The Corporation of the
City of Vaughan

# Environmental Assessment Study for Portage Parkway (Part A & B)

## Draft Traffic Report

B000541

January 2016

CIMA
Partners in excellence

Corporation of the City of Vaughan

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# 1. Introduction

CIMA+ was retained by the Corporation of the City of Vaughan (City) to conduct a Class Environmental Assessment (EA) Study of Portage Parkway for its widening from Applewood Crescent to Jane Street and extension from Jane Street to Creditstone Road covering a length of approximately 1.5 km.

The EA involves widening Portage Parkway to four lanes between Applewood Crescent and Jane Street and establishing a new four-lane road between Jane Street and Creditstone Road in accordance with the Municipal Class Environmental Assessment and preparation of the preliminary design.

This project follows the process outlined in the Municipal Class EA, June 2000 (as amended in 2007, and 2011). The work potentially involves widening for additional lanes and therefore planning for the project requires following a Schedule C Class EA process.

This report presents the findings from traffic analysis of existing and future conditions of the study area undertaken by CIMA+. Utilizing Synchro traffic analysis software and Simtraffic simulation software, the operational analysis was used to evaluate the operational characteristics of the subject intersections, individual movements, and the corridor as a whole. The results of this analysis were used to assist in the identification of the corridor's needs and opportunities for improvement under existing conditions, and to evaluate additional areas for consideration under future conditions.

# 2. Background

The Portage Parkway four lane Highway 400 overpass was completed in 2010. The intent of this strategic connection, originally proposed in Official Plan Amendment (OPA) 528[1], was to reduce congestion along the Highway 7 corridor and the Highway 7 and Highway 400 interchange by providing a northern bypass. Although Portage Parkway currently operates at an adequate Level of Service from a traffic operations standpoint, operational analysis conducted as part of the Vaughan Metropolitan Centre (VMC) Transportation Plan for the 2021 and 2031 horizon years (considering a four-lane cross-section for Portage Parkway) resulted in the following findings:

- Extension of Portage Parkway to Creditstone Road is not expected to have significant benefits for the year 2021; and
- By the horizon year of 2031 the volume-capacity ratio (v/c ratio) along Portage Parkway is expected to drop from 0.75 to 0.58 in the eastbound direction and from 0.62 to 0.48 in the westbound direction, all of which are acceptable levels.

However, the same operational analysis also identified that sections of the network, particularly Langstaff Road and Highway 7, would perform at unacceptable levels of service opening the possibility of advancing the Portage Parkway extension to alleviate congestion along Highway 7 by 2021[2] in two parts:

- **Part A:** Widening Portage Parkway from two to four lanes from Applewood Crescent to and including the intersection of Jane Street; and
- **Part B:** Extending Portage Parkway from Jane Street to Creditstone Road.

[1] (City of Vaughan, 2010)
[2] (AECOM, 2012)

# 3. Study Area

Portage Parkway is an east-west collector between Weston Road and Jane Street and is located within the VMC. The study area for the traffic operations analysis of existing conditions comprises the portion of Portage Parkway between Applewood Crescent and Jane Street, and extends eastward to Creditstone Road for future conditions. A map of the study area is illustrated in **Figure 1**.

The western section of the study area between Applewood Crescent and Edgeley Road consists of a four-lane urban cross section, with the remaining study area comprised of a two-lane urban cross section.

There are five intersections within the study area along Portage Parkway as demonstrated in **Figure 1**. Three of the intersections are signalized and two are un-signalized. The signalized intersections are located at Applewood Crescent, Edgeley Boulevard, and Jane Street. The two unsignalized intersections are located at Buttermill Avenue and Millway Avenue. The land use surrounding the study area is essentially commercial. The current posted speed limit on Portage Parkway is 50 km/h.

The study area is generally straight, except for the eastern portion of Portage Parkway between Millway Avenue and Jane Street which consists of a slight horizontal curve. The west approach to the signalized intersection at Applewood Crescent is at a significant grade (downgrade in the eastbound direction) due to the existing overpass structure at Highway 400.

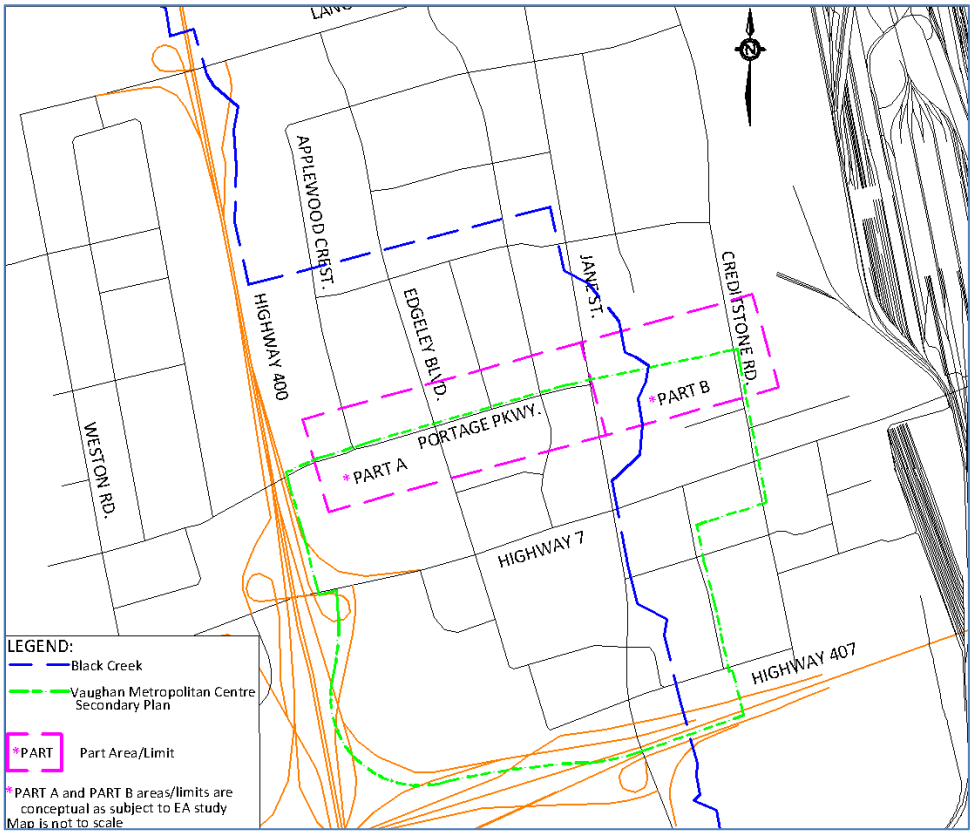



**Figure 1: Study Area Map**

# 4. Existing and Future Land Use

The VMC is currently occupied by low-density retail and industrial spaces as well as vacant land. Therefore, the traffic volumes originating and destined from/for the area are fairly low and consist of significant heavy vehicle volumes. However development within the VMC is expected to significantly increase in the coming years. The VMC is projected to accommodate over 30,000 residents and attract 11,500 jobs by 2031. The population and employment statistics for 2006 (most current data source available) and the horizon year of 2031, are shown in **Table 1**[3].

**Table 1: Existing and Future VMC Land Use**

| Year | 2006 | 2031 |
|---|---|---|
| **Population** | 958 | 32,458 |
| **Employment** | 18,939 | 34,338 |

The land use of the area surrounding Portage Parkway is expected to change significantly by the year 2031. The Secondary Plan for the VMC[4] identifies four distinct land use designations surrounding Portage Parkway:

- **The Station Precinct:** A concentration of office and retail uses;
- **The South Precinct:** A mix of office and retail uses. This is also the location of a proposed post-secondary institution;
- **The Neighbourhood Precinct:** Residential uses and community amenities such as schools, parks, community centres and daycare facilities; and
- **The Technology Precinct:** An amalgamation of office employment uses such as office buildings, research and development facilities, light industrial uses and public institutions.

The Station, Neighbourhood and Technology Precincts directly line the south side of Portage Parkway[5]. These changes in land use will result in an increase in trips destined and originating for/from the VMC.

## 4.1 Transit Considerations

The forecasted land use changes are projected to increase the transit use share from 6%, in 2006, to 37% in 2031[6]. The extension of Portage Parkway to Creditstone Road will further establish road network continuity within the VMC. A fully connected network promotes walking and cycling, which in turn promotes the use of public transit.

The extension of Portage Parkway would increase pedestrian accessibility from Creditstone Road to the Jane Street VivaNext station, as shown in **Figure 2**, which is to be operational in December

[3] (AECOM, 2012)
[4] (Urban Strategies Inc & AECOM, 2013)
[5] (AECOM, 2012)
[6] (AECOM, 2012)

2016. Currently, southbound Creditstone Road pedestrians would have to access the future Jane Street VivaNext station via Highway 7, a major arterial roadway and designated truck route.

Furthermore, Vaughan Metropolitan Centre Station at Highway 7 and Millway Avenue, an extension of the Spadina Subway line, will be operational in early 2017. The station will provide connection services to York Region Transit Bus Terminal and to Highway 7 Viva Bus Transit and include a designated passenger pick-up and drop-off. As a result, the link between Toronto's subway network, particularly the downtown core, and the VMC is expected to increase trips of all transportation modes destined for the VMC. Therefore the resultant network continuity from the extension of Portage Parkway to Creditstone Road is expected to alleviate congestion and divert vehicles from the core of the VMC.

