Proposed Plan of Subdivision
3160 Carp Road
Transportation Impact Assessment Strategy Report

Prepared For:

T&L Carroll Holdings

Prepared By:

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Consulting Engineers

Project No. 24105

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1.0 PROPOSED DEVELOPMENT

Robinson Consultants Inc (RCI) has been retained by T&L Carroll Holdings Limited to prepare a Transportation Impact Assessment (TIA) to support a plan of subdivision application for a proposed industrial development at the property municipally known as 3160 Carp Road in Ottawa, Ontario. The existing site is vacant and is located predominately around and behind three separate properties fronting onto Carp Road (OR 5). The proposed subdivision will subdivide the lot into fourteen industrial blocks ranging between 0.96 and 3.83 Ha. Twelve of the fourteen blocks will be developed; the remaining two blocks will include a stormwater management (Block 4) and a road allowance for a future connection to the east (Block 5). The subdivision will include an internal circulation road that provides two connections to Carp Road. The subject site location and surrounding road context is illustrated in Figure 1 and the draft plan of subdivision is included as Appendix A.

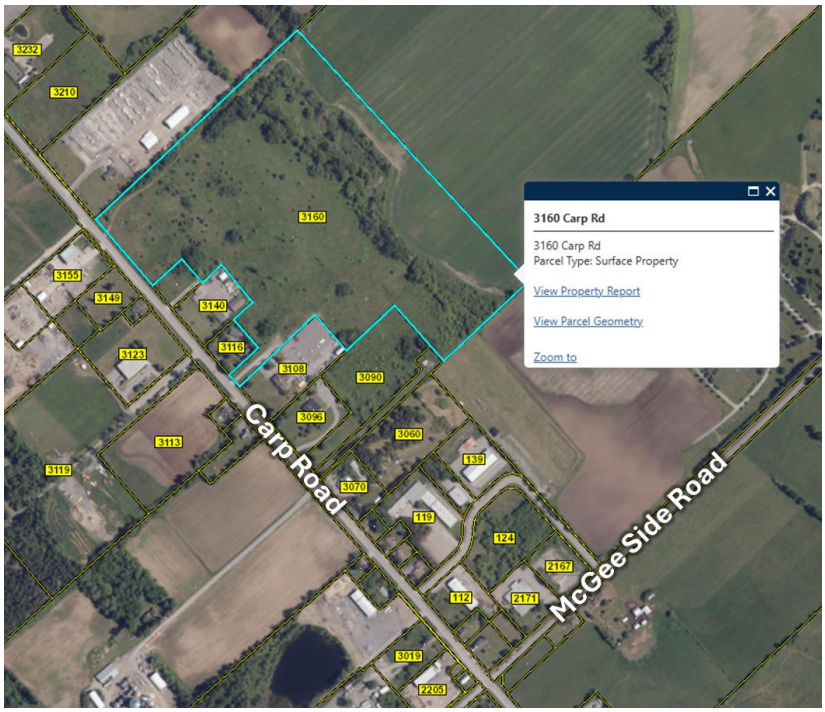

Figure 1: Site Location

The existing zoning designations for 3160 Carp Road are for Rural Commercial – Carp Road Corridor. As per the RC9 zone, light industrial, office and research and development centre are permitted uses.

2.0 TIA SCREENING

Per the City of Ottawa's 2017 TIA Guidelines and 2023 update, TIA Screening has been undertaken for the proposed site concept; the screening evaluation is summarized in the Tables below.

Table 1: Description of Proposed Development

Municipal Address	3160 Carp Road
Description of Location	Existing vacant site on east side of Carp Road between McGee Side Road and March Road; site surrounds 3116, 3140 and 3146 Carp Road.
Planning Application Type(s)	Plan of Subdivision
Land Use Classification	RC9
Development Size (units)	Estimated 12 development blocks, each lot to have buildings with 1,115 m^2 GFA, split between 185-280 m^2 office and 835-930 m^2 light industrial
Development Size (m^2)	
Lot Area (m^2)	230,309.33m^2 (23.03 Ha)
Number of Accesses and Locations	Two accesses proposed to Carp Road, north of 3146 Carp Road and between 3108 and 3116 Carp Road
Phases of Development	Subject to acquisition and site plan for each lot.
Buildout Year	Access road to be constructed 2026, lots sold for development over next 1-3 years.

Table 2: Trip Generation Trigger

Land Use Type	Minimum Development Size	Proposed Development Size
Single-Family Homes	60 units	-
Multi-use Family (Low-Rise)	90 units	-
Multi-Use Family (High-Rise)	150 units	-
Office	1,400 m^2	185-280 m^2 x 12 blocks
Industrial	7,000 m^2	835-930 m^2 x 12 blocks
Fast-food restaurant or coffee shop	110 m^2	-
Destination Retail	1,800 m^2	-
Gas Station or convenience market	90 m^2	-

Per the May 2023 updates to the City of Ottawa TIA Guidelines, a development will meet the trip generation trigger if the development generates 60 or more person trips. Specific building sizes will be subject to site acquisition and development; preliminary projections suggest each block can accommodate approximately 1,115 m^2 of GFA, split between office and light industrial use. Under this assumption, the trip generation trigger will be met.

Table 3: Location Triggers

Location Trigger	Trigger Met
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 Cross-Town Bikeway Network?	No
Is the development in an Urban or Village Design Priority Area or Protected Major Transit Station Area?	No

The location trigger is not met based on the location of the site.

Table 4: Safety Triggers

Safety Trigger	Trigger Met
Are posted speed limits on a boundary street are 80 km/hr or greater?	Yes, Carp Road 80 km/h
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No
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)?	No
Is the proposed driveway within auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	No
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No
Does the development include a drive-thru facility?	No

Based on a review of the site location, the safety trigger is met.

Table 5: TIA Screening Summary

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

Based on a review of the proposed site plan and site location, the proposed development is expected to meet the trip generation and safety triggers for a TIA.

3.0 EXISTING CONDITIONS

3.1 Existing Road Network

The study area for this traffic study includes the following roads:

Carp Road (Ottawa Road 5) is a City of Ottawa arterial road that travels on a north-south alignment from Stittsville Main Street to the village of Fitzroy Harbour, where it continues north as Harbour Street. Throughout the study area, Carp Road has a posted speed limit of 80km/h and is configured with one lane in each direction. The road has a dashed painted centreline allowing passing throughout the study area. Carp Road is designated as a truck route and follows a rural cross-section with asphalt pavement and paved shoulders of varying width, consistent with its designation as part of the paved shoulder network within the Rural Active Transportation Network. The paved shoulders are bounded by drainage ditches. No pedestrian facilities are present along the corridor. The road is bounded by mostly agricultural and industrial uses. The existing and protected right-of-way (ROW) for Carp Road within the study area is 30 metres, as per Schedule C16 of the City of Ottawa Official Plan.

The study area for this traffic study includes the following intersections:

Carp Road (OR 5) / McGee Side Road is a rural side approach stop-controlled intersection with stop-control on McGee Side Road and free movement for Carp Road (OR 5). All approaches consist of a single lane in each direction with no auxiliary lanes.

Figure 2: Carp and McGee Intersection

Carp Road (OR 5) / March Road (OR 49) is a signalized intersection. The Carp Road approaches have one through lane in each direction with approximately 140m and 130m long left turn lanes in the NB and SB directions respectively. The March Road approaches have one through lane in each direction with approximately 115m and 150m long left turn lanes in the WB and EB directions respectively. All approaches to the intersection have painted bike lanes, but all end just before the intersection and do not continue through the intersection.

Figure 3: Carp and March Intersection

3.2 Existing Traffic Volumes

Traffic volumes for intersections within the Study Area have been obtained as a basis for operational analysis. Table 6 summarizes the provided traffic volumes used for this study; the provided traffic counts are included as Appendix B.

Table 6: Provided Traffic Data

Intersection	Count Date	Count Source
Carp (OR 5) / McGee	April 9, 2019	City of Ottawa
Carp (OR 5) / March (OR 49)	March 20, 2018	City of Ottawa

The COVID-19 pandemic extended from 2020 to approximately 2022 and resulted in widespread closures of businesses which in turn resulted in extensive reductions in traffic volumes. Since in-person operations have commenced, traffic volumes have returned to approximately pre-pandemic levels. As a result, the 2019 traffic volumes have been used as the basis for existing traffic without additional growth or adjustments applied. The resulting baseline traffic volumes in the study area are summarized in Figure 4.

3.3 Existing Transit

While the OC Transpo rural shopping route 303 follows Carp Road through the study area, there are no bus stops between the village of Carp and the Carp Road Park and Ride at Highway 417.

3.4 Existing Active Transportation Network

There are currently no sidewalks or dedicated bicycle lanes within the study area. Carp Road is designated as part of the paved shoulder network within the Rural Active Transportation Network of the 2023 Transportation Master Plan (Part 1), supporting cycling connectivity along the corridor.

3.5 Existing Driveways

Nearby accesses to Carp Road from adjacent properties include:

William Mooney Road is a private Road that intersects with Carp Road approximately 150m north of the proposed subdivision access. William Mooney Road is paved for approximately 200m west of Carp Road before becoming a gravel surface and provides access to an existing aggregate pit located at 1200 Diamondview Road.

REL Controls Inc. (3096 Carp Road) is a small office building that provides building control products for large commercial buildings. Their driveway is located approximately 170 metres south of the proposed development's south entrance.

Shouldice Mechanical (3108 Carp Rd) is a commercial HVAC contractor. Their driveway provides access to a small office building, a truck yard, and a small quarry/landfill area. this access

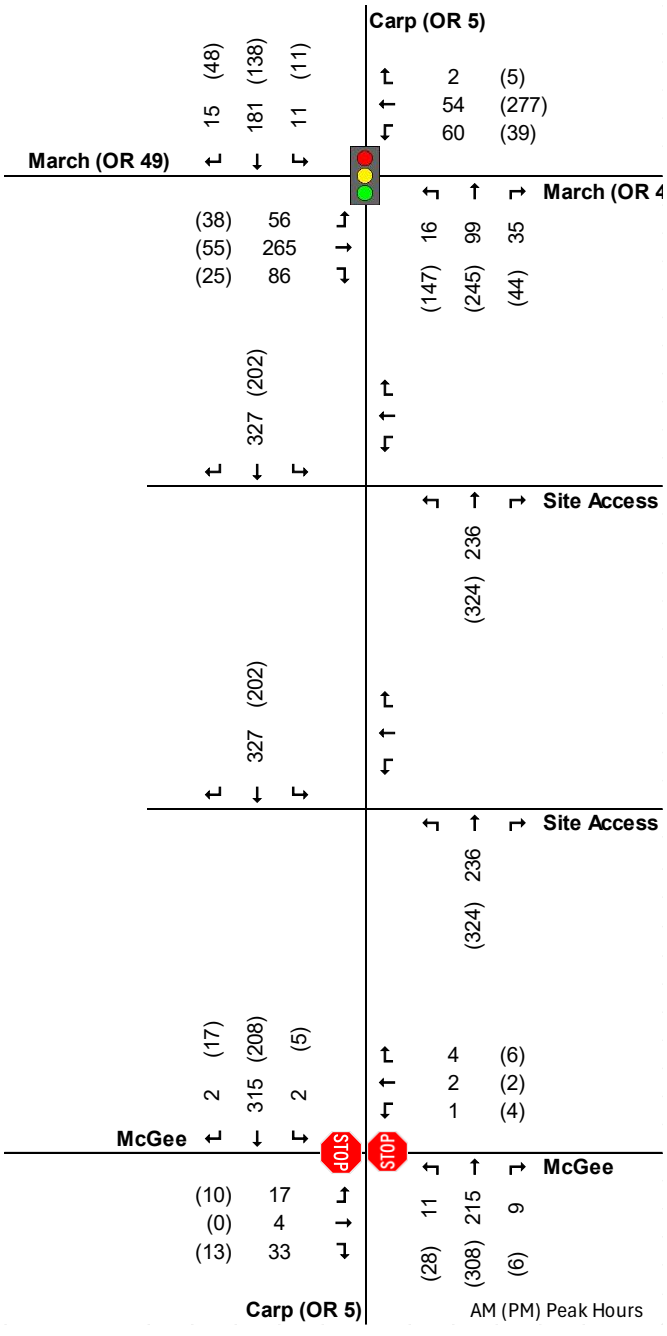

Figure 4: Existing Traffic Volumes

point falls within the 3160 Carp Road property; this will become the south access to Carp Road in the proposed plan of subdivision and will continue to provide access to the adjacent property at 3108 Carp Road.

West Ottawa Community Church (3123 Carp Road) is a church that hosts a variety of events, including mass, prayer groups, and other community gatherings. The driveway is on the west side of Carp Road, directly across from the proposed development. This access is shared with the County Canines Dog Park at 3119 Carp Road and Carp Lake Escape Campground at 3117 Carp Road, both located behind the 3123 Carp Road property.

Lor-Issa Construction (3140 Carp Road) is a construction firm specializing in large commercial and residential window repair and installation. Their driveway provides access to a small office building and storage yard; the access is located on the property known as 3146 Carp Road but provides access to the buildings at 3140 Carp Road. This access will be located approximately 60m south of the north access on the proposed plan of subdivision.

Thunderbolt Contracting Ltd. (3155 Carp Road) is a large construction firm; their driveway provides access to an office building and a large storage area for trucks, heavy equipment, and fill. The entrance is situated across from the proposed development approximately 55m south of William Mooney Road.

The Huntley Presbyterian Cemetery (3149 Carp Road) is an existing cemetery located immediately across Carp Road from the north access on the proposed plan of subdivision. The cemetery includes two accesses to Carp Road, both of which are gated.

Manderley Turf Products / KOTT Landscaping (3186 Carp Road) is a large landscaping supply depot on the east side of Carp Road immediately north of the 3160 Carp Road site. The site access is located approximately 55m north of William Mooney Road.

There are also 3 single-family residential homes located across from the proposed development at 3099, 3107 and 3145 Carp Road, all with individual driveway access to Carp Road.

Figure 5: 3160 Carp Road - Nearby Accesses (GeoOttawa)

4.0 HISTORICAL COLLISION REVIEW

Historical collision data from 2017 to 2022 for the study area was provided by the City of Ottawa. The provided data included 33 recorded collisions:

Table 7: Historical Collision Data

Location	Number
Carp (OR 5) / March (OR 49) Intersection	17
Carp (OR 5) / McGee Intersection	4
Carp (OR 5) between John Cavanaugh & McGee	1
Carp (OR 5) between John Cavanaugh & Russ Bradley	6
Carp (OR 5) between March (OR 49) & Russ Bradley	4
Carp (OR 5) / John Cavanaugh	1

27 (82%) of the recorded collisions were property damage only and the remaining 6 (18%) were non-fatal injuries. Key trends from this data include the following:

Carp Road (OR 5):

- Two rear-end collisions involving northbound vehicles at March Road (OR 49)
- Six collisions involving vehicles running red lights and another vehicle at March Road (OR 49)
- Three non-fatal injuries caused by two-vehicle angle collisions at March Road (OR 49)
- Four collisions at McGee Side Road in wet conditions, two of which involved left turning northbound vehicles.
- Four rear-end collisions and three collisions involving vehicles overtaking left-turning vehicles (one of which resulted in a non-fatal injury) between McGee Side Road and Russ Bradley Road.
- A non-fatal injury caused by a two-vehicle collision between a northbound and a southbound vehicle between John Cavanaugh Drive and Russ Bradley Road.
- Four single-vehicle collisions (one of which resulted in a non-fatal injury) between March Road and Russ Bradley Road, all of which occurred in dry conditions. One involved a wild animal, while the others involved vehicles driving off the road.

5.0 PLANNED CONDITIONS

5.1 Planning Policy

The Carp Road Corridor Community Design Plan (CDP) was adopted in June 2004 by the City of Ottawa is a guide for the long-term growth and development of the Carp Road Corridor from Rothbourne Road to March Road, to the south of the Village of Carp, emphasizing this corridor's role as a rural employment area. From a transportation perspective, the CDP notes the importance of the Carp Road Corridor as a connection between the local development to Highway 417 and the Carp Airport. The CDP projects future capacity constraints on Carp Road in the vicinity of the interchange with Highway 417 and indicates a requirement of a wider 37.5m right of way for the southern segment to accommodate future expansion. The CDP indicates that additional road improvements will be identified by Transportation Impact Studies as part of development review.

The current Ottawa Transportation Master Plan (TMP) was adopted in 2013 as a guide for the expansion and improvements to the City of Ottawa road and transportation network; at the time of this report, an update to the 2013 plan is currently being developed. The 2013 TMP included the widening of Carp Road to the south of Highway 417 as a Phase 2 project and this project has now entered the planning and design phase; the TMP network does not include any planned modifications to Carp Road north of Highway 417.

5.2 Changes to the Study Area Transportation Network

Carp Road Widening – Carp Road from Hazelden Road to Highway 417 is proposed to be widened from 2 lanes to 4 lanes. The project has just completed the tender for design and is now being reviewed by engineering consultants. A functional design was created by Parsons in April 2016. This functional design concept includes an additional lane in each direction, as well as a multi-use pathway (MUP) on both sides of the road. The total segment is 1.8 km long. This project is expected to be tendered for construction in spring 2026. This road reconstruction is not expected to have any impacts on traffic for the proposed development.

Figure 6: Carp Road Widening Location

5.3 Other Study Area Developments

Several other land developments have been proposed around the site of 3160 Carp Road. These include the following:

273 & 275 Russ Bradley is a proposal submitted by Macintosh Perry (now Egis) for the construction of twelve (12) self storage warehouse buildings, with a total of 423 individual storage units in all the buildings. There is no current TIA study or TIA screening completed for this project.

2167 McGee Side Road is a proposed 1,853 square foot industrial warehouse to be located just east of the intersection of Carp Road and McGee Side Road. A TIA screening was completed by CGH Transportation in June 2023. The screening criteria were not met, therefore no TIA was required for this development.

3119 Carp Road is listed on Ottawa Devapps as a pending application for a plan of subdivision or for a rural commercial/industrial development that is approximately 300,000 ft^2 and includes a total of 12 blocks. There are 2 different applications for this address, one for a plan of subdivision and another for a plan of condominium. A transportation brief was conducted for this development by Delcan (now Parsons) in January 2014; the development file was last updated on DevApps in July 2020 and is listed as still pending.

Figure 7 illustrates the locations of the study area developments. Overall, the traffic generated by the Russ Bradley and McGee Side Road developments is expected to have a minimal impact on Carp Road. Given the age of the 3119 Carp Road development application, this development will not be considered as part of future background traffic as the status of its implementation is unclear and will likely need an updated development application including updated TIA in order to proceed further.

Figure 7: Other Study Area Developments

6.0 DEVELOPMENT GENERATED TRAVEL DEMAND

6.1 Trip Generation and Mode Share

Trip generation for the proposed development at 3160 Carp Road has been estimated to account for trips generated from both industrial and office use. The proposed plan of subdivision shows a total of 12 development blocks that will all connect to an internal U-shaped access road with both ends connecting to Carp Road. A road allowance will connect between the access road and the east edge of the site for future access to the east. The development blocks are expected to be occupied by a combination of office space (185-280 m^2 per block) and light industrial (835-930 m^2 per block). For the purposes of trip generation estimation, an average of 232.5 m^2 of office GFA and 882.5 m^2 of light industrial space per block have been assumed, for a total of 2,790 m^2 of office and 10,590 m^2 of light industrial GFA across all 12 blocks of the proposed subdivision.

Trip generation calculations for the proposed development are based on trip generation rates from the ITE Trip Generation 11th Edition and supplementary information from the 2020 TRANS Trip Generation Manual Summary Report (WSP). Rates for General Office Buildings (ITE Land Use Code 710) have been used for the office GFA and rates for Industrial Park (ITE Land Use Code 130) have been used for the light industrial GFA proposed. Per Table 1 of the TRANS Trip Generation Manual, an additional person-trip conversion factor of 1.28 has been applied to account for all modes of travel, including service vehicles and commercial trucks. The calculation of AM and PM peak period person trip generation for the proposed development is summarized in Table 8.

Table 8: Peak Hour Person Trip Generation

Unit Type	ITE Land Use Code	GFA (sq.m)	GFA (1000 sq.ft)	Trip Generation Rate (per 1000 sq.ft)	Person-Trip Conversion Factor	Person Trips
AM Peak Period						
General Office Building	710	2,790	3.00	ln(t)=0.86ln(x)+1.29	1.28	**76**
Industrial Park	130	10,590	113.99	0.41	1.28	**60**
Total		13,380				**136**
PM Peak Period						
General Office Building	710	2,790	3.00	ln(t)=0.83ln(x)+1.29	1.28	**78**
Industrial Park	130	10,590	113.99	0.40	1.28	**58**
Total		13,380				**137**

The proposed unit counts are projected to create a total of 136 person trips during the AM and 137 person trips for the PM peak hours, respectively. Directional splits from ITE Trip Generation 11th Edition for each land use category have been used to separate the peak hour trip generation into inbound and outbound trips; the directional split is summarized in Table 9.

Table 9: Peak Hour Trip Generation Directional Split

Unit Type	ITE Land Use Code	Total Trips	% Inbound	% Outbound	Trips Inbound	Trips Outbound
AM Peak Period						
General Office Building	710	76	88%	12%	67	9
Industrial Park	130	60	87%	13%	52	8
Total		**136**			**119**	**17**
PM Peak Period						
General Office Building	710	78	17%	83%	13	65
Industrial Park	130	58	21%	79%	12	46
Total		**137**			**26**	**111**

Baseline assumptions for non-residential trip mode shares are provided in Table 12 of the TRANS trip generation manual based on the results of the most recent TRANS O-D survey. Mode shares for the rural areas, including the West Rural area where this development will be located are distributed as 85% Auto Driver, 5% Auto Passenger, 9% Transit and 2% active modes.

For this site it is noted that there is no existing transit serving this location and no additional transit proposed as part of the City of Ottawa's New Ways to Bus plan. As a result, it is anticipated that the 9% transit mode share will be an excessive assumption for this area. Recognizing there is no existing or planned transit service here, transit mode share will conservatively be assumed to be zero and proportionately redistributed to the auto driver and auto passenger modes. The modified mode share assumptions and resulting in and outbound trips by mode are summarized in Table 10.

Table 10: TRANS Trip Generation (2020) Non-Residential Mode Shares (Other Rural Districts)

Travel Mode	AM Peak Hour Mode Share	AM Peak Hour Trips In	AM Peak Hour Trips Out	PM Peak Hour Mode Share	PM Peak Hour Trips In	PM Peak Hour Trips Out
Auto Driver	93%	111	16	93%	24	103
Auto Passenger	5%	6	1	5%	1	6
Transit	0%	0	0	0%	0	0

Travel Mode	AM Peak Hour Mode Share	AM Peak Hour Trips In	AM Peak Hour Trips Out	PM Peak Hour Mode Share	PM Peak Hour Trips In	PM Peak Hour Trips Out
Cycling	1%	1	0	1%	0	1
Walking	1%	1	0	1%	0	1

The proposed development is anticipated to create approximately up to 127 new auto driver trips during each of the weekday AM and PM peak hours, respectively.

6.2 Trip Distribution and Assignment

The proposed site of 3160 Carp Rd is located within the TRANS Rural West District, the TRANS model for the Rural West District is included as Appendix C. The OD survey data summarized in Table 11 provides an overview of the AM peak hour trip distribution from the TRANS survey results to and from the Rural West District.

Table 11: TRANS Travel Survey Trip Generation

Origin/Destination	Outbound Trips	Inbound Trips	% Outbound Trips	% Inbound Trips
Urban Ottawa	750	2,222	12%	22%
East Ottawa	0	0	0%	0%
South Ottawa / Nepean	120	110	2%	1%
Rural West (within the district)	4,020	4,020	66%	40%
Kanata / Stittsville and Rural Southwest	1,130	3,410	19%	34%
Quebec	80	220	1%	2%

The TRANS travel survey results indicate that approximately 60% of AM peak hour inbound trips to and 34% of outbound trips from the Rural West district are between destinations within Urban Ottawa or Kanata / Stittsville to the south; predominately via Carp Road and Highway 417 to the south. The remaining 66% of inbound and 40% of outbound trips originate from within the Rural West District and may be more evenly distributed, especially considering the second access to Highway 417 at March Road to the west that may serve trips within the district.

The distribution of site-generated traffic from the proposed subdivision has been estimated based on the TRANS survey distribution of AM inbound traffic to the district, as it is anticipated this reflects commuter behaviour to the Rural West District that will be attracted by the proposed subdivision's industrial employment use. Site generated trips have been distributed with the following proportions:

- 60% of site generated trips to and from Urban Ottawa, Kanata and Stittsville via Carp Road and Highway 417 to the south.
- 20% of site generated trips to and from within the Rural West District via Carp Road to the south; distributed to turning movements at the McGee Side Road intersection based on existing traffic patterns.
- 20% of site generated trips to and from within the Rural West District via Carp Road to the north; distributed to turning movements at the March Road intersection based on existing traffic patterns.

As the development parcels are roughly evenly distributed between the two accesses to Carp Road, site-generated traffic has been evenly distributed between the two accesses. The resulting site-generated trips are illustrated in Figure 8.

