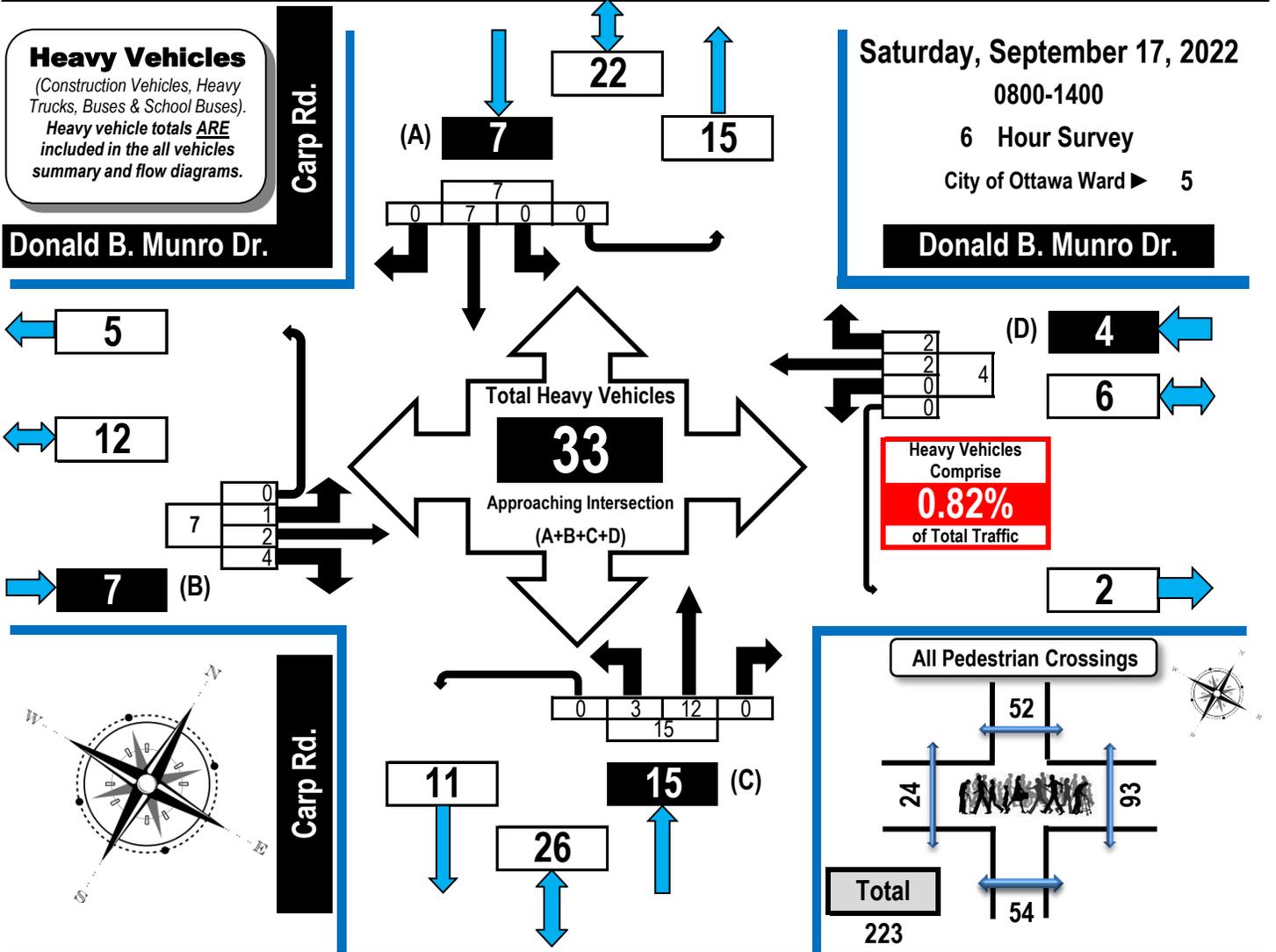




Turning Movement Count Heavy Vehicle Summary (FHWA Class 4-13) Flow Diagram



Carp Road & Donald B. Munro Drive Carp, ON



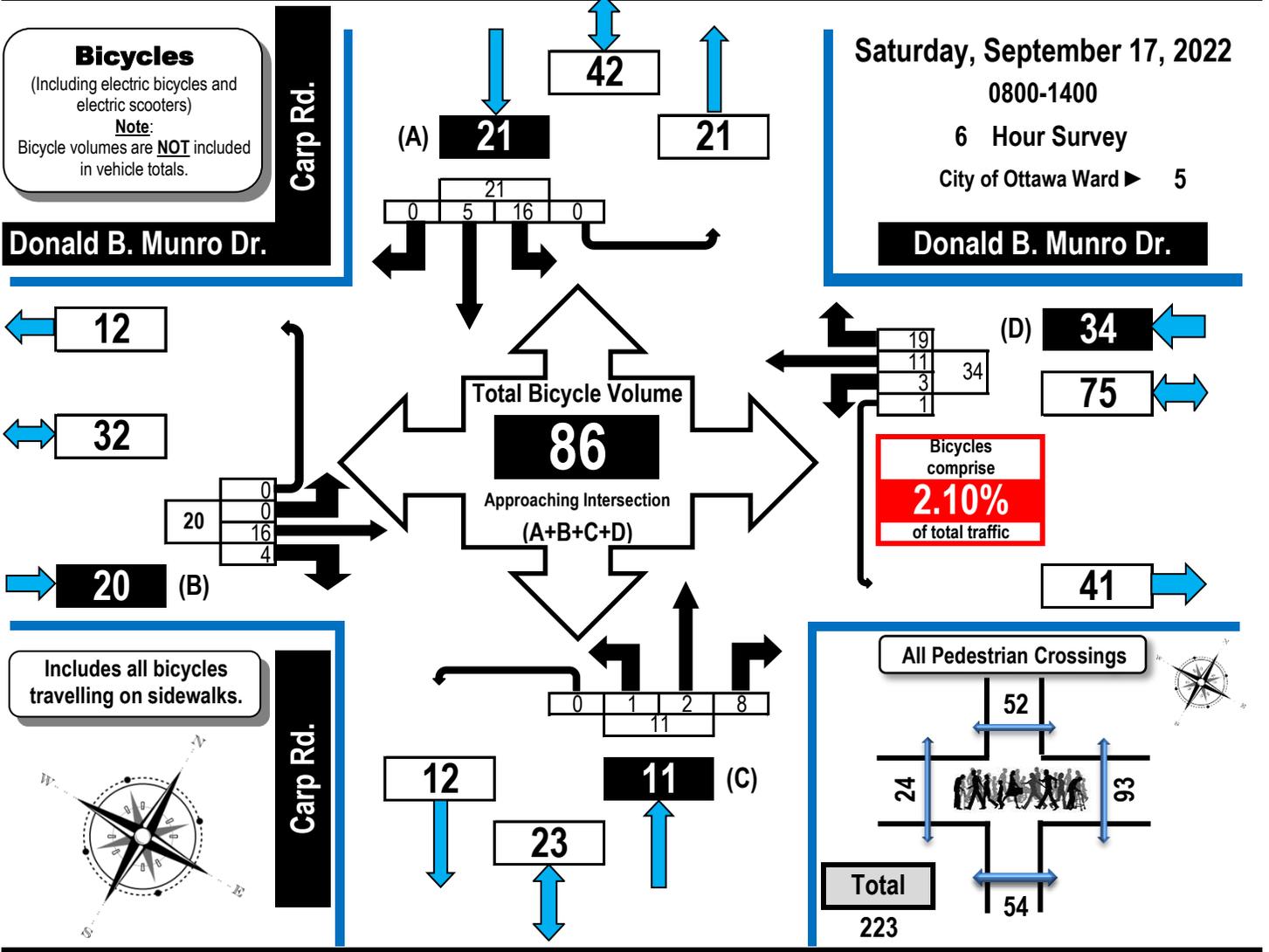
| Donald B. Munro Dr. Eastbound | Donald B. Munro Dr. Westbound | Carp Rd. Northbound | Carp Rd. Southbound |
|----------------------------------|----------------------------------|------------------------|------------------------|
|----------------------------------|----------------------------------|------------------------|------------------------|

| Time Period | Donald B. Munro Dr. Eastbound | | | | | Donald B. Munro Dr. Westbound | | | | | Carp Rd. Northbound | | | | | Carp Rd. Southbound | | | | | GR Tot |
|---------------|-------------------------------|----------|----------|----------|----------|-------------------------------|----------|----------|----------|----------|---------------------|-----------|----------|----------|-----------|---------------------|----------|----------|----------|----------|-----------|
| | LT | ST | RT | UT | EB Tot | LT | ST | RT | UT | WB Tot | LT | ST | RT | UT | NB Tot | LT | ST | RT | UT | SB Tot | |
| 0800-0900 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 4 | 0 | 2 | 0 | 0 | 2 | 7 |
| 0900-1000 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 6 |
| 1000-1100 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 5 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 1 | 10 |
| 1100-1200 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 4 |
| 1200-1300 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 |
| 1300-1400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 |
| Totals | 1 | 2 | 4 | 0 | 7 | 0 | 2 | 2 | 0 | 4 | 3 | 12 | 0 | 0 | 15 | 0 | 7 | 0 | 0 | 7 | 33 |

Turning Movement Count Bicycle Summary Flow Diagram



Carp Road & Donald B. Munro Drive Carp, ON



| | Donald B. Munro Dr. Eastbound | | | | | Donald B. Munro Dr. Westbound | | | | | Carp Rd. Northbound | | | | | Carp Rd. Southbound | | | | | |
|--|-------------------------------|----|----|----|--------|-------------------------------|----|----|----|--------|---------------------|----|----|----|--------|---------------------|----|----|----|--------|--------|
| | LT | ST | RT | UT | EB Tot | LT | ST | RT | UT | WB Tot | LT | ST | RT | UT | NB Tot | LT | ST | RT | UT | SB Tot | GR Tot |

| | | | | | | | | | | | | | | | | | | | | | |
|---------------|----------|-----------|----------|----------|-----------|----------|-----------|-----------|----------|-----------|----------|----------|----------|----------|-----------|-----------|----------|----------|----------|-----------|-----------|
| 0800-0900 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 |
| 0900-1000 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 7 |
| 1000-1100 | 0 | 7 | 2 | 0 | 9 | 0 | 4 | 1 | 0 | 5 | 0 | 0 | 4 | 0 | 4 | 3 | 0 | 0 | 0 | 3 | 21 |
| 1100-1200 | 0 | 3 | 0 | 0 | 3 | 1 | 4 | 7 | 0 | 12 | 0 | 1 | 1 | 0 | 2 | 7 | 1 | 0 | 0 | 8 | 25 |
| 1200-1300 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 5 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 11 |
| 1300-1400 | 0 | 5 | 1 | 0 | 6 | 0 | 1 | 2 | 1 | 4 | 0 | 0 | 1 | 0 | 1 | 4 | 2 | 0 | 0 | 6 | 17 |
| Totals | 0 | 16 | 4 | 0 | 20 | 3 | 11 | 19 | 1 | 34 | 1 | 2 | 8 | 0 | 11 | 16 | 5 | 0 | 0 | 21 | 86 |



Turning Movement Count Pedestrian Crossings Summary and Flow Diagram



Carp Road & Donald B. Munro Drive

Carp, ON

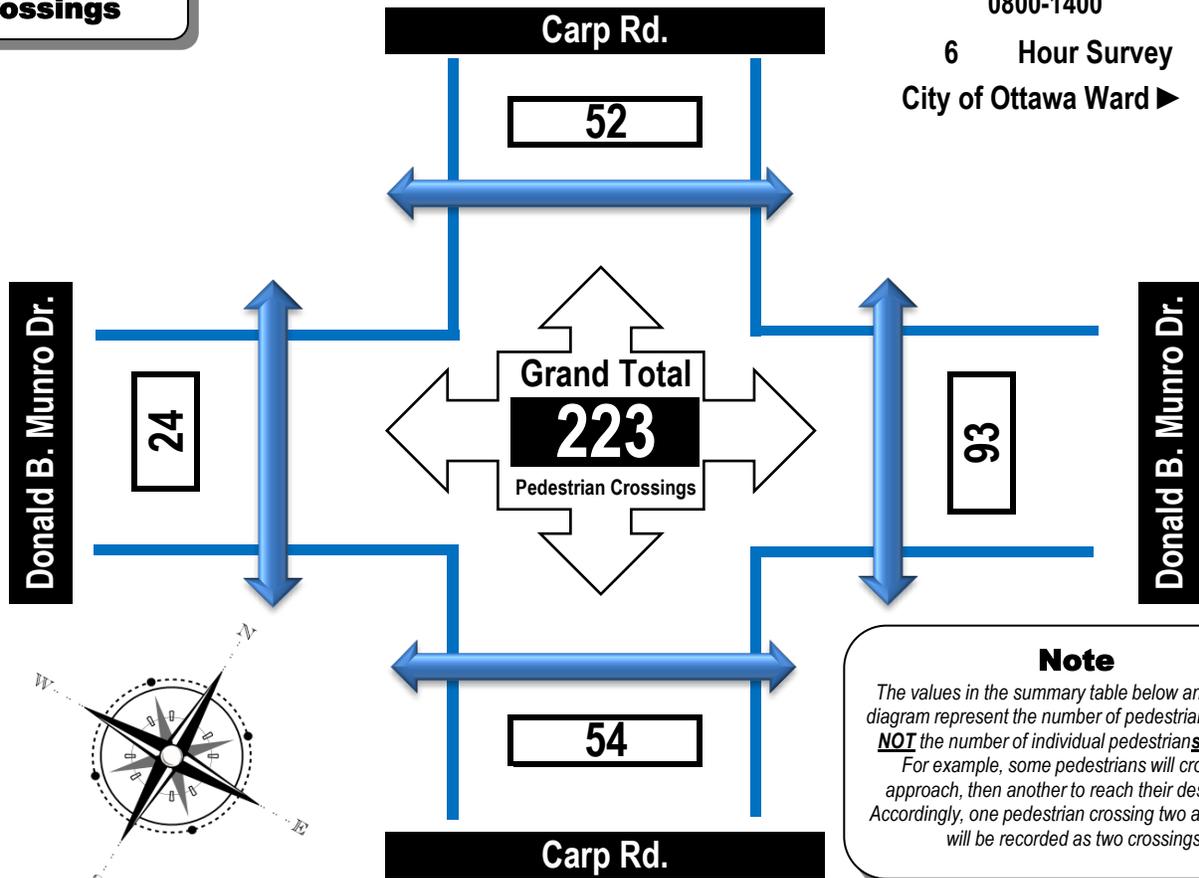
Pedestrian Crossings

Saturday, September 17, 2022

0800-1400

6 Hour Survey

City of Ottawa Ward ▶ 5



Note
The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.

| Time Period | West Side Crossing Donald B. Munro Dr. | East Side Crossing Donald B. Munro Dr. | Street Total | South Side Crossing Carp Rd. | North Side Crossing Carp Rd. | Street Total | Grand Total |
|---------------|---|---|-----------------|---------------------------------|---------------------------------|-----------------|----------------|
| 0800-0900 | 2 | 9 | 11 | 0 | 1 | 1 | 12 |
| 0900-1000 | 2 | 10 | 12 | 5 | 4 | 9 | 21 |
| 1000-1100 | 9 | 19 | 28 | 10 | 10 | 20 | 48 |
| 1100-1200 | 10 | 20 | 30 | 10 | 10 | 20 | 50 |
| 1200-1300 | 1 | 20 | 21 | 23 | 18 | 41 | 62 |
| 1300-1400 | 0 | 15 | 15 | 6 | 9 | 15 | 30 |
| Totals | 24 | 93 | 117 | 54 | 52 | 106 | 223 |

Comments:

Traffic count was conducted when the Carp Farmers' Market was open. There is a Canada Post Office access on the west side of Carp Road within the intersection and during this 6-hour traffic count, 26 vehicles entered the parking lot and 35 exited.

APPENDIX E

Collision Records



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 To: December 31, 2020

Location: CARP RD @ DONALD B. MUNRO DR

Traffic Control: Stop sign

Total Collisions: 3

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|------------------------|-------------|-------------|------------------|----------------|----------|-------------------|---------------------------|---------------------|---------|
| 2016-Jan-13, Wed,14:18 | Clear | Angle | P.D. only | Dry | North | Turning left | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | East | Turning right | Automobile, station wagon | Other motor vehicle | |
| 2016-Sep-03, Sat,13:36 | Clear | Rear end | P.D. only | Dry | South | Going ahead | Pick-up truck | Other motor vehicle | 0 |
| | | | | | South | Stopped | Automobile, station wagon | Other motor vehicle | |
| 2017-Mar-01, Wed,11:50 | Rain | Angle | Non-fatal injury | Wet | West | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | South | Going ahead | Pick-up truck | Other motor vehicle | |

Location: CARP RD @ RIVINGTON ST

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-Mar-15, Wed,16:10 | Snow | Angle | P.D. only | Loose snow | West | Turning left | Pick-up truck | Other motor vehicle | 0 |
| | | | | | South | Going ahead | Automobile, station wagon | Other motor vehicle | |

Location: CARP RD btwn DONALD B. MUNRO DR & RIVINGTON ST

Traffic Control: No control

Total Collisions: 3

| Date/Day/Time | Environment | Impact Type | Classification | Surface Cond'n | Veh. Dir | Vehicle Manoeuver | Vehicle type | First Event | No. Ped |
|------------------------|-------------|------------------|------------------|----------------|----------|-------------------|---------------------------|---------------------|---------|
| 2019-Feb-09, Sat,12:00 | Clear | Angle | P.D. only | Dry | East | Reversing | Pick-up truck | Other motor vehicle | 0 |
| | | | | | North | Going ahead | Automobile, station wagon | Other motor vehicle | |
| 2019-Aug-04, Sun,14:50 | Clear | Turning movement | Non-fatal injury | Dry | South | Turning left | Bicycle | Other motor vehicle | 0 |
| | | | | | South | Going ahead | Motorcycle | Cyclist | |
| 2019-Oct-12, Sat,09:01 | Clear | Angle | P.D. only | Dry | East | Going ahead | Automobile, station wagon | Other motor vehicle | 0 |
| | | | | | South | Going ahead | Pick-up truck | Other motor vehicle | |

APPENDIX F

Other Area Developments

Table 1: TIA Exemptions

| Module | Element | Exemption Criteria | Exemption Status |
|----------------------------------|---------------------------------|---|------------------|
| Design Review Component | | | |
| 4.1 Development Design | 4.1.2 Circulation and Access | • Only required for site plans | Not Exempt |
| | 4.1.3 New Street Networks | • Only required for plans of subdivision | Exempt |
| 4.2 Parking | 4.2.1 Parking Supply | • Only required for site plans | Not Exempt |
| | 4.2.2 Spillover Parking | • Only required for site plans where parking supply is 15% below unconstrained demand | Exempt |

Based on the foregoing, the following modules are included in the TIA report:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Design

5.0 FORECASTING

The proposed development includes 4,200 ft² of office space on the ground floor, with two residential dwellings on the second floor. Trips generated by the proposed land uses have been estimated using the *ITE Trip Generation Manual, 10th Edition*. Residential trips have been estimated based on the Multifamily Housing, Low-Rise data (land use 220), and office trips have been estimated based on the Small Office Building data (land use 712). The estimated number of trips generated by the proposed development is shown in **Table 2**.

Table 2: Person Trip Generation

| Land Use | ITE Code | Units/GFA | AM Peak (PPH ⁽¹⁾) | | | PM Peak (PPH) | | |
|--------------------------------|----------|-----------------------|-------------------------------|----------|-----------|---------------|-----------|-----------|
| | | | IN | OUT | TOT | IN | OUT | TOT |
| Multifamily Housing (Low-Rise) | 220 | 2 units | 0 | 1 | 1 | 1 | 1 | 2 |
| Small Office Building | 712 | 4,200 ft ² | 8 | 2 | 10 | 4 | 9 | 13 |
| Total | | | 8 | 3 | 11 | 5 | 10 | 15 |

1. PPH = Person Trips Per Hour – Calculated using an ITE Trip to Person Trip Factor of 1.28, consistent with the 2017 TIA Guidelines

From the previous table, the proposed development is projected to generate 11 person trips during the AM peak hour and 15 person trips during the PM peak hour.