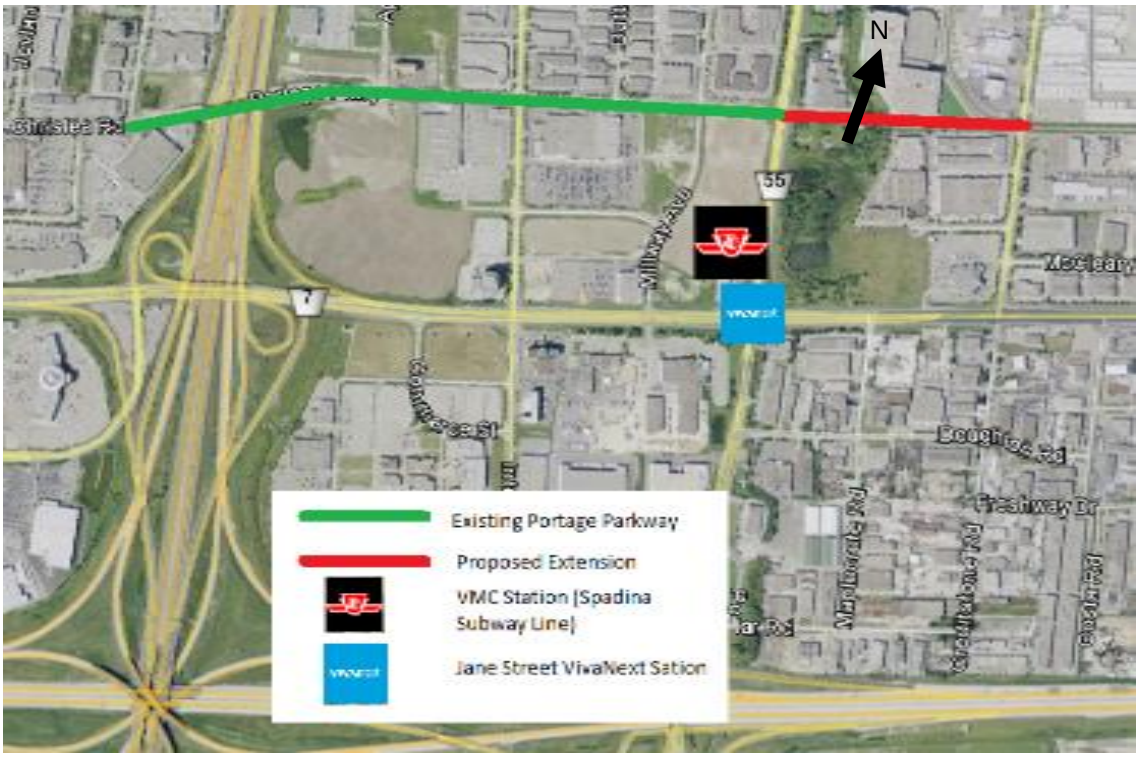



**Figure 2: Location of VivaNext and VMC Station**

## 4.2 Truck Route Considerations

A large percentage of the traffic composition within the VMC area is heavy vehicles, which can be attributed to its predominantly industrial land use. Furthermore, Highways 400 and 407 (both provincial truck routes) are situated as the west and south borders of the VMC, respectively. Limiting or restricting heavy vehicles from the core of the VMC is beneficial to the flow of traffic as the VMC transitions from primarily industrial land use to a mixed land use.

The extension of Portage Parkway would create an alternative route for heavy vehicles to bypass the VMC core. Trucks would be able to travel north-south on Creditstone Road and Applewood Road and east-west on Portage Parkway, as shown in **Figure 3**.

The Creditstone-Portage-Applewood bypass would provide a route virtually framing the VMC providing access to Highway 400, Jane Street and Creditstone Road. The reduction or elimination of heavy vehicles from arterial roads within the VMC, such as Highway 7, is expected to further reduce congestion during all hours of the day.

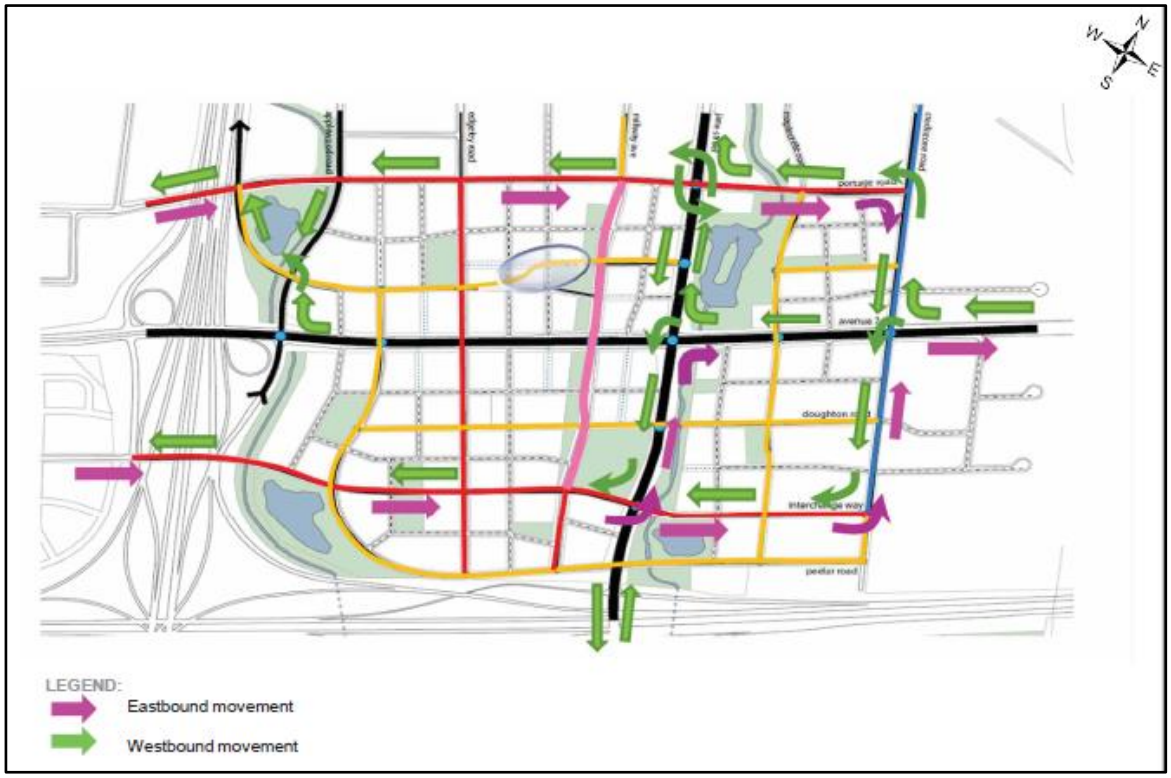



**Figure 3: Proposed Truck Route**[7]

[7] (AECOM, 2012)

# 5. Existing Conditions Traffic Operations

CIMA+ undertook an existing conditions traffic analysis using Synchro/SimTraffic software. The operational analysis was used to evaluate the operational characteristics of the subject intersections, individual movements, and the corridor as a whole. The results of this analysis were used to assist in the identification of the corridor's needs and opportunities for improvement.

## 5.1 Methodology

Traffic volume data utilized in the operational analysis was received from the City and York Region (Region) and peak hour factors (PHF), amongst other required inputs, were calculated as per standard industry practice. Signal timings were made available for the intersection of Jane Street at Portage Parkway by the Region however no additional signal timings were provided. Therefore CIMA+ developed "optimized timings" and incorporated signal timing industry practice, adhering to OTM Book 12 guidance, for modelling signal operations at the remaining signalized intersections.

Capacity analysis was undertaken using procedures described in the Highway Capacity Manual (HCM). The analysis primarily focuses on performance measures such as level-of-service (LOS), v/c ratio, and queueing.

LOS is a qualitative measure of operational performance and is based on control delay. The LOS criteria for signalized intersections are illustrated in **Table 2**. LOS A is represented by a control delay of less than 10 seconds per vehicle (referred to as free flow operating conditions). LOS F is represented by a control delay greater than 80 seconds per vehicle (referred to as restricted flow operating conditions).

**Table 2: LOS Criteria for Signalized Intersections**

| Level-of-Service | Control Delay (seconds/vehicle) |
|---|---|
| A | 0 – 10 |
| B | >10 – 20 |
| C | >20 – 35 |
| D | >35 – 55 |
| E | >55 – 80 |
| F | >80 |

At a two-way stop controlled intersection, LOS is not defined for the major-road approaches or for the overall intersection, as major-street through vehicles are assumed to experience no delay.[8] The LOS criteria for two-way stop controlled intersections are illustrated in **Table 3**. LOS A is represented by a control delay of less than 10 seconds per vehicle (referred to as free flow operating conditions). LOS F is represented by a control delay greater than 50 seconds per vehicle (referred to as restricted flow operating conditions). LOS F is assigned to a movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

**Table 3: LOS Criteria for Two-Way Stop Controlled Intersections**

| Level-of-Service | Control Delay (seconds/vehicle) |
|---|---|
| A | 0 – 10 |
| B | >10 – 15 |
| C | >15 – 25 |
| D | >25 – 35 |
| E | >35 – 50 |
| F | >50 |

The v/c ratio is a measure of the capacity sufficiency of an intersection or individual turning movement.

95th Percentile Queue is the queue length that has only a 5 percent probability of being exceeded during the analysis period, which is at least a 95% probability the queue length will be less than the 95$^{th}$ percentile queue. For design and operational analysis purposes it is industry practice and accepted methodology by HCM to evaluate the 95th percentile queue length.

The analysis methodology is consistent with the Region's Transportation Impact Study (TIS) Guidelines for Development Applications which indicates the following targets to identify where improvements may be required:

- v/c ratios for overall intersection and individual movement operations exceeding 0.85;
- Queues for an exclusive turning movement exceeding available turning lane storage; or
- Queues for through lanes blocking vehicles from entering turning lanes.

Although not required by the Region's Guidelines, intersections and movements operating with LOS F were identified as requiring improvement as is common industry practice.

The Synchro default saturation flow rate of 1900 vehicles/hour/lane was used for the study area.

## 5.2 Existing Lane Configurations

The existing lane configurations, as well as intersection control, are illustrated in **Figure 4**.

[8] Highway Capacity Manual, 2010, Transportation Research Board, p.19-1

Portage Parkway is an east-west two-way undivided Major Collector roadway with a maximum speed limit of 50 km/h. The horizontal alignment of the roadway is relatively straight within the study limits, and numerous driveway accesses exist servicing commercial and retail establishments of varying size. Portage Parkway intersects five roadways within the study corridor; the intersections and traffic control type are as follows:

- Applewood Crescent (signalized);
- Edgeley Boulevard (signalized);
- Buttermill Avenue (stop control on minor approach);
  - Millway Avenue (all-way stop control); and
  - Jane Street (signalized).

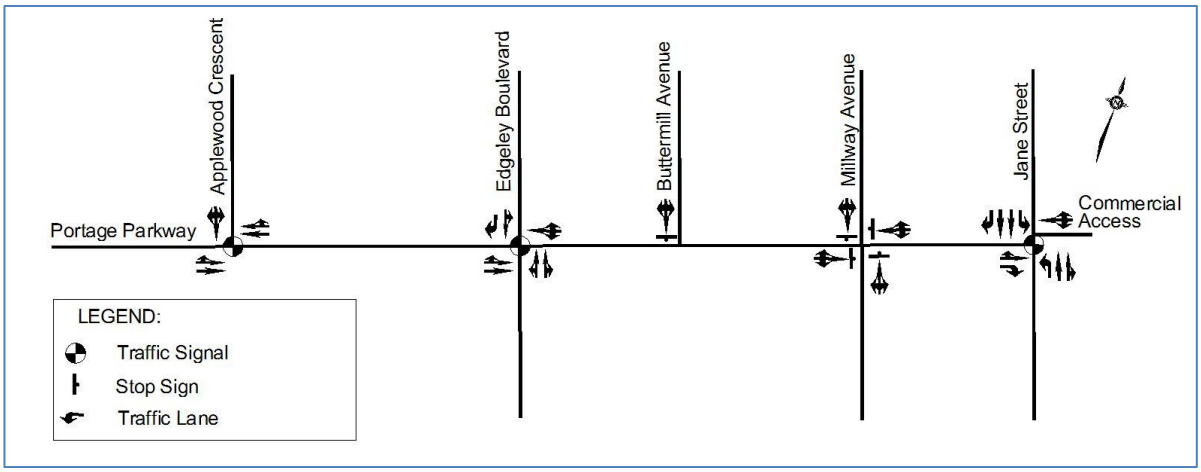



**Figure 4: Existing Lane Configurations**

## 5.3 Existing Traffic Volumes

The most current weekday a.m. and p.m. peak hour turning movement traffic volumes were provided by the Region and City of Vaughan. The dates of the traffic counts are summarized in **Table 4**.