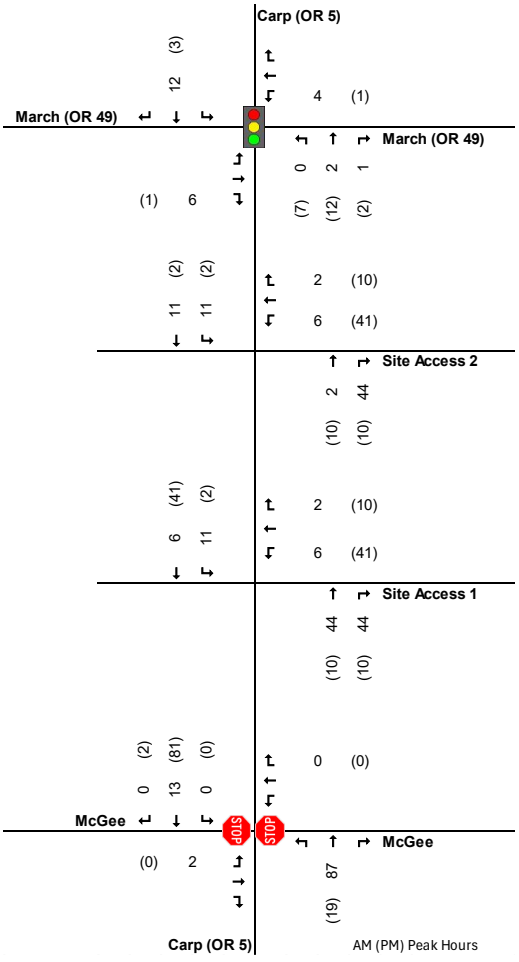

Figure 8: Site Generated Trips

6.3 Background Growth and Study Horizons

Volume projections from the TRANS Model have been provided by the City of Ottawa, the 2022 and 2046 projected volumes and associated growth rates are summarized in Table 12; the provided model plots are included as Appendix D.

Table 12: 2022 Baseline and 2046 Projected TRANS Model Volumes, Carp Road

Segment / Direction	2022 TRANS Volume	2046 TRANS Volume	Annual Growth Rate
Carp Road N of McGee Side Road NB	111	146	1.1%
Carp Road S of March Road NB	244	337	1.4%
Carp Road S of March Road SB	330	344	0.2%
Carp Road N of McGee Side Road SB	360	483	1.2%
TOTAL	1045	1310	0.9%

The TRANS model projections indicate annual growth rates ranging between 0.2% and 1.4% per year for each segment and direction of traffic on Carp Road in the TRANS model network, and an overall growth rate of 0.9% per year on all segments combined.

Based on the TRANS model growth rates, an annual growth rate of 1.0% has been selected to forecast future traffic volumes. As noted previously, the provided traffic counts from 2018-2019 have been treated as equivalent to existing (2023) traffic volumes as a result of the fluctuations of traffic during the COVID-19 pandemic and the 1% annual growth has only been applied forward from a 2023 base year.

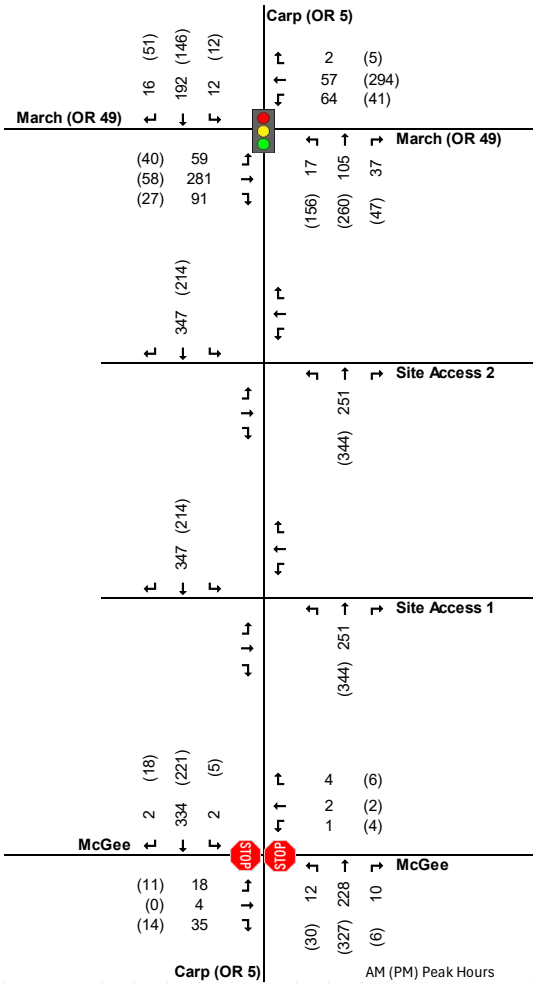

Figure 9: 2029 Background Volumes

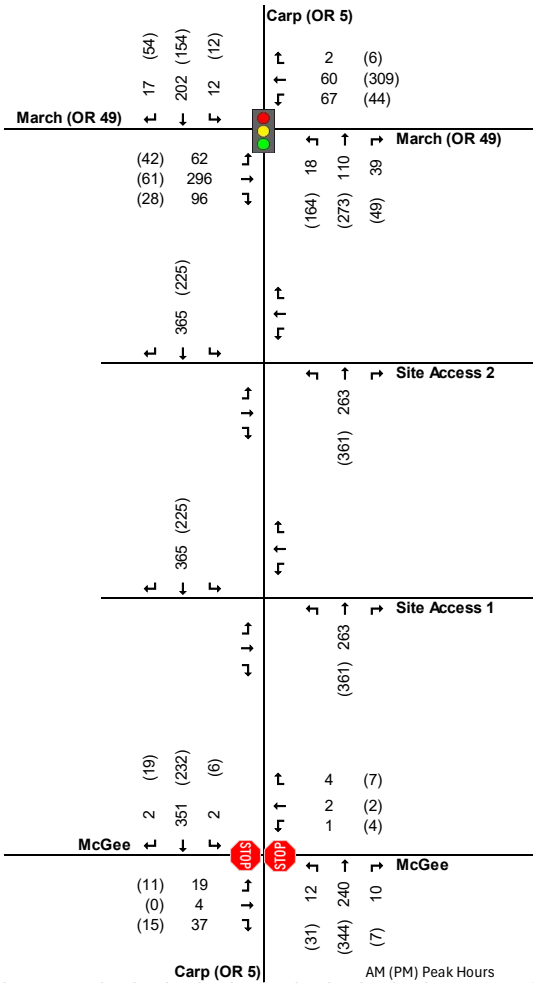

Figure 10: 2034 Background Volumes

Traffic analysis in this TIA has been based on an opening year scenario anticipating full occupancy of the subdivision by 2029, and a future 5-year scenario of 2034. The projected 2029 and 2034 volumes are summarized in Figure 9 and Figure 10.

As the projected site generated traffic is relatively low, it is not anticipated that additional adjustments for demand rationalization will be required. The resulting intersection level of service resulting from the projected volumes will be examined in more detail as part of the Intersection Design Module in Section 17 of this report.

7.0 EXEMPTIONS REVIEW

Based on a review of the proposed development and surrounding road network, a summary of the proposed TIA Module exemptions is summarized in Table 13.

Table 13: TIA Module Exemptions Review

Module / Element	Exemption Considerations	Exemption and Rationale
4.1 Development Design		
4.1.1 Design for Sustainable Modes	Required for All TIAs	Required
4.1.2 Circulation and Access	Only required for site plans and ZBA	Exempt
4.1.3 New Street Network	Only required for plans of subdivision	Required
4.2 Parking		
4.2.1 Parking Supply	Only required for site plans and ZBA	Exempt
4.2.2 Spillover Parking	Deleted per 2023 TIA Guidelines Update	Exempt – Deleted per 2023 TIA Guidelines Update
4.3 Boundary Streets	Required for All TIAs	Required
4.4 Access Intersections Design	Deleted and moved to 4.9 per 2023 TIA Guidelines Update	N/A
4.5 TDM	Required for All TIAs	Required
4.6 Neighbourhood Traffic Calming	Required If the development meets all of the following criteria along the route(s) site generated traffic is expected to utilize between an arterial road and the site's access:	Exempt – Only auto trip generation and application for zoning by-law are met
	1. Access to Collector or Local;	Not Met – access to subdivision is directly from Carp Road.
	2. "Significant sensitive land use presence" exists, where there is at least two of the following adjacent to the subject street segment: School (within 250m walking distance); Park; Retirement / Older Adult Facility (i.e. long-term care and retirement homes); Licenced Child Care Centre; Community Centre; or 50%, or greater, of adjacent property along the route(s) is occupied by residential lands and a minimum of 10 occupied residential units are present on the route.	Not Met – access to subdivision is directly from Carp Road.
	3. Application is for Zoning By-Law Amendment or Draft Plan of Subdivision;	Met – Plan of Subdivision
	4. At least 75 site-generated auto trips;	Met
	5. Site Trip Infiltration is expected. Site traffic will increase peak hour vehicle volumes along the route by 50% or more.	Not Met

Module / Element	Exemption Considerations	Exemption and Rationale
4.7 Transit		
4.7.1 Route Capacity	Required if > 75 site transit trips	Exempt – no nearby transit service
4.7.2 Transit Priority	Required if > 75 site auto trips	Exempt – no nearby transit service
4.8 Network Concept	When proposed development generates > 200 person-trips during the peak hour in excess if the equivalent volume permitted by established zoning	Exempt, site is zoned for industrial
4.9 Intersection Design		
4.9.1 Intersection Control	Required if > 75 site auto trips	Required

8.0 DEVELOPMENT DESIGN

8.1 Design for Sustainable Modes

The proposed design includes a U-shaped internal circulation road connecting to Carp Road at both ends, configured with a single traffic lane in each direction. Block 5 on the plan of subdivision is reserved as a road allowance to provide a future connection to the east of the subject development. The proposed plan of subdivision includes a 20 m right of way for the internal circulation road, which is consistent with a local road designation per Schedule C-16 of the Ottawa Official Plan.

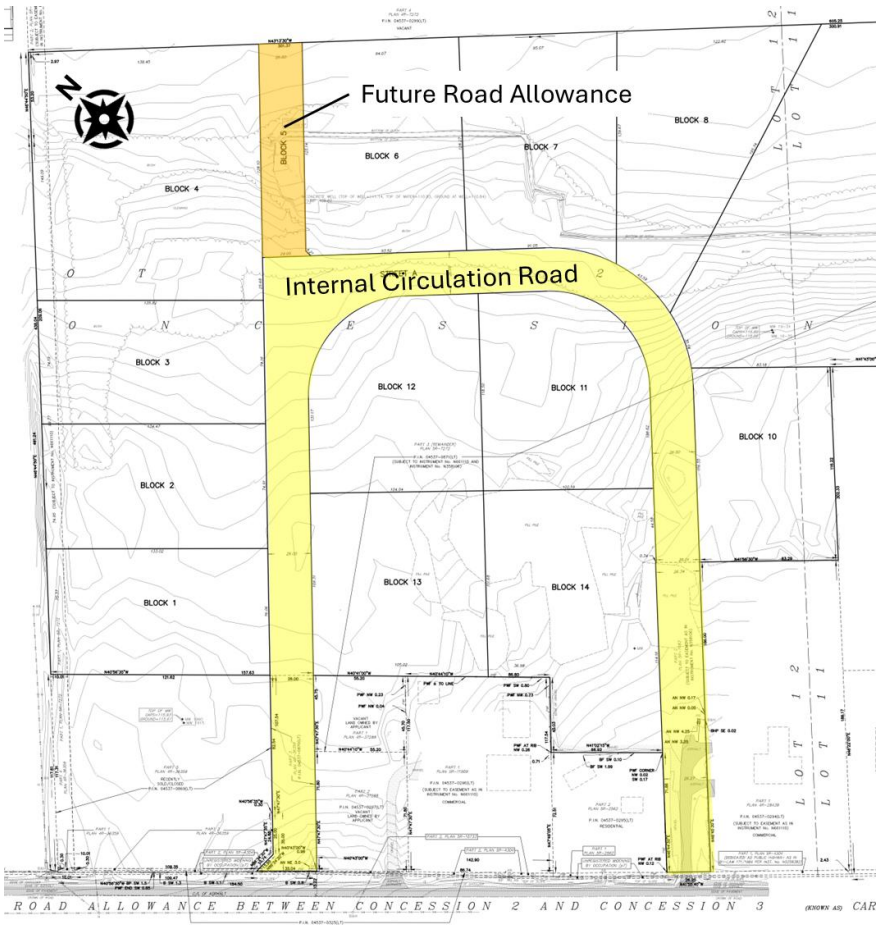

Figure 11: Proposed Development Internal Roads

Per Policy 4.1.2 (11) of the City of Ottawa Official Plan, there is no requirement for sidewalk connections in the Rural Transect, and there are no connecting pedestrian facilities on Carp Road or any other roads that would provide a pedestrian connection to the subdivision site. As a result, it is not anticipated that the internal circulation road will include sidewalks.

The internal circulation road will connect to the paved shoulders along Carp Road which are part of the City's rural active transportation network; it is not anticipated that the road will include dedicated cycling facilities but will provide an on-street connection for cyclists between Carp Road and the development parcels.

There is no existing or proposed transit service along Carp Road, and the internal circulation road is not assumed to accommodate transit.

8.2 New Street Network

The proposed development includes a 20m right of way reserved for a the internal circulation road designed to service 12 development parcels, accommodating traffic between Carp Road to and from these parcels within the subdivision. An

additional road allowance will be reserved as a connection to future development to the east of the proposed subdivision. The road's configuration and right of way will be consistent with other local roads in the area.

It is not anticipated that the internal access road will include sidewalks or dedicated cycling facilities given the Transect and low anticipated volumes, but the road configuration will allow for on-street cycling connecting from the Carp Road shoulders to the parcels within the development area.

9.0 BOUNDARY STREETS

The segment of Carp Road within the study area has been evaluated based on the current City of Ottawa Multi-Modal Level of Service (MMLOS) Guidelines. MMLOS targets have been based on the General Rural Area Designation, for a cycling spine-route and designated truck route; results of the MMLOS evaluation segments are summarized in Table 14. The full MMLOS worksheets are included in Appendix E.

Table 14: Existing MMLOS Evaluation, Carp Road

Segment	PLOS	BLOS	TLOS	TkLOS
Target - General Rural	No target	D	No Target	C
Carp Road – March Rd to McGee Side Rd	-	F	-	C

The MMLOS analysis indicates the following for the existing study area configuration:

Pedestrian LOS (PLOS) does not have a required target for the General Rural Area and there are no existing sidewalks on Carp Road or any other side roads.

Bicycle LOS (BLOS) along Carp Road is F, exceeding the target of D. In this segment, the paved shoulders have been treated as a painted bike lane for the purpose of BLOS evaluation and meet LOS F as there are segments along the corridor with shoulder widths of 1.2m or less. A consistent shoulder width of greater than 1.2m along Carp Road would be required to improve to a BLOS of C to meet the target.

Transit LOS (TLOS) does not require a target in the general rural area due to low density and limited accessibility. There is no existing OC Transpo service on the Carp Road corridor.

Truck LOS (TkLOS) target of C is met on the existing Carp Road corridor due to the 3.5m existing lane width.

10.0 TRANSPORTATION DEMAND MANAGEMENT

The City of Ottawa TDM-Supportive Development Design and Infrastructure Checklist for Non-Residential Developments has been completed and is included as Appendix F to this report. It is noted that many of the TDM supportive elements reviewed as part of this checklist address building locations and design features and are thus premature to evaluate for a plan of subdivision; it is anticipated that these, as well as the Non-Residential TDM Measures checklist, will be reevaluated as part of future TIA studies for the individual development parcels within the subdivision.

Key observations from the TDM checklist that apply to the plan of subdivision include the following:

- It is not anticipated that the proposed local access road will include adjacent sidewalks, as there are no additional sidewalk connections in the area that would facilitate pedestrian access to and from the subdivision site. Per the Ottawa OP policy 4.1.2 (11), there are no requirements for sidewalks within the Rural Transect and the provision of no sidewalks would be consistent with the other development in the area.
- It is not anticipated that dedicated bike facilities will be included on the local subdivision road; on-street cycling would accommodate any cycling connections between the shoulders on Carp Road and the development parcels within the subdivision.
- As there is no existing or planned transit on Carp Road, no transit-supportive measures have been considered.

Given the rural context for this development, it is anticipated that TDM measures at the site plan level are likely to be more effective when development on the subdivision property parcels is further defined.

11.0 INTERSECTION DESIGN

11.1 Intersection Control

Traffic Analysis of the study area intersections has been undertaken using Synchro for the existing and future traffic volumes as developed in the preceding section of the report. Reported signalized LOS is based on V/C ratio per the City of Ottawa MMLOS Guidelines; unsignalized intersection is listed as reported by Synchro based on delay.

EXISTING CONDITIONS

The results of the existing conditions analysis are summarized in Table 15; detailed analysis output is included as Appendix G.

Table 15: Traffic Operations Analysis – Existing Conditions

	AM Peak Hour				PM Peak Hour			
Movement	LOS	V/C	Delay (s)	Q95 (m)	LOS	V/C	Delay (s)	Q95 (m)
	Carp Road / March Road – Signalized							
EBL	A	0.11	16.5	14.2	A	0.09	16.4	10.7
EBTR	A	0.48	19.9	69.1	A	0.11	11.7	15.1
WBL	A	0.19	18.1	16.0	A	0.09	16.2	10.8
WBTR	A	0.08	15.4	13.4	A	0.38	19.4	57.1
NBL	A	0.04	15.5	5.8	A	0.31	19.1	33.2
NBTR	A	0.20	14.1	25.1	A	0.40	18.8	57.2
SBL	A	0.02	15.1	4.5	A	0.03	15.3	4.6
SBTR	A	0.28	17.4	38.9	A	0.27	15.7	35.1
TOTAL	A	-	17.7	-	A	-	17.7	-
	Carp Road / McGee Side Road – Unsignalized							
EB	B	0.11	12.7	2.9	B	0.05	12.8	1.3
WB	B	0.01	12.0	0.3	B	0.03	12.5	0.6
NB	A	0.01	0.5	0.3	A	0.02	0.8	0.6
SB	A	0.00	0.1	0.0	A	0.00	0.2	0.1
TOTAL	A	-	1.5	-	A	-	1.3	-

The results of the existing conditions analysis indicate that all intersections in the study area operate at an acceptable level of service B or better for all movements. All existing queues at the intersection of Carp Road and March Road are expected to fit within the available storage lengths.

Future Background Analysis

Future background analysis for the assumed buildout year of 2029 and future 2034 horizon (Buildout year plus 5 years) has been completed using Synchro; the future background includes future volumes projected based a growth rate of 1.0% developed in section 6.3 of this report, as previously illustrated in Figure 9 and Figure 10. The results of the future background analysis are summarized in Table 16 and Table 17; detailed analysis output is included as Appendix F.

Table 16: Traffic Operations Analysis – Future Background 2029

	AM Peak Hour				PM Peak Hour			
Movement	LOS	V/C	Delay (s)	Q95 (m)	LOS	V/C	Delay (s)	Q95 (m)
	Carp Road / March Road – Signalized							
EBL	A	0.12	16.6	14.8	A	0.11	16.6	11.4
EBTR	A	0.50	20.5	74.3	A	0.12	11.6	15.7
WBL	A	0.21	18.6	17.0	A	0.09	16.2	11.4
WBTR	A	0.08	15.4	14.0	A	0.40	19.8	60.9

	AM Peak Hour				PM Peak Hour			
Movement	LOS	V/C	Delay (s)	Q95 (m)	LOS	V/C	Delay (s)	Q95 (m)
NBL	A	0.05	15.6	6.0	A	0.33	19.6	35.6
NBTR	A	0.22	14.4	26.5	A	0.42	19.3	61.2
SBL	A	0.02	15.2	4.8	A	0.03	15.3	4.9
SBTR	A	0.29	17.6	41.2	A	0.28	16.0	37.0
TOTAL	A	-	18.1	-	A	-	18.0	-
	Carp Road / McGee Side Road – Unsignalized							
EB	B	0.12	13.1	3.2	B	0.06	13.3	1.5
WB	B	0.01	12.3	0.3	B	0.03	12.9	0.7
NB	A	0.01	0.5	0.3	A	0.03	0.9	0.6
SB	A	0.00	0.1	0.0	A	0.00	0.2	0.1
TOTAL	A	-	1.5	-	A	-	1.3	-

Table 17: Traffic Operations Analysis – Future Background 2034

	AM Peak Hour				PM Peak Hour			
Movement	LOS	V/C	Delay (s)	Q95 (m)	LOS	V/C	Delay (s)	Q95 (m)
	Carp Road / March Road – Signalized							
EBL	A	0.13	16.6	15.3	A	0.12	16.7	11.9
EBTR	A	0.53	21.1	79.2	A	0.13	11.7	16.2
WBL	A	0.23	19.2	18.2	A	0.10	16.3	11.9
WBTR	A	0.08	15.5	14.5	A	0.42	20.1	64.4
NBL	A	0.05	15.7	6.3	A	0.36	20.1	37.6
NBTR	A	0.23	14.6	27.7	A	0.44	19.6	64.3
SBL	A	0.02	15.2	4.8	A	0.03	15.3	4.9
SBTR	A	0.31	17.9	43.3	A	0.30	16.3	39.3
TOTAL	A	-	18.5	-	A	-	18.4	-
	Carp Road / McGee Side Road – Unsignalized							
EB	B	0.13	13.5	3.5	B	0.06	13.6	1.6
WB	B	0.01	12.5	0.4	B	0.03	13.1	0.8
NB	A	0.01	0.5	0.3	A	0.03	0.9	0.6
SB	A	0.00	0.1	0.0	A	0.01	0.3	0.1
TOTAL	A	-	1.5	-	A	-	1.3	-

The 2029 and 2034 future background analysis indicates only incremental improvements to intersection LOS as a result of the application of the 1% annual growth to these horizon years. All intersection movements are expected to remain at the same LOS as existing, with all movements operating at a LOS B or better.

Future Total Traffic

Future analysis for assumed buildout year of 2029 and for 2034 (Buildout year plus 5 years) has been completed using Synchro, based on the addition of the site generated traffic volumes to the 2029 and 2034 future background volumes assessed previously. The total traffic volumes are illustrated in Figure 13 and Figure 14.