The modal shares for the proposed development are anticipated to be generally consistent with the modal shares outlined in the *2011 TRANS O-D Survey Report*, specific to the Rural West region. The modal share values applied to the development-generated trips can be described as follows:

- Residential trips: From/within the Rural West district during the AM peak and to/within the Rural West district during the PM peak;
- Office trips: To/within the Rural West district during the AM peak and from/within the Rural West district during the PM peak.

As transit is only provided with a single shuttle on Wednesdays outside of the peak hours, a 0% transit share has been assigned. The residential and office modal shares are generally consistent with each other, and therefore the modal shares shown below have been applied to both uses. A full breakdown of the projected site-generated person trips by modal share is shown in **Table 3**.

Table 3: Person Trips by Modal Share

| Travel Mode | Modal Share | AM Peak | | | PM Peak | | |
|---------------------------------|-------------|---------|-----|-----|---------|-----|-----|
| | | IN | OUT | TOT | IN | OUT | TOT |
| <i>Development Person Trips</i> | | 8 | 3 | 11 | 5 | 10 | 15 |
| Auto Driver | 75% | 6 | 2 | 8 | 4 | 7 | 11 |
| Auto Passenger | 20% | 2 | 1 | 3 | 1 | 2 | 3 |
| Transit | 0% | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-Auto | 5% | 0 | 0 | 0 | 0 | 1 | 1 |

From the previous table, the proposed development is projected to generate 8 vehicle trips during the AM peak hour and 11 vehicle trips during the PM peak hour.

As the development does not meet the 60 person trip trigger discussed in Section 3.0, trip distribution and trip assignment is not required. Further, as the number of trips generated by the proposed development are so low, future background growth has not been reviewed. As discussed in Section 4.2, there are no other development under construction, approved, or in the approval process within the study area.

6.0 ANALYSIS

6.1 Development Design

The sidewalk will continue to be depressed and continuous across the proposed access, in accordance with City standards. Walkway connections from the existing sidewalk to the front and rear entrances will also be provided.

A total of six exterior bicycle parking spaces will be provided by the proposed development, with three adjacent to the street at the northeast corner of the subject site, and three adjacent to the southwest corner of the building. Further review of the number of bicycle parking spaces is included in Section 6.2: Parking.

OC Transpo guidelines recommend that all developments within the vicinity of a bus route should have at least one stop within a walking distance of 400m, which translates to approximately a 5-minute walk. Stops #6982 and #6983 are both within approximately 100m walking distance from the front entrance of the proposed development. As discussed in Section 4.1.6, these stops serve OC Transpo Route 303, which is a shopping route for Dunrobin and Carp residents, and arrives at each stop once on Wednesdays.

A review of the Transportation Demand Management (TDM) – *Supportive Development Design and Infrastructure Checklist* has been conducted. A copy of the TDM checklist is included in **Appendix F**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

On-site garbage collection will be accommodated at an enclosure west of the parking area, approximately 40m south of the Donald B. Munro Drive street line. The fire route for this development is curbside along Donald B. Munro Drive.

8.0 EXEMPTIONS REVIEW

Table 4 of Section 2.3 in the Transportation Impact Assessment Guidelines (2017) lists several possible exemptions that would reduce the scope of the TIA study.

- Section 4.1.2 concerning circulation and access is not expected to be included in the TIS study as the development site is a subdivision.
- Section 4.2 concerning parking is not expected to be included in the TIS as it is not required for a subdivision plan.
- Section 4.6 is exempt even though Langstaff Drive is classified as a collector street, the total volume on the road does not exceed the capacity threshold of 300 vph for collector roads as specified per guidelines.
- Section 4.8 concerning network concept is not expected to be included in the TIS study. Based on “TRANS Trip Generation Residential Trip Rates”, it is expected the site will generate 102 and 125 person-trips during the AM and PM peak hour, respectively. As such the proposed development will not generate 200 person-trips in excess of the equivalent volume permitted by established by zoning.

9.0 DEVELOPMENT GENERATED TRAFFIC

9.1 Trip Generation

9.1.1 Trip Generation Rates

Trip generation was calculated in accordance with the “TRANS Trip Generation Residential Trip Rates” completed by McCormick Rankin Corporation for the City of Ottawa (MRC, Aug2009). Rates used to calculate the total vehicle trips associated with the proposed development were taken from Table 3.18, which do not account for a transit bonus. Furthermore, directional splits as well as conversion rates from vehicle trips to person trips were taken from Table 3.17 and Table 3.13, respectively. Using this methodology, the total number of person-trips generated from the proposed development is 119 person-trips in the AM peak hour and 169 person-trips during the PM peak hour. Tables 9.1.1.1 to 9.1.1.2 summarize the rates, conversion rates and directional splits used to calculate the inbound and outbound trips.

Table 9.1.1.1: Person-Trips for Inverness Homes

| ITE Land Use | Unit of Measure | Quantity | Vehicle Trip Generation Rate | | %Vehicle Trips | | Total Person Trips | |
|---|-----------------|------------|------------------------------|------|----------------|------|--------------------|------------|
| | | | AM | PM | AM | PM | AM | PM |
| Mid-rise apartments (Code 223) | Dwelling Units | 128 | 0.35 | 0.41 | 0.73 | 0.74 | 61 | 71 |
| Semi-detached dwellings, townhouses, rowhouses (Code 224) | Dwelling Units | 70 | 0.62 | 0.67 | 0.76 | 0.48 | 58 | 98 |
| Development Totals: | | 193 | | | | | 119 | 169 |
| Vehicle Trip Generation Rates taken from Table 3.18 "Recommended Vehicle Trip Generation Rates without Transit Bonus for residential land uses as per "TRANS Trip Generation Residential Rates" report (MRC, Aug2009) %Vehicle Trips is the conversion rate from vehicle-trips to person-trips, taken from Table 3.13 (MRC, Aug2009) | | | | | | | | |

Table 9.1.1.2: Directional Distribution for Generated Trips

| ITE Land Use | Unit of Measure | Quantity | Directional Distribution | | | | Total Person Trips | | | | | |
|---|-----------------|------------|--------------------------|------|------|------|--------------------|-----------|------------|-----------|-----------|------------|
| | | | AM | | PM | | AM | | | PM | | |
| | | | In | Out | In | Out | In | Out | Total | In | Out | Total |
| Mid-rise apartments (Code 223) | Dwelling Units | 128 | 0.24 | 0.77 | 0.62 | 0.39 | 15 | 46 | 61 | 44 | 27 | 71 |
| Semi-detached dwellings, townhouses, rowhouses (Code 224) | Dwelling Units | 70 | 0.37 | 0.64 | 0.53 | 0.47 | 21 | 37 | 58 | 52 | 46 | 98 |
| Development Totals: | | 189 | | | | | 36 | 83 | 119 | 92 | 70 | 169 |
| Directional splits taken from Table 3.17 (MRC, Aug2009), blended rates. | | | | | | | | | | | | |

9.1.2 Mode Shares

The most recent National Capital Region (NCR) Origin-Destination Survey was conducted in Fall of 2011 and can be found in [Appendix C. Table 9.1.2.1](#) and [Table 9.1.2.2](#) below, displays the trips by primary travel mode from/within the NCR during the AM and to/within the NCR during the PM peak hour.

Table 9.1.2.1: Trips by Primary Travel Mode – AM

| Travel Mode | AM Peak (06:30 - 08:59) | | | |
|----------------|-------------------------|--------------|-----|-------|
| | % of Person Trips | Person Trips | | |
| | | In | Out | Total |
| Auto Driver | 57% | 21 | 47 | 68 |
| Auto Passenger | 10% | 4 | 9 | 13 |
| Transit | 6% | 2 | 5 | 7 |
| Bicycle | 0% | 0 | 0 | 0 |
| Walk | 1% | 0 | 1 | 1 |
| Other | 25% | 9 | 21 | 30 |

Table 9.1.2.2: Trips by Primary Travel Mode – PM

| Travel Mode | PM Peak (15:30 - 17:59) | | | |
|----------------|-------------------------|--------------|-----|-------|
| | % of Person Trips | Person Trips | | |
| | | In | Out | Total |
| Auto Driver | 68% | 65 | 49 | 114 |
| Auto Passenger | 17% | 16 | 13 | 29 |
| Transit | 4% | 4 | 3 | 7 |
| Bicycle | 0% | 0 | 0 | 0 |
| Walk | 2% | 2 | 1 | 3 |
| Other | 10% | 9 | 7 | 16 |

As stated previously in this report, the expected build out year is 2023. There is no regular City transit network within the vicinity of the development. Since the development is a townhouse/mid-rise multi family housing, it is expected that attendees would mainly use a car to reach the development. As such the future mode shares are expected to be as follows:

Table 9.1.2.3: Future Mode Share Targets for the Development

| Travel Mode | Mode Share Target | | Rationale |
|----------------|-------------------|-----|---|
| | AM | PM | |
| Auto Driver | 60% | 70% | Auto Driver person trips are expected to slightly increase due to the nature of the development |
| Auto Passenger | 11% | 18% | % of auto passenger person trips is expected to slightly increase due to more guests and/or family trips |
| Transit | 2% | 2% | % of Transit person trips is expected to decrease due to limited transit service |
| Bicycle | 1% | 2% | % of bicycle person trips is expected to increase slightly due to the nature and location of the development |
| Walk | 5% | 6% | % of walking person trips is expected to increase slightly due to the nature and location of the development as well as school within the vicinity of the development. The development provides better connectivity to village with the proposed multiuse pathways. |
| Other | 21% | 2% | % of other person trips is expected to change due to more auto trips as a result of the development |

Based on the future mode share targets, [Table 9.1.2.4](#) and [Table 9.1.2.5](#) have been updated with the projected development-generated trips for the year 2028 (5-years after the build out year of 2023).

Table 9.1.2.4: Projected Trips by Primary Travel Mode – AM

| Travel Mode | AM Peak (06:30 - 08:59) | | | |
|----------------|-------------------------|--------------|-----|-------|
| | % of Person Trips | Person Trips | | |
| | | In | Out | Total |
| Auto Driver | 60% | 22 | 51 | 73 |
| Auto Passenger | 11% | 4 | 10 | 14 |
| Transit | 2% | 1 | 2 | 3 |
| Bicycle | 1% | 0 | 0 | 0 |
| Walk | 5% | 2 | 4 | 6 |
| Other | 21% | 7 | 16 | 23 |

Table 9.1.2.5: Projected Trips by Primary Travel Mode – PM

| Travel Mode | PM Peak (15:30 - 17:59) | | | |
|----------------|-------------------------|--------------|-----|-------|
| | % of Person Trips | Person Trips | | |
| | | In | Out | Total |
| Auto Driver | 70% | 67 | 51 | 118 |
| Auto Passenger | 18% | 18 | 14 | 32 |
| Transit | 2% | 2 | 2 | 4 |
| Bicycle | 2% | 2 | 1 | 3 |
| Walk | 6% | 5 | 4 | 9 |
| Other | 2% | 2 | 1 | 3 |

No trip reduction factors have been assigned to the proposed development. Currently the site is not in use and due to the nature of the development, it is not expected to generate any pass-by vehicle trips.

9.2 Trip Distribution

A number of assumptions were made to better represent the distribution of trips to and from the development. The assumptions were based on review of the surrounding area developments, proximities to major urban centers, turning movement counts received from the City of Ottawa, and site visits performed by MP during both the AM and PM peak hour. All traffic data provided by the City of Ottawa can be found [Appendix C](#). Through the review, significant population hubs include the downtown of the City of Ottawa to the east, the outer suburbs of Stittsville and Kanata to the southeast, and Arnprior to the northwest. Other relevant features include King’s Highways 417 to the west and southwest of the site. Based on these features, a high-level trip distribution is summarized in [Table 9.2.1](#).

Table 9.2.1: High-level Trip Distribution

| CARDINAL DIRECTION | FEATURE(S) | DISTRIBUTION TO/FROM |
|--------------------|------------------------------------|----------------------|
| East | City of Ottawa, Downtown | 40% |
| South | Outer Suburbs, Stittsville, Kanata | 35% |
| North/West | Highway 417, Arnprior | 25% |

Due to the locations of each entrance, and the split nature of the northern and southern sections of the development, specific distribution for each access were developed and combined to create the total trip distribution illustrated in [Figure 9.2.1](#).

Access 1 being the primary access to the northern section of the development, and accesses 2 and 3 serving the southern section of the development. Accesses 2 and 3, being 50 meters apart, is expected to serve equal amounts of traffic. Therefore, the distribution of trips was split evenly between these two entrances. However, since Access 2 is located further north than Access 3, the distribution of trips coming from or heading to the north is expected to favour Access 2. Similarly, the distribution of trips coming from or heading to the south is expected to favour Access 3. Specific distributions for each access is provided in [Appendix D](#). Furthermore, it was assumed that 80 % of the development generated trips travelling northbound on Langstaff Drive will end up at the intersection of Carp Road and Juanita Avenue.

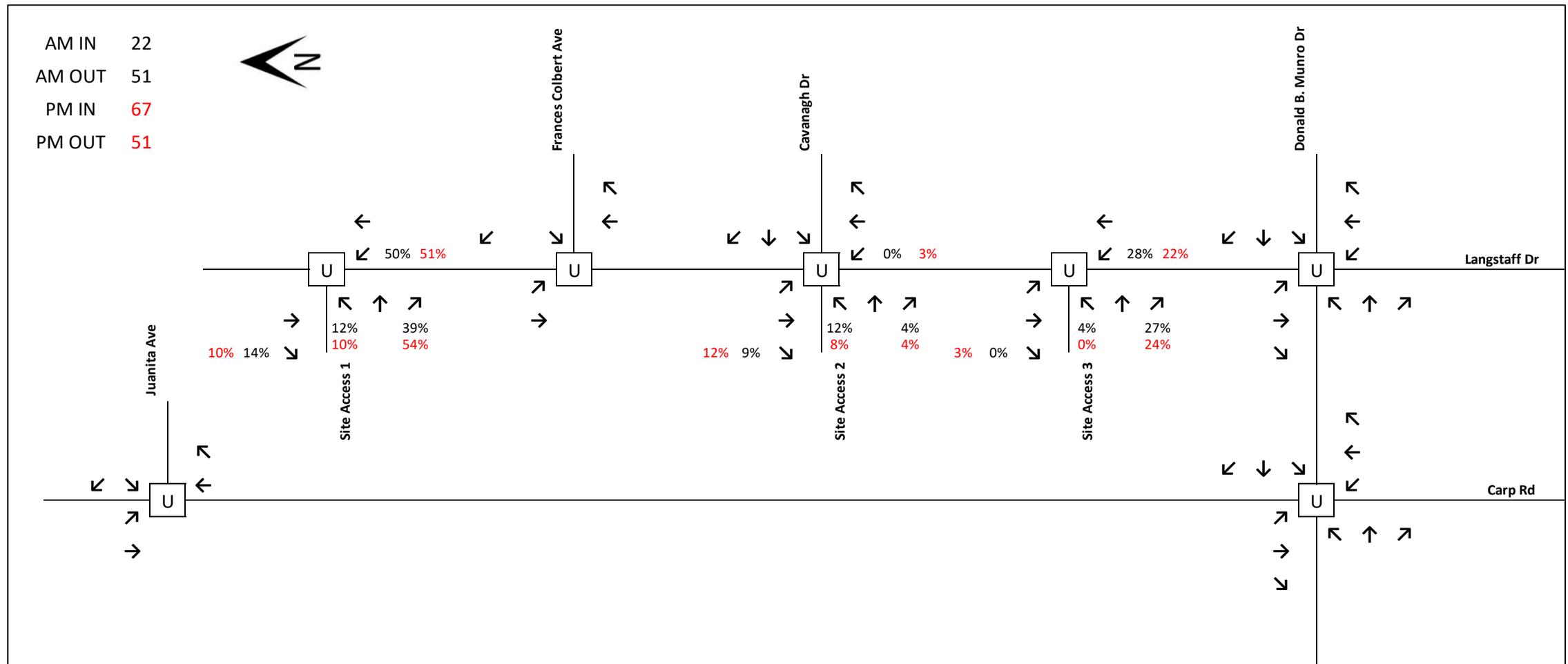


Figure 9.2.1: Trip Distribution at Entrances

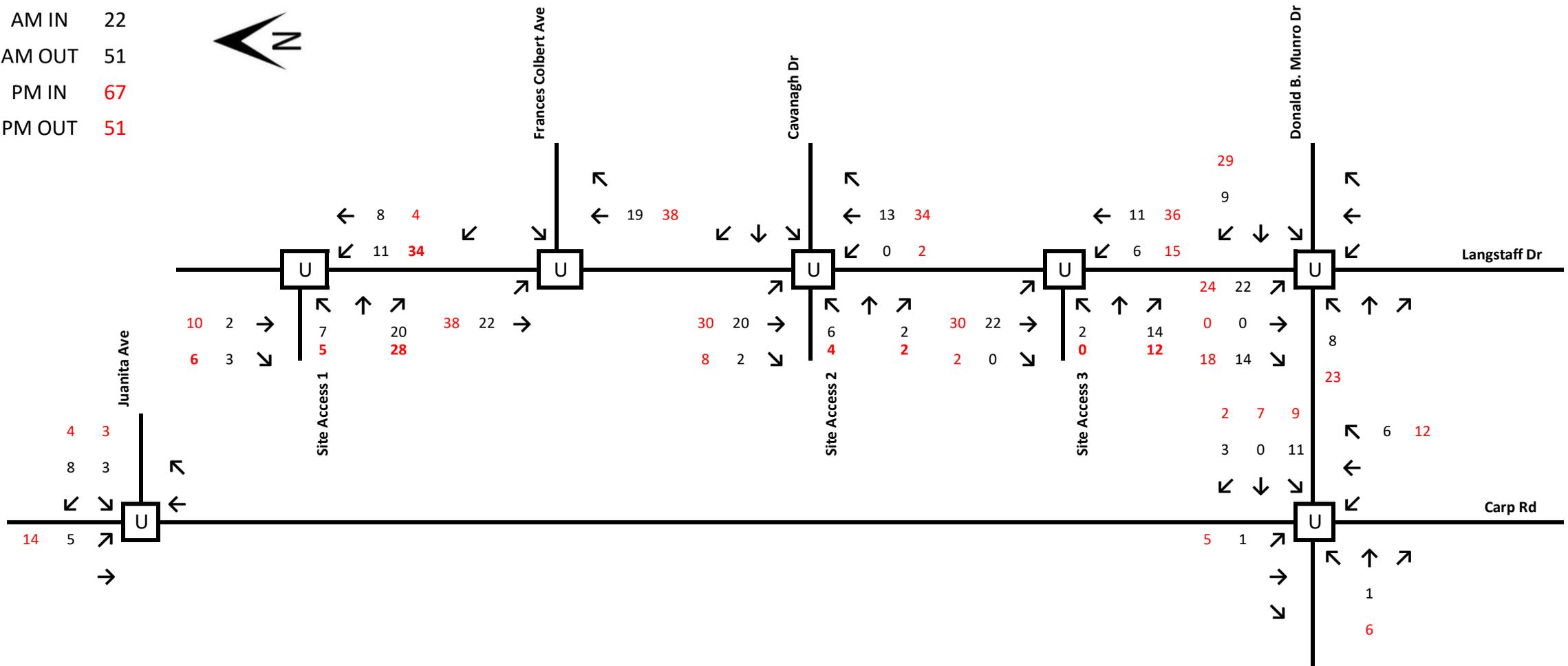
| LEGEND | |
|--------|----------------------------------|
| U | U = Unsignalized; S = Signalized |
| ↙ | Traffic Flow |
| ↔ | Pedestrian Crossing |

9.3 Trip Assignment

The trips generated by the proposed development were assigned to the transportation network to reflect the traffic patterns shown in the turning movement counts. [Figure 9.3.1](#) below shows development-generated vehicle demands applied to the surrounding transportation network in accordance with the trip distribution discussed in the previous section. All trip assignment figures can be found in [Appendix D](#).