**Table 4: Traffic Data Source**

| Intersections | Data Source | Count Date |
|---|---|---|
| **Applewood Crescent at Portage Parkway** | City of Vaughan | May 2011 |
| **Edgeley Boulevard at Portage Parkway** | City of Vaughan | March 2014 |
| **Millway Avenue at Portage Parkway** | City of Vaughan | May 2011 |
| **Jane Street at Portage Parkway** | 7895 Jane Street TIS, BA Group (2015) | September 2013 |

A comparison of the 2010 and 2013 traffic count data for the intersection of Jane Street and Portage Parkway found that annual growth in overall intersection volumes was negligible. Therefore a growth rate was not applied to the remaining historical traffic counts in developing the existing conditions model.

A review of the traffic counts provided the following findings:

- Truck percentages were typically higher for movements turning in and out of the north approach at each intersection, likely a result of the significant number of commercial and light industrial land uses north of the corridor;
- Truck percentages widely vary (2% to 30%) depending on the turning movement and total vehicle volume for that movement;
- Cycling activity at all intersections is considered negligible;
- Pedestrian activity at all intersections is considered low;
- Overall intersection volume is highest at the intersection of Portage Parkway at Jane Street;
- Overall intersection volume at all intersections is highest during the p.m. peak hour;
- The heaviest approach volumes are in the eastbound or westbound directions, with directional splits varying by intersection and peak hour period; and
- The southbound and northbound approach volumes on Edgeley Boulevard are fairly higher than southbound and northbound movements at other intersections.

## 5.4 Existing Intersection Traffic Operations

Intersection operational analysis was undertaken for the signalized and unsignalized intersections in the study area for weekday a.m. and p.m. peak hours. The results of this analysis are summarized in **Table 5** and Synchro reports are provided in **Appendix A** for further reference.

Measures of effectiveness (MOEs) that exceed target values set by the City, as presented in **Section 5.1**, are coloured in red.

Under existing traffic conditions, most intersections and turning movements operate satisfactorily during both the a.m. and p.m. peak hours, except for the following intersections and turning movements:

- Westbound approach at the Edgeley Boulevard intersection during the p.m. peak hour is nearing capacity with a v/c ratio of 0.94 and queuing extending to the Millway Avenue intersection;
- Northbound approach at the Edgeley Boulevard intersection during the p.m. peak hour is over capacity with a v/c ratio of 1.11; and
- Millway Avenue intersection (all-way stop control) during the p.m. peak hour operates with high delay and is nearing capacity for eastbound, westbound and southbound approaches.

**Table 5: Results of Existing Conditions Traffic Operational Analysis**

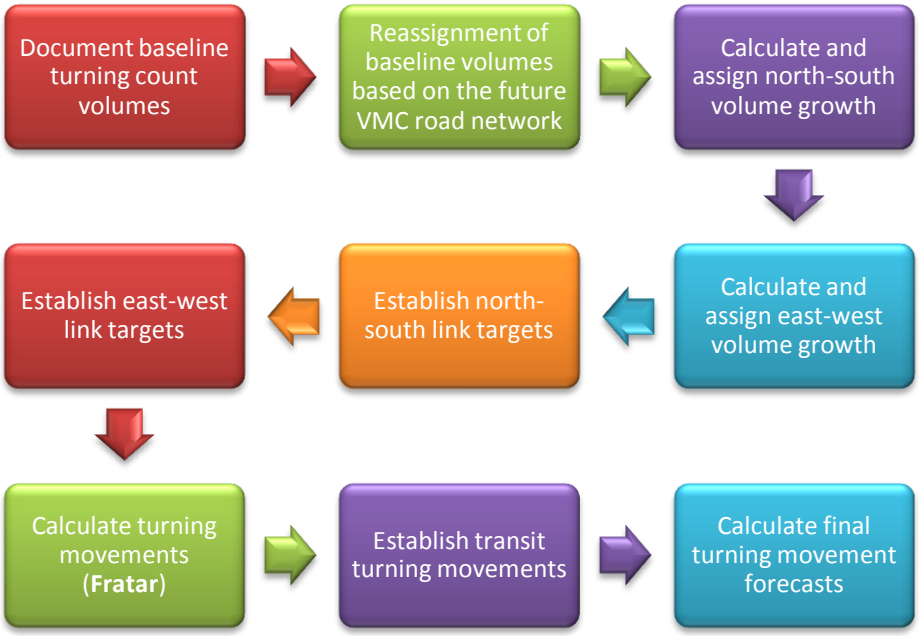
| Intersection & Movement | Weekday AM Peak Hour | | | | Weekday PM Peak Hour | | | | Storage Length (m) |
|---|---|---|---|---|---|---|---|---|---|
| | LOS | v/c | Control Delay (s) | 95th Queue (m) | LOS | v/c | Control Delay (s) | 95th Queue (m) | |
| **Applewood Crescent** | | | | | | | | | |
| **Overall** | **B** | **0.36** | **17.5** | | **C** | **0.65** | **22.1** | | |
| EB L/T T | C | 0.75 | 21.4 | 65 | B | 0.22 | 18.7 | 24 | 550 |
| WB T T/R | B | 0.33 | 14.8 | 37 | C | 0.78 | 27.0 | 73 | 290 |
| SB L/R | A | 0.09 | 8.0 | 16 | B | 0.56 | 14.8 | 61 | 575 |
| **Edgeley Boulevard** | | | | | | | | | |
| **Overall** | **B** | **0.58** | **19.5** | | **C** | **0.84** | **25.6** | | |
| EB L/T | C | 0.80 | 30.6 | 73 | B | 0.51 | 15.7 | 77 | 290 |
| EB R | B | 0.15 | 16.2 | 29 | B | 0.39 | 14.4 | 39 | 290 |
| WB L/T/R | C | 0.78 | 29.5 | 76 | D | 0.94 | 43.1 | 244 | 200 |
| NB L/T T/R | B | 0.44 | 11.4 | 58 | C | 1.11 | 27.7 | 171 | 270 |
| SB L/T T/R | A | 0.13 | 8.7 | 24 | C | 0.54 | 21.5 | 62 | 555 |
| **Millway Avenue** | | | | | | | | | |
| **Overall** | **B** | **0.43** | **14.8** | | **F** | **0.79** | **71.7** | | |
| EB L/T/R | B | 0.49 | 14.1 | 39 | F | 0.94 | 58.2 | 86 | 175 |
| WB L/T/R | C | 0.63 | 17.2 | 38 | F | 1.00 | 116.4 | 78 | 160 |
| NB L/T/R | B | 0.34 | 12.3 | 22 | C | 0.46 | 19.7 | 24 | 100 |
| SB L/T/R | B | 0.17 | 10.9 | 24 | F | 0.92 | 53.8 | 50 | 550 |
| **Jane Street** | | | | | | | | | |
| **Overall** | **B** | **0.78** | **10.3** | | **B** | **0.54** | **13.2** | | |
| EB L/T | D | 0.28 | 46.0 | 23 | E | 0.59 | 60.5 | 56 | 160 |
| EB R | D | 0.08 | 44.2 | 23 | D | 0.34 | 54.7 | 31 | 160 |
| WB L/T/R | D | 0.03 | 43.8 | 15 | D | 0.05 | 51.6 | 12 | 30 |
| NB L | C | 0.86 | 23.2 | 67 | A | 0.54 | 8.9 | 37 | 150 |
| NB T T/R | A | 0.38 | 3.4 | 37 | A | 0.43 | 4.9 | 51 | 440 |
| SB L | A | 0.03 | 5.2 | 7 | A | 0.02 | 6.8 | 6 | 30 |
| SB T T | A | 0.44 | 7.8 | 72 | B | 0.48 | 10.5 | 81 | 510 |
| SB R | A | 0.10 | 5.6 | 14 | A | 0.14 | 7.5 | 15 | 70 |

# 6. Traffic Forecasting for 2031 Horizon Year

This section presents the forecast 2031 horizon year turning movement volumes at existing and proposed intersections within the Portage Parkway study area, as well as the approach and methodology undertaken to complete this analysis.

As advised by the Region, this process was undertaken to provide an iterative process (Fratar) to estimate future turning movements based on existing volumes and growth rates, with consideration for the effects of the new roadway network and land use. The forecasted turning movement volumes provide the basis upon which the operational analysis of future scenarios will be conducted utilizing Synchro and Simtraffic software.

The outline of sequential steps to forecast future 2031 turning movement volumes consisted of the sequential development of the following steps for a.m. and p.m. peak hours:




Turning movement volumes are presented in **Exhibit 1** to **Exhibit 17**, as provided in **Appendix B**.

## 6.1 Existing Volumes

Intersection turning movement counts received from the City and Region, as well as turning movement volume data collected in the field by CIMA+ staff, contributed to the development of turning movement volumes for a.m. and p.m. peaks hours as presented in **Exhibit 1** and **Exhibit 2** respectively.

## 6.2 Baseline Volume Reassignment

The planned VMC Secondary Plan road network (Schedule C) establishes a grid network including new, realigned and extensions of existing north-south streets intersecting with Portage Parkway. The VMC road network (assumed to be in place by 2031) offers new routing alternatives for traffic as there are new north-south roads intersecting with Portage Parkway east of west of Jane Street. Volumes for select turning movements were reassigned to alternative turning movements and/or alternative intersections based on new opportunities provided by future road links not currently in place. The reassigned turning movement volumes for a.m. and p.m. peak hours are presented in **Exhibit 3** and **Exhibit 4** respectively.

## 6.3 North-South Volume Growth

Based on the EMME outputs from the VMC sub-area model, forecast link volume growth rates of 1.7% and 4.0% were calculated for a.m. and p.m. peak hours respectively. These growth rates were applied to baseline north-south volumes in order to calculate the total north-south growth to the 2031 horizon year. Once the volume growth for each of these general movements were calculated, the volumes were distributed by a process of applying weighting factors[9] to each link based on that link's general configuration and network connectivity.

Forecasted north-south growth volumes on each north-south link were then distributed throughout the network based on the weighting factors assigned to each link. The north-south volume growth, as well as the assigned weighting factors and distribution of this growth throughout the network, for a.m. and p.m. peak hours are presented in **Exhibit 5** and **Exhibit 6** respectively.