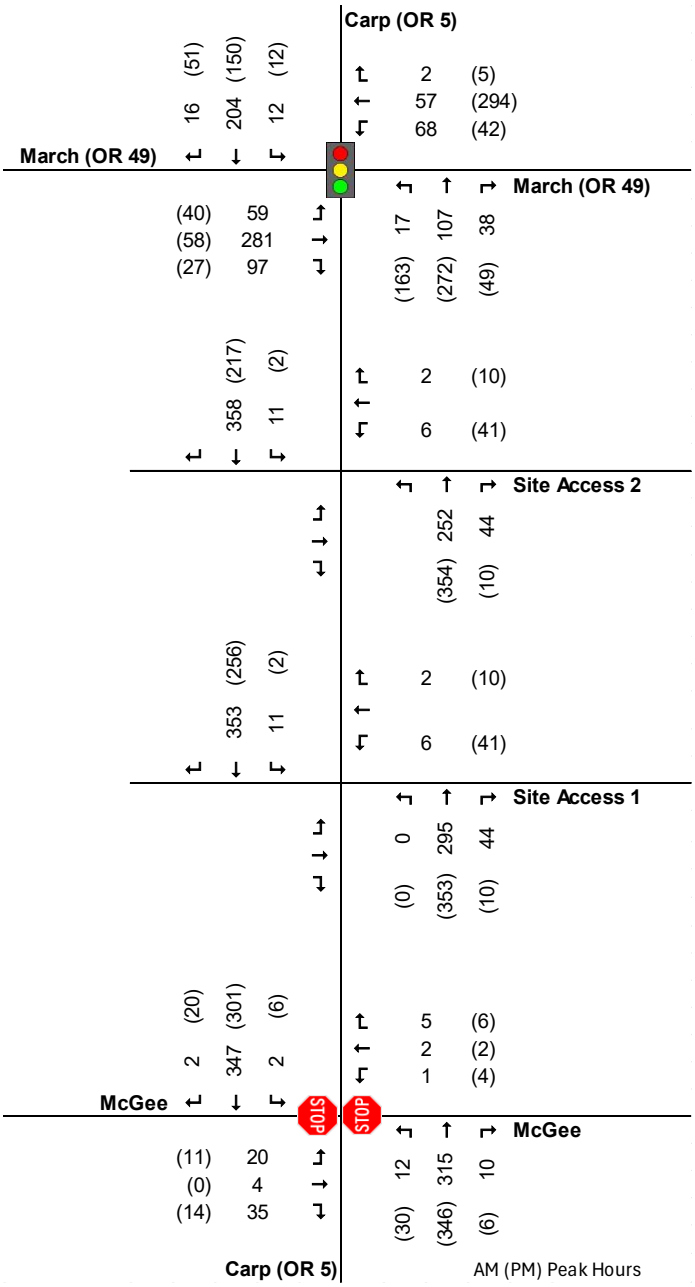

Figure 13: 2029 Total Traffic Volumes

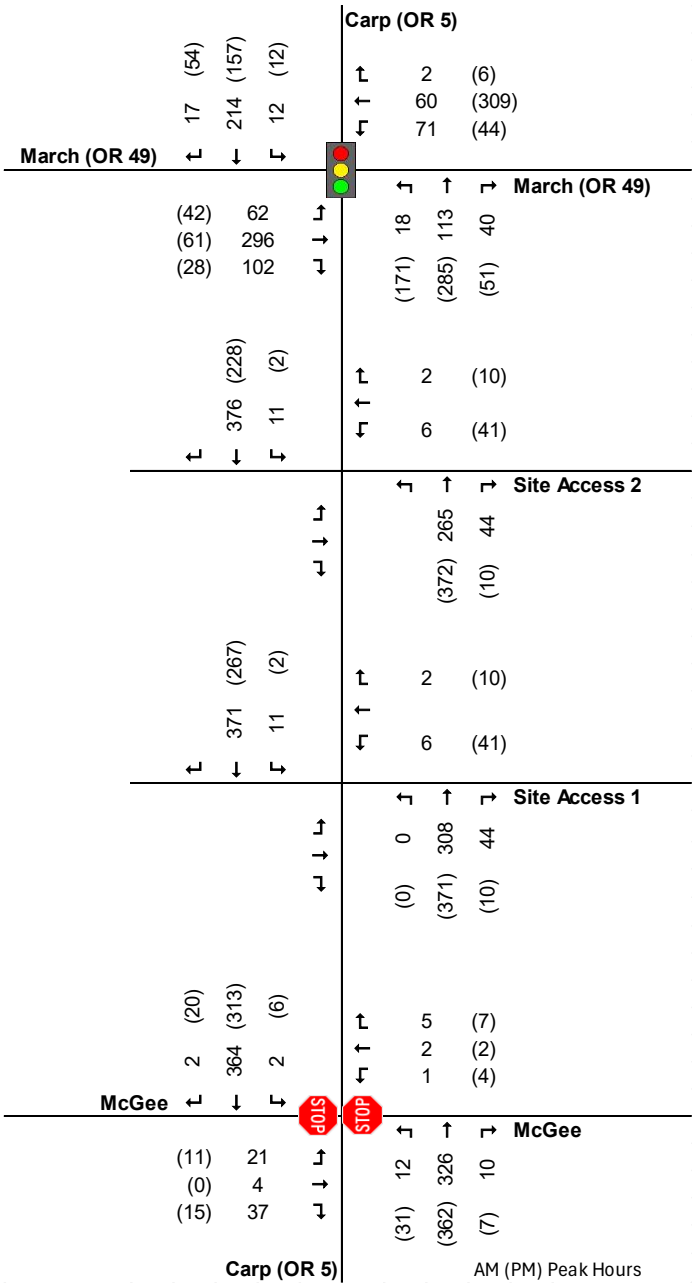

Figure 14: 2034 Total Traffic Volumes

Table 18: Traffic Operations Analysis – Total Traffic 2029

Movement	AM Peak Hour LOS	AM Peak Hour V/C	AM Peak Hour Delay (s)	AM Peak Hour Q95 (m)	PM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Delay (s)	PM Peak Hour Q95 (m)
	Carp Road / March Road – Signalized							
EBL	A	0.12	16.6	14.8	A	0.11	16.6	11.4
EBTR	A	0.51	20.6	75.6	A	0.12	11.6	15.7
WBL	A	0.23	19.0	18.2	A	0.09	16.2	11.6
WBTR	A	0.08	15.4	14.0	A	0.40	19.8	60.9
NBL	A	0.05	15.6	6.1	A	0.35	19.9	37.2
NBTR	A	0.22	14.5	27.2	A	0.44	19.6	64.2
SBL	A	0.02	15.2	4.8	A	0.03	15.3	4.9

	AM Peak Hour				PM Peak Hour			
Movement	LOS	V/C	Delay (s)	Q95 (m)	LOS	V/C	Delay (s)	Q95 (m)
SBTR	A	0.31	17.9	43.5	A	0.29	16.1	37.9
TOTAL	A	-	18.2	-	A	-	18.2	-
	Carp Road / North Subdivision Access – Unsignalized							
WB	B	0.02	13.0	0.1	B	0.12	13.6	3.2
NB	A	0.19	0.0	0.0	A	0.24	0.0	0.0
SB	A	0.01	0.3	0.2	A	0.00	0.1	0.0
TOTAL	A	-	0.3	-	A	-	1.1	-
	Carp Road / South Subdivision Access – Unsignalized							
WB	B	0.02	13.4	0.4	B	0.12	14.1	3.4
NB	A	0.21	0.0	0.0	A	0.23	0.0	0.0
SB	A	0.01	0.3	0.2	A	0.00	0.1	0.0
TOTAL	A	-	0.3	-	A	-	1.1	-
	Carp Road / McGee Side Road – Unsignalized							
EB	B	0.14	14.4	3.8	B	0.07	14.8	1.8
WB	B	0.02	13.0	0.4	B	0.03	13.9	0.8
NB	A	0.01	0.5	0.3	A	0.03	0.9	0.7
SB	A	0.00	0.1	0.0	A	0.01	0.2	0.1
TOTAL	A	-	1.5	-	A	-	1.3	-

Under projected 2029 opening day volumes, the additional site generated traffic volumes will result in minimal increases in delays at the intersections of Carp Road with March Road and McGee Side Road compared to the 2029 future background scenario, with all movement LOS remaining at the same LOS of B or better. Projected volumes at the site accesses will operate at a LOS A for movements along Carp Road and LOS B for WB movements from the site access road; queues at the site access are expected to be minimal under projected volumes.

Table 19: Traffic Operations Analysis – Total Traffic 2034

	AM Peak Hour				PM Peak Hour			
Movement	LOS	V/C	Delay (s)	Q95 (m)	LOS	V/C	Delay (s)	Q95 (m)
	Carp Road / March Road – Signalized							
EBL	A	0.13	16.6	15.3	A	0.12	16.7	11.9
EBTR	A	0.54	21.2	80.5	A	0.13	11.7	16.2
WBL	A	0.25	19.5	19.2	A	0.10	16.3	11.9
WBTR	A	0.08	15.5	14.5	A	0.42	20.1	64.4
NBL	A	0.05	15.7	6.3	A	0.38	20.4	39.5
NBTR	A	0.23	14.8	28.6	A	0.46	20.0	67.9
SBL	A	0.02	15.2	4.8	A	0.03	15.4	4.9
SBTR	A	0.32	18.1	45.7	A	0.31	16.4	39.9
TOTAL	A	-	18.6	-	A	-	18.6	-
	Carp Road / North Subdivision Access – Unsignalized							
WB	B	0.02	13.3	0.4	B	0.12	14.0	3.3
NB	A	0.19	0.0	0.0	A	0.25	0.0	0.0
SB	A	0.01	0.3	0.2	A	0.00	0.1	0.0
TOTAL	A	-	0.3	-	A	-	1.1	-
	Carp Road / South Subdivision Access – Unsignalized							
WB	B	0.02	13.8	0.5	B	0.13	14.5	3.5
NB	A	0.22	0.0	0.0	A	0.25	0.0	0.0

	AM Peak Hour				PM Peak Hour			
Movement	LOS	V/C	Delay (s)	Q95 (m)	LOS	V/C	Delay (s)	Q95 (m)
SB	A	0.01	0.3	0.2	A	0.00	0.1	0.0
TOTAL	A	-	0.3	-	A	-	1.1	-
	Carp Road / McGee Side Road – Unsignalized							
EB	B	0.15	14.8	4.2	B	0.07	15.2	1.9
WB	B	0.02	13.3	0.4	B	0.03	14.1	0.8
NB	A	0.01	0.5	0.3	A	0.03	0.9	0.7
SB	A	0.00	0.1	0.0	A	0.01	0.2	0.1
TOTAL	A	-	1.5	-	A	-	1.3	-

Total traffic operations under the projected 2034 volumes indicate an incremental increase in delays and queuing from the 2029 total traffic and 2034 background scenarios, with all intersection movements continuing to operate at a LOS B or better. The site access approaches will continue to operate at a LOS on the stop-controlled side approaches with minimal queuing expected.

Overall, the traffic analysis indicates that operations at study area intersections and proposed site accesses are anticipated to operate at an acceptable LOS under all horizon years assessed. Increases in traffic volumes as a result of anticipated background growth and site generated volumes are expected to have a relatively minor impact on traffic operations, with all future LOS remaining at a similar level to existing operations.

11.2 Intersection Design

Intersection MMLOS

The Ottawa MMLOS Guidelines intersection MMLOS methodology applies to only signalized intersections, as a result MMLOS intersection has not been undertaken for the Carp Road / McGee Side Road intersection or proposed subdivision accesses with Carp Road.

Intersection MMLOS has been undertaken for the signalized intersection of Carp Road and March Road, the MMLOS analysis is summarized in Table 20 and full worksheet is included in Appendix E.

Table 20: Existing MMLOS Evaluation, Carp Road

Segment	PLOS	BLOS	TLOS	TkLOS	VLOS
Target – General Rural	No target	D	No Target	C	D
Carp Road – March Rd to McGee Side Rd	-	E	-	E	A

The results of the MMLOS evaluation for the Carp Road / March Road intersection indicate the following:

- There is no PLOS target for the General Rural area. While the Carp Road / March Road intersection does include pedestrian signals, it does not include painted sidewalks on any of the legs. This intersection would achieve a PLOS of C based on the current configuration and signal timing if standard transverse markings were provided.
- BLOS is E for all approaches, exceeding the target of D. While the paved shoulders at the intersection are treated as painted bike lanes for the purpose of analysis, the BLOS E is governed by the lack of left turn facilities for bikes and the need to cross a lane of traffic to turn left in mixed traffic. Under the current configuration and posted speed limits, a two-stage left turn would be required on all approaches to meet the target.
- TLOS has no target for the General Rural Area, and there is no existing or planned transit service along the Carp Road corridor. The existing intersection delays would correspond to a TLOS of C if service was introduced.
- TkLOS is at E under the current intersection configuration, exceeding the target of C. This is a result of all turning radii being between 10 and 15m and both Carp Road and March Road including single receiving lanes for right turns. A wider radius or additional receiving lane would be required to meet the TkLOS target.
- VLOS will operate at A for all movements.

It is noted that the proposed plan of subdivision is located approximately 2 km from March Road and thus the planned development will not impact the configuration of the Carp Road / March Road intersection.

Turn Lane Warrants

The City of Ottawa has indicated a desire for the evaluation of turn lanes at the proposed site accesses, as a result of total and heavy truck volumes along Carp Road. The warrant evaluation has been undertaken based on the MTO Supplement to the TAC Design Guidelines for Canadian Roads (2023 Draft), Chapter 9. The warrant analysis is a graphical assessment based on the approaching (V_A) and opposing (V_O) volumes, design speed (conservatively assumed to be the posted speed limit plus 20) and the percentage of left turns in the approaching traffic stream. Based on the projected 2034 traffic volumes, these values are as follows:

- Design speed 100 km/h (based on the posted 80 km/h)
- North Subdivision Access, SB Left turn from Carp Road
  - 2029 Total Traffic – AM Peak: V_A = 369, V_O = 296, %LT in V_A = 3%
  - 2029 Total Traffic – PM Peak: V_A = 219, V_O = 364, %LT in V_A = 1%
  - 2034 Total Traffic – AM Peak: V_A = 387, V_O = 309, %LT in V_A = 3%
  - 2034 Total Traffic – PM Peak: V_A = 230, V_O = 381, %LT in V_A = 1%
- South Subdivision Access, SB Left turn from Carp Road
  - 2029 Total Traffic – AM Peak: V_A = 364, V_O = 339, %LT in V_A = 3%
  - 2029 Total Traffic – PM Peak: V_A = 258, V_O = 363, %LT in V_A = 1%
  - 2034 Total Traffic – AM Peak: V_A = 382, V_O = 352, %LT in V_A = 3%
  - 2034 Total Traffic – PM Peak: V_A = 269, V_O = 381, %LT in V_A = 1%

The left turn lane warrants for the 2029 and total traffic volumes are illustrated in Figure 15 and Figure 16 respectively.

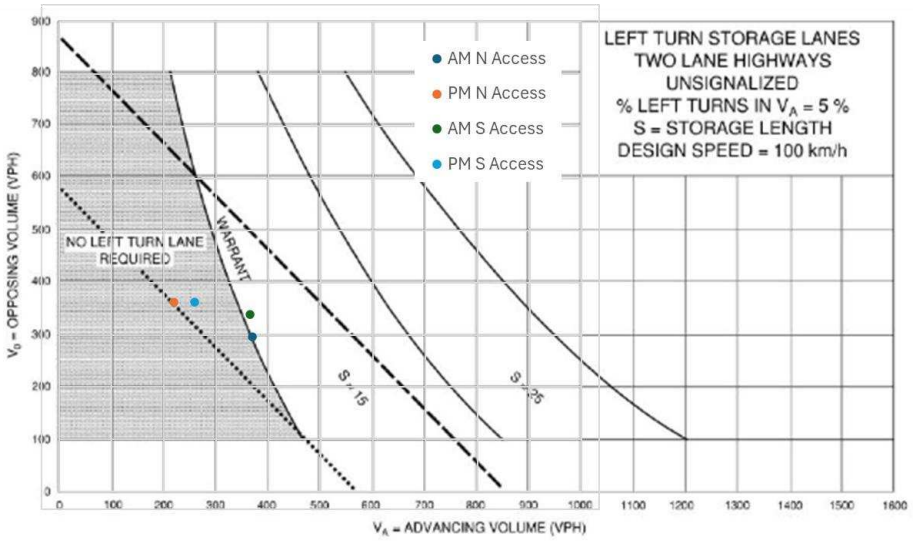

Figure 15: Left Turn Warrant - 2029 Total Traffic

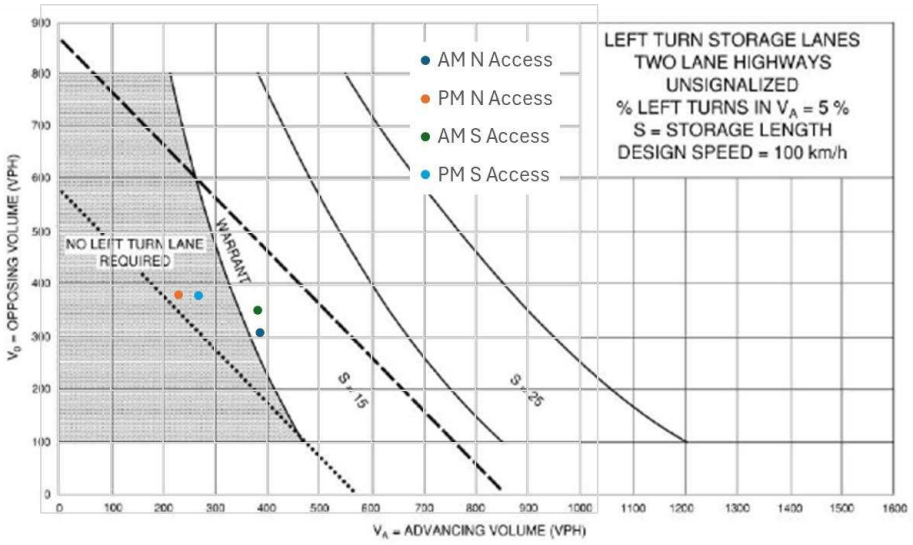

Figure 16: Figure 12: Left Turn Warrant - 2034 Total Traffic

The turn lane warrants indicate that the north and south accesses will both fall under the warrant for a 15m left turn storage lane for SB left turns into the subdivision. It is noted that turning movements to and from the proposed subdivision accesses without a left turn lane would be consistent with all other existing property and local and collector side street accesses along the corridor, and

the operational analysis of the proposed site accesses indicate that queues into the subdivision are expected to be minimal. It is noted that as this warrant evaluation is based on projected through volumes on Carp Road and the lowest proportion of left turns in the MTO methodology, this requirement for a SB left turn lane would be met for every existing access along the Carp Road corridor in addition to the proposed subdivision accesses.

Based on these observations, it is recommended that consideration of left turn lanes to access properties along the Carp Road corridor should be monitored by the City of Ottawa and considered for the corridor as a whole, rather than a site by site basis, as the warrant and mitigation for rear end collisions is equally met for all properties along the corridor.

12.0 CONCLUSIONS AND RECOMMENDATIONS

T&L Carroll Holdings Limited is submitting a plan of subdivision for a proposed commercial / industrial subdivision to be located on the site municipally known as 3160 Carp Road, on the east side of Carp Road north of McGee Side Road. The subdivision is proposed to include up to 12 development parcels which will be offered for sale starting in 2026; this TIA assumes full build out by 2029. The proposed subdivision will include a U-shaped internal circulation road that will connect to Carp Road at two points and provide allowance for a future road connection to the east; this road will include a 20m protected right of way consistent with a local road designation. It is not anticipated that the proposed circulation road will include dedicated active transportation facilities consistent with Ottawa OP policy for the rural transect and other local roads in the area, but it is noted that the local road will provide an on-street cycling connection between the Carp Road paved shoulders in the Ottawa rural cycling network and development parcels within the subdivision. TDM measures that can be considered at the plan of subdivision stage are limited in the rural context, but it is anticipated that additional site-specific TDM measures can be considered as part of site plan approval for the individual development parcels.

Based on the anticipated land use, the proposed subdivision is estimated to generate approximately 127 vehicle trips during each of the weekday AM and PM peak hours; an operational analysis has been undertaken for the intersections of Carp Road with March Road, McGee Side Road and the two proposed subdivision accesses for the 2029 opening day and 2034 future traffic scenarios. The analysis indicates that all intersection movements currently operate at a LOS B or better and are expected to remain at the same LOS under all future scenarios with only minor increases in queuing and delays.

The City of Ottawa requested a review of warrants for turn lanes approaching the accesses to the proposed subdivision. While the proposed access configuration is generally consistent with other accesses along the Carp Road corridor, left turn lane warrants per the MTO supplement to the TAC Design Guidelines for Canadian Roads are met under the projected future volumes at the proposed subdivision accesses on Carp Road. It is noted however that this warrant will be equally met for every access along this segment of the Carp Road corridor with southbound left turns. Additionally, it is noted that the operational analysis indicates that the site accesses are expected to operate at an acceptable level of service under future traffic volumes without extensive delays to inbound turns. As a result, it will likely be more beneficial for the City of Ottawa to consider the need for turn lanes at the corridor level as part of future road improvements rather than on a site-by-site basis.

Overall, the TIA study indicates that the proposed plan of subdivision can be accommodated by the adjacent transportation network at an acceptable level of service. It is anticipated however that the individual parcels within the proposed subdivision will be subject to additional site plan approval with accompanying TIA studies, which will provide additional detail on the anticipated site generation volumes and traffic circulation.

Certification Form for Transportation Impact Assessment (TIA) Study

TIA Reports

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 and 2023 amendments.

Please note that the Certification is only required for the submission of a TIA. The Screening can be undertaken by a non-certified individual for the purpose of identifying if a TIA is needed or not.

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

CERTIFICATION

- [x] 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; (Update effective July 2023)
- [x] 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;
- [x] 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
- [ ] I am either a licensed or registered[1] professional in good standing, whose field of expertise
  - [ ] is either transportation engineering
  - [x] or transportation planning.

[1] 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.

City Of Ottawa
Planning, Real Estate and Economic Development
110 Laurier Avenue West, 4th fl.
Ottawa, ON
K1P 1J1

Dated at Ottawa (City) this 24th day of February , 20 26 .

Name : Adam Howell, P.Eng.

Professional title: Senior Project Manager, Transportation Planning

Signature of individual certifier that they meet the above four criteria

Office Contact Information (Please Print)	
Address:	2936 Baseline Road, Suite 200
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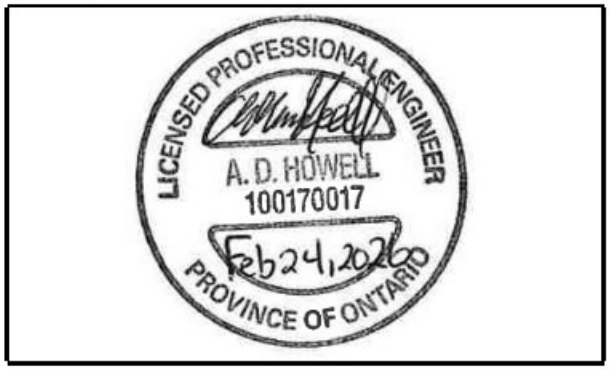
Stamp



APPENDIX A
Proposed Draft Plan of Subdivision Concept

DRAFT PLAN OF SUBDIVISION

PART OF LOTS 11 AND 12
CONCESSION 2
GEOGRAPHIC TOWNSHIP
OF HUNTLEY
CITY OF OTTAWA

BLOCKS 1–3 and 6–14 for commercial/industrial use
BLOCK 4 for stormwater management
BLOCK 5 for other
STREET A – 26 metres wide

APPLICANT AND PROPERTY OWNER

T & L CARROLL HOLDINGS INC.
1380 HOWE ROAD
CARP, ON, K0A 1L0

I HEREBY AUTHORIZE THE PREPARATION AND SUBMISSION OF THIS PLAN TO THE COUNCIL OF THE CITY OF OTTAWA.

DATED ON NOVEMBER 25, 2025.

T & L CARROLL HOLDINGS INC.
I HAVE THE AUTHORITY TO BIND THIS CORPORATION

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJOINING LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

NOVEMBER 25, 2025
DATE

JOHN GAUTHIER
ONTARIO LAND SURVEYOR

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__

ADAM BROWN, MANAGER
DEVELOPMENT REVIEW–RURAL
PLANNING, DEVELOPMENT AND BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA

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

A. AS SHOWN ON DRAFT PLAN
B. AS SHOWN ON DRAFT PLAN
C. AS SHOWN ON DRAFT PLAN
D. AS DESCRIBED ON THE TITLE BLOCK
E. AS SHOWN ON DRAFT PLAN
F. AS SHOWN ON DRAFT PLAN
F.1 NOT APPLICABLE
G. AS SHOWN ON DRAFT PLAN
H. INDIVIDUAL PRIVATE WELLS
I. REFER TO SOILS REPORT
J. AS SHOWN ON DRAFT PLAN
K. INDIVIDUAL PRIVATE SEPTIC SYSTEMS
L. AS SHOWN ON DRAFT PLAN

SCHEDULE OF AREAS

LOT/BLOCK	AREA (Ha)	TYPE
BLOCK 1	1.00	COMMERCIAL/INDUSTRIAL USE
BLOCK 2	1.00	COMMERCIAL/INDUSTRIAL USE
BLOCK 3	1.00	COMMERCIAL/INDUSTRIAL USE
BLOCK 4	2.08	STORMWATER MANAGEMENT
BLOCK 5	0.33	OTHER
BLOCK 6	1.22	COMMERCIAL/INDUSTRIAL USE
BLOCK 7	1.20	COMMERCIAL/INDUSTRIAL USE
BLOCK 8	1.26	COMMERCIAL/INDUSTRIAL USE
BLOCK 9	3.83	COMMERCIAL/INDUSTRIAL USE
BLOCK 10	0.96	COMMERCIAL/INDUSTRIAL USE
BLOCK 11	1.14	COMMERCIAL/INDUSTRIAL USE
BLOCK 12	1.14	COMMERCIAL/INDUSTRIAL USE
BLOCK 13	1.15	COMMERCIAL/INDUSTRIAL USE
BLOCK 14	1.46	COMMERCIAL/INDUSTRIAL USE
TOTAL LOT/BLOCK AREA (Ha)		18.78

STREET	AREA (Ha)	LENGTH (m)
STREET A	2.47	918.97
TOTAL SUBDIVISION AREA (Ha)		21.25

LEGEND:

○ B	DENOTES	BELL UTILITY POLE
○ H	DENOTES	HYDRO UTILITY POLE
○ B&H	DENOTES	BELL & HYDRO UTILITY POLE
AN	DENOTES	ANCHOR
□ BP	DENOTES	BELL UTILITY PEDESTAL
OHW	DENOTES	OVERHEAD WIRES
BF	DENOTES	BOARD FENCE
PWF	DENOTES	POST & WIRE FENCE
PVC	DENOTES	POLYVINYL CHLORIDE (PLASTIC)
MW	DENOTES	MONITORING WELL
~~	DENOTES	TREE LINE
⊙	DENOTES	SIGN

DISTANCES:

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES AND CAN BE USED TO COMPUTE GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999905.

BEARINGS:

BEARINGS ARE MTM GRID BEARINGS, DERIVED BY REAL TIME NETWORK GNSS OBSERVATIONS ON OBSERVED REFERENCE POINTS "A" AND "B" SHOWN HEREON, AND ARE REFERRED TO THE NAD83 (ORIGINAL) MTM ZONE 9 COORDINATE SYSTEM.

ELEVATIONS:

ELEVATIONS AND EXISTING TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN WERE PROVIDED BY A SKETCH TO ILLUSTRATE TOPOGRAPHY BY MCINTOSH PERRY SURVEYING INC, FILE 23–1883.

HORIZONTAL DATUM :

HORIZONTAL DATUM IS NAD83 (ORIG) MTM ZONE 9 AND HAS BEEN DERIVED FROM REAL TIME NETWORK GNSS OBSERVATIONS.