[section intentionally left blank]

AM IN 22
 AM OUT 51
 PM IN 67
 PM OUT 51



| LEGEND | |
|--------|----------------------------------|
| U | U = Unsignalized; S = Signalized |
| ↙ | Traffic Flow |
| ↔ | Pedestrian Crossing |

Figure 9.3.1: Development-Generated Vehicle Demand

APPENDIX G

Strategic Long-Range Model and 2013 TMP Projections

TRANS Regional Model

Version 1.13 - Assigned April 17, 2019

AM Peak Hour Total Traffic Volume Carp

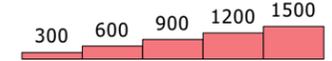
2011 - Base Scenario

User Initials: SG
Plot Prepared: April 18, 2019
EMME Scenario: 11138

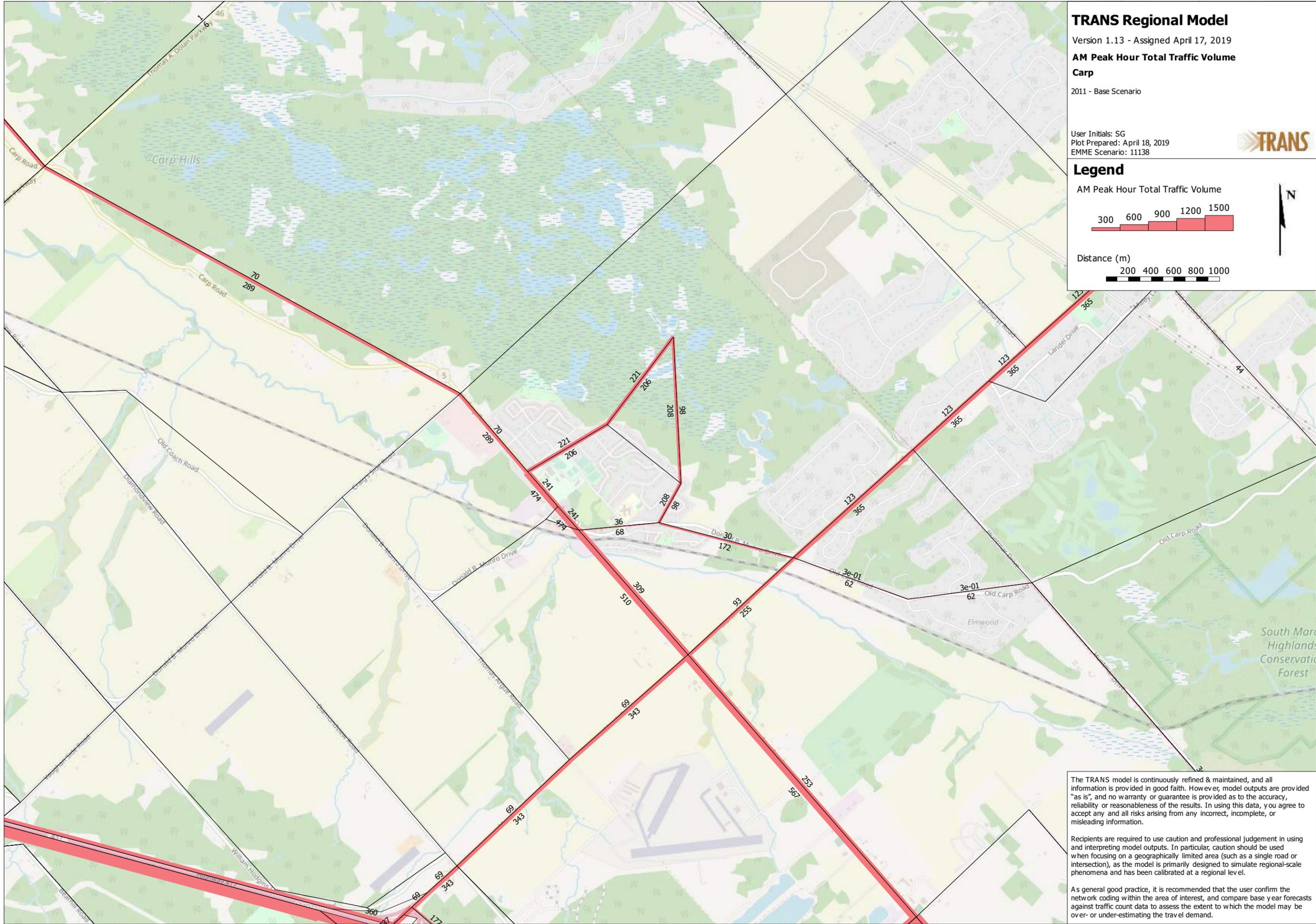


Legend

AM Peak Hour Total Traffic Volume



Distance (m)



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

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

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

TRANS Regional Model

Version 1.14 - Assigned April 17, 2019

AM Peak Hour Total Traffic Volume Carp

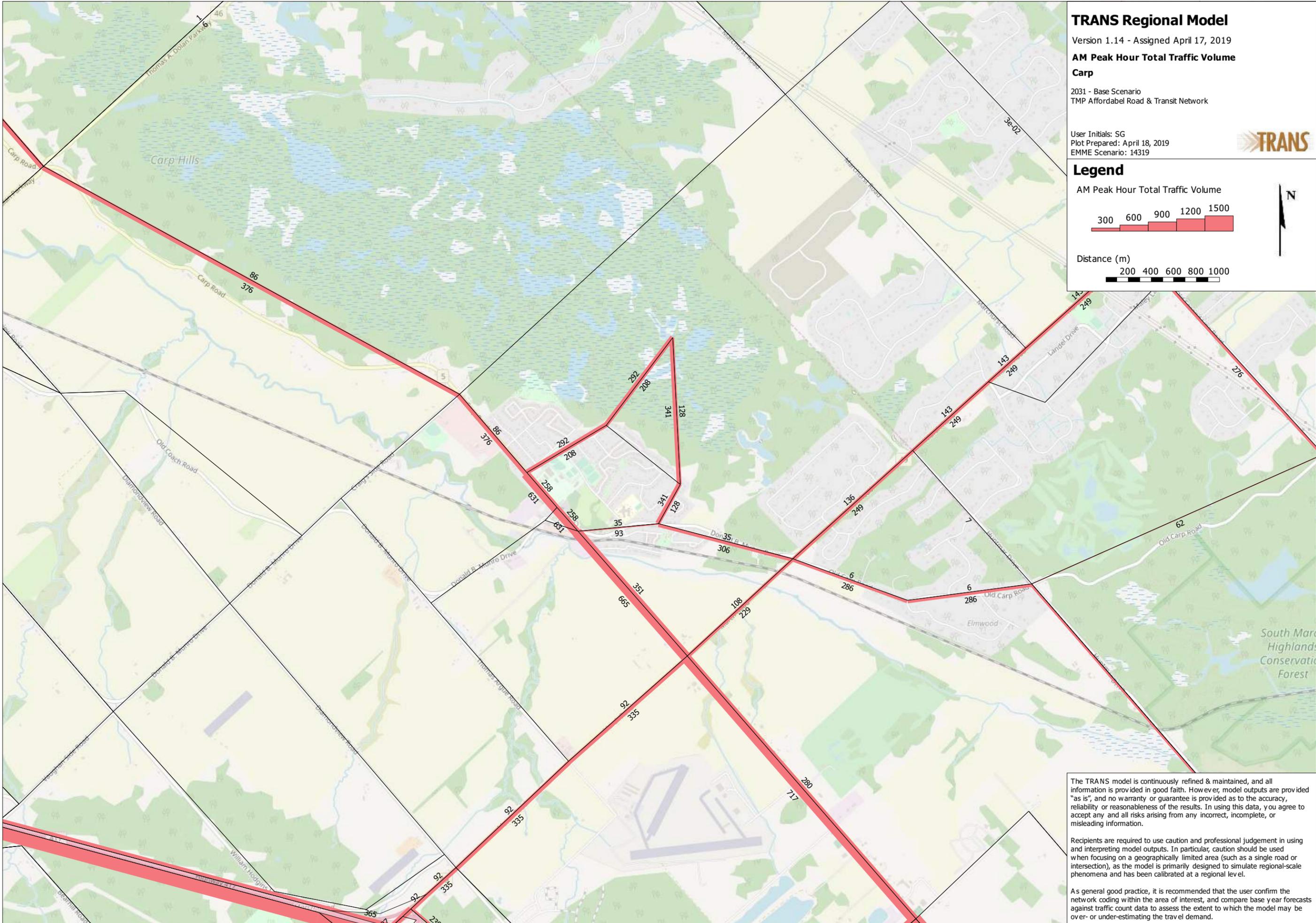
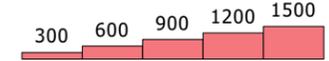
2031 - Base Scenario
TMP Affordabel Road & Transit Network

User Initials: SG
Plot Prepared: April 18, 2019
EMME Scenario: 14319



Legend

AM Peak Hour Total Traffic Volume



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

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

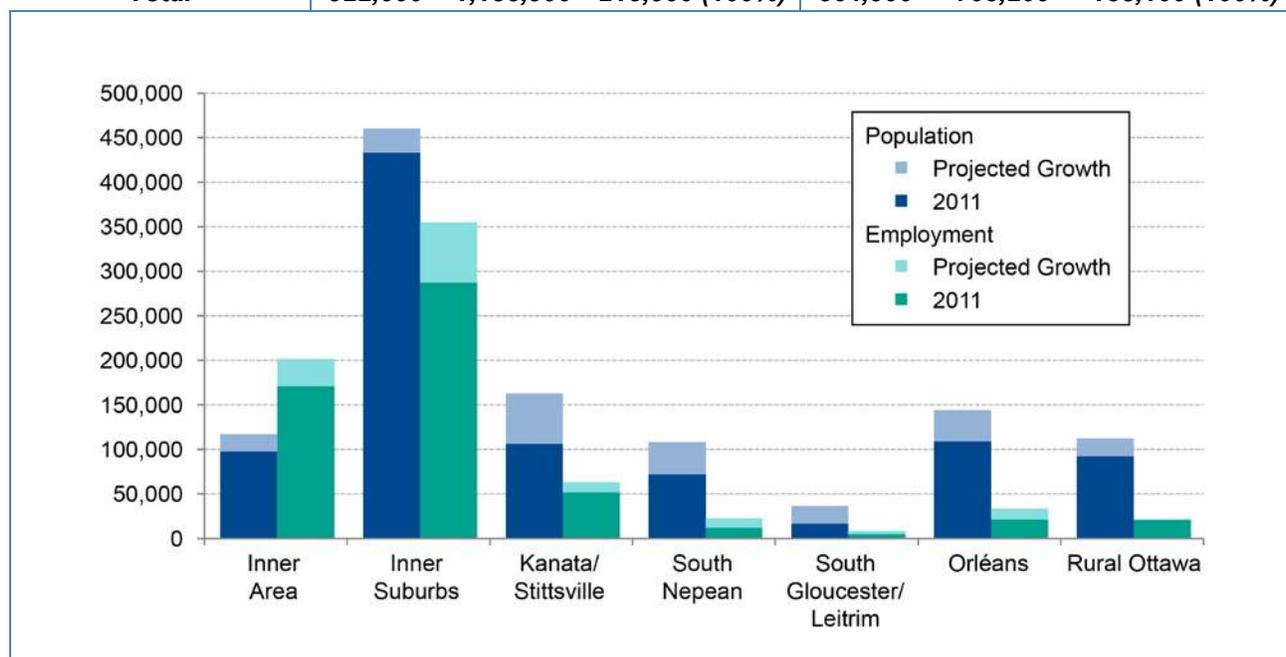
As a general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.

2.3 Population and Employment in 2031

Where growth will occur. The City has prepared population and employment growth projections for the period from 2011 to 2031 (see Exhibit 2.10). The City expects a 23% increase in population from 922,000 to 1.14 million people, and a 24% increase in employment from 565,000 to 703,000 jobs. Although infill development and intensification are forecast to increase the population of Ottawa’s Inner Area and Inner Suburbs by about 46,000 people over the next 18 years, most growth (about 168,000 people) will occur in the Outer Suburbs. In contrast, 72% of employment growth will occur inside the Greenbelt.

Exhibit 2.10 Population and Employment: 2011 Actual and 2031 Projections

| Area | Population | | | Employment | | |
|-------------------------|----------------|------------------|-------------------------|----------------|----------------|-----------------------|
| | 2011 | 2031 | Growth and distribution | 2011 | 2031 | Growth & distribution |
| Inner Area | 97,200 | 116,400 | 19,200 (9%) | 170,600 | 201,800 | 31,200 (23%) |
| Inner Suburbs | 432,500 | 459,300 | 26,800 (13%) | 287,400 | 355,300 | 67,900 (49%) |
| Kanata/Stittsville | 105,200 | 162,000 | 56,800 (27%) | 51,300 | 62,500 | 11,200 (8%) |
| Barrhaven | 71,200 | 107,400 | 36,200 (17%) | 11,100 | 21,800 | 10,700 (8%) |
| Riverside South/Leitrim | 15,900 | 35,800 | 19,900 (9%) | 4,000 | 7,800 | 3,800 (3%) |
| Orléans | 108,200 | 143,400 | 35,200 (16%) | 20,600 | 33,000 | 12,400 (9%) |
| Rural Ottawa | 91,400 | 111,700 | 20,300 (9%) | 20,000 | 20,900 | 900 (1%) |
| Total | 922,000 | 1,135,900 | 213,900 (100%) | 564,900 | 703,200 | 138,100 (100%) |



APPENDIX H

Capacity Analysis Reports (Existing/Background)

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 11 | 1 | 143 | 4 | 0 | 180 |
| Future Volume (Veh/h) | 11 | 1 | 143 | 4 | 0 | 180 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 12 | 1 | 159 | 4 | 0 | 200 |
| 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 | 361 | 161 | | | 163 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 361 | 161 | | | 163 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 100 | | | 100 | |
| cM capacity (veh/h) | 638 | 884 | | | 1416 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 13 | 163 | 200 | | | |
| Volume Left | 12 | 0 | 0 | | | |
| Volume Right | 1 | 4 | 0 | | | |
| cSH | 652 | 1700 | 1416 | | | |
| Volume to Capacity | 0.02 | 0.10 | 0.00 | | | |
| Queue Length 95th (m) | 0.4 | 0.0 | 0.0 | | | |
| Control Delay (s) | 10.6 | 0.0 | 0.0 | | | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 10.6 | 0.0 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.4 | | | |
| Intersection Capacity Utilization | | | 20.0% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
AM Peak

3725 Carp Road
Existing Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 144 | 180 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 144 | 180 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 160 | 200 | 0 |
| 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 | 360 | 200 | 200 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 360 | 200 | 200 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 639 | 841 | 1372 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 160 | 200 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1372 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 13.3% | | | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 1 | 15 | 21 | 57 | 10 | 15 | 23 | 50 | 87 | 28 | 104 | 3 |
| Future Volume (vph) | 1 | 15 | 21 | 57 | 10 | 15 | 23 | 50 | 87 | 28 | 104 | 3 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 17 | 23 | 63 | 11 | 17 | 26 | 56 | 97 | 31 | 116 | 3 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 41 | 91 | 179 | 150 | | | | | | | | |
| Volume Left (vph) | 1 | 63 | 26 | 31 | | | | | | | | |
| Volume Right (vph) | 23 | 17 | 97 | 3 | | | | | | | | |
| Hadj (s) | -0.15 | 0.16 | -0.16 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.6 | 4.9 | 4.2 | 4.5 | | | | | | | | |
| Degree Utilization, x | 0.05 | 0.12 | 0.21 | 0.19 | | | | | | | | |
| Capacity (veh/h) | 711 | 686 | 814 | 761 | | | | | | | | |
| Control Delay (s) | 7.9 | 8.5 | 8.4 | 8.5 | | | | | | | | |
| Approach Delay (s) | 7.9 | 8.5 | 8.4 | 8.5 | | | | | | | | |
| Approach LOS | A | A | A | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 8.4 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 30.2% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 4 | 4 | 283 | 15 | 7 | 195 |
| Future Volume (Veh/h) | 4 | 4 | 283 | 15 | 7 | 195 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 4 | 4 | 314 | 17 | 8 | 217 |
| Pedestrians | | | | | | 1 |
| Lane Width (m) | | | | | | 3.6 |
| Walking Speed (m/s) | | | | | | 1.0 |
| Percent Blockage | | | | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 556 | 324 | | | 331 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 556 | 324 | | | 331 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 99 | 99 | | | 99 | |
| cM capacity (veh/h) | 489 | 717 | | | 1228 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 8 | 331 | 225 | | | |
| Volume Left | 4 | 0 | 8 | | | |
| Volume Right | 4 | 17 | 0 | | | |
| cSH | 582 | 1700 | 1228 | | | |
| Volume to Capacity | 0.01 | 0.19 | 0.01 | | | |
| Queue Length 95th (m) | 0.3 | 0.0 | 0.1 | | | |
| Control Delay (s) | 11.3 | 0.0 | 0.3 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 11.3 | 0.0 | 0.3 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 27.1% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
PM Peak

3725 Carp Road
Existing Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 282 | 202 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 282 | 202 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 313 | 224 | 0 |
| 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 | 537 | 224 | 224 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 537 | 224 | 224 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 505 | 815 | 1345 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 313 | 224 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1345 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.13 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 19.0% | | | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | | | |

7: Carp Road & Donald B. Munro Drive
PM Peak

3725 Carp Road
Existing Traffic

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 12 | 31 | 47 | 2 | 0 | 33 | 61 | 162 | 59 | 19 | 67 | 5 |
| Future Volume (vph) | 12 | 31 | 47 | 2 | 0 | 33 | 61 | 162 | 59 | 19 | 67 | 5 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 13 | 34 | 52 | 2 | 0 | 37 | 68 | 180 | 66 | 21 | 74 | 6 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 99 | 39 | 314 | 101 | | | | | | | | |
| Volume Left (vph) | 13 | 2 | 68 | 21 | | | | | | | | |
| Volume Right (vph) | 52 | 37 | 66 | 6 | | | | | | | | |
| Hadj (s) | -0.25 | -0.52 | -0.05 | 0.07 | | | | | | | | |
| Departure Headway (s) | 4.6 | 4.5 | 4.3 | 4.6 | | | | | | | | |
| Degree Utilization, x | 0.13 | 0.05 | 0.38 | 0.13 | | | | | | | | |
| Capacity (veh/h) | 707 | 721 | 811 | 733 | | | | | | | | |
| Control Delay (s) | 8.3 | 7.7 | 9.9 | 8.3 | | | | | | | | |
| Approach Delay (s) | 8.3 | 7.7 | 9.9 | 8.3 | | | | | | | | |
| Approach LOS | A | A | A | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 9.2 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 40.8% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 9 | 5 | 304 | 5 | 3 | 332 |
| Future Volume (Veh/h) | 9 | 5 | 304 | 5 | 3 | 332 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 10 | 6 | 338 | 6 | 3 | 369 |
| Pedestrians | 1 | | | | | |
| Lane Width (m) | 3.6 | | | | | |
| Walking Speed (m/s) | 1.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 717 | 342 | | | 345 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 717 | 342 | | | 345 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 97 | 99 | | | 100 | |
| cM capacity (veh/h) | 395 | 700 | | | 1213 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 16 | 344 | 372 | | | |
| Volume Left | 10 | 0 | 3 | | | |
| Volume Right | 6 | 6 | 0 | | | |
| cSH | 472 | 1700 | 1213 | | | |
| Volume to Capacity | 0.03 | 0.20 | 0.00 | | | |
| Queue Length 95th (m) | 0.7 | 0.0 | 0.1 | | | |
| Control Delay (s) | 12.9 | 0.0 | 0.1 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 12.9 | 0.0 | 0.1 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 31.0% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 309 | 335 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 309 | 335 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 343 | 372 | 0 |
| 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 | 715 | 372 | 372 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 715 | 372 | 372 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 397 | 674 | 1186 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 343 | 372 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1186 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.22 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 21.9% | | | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 24 | 38 | 56 | 35 | 59 | 28 | 249 | 36 | 42 | 247 | 1 |
| Future Volume (vph) | 10 | 24 | 38 | 56 | 35 | 59 | 28 | 249 | 36 | 42 | 247 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 11 | 27 | 42 | 62 | 39 | 66 | 31 | 277 | 40 | 47 | 274 | 1 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 80 | 167 | 348 | 322 | | | | | | | | |
| Volume Left (vph) | 11 | 62 | 31 | 47 | | | | | | | | |
| Volume Right (vph) | 42 | 66 | 40 | 1 | | | | | | | | |
| Hadj (s) | -0.22 | -0.11 | -0.01 | 0.06 | | | | | | | | |
| Departure Headway (s) | 5.8 | 5.7 | 5.1 | 5.2 | | | | | | | | |
| Degree Utilization, x | 0.13 | 0.26 | 0.49 | 0.46 | | | | | | | | |
| Capacity (veh/h) | 521 | 564 | 665 | 658 | | | | | | | | |
| Control Delay (s) | 9.6 | 10.7 | 13.0 | 12.6 | | | | | | | | |
| Approach Delay (s) | 9.6 | 10.7 | 13.0 | 12.6 | | | | | | | | |
| Approach LOS | A | B | B | B | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 12.1 | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | |
| Intersection Capacity Utilization | | | 47.6% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 435 | 417 | 440 | 455 | 395 | 430 | 453 |
| Vehs Exited | 430 | 420 | 435 | 446 | 393 | 428 | 452 |
| Starting Vehs | 8 | 9 | 6 | 4 | 7 | 5 | 9 |
| Ending Vehs | 13 | 6 | 11 | 13 | 9 | 7 | 10 |
| Travel Distance (km) | 321 | 314 | 323 | 334 | 295 | 318 | 342 |
| Travel Time (hr) | 8.2 | 7.9 | 8.2 | 8.4 | 7.5 | 8.0 | 8.7 |
| Total Delay (hr) | 0.9 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.9 |
| Total Stops | 430 | 406 | 425 | 435 | 387 | 416 | 443 |
| Fuel Used (l) | 25.7 | 24.9 | 25.6 | 26.4 | 23.6 | 25.3 | 27.0 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 469 | 411 | 434 | 435 |
| Vehs Exited | 466 | 411 | 430 | 430 |
| Starting Vehs | 6 | 7 | 5 | 5 |
| Ending Vehs | 9 | 7 | 9 | 8 |
| Travel Distance (km) | 342 | 307 | 325 | 322 |
| Travel Time (hr) | 8.8 | 7.8 | 8.2 | 8.2 |
| Total Delay (hr) | 1.0 | 0.7 | 0.8 | 0.8 |
| Total Stops | 453 | 398 | 429 | 424 |
| Fuel Used (l) | 27.3 | 24.6 | 25.5 | 25.6 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 6:57 |
| End Time | 7:12 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 435 | 417 | 440 | 455 | 395 | 430 | 453 |
| Vehs Exited | 430 | 420 | 435 | 446 | 393 | 428 | 452 |
| Starting Vehs | 8 | 9 | 6 | 4 | 7 | 5 | 9 |
| Ending Vehs | 13 | 6 | 11 | 13 | 9 | 7 | 10 |
| Travel Distance (km) | 321 | 314 | 323 | 334 | 295 | 318 | 342 |
| Travel Time (hr) | 8.2 | 7.9 | 8.2 | 8.4 | 7.5 | 8.0 | 8.7 |
| Total Delay (hr) | 0.9 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.9 |
| Total Stops | 430 | 406 | 425 | 435 | 387 | 416 | 443 |
| Fuel Used (l) | 25.7 | 24.9 | 25.6 | 26.4 | 23.6 | 25.3 | 27.0 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 469 | 411 | 434 | 435 |
| Vehs Exited | 466 | 411 | 430 | 430 |
| Starting Vehs | 6 | 7 | 5 | 5 |
| Ending Vehs | 9 | 7 | 9 | 8 |
| Travel Distance (km) | 342 | 307 | 325 | 322 |
| Travel Time (hr) | 8.8 | 7.8 | 8.2 | 8.2 |
| Total Delay (hr) | 1.0 | 0.7 | 0.8 | 0.8 |
| Total Stops | 453 | 398 | 429 | 424 |
| Fuel Used (l) | 27.3 | 24.6 | 25.5 | 25.6 |

Queuing and Blocking Report

Existing Traffic

02/27/2023

Intersection: 4: Carp Road & Rivington Street

| Movement | WB |
|-----------------------|-------|
| Directions Served | LR |
| Maximum Queue (m) | 10.5 |
| Average Queue (m) | 2.8 |
| 95th Queue (m) | 9.8 |
| Link Distance (m) | 228.9 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (m) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 13.5 | 14.6 | 24.7 | 19.0 |
| Average Queue (m) | 2.4 | 2.7 | 10.9 | 8.7 |
| 95th Queue (m) | 8.0 | 9.1 | 19.6 | 14.9 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 565 | 597 | 604 | 596 | 561 | 631 | 646 |
| Vehs Exited | 562 | 591 | 611 | 599 | 554 | 624 | 638 |
| Starting Vehs | 8 | 7 | 14 | 8 | 5 | 6 | 5 |
| Ending Vehs | 11 | 13 | 7 | 5 | 12 | 13 | 13 |
| Travel Distance (km) | 393 | 420 | 419 | 418 | 389 | 442 | 462 |
| Travel Time (hr) | 9.8 | 10.4 | 10.4 | 10.3 | 9.8 | 11.2 | 11.5 |
| Total Delay (hr) | 1.1 | 1.2 | 1.2 | 1.1 | 1.1 | 1.4 | 1.3 |
| Total Stops | 462 | 494 | 494 | 485 | 477 | 535 | 557 |
| Fuel Used (l) | 30.9 | 32.9 | 33.0 | 32.4 | 30.6 | 34.6 | 36.3 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 616 | 598 | 624 | 603 |
| Vehs Exited | 619 | 599 | 628 | 603 |
| Starting Vehs | 14 | 8 | 11 | 6 |
| Ending Vehs | 11 | 7 | 7 | 10 |
| Travel Distance (km) | 431 | 418 | 439 | 423 |
| Travel Time (hr) | 10.8 | 10.4 | 11.3 | 10.6 |
| Total Delay (hr) | 1.2 | 1.1 | 1.4 | 1.2 |
| Total Stops | 531 | 483 | 515 | 504 |
| Fuel Used (l) | 33.4 | 33.1 | 34.6 | 33.2 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 4:00 |
| End Time | 4:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 565 | 597 | 604 | 596 | 561 | 631 | 646 |
| Vehs Exited | 562 | 591 | 611 | 599 | 554 | 624 | 638 |
| Starting Vehs | 8 | 7 | 14 | 8 | 5 | 6 | 5 |
| Ending Vehs | 11 | 13 | 7 | 5 | 12 | 13 | 13 |
| Travel Distance (km) | 393 | 420 | 419 | 418 | 389 | 442 | 462 |
| Travel Time (hr) | 9.8 | 10.4 | 10.4 | 10.3 | 9.8 | 11.2 | 11.5 |
| Total Delay (hr) | 1.1 | 1.2 | 1.2 | 1.1 | 1.1 | 1.4 | 1.3 |
| Total Stops | 462 | 494 | 494 | 485 | 477 | 535 | 557 |
| Fuel Used (l) | 30.9 | 32.9 | 33.0 | 32.4 | 30.6 | 34.6 | 36.3 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 616 | 598 | 624 | 603 |
| Vehs Exited | 619 | 599 | 628 | 603 |
| Starting Vehs | 14 | 8 | 11 | 6 |
| Ending Vehs | 11 | 7 | 7 | 10 |
| Travel Distance (km) | 431 | 418 | 439 | 423 |
| Travel Time (hr) | 10.8 | 10.4 | 11.3 | 10.6 |
| Total Delay (hr) | 1.2 | 1.1 | 1.4 | 1.2 |
| Total Stops | 531 | 483 | 515 | 504 |
| Fuel Used (l) | 33.4 | 33.1 | 34.6 | 33.2 |

Queuing and Blocking Report

Existing Traffic

02/27/2023

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | SB |
|-----------------------|-------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 9.7 | 10.9 |
| Average Queue (m) | 2.1 | 0.7 |
| 95th Queue (m) | 8.3 | 5.3 |
| Link Distance (m) | 228.9 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 11.3 | 8.2 | 32.2 | 19.5 |
| Average Queue (m) | 2.7 | 1.0 | 13.7 | 8.2 |
| 95th Queue (m) | 7.6 | 4.4 | 25.6 | 15.0 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 839 | 829 | 828 | 877 | 797 | 872 | 833 |
| Vehs Exited | 844 | 828 | 830 | 882 | 796 | 869 | 822 |
| Starting Vehs | 16 | 13 | 19 | 15 | 17 | 13 | 14 |
| Ending Vehs | 11 | 14 | 17 | 10 | 18 | 16 | 25 |
| Travel Distance (km) | 628 | 622 | 617 | 663 | 597 | 647 | 621 |
| Travel Time (hr) | 16.5 | 16.1 | 15.9 | 17.5 | 15.5 | 17.0 | 16.0 |
| Total Delay (hr) | 2.6 | 2.6 | 2.4 | 3.0 | 2.5 | 2.7 | 2.5 |
| Total Stops | 834 | 832 | 830 | 885 | 797 | 872 | 828 |
| Fuel Used (l) | 51.1 | 50.6 | 49.7 | 53.8 | 48.7 | 53.0 | 50.0 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 870 | 880 | 845 | 849 |
| Vehs Exited | 864 | 879 | 852 | 845 |
| Starting Vehs | 13 | 15 | 16 | 11 |
| Ending Vehs | 19 | 16 | 9 | 15 |
| Travel Distance (km) | 649 | 658 | 636 | 634 |
| Travel Time (hr) | 17.0 | 17.8 | 16.6 | 16.6 |
| Total Delay (hr) | 2.7 | 3.3 | 2.6 | 2.7 |
| Total Stops | 868 | 885 | 853 | 851 |
| Fuel Used (l) | 52.9 | 54.1 | 51.7 | 51.6 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 6:57 |
| End Time | 7:12 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 839 | 829 | 828 | 877 | 797 | 872 | 833 |
| Vehs Exited | 844 | 828 | 830 | 882 | 796 | 869 | 822 |
| Starting Vehs | 16 | 13 | 19 | 15 | 17 | 13 | 14 |
| Ending Vehs | 11 | 14 | 17 | 10 | 18 | 16 | 25 |
| Travel Distance (km) | 628 | 622 | 617 | 663 | 597 | 647 | 621 |
| Travel Time (hr) | 16.5 | 16.1 | 15.9 | 17.5 | 15.5 | 17.0 | 16.0 |
| Total Delay (hr) | 2.6 | 2.6 | 2.4 | 3.0 | 2.5 | 2.7 | 2.5 |
| Total Stops | 834 | 832 | 830 | 885 | 797 | 872 | 828 |
| Fuel Used (l) | 51.1 | 50.6 | 49.7 | 53.8 | 48.7 | 53.0 | 50.0 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 870 | 880 | 845 | 849 |
| Vehs Exited | 864 | 879 | 852 | 845 |
| Starting Vehs | 13 | 15 | 16 | 11 |
| Ending Vehs | 19 | 16 | 9 | 15 |
| Travel Distance (km) | 649 | 658 | 636 | 634 |
| Travel Time (hr) | 17.0 | 17.8 | 16.6 | 16.6 |
| Total Delay (hr) | 2.7 | 3.3 | 2.6 | 2.7 |
| Total Stops | 868 | 885 | 853 | 851 |
| Fuel Used (l) | 52.9 | 54.1 | 51.7 | 51.6 |

Queuing and Blocking Report

Existing Traffic

02/27/2023

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | SB |
|-----------------------|-------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 10.4 | 5.4 |
| Average Queue (m) | 3.5 | 0.2 |
| 95th Queue (m) | 10.6 | 2.6 |
| Link Distance (m) | 228.9 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 14.6 | 20.7 | 40.0 | 36.5 |
| Average Queue (m) | 3.0 | 5.8 | 17.3 | 16.1 |
| 95th Queue (m) | 8.7 | 14.8 | 30.9 | 28.7 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 11 | 1 | 155 | 4 | 0 | 198 |
| Future Volume (Veh/h) | 11 | 1 | 155 | 4 | 0 | 198 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 11 | 1 | 155 | 4 | 0 | 198 |
| 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 | 355 | 157 | | | 159 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 355 | 157 | | | 159 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 100 | | | 100 | |
| cM capacity (veh/h) | 643 | 889 | | | 1420 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 12 | 159 | 198 | | | |
| Volume Left | 11 | 0 | 0 | | | |
| Volume Right | 1 | 4 | 0 | | | |
| cSH | 658 | 1700 | 1420 | | | |
| Volume to Capacity | 0.02 | 0.09 | 0.00 | | | |
| Queue Length 95th (m) | 0.4 | 0.0 | 0.0 | | | |
| Control Delay (s) | 10.6 | 0.0 | 0.0 | | | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 10.6 | 0.0 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 21.0% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 156 | 198 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 156 | 198 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 156 | 198 | 0 |
| 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 | 354 | 198 | 198 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 354 | 198 | 198 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 644 | 843 | 1375 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 156 | 198 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1375 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | | 0.0 | | |
| Intersection Capacity Utilization | 14.3% | | | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 1 | 17 | 22 | 70 | 10 | 19 | 24 | 52 | 96 | 30 | 108 | 3 |
| Future Volume (vph) | 1 | 17 | 22 | 70 | 10 | 19 | 24 | 52 | 96 | 30 | 108 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 1 | 17 | 22 | 70 | 10 | 19 | 24 | 52 | 96 | 30 | 108 | 3 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 40 | 99 | 172 | 141 | | | | | | | | |
| Volume Left (vph) | 1 | 70 | 24 | 30 | | | | | | | | |
| Volume Right (vph) | 22 | 19 | 96 | 3 | | | | | | | | |
| Hadj (s) | -0.14 | 0.16 | -0.17 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.6 | 4.8 | 4.2 | 4.5 | | | | | | | | |
| Degree Utilization, x | 0.05 | 0.13 | 0.20 | 0.18 | | | | | | | | |
| Capacity (veh/h) | 715 | 694 | 813 | 758 | | | | | | | | |
| Control Delay (s) | 7.8 | 8.6 | 8.3 | 8.5 | | | | | | | | |
| Approach Delay (s) | 7.8 | 8.6 | 8.3 | 8.5 | | | | | | | | |
| Approach LOS | A | A | A | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 8.4 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 31.9% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 4 | 4 | 306 | 15 | 7 | 212 |
| Future Volume (Veh/h) | 4 | 4 | 306 | 15 | 7 | 212 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 4 | 4 | 306 | 15 | 7 | 212 |
| Pedestrians | | | | | | 1 |
| Lane Width (m) | | | | | | 3.6 |
| Walking Speed (m/s) | | | | | | 1.0 |
| Percent Blockage | | | | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 540 | 314 | | | 321 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 540 | 314 | | | 321 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 99 | 99 | | | 99 | |
| cM capacity (veh/h) | 500 | 725 | | | 1239 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 8 | 321 | 219 | | | |
| Volume Left | 4 | 0 | 7 | | | |
| Volume Right | 4 | 15 | 0 | | | |
| cSH | 592 | 1700 | 1239 | | | |
| Volume to Capacity | 0.01 | 0.19 | 0.01 | | | |
| Queue Length 95th (m) | 0.3 | 0.0 | 0.1 | | | |
| Control Delay (s) | 11.2 | 0.0 | 0.3 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 11.2 | 0.0 | 0.3 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 28.3% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
PM Peak