## 6.4 East-West Volume Growth

East-west volumes were determined from the forecast 2031 VMC EMME model's east-west link volumes. These volumes were extracted by considering only the growth years, i.e. 16 years between 2014 and 2031. This was done by using the previously calculated growth rates (1.7% in a.m. and 4% in p.m. peaks) to determine the growth portion only of the 2031 assigned volumes. A further adjustment was made by adopting a refined 30% assignment of the assigned truck traffic that the VMC study[10] had assumed. The calculated east-west volume growth for a.m. and p.m. peak hours is presented in **Exhibit 7** and **Exhibit 8** respectively.

## 6.5 Establish North-South Link Targets

North-south link targets were calculated by summing the reassigned baseline turning movement volumes with the calculated north-south volume growth. The results are presented for a.m. and p.m. peak hours in **Exhibit 9** and **Exhibit 10** respectively.

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[9] Weighting factor was the considered utility of each new road link, e.g. if the new road was continuous it was given a higher attraction to/from the generated trips than a short discontinuous road.

[10] Urban Strategies Inc & AECOM, 2013

## 6.6 Establish East-West Link Targets

Similarly, east-west link targets were calculated by summing the reassigned baseline turning movement volumes with the calculated east-west volume growth. The results are presented for a.m. and p.m. peak hours in **Exhibit 11** and **Exhibit 12** respectively.

## 6.7 Calculate turning movements

Utilizing the north-south and east-west link targets (**Exhibits 9 to 12**), future turning movement volumes at each of the main intersections (Applewood, Edgeley, Millway, Jane and Creditstone) were forecasted by factoring, using Fratar, the redistributed baseline traffic counts (**Exhibits 3 and 4**) to these target figures.

Left and right turns into/out-off the smaller intermediate intersections were taken from **Exhibits 5 and 6**. The through movements along Portage Parkway were balanced to coincide with the east-west targets contained in **Exhibits 11 and 12**.

The forecasted future 2031 turning movement volumes for a.m. and p.m. peaks hours are presented in **Exhibit 13** and **Exhibit 14** respectively.

## 6.8 Transit turning movements

The future transit turning movement into/out-off the future transit terminal on the south leg of Millway were provided by York Region Transit; these volumes (assumed to be representative of a.m. and p.m. peak hours) are shown in **Exhibit 15.**

## 6.9 2031 turning movement forecasts

The forecasted future 2031 turning movement volumes for a.m. and p.m. peaks hours are presented in **Exhibit 16** and **Exhibit 17** respectively. These exhibits were developed by adding **Exhibit 15** to **Exhibit 13** and **Exhibit 14** respectively.

# 7. 2031 Future Conditions Traffic Operations

CIMA+ undertook future conditions traffic analysis using Synchro/SimTraffic software. The operational analysis was used to evaluate the future operational characteristics of the subject intersections, individual movements, and the corridor as a whole.

The results of this analysis are summarized in **Table 8** and Synchro reports are provided in **Appendix A** for further reference.

MOEs that exceed target values set by the City, as presented in **Section 5.1**, are coloured in red.

## 7.1 2031 Future Conditions "Do Nothing"

Future conditions traffic analysis was undertaken for a "Do Nothing" scenario. This scenario includes consideration for the future 2031 development and resulting trip generation, and applies these volumes to the existing cross-section configuration of Portage Parkway.

During the a.m. peak hour under future traffic conditions without any road widening, nearly all intersections are expected to be nearing or over capacity. The overall v/c ratios for each intersection, in descending order of severity, are as follows:

- Edgeley Boulevards (v/c ratio of 1.85);
- Jane Street (v/c ratio of 1.45); and
- Millwood Avenue (v/c ratio of 0.91);
- Applewood Crescent (v/c ratio of 0.71).

During the p.m. peak hour, all intersections and the majority of turning movements are expected to be nearing or over capacity with very high delay. The overall v/c ratios for each intersection, in descending order of severity, are as follows:

- Jane Street (v/c ratio of 5.05);
- Millwood Avenue (v/c ratio of 2.22);
- Edgeley Boulevards (v/c ratio of 1.66); and
- Applewood Crescent (v/c ratio of 0.91).

Overall intersection delay is expected to be very severe during the p.m. peak hour. The intersection at Edgeley Boulevard is expected to have the highest delay in both the a.m. and p.m. peak hours at 323.7 seconds and 1607.1 seconds, respectively, which reflects a breakdown of operations and intersection failure. It is evident that without sufficient widening to accommodate the expected 2031 traffic growth the intersections situated within the study area are expected to be fully congested during the p.m. peak hour. Increased capacity at all subject intersections, by means of geometric improvements (e.g. roadway widening) is required to reduce the potential for a failure of operations.

**Table 6: Results of Future Conditions "Do Nothing" Traffic Operational Analysis**

| Intersection & Movement | Weekday AM Peak Hour | | | | Weekday PM Peak Hour | | | | Storage Length (m) |
|---|---|---|---|---|---|---|---|---|---|
| | LOS | v/c | Control Delay (s) | 95th Queue (m) | LOS | v/c | Control Delay (s) | 95th Queue (m) | |
| **Applewood Crescent** | | | | | | | | | |
| **Overall** | **C** | **0.71** | **23.0** | | **F** | **0.91** | **115.7** | | |
| EB T T/R | C | 0.91 | 25.5 | 304 | C | 0.90 | 26.5 | 326 | 550 |
| WB T T/R | C | 0.76 | 20.8 | 51 | F | 1.35 | 184.6 | 96 | 290 |
| NB L | C | 0.24 | 23.7 | 19 | F | 0.96 | 106.6 | 60 | 50 |
| NB T | C | 0.11 | 21.8 | 24 | D | 0.39 | 40.3 | 77 | 100 |
| NB R | C | 0.04 | 21.1 | 28 | D | 0.05 | 36.6 | 50 | 50 |
| SB L/T | C | 0.14 | 21.9 | 18 | F | 1.12 | 143.1 | 587 | 575 |
| SB R | B | 0.06 | 18.5 | 26 | F | 1.05 | 113.8 | 150 | 50 |
| **Edgeley Boulevard** | | | | | | | | | |
| **Overall** | **F** | **1.85** | **323.7** | | **F** | **1.66** | **1607.1** | | |
| EB L/T | F | 1.47 | 240.2 | 85 | F | 1.97 | 462.6 | 86 | 290 |
| EB R | B | 0.14 | 11.5 | 22 | B | 0.49 | 16.5 | 23 | 290 |
| WB L/T/R | F | 2.86 | 870.3 | 211 | F | 11.40 | 4715.1 | 210 | 200 |
| NB L/T T | B | 0.42 | 17.9 | 64 | F | 1.07 | 105.5 | 296 | 270 |
| NB R | B | 0.08 | 15.6 | 10 | D | 0.18 | 39.2 | 183 | 100 |
| SB L/T T | B | 0.24 | 15.7 | 48 | F | 1.03 | 93.8 | 558 | 555 |
| SB R | B | 0.07 | 15.4 | 17 | D | 0.26 | 40.7 | 138 | 150 |
| **Millway Avenue** | | | | | | | | | |
| **Overall** | **C** | **0.91** | **27.9** | | **F** | **2.22** | **472.6** | | |
| EB L/T/R | B | 0.86 | 19.1 | 112 | F | 1.76 | 371.8 | 86 | 175 |
| WB L/T/R | C | 0.94 | 27.5 | 82 | F | 2.65 | 772.5 | 81 | 160 |
| NB L | C | 0.29 | 27.9 | 22 | F | 1.14 | 174.2 | 322 | 50 |
| NB T/R | D | 0.75 | 38.0 | 66 | F | 1.03 | 106.5 | 452 | 300 |
| SB L | E | 0.84 | 76.9 | 142 | F | 1.14 | 172.9 | 198 | 120 |
| SB T/R | C | 0.38 | 28.4 | 114 | F | 1.13 | 139.5 | 156 | 550 |
| **Jane Street** | | | | | | | | | |
| **Overall** | **F** | **1.45** | **160.2** | | **F** | **5.05** | **696.7** | | |
| EB L/T | F | 1.76 | 397.9 | 74 | F | 2.18 | 564.9 | 73 | 160 |
| EB R | C | 0.19 | 28.3 | 77 | B | 0.19 | 14.8 | 61 | 160 |
| WB L/T/R | F | 2.30 | 639.0 | 274 | F | 8.29 | 3332.3 | 258 | 30 |
| NB L | D | 0.89 | 44.7 | 178 | F | 1.23 | 183.0 | 201 | 175 |
| NB T T | B | 0.40 | 13.5 | 134 | F | 1.17 | 129.7 | 498 | 440 |
| NB R | B | 0.21 | 13.3 | 25 | C | 0.22 | 33.7 | 633 | 440 |
| SB L | D | 0.71 | 45.5 | 36 | F | 1.15 | 161.8 | 174 | 150 |
| SB T T | C | 0.65 | 29.0 | 101 | F | 1.28 | 180.4 | 440 | 510 |
| SB R | C | 0.18 | 21.5 | 57 | D | 0.85 | 49.4 | 150 | 100 |

**Table 7** presents the results for the "Do Nothing" scenario at Creditstone Road based on an extension of Portage Parkway eastwards from Jane Street with the accepted four-lane cross-section, as planned, without the proposed widening from Applewood Crescent to Jane Street. Although the overall intersection is expected to be nearing capacity during the p.m. peak hour, it is expected to operate reasonably well in comparison to other study area signalized intersections.

**Table 7: Results of "Do Nothing" Traffic Operational Analysis at Creditsone Road**

| Intersection & Movement | Weekday AM Peak Hour | | | | Weekday PM Peak Hour | | | | Storage Length (m) |
|---|---|---|---|---|---|---|---|---|---|
| | LOS | v/c | Control Delay (s) | 95th Queue (m) | LOS | v/c | Control Delay (s) | 95th Queue (m) | |
| **Creditstone Road** | | | | | | | | | |
| **Overall** | **B** | **0.45** | **14.0** | | **C** | **0.89** | **34.6** | | |
| EB L | C | 0.61 | 25.6 | 31 | D | 0.84 | 47.6 | 60 | 530 |
| EB R | C | 0.72 | 30.2 | 25 | C | 0.82 | 24.2 | 76 | 530 |
| NB L | A | 0.34 | 7.9 | 26 | D | 0.88 | 49.5 | 146 | 150 |
| NB T T | A | 0.22 | 5.9 | 25 | B | 0.31 | 14.2 | 332 | 390 |
| SB T T | A | 0.23 | 5.9 | 12 | D | 0.74 | 44.6 | 82 | 400 |
| SB R | A | 0.16 | 5.7 | 26 | C | 0.19 | 33.6 | 80 | 70 |

## 7.2 2031 Future Conditions with Widening

Future conditions traffic analysis was undertaken for the preliminary preferred plan. This scenario includes consideration for the future 2031 development and resulting trip generation, and applies these volumes to the proposed preliminary preferred plan as provided in **Appendix C**. The proposed intersection improvements are as follows:

- Applewood Crescent
  - Eastbound left-turn lane;
  - South approach with northbound left-turn lane, through lane, and right-turn lane;
  - Westbound left-turn lane; and
  - Southbound right-turn lane.
- Edgeley Boulevard
  - Eastbound left-turn lane;
  - Northbound right-turn lane;
  - Westbound left-turn lane and additional through lane; and
  - Southbound right-turn lane.
- Millway Avenue
  - Eastbound left-turn lane and additional through lane;
  - Northbound left-turn lane and right-turn lane;

- Westbound left-turn lane and additional through lane; and
- Southbound left-turn lane.