VERTICAL DATUM :

VERTICAL DATUM IS CGVD28/78 DERIVED FROM REAL TIME NETWORK GNSS OBSERVATIONS REFERENCED TO THE CANADA HT_2 GEOID MODEL.

SCALE 1 : 750
0 15 30 45 60 75 Metres

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REVISIONS

No.	DESCRIPTION	DATE	BY
1	REMOVED SEVERANCE ALREADY COMPLETED, REDUCED ROW TO ZONE ADDED NEW BLOCKS	2025–02–06	MP
2	BLOCKS AND STREET REVISED	2025–11–24	MP
3	ROAD RADIUS UPDATED, BLOCKS REVISED	2025–12–08	MP
4	DAYLIGHTING TRIANGLE ON BLOCK 5	2026–01–09	MP

Callon Dietz INCORPORATED
ONTARIO LAND SURVEYORS
CARLETON PLACE LONDON NORTH BAY
info@callondietz.com callondietz.com

ISO 9001:2015

SURVEY BY: | DRAWN BY: MP | FILE No: 23–1833 | PLAN No:

APPENDIX B
Provided Traffic Counts

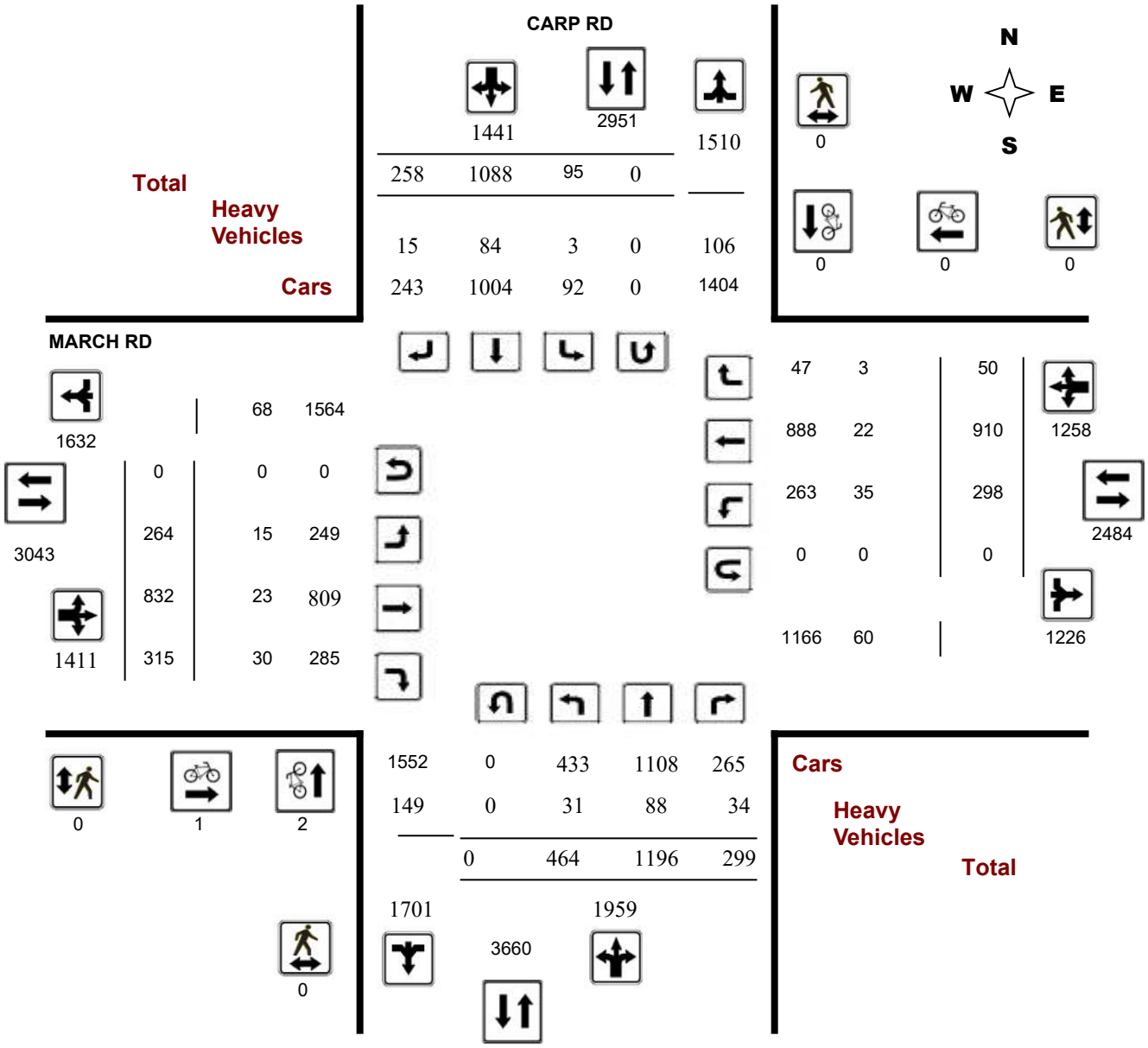
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018
Start Time: 07:00
WO No: 37603
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

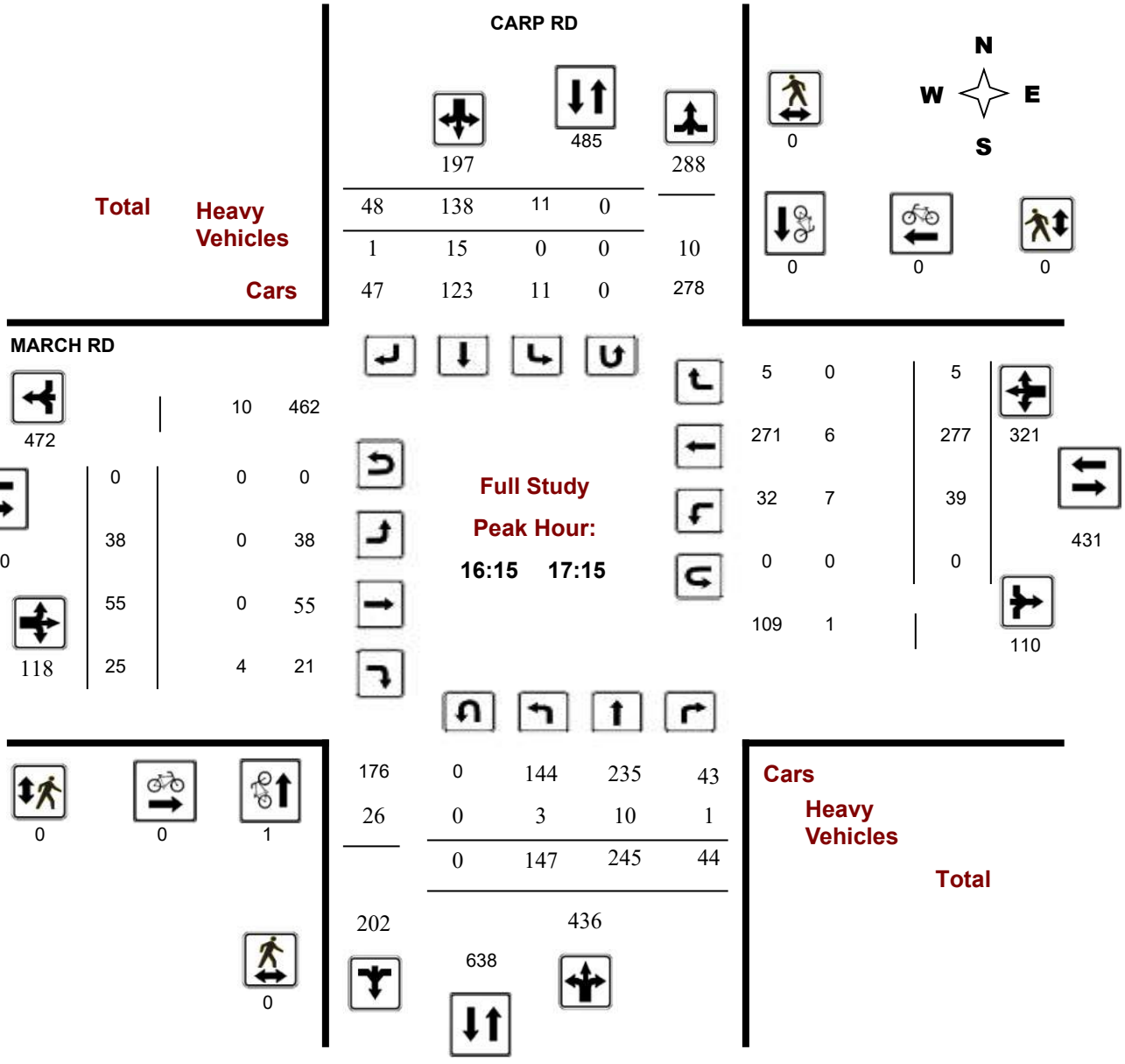
Turning Movement Count - Study Results

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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

Full Study Peak Hour Diagram



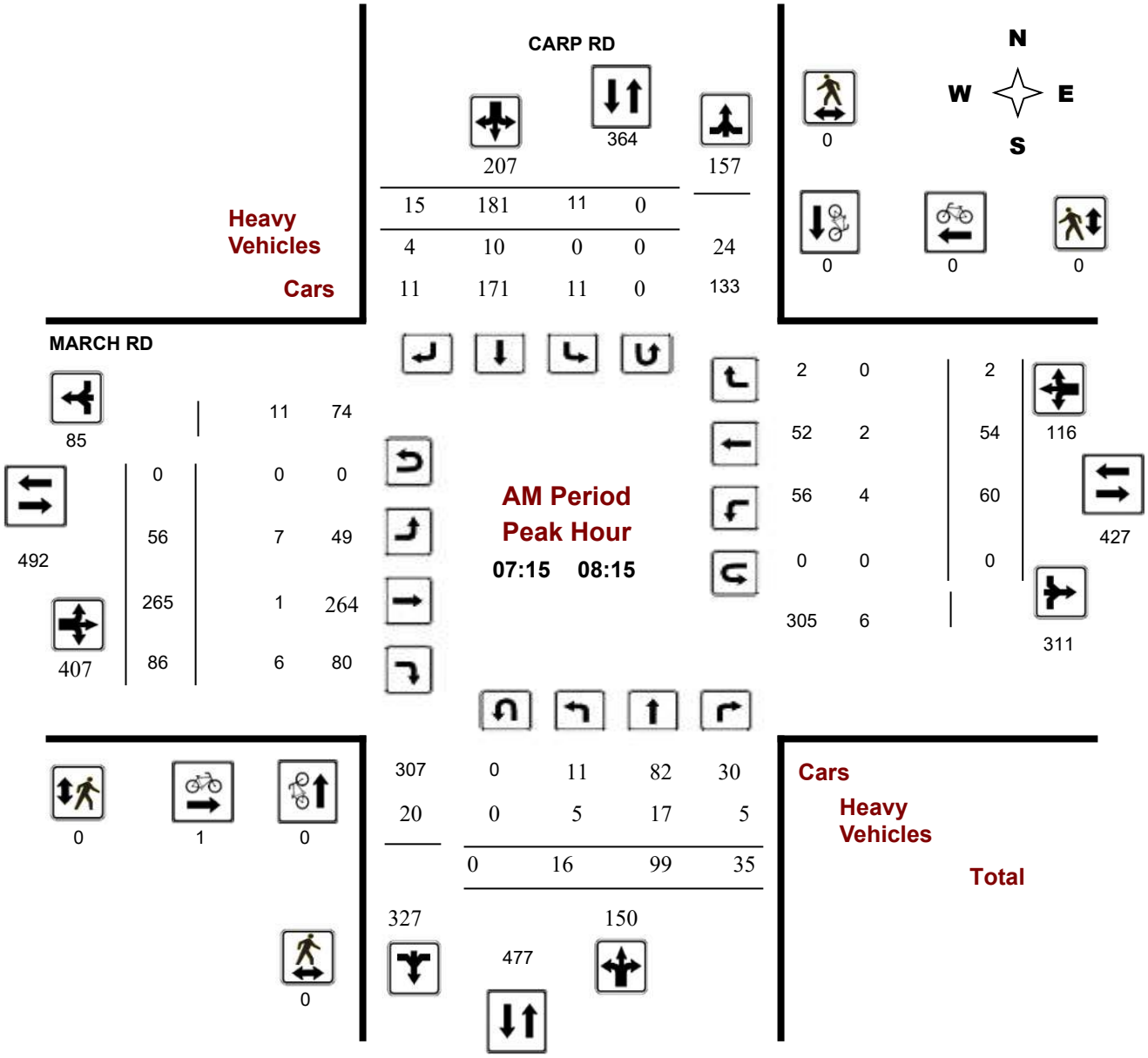
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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



Comments

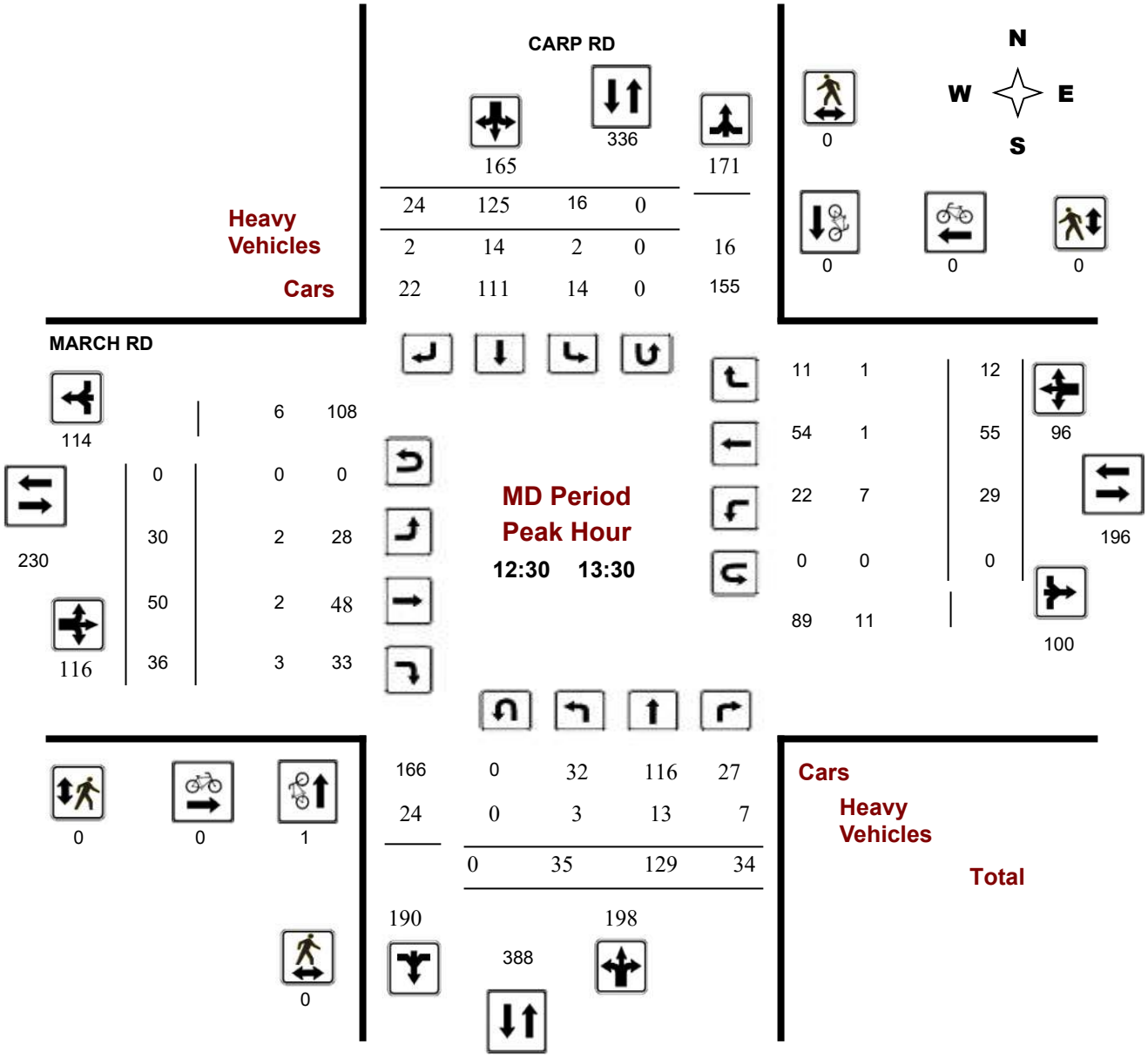
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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



Comments

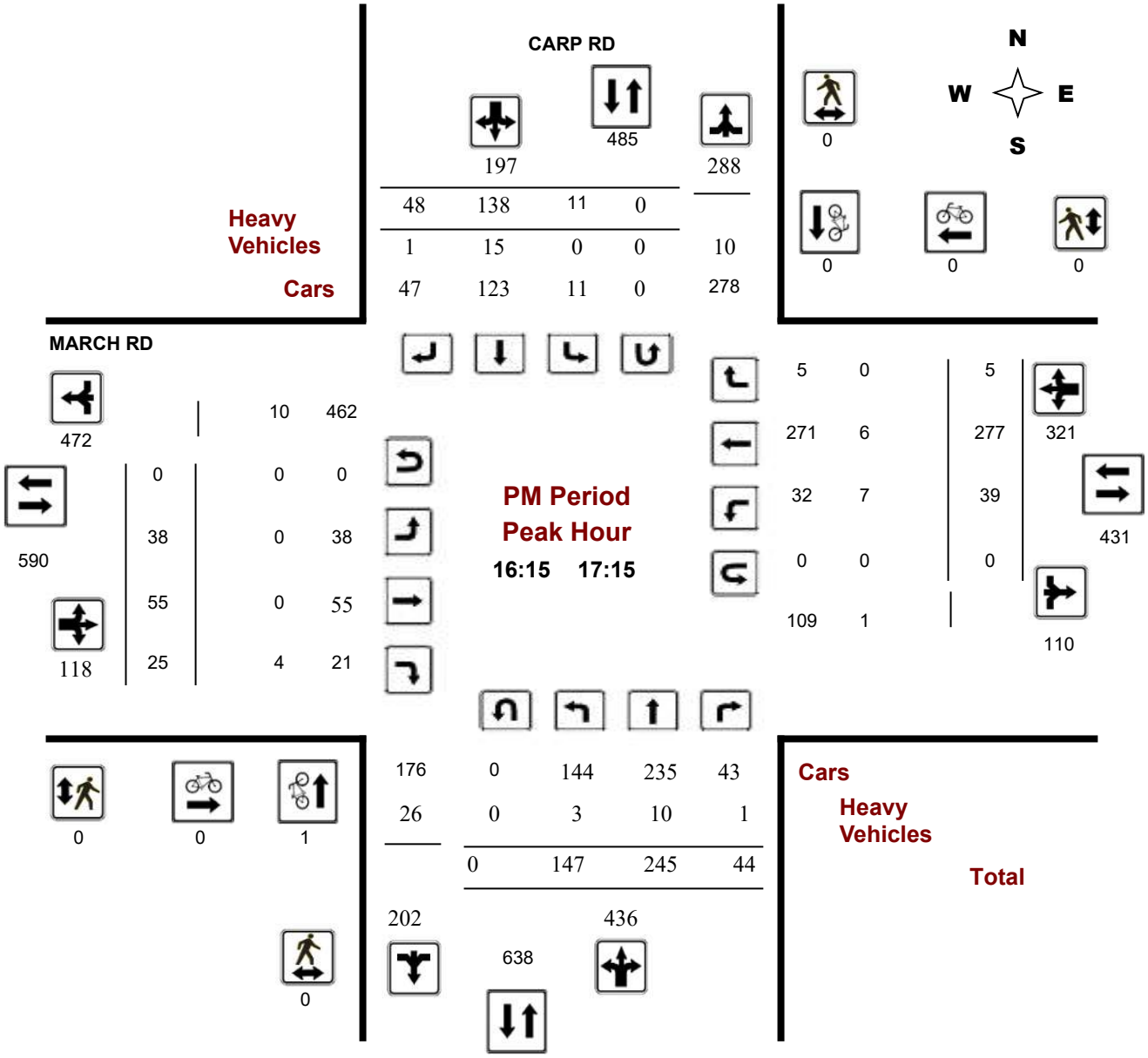
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 20, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor

1.00

	CARP RD									MARCH RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	12	87	32	**131**	10	198	12	**220**	**351**	44	242	114	**400**	54	52	2	**108**	**508**	**859**
08:00 09:00	24	103	32	**159**	12	130	33	**175**	**334**	40	238	49	**327**	45	49	4	**98**	**425**	**759**
09:00 10:00	32	104	21	**157**	11	125	33	**169**	**326**	31	99	27	**157**	48	43	4	**95**	**252**	**578**
11:30 12:30	39	128	37	**204**	13	121	29	**163**	**367**	20	41	17	**78**	24	59	8	**91**	**169**	**536**
12:30 13:30	35	129	34	**198**	16	125	24	**165**	**363**	30	50	36	**116**	29	55	12	**96**	**212**	**575**
15:00 16:00	92	179	45	**316**	15	159	40	**214**	**530**	30	61	29	**120**	31	173	5	**209**	**329**	**859**
16:00 17:00	140	245	53	**438**	7	140	41	**188**	**626**	37	54	26	**117**	40	277	6	**323**	**440**	**1066**
17:00 18:00	90	221	45	**356**	11	90	46	**147**	**503**	32	47	17	**96**	27	202	9	**238**	**334**	**837**
Sub Total	464	1196	299	**1959**	95	1088	258	**1441**	**3400**	264	832	315	**1411**	298	910	50	**1258**	**2669**	**6069**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	464	1196	299	**1959**	95	1088	258	**1441**	**3400**	264	832	315	**1411**	298	910	50	**1258**	**2669**	**6069**
EQ 12Hr	645	1662	416	**2723**	132	1512	359	**2003**	**4726**	367	1156	438	**1961**	414	1265	70	**1749**	**3710**	**8436**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	645	1662	416	**2723**	132	1981	470	**2003**	**4726**	367	1156	438	**1961**	414	1265	70	**1749**	**3710**	**8436**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	845	2177	545	**3567**	173	2595	616	**2624**	**6191**	481	1514	574	**2569**	542	1657	92	**2291**	**4860**	**11051**
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 @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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

Full Study 15 Minute Increments

		CARP RD									MARCH RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	2	16	6	24	1	49	3	53	77	6	44	36	86	14	10	1	25	111	188
07:15	07:30	5	13	7	25	0	67	2	69	94	14	55	20	89	18	13	0	31	120	214
07:30	07:45	2	28	10	40	3	41	2	46	86	11	77	33	121	12	13	0	25	146	232
07:45	08:00	3	30	9	42	6	41	5	52	94	13	66	25	104	10	16	1	27	131	225
08:00	08:15	6	28	9	43	2	32	6	40	83	18	67	8	93	20	12	1	33	126	209
08:15	08:30	5	36	5	46	2	34	10	46	92	8	67	16	91	6	10	0	16	107	199
08:30	08:45	6	14	7	27	5	37	9	51	78	9	52	11	72	10	12	1	23	95	173
08:45	09:00	7	25	11	43	3	27	8	38	81	5	52	14	71	9	15	2	26	97	178
09:00	09:15	4	24	5	33	2	39	7	48	81	6	30	5	41	13	11	0	24	65	146
09:15	09:30	13	24	8	45	1	28	8	37	82	10	28	6	44	12	16	1	29	73	155
09:30	09:45	7	27	3	37	5	33	10	48	85	8	24	9	41	13	7	0	20	61	146
09:45	10:00	8	29	5	42	3	25	8	36	78	7	17	7	31	10	9	3	22	53	131
11:30	11:45	7	34	9	50	3	42	15	60	110	5	14	3	22	10	18	2	30	52	162
11:45	12:00	13	30	9	52	1	28	5	34	86	1	10	4	15	7	14	1	22	37	123
12:00	12:15	8	37	8	53	4	22	4	30	83	6	4	8	18	4	12	5	21	39	122
12:15	12:30	11	27	11	49	5	29	5	39	88	8	13	2	23	3	15	0	18	41	129
12:30	12:45	8	35	3	46	2	40	3	45	91	7	12	6	25	6	9	3	18	43	134
12:45	13:00	10	33	8	51	3	37	7	47	98	8	10	12	30	8	12	2	22	52	150
13:00	13:15	11	37	8	56	5	23	8	36	92	7	11	8	26	9	17	4	30	56	148
13:15	13:30	6	24	15	45	6	25	6	37	82	8	17	10	35	6	17	3	26	61	143
15:00	15:15	16	39	8	63	1	25	8	34	97	7	17	5	29	10	36	2	48	77	174
15:15	15:30	21	53	12	86	5	55	10	70	156	6	12	10	28	5	41	3	49	77	233
15:30	15:45	25	43	13	81	6	50	8	64	145	3	13	7	23	10	44	0	54	77	222
15:45	16:00	30	44	12	86	3	29	14	46	132	14	19	7	40	6	52	0	58	98	230
16:00	16:15	36	54	19	109	2	33	10	45	154	7	13	5	25	7	59	1	67	92	246
16:15	16:30	31	58	11	100	0	38	10	48	148	10	18	7	35	11	86	2	99	134	282
16:30	16:45	45	69	13	127	1	35	9	45	172	11	7	8	26	16	70	1	87	113	285
16:45	17:00	28	64	10	102	4	34	12	50	152	9	16	6	31	6	62	2	70	101	253
17:00	17:15	43	54	10	107	6	31	17	54	161	8	14	4	26	6	59	0	65	91	252
17:15	17:30	12	53	19	84	2	28	8	38	122	10	16	2	28	5	68	4	77	105	227
17:30	17:45	19	58	6	83	2	17	13	32	115	5	10	5	20	8	38	0	46	66	181
17:45	18:00	16	56	10	82	1	14	8	23	105	9	7	6	22	8	37	5	50	72	177
Total:		464	1196	299	1959	95	1088	258	1441	3400	264	832	315	1411	298	910	50	1258	2669	6,069