3725 Carp Road
2027 BG Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 310 | 219 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 310 | 219 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 310 | 219 | 0 |
| 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 | 529 | 219 | 219 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 529 | 219 | 219 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 510 | 821 | 1350 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 310 | 219 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1350 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.13 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 20.6% | | | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 12 | 38 | 49 | 56 | 54 | 36 | 63 | 168 | 73 | 25 | 70 | 5 |
| Future Volume (vph) | 12 | 38 | 49 | 56 | 54 | 36 | 63 | 168 | 73 | 25 | 70 | 5 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 12 | 38 | 49 | 56 | 54 | 36 | 63 | 168 | 73 | 25 | 70 | 5 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 99 | 146 | 304 | 100 | | | | | | | | |
| Volume Left (vph) | 12 | 56 | 63 | 25 | | | | | | | | |
| Volume Right (vph) | 49 | 36 | 73 | 5 | | | | | | | | |
| Hadj (s) | -0.24 | -0.04 | -0.07 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.9 | 5.0 | 4.6 | 5.0 | | | | | | | | |
| Degree Utilization, x | 0.13 | 0.20 | 0.39 | 0.14 | | | | | | | | |
| Capacity (veh/h) | 668 | 661 | 749 | 666 | | | | | | | | |
| Control Delay (s) | 8.6 | 9.2 | 10.5 | 8.8 | | | | | | | | |
| Approach Delay (s) | 8.6 | 9.2 | 10.5 | 8.8 | | | | | | | | |
| Approach LOS | A | A | B | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 9.7 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 44.3% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 9 | 5 | 328 | 5 | 3 | 354 |
| Future Volume (Veh/h) | 9 | 5 | 328 | 5 | 3 | 354 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 9 | 5 | 328 | 5 | 3 | 354 |
| Pedestrians | 1 | | | | | |
| Lane Width (m) | 3.6 | | | | | |
| Walking Speed (m/s) | 1.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 692 | 332 | | | 334 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 692 | 332 | | | 334 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 99 | | | 100 | |
| cM capacity (veh/h) | 409 | 709 | | | 1224 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 14 | 333 | 357 | | | |
| Volume Left | 9 | 0 | 3 | | | |
| Volume Right | 5 | 5 | 0 | | | |
| cSH | 482 | 1700 | 1224 | | | |
| Volume to Capacity | 0.03 | 0.20 | 0.00 | | | |
| Queue Length 95th (m) | 0.6 | 0.0 | 0.1 | | | |
| Control Delay (s) | 12.7 | 0.0 | 0.1 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 12.7 | 0.0 | 0.1 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 32.2% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 333 | 357 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 333 | 357 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 333 | 357 | 0 |
| 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 | 690 | 357 | 357 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 690 | 357 | 357 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 411 | 687 | 1202 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 333 | 357 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1202 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.21 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 23.2% | | | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 31 | 40 | 67 | 43 | 63 | 29 | 259 | 49 | 49 | 257 | 1 |
| Future Volume (vph) | 10 | 31 | 40 | 67 | 43 | 63 | 29 | 259 | 49 | 49 | 257 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 31 | 40 | 67 | 43 | 63 | 29 | 259 | 49 | 49 | 257 | 1 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 81 | 173 | 337 | 307 | | | | | | | | |
| Volume Left (vph) | 10 | 67 | 29 | 49 | | | | | | | | |
| Volume Right (vph) | 40 | 63 | 49 | 1 | | | | | | | | |
| Hadj (s) | -0.21 | -0.09 | -0.02 | 0.06 | | | | | | | | |
| Departure Headway (s) | 5.7 | 5.6 | 5.1 | 5.2 | | | | | | | | |
| Degree Utilization, x | 0.13 | 0.27 | 0.48 | 0.44 | | | | | | | | |
| Capacity (veh/h) | 527 | 572 | 667 | 656 | | | | | | | | |
| Control Delay (s) | 9.5 | 10.7 | 12.6 | 12.3 | | | | | | | | |
| Approach Delay (s) | 9.5 | 10.7 | 12.6 | 12.3 | | | | | | | | |
| Approach LOS | A | B | B | B | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 11.8 | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | |
| Intersection Capacity Utilization | | | 52.0% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 493 | 454 | 481 | 495 | 444 | 466 | 469 |
| Vehs Exited | 495 | 454 | 478 | 492 | 444 | 465 | 463 |
| Starting Vehs | 9 | 7 | 6 | 9 | 9 | 7 | 6 |
| Ending Vehs | 7 | 7 | 9 | 12 | 9 | 8 | 12 |
| Travel Distance (km) | 371 | 345 | 357 | 365 | 336 | 347 | 348 |
| Travel Time (hr) | 9.4 | 8.7 | 9.1 | 9.3 | 8.5 | 8.8 | 8.9 |
| Total Delay (hr) | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| Total Stops | 489 | 443 | 462 | 476 | 442 | 457 | 457 |
| Fuel Used (l) | 29.5 | 27.1 | 28.5 | 28.8 | 26.8 | 27.5 | 27.1 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 507 | 452 | 463 | 472 |
| Vehs Exited | 508 | 463 | 464 | 472 |
| Starting Vehs | 9 | 17 | 8 | 8 |
| Ending Vehs | 8 | 6 | 7 | 6 |
| Travel Distance (km) | 376 | 343 | 348 | 354 |
| Travel Time (hr) | 9.6 | 8.8 | 8.8 | 9.0 |
| Total Delay (hr) | 1.0 | 0.9 | 0.9 | 0.9 |
| Total Stops | 492 | 448 | 454 | 461 |
| Fuel Used (l) | 29.8 | 27.3 | 27.4 | 28.0 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 6:57 |
| End Time | 7:12 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 493 | 454 | 481 | 495 | 444 | 466 | 469 |
| Vehs Exited | 495 | 454 | 478 | 492 | 444 | 465 | 463 |
| Starting Vehs | 9 | 7 | 6 | 9 | 9 | 7 | 6 |
| Ending Vehs | 7 | 7 | 9 | 12 | 9 | 8 | 12 |
| Travel Distance (km) | 371 | 345 | 357 | 365 | 336 | 347 | 348 |
| Travel Time (hr) | 9.4 | 8.7 | 9.1 | 9.3 | 8.5 | 8.8 | 8.9 |
| Total Delay (hr) | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| Total Stops | 489 | 443 | 462 | 476 | 442 | 457 | 457 |
| Fuel Used (l) | 29.5 | 27.1 | 28.5 | 28.8 | 26.8 | 27.5 | 27.1 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 507 | 452 | 463 | 472 |
| Vehs Exited | 508 | 463 | 464 | 472 |
| Starting Vehs | 9 | 17 | 8 | 8 |
| Ending Vehs | 8 | 6 | 7 | 6 |
| Travel Distance (km) | 376 | 343 | 348 | 354 |
| Travel Time (hr) | 9.6 | 8.8 | 8.8 | 9.0 |
| Total Delay (hr) | 1.0 | 0.9 | 0.9 | 0.9 |
| Total Stops | 492 | 448 | 454 | 461 |
| Fuel Used (l) | 29.8 | 27.3 | 27.4 | 28.0 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB |
|-----------------------|-------|
| Directions Served | LR |
| Maximum Queue (m) | 10.5 |
| Average Queue (m) | 2.8 |
| 95th Queue (m) | 9.8 |
| Link Distance (m) | 228.9 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (m) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 13.7 | 15.0 | 24.6 | 20.1 |
| Average Queue (m) | 2.3 | 3.6 | 11.3 | 9.0 |
| 95th Queue (m) | 7.9 | 11.2 | 20.1 | 15.6 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 676 | 693 | 689 | 691 | 648 | 752 | 696 |
| Vehs Exited | 677 | 693 | 695 | 689 | 646 | 749 | 697 |
| Starting Vehs | 18 | 11 | 11 | 14 | 10 | 10 | 16 |
| Ending Vehs | 17 | 11 | 5 | 16 | 12 | 13 | 15 |
| Travel Distance (km) | 494 | 499 | 500 | 502 | 469 | 546 | 505 |
| Travel Time (hr) | 12.7 | 12.7 | 13.0 | 12.9 | 12.2 | 14.3 | 13.0 |
| Total Delay (hr) | 1.5 | 1.5 | 1.7 | 1.6 | 1.5 | 1.9 | 1.6 |
| Total Stops | 629 | 630 | 644 | 628 | 594 | 691 | 645 |
| Fuel Used (l) | 39.4 | 39.5 | 39.8 | 39.9 | 37.2 | 43.2 | 40.6 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 712 | 699 | 728 | 698 |
| Vehs Exited | 712 | 703 | 719 | 699 |
| Starting Vehs | 10 | 18 | 11 | 10 |
| Ending Vehs | 10 | 14 | 20 | 10 |
| Travel Distance (km) | 512 | 510 | 532 | 507 |
| Travel Time (hr) | 13.4 | 13.1 | 13.7 | 13.1 |
| Total Delay (hr) | 1.7 | 1.6 | 1.7 | 1.6 |
| Total Stops | 646 | 633 | 658 | 639 |
| Fuel Used (l) | 40.4 | 40.8 | 42.0 | 40.3 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 4:00 |
| End Time | 4:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 676 | 693 | 689 | 691 | 648 | 752 | 696 |
| Vehs Exited | 677 | 693 | 695 | 689 | 646 | 749 | 697 |
| Starting Vehs | 18 | 11 | 11 | 14 | 10 | 10 | 16 |
| Ending Vehs | 17 | 11 | 5 | 16 | 12 | 13 | 15 |
| Travel Distance (km) | 494 | 499 | 500 | 502 | 469 | 546 | 505 |
| Travel Time (hr) | 12.7 | 12.7 | 13.0 | 12.9 | 12.2 | 14.3 | 13.0 |
| Total Delay (hr) | 1.5 | 1.5 | 1.7 | 1.6 | 1.5 | 1.9 | 1.6 |
| Total Stops | 629 | 630 | 644 | 628 | 594 | 691 | 645 |
| Fuel Used (l) | 39.4 | 39.5 | 39.8 | 39.9 | 37.2 | 43.2 | 40.6 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 712 | 699 | 728 | 698 |
| Vehs Exited | 712 | 703 | 719 | 699 |
| Starting Vehs | 10 | 18 | 11 | 10 |
| Ending Vehs | 10 | 14 | 20 | 10 |
| Travel Distance (km) | 512 | 510 | 532 | 507 |
| Travel Time (hr) | 13.4 | 13.1 | 13.7 | 13.1 |
| Total Delay (hr) | 1.7 | 1.6 | 1.7 | 1.6 |
| Total Stops | 646 | 633 | 658 | 639 |
| Fuel Used (l) | 40.4 | 40.8 | 42.0 | 40.3 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | NB | SB |
|-----------------------|-------|-------|------|
| Directions Served | LR | TR | LT |
| Maximum Queue (m) | 9.1 | 2.1 | 10.6 |
| Average Queue (m) | 2.0 | 0.1 | 0.6 |
| 95th Queue (m) | 8.1 | 2.1 | 4.7 |
| Link Distance (m) | 228.9 | 319.7 | 50.7 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 13.2 | 17.0 | 34.8 | 21.8 |
| Average Queue (m) | 3.1 | 5.0 | 15.4 | 8.5 |
| 95th Queue (m) | 8.6 | 12.8 | 27.6 | 15.7 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| Start Time | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 |
| End Time | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 899 | 917 | 906 | 915 | 869 | 940 | 936 |
| Vehs Exited | 905 | 912 | 902 | 923 | 861 | 939 | 929 |
| Starting Vehs | 23 | 14 | 16 | 22 | 20 | 20 | 21 |
| Ending Vehs | 17 | 19 | 20 | 14 | 28 | 21 | 28 |
| Travel Distance (km) | 669 | 683 | 677 | 689 | 646 | 706 | 700 |
| Travel Time (hr) | 17.7 | 18.2 | 17.7 | 18.4 | 17.0 | 18.9 | 18.7 |
| Total Delay (hr) | 3.0 | 3.1 | 2.8 | 3.2 | 2.7 | 3.3 | 3.2 |
| Total Stops | 897 | 913 | 905 | 921 | 874 | 938 | 935 |
| Fuel Used (l) | 55.1 | 55.7 | 54.6 | 56.1 | 52.9 | 56.9 | 56.8 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|-------|-------|-------|-------|
| Start Time | 12:00 | 12:00 | 12:00 | 12:00 |
| End Time | 1:15 | 1:15 | 1:15 | 1:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 916 | 932 | 931 | 918 |
| Vehs Exited | 911 | 938 | 942 | 917 |
| Starting Vehs | 15 | 20 | 20 | 17 |
| Ending Vehs | 20 | 14 | 9 | 16 |
| Travel Distance (km) | 685 | 700 | 702 | 686 |
| Travel Time (hr) | 17.9 | 18.8 | 18.7 | 18.2 |
| Total Delay (hr) | 2.8 | 3.4 | 3.3 | 3.1 |
| Total Stops | 916 | 944 | 941 | 919 |
| Fuel Used (l) | 55.5 | 57.0 | 57.1 | 55.8 |

Interval #0 Information Seeding

| | |
|-------------------------------------|-------|
| Start Time | 12:00 |
| End Time | 12:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|-------|
| Start Time | 12:15 |
| End Time | 1:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 899 | 917 | 906 | 915 | 869 | 940 | 936 |
| Vehs Exited | 905 | 912 | 902 | 923 | 861 | 939 | 929 |
| Starting Vehs | 23 | 14 | 16 | 22 | 20 | 20 | 21 |
| Ending Vehs | 17 | 19 | 20 | 14 | 28 | 21 | 28 |
| Travel Distance (km) | 669 | 683 | 677 | 689 | 646 | 706 | 700 |
| Travel Time (hr) | 17.7 | 18.2 | 17.7 | 18.4 | 17.0 | 18.9 | 18.7 |
| Total Delay (hr) | 3.0 | 3.1 | 2.8 | 3.2 | 2.7 | 3.3 | 3.2 |
| Total Stops | 897 | 913 | 905 | 921 | 874 | 938 | 935 |
| Fuel Used (l) | 55.1 | 55.7 | 54.6 | 56.1 | 52.9 | 56.9 | 56.8 |

Interval #1 Information Recording

| | |
|------------------|-------|
| Start Time | 12:15 |
| End Time | 1:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 916 | 932 | 931 | 918 |
| Vehs Exited | 911 | 938 | 942 | 917 |
| Starting Vehs | 15 | 20 | 20 | 17 |
| Ending Vehs | 20 | 14 | 9 | 16 |
| Travel Distance (km) | 685 | 700 | 702 | 686 |
| Travel Time (hr) | 17.9 | 18.8 | 18.7 | 18.2 |
| Total Delay (hr) | 2.8 | 3.4 | 3.3 | 3.1 |
| Total Stops | 916 | 944 | 941 | 919 |
| Fuel Used (l) | 55.5 | 57.0 | 57.1 | 55.8 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | SB |
|-----------------------|-------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 9.7 | 4.9 |
| Average Queue (m) | 3.6 | 0.2 |
| 95th Queue (m) | 10.7 | 2.7 |
| Link Distance (m) | 228.9 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 14.5 | 19.9 | 45.9 | 34.6 |
| Average Queue (m) | 3.8 | 7.0 | 20.0 | 16.8 |
| 95th Queue (m) | 10.6 | 16.4 | 35.9 | 29.2 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 11 | 1 | 162 | 4 | 0 | 207 |
| Future Volume (Veh/h) | 11 | 1 | 162 | 4 | 0 | 207 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 11 | 1 | 162 | 4 | 0 | 207 |
| 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 | 371 | 164 | | | 166 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 371 | 164 | | | 166 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 100 | | | 100 | |
| cM capacity (veh/h) | 630 | 881 | | | 1412 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 12 | 166 | 207 | | | |
| Volume Left | 11 | 0 | 0 | | | |
| Volume Right | 1 | 4 | 0 | | | |
| cSH | 645 | 1700 | 1412 | | | |
| Volume to Capacity | 0.02 | 0.10 | 0.00 | | | |
| Queue Length 95th (m) | 0.4 | 0.0 | 0.0 | | | |
| Control Delay (s) | 10.7 | 0.0 | 0.0 | | | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 10.7 | 0.0 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 21.5% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
AM Peak

3725 Carp Road
2032 BG Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 163 | 207 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 163 | 207 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 163 | 207 | 0 |
| 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 | 370 | 207 | 207 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 370 | 207 | 207 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 630 | 833 | 1364 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 163 | 207 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1364 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.12 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 14.8% | | | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 1 | 17 | 23 | 73 | 11 | 19 | 25 | 55 | 101 | 32 | 113 | 3 |
| Future Volume (vph) | 1 | 17 | 23 | 73 | 11 | 19 | 25 | 55 | 101 | 32 | 113 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 1 | 17 | 23 | 73 | 11 | 19 | 25 | 55 | 101 | 32 | 113 | 3 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 41 | 103 | 181 | 148 | | | | | | | | |
| Volume Left (vph) | 1 | 73 | 25 | 32 | | | | | | | | |
| Volume Right (vph) | 23 | 19 | 101 | 3 | | | | | | | | |
| Hadj (s) | -0.15 | 0.16 | -0.17 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.6 | 4.9 | 4.3 | 4.5 | | | | | | | | |
| Degree Utilization, x | 0.05 | 0.14 | 0.21 | 0.19 | | | | | | | | |
| Capacity (veh/h) | 707 | 686 | 808 | 753 | | | | | | | | |
| Control Delay (s) | 7.9 | 8.7 | 8.4 | 8.6 | | | | | | | | |
| Approach Delay (s) | 7.9 | 8.7 | 8.4 | 8.6 | | | | | | | | |
| Approach LOS | A | A | A | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 8.5 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 32.7% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 4 | 4 | 320 | 15 | 7 | 222 |
| Future Volume (Veh/h) | 4 | 4 | 320 | 15 | 7 | 222 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 4 | 4 | 320 | 15 | 7 | 222 |
| Pedestrians | | | | | | 1 |
| Lane Width (m) | | | | | | 3.6 |
| Walking Speed (m/s) | | | | | | 1.0 |
| Percent Blockage | | | | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 564 | 328 | | | 335 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 564 | 328 | | | 335 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 99 | 99 | | | 99 | |
| cM capacity (veh/h) | 484 | 712 | | | 1224 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 8 | 335 | 229 | | | |
| Volume Left | 4 | 0 | 7 | | | |
| Volume Right | 4 | 15 | 0 | | | |
| cSH | 577 | 1700 | 1224 | | | |
| Volume to Capacity | 0.01 | 0.20 | 0.01 | | | |
| Queue Length 95th (m) | 0.3 | 0.0 | 0.1 | | | |
| Control Delay (s) | 11.3 | 0.0 | 0.3 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 11.3 | 0.0 | 0.3 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 29.1% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
PM Peak