+ Jane Street
    - Two eastbound through lanes;
    - Northbound right-turn lane; and
    - East approach with westbound left-turn lane, through lane, and shared through/right-turn lane.
+ Creditstone Road (new intersection)
    - West approach with eastbound left-turn lane and right-turn lane;
    - Northbound left-turn lane and additional through lane; and
    - Southbound right-turn lane and additional through lane.

As show in the appended preliminary preferred plan, 7 new stop-controlled cross-streets are proposed, including a south approach for the Buttermill Avenue intersection (two-way stop control).

Recommended intersection and lane configurations for 2031 future conditions were developed based on Synchro sensitivity analysis, consultation with the City, the public, and right-of-way limitations.

The results of this analysis are summarized in **Table 8** and Synchro reports are provided in **Appendix A** for further reference.

MOEs that exceed target values set by the City, as presented in **Section 5.1**, are coloured in red.

Under future traffic conditions with Portage Parkway widening and other intersection geometric improvements as per our recommended proposed solution, all intersections and turning movements are expected to operate very satisfactorily during the a.m. peak hour; with some intersections nearing capacity during the p.m. peak hour. The overall v/c ratios for each intersection, in descending order to severity, are as follows:

+ Edgeley Boulevard (v/c ratio of 0.98);
+ Jane Street (v/c ratio of 0.96);
+ Millwood Avenue (v/c ratio of 0.93);
+ Applewood Crescent (v/c ratio of 0.91); and
+ Creditstone Road (v/c ratio of 0.89).

Overall intersection delay is expected to be fairly moderate, with cycle lengths ranging from 120 to 130 seconds due to the increased demand.

MOEs for unsignalized intersections are presented in the Simtraffic traffic reports in **Appendix A**. The v/c ratios for individual movements at unsignalized intersections are expected to be low, with the highest overall Intersection Capacity Utilization expected to be 59% (Planned Road #4). Delay is also expected to be low with most movements reporting LOS A or B; the southbound approach at Buttermill Avenue reported LOS E (35.6 seconds). Queueing is expected to be reasonable.

**Table 8: Results of Future Conditions Traffic Operational Analysis**

| Intersection & Movement | Weekday AM Peak Hour | | | | Weekday PM Peak Hour | | | | Storage Length (m) |
|---|---|---|---|---|---|---|---|---|---|
| | LOS | v/c | Control Delay (s) | 95th Queue (m) | LOS | v/c | Control Delay (s) | 95th Queue (m) | |
| **Applewood Crescent** | | | | | | | | | |
| **Overall** | **B** | **0.45** | **18.6** | | **D** | **0.91** | **38.1** | | |
| EB L | B | 0.53 | 15.5 | 33 | C | 0.40 | 26.1 | 57 | 100 |
| EB T T/R | B | 0.55 | 13.7 | 57 | C | 0.75 | 29.3 | 186 | 550 |
| WB L | C | 0.60 | 29.3 | 27 | C | 0.57 | 26.9 | 76 | 90 |
| WB T T/R | C | 0.70 | 25.6 | 75 | D | 0.93 | 36.0 | 94 | 290 |
| NB L | B | 0.19 | 15.7 | 30 | E | 0.77 | 56.1 | 36 | 50 |
| NB T | B | 0.09 | 14.5 | 23 | C | 0.33 | 34.4 | 49 | 100 |
| NB R | B | 0.04 | 14.1 | 14 | C | 0.05 | 31.4 | 23 | 50 |
| SB L/T | B | 0.11 | 14.6 | 24 | E | 0.89 | 70.0 | 235 | 575 |
| SB R | A | 0.06 | 8.6 | 17 | D | 0.82 | 53.6 | 133 | 50 |
| **Edgeley Boulevard** | | | | | | | | | |
| **Overall** | **C** | **0.56** | **21.3** | | **D** | **0.98** | **52.0** | | |
| EB L | B | 0.52 | 16.3 | 54 | D | 0.71 | 45.2 | 72 | 100 |
| EB T T/R | C | 0.70 | 24.2 | 80 | D | 0.96 | 48.3 | 87 | 290 |
| WB L | B | 0.43 | 19.8 | 24 | F | 0.97 | 88.2 | 142 | 145 |
| WB T T/R | C | 0.65 | 25.6 | 63 | D | 0.82 | 35.6 | 121 | 200 |
| NB L/T T | B | 0.41 | 17.7 | 70 | E | 0.98 | 77.9 | 327 | 270 |
| NB R | B | 0.08 | 15.5 | 22 | D | 0.11 | 36.2 | 34 | 100 |
| SB L/T T | B | 0.24 | 15.6 | 43 | E | 0.93 | 68.3 | 522 | 555 |
| SB R | B | 0.07 | 15.3 | 26 | D | 0.39 | 41.5 | 144 | 150 |
| **Millway Avenue** | | | | | | | | | |
| **Overall** | **A** | **0.51** | **8.2** | | **D** | **0.93** | **50.6** | | |
| EB L | B | 0.58 | 11.0 | 38 | D | 0.67 | 41.3 | 71 | 50 |
| EB T T/R | A | 0.39 | 6.9 | 42 | E | 0.97 | 57.3 | 91 | 175 |
| WB L | A | 0.39 | 7.5 | 28 | E | 0.89 | 64.6 | 85 | 90 |
| WB T T/R | A | 0.49 | 7.4 | 52 | D | 0.88 | 38.6 | 89 | 160 |
| NB L | A | 0.17 | 9.7 | 23 | E | 0.80 | 56.2 | 47 | 50 |
| NB T | B | 0.41 | 10.8 | 47 | D | 0.69 | 45.7 | 106 | 300 |
| NB R | A | 0.04 | 9.1 | 27 | | 0.04 | 34.0 | 60 | 75 |
| SB L | B | 0.28 | 10.4 | 42 | D | 0.62 | 40.1 | 53 | 120 |
| SB T/R | B | 0.26 | 10.1 | 29 | E | 0.92 | 69.7 | 103 | 550 |
| **Jane Street** | | | | | | | | | |
| **Overall** | **C** | **0.82** | **27.0** | | **D** | **0.96** | **48.2** | | |
| EB L | D | 0.74 | 51.5 | 33 | E | 0.91 | 66.0 | 74 | 90 |
| EB T T | C | 0.39 | 33.8 | 54 | E | 0.96 | 58.6 | 76 | 160 |
| EB R | C | 0.13 | 29.0 | 39 | C | 0.24 | 30.4 | 81 | 80 |
| WB L | D | 0.24 | 39.7 | 20 | D | 0.61 | 45.6 | 74 | 50 |
| WB T T/R | D | 0.77 | 49.2 | 66 | D | 0.85 | 52.3 | 265 | 550 |

| Intersection & Movement | Weekday AM Peak Hour | | | | Weekday PM Peak Hour | | | | Storage Length (m) |
|---|---|---|---|---|---|---|---|---|---|
| | LOS | v/c | Control Delay (s) | 95th Queue (m) | LOS | v/c | Control Delay (s) | 95th Queue (m) | |
| NB L | C | 0.83 | 30.6 | 71 | E | 0.89 | 69.1 | 227 | 175 |
| NB T T | B | 0.38 | 10.9 | 61 | D | 0.85 | 38.6 | 228 | 440 |
| NB R | B | 0.20 | 11.0 | 25 | C | 0.13 | 22.2 | 23 | 440 |
| SB L | D | 0.67 | 38.0 | 57 | E | 0.91 | 73.2 | 203 | 150 |
| SB T T | C | 0.61 | 24.7 | 95 | D | 0.95 | 53.0 | 462 | 510 |
| SB R | B | 0.17 | 18.5 | 32 | B | 0.54 | 19.6 | 186 | 100 |
| **Creditstone Road** | | | | | | | | | |
| **Overall** | B | 0.45 | 14.0 | | **C** | **0.89** | **34.6** | | |
| EB L | C | 0.61 | 25.6 | 65 | D | 0.84 | 47.6 | 127 | 530 |
| EB R | C | 0.72 | 30.2 | 54 | C | 0.82 | 24.2 | 124 | 530 |
| NB L | A | 0.34 | 7.9 | 43 | D | 0.88 | 49.5 | 113 | 150 |
| NB T T | A | 0.22 | 5.9 | 38 | B | 0.31 | 14.2 | 52 | 390 |
| SB T T | A | 0.23 | 5.9 | 44 | D | 0.74 | 44.6 | 106 | 500 |
| SB R | A | 0.16 | 5.7 | 22 | C | 0.29 | 33.6 | 50 | 75 |

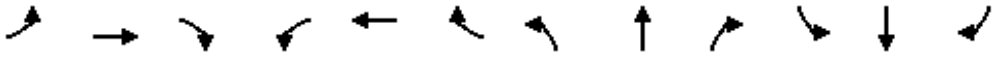
Based on the findings of the future conditions traffic analysis undertaken for the preliminary preferred plan, it is evident that the recommended widening is expected to substantially mitigate critical operational issues that were forecasted to occur if a “Do Nothing” approach were to be adopted. From a traffic operations standpoint, the recommended widening, as well as improvements to the north and south approaches at the subject intersections, is required to ensure this corridor and the surrounding VMC sub-area road network can accommodate expected 2031 growth.