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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

Full Study Cyclist Volume

Time Period		CARP RD			MARCH RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	1	0	1	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	1	0	1	0	0	0	1
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	1	0	1	0	0	0	1
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		2	0	**2**	1	0	1	3

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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

Full Study Pedestrian Volume

	CARP RD			MARCH RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	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**
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	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	0	**0**	0	0	**0**	**0**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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

Full Study Heavy Vehicles

		CARP RD									MARCH RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	4	2	**11**	0	1	0	**5**	**16**	0	0	2	**4**	1	1	0	**4**	**8**	**12**
07:15	07:30	1	3	2	**8**	0	2	0	**6**	**14**	1	0	0	**2**	0	0	0	**2**	**4**	**9**
07:30	07:45	0	4	0	**10**	0	3	1	**8**	**18**	0	0	2	**3**	1	0	0	**1**	**4**	**11**
07:45	08:00	2	2	1	**12**	0	2	1	**7**	**19**	2	1	4	**11**	1	1	0	**4**	**15**	**17**
08:00	08:15	2	8	2	**17**	0	3	2	**17**	**34**	4	0	0	**9**	2	1	0	**5**	**14**	**24**
08:15	08:30	1	7	0	**16**	0	4	2	**15**	**31**	2	2	1	**8**	3	0	0	**5**	**13**	**22**
08:30	08:45	1	1	2	**11**	0	5	1	**8**	**19**	1	2	1	**7**	1	1	0	**6**	**13**	**16**
08:45	09:00	0	3	1	**9**	0	2	2	**7**	**16**	0	2	2	**6**	1	0	0	**4**	**10**	**13**
09:00	09:15	1	2	1	**9**	0	3	0	**5**	**14**	0	3	0	**5**	2	1	0	**7**	**12**	**13**
09:15	09:30	1	2	1	**10**	0	5	1	**8**	**18**	0	0	1	**6**	0	3	0	**4**	**10**	**14**
09:30	09:45	4	0	0	**12**	0	4	0	**4**	**16**	0	0	2	**6**	2	0	0	**2**	**8**	**12**
09:45	10:00	1	4	2	**10**	0	2	2	**9**	**19**	0	1	1	**5**	0	0	1	**4**	**9**	**14**
11:30	11:45	2	2	2	**10**	0	2	0	**4**	**14**	0	2	1	**7**	1	2	0	**7**	**14**	**14**
11:45	12:00	1	5	2	**9**	0	1	0	**6**	**15**	0	1	0	**2**	0	0	0	**3**	**5**	**10**
12:00	12:15	0	1	2	**4**	0	0	0	**2**	**6**	1	0	1	**3**	0	1	0	**3**	**6**	**6**
12:15	12:30	1	1	3	**6**	1	0	0	**2**	**8**	0	1	0	**2**	1	0	0	**6**	**8**	**8**
12:30	12:45	0	2	1	**10**	1	5	0	**9**	**19**	1	1	1	**3**	1	0	0	**4**	**7**	**13**
12:45	13:00	1	4	2	**12**	0	3	2	**9**	**21**	0	0	1	**5**	1	1	0	**4**	**9**	**15**
13:00	13:15	0	4	1	**9**	1	2	0	**8**	**17**	0	0	0	**0**	2	0	1	**5**	**5**	**11**
13:15	13:30	2	3	3	**16**	0	4	0	**8**	**24**	1	1	1	**5**	3	0	0	**7**	**12**	**18**
15:00	15:15	0	4	1	**11**	0	3	0	**7**	**18**	0	1	2	**3**	1	0	0	**3**	**6**	**12**
15:15	15:30	2	3	0	**9**	0	3	0	**7**	**16**	0	1	0	**4**	1	1	1	**4**	**8**	**12**
15:30	15:45	1	3	0	**12**	0	6	0	**9**	**21**	0	4	1	**6**	1	0	0	**5**	**11**	**16**
15:45	16:00	0	2	1	**5**	0	1	0	**4**	**9**	1	0	0	**2**	1	1	0	**3**	**5**	**7**
16:00	16:15	2	4	1	**10**	0	3	0	**8**	**18**	1	0	0	**5**	0	2	0	**3**	**8**	**13**
16:15	16:30	0	4	1	**13**	0	3	1	**8**	**21**	0	0	2	**7**	3	4	0	**8**	**15**	**18**
16:30	16:45	2	5	0	**18**	0	6	0	**11**	**29**	0	0	1	**5**	4	2	0	**6**	**11**	**20**
16:45	17:00	1	1	0	**7**	0	5	0	**6**	**13**	0	0	0	**1**	0	0	0	**0**	**1**	**7**
17:00	17:15	0	0	0	**2**	0	1	0	**1**	**3**	0	0	1	**1**	0	0	0	**0**	**1**	**2**
17:15	17:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
17:30	17:45	0	0	0	**2**	0	0	0	**0**	**2**	0	0	2	**2**	0	0	0	**0**	**2**	**2**
17:45	18:00	1	0	0	**2**	0	0	0	**0**	**2**	0	0	0	**1**	1	0	0	**1**	**2**	**2**
Total:	None	31	88	34	**302**	3	84	15	**208**	**510**	15	23	30	**136**	35	22	3	**120**	**256**	**383**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MARCH RD

Survey Date: Tuesday, March 20, 2018 **WO No:** 37603

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

Full Study 15 Minute U-Turn Total

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

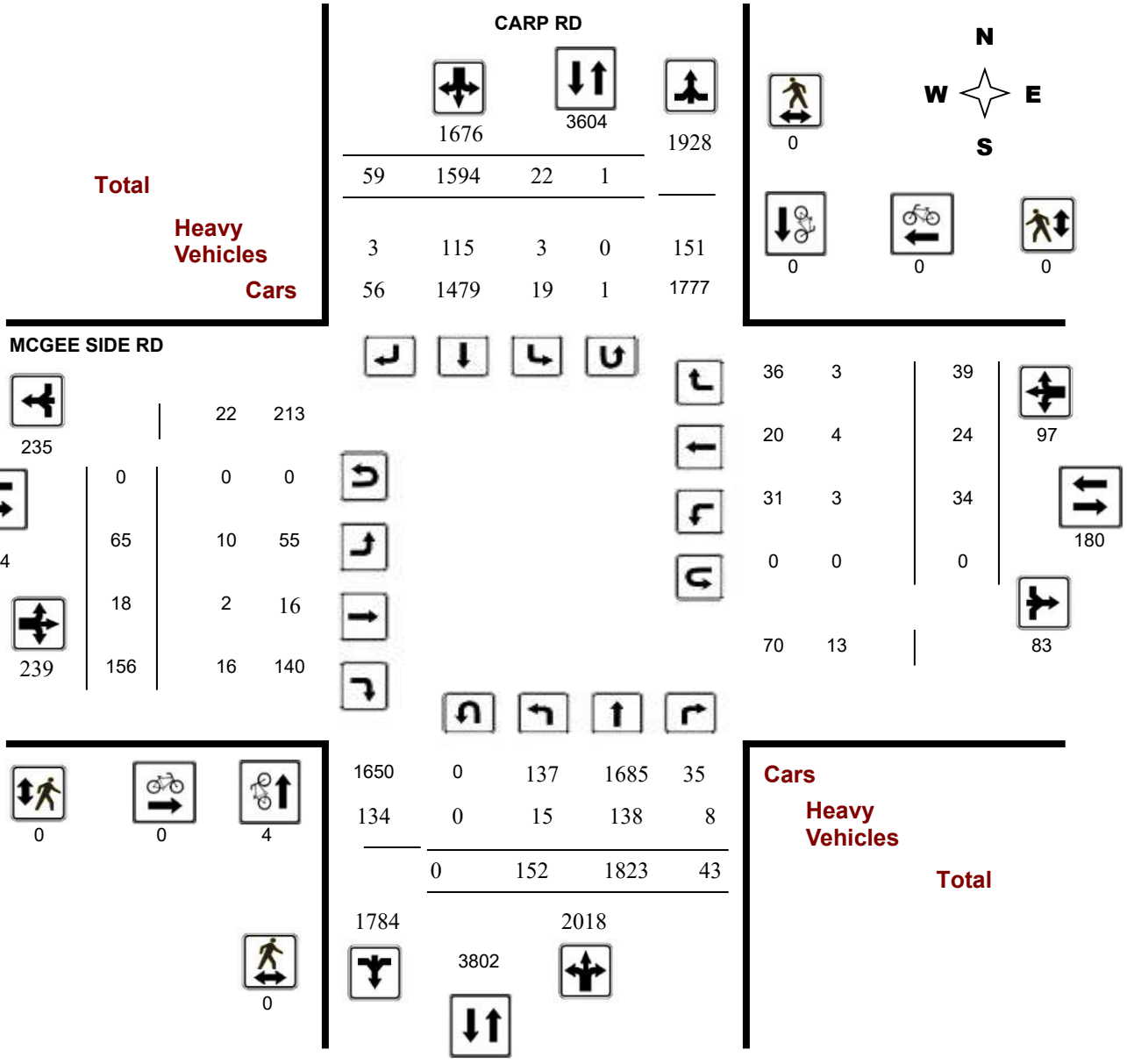
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019
Start Time: 07:00
WO No: 38506
Device: Miovision

Full Study Diagram



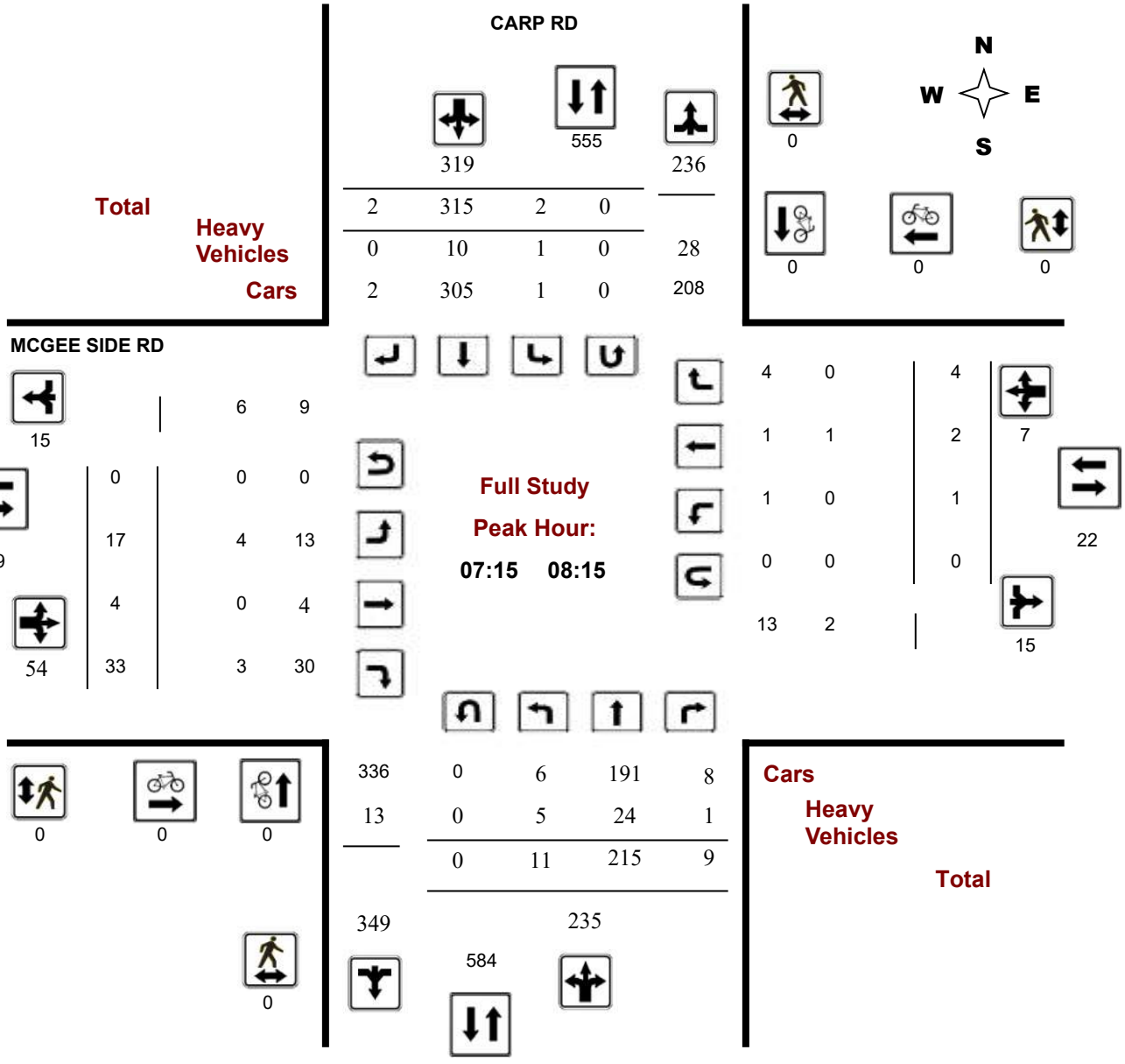
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019
Start Time: 07:00
WO No: 38506
Device: Miovision

Full Study Peak Hour Diagram



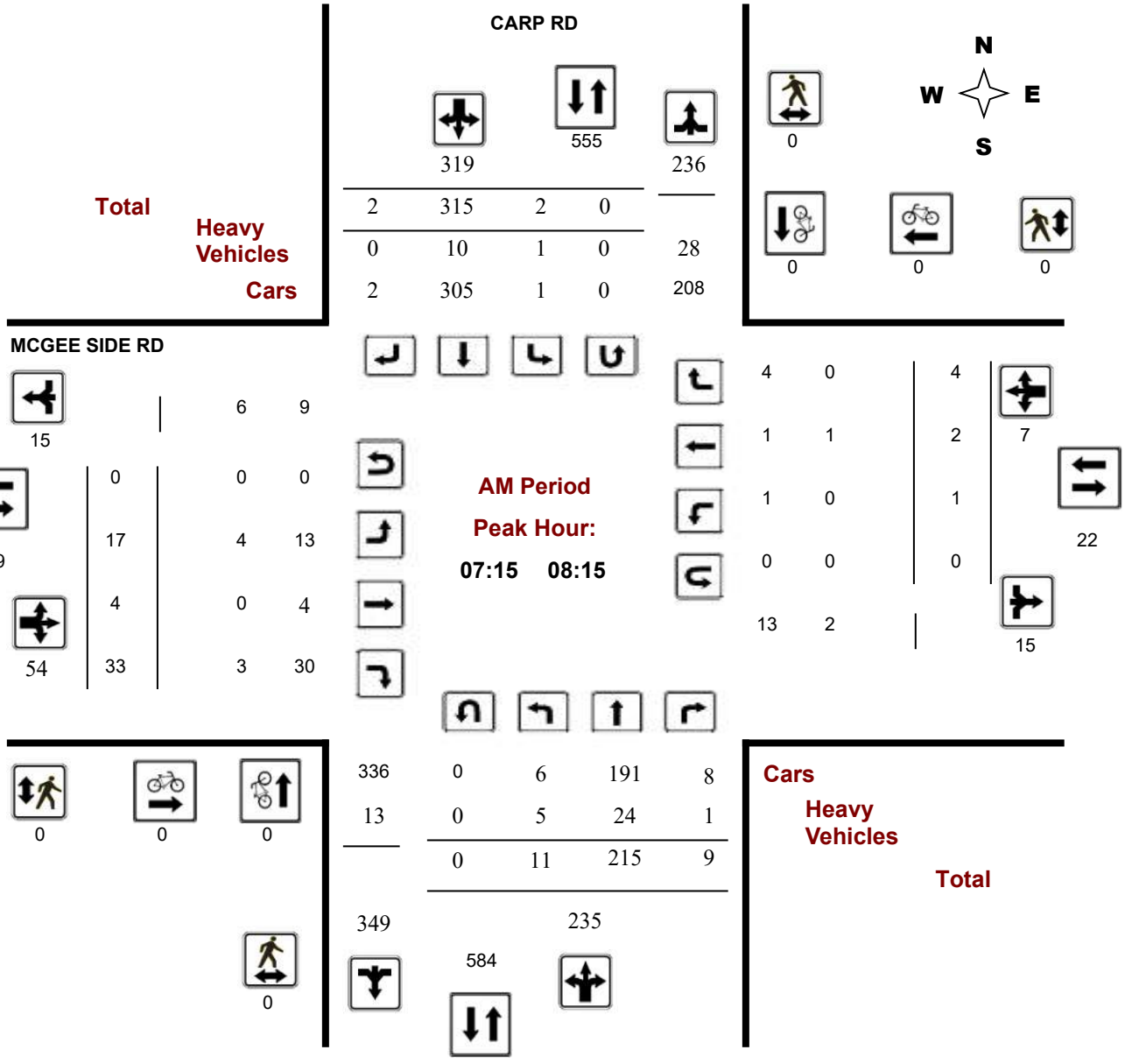
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019
Start Time: 07:00
WO No: 38506
Device: Miovision

AM Period Peak Hour Diagram



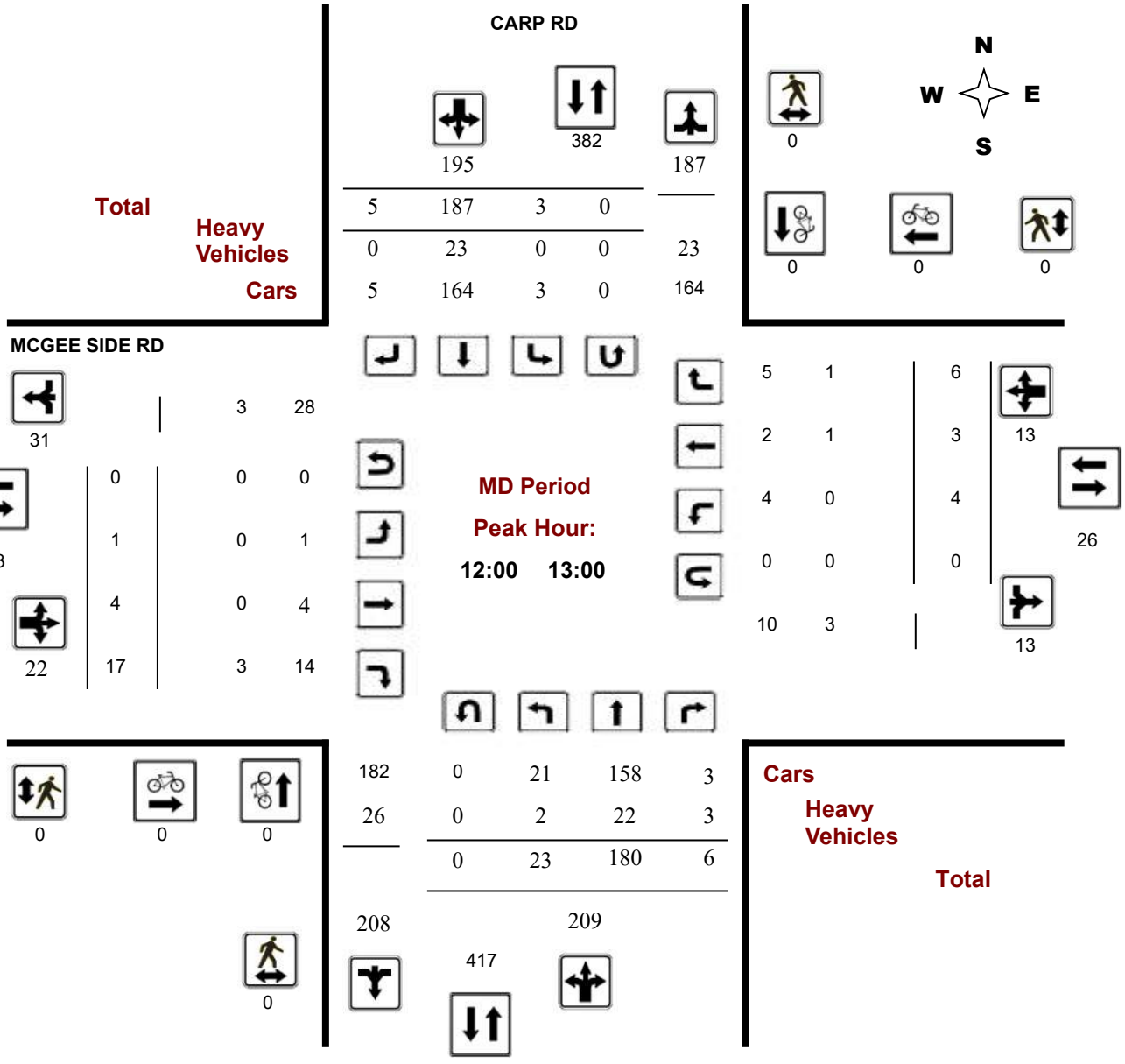
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019
Start Time: 07:00
WO No: 38506
Device: Miovision

MD Period Peak Hour Diagram



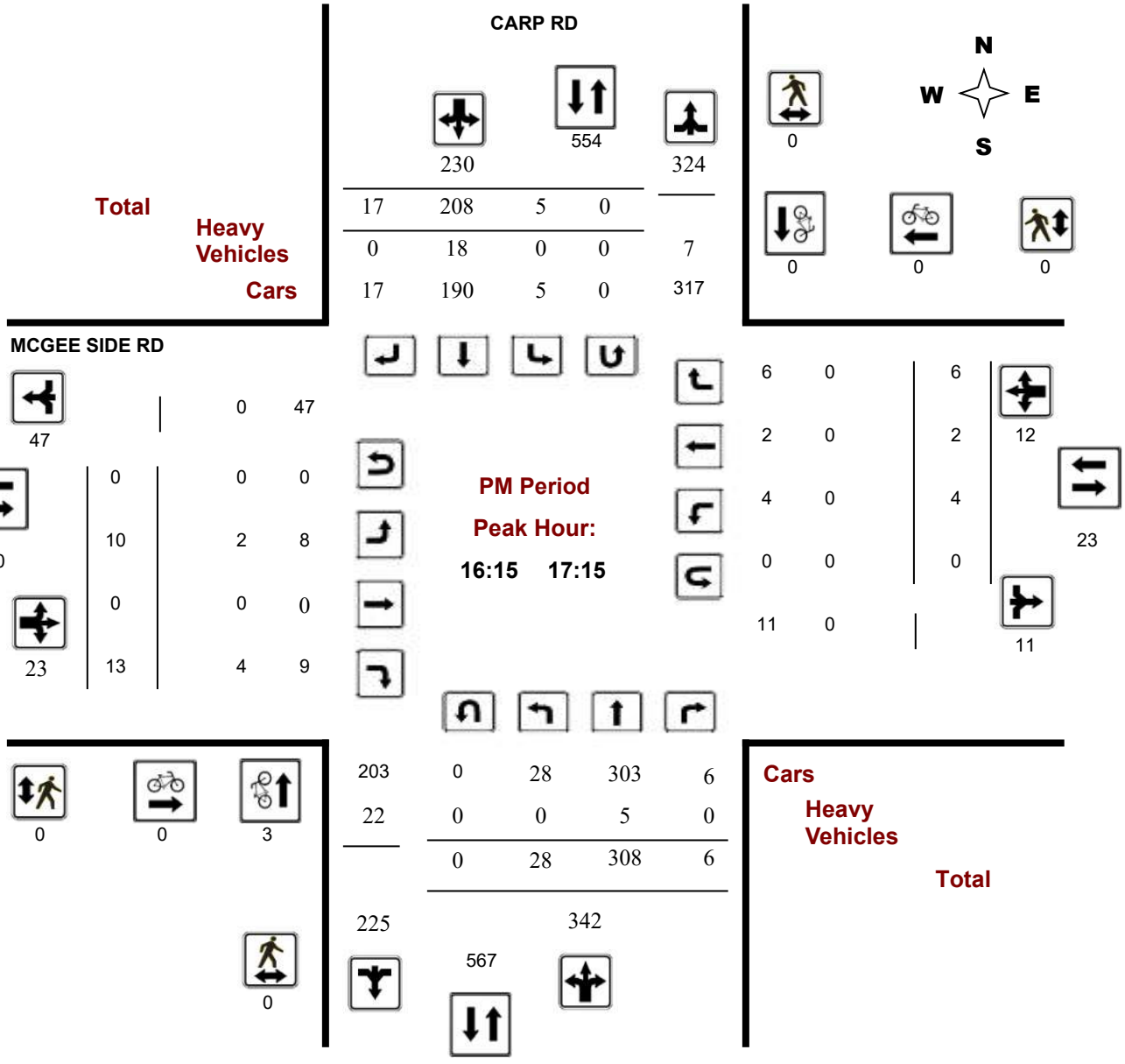
Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019
Start Time: 07:00
WO No: 38506
Device: Miovision