3725 Carp Road
2028 BG Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|----------------------|------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 325 | 229 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 325 | 229 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 325 | 229 | 0 |
| 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 | 554 | 229 | 229 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 554 | 229 | 229 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 493 | 810 | 1339 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 325 | 229 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1339 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.13 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 21.4% | | ICU Level of Service | A | | |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 13 | 40 | 51 | 58 | 56 | 38 | 66 | 171 | 76 | 26 | 73 | 5 |
| Future Volume (vph) | 13 | 40 | 51 | 58 | 56 | 38 | 66 | 171 | 76 | 26 | 73 | 5 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 13 | 40 | 51 | 58 | 56 | 38 | 66 | 171 | 76 | 26 | 73 | 5 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 104 | 152 | 313 | 104 | | | | | | | | |
| Volume Left (vph) | 13 | 58 | 66 | 26 | | | | | | | | |
| Volume Right (vph) | 51 | 38 | 76 | 5 | | | | | | | | |
| Hadj (s) | -0.24 | -0.04 | -0.07 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.9 | 5.0 | 4.6 | 5.0 | | | | | | | | |
| Degree Utilization, x | 0.14 | 0.21 | 0.40 | 0.15 | | | | | | | | |
| Capacity (veh/h) | 659 | 654 | 742 | 657 | | | | | | | | |
| Control Delay (s) | 8.7 | 9.4 | 10.7 | 8.9 | | | | | | | | |
| Approach Delay (s) | 8.7 | 9.4 | 10.7 | 8.9 | | | | | | | | |
| Approach LOS | A | A | B | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 9.8 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 45.5% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|-----------------------------------|-------------|-------------|-------------|------|----------------------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 9 | 5 | 343 | 5 | 3 | 371 |
| Future Volume (Veh/h) | 9 | 5 | 343 | 5 | 3 | 371 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 9 | 5 | 343 | 5 | 3 | 371 |
| Pedestrians | 1 | | | | | |
| Lane Width (m) | 3.6 | | | | | |
| Walking Speed (m/s) | 1.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 724 | 346 | | | 349 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 724 | 346 | | | 349 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 99 | | | 100 | |
| cM capacity (veh/h) | 391 | 696 | | | 1209 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 14 | 348 | 374 | | | |
| Volume Left | 9 | 0 | 3 | | | |
| Volume Right | 5 | 5 | 0 | | | |
| cSH | 464 | 1700 | 1209 | | | |
| Volume to Capacity | 0.03 | 0.20 | 0.00 | | | |
| Queue Length 95th (m) | 0.7 | 0.0 | 0.1 | | | |
| Control Delay (s) | 13.0 | 0.0 | 0.1 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 13.0 | 0.0 | 0.1 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 33.1% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 349 | 374 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 349 | 374 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 349 | 374 | 0 |
| 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 | 723 | 374 | 374 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 723 | 374 | 374 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 393 | 672 | 1184 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 0 | 349 | 374 | | | |
| Volume Left | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | | | |
| cSH | 1700 | 1184 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.22 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | 0.0 | | | | | |
| Intersection Capacity Utilization | 24.1% | | | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 11 | 32 | 41 | 70 | 45 | 66 | 31 | 271 | 51 | 51 | 269 | 1 |
| Future Volume (vph) | 11 | 32 | 41 | 70 | 45 | 66 | 31 | 271 | 51 | 51 | 269 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 11 | 32 | 41 | 70 | 45 | 66 | 31 | 271 | 51 | 51 | 269 | 1 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 84 | 181 | 353 | 321 | | | | | | | | |
| Volume Left (vph) | 11 | 70 | 31 | 51 | | | | | | | | |
| Volume Right (vph) | 41 | 66 | 51 | 1 | | | | | | | | |
| Hadj (s) | -0.20 | -0.09 | -0.02 | 0.06 | | | | | | | | |
| Departure Headway (s) | 5.8 | 5.7 | 5.2 | 5.3 | | | | | | | | |
| Degree Utilization, x | 0.14 | 0.29 | 0.51 | 0.47 | | | | | | | | |
| Capacity (veh/h) | 513 | 559 | 657 | 646 | | | | | | | | |
| Control Delay (s) | 9.8 | 11.0 | 13.3 | 12.9 | | | | | | | | |
| Approach Delay (s) | 9.8 | 11.0 | 13.3 | 12.9 | | | | | | | | |
| Approach LOS | A | B | B | B | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 12.4 | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | |
| Intersection Capacity Utilization | | | 53.5% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 513 | 481 | 507 | 485 | 483 | 480 | 556 |
| Vehs Exited | 517 | 482 | 503 | 485 | 480 | 479 | 552 |
| Starting Vehs | 15 | 8 | 6 | 12 | 7 | 8 | 6 |
| Ending Vehs | 11 | 7 | 10 | 12 | 10 | 9 | 10 |
| Travel Distance (km) | 387 | 361 | 382 | 362 | 363 | 359 | 417 |
| Travel Time (hr) | 9.8 | 9.2 | 9.7 | 9.2 | 9.3 | 9.1 | 10.8 |
| Total Delay (hr) | 1.0 | 0.9 | 1.0 | 0.9 | 1.0 | 0.9 | 1.1 |
| Total Stops | 511 | 470 | 488 | 470 | 480 | 466 | 542 |
| Fuel Used (l) | 30.6 | 28.5 | 30.0 | 28.6 | 29.0 | 28.5 | 32.7 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 511 | 485 | 503 | 498 |
| Vehs Exited | 513 | 496 | 498 | 501 |
| Starting Vehs | 9 | 16 | 5 | 7 |
| Ending Vehs | 7 | 5 | 10 | 7 |
| Travel Distance (km) | 378 | 364 | 373 | 375 |
| Travel Time (hr) | 9.7 | 9.3 | 9.5 | 9.6 |
| Total Delay (hr) | 1.0 | 0.9 | 1.0 | 1.0 |
| Total Stops | 497 | 477 | 489 | 488 |
| Fuel Used (l) | 30.1 | 29.3 | 29.5 | 29.7 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 6:57 |
| End Time | 7:12 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 513 | 481 | 507 | 485 | 483 | 480 | 556 |
| Vehs Exited | 517 | 482 | 503 | 485 | 480 | 479 | 552 |
| Starting Vehs | 15 | 8 | 6 | 12 | 7 | 8 | 6 |
| Ending Vehs | 11 | 7 | 10 | 12 | 10 | 9 | 10 |
| Travel Distance (km) | 387 | 361 | 382 | 362 | 363 | 359 | 417 |
| Travel Time (hr) | 9.8 | 9.2 | 9.7 | 9.2 | 9.3 | 9.1 | 10.8 |
| Total Delay (hr) | 1.0 | 0.9 | 1.0 | 0.9 | 1.0 | 0.9 | 1.1 |
| Total Stops | 511 | 470 | 488 | 470 | 480 | 466 | 542 |
| Fuel Used (l) | 30.6 | 28.5 | 30.0 | 28.6 | 29.0 | 28.5 | 32.7 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 511 | 485 | 503 | 498 |
| Vehs Exited | 513 | 496 | 498 | 501 |
| Starting Vehs | 9 | 16 | 5 | 7 |
| Ending Vehs | 7 | 5 | 10 | 7 |
| Travel Distance (km) | 378 | 364 | 373 | 375 |
| Travel Time (hr) | 9.7 | 9.3 | 9.5 | 9.6 |
| Total Delay (hr) | 1.0 | 0.9 | 1.0 | 1.0 |
| Total Stops | 497 | 477 | 489 | 488 |
| Fuel Used (l) | 30.1 | 29.3 | 29.5 | 29.7 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB |
|-----------------------|-------|
| Directions Served | LR |
| Maximum Queue (m) | 10.5 |
| Average Queue (m) | 2.9 |
| 95th Queue (m) | 9.9 |
| Link Distance (m) | 228.9 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (m) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 14.6 | 16.9 | 24.0 | 20.1 |
| Average Queue (m) | 2.7 | 4.0 | 11.8 | 9.1 |
| 95th Queue (m) | 8.9 | 12.1 | 20.1 | 15.5 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 727 | 793 | 760 | 744 | 748 | 762 | 754 |
| Vehs Exited | 728 | 786 | 765 | 735 | 742 | 758 | 756 |
| Starting Vehs | 16 | 10 | 22 | 9 | 15 | 12 | 13 |
| Ending Vehs | 15 | 17 | 17 | 18 | 21 | 16 | 11 |
| Travel Distance (km) | 525 | 569 | 533 | 529 | 536 | 545 | 538 |
| Travel Time (hr) | 13.6 | 15.0 | 13.9 | 13.9 | 13.9 | 14.2 | 14.0 |
| Total Delay (hr) | 1.7 | 2.1 | 1.7 | 2.0 | 1.8 | 1.8 | 1.7 |
| Total Stops | 650 | 728 | 670 | 662 | 670 | 685 | 688 |
| Fuel Used (l) | 41.7 | 45.2 | 43.1 | 42.4 | 42.5 | 43.1 | 42.9 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 764 | 698 | 754 | 750 |
| Vehs Exited | 764 | 696 | 753 | 749 |
| Starting Vehs | 13 | 11 | 14 | 11 |
| Ending Vehs | 13 | 13 | 15 | 13 |
| Travel Distance (km) | 552 | 501 | 549 | 538 |
| Travel Time (hr) | 14.5 | 12.9 | 14.2 | 14.0 |
| Total Delay (hr) | 2.0 | 1.7 | 1.8 | 1.8 |
| Total Stops | 699 | 634 | 685 | 677 |
| Fuel Used (l) | 43.6 | 40.3 | 44.0 | 42.9 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 4:00 |
| End Time | 4:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 727 | 793 | 760 | 744 | 748 | 762 | 754 |
| Vehs Exited | 728 | 786 | 765 | 735 | 742 | 758 | 756 |
| Starting Vehs | 16 | 10 | 22 | 9 | 15 | 12 | 13 |
| Ending Vehs | 15 | 17 | 17 | 18 | 21 | 16 | 11 |
| Travel Distance (km) | 525 | 569 | 533 | 529 | 536 | 545 | 538 |
| Travel Time (hr) | 13.6 | 15.0 | 13.9 | 13.9 | 13.9 | 14.2 | 14.0 |
| Total Delay (hr) | 1.7 | 2.1 | 1.7 | 2.0 | 1.8 | 1.8 | 1.7 |
| Total Stops | 650 | 728 | 670 | 662 | 670 | 685 | 688 |
| Fuel Used (l) | 41.7 | 45.2 | 43.1 | 42.4 | 42.5 | 43.1 | 42.9 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 764 | 698 | 754 | 750 |
| Vehs Exited | 764 | 696 | 753 | 749 |
| Starting Vehs | 13 | 11 | 14 | 11 |
| Ending Vehs | 13 | 13 | 15 | 13 |
| Travel Distance (km) | 552 | 501 | 549 | 538 |
| Travel Time (hr) | 14.5 | 12.9 | 14.2 | 14.0 |
| Total Delay (hr) | 2.0 | 1.7 | 1.8 | 1.8 |
| Total Stops | 699 | 634 | 685 | 677 |
| Fuel Used (l) | 43.6 | 40.3 | 44.0 | 42.9 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | SB |
|-----------------------|-------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 9.1 | 8.3 |
| Average Queue (m) | 2.3 | 0.6 |
| 95th Queue (m) | 8.6 | 4.6 |
| Link Distance (m) | 228.9 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 15.6 | 18.3 | 36.2 | 21.2 |
| Average Queue (m) | 4.3 | 5.2 | 16.2 | 8.9 |
| 95th Queue (m) | 11.7 | 13.5 | 27.5 | 16.3 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| Start Time | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 |
| End Time | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 949 | 991 | 936 | 909 | 937 | 964 | 972 |
| Vehs Exited | 941 | 988 | 928 | 910 | 941 | 966 | 984 |
| Starting Vehs | 11 | 16 | 16 | 19 | 27 | 20 | 21 |
| Ending Vehs | 19 | 19 | 24 | 18 | 23 | 18 | 9 |
| Travel Distance (km) | 709 | 747 | 691 | 675 | 704 | 720 | 725 |
| Travel Time (hr) | 19.0 | 20.1 | 18.3 | 17.7 | 18.6 | 19.2 | 19.5 |
| Total Delay (hr) | 3.4 | 3.7 | 3.1 | 3.0 | 3.2 | 3.4 | 3.5 |
| Total Stops | 956 | 992 | 930 | 908 | 937 | 965 | 984 |
| Fuel Used (l) | 57.4 | 61.9 | 56.4 | 54.8 | 57.4 | 58.8 | 59.9 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|-------|-------|-------|-------|
| Start Time | 12:00 | 12:00 | 12:00 | 12:00 |
| End Time | 1:15 | 1:15 | 1:15 | 1:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 964 | 906 | 945 | 949 |
| Vehs Exited | 957 | 908 | 936 | 945 |
| Starting Vehs | 19 | 17 | 15 | 17 |
| Ending Vehs | 26 | 15 | 24 | 21 |
| Travel Distance (km) | 718 | 680 | 699 | 707 |
| Travel Time (hr) | 19.1 | 18.0 | 18.9 | 18.9 |
| Total Delay (hr) | 3.4 | 3.1 | 3.6 | 3.3 |
| Total Stops | 960 | 908 | 943 | 950 |
| Fuel Used (l) | 58.0 | 55.4 | 57.4 | 57.7 |

Interval #0 Information Seeding

| | |
|-------------------------------------|-------|
| Start Time | 12:00 |
| End Time | 12:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|-------|
| Start Time | 12:15 |
| End Time | 1:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 949 | 991 | 936 | 909 | 937 | 964 | 972 |
| Vehs Exited | 941 | 988 | 928 | 910 | 941 | 966 | 984 |
| Starting Vehs | 11 | 16 | 16 | 19 | 27 | 20 | 21 |
| Ending Vehs | 19 | 19 | 24 | 18 | 23 | 18 | 9 |
| Travel Distance (km) | 709 | 747 | 691 | 675 | 704 | 720 | 725 |
| Travel Time (hr) | 19.0 | 20.1 | 18.3 | 17.7 | 18.6 | 19.2 | 19.5 |
| Total Delay (hr) | 3.4 | 3.7 | 3.1 | 3.0 | 3.2 | 3.4 | 3.5 |
| Total Stops | 956 | 992 | 930 | 908 | 937 | 965 | 984 |
| Fuel Used (l) | 57.4 | 61.9 | 56.4 | 54.8 | 57.4 | 58.8 | 59.9 |

Interval #1 Information Recording

| | |
|------------------|-------|
| Start Time | 12:15 |
| End Time | 1:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 964 | 906 | 945 | 949 |
| Vehs Exited | 957 | 908 | 936 | 945 |
| Starting Vehs | 19 | 17 | 15 | 17 |
| Ending Vehs | 26 | 15 | 24 | 21 |
| Travel Distance (km) | 718 | 680 | 699 | 707 |
| Travel Time (hr) | 19.1 | 18.0 | 18.9 | 18.9 |
| Total Delay (hr) | 3.4 | 3.1 | 3.6 | 3.3 |
| Total Stops | 960 | 908 | 943 | 950 |
| Fuel Used (l) | 58.0 | 55.4 | 57.4 | 57.7 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | SB |
|-----------------------|-------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 10.5 | 10.0 |
| Average Queue (m) | 3.3 | 0.4 |
| 95th Queue (m) | 10.4 | 3.9 |
| Link Distance (m) | 228.9 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 6: Carp Road & Site Access

| Movement |
|-----------------------|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 18.1 | 28.7 | 46.6 | 44.7 |
| Average Queue (m) | 4.1 | 8.3 | 19.2 | 18.3 |
| 95th Queue (m) | 11.9 | 20.0 | 34.2 | 33.5 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0

APPENDIX I

Multi-Modal Level of Service Calculations

Segment MMLOS Analysis

This section provides a review of the boundary street (Carp Road), using complete streets principles. The *Multi-Modal Level of Service (MMLOS) Guidelines*, produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation. Schedule B9 of the Official Plan designates the subject site as Village Core.

Exhibit 4 of the MMLOS Guidelines has been used to evaluate the segment pedestrian level of service (PLOS). Exhibit 22 of the MMLOS Guidelines suggest a target PLOS C for all roadways within a Village. The results of the segment PLOS analysis are summarized in **Table 1**.

Exhibit 11 of the MMLOS Guidelines has been used to evaluate the segment bicycle level of service (BLOS). Within a Village, Exhibit 22 of the MMLOS Guidelines suggest a BLOS C for roadways classified as Spine Cycling Routes. The results of the segment BLOS analysis are summarized in **Table 2**.

Exhibit 20 of the MMLOS Guidelines has been used to evaluate the segment truck level of service (TkLOS). Within a Village, Exhibit 22 of the MMLOS Guidelines suggest a TkLOS D for all arterial roadways classified as truck routes. The results of the segment TkLOS analysis are summarized in **Table 3**.

Table 1: PLOS Segment Analysis

| Sidewalk Width | Boulevard Width | Avg. Daily Curb Lane Traffic Volume | Presence of On-Street Parking | Operating Speed ⁽¹⁾ | PLOS |
|---|-----------------|-------------------------------------|-------------------------------|--------------------------------|------|
| Carp Road, east side (asphalt sidewalk) | | | | | |
| ≥ 1.8m | 0m | > 3,000 vpd | No | 60 km/h | F |
| Carp Road, west side (concrete sidewalk) | | | | | |
| ≥ 1.8m | 0m | > 3,000 vpd | No | 60 km/h | F |

1. Operating speed taken as the speed limit plus 10 km/h.

Table 2: BLOS Segment Analysis

| Road Class | Type of Route | Type of Bikeway | Travel Lanes | Operating Speed | BLOS |
|------------------|---------------|-----------------|--------------|-----------------|------|
| Carp Road | | | | | |
| Arterial | Spine Route | Mixed Traffic | 2 | 60 km/h | F |

Table 3: TkLOS Segment Analysis

| Curb Lane Width | Number of Travel Lanes Per Direction | TkLOS |
|------------------|--------------------------------------|-------|
| Carp Road | | |
| >3.7m | 1 | B |

APPENDIX J

Transportation Demand Management Checklist

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: <i>Residential developments</i> | | 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 <input type="checkbox"/> |
| 1.2 Travel surveys | | |
| BETTER | 1.2.1 | Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress <input type="checkbox"/> |
| 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 (<i>multi-family, condominium</i>) <input type="checkbox"/> |
| 2.2 Bicycle skills training | | |
| BETTER | 2.2.1 | Offer on-site cycling courses for residents, or subsidize off-site courses <input type="checkbox"/> |

| TDM measures: <i>Residential developments</i> | | Check if proposed & add descriptions |
|---|--|--------------------------------------|
| 3. TRANSIT | | |
| 3.1 Transit information | | |
| BASIC | 3.1.1 Display relevant transit schedules and route maps at entrances (<i>multi-family, condominium</i>) | <input type="checkbox"/> |
| BETTER | 3.1.2 Provide real-time arrival information display at entrances (<i>multi-family, condominium</i>) | <input type="checkbox"/> |
| 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 | <input type="checkbox"/> |
| BETTER | 3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in | <input type="checkbox"/> |
| 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 (<i>subdivision</i>) | <input type="checkbox"/> |
| 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) | <input type="checkbox"/> |
| 4. CARSHARING & BIKESHARING | | |
| 4.1 Bikeshare stations & memberships | | |
| BETTER | 4.1.1 Contract with provider to install on-site bikeshare station (<i>multi-family</i>) | <input type="checkbox"/> |
| BETTER | 4.1.2 Provide residents with bikeshare memberships, either free or subsidized (<i>multi-family</i>) | <input type="checkbox"/> |
| 4.2 Carshare vehicles & memberships | | |
| BETTER | 4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents | <input type="checkbox"/> |
| BETTER | 4.2.2 Provide residents with carshare memberships, either free or subsidized | <input type="checkbox"/> |
| 5. PARKING | | |
| 5.1 Priced parking | | |
| BASIC ★ | 5.1.1 Unbundle parking cost from purchase price (<i>condominium</i>) | <input type="checkbox"/> |
| BASIC ★ | 5.1.2 Unbundle parking cost from monthly rent (<i>multi-family</i>) | <input type="checkbox"/> |

| TDM measures: <i>Residential developments</i> | | 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 | <input type="checkbox"/> |
| 6.2 Personalized trip planning | | |
| BETTER ★ | 6.2.1 Offer personalized trip planning to new residents | <input type="checkbox"/> |

APPENDIX K

Capacity Analysis Reports (Total)

4: Carp Road & Rivington Street
AM Peak

3725 Carp Road
2027 Total Traffic

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 11 | 1 | 163 | 4 | 0 | 209 |
| Future Volume (Veh/h) | 11 | 1 | 163 | 4 | 0 | 209 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 11 | 1 | 163 | 4 | 0 | 209 |
| 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 | 374 | 165 | | | 167 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 374 | 165 | | | 167 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 100 | | | 100 | |
| cM capacity (veh/h) | 627 | 879 | | | 1411 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 12 | 167 | 209 | | | |
| Volume Left | 11 | 0 | 0 | | | |
| Volume Right | 1 | 4 | 0 | | | |
| cSH | 642 | 1700 | 1411 | | | |
| Volume to Capacity | 0.02 | 0.10 | 0.00 | | | |
| Queue Length 95th (m) | 0.4 | 0.0 | 0.0 | | | |
| Control Delay (s) | 10.7 | 0.0 | 0.0 | | | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 10.7 | 0.0 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 21.6% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
AM Peak

3725 Carp Road
2027 Total Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 12 | 11 | 8 | 156 | 198 | 9 |
| Future Volume (Veh/h) | 12 | 11 | 8 | 156 | 198 | 9 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 12 | 11 | 8 | 156 | 198 | 9 |
| 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 | 374 | 202 | 207 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 374 | 202 | 207 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 99 | 99 | | | |
| cM capacity (veh/h) | 623 | 838 | 1364 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 23 | 164 | 207 | | | |
| Volume Left | 12 | 8 | 0 | | | |
| Volume Right | 11 | 0 | 9 | | | |
| cSH | 710 | 1364 | 1700 | | | |
| Volume to Capacity | 0.03 | 0.01 | 0.12 | | | |
| Queue Length 95th (m) | 0.7 | 0.1 | 0.0 | | | |
| Control Delay (s) | 10.2 | 0.4 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 10.2 | 0.4 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.8 | | | |
| Intersection Capacity Utilization | | | 25.5% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 1 | 17 | 23 | 73 | 10 | 19 | 25 | 58 | 101 | 30 | 113 | 3 |
| Future Volume (vph) | 1 | 17 | 23 | 73 | 10 | 19 | 25 | 58 | 101 | 30 | 113 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 1 | 17 | 23 | 73 | 10 | 19 | 25 | 58 | 101 | 30 | 113 | 3 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 41 | 102 | 184 | 146 | | | | | | | | |
| Volume Left (vph) | 1 | 73 | 25 | 30 | | | | | | | | |
| Volume Right (vph) | 23 | 19 | 101 | 3 | | | | | | | | |
| Hadj (s) | -0.15 | 0.16 | -0.17 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.6 | 4.9 | 4.3 | 4.5 | | | | | | | | |
| Degree Utilization, x | 0.05 | 0.14 | 0.22 | 0.18 | | | | | | | | |
| Capacity (veh/h) | 707 | 685 | 809 | 753 | | | | | | | | |
| Control Delay (s) | 7.9 | 8.6 | 8.4 | 8.6 | | | | | | | | |
| Approach Delay (s) | 7.9 | 8.6 | 8.4 | 8.6 | | | | | | | | |
| Approach LOS | A | A | A | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 8.5 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 33.0% | ICU Level of Service | | | | | | | | A |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 4 | 4 | 322 | 15 | 7 | 226 |
| Future Volume (Veh/h) | 4 | 4 | 322 | 15 | 7 | 226 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 4 | 4 | 322 | 15 | 7 | 226 |
| Pedestrians | | | | | | 1 |
| Lane Width (m) | | | | | | 3.6 |
| Walking Speed (m/s) | | | | | | 1.0 |
| Percent Blockage | | | | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 570 | 330 | | | 337 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 570 | 330 | | | 337 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 99 | 99 | | | 99 | |
| cM capacity (veh/h) | 481 | 710 | | | 1222 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 8 | 337 | 233 | | | |
| Volume Left | 4 | 0 | 7 | | | |
| Volume Right | 4 | 15 | 0 | | | |
| cSH | 573 | 1700 | 1222 | | | |
| Volume to Capacity | 0.01 | 0.20 | 0.01 | | | |
| Queue Length 95th (m) | 0.3 | 0.0 | 0.1 | | | |
| Control Delay (s) | 11.4 | 0.0 | 0.3 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 11.4 | 0.0 | 0.3 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 29.2% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
PM Peak

3725 Carp Road
2027 Total Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 23 | 19 | 21 | 305 | 214 | 23 |
| Future Volume (Veh/h) | 23 | 19 | 21 | 305 | 214 | 23 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 23 | 19 | 21 | 305 | 214 | 23 |
| 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 | 572 | 226 | 237 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 572 | 226 | 237 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 95 | 98 | 98 | | | |
| cM capacity (veh/h) | 474 | 814 | 1330 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 42 | 326 | 237 | | | |
| Volume Left | 23 | 21 | 0 | | | |
| Volume Right | 19 | 0 | 23 | | | |
| cSH | 584 | 1330 | 1700 | | | |
| Volume to Capacity | 0.07 | 0.02 | 0.14 | | | |
| Queue Length 95th (m) | 1.6 | 0.3 | 0.0 | | | |
| Control Delay (s) | 11.6 | 0.6 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 11.6 | 0.6 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.2 | | | |
| Intersection Capacity Utilization | | | 44.9% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

7: Carp Road & Donald B. Munro Drive
PM Peak

3725 Carp Road
2027 Total Traffic

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 12 | 38 | 52 | 61 | 54 | 36 | 65 | 179 | 78 | 25 | 80 | 5 |
| Future Volume (vph) | 12 | 38 | 52 | 61 | 54 | 36 | 65 | 179 | 78 | 25 | 80 | 5 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 12 | 38 | 52 | 61 | 54 | 36 | 65 | 179 | 78 | 25 | 80 | 5 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 102 | 151 | 322 | 110 | | | | | | | | |
| Volume Left (vph) | 12 | 61 | 65 | 25 | | | | | | | | |
| Volume Right (vph) | 52 | 36 | 78 | 5 | | | | | | | | |
| Hadj (s) | -0.25 | -0.03 | -0.07 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.9 | 5.1 | 4.6 | 5.0 | | | | | | | | |
| Degree Utilization, x | 0.14 | 0.21 | 0.41 | 0.15 | | | | | | | | |
| Capacity (veh/h) | 654 | 646 | 742 | 657 | | | | | | | | |
| Control Delay (s) | 8.7 | 9.4 | 10.9 | 9.0 | | | | | | | | |
| Approach Delay (s) | 8.7 | 9.4 | 10.9 | 9.0 | | | | | | | | |
| Approach LOS | A | A | B | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 9.9 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 46.5% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