# 8. Summary of Findings

Based on the findings from the traffic analysis, the following can be concluded:

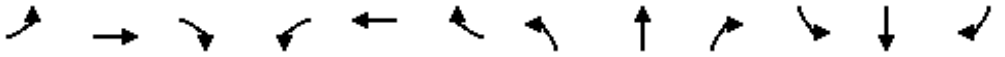
- Under existing traffic conditions, most intersections and turning movements operate satisfactorily during both the a.m. and p.m. peak hours;
- During the p.m. peak hour, the westbound and northbound approaches at Edgeley Boulevard are nearing capacity, with westbound queueing expected to be extending to Millway Avenue;
- During the p.m. peak hour, the Millway Avenue intersection operates with high delay and is nearing capacity for eastbound, westbound and southbound approaches;
- Under future 2031 traffic conditions with a "Do Nothing" scenario (e.g. no widening on Portage Parkway), the operations along the corridor is expected to severely deteriorate, resulting in a breakdown of operations at most intersections and high levels of congestion;
- Under future 2031 traffic conditions with the proposed widening, all intersections and turning movements are expected to operate very satisfactorily during the a.m. peak hour;
- During the p.m. peak hour, all intersections are expected to be nearing capacity, with overall intersection v/c ratios ranging from 0.89 to 0.98;
- Overall intersection delay is expected to be fairly moderate during the p.m. peak hour, with cycle lengths ranging from 120 to 130 seconds due to the increased demand;
- Eastbound and westbound queueing on Portage Parkway is not expected to be concerning;
- Storage for existing dedicated left-turn and/or right-turn lanes on northbound and southbound approaches may require extension to sufficiently accommodate expected growth in turning movement volumes (e.g. Southbound left-turn and right-turn lanes on Jane Street should be extended to accommodate p.m. peak hour demand, as shown in **Table 8**); and
- For 2031 unsignalized intersections, v/c ratios and delay is expected to be low with reasonable levels of queueing.

# Appendix A: Synchro Reports



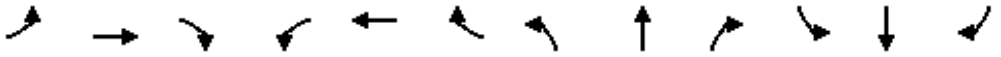
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 158 | 784 | 54 | 91 | 449 | 323 | 90 | 58 | 58 | 16 | 51 | 76 |
| Future Volume (vph) | 158 | 784 | 54 | 91 | 449 | 323 | 90 | 58 | 58 | 16 | 51 | 76 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 5.0 | 4.0 | | 4.3 | 4.3 | 4.3 | | 4.5 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1752 | 3443 | | 1770 | 3280 | | 1770 | 1863 | 1583 | | 1797 | 1357 |
| Flt Permitted | 0.15 | 1.00 | | 0.30 | 1.00 | | 0.71 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 284 | 3443 | | 567 | 3280 | | 1322 | 1863 | 1583 | | 1720 | 1357 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.92 | 0.92 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.89 | 0.92 | 0.89 |
| Adj. Flow (vph) | 178 | 881 | 59 | 99 | 504 | 363 | 98 | 63 | 63 | 18 | 55 | 85 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 169 | 0 | 0 | 0 | 38 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 178 | 933 | 0 | 99 | 698 | 0 | 98 | 63 | 25 | 0 | 73 | 45 |
| Heavy Vehicles (%) | 3% | 4% | 2% | 2% | 4% | 2% | 2% | 2% | 2% | 12% | 2% | 19% |
| Turn Type | pm+pt | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | pm+ov |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | 6 | 7 |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 36.4 | 36.4 | | 22.0 | 22.0 | | 30.1 | 30.1 | 30.1 | | 29.9 | 40.3 |
| Effective Green, g (s) | 36.4 | 37.4 | | 22.0 | 23.0 | | 30.1 | 30.1 | 30.1 | | 29.9 | 40.3 |
| Actuated g/C Ratio | 0.48 | 0.49 | | 0.29 | 0.30 | | 0.40 | 0.40 | 0.40 | | 0.39 | 0.53 |
| Clearance Time (s) | 4.0 | 5.0 | | 5.0 | 5.0 | | 4.3 | 4.3 | 4.3 | | 4.5 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 337 | 1698 | | 164 | 995 | | 524 | 739 | 628 | | 678 | 721 |
| v/s Ratio Prot | 0.07 | c0.27 | | | c0.21 | | | 0.03 | | | | 0.01 |
| v/s Ratio Perm | 0.18 | | | 0.17 | | | c0.07 | | 0.02 | | 0.04 | 0.02 |
| v/c Ratio | 0.53 | 0.55 | | 0.60 | 0.70 | | 0.19 | 0.09 | 0.04 | | 0.11 | 0.06 |
| Uniform Delay, d1 | 14.0 | 13.3 | | 23.1 | 23.4 | | 14.9 | 14.3 | 14.0 | | 14.5 | 8.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.5 | 0.4 | | 6.1 | 2.3 | | 0.8 | 0.2 | 0.1 | | 0.1 | 0.0 |
| Delay (s) | 15.5 | 13.7 | | 29.3 | 25.6 | | 15.7 | 14.5 | 14.1 | | 14.6 | 8.6 |
| Level of Service | B | B | | C | C | | B | B | B | | B | A |
| Approach Delay (s) | | 14.0 | | | 26.0 | | | 14.9 | | | 11.4 | |
| Approach LOS | | B | | | C | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 18.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 75.8 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 54.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 154 | 615 | 184 | 81 | 539 | 88 | 176 | 224 | 113 | 43 | 220 | 88 |
| Future Volume (vph) | 154 | 615 | 184 | 81 | 539 | 88 | 176 | 224 | 113 | 43 | 220 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.0 | | 4.5 | 4.0 | | | 4.0 | 5.8 | | 4.0 | 5.8 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.97 | | 1.00 | 0.98 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1719 | 3306 | | 1569 | 3280 | | | 3427 | 1467 | | 3371 | 1434 |
| Flt Permitted | 0.20 | 1.00 | | 0.20 | 1.00 | | | 0.71 | 1.00 | | 0.84 | 1.00 |
| Satd. Flow (perm) | 364 | 3306 | | 323 | 3280 | | | 2473 | 1467 | | 2851 | 1434 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 166 | 661 | 198 | 87 | 580 | 95 | 189 | 241 | 122 | 46 | 237 | 95 |
| RTOR Reduction (vph) | 0 | 33 | 0 | 0 | 16 | 0 | 0 | 0 | 73 | 0 | 0 | 57 |
| Lane Group Flow (vph) | 166 | 826 | 0 | 87 | 659 | 0 | 0 | 430 | 49 | 0 | 283 | 38 |
| Confl. Peds. (#/hr) | 2 | | 3 | 3 | | 2 | 3 | | 9 | 9 | | 3 |
| Heavy Vehicles (%) | 5% | 6% | 2% | 15% | 6% | 17% | 3% | 3% | 8% | 7% | 6% | 11% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 6 | | | 2 | |
| Permitted Phases | 4 | | | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | 37.0 | 27.7 | | 29.4 | 23.9 | | | 32.5 | 32.5 | | 32.5 | 32.5 |
| Effective Green, g (s) | 37.0 | 29.1 | | 29.4 | 25.3 | | | 34.3 | 32.5 | | 34.3 | 32.5 |
| Actuated g/C Ratio | 0.45 | 0.36 | | 0.36 | 0.31 | | | 0.42 | 0.40 | | 0.42 | 0.40 |
| Clearance Time (s) | 4.5 | 5.4 | | 4.5 | 5.4 | | | 5.8 | 5.8 | | 5.8 | 5.8 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 320 | 1181 | | 200 | 1019 | | | 1042 | 585 | | 1201 | 572 |
| v/s Ratio Prot | c0.06 | c0.25 | | 0.03 | 0.20 | | | | | | | |
| v/s Ratio Perm | 0.18 | | | 0.13 | | | | c0.17 | 0.03 | | 0.10 | 0.03 |
| v/c Ratio | 0.52 | 0.70 | | 0.43 | 0.65 | | | 0.41 | 0.08 | | 0.24 | 0.07 |
| Uniform Delay, d1 | 14.9 | 22.4 | | 18.3 | 24.2 | | | 16.5 | 15.2 | | 15.1 | 15.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.4 | 1.8 | | 1.5 | 1.4 | | | 1.2 | 0.3 | | 0.5 | 0.2 |
| Delay (s) | 16.3 | 24.2 | | 19.8 | 25.6 | | | 17.7 | 15.5 | | 15.6 | 15.3 |
| Level of Service | B | C | | B | C | | | B | B | | B | B |
| Approach Delay (s) | | 22.9 | | | 25.0 | | | 17.2 | | | 15.5 | |
| Approach LOS | | C | | | C | | | B | | | B | |

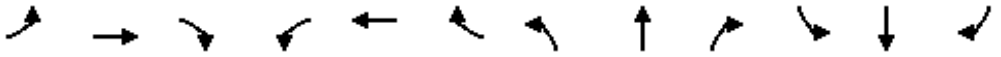
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 21.3 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 81.4 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 93.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 118 | 543 | 11 | 120 | 622 | 72 | 57 | 214 | 50 | 71 | 82 | 60 |
| Future Volume (vph) | 118 | 543 | 11 | 120 | 622 | 72 | 57 | 214 | 50 | 71 | 82 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 1.00 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1517 | 3396 | | 1768 | 3366 | | 1671 | 1810 | 1532 | 1398 | 1535 | |
| Flt Permitted | 0.31 | 1.00 | | 0.40 | 1.00 | | 0.66 | 1.00 | 1.00 | 0.60 | 1.00 | |
| Satd. Flow (perm) | 496 | 3396 | | 740 | 3366 | | 1152 | 1810 | 1532 | 885 | 1535 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 134 | 617 | 12 | 136 | 707 | 82 | 65 | 243 | 57 | 81 | 93 | 68 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 12 | 0 | 0 | 0 | 38 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 134 | 628 | 0 | 136 | 777 | 0 | 65 | 243 | 19 | 81 | 131 | 0 |
| Confl. Peds. (#/hr) | | | 2 | 2 | | | | | 3 | 3 | | |
| Heavy Vehicles (%) | 19% | 6% | 2% | 2% | 6% | 2% | 8% | 5% | 4% | 29% | 13% | 20% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 18.5 | 18.5 | | 18.5 | 18.5 | | 12.8 | 12.8 | 12.8 | 12.8 | 12.8 | |
| Effective Green, g (s) | 18.5 | 18.5 | | 18.5 | 18.5 | | 12.8 | 12.8 | 12.8 | 12.8 | 12.8 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.47 | 0.47 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 233 | 1598 | | 348 | 1584 | | 375 | 589 | 498 | 288 | 499 | |
| v/s Ratio Prot | | 0.18 | | | 0.23 | | | c0.13 | | | 0.09 | |
| v/s Ratio Perm | c0.27 | | | 0.18 | | | 0.06 | | 0.01 | 0.09 | | |
| v/c Ratio | 0.58 | 0.39 | | 0.39 | 0.49 | | 0.17 | 0.41 | 0.04 | 0.28 | 0.26 | |
| Uniform Delay, d1 | 7.5 | 6.8 | | 6.7 | 7.2 | | 9.5 | 10.3 | 9.0 | 9.8 | 9.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.4 | 0.2 | | 0.7 | 0.2 | | 0.2 | 0.5 | 0.0 | 0.5 | 0.3 | |
| Delay (s) | 11.0 | 6.9 | | 7.5 | 7.4 | | 9.7 | 10.8 | 9.1 | 10.4 | 10.1 | |
| Level of Service | B | A | | A | A | | A | B | A | B | B | |
| Approach Delay (s) | | 7.6 | | | 7.4 | | | 10.3 | | | 10.2 | |
| Approach LOS | | A | | | A | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 8.2 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 39.3 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 61.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