PM Period Peak Hour Diagram



Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019 **WO No:** 38506

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

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, April 09, 2019

Total Observed U-Turns

Northbound: 0 Southbound: 1

Eastbound: 0 Westbound: 0

AADT Factor

.90

	CARP RD									MCGEE SIDE RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	13	190	11	**214**	3	320	3	**326**	**540**	11	3	31	**45**	1	0	4	**5**	**50**	**590**
08:00 09:00	12	195	7	**214**	5	225	5	**235**	**449**	14	4	29	**47**	2	4	3	**9**	**56**	**505**
09:00 10:00	10	184	4	**198**	3	182	7	**192**	**390**	9	3	22	**34**	0	1	4	**5**	**39**	**429**
11:30 12:30	22	172	2	**196**	4	190	7	**201**	**397**	7	3	15	**25**	6	2	4	**12**	**37**	**434**
12:30 13:30	17	192	7	**216**	0	153	4	**157**	**373**	0	3	14	**17**	2	3	5	**10**	**27**	**400**
15:00 16:00	21	265	5	**291**	2	169	6	**177**	**468**	10	1	14	**25**	12	6	7	**25**	**50**	**518**
16:00 17:00	27	305	6	**338**	3	193	13	**209**	**547**	10	0	14	**24**	8	3	6	**17**	**41**	**588**
17:00 18:00	30	320	1	**351**	2	162	14	**178**	**529**	4	1	17	**22**	3	5	6	**14**	**36**	**565**
Sub Total	152	1823	43	**2018**	22	1594	59	**1675**	**3693**	65	18	156	**239**	34	24	39	**97**	**336**	**4029**
U Turns				**0**				**1**	**1**				**0**				**0**	**0**	**1**
Total	152	1823	43	**2018**	22	1594	59	**1676**	**3694**	65	18	156	**239**	34	24	39	**97**	**336**	**4030**
EQ 12Hr	211	2534	60	**2805**	31	2216	82	**2330**	**5135**	90	25	217	**332**	47	33	54	**135**	**467**	**5602**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	190	2281	54	**2524**	28	2612	97	**2097**	**4622**	81	22	195	**299**	42	30	49	**122**	**420**	**5042**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	249	2988	71	**3306**	37	3422	127	**2747**	**6055**	106	29	255	**392**	55	39	64	**160**	**550**	**6605**
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 @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019 **WO No:** 38506

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

Full Study 15 Minute Increments

		CARP RD									MCGEE SIDE RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	5	43	3	51	3	59	1	63	114	1	1	7	9	0	0	1	1	10	124
07:15	07:30	3	43	5	51	0	104	1	105	156	1	0	7	8	0	0	0	0	8	164
07:30	07:45	4	50	2	56	0	74	0	74	130	4	1	10	15	0	0	1	1	16	146
17:30	17:45	3	90	0	93	0	33	3	36	129	1	1	4	6	2	2	2	6	12	141
09:15	09:30	1	48	0	49	0	47	0	47	96	1	2	7	10	0	1	0	1	11	107
09:30	09:45	3	49	1	53	1	40	1	42	95	3	0	5	8	0	0	1	1	9	104
09:45	10:00	5	38	2	45	2	39	4	45	90	5	0	7	12	0	0	3	3	15	105
12:30	12:45	5	51	3	59	0	34	1	35	94	0	1	3	4	0	1	3	4	8	102
13:00	13:15	2	56	1	59	0	38	0	38	97	0	0	3	3	0	0	1	1	4	101
13:15	13:30	5	43	2	50	0	36	1	37	87	0	1	1	2	2	2	0	4	6	93
15:00	15:15	5	44	0	49	0	48	1	49	98	1	1	5	7	0	3	2	5	12	110
15:15	15:30	3	65	2	70	0	34	0	34	104	3	0	3	6	0	1	1	2	8	112
15:30	15:45	1	80	1	82	1	38	3	42	124	3	0	4	7	10	0	3	13	20	144
16:00	16:15	5	80	0	85	0	49	0	49	134	1	0	6	7	4	2	1	7	14	148
16:15	16:30	7	65	0	72	0	57	2	59	131	3	0	2	5	2	1	3	6	11	142
17:15	17:30	11	82	0	93	0	33	3	36	129	2	0	6	8	1	1	0	2	10	139
07:45	08:00	1	54	1	56	0	83	1	84	140	5	1	7	13	1	0	2	3	16	156
08:00	08:15	3	68	1	72	2	54	0	56	128	7	2	9	18	0	2	1	3	21	149
11:45	12:00	5	47	0	52	0	42	3	45	97	2	0	2	4	1	0	1	2	6	103
08:15	08:30	3	44	0	47	1	60	1	62	109	1	0	7	8	0	1	0	1	9	118
08:30	08:45	3	34	5	42	0	65	3	69	111	3	2	7	12	1	0	2	3	15	126
12:00	12:15	8	40	0	48	3	59	2	64	112	0	0	5	5	2	2	2	6	11	123
08:45	09:00	3	49	1	53	2	46	1	49	102	3	0	6	9	1	1	0	2	11	113
09:00	09:15	1	49	1	51	0	56	2	58	109	0	1	3	4	0	0	0	0	4	113
11:30	11:45	4	38	0	42	1	40	2	43	85	4	1	6	11	1	0	1	2	13	98
12:15	12:30	5	47	2	54	0	49	0	49	103	1	2	2	5	2	0	0	2	7	110
16:30	16:45	8	80	3	91	1	44	6	51	142	2	0	5	7	0	0	1	1	8	150
12:45	13:00	5	42	1	48	0	45	2	47	95	0	1	7	8	0	0	1	1	9	104
17:45	18:00	10	65	1	76	0	32	4	36	112	0	0	2	2	0	1	3	4	6	118
15:45	16:00	12	76	2	90	1	49	2	52	142	3	0	2	5	2	2	1	5	10	152
17:00	17:15	6	83	0	89	2	64	4	70	159	1	0	5	6	0	1	1	2	8	167
16:45	17:00	7	80	3	90	2	43	5	50	140	4	0	1	5	2	0	1	3	8	148
Total:		152	1823	43	2018	22	1594	59	1676	3694	65	18	156	239	34	24	39	97	336	4,030

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019 **WO No:** 38506

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

Full Study Cyclist Volume

Time Period		CARP RD			MCGEE SIDE RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
17:30	17:45	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
12:30	12:45	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	1	0	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
17:15	17:30	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
11:45	12:00	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
12:00	12:15	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
11:30	11:45	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
16:45	17:00	3	0	3	0	0	0	3
Total		4	0	**4**	0	0	0	4

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019 **WO No:** 38506

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

Full Study Pedestrian Volume

	CARP RD			MCGEE SIDE RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	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**
17:30 17:45	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**
12:30 12:45	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**
16:00 16:15	0	0	**0**	0	0	**0**	**0**
16:15 16:30	0	0	**0**	0	0	**0**	**0**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
11:45 12:00	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**
12:00 12:15	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**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
16:30 16:45	0	0	**0**	0	0	**0**	**0**
12:45 13:00	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
15:45 16:00	0	0	**0**	0	0	**0**	**0**
17:00 17:15	0	0	**0**	0	0	**0**	**0**
16:45 17:00	0	0	**0**	0	0	**0**	**0**
Total	0	0	**0**	0	0	**0**	**0**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019 **WO No:** 38506

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

Full Study Heavy Vehicles

		CARP RD									MCGEE SIDE RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	07:15	0	8	0	**8**	0	0	0	**0**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
07:15	07:30	1	5	1	**7**	0	0	0	**0**	**7**	1	0	1	**2**	0	0	0	**0**	**2**	**9**
07:30	07:45	3	5	0	**8**	0	3	0	**3**	**11**	0	0	1	**1**	0	0	0	**0**	**1**	**12**
17:30	17:45	1	1	0	**2**	0	0	0	**0**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**2**
09:15	09:30	0	3	0	**3**	0	5	0	**5**	**8**	0	0	1	**1**	0	0	0	**0**	**1**	**9**
09:30	09:45	0	8	0	**8**	0	10	0	**10**	**18**	0	0	0	**0**	0	0	0	**0**	**0**	**18**
09:45	10:00	1	8	0	**9**	0	2	0	**2**	**11**	0	0	1	**1**	0	0	0	**0**	**1**	**12**
12:30	12:45	1	7	1	**9**	0	4	0	**4**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
13:00	13:15	0	3	0	**3**	0	6	0	**6**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
13:15	13:30	1	7	1	**9**	0	2	0	**2**	**11**	0	0	1	**1**	1	0	0	**1**	**2**	**13**
15:00	15:15	0	2	0	**2**	0	4	1	**5**	**7**	1	0	0	**1**	0	0	1	**1**	**2**	**9**
15:15	15:30	1	2	1	**4**	0	3	0	**3**	**7**	0	0	1	**1**	0	0	0	**0**	**1**	**8**
15:30	15:45	0	4	1	**5**	0	3	0	**3**	**8**	0	0	0	**0**	1	0	0	**1**	**1**	**9**
16:00	16:15	1	5	0	**6**	0	2	0	**2**	**8**	1	0	1	**2**	1	0	1	**2**	**4**	**12**
16:15	16:30	0	1	0	**1**	0	2	0	**2**	**3**	1	0	0	**1**	0	0	0	**0**	**1**	**4**
17:15	17:30	0	1	0	**1**	0	2	0	**2**	**3**	1	0	0	**1**	0	0	0	**0**	**1**	**4**
07:45	08:00	1	7	0	**8**	0	5	0	**5**	**13**	0	0	1	**1**	0	0	0	**0**	**1**	**14**
08:00	08:15	0	7	0	**7**	1	2	0	**3**	**10**	3	0	0	**3**	0	1	0	**1**	**4**	**14**
11:45	12:00	0	4	0	**4**	0	5	0	**5**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
08:15	08:30	0	9	0	**9**	0	5	0	**5**	**14**	0	0	0	**0**	0	1	0	**1**	**1**	**15**
08:30	08:45	1	2	0	**3**	0	2	2	**4**	**7**	0	1	1	**2**	0	0	0	**0**	**2**	**9**
12:00	12:15	0	3	0	**3**	0	6	0	**6**	**9**	0	0	0	**0**	0	1	0	**1**	**1**	**10**
08:45	09:00	1	6	0	**7**	1	0	0	**1**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
09:00	09:15	0	5	0	**5**	0	5	0	**5**	**10**	0	1	0	**1**	0	0	0	**0**	**1**	**11**
11:30	11:45	1	4	0	**5**	0	3	0	**3**	**8**	1	0	0	**1**	0	0	0	**0**	**1**	**9**
12:15	12:30	0	8	1	**9**	0	5	0	**5**	**14**	0	0	1	**1**	0	0	0	**0**	**1**	**15**
16:30	16:45	0	1	0	**1**	0	6	0	**6**	**7**	1	0	2	**3**	0	0	0	**0**	**3**	**10**
12:45	13:00	1	4	1	**6**	0	8	0	**8**	**14**	0	0	2	**2**	0	0	1	**1**	**3**	**17**
17:45	18:00	0	3	1	**4**	0	2	0	**2**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
15:45	16:00	0	2	0	**2**	1	3	0	**4**	**6**	0	0	0	**0**	0	1	0	**1**	**1**	**7**
17:00	17:15	0	2	0	**2**	0	2	0	**2**	**4**	0	0	2	**2**	0	0	0	**0**	**2**	**6**
16:45	17:00	0	1	0	**1**	0	8	0	**8**	**9**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
Total:	None	15	138	8	**161**	3	115	3	**121**	**282**	10	2	16	**28**	3	4	3	**10**	**38**	**320**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

CARP RD @ MCGEE SIDE RD

Survey Date: Tuesday, April 09, 2019 **WO No:** 38506

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

Full Study 15 Minute U-Turn Total

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

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: CARP RD @ MARCH RD

Traffic Control: Traffic signal **Total Collisions:** 17

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Jan-29, Mon,09:07	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-16, Wed,17:00	Clear	Turning movement	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-26, Sun,09:49	Clear	SMV other	P.D. only	Dry	North	Turning right	Pick-up truck	Pole (utility, power)	0
2018-Aug-30, Thu,14:42	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Pick-up truck	Other motor vehicle	
2018-Oct-02, Tue,17:45	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-20, Thu,01:18	Clear	SMV other	P.D. only	Dry	South	Turning left	Automobile, station wagon	Pole (utility, power)	0
2019-Jan-31, Thu,10:14	Clear	Angle	P.D. only	Dry	East	Going ahead	Delivery van	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Feb-19, Tue,06:27	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Passenger van	Other motor vehicle	
2019-Sep-06, Fri,15:41	Rain	SMV other	P.D. only	Wet	North	Turning left	Pick-up truck	Skidding/sliding	0
2020-May-26, Tue,07:41	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2020-May-29, Fri,10:52	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Truck and trailer	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2020-Dec-09, Wed,09:15	Snow	Rear end	P.D. only	Slush	North	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2022-Feb-10, Thu,22:29	Freezing Rain	Angle	P.D. only	Ice	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: CARP RD @ MARCH RD

Traffic Control: Traffic signal **Total Collisions:** 17

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-Jul-14, Thu,08:04	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Nov-02, Wed,22:45	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2022-Nov-09, Wed,16:30	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2022-Dec-20, Tue,22:15	Clear	Angle	P.D. only	Dry	West	Stopped	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Pick-up truck	Other motor vehicle	

Location: CARP RD @ MCGEE SIDE RD

Traffic Control: Stop sign **Total Collisions:** 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Mar-09, Fri,00:00	Clear	Sideswipe	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Sep-06, Fri,15:13	Rain	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2020-Dec-01, Tue,17:09	Rain	Turning movement	P.D. only	Wet	North	Turning left	Pick-up truck	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2021-Dec-21, Tue,08:43	Clear	Angle	P.D. only	Wet	East	Going ahead	School bus	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	

Location: CARP RD btwn JOHN CAVANAUGH DR & MCGEE SIDE RD

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

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

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: CARP RD btwn JOHN CAVANAUGH DR & MCGEE SIDE RD

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Mar-06, Fri,09:12	Snow	Rear end	P.D. only	Ice	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	

Location: CARP RD btwn JOHN CAVANAUGH DR & RUSS BRADLEY RD

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Oct-17, Wed,07:58	Clear	Rear end	P.D. only	Dry	North	Going ahead	Truck - dump	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Aug-09, Fri,21:31	Rain	Turning movement	Non-fatal injury	Wet	South	Overtaking	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2020-Jan-20, Mon,09:28	Clear	Rear end	P.D. only	Ice	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2020-Nov-05, Thu,13:06	Clear	Turning movement	P.D. only	Dry	North	Turning left	Truck and trailer	Other motor vehicle	0
					North	Overtaking	Automobile, station wagon	Other motor vehicle	
2021-Jun-07, Mon,08:01	Clear	Approaching	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Truck and trailer	Other motor vehicle	
2022-Jun-15, Wed,13:15	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	

Location: CARP RD btwn MARCH RD & RUSS BRADLEY RD

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Mar-29, Fri,20:03	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Animal - wild	0
2019-Jul-22, Mon,20:47	Clear	SMV other	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Ditch	0
2019-Aug-24, Sat,09:16	Clear	SMV other	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Ran off road	0

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: CARP RD btwn MARCH RD & RUSS BRADLEY RD

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2021-Mar-19, Fri,16:03	Clear	SMV other	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Pole (utility, power)	0

Location: JOHN CAVANAUGH DR @ CARP RD

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2020-Jan-26, Sun,08:00	Snow	Turning movement	P.D. only	Loose snow	South	Turning left	Farm tractor	Other motor vehicle	0
					South	Overtaking	Pick-up truck	Other motor vehicle	

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

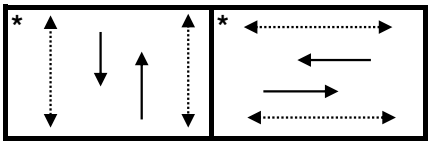
Intersection:	***Main:*** Carp	***Side:***	March
Controller:	**ATC 3**	**TSD:**	**6675**
Author:	Kymen Kwan	**Date:**	28-Jan-2025

Existing Timing Plans†

	Plan		**Ped Minimum Time**		
	Day 11	**Night** 12	***Walk***	***DW***	***A+R***
Cycle	90	90			
Offset	0	0			
NB Thru	45	45	7	14	4.6+1.8
SB Thru	45	45	7	14	4.6+1.8
EB Thru	45	45	7	14	4.6+2.1
WB Thru	45	45	7	14	4.6+2.1

Phasing Sequence‡

Plan: All



Notes: 1) For Plan 11 there is a maximum recall for all phases
2) For Plan 12, there is a minimum recall of 21s green time for the NS Thru movements

Schedule

Weekday

Time	Plan
0:05	11
23:55	12

Weekend

Time	Plan
0:05	11
23:55	12

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $62.38 ($55.20 + HST)

APPENDIX C
TRANS O-D Survey Profile – Rural West

Rural West

Demographic Characteristics

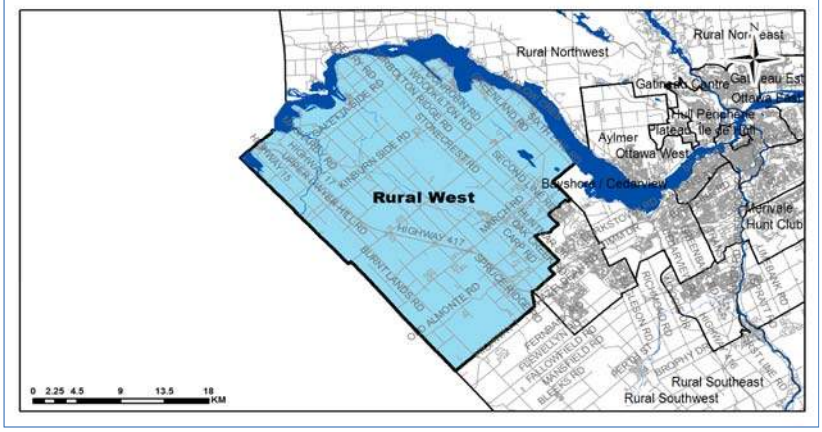
Population	24,960	Actively Travelled	19,280
Employed Population	12,280	Number of Vehicles	18,930
Households	8,750	Area (km^2)	744.4

Occupation

Status (age 5+)	Male	Female	Total
Full Time Employed	6,190	4,610	10,800
Part Time Employed	480	990	1,470
Student	2,720	2,970	5,680
Retiree	1,920	1,900	3,820
Unemployed	300	150	450
Homemaker	60	970	1,030
Other	260	140	390
Total:	11,920	11,730	23,660

Traveller Characteristics	Male	Female	Total
Transit Pass Holders	620	550	1,170
Licensed Drivers	9,590	9,180	18,770
Telecommuters	90	100	190
Trips made by residents	28,240	31,610	59,850

Selected Indicators	
Daily Trips per Person (age 5+)	2.53
Vehicles per Person	0.76
Number of Persons per Household	2.85
Daily Trips per Household	6.84
Vehicles per Household	2.16
Workers per Household	1.40
Population Density (Pop/km2)	30

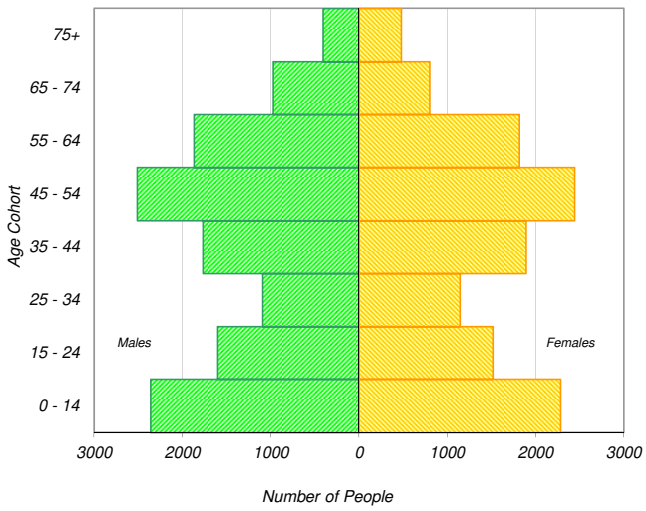


Household Size		
1 person	1,280	15%
2 persons	3,330	38%
3 persons	1,520	17%
4 persons	1,800	21%
5+ persons	820	9%
Total:	8,750	100%

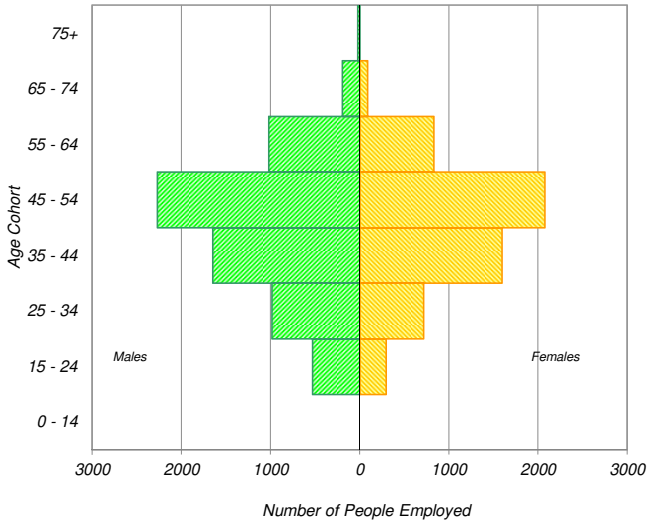
Households by Vehicle Availability		
0 vehicles	90	1%
1 vehicle	1,820	21%
2 vehicles	4,540	52%
3 vehicles	1,530	17%
4+ vehicles	770	9%
Total:	8,750	100%

Households by Dwelling Type		
Single-detached	8,330	95%
Semi-detached	160	2%
Townhouse	170	2%
Apartment/Condo	90	1%
Total:	8,750	100%

Population



Employed Population

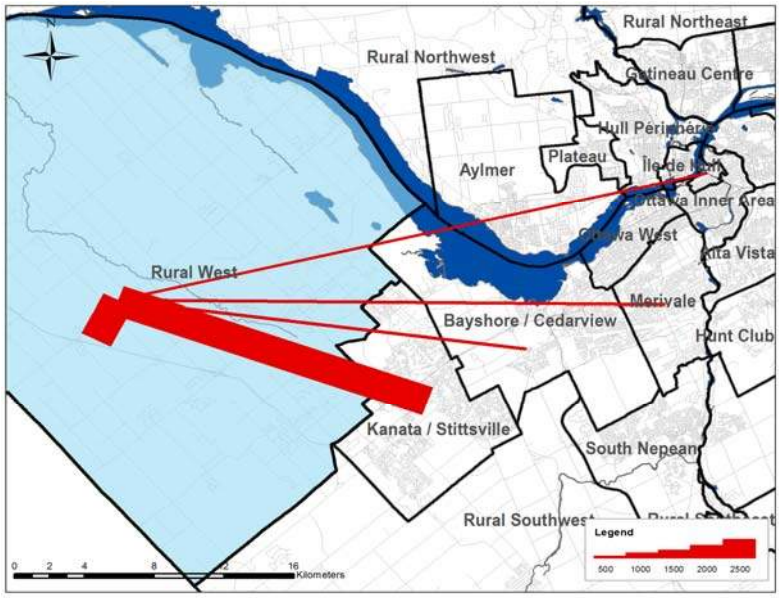


* In 2005 data was only collected for household members aged 11+ therefore these results cannot be compared to the 2011 data.