4: Carp Road & Rivington Street
SAT Peak

3725 Carp Road
2027 Total Traffic

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 9 | 5 | 347 | 5 | 3 | 371 |
| Future Volume (Veh/h) | 9 | 5 | 347 | 5 | 3 | 371 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 9 | 5 | 347 | 5 | 3 | 371 |
| Pedestrians | 1 | | | | | |
| Lane Width (m) | 3.6 | | | | | |
| Walking Speed (m/s) | 1.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 728 | 350 | | | 353 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 728 | 350 | | | 353 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 99 | | | 100 | |
| cM capacity (veh/h) | 389 | 692 | | | 1205 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 14 | 352 | 374 | | | |
| Volume Left | 9 | 0 | 3 | | | |
| Volume Right | 5 | 5 | 0 | | | |
| cSH | 461 | 1700 | 1205 | | | |
| Volume to Capacity | 0.03 | 0.21 | 0.00 | | | |
| Queue Length 95th (m) | 0.7 | 0.0 | 0.1 | | | |
| Control Delay (s) | 13.0 | 0.0 | 0.1 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 13.0 | 0.0 | 0.1 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 33.1% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
SAT Peak

3725 Carp Road
2027 Total Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 27 | 22 | 24 | 328 | 352 | 30 |
| Future Volume (Veh/h) | 27 | 22 | 24 | 328 | 352 | 30 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 27 | 22 | 24 | 328 | 352 | 30 |
| 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 | 743 | 367 | 382 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 743 | 367 | 382 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 97 | 98 | | | |
| cM capacity (veh/h) | 375 | 678 | 1176 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 49 | 352 | 382 | | | |
| Volume Left | 27 | 24 | 0 | | | |
| Volume Right | 22 | 0 | 30 | | | |
| cSH | 469 | 1176 | 1700 | | | |
| Volume to Capacity | 0.10 | 0.02 | 0.22 | | | |
| Queue Length 95th (m) | 2.4 | 0.4 | 0.0 | | | |
| Control Delay (s) | 13.6 | 0.7 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 13.6 | 0.7 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.2 | | | |
| Intersection Capacity Utilization | | | 49.1% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 31 | 43 | 75 | 43 | 63 | 31 | 272 | 56 | 49 | 271 | 1 |
| Future Volume (vph) | 10 | 31 | 43 | 75 | 43 | 63 | 31 | 272 | 56 | 49 | 271 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 10 | 31 | 43 | 75 | 43 | 63 | 31 | 272 | 56 | 49 | 271 | 1 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 84 | 181 | 359 | 321 | | | | | | | | |
| Volume Left (vph) | 10 | 75 | 31 | 49 | | | | | | | | |
| Volume Right (vph) | 43 | 63 | 56 | 1 | | | | | | | | |
| Hadj (s) | -0.22 | -0.08 | -0.03 | 0.06 | | | | | | | | |
| Departure Headway (s) | 5.8 | 5.8 | 5.2 | 5.3 | | | | | | | | |
| Degree Utilization, x | 0.14 | 0.29 | 0.51 | 0.47 | | | | | | | | |
| Capacity (veh/h) | 512 | 556 | 658 | 644 | | | | | | | | |
| Control Delay (s) | 9.8 | 11.1 | 13.5 | 12.9 | | | | | | | | |
| Approach Delay (s) | 9.8 | 11.1 | 13.5 | 12.9 | | | | | | | | |
| Approach LOS | A | B | B | B | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 12.5 | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | |
| Intersection Capacity Utilization | | | 53.1% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 504 | 519 | 503 | 501 | 492 | 513 | 522 |
| Vehs Exited | 508 | 516 | 509 | 501 | 493 | 515 | 519 |
| Starting Vehs | 11 | 8 | 13 | 10 | 12 | 13 | 9 |
| Ending Vehs | 7 | 11 | 7 | 10 | 11 | 11 | 12 |
| Travel Distance (km) | 373 | 381 | 367 | 368 | 358 | 372 | 381 |
| Travel Time (hr) | 9.5 | 9.8 | 9.5 | 9.4 | 9.2 | 9.6 | 9.7 |
| Total Delay (hr) | 1.0 | 1.0 | 1.1 | 1.0 | 1.0 | 1.1 | 1.1 |
| Total Stops | 507 | 519 | 511 | 493 | 494 | 512 | 512 |
| Fuel Used (l) | 29.4 | 30.4 | 29.7 | 29.8 | 28.6 | 29.8 | 30.6 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 517 | 496 | 479 | 504 |
| Vehs Exited | 512 | 494 | 479 | 504 |
| Starting Vehs | 7 | 5 | 7 | 8 |
| Ending Vehs | 12 | 7 | 7 | 7 |
| Travel Distance (km) | 378 | 363 | 353 | 369 |
| Travel Time (hr) | 9.6 | 9.3 | 9.0 | 9.5 |
| Total Delay (hr) | 1.0 | 1.0 | 0.9 | 1.0 |
| Total Stops | 507 | 493 | 475 | 502 |
| Fuel Used (l) | 30.8 | 28.9 | 28.2 | 29.6 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 6:57 |
| End Time | 7:12 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 504 | 519 | 503 | 501 | 492 | 513 | 522 |
| Vehs Exited | 508 | 516 | 509 | 501 | 493 | 515 | 519 |
| Starting Vehs | 11 | 8 | 13 | 10 | 12 | 13 | 9 |
| Ending Vehs | 7 | 11 | 7 | 10 | 11 | 11 | 12 |
| Travel Distance (km) | 373 | 381 | 367 | 368 | 358 | 372 | 381 |
| Travel Time (hr) | 9.5 | 9.8 | 9.5 | 9.4 | 9.2 | 9.6 | 9.7 |
| Total Delay (hr) | 1.0 | 1.0 | 1.1 | 1.0 | 1.0 | 1.1 | 1.1 |
| Total Stops | 507 | 519 | 511 | 493 | 494 | 512 | 512 |
| Fuel Used (l) | 29.4 | 30.4 | 29.7 | 29.8 | 28.6 | 29.8 | 30.6 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 517 | 496 | 479 | 504 |
| Vehs Exited | 512 | 494 | 479 | 504 |
| Starting Vehs | 7 | 5 | 7 | 8 |
| Ending Vehs | 12 | 7 | 7 | 7 |
| Travel Distance (km) | 378 | 363 | 353 | 369 |
| Travel Time (hr) | 9.6 | 9.3 | 9.0 | 9.5 |
| Total Delay (hr) | 1.0 | 1.0 | 0.9 | 1.0 |
| Total Stops | 507 | 493 | 475 | 502 |
| Fuel Used (l) | 30.8 | 28.9 | 28.2 | 29.6 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB |
|-----------------------|-------|
| Directions Served | LR |
| Maximum Queue (m) | 9.1 |
| Average Queue (m) | 2.7 |
| 95th Queue (m) | 9.5 |
| Link Distance (m) | 228.9 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (m) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 6: Carp Road & Site Access

| Movement | EB | NB |
|-----------------------|------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 11.8 | 10.6 |
| Average Queue (m) | 4.9 | 0.7 |
| 95th Queue (m) | 12.4 | 5.3 |
| Link Distance (m) | 76.1 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 13.0 | 19.5 | 25.6 | 17.4 |
| Average Queue (m) | 2.2 | 4.3 | 11.7 | 8.8 |
| 95th Queue (m) | 7.5 | 12.9 | 20.5 | 14.6 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 769 | 793 | 840 | 789 | 814 | 807 | 853 |
| Vehs Exited | 768 | 799 | 839 | 788 | 805 | 810 | 846 |
| Starting Vehs | 14 | 18 | 21 | 14 | 17 | 12 | 9 |
| Ending Vehs | 15 | 12 | 22 | 15 | 26 | 9 | 16 |
| Travel Distance (km) | 535 | 557 | 576 | 549 | 567 | 566 | 591 |
| Travel Time (hr) | 14.0 | 14.6 | 15.5 | 14.6 | 14.9 | 14.9 | 15.8 |
| Total Delay (hr) | 1.7 | 2.0 | 2.2 | 2.0 | 1.9 | 2.0 | 2.3 |
| Total Stops | 703 | 745 | 778 | 737 | 750 | 749 | 804 |
| Fuel Used (l) | 43.4 | 45.1 | 47.7 | 44.9 | 45.6 | 46.5 | 48.2 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 765 | 764 | 784 | 800 |
| Vehs Exited | 761 | 764 | 780 | 797 |
| Starting Vehs | 14 | 13 | 11 | 11 |
| Ending Vehs | 18 | 13 | 15 | 14 |
| Travel Distance (km) | 532 | 537 | 553 | 556 |
| Travel Time (hr) | 13.9 | 14.0 | 14.6 | 14.7 |
| Total Delay (hr) | 1.8 | 1.9 | 2.0 | 2.0 |
| Total Stops | 714 | 711 | 745 | 744 |
| Fuel Used (l) | 42.9 | 43.8 | 45.0 | 45.3 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 4:00 |
| End Time | 4:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 769 | 793 | 840 | 789 | 814 | 807 | 853 |
| Vehs Exited | 768 | 799 | 839 | 788 | 805 | 810 | 846 |
| Starting Vehs | 14 | 18 | 21 | 14 | 17 | 12 | 9 |
| Ending Vehs | 15 | 12 | 22 | 15 | 26 | 9 | 16 |
| Travel Distance (km) | 535 | 557 | 576 | 549 | 567 | 566 | 591 |
| Travel Time (hr) | 14.0 | 14.6 | 15.5 | 14.6 | 14.9 | 14.9 | 15.8 |
| Total Delay (hr) | 1.7 | 2.0 | 2.2 | 2.0 | 1.9 | 2.0 | 2.3 |
| Total Stops | 703 | 745 | 778 | 737 | 750 | 749 | 804 |
| Fuel Used (l) | 43.4 | 45.1 | 47.7 | 44.9 | 45.6 | 46.5 | 48.2 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 765 | 764 | 784 | 800 |
| Vehs Exited | 761 | 764 | 780 | 797 |
| Starting Vehs | 14 | 13 | 11 | 11 |
| Ending Vehs | 18 | 13 | 15 | 14 |
| Travel Distance (km) | 532 | 537 | 553 | 556 |
| Travel Time (hr) | 13.9 | 14.0 | 14.6 | 14.7 |
| Total Delay (hr) | 1.8 | 1.9 | 2.0 | 2.0 |
| Total Stops | 714 | 711 | 745 | 744 |
| Fuel Used (l) | 42.9 | 43.8 | 45.0 | 45.3 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | NB | SB |
|-----------------------|-------|-------|------|
| Directions Served | LR | TR | LT |
| Maximum Queue (m) | 9.7 | 0.8 | 14.1 |
| Average Queue (m) | 1.9 | 0.0 | 1.3 |
| 95th Queue (m) | 7.9 | 0.8 | 7.6 |
| Link Distance (m) | 228.9 | 319.7 | 50.7 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

Intersection: 6: Carp Road & Site Access

| Movement | EB | NB |
|-----------------------|------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 11.4 | 17.8 |
| Average Queue (m) | 6.8 | 2.1 |
| 95th Queue (m) | 13.3 | 10.0 |
| Link Distance (m) | 76.1 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 16.0 | 19.3 | 33.7 | 22.8 |
| Average Queue (m) | 4.1 | 5.5 | 16.4 | 9.4 |
| 95th Queue (m) | 11.0 | 13.8 | 27.7 | 17.3 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| Start Time | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 | 12:00 |
| End Time | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 | 1:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1040 | 988 | 995 | 999 | 969 | 996 | 1051 |
| Vehs Exited | 1024 | 980 | 992 | 992 | 976 | 991 | 1047 |
| Starting Vehs | 11 | 14 | 20 | 16 | 24 | 15 | 20 |
| Ending Vehs | 27 | 22 | 23 | 23 | 17 | 20 | 24 |
| Travel Distance (km) | 749 | 714 | 711 | 723 | 697 | 710 | 759 |
| Travel Time (hr) | 20.4 | 19.1 | 19.3 | 19.6 | 18.9 | 19.8 | 20.9 |
| Total Delay (hr) | 3.8 | 3.4 | 3.5 | 3.5 | 3.4 | 4.0 | 4.0 |
| Total Stops | 1059 | 1008 | 1023 | 1019 | 989 | 1015 | 1068 |
| Fuel Used (l) | 62.3 | 59.1 | 59.9 | 60.3 | 58.0 | 59.9 | 63.5 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|-------|-------|-------|-------|
| Start Time | 12:00 | 12:00 | 12:00 | 12:00 |
| End Time | 1:15 | 1:15 | 1:15 | 1:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 1026 | 998 | 1065 | 1014 |
| Vehs Exited | 1018 | 989 | 1062 | 1007 |
| Starting Vehs | 18 | 18 | 19 | 16 |
| Ending Vehs | 26 | 27 | 22 | 21 |
| Travel Distance (km) | 730 | 715 | 768 | 728 |
| Travel Time (hr) | 20.2 | 19.2 | 21.3 | 19.9 |
| Total Delay (hr) | 3.9 | 3.4 | 4.2 | 3.7 |
| Total Stops | 1060 | 1014 | 1090 | 1036 |
| Fuel Used (l) | 61.5 | 59.8 | 63.9 | 60.8 |

Interval #0 Information Seeding

| | |
|-------------------------------------|-------|
| Start Time | 12:00 |
| End Time | 12:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|-------|
| Start Time | 12:15 |
| End Time | 1:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 1040 | 988 | 995 | 999 | 969 | 996 | 1051 |
| Vehs Exited | 1024 | 980 | 992 | 992 | 976 | 991 | 1047 |
| Starting Vehs | 11 | 14 | 20 | 16 | 24 | 15 | 20 |
| Ending Vehs | 27 | 22 | 23 | 23 | 17 | 20 | 24 |
| Travel Distance (km) | 749 | 714 | 711 | 723 | 697 | 710 | 759 |
| Travel Time (hr) | 20.4 | 19.1 | 19.3 | 19.6 | 18.9 | 19.8 | 20.9 |
| Total Delay (hr) | 3.8 | 3.4 | 3.5 | 3.5 | 3.4 | 4.0 | 4.0 |
| Total Stops | 1059 | 1008 | 1023 | 1019 | 989 | 1015 | 1068 |
| Fuel Used (l) | 62.3 | 59.1 | 59.9 | 60.3 | 58.0 | 59.9 | 63.5 |

Interval #1 Information Recording

| | |
|------------------|-------|
| Start Time | 12:15 |
| End Time | 1:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 1026 | 998 | 1065 | 1014 |
| Vehs Exited | 1018 | 989 | 1062 | 1007 |
| Starting Vehs | 18 | 18 | 19 | 16 |
| Ending Vehs | 26 | 27 | 22 | 21 |
| Travel Distance (km) | 730 | 715 | 768 | 728 |
| Travel Time (hr) | 20.2 | 19.2 | 21.3 | 19.9 |
| Total Delay (hr) | 3.9 | 3.4 | 4.2 | 3.7 |
| Total Stops | 1060 | 1014 | 1090 | 1036 |
| Fuel Used (l) | 61.5 | 59.8 | 63.9 | 60.8 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | NB | SB |
|-----------------------|-------|-------|------|
| Directions Served | LR | TR | LT |
| Maximum Queue (m) | 9.8 | 0.9 | 7.7 |
| Average Queue (m) | 3.3 | 0.0 | 0.3 |
| 95th Queue (m) | 10.4 | 0.8 | 3.6 |
| Link Distance (m) | 228.9 | 319.7 | 50.7 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

Intersection: 6: Carp Road & Site Access

| Movement | EB | NB |
|-----------------------|------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 17.9 | 21.1 |
| Average Queue (m) | 8.1 | 3.0 |
| 95th Queue (m) | 15.3 | 12.7 |
| Link Distance (m) | 76.1 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 16.5 | 21.8 | 48.3 | 44.4 |
| Average Queue (m) | 4.3 | 7.8 | 21.0 | 19.1 |
| 95th Queue (m) | 11.6 | 17.6 | 37.2 | 34.1 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0

4: Carp Road & Rivington Street
AM Peak

3725 Carp Road
2032 Total Traffic

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 11 | 1 | 170 | 4 | 0 | 218 |
| Future Volume (Veh/h) | 11 | 1 | 170 | 4 | 0 | 218 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 11 | 1 | 170 | 4 | 0 | 218 |
| 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 | 390 | 172 | | | 174 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 390 | 172 | | | 174 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 100 | | | 100 | |
| cM capacity (veh/h) | 614 | 872 | | | 1403 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 12 | 174 | 218 | | | |
| Volume Left | 11 | 0 | 0 | | | |
| Volume Right | 1 | 4 | 0 | | | |
| cSH | 629 | 1700 | 1403 | | | |
| Volume to Capacity | 0.02 | 0.10 | 0.00 | | | |
| Queue Length 95th (m) | 0.4 | 0.0 | 0.0 | | | |
| Control Delay (s) | 10.8 | 0.0 | 0.0 | | | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 10.8 | 0.0 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 22.1% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
AM Peak

3725 Carp Road
2032 Total Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 12 | 11 | 8 | 163 | 207 | 9 |
| Future Volume (Veh/h) | 12 | 11 | 8 | 163 | 207 | 9 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 12 | 11 | 8 | 163 | 207 | 9 |
| 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 | 390 | 212 | 216 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 390 | 212 | 216 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 99 | 99 | | | |
| cM capacity (veh/h) | 610 | 829 | 1354 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 23 | 171 | 216 | | | |
| Volume Left | 12 | 8 | 0 | | | |
| Volume Right | 11 | 0 | 9 | | | |
| cSH | 698 | 1354 | 1700 | | | |
| Volume to Capacity | 0.03 | 0.01 | 0.13 | | | |
| Queue Length 95th (m) | 0.7 | 0.1 | 0.0 | | | |
| Control Delay (s) | 10.3 | 0.4 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 10.3 | 0.4 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.7 | | | |
| Intersection Capacity Utilization | | | 25.9% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 1 | 17 | 24 | 76 | 11 | 19 | 26 | 61 | 106 | 32 | 118 | 3 |
| Future Volume (vph) | 1 | 17 | 24 | 76 | 11 | 19 | 26 | 61 | 106 | 32 | 118 | 3 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 1 | 17 | 24 | 76 | 11 | 19 | 26 | 61 | 106 | 32 | 118 | 3 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 42 | 106 | 193 | 153 | | | | | | | | |
| Volume Left (vph) | 1 | 76 | 26 | 32 | | | | | | | | |
| Volume Right (vph) | 24 | 19 | 106 | 3 | | | | | | | | |
| Hadj (s) | -0.15 | 0.17 | -0.17 | 0.08 | | | | | | | | |
| Departure Headway (s) | 4.7 | 4.9 | 4.3 | 4.6 | | | | | | | | |
| Degree Utilization, x | 0.05 | 0.14 | 0.23 | 0.19 | | | | | | | | |
| Capacity (veh/h) | 698 | 678 | 803 | 748 | | | | | | | | |
| Control Delay (s) | 8.0 | 8.7 | 8.6 | 8.7 | | | | | | | | |
| Approach Delay (s) | 8.0 | 8.7 | 8.6 | 8.7 | | | | | | | | |
| Approach LOS | A | A | A | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 8.6 | | | | | | | | | |
| Level of Service | | | A | | | | | | | | | |
| Intersection Capacity Utilization | | | 33.7% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

4: Carp Road & Rivington Street
PM Peak

3725 Carp Road
2032 Total Traffic

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 4 | 4 | 336 | 15 | 7 | 236 |
| Future Volume (Veh/h) | 4 | 4 | 336 | 15 | 7 | 236 |
| Sign Control | Stop | | Free | | Free | |
| Grade | 0% | | 0% | | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 4 | 4 | 336 | 15 | 7 | 236 |
| Pedestrians | | | | | | 1 |
| Lane Width (m) | | | | | | 3.6 |
| Walking Speed (m/s) | | | | | | 1.0 |
| Percent Blockage | | | | | | 0 |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 594 | 344 | | | 351 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 594 | 344 | | | 351 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 99 | 99 | | | 99 | |
| cM capacity (veh/h) | 465 | 698 | | | 1208 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 8 | 351 | 243 | | | |
| Volume Left | 4 | 0 | 7 | | | |
| Volume Right | 4 | 15 | 0 | | | |
| cSH | 558 | 1700 | 1208 | | | |
| Volume to Capacity | 0.01 | 0.21 | 0.01 | | | |
| Queue Length 95th (m) | 0.3 | 0.0 | 0.1 | | | |
| Control Delay (s) | 11.5 | 0.0 | 0.3 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 11.5 | 0.0 | 0.3 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 30.0% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
PM Peak