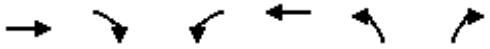
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 120 | 354 | 175 | 41 | 415 | 68 | 290 | 771 | 254 | 170 | 882 | 220 |
| Future Volume (vph) | 120 | 354 | 175 | 41 | 415 | 68 | 290 | 771 | 254 | 170 | 882 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 7.0 | 4.0 | 7.0 | 7.0 | | 4.0 | 4.0 | 7.5 | 7.5 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1442 | 1770 | 3464 | | 1703 | 3406 | 1583 | 1770 | 3312 | 1441 |
| Flt Permitted | 0.21 | 1.00 | 1.00 | 0.52 | 1.00 | | 0.18 | 1.00 | 1.00 | 0.35 | 1.00 | 1.00 |
| Satd. Flow (perm) | 394 | 3539 | 1442 | 976 | 3464 | | 315 | 3406 | 1583 | 643 | 3312 | 1441 |
| Peak-hour factor, PHF | 0.95 | 0.92 | 0.95 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.92 | 0.92 | 0.95 | 0.95 |
| Adj. Flow (vph) | 126 | 385 | 184 | 45 | 451 | 74 | 305 | 812 | 276 | 185 | 928 | 232 |
| RTOR Reduction (vph) | 0 | 0 | 128 | 0 | 11 | 0 | 0 | 0 | 88 | 0 | 0 | 117 |
| Lane Group Flow (vph) | 126 | 385 | 56 | 45 | 514 | 0 | 305 | 812 | 188 | 185 | 928 | 115 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | | | | 1 |
| Heavy Vehicles (%) | 2% | 2% | 12% | 2% | 2% | 2% | 6% | 6% | 2% | 2% | 9% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | | pm+pt | NA | Perm | Perm | NA | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 1 | 6 | | | 2 | |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | 31.5 | 31.5 | 31.5 | 21.9 | 21.9 | | 68.0 | 68.0 | 68.0 | 49.2 | 49.2 | 49.2 |
| Effective Green, g (s) | 31.5 | 31.5 | 34.5 | 21.9 | 21.9 | | 68.0 | 71.5 | 68.0 | 49.2 | 52.7 | 52.7 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.30 | 0.19 | 0.19 | | 0.60 | 0.63 | 0.60 | 0.43 | 0.46 | 0.46 |
| Clearance Time (s) | 4.5 | 7.0 | 7.0 | 7.0 | 7.0 | | 4.0 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | 170 | 977 | 436 | 187 | 665 | | 368 | 2136 | 944 | 277 | 1531 | 666 |
| v/s Ratio Prot | c0.03 | 0.11 | | | 0.15 | | c0.11 | 0.24 | | | 0.28 | |
| v/s Ratio Perm | c0.17 | | 0.04 | 0.05 | | | c0.39 | | 0.12 | 0.29 | | 0.08 |
| v/c Ratio | 0.74 | 0.39 | 0.13 | 0.24 | 0.77 | | 0.83 | 0.38 | 0.20 | 0.67 | 0.61 | 0.17 |
| Uniform Delay, d1 | 35.6 | 33.5 | 28.8 | 39.0 | 43.7 | | 16.4 | 10.4 | 10.5 | 25.9 | 22.9 | 17.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.9 | 0.3 | 0.1 | 0.7 | 5.6 | | 14.2 | 0.5 | 0.5 | 12.1 | 1.8 | 0.6 |
| Delay (s) | 51.5 | 33.8 | 29.0 | 39.7 | 49.2 | | 30.6 | 10.9 | 11.0 | 38.0 | 24.7 | 18.5 |
| Level of Service | D | C | C | D | D | | C | B | B | D | C | B |
| Approach Delay (s) | | 35.7 | | | 48.5 | | | 15.3 | | | 25.4 | |
| Approach LOS | | D | | | D | | | B | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 27.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 114.0 | Sum of lost time (s) | 19.5 |
| Intersection Capacity Utilization | 86.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 256 | 456 | 165 | 450 | 481 | 233 |
| Future Volume (vph) | 256 | 456 | 165 | 450 | 481 | 233 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 3539 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.45 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1583 | 840 | 3539 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 278 | 496 | 179 | 489 | 523 | 253 |
| RTOR Reduction (vph) | 0 | 201 | 0 | 0 | 0 | 94 |
| Lane Group Flow (vph) | 278 | 295 | 179 | 489 | 523 | 159 |
| Turn Type | Prot | Perm | Perm | NA | NA | Perm |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | 6 |
| Actuated Green, G (s) | 18.2 | 18.2 | 44.5 | 44.5 | 44.5 | 44.5 |
| Effective Green, g (s) | 18.2 | 18.2 | 44.5 | 44.5 | 44.5 | 44.5 |
| Actuated g/C Ratio | 0.26 | 0.26 | 0.63 | 0.63 | 0.63 | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 455 | 407 | 528 | 2227 | 2227 | 996 |
| v/s Ratio Prot | 0.16 | | | 0.14 | 0.15 | |
| v/s Ratio Perm | | c0.19 | c0.21 | | | 0.10 |
| v/c Ratio | 0.61 | 0.72 | 0.34 | 0.22 | 0.23 | 0.16 |
| Uniform Delay, d1 | 23.1 | 24.0 | 6.2 | 5.6 | 5.7 | 5.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.4 | 6.3 | 1.7 | 0.2 | 0.2 | 0.3 |
| Delay (s) | 25.6 | 30.2 | 7.9 | 5.9 | 5.9 | 5.7 |
| Level of Service | C | C | A | A | A | A |
| Approach Delay (s) | 28.6 | | | 6.4 | 5.9 | |
| Approach LOS | C | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 14.0 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 70.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

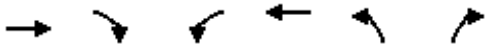
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 818 | 40 | 50 | 811 | 52 | 50 |
| Future Volume (Veh/h) | 818 | 40 | 50 | 811 | 52 | 50 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 889 | 43 | 54 | 882 | 57 | 54 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 108 | | | 205 | | |
| pX, platoon unblocked | | | 0.82 | | 0.88 | 0.82 |
| vC, conflicting volume | | | 932 | | 1460 | 466 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 481 | | 649 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 94 | | 83 | 94 |
| cM capacity (veh/h) | | | 885 | | 332 | 890 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 593 | 339 | 54 | 441 | 441 | 111 |
| Volume Left | 0 | 0 | 54 | 0 | 0 | 57 |
| Volume Right | 0 | 43 | 0 | 0 | 0 | 54 |
| cSH | 1700 | 1700 | 885 | 1700 | 1700 | 478 |
| Volume to Capacity | 0.35 | 0.20 | 0.06 | 0.26 | 0.26 | 0.23 |
| Queue Length 95th (m) | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 7.1 |
| Control Delay (s) | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 | 14.8 |
| Lane LOS | | | A | | | B |
| Approach Delay (s) | 0.0 | | 0.5 | | | 14.8 |
| Approach LOS | | | | | | B |

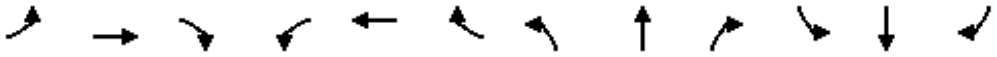
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.1 | | | |
| Intersection Capacity Utilization | 43.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 904 | 30 | 17 | 786 | 6 | 19 |
| Future Volume (Veh/h) | 904 | 30 | 17 | 786 | 6 | 19 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 983 | 33 | 18 | 854 | 7 | 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) | 208 | | | 105 | | |
| pX, platoon unblocked | | | 0.84 | | 0.92 | 0.84 |
| vC, conflicting volume | | | 1016 | | 1462 | 508 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 644 | | 577 | 40 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 98 | | 98 | 98 |
| cM capacity (veh/h) | | | 789 | | 401 | 860 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 655 | 361 | 18 | 427 | 427 | 28 |
| Volume Left | 0 | 0 | 18 | 0 | 0 | 7 |
| Volume Right | 0 | 33 | 0 | 0 | 0 | 21 |
| cSH | 1700 | 1700 | 789 | 1700 | 1700 | 669 |
| Volume to Capacity | 0.39 | 0.21 | 0.02 | 0.25 | 0.25 | 0.04 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 1.0 |
| Control Delay (s) | 0.0 | 0.0 | 9.7 | 0.0 | 0.0 | 10.6 |
| Lane LOS | | | A | | | B |
| Approach Delay (s) | 0.0 | | 0.2 | | | 10.6 |
| Approach LOS | | | | | | B |

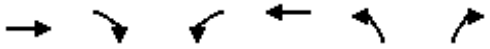
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.2 | | | |
| Intersection Capacity Utilization | 35.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 47 | 699 | 25 | 20 | 654 | 36 | 5 | 15 | 5 | 27 | 21 | 9 |
| Future Volume (Veh/h) | 47 | 699 | 25 | 20 | 654 | 36 | 5 | 15 | 5 | 27 | 21 | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 51 | 760 | 27 | 22 | 711 | 39 | 5 | 16 | 5 | 29 | 23 | 10 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 226 | | | 192 | | | | | | | |
| pX, platoon unblocked | 0.98 | | | 0.87 | | | 0.88 | 0.88 | 0.87 | 0.88 | 0.88 | 0.98 |
| vC, conflicting volume | 750 | | | 787 | | | 1296 | 1670 | 394 | 1270 | 1664 | 375 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 694 | | | 445 | | | 936 | 1361 | 0 | 905 | 1354 | 310 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 94 | | | 98 | | | 97 | 87 | 99 | 83 | 81 | 99 |
| cM capacity (veh/h) | 876 | | | 963 | | | 153 | 119 | 939 | 170 | 120 | 669 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 51 | 507 | 280 | 22 | 474 | 276 | 26 | 62 |
| Volume Left | 51 | 0 | 0 | 22 | 0 | 0 | 5 | 29 |
| Volume Right | 0 | 0 | 27 | 0 | 0 | 39 | 5 | 10 |
| cSH | 876 | 1700 | 1700 | 963 | 1700 | 1700 | 151 | 165 |
| Volume to Capacity | 0.06 | 0.30 | 0.16 | 0.02 | 0.28 | 0.16 | 0.17 | 0.38 |
| Queue Length 95th (m) | 1.5 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 4.8 | 12.9 |
| Control Delay (s) | 9.4 | 0.0 | 0.0 | 8.8 | 0.0 | 0.0 | 33.8 | 39.5 |
| Lane LOS | A | | | A | | | D | E |
| Approach Delay (s) | 0.6 | | | 0.3 | | | 33.8 | 39.5 |
| Approach LOS | | | | | | | D | E |