Travel Patterns

Top Five Destinations of Trips from Rural West

AM Peak Period



Summary of Trips to and from Rural West

AM Peak Period (6:30 - 8:59)	Destinations of Trips From District	% Total	Origins of Trips To District	% Total
Districts				
Ottawa Centre	430	4%	0	0%
Ottawa Inner Area	380	4%	20	0%
Ottawa East	80	1%	90	1%
Beacon Hill	70	1%	40	1%
Alta Vista	180	2%	20	0%
Hunt Club	80	1%	60	1%
Merivale	720	7%	70	1%
Ottawa West	170	2%	70	1%
Bayshore / Cedarview	760	7%	380	6%
Orléans	0	0%	70	1%
Rural East	0	0%	0	0%
Rural Southeast	20	0%	0	0%
South Gloucester / Leitrim	60	1%	40	1%
South Nepean	30	0%	80	1%
Rural Southwest	160	2%	80	1%
Kanata / Stittsvile	3,250	31%	1,050	17%
Rural West	4,020	38%	4,020	65%
Île de Hull	140	1%	0	0%
Hull Périphérie	50	0%	0	0%
Plateau	0	0%	0	0%
Aylmer	0	0%	50	1%
Rural Northwest	10	0%	0	0%
Pointe Gatineau	20	0%	10	0%
Gatineau Est	0	0%	20	0%
Rural Northeast	0	0%	0	0%
Buckingham / Masson-Angers	0	0%	0	0%
Ontario Sub-Total:	10,410	98%	6,090	99%
Québec Sub-Total:	220	2%	80	1%
Total:	10,630	100%	6,170	100%

Trips by Trip Purpose

24 Hours	From District		To District		Within District	
Work or related	6,640	32%	2,300	11%	1,860	12%
School	1,930	9%	460	2%	2,220	14%
Shopping	2,930	14%	220	1%	750	5%
Leisure	2,240	11%	1,440	7%	1,310	8%
Medical	680	3%	150	1%	420	3%
Pick-up / drive passenger	1,610	8%	800	4%	1,400	9%
Return Home	3,570	17%	14,860	72%	6,720	43%
Other	1,080	5%	370	2%	880	6%
Total:	20,680	100%	20,600	100%	15,560	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Work or related	4,090	62%	1,410	65%	1,140	28%
School	1,480	22%	420	19%	2,010	50%
Shopping	130	2%	0	0%	90	2%
Leisure	110	2%	40	2%	40	1%
Medical	120	2%	30	1%	0	0%
Pick-up / drive passenger	460	7%	50	2%	430	11%
Return Home	0	0%	150	7%	170	4%
Other	230	3%	60	3%	140	3%
Total:	6,620	100%	2,160	100%	4,020	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Work or related	40	1%	30	0%	50	1%
School	40	1%	0	0%	0	0%
Shopping	550	17%	30	0%	140	4%
Leisure	510	16%	290	4%	510	14%
Medical	170	5%	40	1%	0	0%
Pick-up / drive passenger	360	11%	360	5%	430	12%
Return Home	1,380	42%	5,950	88%	2,310	63%
Other	200	6%	40	1%	230	6%
Total:	3,250	100%	6,740	100%	3,670	100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	56,840		27%
AM Peak Period	12,800	23%	31%
PM Peak Period	13,660	24%	27%

Trips by Primary Travel Mode

24 Hours	From District		To District		Within District	
Auto Driver	15,110	73%	15,000	73%	8,640	55%
Auto Passenger	3,170	15%	3,310	16%	2,320	15%
Transit	790	4%	680	3%	0	0%
Bicycle	190	1%	180	1%	50	0%
Walk	0	0%	0	0%	720	5%
Other	1,430	7%	1,430	7%	3,840	25%
Total:	20,690	100%	20,600	100%	15,570	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Auto Driver	4,400	67%	1,570	73%	1,670	42%
Auto Passenger	610	9%	180	8%	490	12%
Transit	650	10%	0	0%	0	0%
Bicycle	0	0%	0	0%	0	0%
Walk	0	0%	0	0%	140	3%
Other	950	14%	400	19%	1,720	43%
Total:	6,610	100%	2,150	100%	4,020	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Auto Driver	2,590	80%	5,070	75%	1,960	54%
Auto Passenger	540	17%	850	13%	870	24%
Transit	0	0%	450	7%	0	0%
Bicycle	10	0%	0	0%	20	1%
Walk	0	0%	0	0%	180	5%
Other	100	3%	370	5%	630	17%
Total:	3,240	100%	6,740	100%	3,660	100%

Avg Vehicle Occupancy	From District	To District	Within District
24 Hours	1.21	1.22	1.27
AM Peak Period	1.14	1.11	1.29
PM Peak Period	1.21	1.17	1.44

Transit Modal Split	From District	To District	Within District
24 Hours	4%	4%	0%
AM Peak Period	11%	0%	0%
PM Peak Period	0%	7%	0%

APPENDIX D
TRANS Model Plots

TRANS Regional Model

Version 1.01 - Assigned December 09, 2024

AM Peak Hour Total Traffic Volume

Carp Road

2022 Model

User Initials: AJ
Plot Prepared: January 30, 2025
EMME Scenario: 22002

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

200 400 600 800

TRANS Regional Model

Version 1.01 - Assigned December 09, 2024

AM Peak Hour Total Traffic Volume

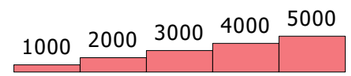
Carp Road

2046 Model

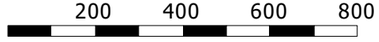
User Initials: AJ
Plot Prepared: January 30, 2025
EMME Scenario: 46001

Legend

AM Peak Hour Total Traffic Volume



Distance (m)



Carp Airport

Carp River

Carp Road

Thomas Argue Road

Diamondview Road

McGee Side Road

West

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

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

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

APPENDIX E
MMLOS Analysis Tables

Multi-Modal Level of Service - Segments Form

Consultant	**Robinson Consultants Inc.**	**Project**	**24105**
Scenario	**Existing**	**Date**	**2025-02-24**
Comments	**Carp Road / March Road**		

SEGMENTS		Carp Road	March to McGee Side	
			West (SB)	East (NB)
Pedestrian	Sidewalk Width Boulevard Width	-	no sidewalk n/a	no sidewalk n/a
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000
	Operating Speed On-Street Parking		> 60 km/h no	> 60 km/h no
	Exposure to Traffic PLoS		**F**	**F**
	Effective Sidewalk Width			
	Pedestrian Volume		250 ped/hr	250 ped/hr
	Crowding PLoS		**-**	**-**
	Level of Service		**-**	**-**
Bicycle	Type of Cycling Facility	F	Curbside Bike Lane	Curbside Bike Lane
	Number of Travel Lanes		≤ 1 each direction	≤ 1 each direction
	Operating Speed		> 70 km/h	> 70 km/h
	# of Lanes & Operating Speed LoS		**E**	**E**
	Bike Lane (+ Parking Lane) Width		<1.2 m	<1.2 m
	Bike Lane Width LoS		**F**	**F**
	Bike Lane Blockages		Rare	Rare
	Blockage LoS		**A**	**A**
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		>60 to <65 km/h	>60 to <65 km/h
	Unsignalized Crossing - Lowest LoS		**D**	**D**
	Level of Service		**F**	**F**
Transit	Facility Type	D	Mixed Traffic	Mixed Traffic
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8
	Level of Service		**D**	**D**
Truck	Truck Lane Width	C	≤ 3.5 m	≤ 3.5 m
	Travel Lanes per Direction		1	1
	Level of Service		**C**	**C**

Multi-Modal Level of Service - Intersections Form

Consultant	**Robinson Consultants Inc.**	**Project**	**24105**
Scenario	**Existing**	**Date**	**24-Feb-25**
Comments	**Carp Road / March Road**		

INTERSECTIONS		Carp Road / March Road			
	Crossing Side	**NORTH**	**SOUTH**	**EAST**	**WEST**
Pedestrian	Lanes	3	3	3	3
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No
	Right Turn Channel	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane	Conv'tl without Receiving Lane
	Corner Radius	10-15m	10-15m	10-15m	10-15m
	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
	PETSI Score	**74**	**74**	**74**	**74**
	Ped. Exposure to Traffic LoS	**C**	**C**	**C**	**C**
	Cycle Length	90	90	90	90
	Effective Walk Time	24	24	24	24
	Average Pedestrian Delay	**24**	**24**	**24**	**24**
	Pedestrian Delay LoS	**C**	**C**	**C**	**C**
	Level of Service	**C**	**C**	**C**	**C**
		C			
	Approach From	**NORTH**	**SOUTH**	**EAST**	**WEST**
Bicycle	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Dedicated Right Turning Speed	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Cyclist Through Movement	**Not Applicable**	**Not Applicable**	**Not Applicable**	**Not Applicable**
	Separated or Mixed Traffic	**Separated**	**Separated**	**Separated**	**Separated**
	Left Turn Approach	1 lane crossed	1 lane crossed	1 lane crossed	1 lane crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h
	Left Turning Cyclist	**E**	**E**	**E**	**E**
	Level of Service	**E**	**E**	**E**	**E**
		E			
Transit	Average Signal Delay	≤ 20 sec	≤ 20 sec	≤ 20 sec	≤ 20 sec
	Level of Service	**C**	**C**	**C**	**C**
		C			
Truck	Effective Corner Radius	10 - 15 m	10 - 15 m	10 - 15 m	10 - 15 m
	Number of Receiving Lanes on Departure from Intersection	1	1	1	1
	Level of Service	**E**	**E**	**E**	**E**
		E			
Auto	Volume to Capacity Ratio	0.0 - 0.60			
	Level of Service	**A**			

APPENDIX F
TDM-Supportive Development Design and Infrastructure Checklist

TDM-Supportive Development Design and Infrastructure Checklists

Non-Residential Developments (office, institutional, retail or industrial)

TDM Measure Legend:

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

	TDM-supportive design & infrastructure measures *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	1	**WALKING AND CYCLING: ROUTES**	
	1.1	Building Location and Access Points	
Basic	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Basic	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Basic	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	1.2	Facilities for Walking and Cycling	
Required	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations (see Official Plan policy 4.3.3)	☐ N/A. There are no nearby transit stations
Required	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible (see Official Plan policy 4.3.12)	☐ N/A – access road will not include sidewalks, not required in Rural Transect per new OP Policy 4.1.2 (11)
Required	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (see Official Plan policy 4.3.10)	☐ N/A – access road will not include sidewalks, not required in Rural Transect per new OP Policy 4.1.2 (11)
Required	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see Official Plan policy 4.3.10)	☐ N/A – access road will not include sidewalks, not required in Rural Transect per new OP Policy 4.1.2 (11)

	TDM-supportive design & infrastructure measures *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
Required	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see Official Plan policy 4.3.11)	☐ N/A – access road will not include sidewalks, not required in Rural Transect per new OP Policy 4.1.2 (11)
Basic	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐ N/A, no nearby transit stops
Basic	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐ N/A, no nearby transit stops
Basic	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☒ Target operating speed on internal local road of 30 km/h.
	1.3	Amenities for Walking and Cycling	
Basic	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Basic	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐ N/A
	2	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	Bicycle Parking	
Required	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see Official Plan policy 4.3.6)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Required	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas (see Zoning By-law Section 111)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Required	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see Zoning By-law Section 111)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Basic	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Better	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer / visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	2.2	Secure Bicycle Parking	
Required	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see Zoning By-law Section 111)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Better	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	2.3	Shower and Change Facilities	

	TDM-supportive design & infrastructure measures *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
Basic	2.3.1	Provide shower and change facilities for the use of active commuters	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Better	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	2.4	Bicycle Repair Station	
Better	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	3	**TRANSIT**	
	3.1	Customer Amenities	
Basic	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐ N/A
Basic	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐ N/A
Better	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐ N/A
	4	**RIDESHARING**	
	4.1	Pick-up and Drop-off Facilities	
Basic	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	4.2	Carpool Parking	
Basic	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Better	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	5	**CARSHARING AND BIKESHARING**	
	5.1	Carshare Parking Spaces	
Better	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces (see Zoning By-law Section 94)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	5.2	Bikeshare Station Location	
Better	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.

	TDM-supportive design & infrastructure measures *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	6	**PARKING**	
	6.1	Number of Parking Spaces	
Required	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Basic	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Basic	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (see Zoning By-law Section 104)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
Better	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (see Zoning By-law Section 111)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	6.2	Separate Long-Term and Short-Term Parking Areas	
Better	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.
	7	**OTHER**	
	7.1	On-site Amenities to Minimize Off-Site Trips	
Better	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐ N/A – cannot be evaluated at the plan of subdivision stage – revisit in site plans for individual parcels.

Adopted from City of Ottawa TIA Guidelines TDM Supportive Development Design and Infrastructure Checklist:

https://documents.ottawa.ca/sites/documents/files/+tdm_infra_design_checklist_en.pdf

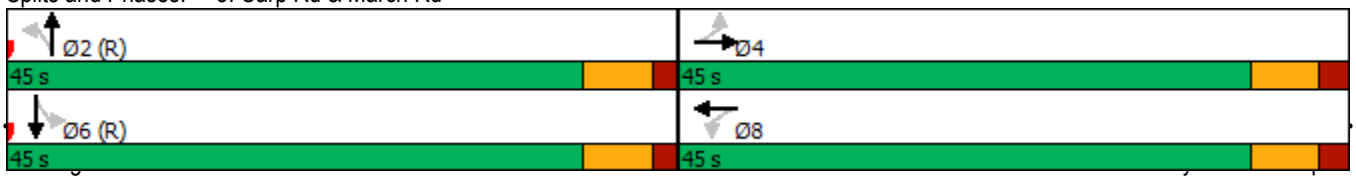
APPENDIX G
Traffic Operations Analysis Output

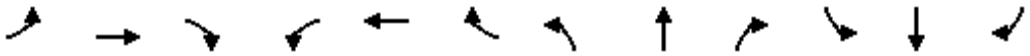
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	265	86	60	54	2	16	99	35	11	181	15
Future Volume (vph)	56	265	86	60	54	2	16	99	35	11	181	15
Satd. Flow (prot)	1597	1799	0	1687	1820	0	1378	1571	0	1805	1744	0
Flt Permitted	0.719			0.447			0.624			0.667		
Satd. Flow (perm)	1209	1799	0	794	1820	0	905	1571	0	1267	1744	0
Satd. Flow (RTOR)		23			2			25			6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	0%	7%	7%	4%	0%	31%	17%	14%	0%	6%	27%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	370	0	63	59	0	17	141	0	12	207	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.11	0.48		0.19	0.08		0.04	0.20		0.02	0.28	
Control Delay	16.5	19.9		18.1	15.4		15.5	14.1		15.1	17.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.5	19.9		18.1	15.4		15.5	14.1		15.1	17.4	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		19.4			16.8			14.2			17.3	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	6.3	44.0		7.0	6.0		1.8	12.6		1.2	22.9	
Queue Length 95th (m)	14.2	69.1		16.0	13.4		5.8	25.1		4.5	38.9	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	514	778		337	775		388	688		543	751	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.48		0.19	0.08		0.04	0.20		0.02	0.28	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 17.7 — Intersection LOS: B
Intersection Capacity Utilization 57.3% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	4	33	1	2	4	11	215	9	2	315	2
Future Volume (Veh/h)	17	4	33	1	2	4	11	215	9	2	315	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	18	4	35	1	2	4	12	229	10	2	335	2
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	603	603	336	635	599	234	337			239		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	603	603	336	635	599	234	337			239		
tC, single (s)	7.3	6.5	6.3	7.1	7.0	6.2	4.5			4.6		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.4	3.5	4.5	3.3	2.6			2.7		
p0 queue free %	95	99	95	100	99	100	99			100		
cM capacity (veh/h)	373	410	690	367	352	810	1017			1092		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	7	251	339
Volume Left	18	1	12	2
Volume Right	35	4	10	2
cSH	524	525	1017	1092
Volume to Capacity	0.11	0.01	0.01	0.00
Queue Length 95th (m)	2.9	0.3	0.3	0.0
Control Delay (s)	12.7	12.0	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	12.7	12.0	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	32.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	236	0	0	327
Future Volume (Veh/h)	0	0	236	0	0	327
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	251	0	0	348
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	599	251			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	599	251			251	
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)	468	793			1326	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	251	348
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1326
Volume to Capacity	0.00	0.15	0.00
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	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	236	0	0	327
Future Volume (Veh/h)	0	0	236	0	0	327
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	251	0	0	348
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	599	251			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	599	251			251	
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)	468	793			1326	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	251	348
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1326
Volume to Capacity	0.00	0.15	0.00
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		

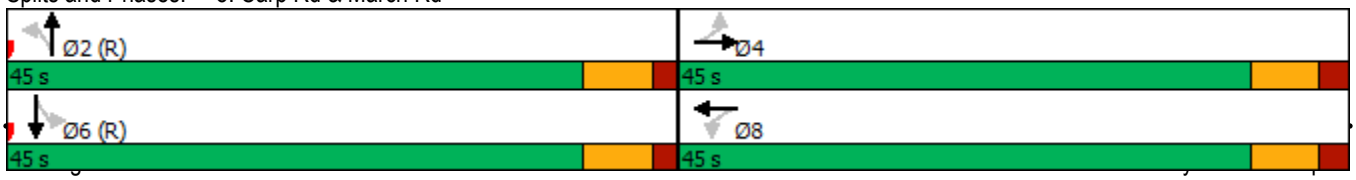
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

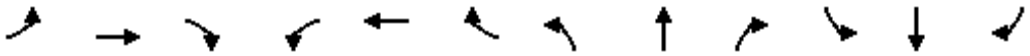
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	55	25	39	277	5	147	245	44	11	138	48
Future Volume (vph)	38	55	25	39	277	5	147	245	44	11	138	48
Satd. Flow (prot)	1805	1724	0	1530	1858	0	1770	1790	0	1805	1680	0
Flt Permitted	0.522			0.701			0.633			0.510		
Satd. Flow (perm)	992	1724	0	1129	1858	0	1179	1790	0	969	1680	0
Satd. Flow (RTOR)		27			1			13			24	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	16%	18%	2%	0%	2%	4%	2%	0%	11%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	86	0	41	300	0	156	308	0	12	198	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.09	0.11		0.09	0.38		0.31	0.40		0.03	0.27	
Control Delay	16.4	11.7		16.2	19.4		19.1	18.8		15.3	15.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.4	11.7		16.2	19.4		19.1	18.8		15.3	15.7	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		13.2			19.0			18.9			15.7	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	4.2	6.2		4.3	36.3		18.2	35.8		1.2	19.6	
Queue Length 95th (m)	10.7	15.1		10.8	57.1		33.2	57.2		4.6	35.1	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	422	749		480	791		505	775		415	734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.11		0.09	0.38		0.31	0.40		0.03	0.27	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 17.7 — Intersection LOS: B
Intersection Capacity Utilization 68.9% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	13	4	2	6	28	308	6	5	208	17
Future Volume (Veh/h)	10	0	13	4	2	6	28	308	6	5	208	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	11	0	14	4	2	7	31	338	7	5	229	19
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	660	656	238	666	662	342	248			345		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	660	656	238	666	662	342	248			345		
tC, single (s)	7.3	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.6	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	98	99	99	99	98			100		
cM capacity (veh/h)	341	377	734	361	374	706	1330			1225		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	25	13	376	253
Volume Left	11	4	31	5
Volume Right	14	7	7	19
cSH	487	493	1330	1225
Volume to Capacity	0.05	0.03	0.02	0.00
Queue Length 95th (m)	1.3	0.6	0.6	0.1
Control Delay (s)	12.8	12.5	0.8	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	12.8	12.5	0.8	0.2
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	41.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	324	0	0	202
Future Volume (Veh/h)	0	0	324	0	0	202
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	356	0	0	222
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	578	356			356	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	578	356			356	
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)	481	693			1214	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	356	222
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1214
Volume to Capacity	0.00	0.21	0.00
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	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	324	0	0	202
Future Volume (Veh/h)	0	0	324	0	0	202
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	356	0	0	222
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	578	356			356	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	578	356			356	
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)	481	693			1214	

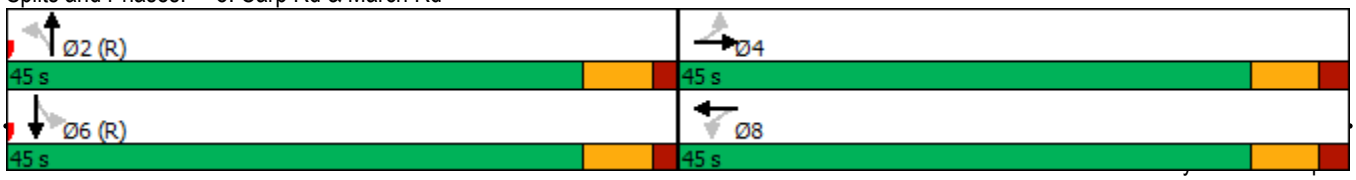
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	356	222
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1214
Volume to Capacity	0.00	0.21	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

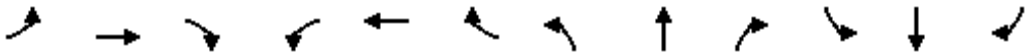
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	281	91	64	57	2	17	105	37	12	192	16
Future Volume (vph)	59	281	91	64	57	2	17	105	37	12	192	16
Satd. Flow (prot)	1597	1799	0	1687	1820	0	1378	1571	0	1805	1744	0
Flt Permitted	0.717			0.424			0.610			0.662		
Satd. Flow (perm)	1206	1799	0	753	1820	0	885	1571	0	1258	1744	0
Satd. Flow (RTOR)		23			2			25			6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	0%	7%	7%	4%	0%	31%	17%	14%	0%	6%	27%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	392	0	67	62	0	18	150	0	13	219	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.12	0.50		0.21	0.08		0.05	0.22		0.02	0.29	
Control Delay	16.6	20.5		18.6	15.4		15.6	14.4		15.2	17.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.6	20.5		18.6	15.4		15.6	14.4		15.2	17.6	
LOS	B	C		B	B		B	B		B	B	
Approach Delay		19.9			17.0			14.5			17.5	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	6.7	47.6		7.5	6.3		1.9	13.7		1.3	24.5	
Queue Length 95th (m)	14.8	74.3		17.0	14.0		6.0	26.5		4.8	41.2	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	513	778		320	775		379	688		539	751	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.50		0.21	0.08		0.05	0.22		0.02	0.29	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	4	35	1	2	4	12	228	10	2	334	2
Future Volume (Veh/h)	18	4	35	1	2	4	12	228	10	2	334	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	19	4	37	1	2	4	13	243	11	2	355	2
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	640	640	356	674	636	248	357			254		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	640	640	356	674	636	248	357			254		
tC, single (s)	7.3	6.5	6.3	7.1	7.0	6.2	4.5			4.6		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.4	3.5	4.5	3.3	2.6			2.7		
p0 queue free %	95	99	94	100	99	99	99			100		
cM capacity (veh/h)	352	390	673	344	334	795	999			1077		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	60	7	267	359
Volume Left	19	1	13	2
Volume Right	37	4	11	2
cSH	503	503	999	1077
Volume to Capacity	0.12	0.01	0.01	0.00
Queue Length 95th (m)	3.2	0.3	0.3	0.0
Control Delay (s)	13.1	12.3	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	13.1	12.3	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	34.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	251	0	0	347
Future Volume (Veh/h)	0	0	251	0	0	347
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	267	0	0	369
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	636	267			267	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636	267			267	
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)	445	777			1308	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	267	369
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1308
Volume to Capacity	0.00	0.16	0.00
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	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	251	0	0	347
Future Volume (Veh/h)	0	0	251	0	0	347
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	267	0	0	369
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	636	267			267	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636	267			267	
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)	445	777			1308	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	267	369
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1308
Volume to Capacity	0.00	0.16	0.00
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		

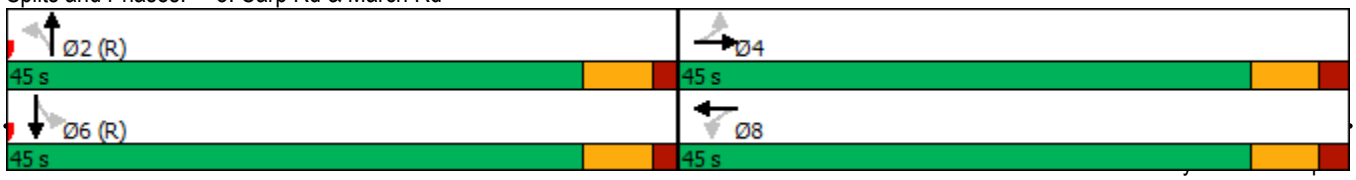
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

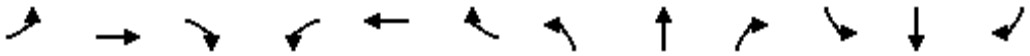
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	58	27	41	294	5	156	260	47	12	146	51
Future Volume (vph)	40	58	27	41	294	5	156	260	47	12	146	51
Satd. Flow (prot)	1805	1721	0	1530	1860	0	1770	1790	0	1805	1680	0
Flt Permitted	0.502			0.698			0.621			0.490		
Satd. Flow (perm)	954	1721	0	1124	1860	0	1157	1790	0	931	1680	0
Satd. Flow (RTOR)		29			1			13			24	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	16%	18%	2%	0%	2%	4%	2%	0%	11%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	91	0	44	318	0	166	327	0	13	209	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.11	0.12		0.09	0.40		0.33	0.42		0.03	0.28	
Control Delay	16.6	11.6		16.2	19.8		19.6	19.3		15.3	16.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.6	11.6		16.2	19.8		19.6	19.3		15.3	16.0	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		13.2			19.4			19.4			15.9	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	4.6	6.5		4.7	38.9		19.6	38.6		1.3	21.0	
Queue Length 95th (m)	11.4	15.7		11.4	60.9		35.6	61.2		4.9	37.0	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	405	749		478	792		496	775		399	734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.12		0.09	0.40		0.33	0.42		0.03	0.28	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 18.0 — Intersection LOS: B
Intersection Capacity Utilization 70.8% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	14	4	2	6	30	327	6	5	221	18
Future Volume (Veh/h)	11	0	14	4	2	6	30	327	6	5	221	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	0	15	4	2	7	33	359	7	5	243	20
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	700	695	253	706	702	362	263			366		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	700	695	253	706	702	362	263			366		
tC, single (s)	7.3	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.6	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	98	99	99	99	97			100		
cM capacity (veh/h)	319	358	720	338	355	687	1313			1204		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	27	13	399	268
Volume Left	12	4	33	5
Volume Right	15	7	7	20
cSH	462	470	1313	1204
Volume to Capacity	0.06	0.03	0.03	0.00
Queue Length 95th (m)	1.5	0.7	0.6	0.1
Control Delay (s)	13.3	12.9	0.9	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	13.3	12.9	0.9	0.2
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	43.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	344	0	0	214
Future Volume (Veh/h)	0	0	344	0	0	214
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	378	0	0	235
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	613	378			378	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	613	378			378	
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)	459	673			1192	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	378	235
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1192
Volume to Capacity	0.00	0.22	0.00
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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	344	0	0	214
Future Volume (Veh/h)	0	0	344	0	0	214
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	378	0	0	235
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	613	378			378	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	613	378			378	
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)	459	673			1192	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	378	235
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1192
Volume to Capacity	0.00	0.22	0.00
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		