3725 Carp Road
2032 Total Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 23 | 19 | 21 | 320 | 224 | 23 |
| Future Volume (Veh/h) | 23 | 19 | 21 | 320 | 224 | 23 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 23 | 19 | 21 | 320 | 224 | 23 |
| 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 | 598 | 236 | 247 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 598 | 236 | 247 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 95 | 98 | 98 | | | |
| cM capacity (veh/h) | 458 | 804 | 1319 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 42 | 341 | 247 | | | |
| Volume Left | 23 | 21 | 0 | | | |
| Volume Right | 19 | 0 | 23 | | | |
| cSH | 569 | 1319 | 1700 | | | |
| Volume to Capacity | 0.07 | 0.02 | 0.15 | | | |
| Queue Length 95th (m) | 1.7 | 0.3 | 0.0 | | | |
| Control Delay (s) | 11.8 | 0.6 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 11.8 | 0.6 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.1 | | | |
| Intersection Capacity Utilization | | | 46.0% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 13 | 40 | 54 | 63 | 56 | 38 | 68 | 188 | 81 | 26 | 83 | 5 |
| Future Volume (vph) | 13 | 40 | 54 | 63 | 56 | 38 | 68 | 188 | 81 | 26 | 83 | 5 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 13 | 40 | 54 | 63 | 56 | 38 | 68 | 188 | 81 | 26 | 83 | 5 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 107 | 157 | 337 | 114 | | | | | | | | |
| Volume Left (vph) | 13 | 63 | 68 | 26 | | | | | | | | |
| Volume Right (vph) | 54 | 38 | 81 | 5 | | | | | | | | |
| Hadj (s) | -0.24 | -0.03 | -0.07 | 0.08 | | | | | | | | |
| Departure Headway (s) | 5.0 | 5.1 | 4.7 | 5.1 | | | | | | | | |
| Degree Utilization, x | 0.15 | 0.22 | 0.44 | 0.16 | | | | | | | | |
| Capacity (veh/h) | 642 | 637 | 735 | 647 | | | | | | | | |
| Control Delay (s) | 8.9 | 9.6 | 11.3 | 9.1 | | | | | | | | |
| Approach Delay (s) | 8.9 | 9.6 | 11.3 | 9.1 | | | | | | | | |
| Approach LOS | A | A | B | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 10.2 | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | |
| Intersection Capacity Utilization | | | 47.9% | ICU Level of Service | A | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

4: Carp Road & Rivington Street
SAT Peak

3725 Carp Road
2032 Total Traffic

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Volume (veh/h) | 9 | 5 | 362 | 5 | 3 | 388 |
| Future Volume (Veh/h) | 9 | 5 | 362 | 5 | 3 | 388 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 9 | 5 | 362 | 5 | 3 | 388 |
| Pedestrians | 1 | | | | | |
| Lane Width (m) | 3.6 | | | | | |
| Walking Speed (m/s) | 1.0 | | | | | |
| Percent Blockage | 0 | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 760 | 366 | | | 368 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 760 | 366 | | | 368 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 98 | 99 | | | 100 | |
| cM capacity (veh/h) | 373 | 679 | | | 1189 | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | |
| Volume Total | 14 | 367 | 391 | | | |
| Volume Left | 9 | 0 | 3 | | | |
| Volume Right | 5 | 5 | 0 | | | |
| cSH | 444 | 1700 | 1189 | | | |
| Volume to Capacity | 0.03 | 0.22 | 0.00 | | | |
| Queue Length 95th (m) | 0.7 | 0.0 | 0.1 | | | |
| Control Delay (s) | 13.4 | 0.0 | 0.1 | | | |
| Lane LOS | B | | A | | | |
| Approach Delay (s) | 13.4 | 0.0 | 0.1 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 34.1% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

6: Carp Road & Site Access
SAT Peak

3725 Carp Road
2032 Total Traffic



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|------|-------|------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 27 | 22 | 24 | 344 | 369 | 30 |
| Future Volume (Veh/h) | 27 | 22 | 24 | 344 | 369 | 30 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 27 | 22 | 24 | 344 | 369 | 30 |
| 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 | 776 | 384 | 399 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 776 | 384 | 399 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 92 | 97 | 98 | | | |
| cM capacity (veh/h) | 358 | 664 | 1160 | | | |
| Direction, Lane # | | | | | | |
| | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 49 | 368 | 399 | | | |
| Volume Left | 27 | 24 | 0 | | | |
| Volume Right | 22 | 0 | 30 | | | |
| cSH | 452 | 1160 | 1700 | | | |
| Volume to Capacity | 0.11 | 0.02 | 0.23 | | | |
| Queue Length 95th (m) | 2.5 | 0.4 | 0.0 | | | |
| Control Delay (s) | 13.9 | 0.7 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 13.9 | 0.7 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.2 | | | |
| Intersection Capacity Utilization | | 49.9% | | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 11 | 32 | 44 | 78 | 45 | 66 | 33 | 284 | 58 | 51 | 283 | 1 |
| Future Volume (vph) | 11 | 32 | 44 | 78 | 45 | 66 | 33 | 284 | 58 | 51 | 283 | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 11 | 32 | 44 | 78 | 45 | 66 | 33 | 284 | 58 | 51 | 283 | 1 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 87 | 189 | 375 | 335 | | | | | | | | |
| Volume Left (vph) | 11 | 78 | 33 | 51 | | | | | | | | |
| Volume Right (vph) | 44 | 66 | 58 | 1 | | | | | | | | |
| Hadj (s) | -0.21 | -0.08 | -0.03 | 0.06 | | | | | | | | |
| Departure Headway (s) | 6.0 | 5.9 | 5.2 | 5.4 | | | | | | | | |
| Degree Utilization, x | 0.14 | 0.31 | 0.55 | 0.50 | | | | | | | | |
| Capacity (veh/h) | 497 | 544 | 649 | 634 | | | | | | | | |
| Control Delay (s) | 10.0 | 11.5 | 14.4 | 13.7 | | | | | | | | |
| Approach Delay (s) | 10.0 | 11.5 | 14.4 | 13.7 | | | | | | | | |
| Approach LOS | B | B | B | B | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 13.2 | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | |
| Intersection Capacity Utilization | | | 54.6% | ICU Level of Service | | | | | | | | A |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 483 | 540 | 526 | 520 | 489 | 543 | 525 |
| Vehs Exited | 482 | 537 | 532 | 520 | 492 | 546 | 522 |
| Starting Vehs | 7 | 8 | 13 | 6 | 14 | 11 | 9 |
| Ending Vehs | 8 | 11 | 7 | 6 | 11 | 8 | 12 |
| Travel Distance (km) | 358 | 393 | 385 | 385 | 359 | 397 | 383 |
| Travel Time (hr) | 9.1 | 10.1 | 10.0 | 9.8 | 9.2 | 10.2 | 9.9 |
| Total Delay (hr) | 0.9 | 1.1 | 1.1 | 1.0 | 1.0 | 1.1 | 1.0 |
| Total Stops | 482 | 540 | 526 | 512 | 487 | 541 | 526 |
| Fuel Used (l) | 28.4 | 31.7 | 31.0 | 31.1 | 28.6 | 31.8 | 30.9 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 537 | 489 | 496 | 516 |
| Vehs Exited | 534 | 494 | 496 | 516 |
| Starting Vehs | 7 | 11 | 7 | 7 |
| Ending Vehs | 10 | 6 | 7 | 5 |
| Travel Distance (km) | 395 | 360 | 368 | 378 |
| Travel Time (hr) | 10.1 | 9.2 | 9.5 | 9.7 |
| Total Delay (hr) | 1.1 | 1.0 | 1.0 | 1.0 |
| Total Stops | 533 | 493 | 499 | 515 |
| Fuel Used (l) | 31.7 | 28.9 | 29.5 | 30.4 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 6:57 |
| End Time | 7:12 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 483 | 540 | 526 | 520 | 489 | 543 | 525 |
| Vehs Exited | 482 | 537 | 532 | 520 | 492 | 546 | 522 |
| Starting Vehs | 7 | 8 | 13 | 6 | 14 | 11 | 9 |
| Ending Vehs | 8 | 11 | 7 | 6 | 11 | 8 | 12 |
| Travel Distance (km) | 358 | 393 | 385 | 385 | 359 | 397 | 383 |
| Travel Time (hr) | 9.1 | 10.1 | 10.0 | 9.8 | 9.2 | 10.2 | 9.9 |
| Total Delay (hr) | 0.9 | 1.1 | 1.1 | 1.0 | 1.0 | 1.1 | 1.0 |
| Total Stops | 482 | 540 | 526 | 512 | 487 | 541 | 526 |
| Fuel Used (l) | 28.4 | 31.7 | 31.0 | 31.1 | 28.6 | 31.8 | 30.9 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 537 | 489 | 496 | 516 |
| Vehs Exited | 534 | 494 | 496 | 516 |
| Starting Vehs | 7 | 11 | 7 | 7 |
| Ending Vehs | 10 | 6 | 7 | 5 |
| Travel Distance (km) | 395 | 360 | 368 | 378 |
| Travel Time (hr) | 10.1 | 9.2 | 9.5 | 9.7 |
| Total Delay (hr) | 1.1 | 1.0 | 1.0 | 1.0 |
| Total Stops | 533 | 493 | 499 | 515 |
| Fuel Used (l) | 31.7 | 28.9 | 29.5 | 30.4 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB |
|-----------------------|-------|
| Directions Served | LR |
| Maximum Queue (m) | 9.1 |
| Average Queue (m) | 2.7 |
| 95th Queue (m) | 9.3 |
| Link Distance (m) | 228.9 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (m) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

Intersection: 6: Carp Road & Site Access

| Movement | EB | NB |
|-----------------------|------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 10.2 | 9.8 |
| Average Queue (m) | 4.9 | 0.5 |
| 95th Queue (m) | 12.0 | 4.7 |
| Link Distance (m) | 76.1 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 11.7 | 17.6 | 27.0 | 20.5 |
| Average Queue (m) | 2.2 | 4.0 | 12.1 | 9.3 |
| 95th Queue (m) | 7.1 | 11.8 | 21.1 | 16.1 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 823 | 825 | 813 | 821 | 801 | 852 | 848 |
| Vehs Exited | 826 | 825 | 812 | 825 | 803 | 851 | 848 |
| Starting Vehs | 22 | 10 | 16 | 17 | 16 | 13 | 14 |
| Ending Vehs | 19 | 10 | 17 | 13 | 14 | 14 | 14 |
| Travel Distance (km) | 572 | 581 | 561 | 572 | 556 | 598 | 591 |
| Travel Time (hr) | 15.2 | 15.4 | 14.8 | 15.0 | 14.8 | 15.9 | 15.5 |
| Total Delay (hr) | 2.1 | 2.1 | 2.1 | 1.9 | 2.2 | 2.3 | 2.1 |
| Total Stops | 785 | 780 | 763 | 775 | 746 | 792 | 786 |
| Fuel Used (l) | 46.3 | 47.2 | 46.1 | 46.5 | 45.1 | 48.2 | 48.2 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 4:00 | 4:00 | 4:00 | 4:00 |
| End Time | 5:15 | 5:15 | 5:15 | 5:15 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 798 | 805 | 884 | 827 |
| Vehs Exited | 804 | 812 | 874 | 828 |
| Starting Vehs | 17 | 18 | 10 | 14 |
| Ending Vehs | 11 | 11 | 20 | 12 |
| Travel Distance (km) | 561 | 565 | 624 | 578 |
| Travel Time (hr) | 14.8 | 15.0 | 16.5 | 15.3 |
| Total Delay (hr) | 2.1 | 2.1 | 2.4 | 2.1 |
| Total Stops | 749 | 760 | 822 | 777 |
| Fuel Used (l) | 45.7 | 46.0 | 50.5 | 47.0 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 4:00 |
| End Time | 4:15 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 823 | 825 | 813 | 821 | 801 | 852 | 848 |
| Vehs Exited | 826 | 825 | 812 | 825 | 803 | 851 | 848 |
| Starting Vehs | 22 | 10 | 16 | 17 | 16 | 13 | 14 |
| Ending Vehs | 19 | 10 | 17 | 13 | 14 | 14 | 14 |
| Travel Distance (km) | 572 | 581 | 561 | 572 | 556 | 598 | 591 |
| Travel Time (hr) | 15.2 | 15.4 | 14.8 | 15.0 | 14.8 | 15.9 | 15.5 |
| Total Delay (hr) | 2.1 | 2.1 | 2.1 | 1.9 | 2.2 | 2.3 | 2.1 |
| Total Stops | 785 | 780 | 763 | 775 | 746 | 792 | 786 |
| Fuel Used (l) | 46.3 | 47.2 | 46.1 | 46.5 | 45.1 | 48.2 | 48.2 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 4:15 |
| End Time | 5:15 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 798 | 805 | 884 | 827 |
| Vehs Exited | 804 | 812 | 874 | 828 |
| Starting Vehs | 17 | 18 | 10 | 14 |
| Ending Vehs | 11 | 11 | 20 | 12 |
| Travel Distance (km) | 561 | 565 | 624 | 578 |
| Travel Time (hr) | 14.8 | 15.0 | 16.5 | 15.3 |
| Total Delay (hr) | 2.1 | 2.1 | 2.4 | 2.1 |
| Total Stops | 749 | 760 | 822 | 777 |
| Fuel Used (l) | 45.7 | 46.0 | 50.5 | 47.0 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | NB | SB |
|-----------------------|-------|-------|------|
| Directions Served | LR | TR | LT |
| Maximum Queue (m) | 9.7 | 1.8 | 8.0 |
| Average Queue (m) | 2.3 | 0.1 | 0.6 |
| 95th Queue (m) | 8.6 | 1.3 | 4.6 |
| Link Distance (m) | 228.9 | 319.7 | 50.7 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

Intersection: 6: Carp Road & Site Access

| Movement | EB | NB |
|-----------------------|------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 16.6 | 16.5 |
| Average Queue (m) | 7.3 | 1.6 |
| 95th Queue (m) | 14.1 | 9.0 |
| Link Distance (m) | 76.1 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 14.9 | 16.8 | 35.2 | 22.5 |
| Average Queue (m) | 4.1 | 5.2 | 16.9 | 9.4 |
| 95th Queue (m) | 10.8 | 13.1 | 27.8 | 17.2 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------|------|------|------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1008 | 1069 | 1027 | 966 | 1048 | 1072 | 1074 |
| Vehs Exited | 1005 | 1069 | 1025 | 965 | 1044 | 1070 | 1073 |
| Starting Vehs | 20 | 20 | 16 | 23 | 13 | 15 | 18 |
| Ending Vehs | 23 | 20 | 18 | 24 | 17 | 17 | 19 |
| Travel Distance (km) | 722 | 775 | 743 | 700 | 758 | 778 | 763 |
| Travel Time (hr) | 19.7 | 21.8 | 20.1 | 18.9 | 20.9 | 21.1 | 21.3 |
| Total Delay (hr) | 3.7 | 4.7 | 3.7 | 3.3 | 4.0 | 3.9 | 4.4 |
| Total Stops | 1029 | 1094 | 1032 | 988 | 1056 | 1102 | 1104 |
| Fuel Used (l) | 60.1 | 64.9 | 62.0 | 58.0 | 63.5 | 64.9 | 64.7 |

Summary of All Intervals

| Run Number | 8 | 9 | 10 | Avg |
|-------------------------|------|------|------|------|
| Start Time | 6:57 | 6:57 | 6:57 | 6:57 |
| End Time | 8:12 | 8:12 | 8:12 | 8:12 |
| Total Time (min) | 75 | 75 | 75 | 75 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 1053 | 1006 | 1042 | 1036 |
| Vehs Exited | 1058 | 995 | 1033 | 1034 |
| Starting Vehs | 28 | 11 | 16 | 14 |
| Ending Vehs | 23 | 22 | 25 | 20 |
| Travel Distance (km) | 767 | 725 | 746 | 748 |
| Travel Time (hr) | 21.7 | 19.5 | 20.1 | 20.5 |
| Total Delay (hr) | 4.7 | 3.5 | 3.6 | 4.0 |
| Total Stops | 1073 | 1004 | 1047 | 1053 |
| Fuel Used (l) | 64.7 | 60.4 | 61.8 | 62.5 |

Interval #0 Information Seeding

| | |
|-------------------------------------|------|
| Start Time | 6:57 |
| End Time | 7:12 |
| Total Time (min) | 15 |
| Volumes adjusted by Growth Factors. | |
| No data recorded this interval. | |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|------|------|------|------|------|------|------|
| Vehs Entered | 1008 | 1069 | 1027 | 966 | 1048 | 1072 | 1074 |
| Vehs Exited | 1005 | 1069 | 1025 | 965 | 1044 | 1070 | 1073 |
| Starting Vehs | 20 | 20 | 16 | 23 | 13 | 15 | 18 |
| Ending Vehs | 23 | 20 | 18 | 24 | 17 | 17 | 19 |
| Travel Distance (km) | 722 | 775 | 743 | 700 | 758 | 778 | 763 |
| Travel Time (hr) | 19.7 | 21.8 | 20.1 | 18.9 | 20.9 | 21.1 | 21.3 |
| Total Delay (hr) | 3.7 | 4.7 | 3.7 | 3.3 | 4.0 | 3.9 | 4.4 |
| Total Stops | 1029 | 1094 | 1032 | 988 | 1056 | 1102 | 1104 |
| Fuel Used (l) | 60.1 | 64.9 | 62.0 | 58.0 | 63.5 | 64.9 | 64.7 |

Interval #1 Information Recording

| | |
|------------------|------|
| Start Time | 7:12 |
| End Time | 8:12 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 8 | 9 | 10 | Avg |
|----------------------|------|------|------|------|
| Vehs Entered | 1053 | 1006 | 1042 | 1036 |
| Vehs Exited | 1058 | 995 | 1033 | 1034 |
| Starting Vehs | 28 | 11 | 16 | 14 |
| Ending Vehs | 23 | 22 | 25 | 20 |
| Travel Distance (km) | 767 | 725 | 746 | 748 |
| Travel Time (hr) | 21.7 | 19.5 | 20.1 | 20.5 |
| Total Delay (hr) | 4.7 | 3.5 | 3.6 | 4.0 |
| Total Stops | 1073 | 1004 | 1047 | 1053 |
| Fuel Used (l) | 64.7 | 60.4 | 61.8 | 62.5 |

Intersection: 4: Carp Road & Rivington Street

| Movement | WB | SB |
|-----------------------|-------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 11.0 | 2.4 |
| Average Queue (m) | 3.1 | 0.1 |
| 95th Queue (m) | 10.2 | 2.2 |
| Link Distance (m) | 228.9 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 6: Carp Road & Site Access

| Movement | EB | NB |
|-----------------------|------|------|
| Directions Served | LR | LT |
| Maximum Queue (m) | 17.9 | 19.0 |
| Average Queue (m) | 7.7 | 2.8 |
| 95th Queue (m) | 15.5 | 11.7 |
| Link Distance (m) | 76.1 | 50.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Intersection: 7: Carp Road & Donald B. Munro Drive

| Movement | EB | WB | NB | SB |
|-----------------------|-------|-------|-------|-------|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 19.2 | 25.0 | 51.5 | 45.9 |
| Average Queue (m) | 4.4 | 8.0 | 21.8 | 20.1 |
| 95th Queue (m) | 12.8 | 18.6 | 40.3 | 35.7 |
| Link Distance (m) | 196.5 | 333.3 | 136.7 | 210.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

Network Summary

| |
|---------------------------------|
| Network wide Queuing Penalty: 0 |
|---------------------------------|

APPENDIX L

MTO Left Turn Lane Warrants

2032 Total Traffic

Exhibit 9A-7