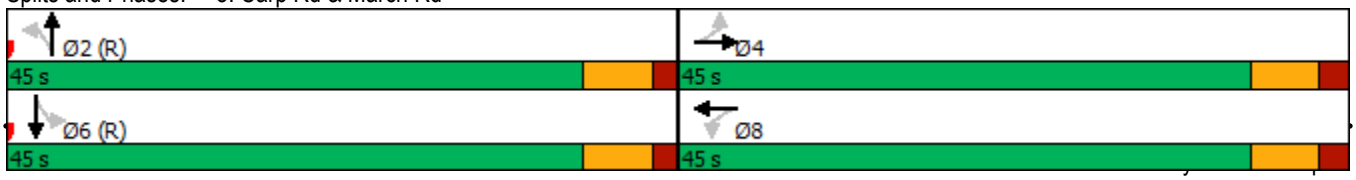
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

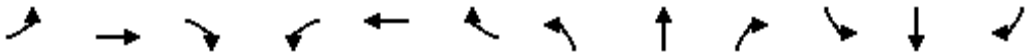
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	296	96	67	60	2	18	110	39	12	202	17
Future Volume (vph)	62	296	96	67	60	2	18	110	39	12	202	17
Satd. Flow (prot)	1597	1799	0	1687	1820	0	1378	1571	0	1805	1744	0
Flt Permitted	0.715			0.402			0.596			0.657		
Satd. Flow (perm)	1202	1799	0	714	1820	0	864	1571	0	1248	1744	0
Satd. Flow (RTOR)		23			2			25			6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	0%	7%	7%	4%	0%	31%	17%	14%	0%	6%	27%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	413	0	71	65	0	19	157	0	13	231	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.13	0.53		0.23	0.08		0.05	0.23		0.02	0.31	
Control Delay	16.6	21.1		19.2	15.5		15.7	14.6		15.2	17.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.6	21.1		19.2	15.5		15.7	14.6		15.2	17.9	
LOS	B	C		B	B		B	B		B	B	
Approach Delay		20.5			17.4			14.7			17.7	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	7.0	51.0		8.0	6.6		2.0	14.5		1.3	26.1	
Queue Length 95th (m)	15.3	79.2		18.2	14.5		6.3	27.7		4.8	43.3	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	511	778		303	775		370	688		535	751	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.53		0.23	0.08		0.05	0.23		0.02	0.31	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 18.5 — Intersection LOS: B
Intersection Capacity Utilization 61.2% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	4	37	1	2	4	12	240	10	2	351	2
Future Volume (Veh/h)	19	4	37	1	2	4	12	240	10	2	351	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	20	4	39	1	2	4	13	255	11	2	373	2
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	670	670	374	706	666	260	375			266		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	670	670	374	706	666	260	375			266		
tC, single (s)	7.3	6.5	6.3	7.1	7.0	6.2	4.5			4.6		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.4	3.5	4.5	3.3	2.6			2.7		
p0 queue free %	94	99	94	100	99	99	99			100		
cM capacity (veh/h)	335	375	657	326	320	783	982			1065		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	63	7	279	377
Volume Left	20	1	13	2
Volume Right	39	4	11	2
cSH	486	486	982	1065
Volume to Capacity	0.13	0.01	0.01	0.00
Queue Length 95th (m)	3.5	0.4	0.3	0.0
Control Delay (s)	13.5	12.5	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	13.5	12.5	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	35.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	263	0	0	365
Future Volume (Veh/h)	0	0	263	0	0	365
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	280	0	0	388
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	668	280			280	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	668	280			280	
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)	426	764			1294	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	280	388
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1294
Volume to Capacity	0.00	0.16	0.00
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	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	263	0	0	365
Future Volume (Veh/h)	0	0	263	0	0	365
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	280	0	0	388
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	668	280			280	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	668	280			280	
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)	426	764			1294	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	280	388
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1294
Volume to Capacity	0.00	0.16	0.00
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		

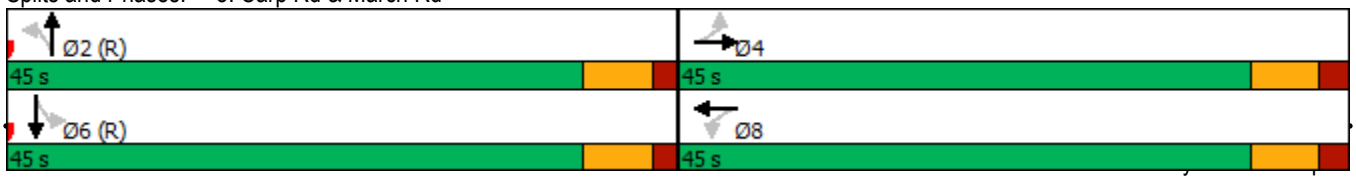
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

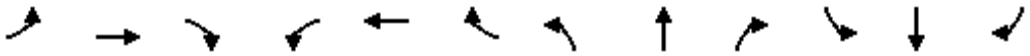
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	61	28	44	309	6	164	273	49	12	154	54
Future Volume (vph)	42	61	28	44	309	6	164	273	49	12	154	54
Satd. Flow (prot)	1805	1724	0	1530	1858	0	1770	1790	0	1805	1680	0
Flt Permitted	0.484			0.695			0.607			0.474		
Satd. Flow (perm)	920	1724	0	1119	1858	0	1131	1790	0	901	1680	0
Satd. Flow (RTOR)		30			1			13			24	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	16%	18%	2%	0%	2%	4%	2%	0%	11%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	95	0	47	335	0	174	342	0	13	221	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.12	0.13		0.10	0.42		0.36	0.44		0.03	0.30	
Control Delay	16.7	11.7		16.3	20.1		20.1	19.6		15.3	16.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.7	11.7		16.3	20.1		20.1	19.6		15.3	16.3	
LOS	B	B		B	C		C	B		B	B	
Approach Delay		13.3			19.7			19.8			16.2	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	4.8	6.9		5.0	41.4		20.8	40.8		1.3	22.5	
Queue Length 95th (m)	11.9	16.2		11.9	64.4		37.6	64.3		4.9	39.3	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	391	750		476	791		485	775		386	734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.13		0.10	0.42		0.36	0.44		0.03	0.30	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 18.4 — Intersection LOS: B
Intersection Capacity Utilization 72.5% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	15	4	2	7	31	344	7	6	232	19
Future Volume (Veh/h)	11	0	15	4	2	7	31	344	7	6	232	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	0	16	4	2	8	34	378	8	7	255	21
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	738	734	266	746	740	382	276			386		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	738	734	266	746	740	382	276			386		
tC, single (s)	7.3	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.6	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	98	99	99	99	97			99		
cM capacity (veh/h)	299	339	708	317	336	670	1299			1184		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	14	420	283
Volume Left	12	4	34	7
Volume Right	16	8	8	21
cSH	446	459	1299	1184
Volume to Capacity	0.06	0.03	0.03	0.01
Queue Length 95th (m)	1.6	0.8	0.6	0.1
Control Delay (s)	13.6	13.1	0.9	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	13.6	13.1	0.9	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	44.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	361	0	0	225
Future Volume (Veh/h)	0	0	361	0	0	225
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	397	0	0	247
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	644	397			397	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	644	397			397	
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)	440	657			1173	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	397	247
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1173
Volume to Capacity	0.00	0.23	0.00
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	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	361	0	0	225
Future Volume (Veh/h)	0	0	361	0	0	225
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	397	0	0	247
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	644	397			397	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	644	397			397	
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)	440	657			1173	

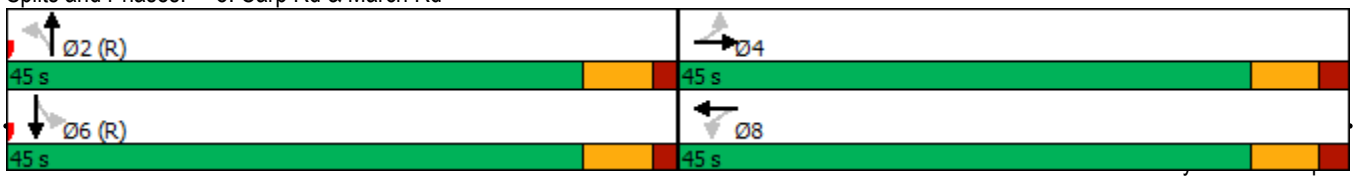
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	397	247
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1173
Volume to Capacity	0.00	0.23	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

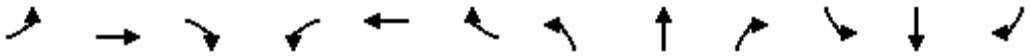
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	281	97	68	57	2	17	107	38	12	204	16
Future Volume (vph)	59	281	97	68	57	2	17	107	38	12	204	16
Satd. Flow (prot)	1597	1796	0	1687	1820	0	1378	1571	0	1805	1747	0
Flt Permitted	0.717			0.418			0.595			0.660		
Satd. Flow (perm)	1206	1796	0	742	1820	0	863	1571	0	1254	1747	0
Satd. Flow (RTOR)		24			2			25			6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	0%	7%	7%	4%	0%	31%	17%	14%	0%	6%	27%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	398	0	72	62	0	18	153	0	13	232	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.12	0.51		0.23	0.08		0.05	0.22		0.02	0.31	
Control Delay	16.6	20.6		19.0	15.4		15.6	14.5		15.2	17.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.6	20.6		19.0	15.4		15.6	14.5		15.2	17.9	
LOS	B	C		B	B		B	B		B	B	
Approach Delay		20.1			17.3			14.6			17.7	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	6.7	48.4		8.1	6.3		1.9	14.1		1.3	26.2	
Queue Length 95th (m)	14.8	75.6		18.2	14.0		6.1	27.2		4.8	43.5	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	513	778		315	775		370	688		537	752	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.51		0.23	0.08		0.05	0.22		0.02	0.31	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	4	35	1	2	5	12	315	10	2	347	2
Future Volume (Veh/h)	20	4	35	1	2	5	12	315	10	2	347	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	21	4	37	1	2	5	13	335	11	2	369	2
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	746	746	370	780	742	340	371			346		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	746	746	370	780	742	340	371			346		
tC, single (s)	7.3	6.5	6.3	7.1	7.0	6.2	4.5			4.6		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.4	3.5	4.5	3.3	2.6			2.7		
p0 queue free %	93	99	94	100	99	99	99			100		
cM capacity (veh/h)	296	339	660	292	288	707	986			989		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	62	8	359	373
Volume Left	21	1	13	2
Volume Right	37	5	11	2
cSH	447	458	986	989
Volume to Capacity	0.14	0.02	0.01	0.00
Queue Length 95th (m)	3.8	0.4	0.3	0.0
Control Delay (s)	14.4	13.0	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	14.4	13.0	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	39.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	295	44	11	353
Future Volume (Veh/h)	6	2	295	44	11	353
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	2	314	47	12	376
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	738	338			361	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	738	338			361	
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			99	
cM capacity (veh/h)	385	709			1209	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	361	388
Volume Left	6	0	12
Volume Right	2	47	0
cSH	434	1700	1209
Volume to Capacity	0.02	0.21	0.01
Queue Length 95th (m)	0.4	0.0	0.2
Control Delay (s)	13.4	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.4	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	252	44	11	358
Future Volume (Veh/h)	6	2	252	44	11	358
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	2	268	47	12	381
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	696	292			315	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	696	292			315	
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	100			99	
cM capacity (veh/h)	407	752			1257	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	315	393
Volume Left	6	0	12
Volume Right	2	47	0
cSH	459	1700	1257
Volume to Capacity	0.02	0.19	0.01
Queue Length 95th (m)	0.4	0.0	0.2
Control Delay (s)	13.0	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.0	0.0	0.3
Approach LOS	B		

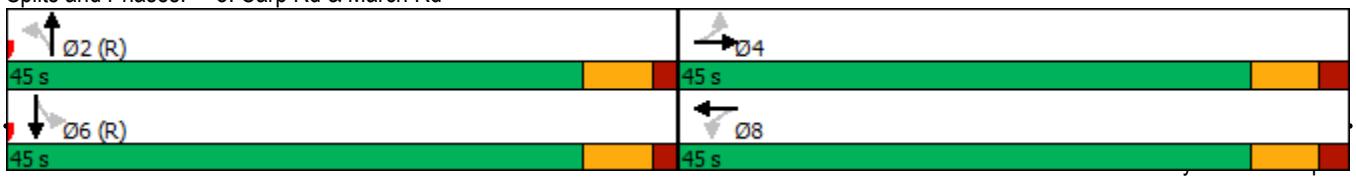
Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		37.7%	ICU Level of Service A
Analysis Period (min)		15	

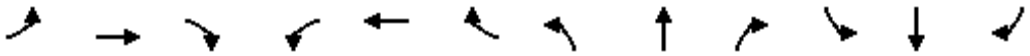
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	58	27	42	294	5	163	272	49	12	150	51
Future Volume (vph)	40	58	27	42	294	5	163	272	49	12	150	51
Satd. Flow (prot)	1805	1721	0	1530	1860	0	1770	1790	0	1805	1681	0
Flt Permitted	0.502			0.698			0.616			0.475		
Satd. Flow (perm)	954	1721	0	1124	1860	0	1147	1790	0	902	1681	0
Satd. Flow (RTOR)		29			1			13			24	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	16%	18%	2%	0%	2%	4%	2%	0%	11%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	91	0	45	318	0	173	341	0	13	214	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.11	0.12		0.09	0.40		0.35	0.44		0.03	0.29	
Control Delay	16.6	11.6		16.2	19.8		19.9	19.6		15.3	16.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.6	11.6		16.2	19.8		19.9	19.6		15.3	16.1	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		13.2			19.3			19.7			16.1	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	4.6	6.5		4.8	38.9		20.6	40.7		1.3	21.6	
Queue Length 95th (m)	11.4	15.7		11.6	60.9		37.2	64.2		4.9	37.9	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	405	749		478	792		491	775		386	734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.12		0.09	0.40		0.35	0.44		0.03	0.29	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 18.2 — Intersection LOS: B
Intersection Capacity Utilization 71.6% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	14	4	2	6	30	346	6	6	301	20
Future Volume (Veh/h)	11	0	14	4	2	6	30	346	6	6	301	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	0	15	4	2	7	33	380	7	7	331	22
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	814	809	342	820	816	384	353			387		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	814	809	342	820	816	384	353			387		
tC, single (s)	7.3	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.6	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	98	99	99	99	97			99		
cM capacity (veh/h)	266	306	639	282	303	668	1217			1183		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	27	13	420	360
Volume Left	12	4	33	7
Volume Right	15	7	7	22
cSH	393	416	1217	1183
Volume to Capacity	0.07	0.03	0.03	0.01
Queue Length 95th (m)	1.8	0.8	0.7	0.1
Control Delay (s)	14.8	13.9	0.9	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	14.8	13.9	0.9	0.2
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	10	353	10	2	256
Future Volume (Veh/h)	41	10	353	10	2	256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	45	11	388	11	2	281
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	678	394			399	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678	394			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 %	89	98			100	
cM capacity (veh/h)	420	660			1171	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	399	283
Volume Left	45	0	2
Volume Right	11	11	0
cSH	452	1700	1171
Volume to Capacity	0.12	0.23	0.00
Queue Length 95th (m)	3.4	0.0	0.0
Control Delay (s)	14.1	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	14.1	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	10	354	10	2	217
Future Volume (Veh/h)	41	10	354	10	2	217
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	45	11	389	11	2	238
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	636	394			400	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636	394			400	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	98			100	
cM capacity (veh/h)	444	659			1170	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	400	240
Volume Left	45	0	2
Volume Right	11	11	0
cSH	475	1700	1170
Volume to Capacity	0.12	0.24	0.00
Queue Length 95th (m)	3.2	0.0	0.0
Control Delay (s)	13.6	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	13.6	0.0	0.1
Approach LOS	B		

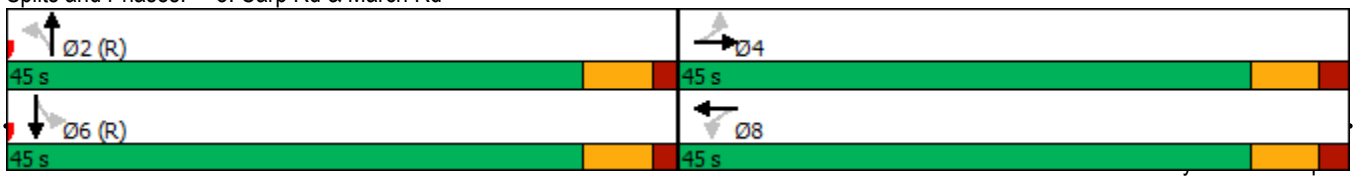
Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		29.2%	ICU Level of Service A
Analysis Period (min)		15	

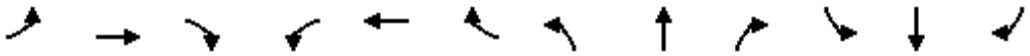
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	296	102	71	60	2	18	113	40	12	214	17
Future Volume (vph)	62	296	102	71	60	2	18	113	40	12	214	17
Satd. Flow (prot)	1597	1796	0	1687	1820	0	1378	1571	0	1805	1747	0
Flt Permitted	0.715			0.396			0.582			0.655		
Satd. Flow (perm)	1202	1796	0	703	1820	0	844	1571	0	1244	1747	0
Satd. Flow (RTOR)		24			2			25			6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	0%	7%	7%	4%	0%	31%	17%	14%	0%	6%	27%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	419	0	75	65	0	19	161	0	13	243	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.13	0.54		0.25	0.08		0.05	0.23		0.02	0.32	
Control Delay	16.6	21.2		19.5	15.5		15.7	14.8		15.2	18.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.6	21.2		19.5	15.5		15.7	14.8		15.2	18.1	
LOS	B	C		B	B		B	B		B	B	
Approach Delay		20.6			17.7			14.9			18.0	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	7.0	52.0		8.5	6.6		2.0	15.0		1.3	27.7	
Queue Length 95th (m)	15.3	80.5		19.2	14.5		6.3	28.6		4.8	45.7	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	511	778		299	775		361	688		533	752	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.54		0.25	0.08		0.05	0.23		0.02	0.32	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 18.6 — Intersection LOS: B
Intersection Capacity Utilization 61.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	4	37	1	2	5	12	326	10	2	364	2
Future Volume (Veh/h)	21	4	37	1	2	5	12	326	10	2	364	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	22	4	39	1	2	5	13	347	11	2	387	2
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	776	388	812	772	352	389			358		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	776	776	388	812	772	352	389			358		
tC, single (s)	7.3	6.5	6.3	7.1	7.0	6.2	4.5			4.6		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.4	3.5	4.5	3.3	2.6			2.7		
p0 queue free %	92	99	94	100	99	99	99			100		
cM capacity (veh/h)	282	326	645	276	276	696	970			978		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	65	8	371	391
Volume Left	22	1	13	2
Volume Right	39	5	11	2
cSH	431	443	970	978
Volume to Capacity	0.15	0.02	0.01	0.00
Queue Length 95th (m)	4.2	0.4	0.3	0.0
Control Delay (s)	14.8	13.3	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	14.8	13.3	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	40.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	308	44	11	371
Future Volume (Veh/h)	6	2	308	44	11	371
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	2	328	47	12	395
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	770	352			375	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	770	352			375	
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			99	
cM capacity (veh/h)	368	697			1195	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	375	407
Volume Left	6	0	12
Volume Right	2	47	0
cSH	417	1700	1195
Volume to Capacity	0.02	0.22	0.01
Queue Length 95th (m)	0.5	0.0	0.2
Control Delay (s)	13.8	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.8	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	265	44	11	376
Future Volume (Veh/h)	6	2	265	44	11	376
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	6	2	282	47	12	400
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	730	306			329	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	306			329	
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			99	
cM capacity (veh/h)	389	739			1242	

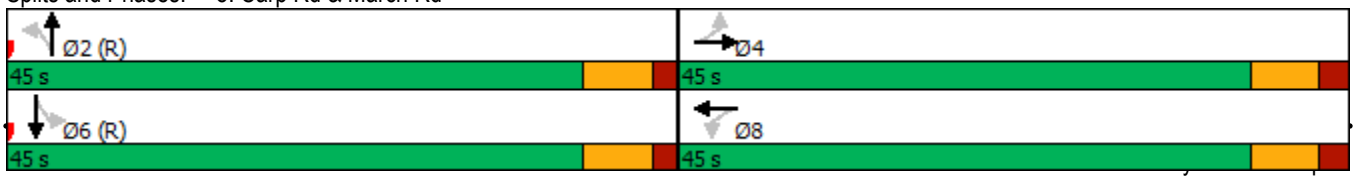
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	329	412
Volume Left	6	0	12
Volume Right	2	47	0
cSH	441	1700	1242
Volume to Capacity	0.02	0.19	0.01
Queue Length 95th (m)	0.4	0.0	0.2
Control Delay (s)	13.3	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.3	0.0	0.3
Approach LOS	B		

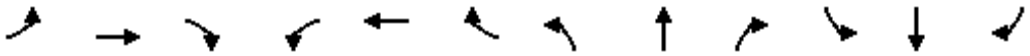
Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		38.7%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	61	28	44	309	6	171	285	51	12	157	54
Future Volume (vph)	42	61	28	44	309	6	171	285	51	12	157	54
Satd. Flow (prot)	1805	1724	0	1530	1858	0	1770	1790	0	1805	1681	0
Flt Permitted	0.484			0.695			0.604			0.458		
Satd. Flow (perm)	920	1724	0	1119	1858	0	1125	1790	0	870	1681	0
Satd. Flow (RTOR)		30			1			12			24	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	16%	18%	2%	0%	2%	4%	2%	0%	11%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	95	0	47	335	0	182	357	0	13	224	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.12	0.13		0.10	0.42		0.38	0.46		0.03	0.31	
Control Delay	16.7	11.7		16.3	20.1		20.4	20.0		15.4	16.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.7	11.7		16.3	20.1		20.4	20.0		15.4	16.4	
LOS	B	B		B	C		C	C		B	B	
Approach Delay		13.3			19.7			20.2			16.3	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	4.8	6.9		5.0	41.4		21.9	43.3		1.3	22.9	
Queue Length 95th (m)	11.9	16.2		11.9	64.4		39.5	67.9		4.9	39.9	
Internal Link Dist (m)		289.3			294.7			2114.6			217.4	
Turn Bay Length (m)	215.0			185.0			215.0			195.0		
Base Capacity (vph)	391	750		476	791		482	774		373	734	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.13		0.10	0.42		0.38	0.46		0.03	0.31	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Control Type: Pretimed	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: Carp Rd & March Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	15	4	2	7	31	362	7	6	313	20
Future Volume (Veh/h)	11	0	15	4	2	7	31	362	7	6	313	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	0	16	4	2	8	34	398	8	7	344	22
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	848	843	355	855	850	402	366			406		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	848	843	355	855	850	402	366			406		
tC, single (s)	7.3	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.6	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	97	98	99	99	97			99		
cM capacity (veh/h)	251	292	628	266	290	653	1204			1164		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	14	440	373
Volume Left	12	4	34	7
Volume Right	16	8	8	22
cSH	382	410	1204	1164
Volume to Capacity	0.07	0.03	0.03	0.01
Queue Length 95th (m)	1.9	0.8	0.7	0.1
Control Delay (s)	15.2	14.1	0.9	0.2
Lane LOS	C	B	A	A
Approach Delay (s)	15.2	14.1	0.9	0.2
Approach LOS	C	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	46.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	10	371	10	2	267
Future Volume (Veh/h)	41	10	371	10	2	267
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	45	11	408	11	2	293
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	710	414			419	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	710	414			419	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			100	
cM capacity (veh/h)	402	643			1151	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	419	295
Volume Left	45	0	2
Volume Right	11	11	0
cSH	434	1700	1151
Volume to Capacity	0.13	0.25	0.00
Queue Length 95th (m)	3.5	0.0	0.0
Control Delay (s)	14.5	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	14.5	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	10	372	10	2	228
Future Volume (Veh/h)	41	10	372	10	2	228
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	45	11	409	11	2	251
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	670	414			420	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	670	414			420	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			100	
cM capacity (veh/h)	425	642			1150	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	420	253
Volume Left	45	0	2
Volume Right	11	11	0
cSH	455	1700	1150
Volume to Capacity	0.12	0.25	0.00
Queue Length 95th (m)	3.3	0.0	0.0
Control Delay (s)	14.0	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	14.0	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		30.2%	ICU Level of Service A
Analysis Period (min)		15	