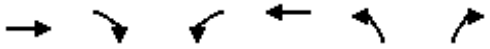
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.4 | | | |
| Intersection Capacity Utilization | 40.0% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 706 | 25 | 21 | 718 | 9 | 16 |
| Future Volume (Veh/h) | 706 | 25 | 21 | 718 | 9 | 16 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 767 | 27 | 23 | 780 | 10 | 17 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 317 | | | 101 | | |
| pX, platoon unblocked | | | 0.92 | | 0.93 | 0.92 |
| vC, conflicting volume | | | 794 | | 1216 | 397 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 612 | | 710 | 182 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 97 | | 97 | 98 |
| cM capacity (veh/h) | | | 890 | | 333 | 766 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 511 | 283 | 23 | 390 | 390 | 27 |
| Volume Left | 0 | 0 | 23 | 0 | 0 | 10 |
| Volume Right | 0 | 27 | 0 | 0 | 0 | 17 |
| cSH | 1700 | 1700 | 890 | 1700 | 1700 | 517 |
| Volume to Capacity | 0.30 | 0.17 | 0.03 | 0.23 | 0.23 | 0.05 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 1.3 |
| Control Delay (s) | 0.0 | 0.0 | 9.2 | 0.0 | 0.0 | 12.3 |
| Lane LOS | | | A | | | B |
| Approach Delay (s) | 0.0 | | 0.3 | | | 12.3 |
| Approach LOS | | | | | | B |

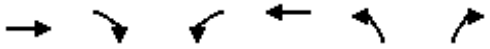
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.3 | | | |
| Intersection Capacity Utilization | 30.3% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 653 | 11 | 74 | 851 | 51 | 34 |
| Future Volume (Veh/h) | 653 | 11 | 74 | 851 | 51 | 34 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 710 | 12 | 80 | 925 | 55 | 37 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 98 | | | 92 | | |
| pX, platoon unblocked | | | 0.91 | | 0.91 | 0.91 |
| vC, conflicting volume | | | 722 | | 1338 | 361 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 502 | | 743 | 106 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 92 | | 81 | 96 |
| cM capacity (veh/h) | | | 965 | | 293 | 846 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 473 | 249 | 388 | 617 | 92 |
| Volume Left | 0 | 0 | 80 | 0 | 55 |
| Volume Right | 0 | 12 | 0 | 0 | 37 |
| cSH | 1700 | 1700 | 965 | 1700 | 398 |
| Volume to Capacity | 0.28 | 0.15 | 0.08 | 0.36 | 0.23 |
| Queue Length 95th (m) | 0.0 | 0.0 | 2.2 | 0.0 | 7.1 |
| Control Delay (s) | 0.0 | 0.0 | 2.6 | 0.0 | 16.8 |
| Lane LOS | | | A | | C |
| Approach Delay (s) | 0.0 | | 1.0 | | 16.8 |
| Approach LOS | | | | | C |

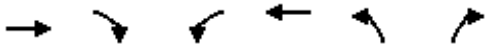
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 59.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 698 | 80 | 2 | 444 | 80 | 61 |
| Future Volume (Veh/h) | 698 | 80 | 2 | 444 | 80 | 61 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 759 | 87 | 2 | 483 | 87 | 66 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 281 | | | 273 | | |
| pX, platoon unblocked | | | 0.93 | | 0.93 | 0.93 |
| vC, conflicting volume | | | 846 | | 1048 | 423 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 685 | | 903 | 231 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 66 | 91 |
| cM capacity (veh/h) | | | 841 | | 257 | 718 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 506 | 340 | 2 | 242 | 242 | 153 |
| Volume Left | 0 | 0 | 2 | 0 | 0 | 87 |
| Volume Right | 0 | 87 | 0 | 0 | 0 | 66 |
| cSH | 1700 | 1700 | 841 | 1700 | 1700 | 356 |
| Volume to Capacity | 0.30 | 0.20 | 0.00 | 0.14 | 0.14 | 0.43 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 16.7 |
| Control Delay (s) | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 | 22.5 |
| Lane LOS | | | A | | | C |
| Approach Delay (s) | 0.0 | | 0.0 | | | 22.5 |
| Approach LOS | | | | | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.3 | | | |
| Intersection Capacity Utilization | 36.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 708 | 10 | 11 | 387 | 21 | 4 |
| Future Volume (Veh/h) | 708 | 10 | 11 | 387 | 21 | 4 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 770 | 11 | 12 | 421 | 23 | 4 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | 135 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 781 | | 1010 | 390 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 781 | | 1010 | 390 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 90 | 99 |
| cM capacity (veh/h) | | | 832 | | 233 | 608 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 513 | 268 | 12 | 210 | 210 | 27 |
| Volume Left | 0 | 0 | 12 | 0 | 0 | 23 |
| Volume Right | 0 | 11 | 0 | 0 | 0 | 4 |
| cSH | 1700 | 1700 | 832 | 1700 | 1700 | 256 |
| Volume to Capacity | 0.30 | 0.16 | 0.01 | 0.12 | 0.12 | 0.11 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 2.8 |
| Control Delay (s) | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 20.7 |
| Lane LOS | | | A | | | C |
| Approach Delay (s) | 0.0 | | 0.3 | | | 20.7 |
| Approach LOS | | | | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 29.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

## Intersection: 1: Applewood Crescent & Portage Parkway

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | T | R | LT | R |
| Maximum Queue (m) | 45.1 | 59.5 | 69.0 | 27.0 | 84.2 | 87.5 | 47.4 | 28.0 | 15.5 | 28.4 | 22.9 |
| Average Queue (m) | 19.0 | 34.3 | 31.7 | 15.6 | 30.8 | 46.7 | 13.5 | 10.3 | 6.7 | 10.3 | 8.0 |
| 95th Queue (m) | 33.0 | 52.9 | 56.6 | 27.0 | 57.0 | 75.0 | 29.6 | 23.4 | 14.1 | 23.5 | 17.3 |
| Link Distance (m) | | 315.9 | 315.9 | | 84.4 | 84.4 | | 481.8 | 481.8 | 378.8 | |
| Upstream Blk Time (%) | | | | | 0 | 0 | | | | | |
| Queuing Penalty (veh) | | | | | 0 | 0 | | | | | |
| Storage Bay Dist (m) | 100.0 | | | 90.0 | | | 50.0 | | | | 100.0 |
| Storage Blk Time (%) | | | | | 0 | | 1 | | | | |
| Queuing Penalty (veh) | | | | | 0 | | 1 | | | | |

## Intersection: 2: Edgeley Boulevard & Portage Parkway

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | LT | T | R | LT | T | R |
| Maximum Queue (m) | 57.3 | 84.0 | 83.5 | 31.8 | 68.9 | 85.4 | 85.0 | 68.3 | 27.4 | 54.5 | 36.7 | 34.4 |
| Average Queue (m) | 26.7 | 47.1 | 49.0 | 12.6 | 32.5 | 39.6 | 45.4 | 22.8 | 11.8 | 25.8 | 11.1 | 13.3 |
| 95th Queue (m) | 53.9 | 74.6 | 80.4 | 24.2 | 54.6 | 63.4 | 69.1 | 52.9 | 22.3 | 43.1 | 27.5 | 25.5 |
| Link Distance (m) | | 82.0 | 82.0 | | 201.2 | 201.2 | 250.2 | 250.2 | 250.2 | 423.3 | 423.3 | |
| Upstream Blk Time (%) | | 1 | 1 | | | | | | | | | |
| Queuing Penalty (veh) | | 3 | 4 | | | | | | | | | |
| Storage Bay Dist (m) | 50.0 | | | 145.0 | | | | | | | | 100.0 |
| Storage Blk Time (%) | 0 | 6 | | | | | | | | | | |
| Queuing Penalty (veh) | 0 | 9 | | | | | | | | | | |

## Intersection: 3: Millway Avenue & Portage Parkway

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | TR | L | TR |
| Maximum Queue (m) | 49.9 | 45.9 | 47.1 | 33.6 | 62.3 | 60.6 | 22.2 | 57.8 | 59.5 | 29.1 |
| Average Queue (m) | 20.8 | 22.3 | 23.6 | 15.2 | 28.6 | 31.0 | 10.3 | 27.2 | 19.2 | 15.9 |
| 95th Queue (m) | 38.1 | 38.7 | 42.4 | 27.5 | 51.4 | 51.7 | 21.6 | 45.1 | 41.8 | 28.7 |
| Link Distance (m) | | 83.5 | 83.5 | | 76.3 | 76.3 | 104.6 | 104.6 | | 340.8 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | 50.0 | | | 80.0 | | | | | 120.0 | |
| Storage Blk Time (%) | 0 | 0 | | | | | | | | |
| Queuing Penalty (veh) | 0 | 0 | | | | | | | | |

## Intersection: 4: Jane Street & Portage Parkway

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | T | R | L |
| Maximum Queue (m) | 40.8 | 50.2 | 62.6 | 55.7 | 23.0 | 63.1 | 65.3 | 78.5 | 57.9 | 57.2 | 37.1 | 64.4 |
| Average Queue (m) | 19.7 | 28.8 | 31.6 | 19.1 | 9.8 | 41.8 | 43.9 | 46.5 | 34.7 | 36.7 | 12.6 | 34.2 |
| 95th Queue (m) | 33.1 | 46.5 | 54.1 | 38.7 | 19.9 | 59.2 | 65.6 | 70.9 | 53.2 | 60.7 | 25.1 | 57.4 |
| Link Distance (m) | | 67.4 | 67.4 | | | 254.0 | 254.0 | | 465.0 | 465.0 | 465.0 | |
| Upstream Blk Time (%) | | | 0 | | | | | | | | | |
| Queuing Penalty (veh) | | | 0 | | | | | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 50.0 | | | 140.0 | | | | 150.0 |
| Storage Blk Time (%) | | | 0 | 0 | | 4 | | | | | | |
| Queuing Penalty (veh) | | | 1 | 0 | | 2 | | | | | | |

## Intersection: 4: Jane Street & Portage Parkway

| Movement | SB | SB | SB |
|---|---|---|---|
| Directions Served | T | T | R |
| Maximum Queue (m) | 112.0 | 93.8 | 46.2 |
| Average Queue (m) | 68.4 | 60.3 | 17.2 |
| 95th Queue (m) | 95.1 | 85.1 | 32.3 |
| Link Distance (m) | 314.1 | 314.1 | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | 100.0 |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 5: Creditstone Road & Portage Parkway

| Movement | EB | EB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | L | R | L | T | T | T | T | R |
| Maximum Queue (m) | 82.1 | 72.3 | 53.8 | 53.9 | 43.2 | 47.9 | 34.0 | 33.4 |
| Average Queue (m) | 35.9 | 30.8 | 24.3 | 19.6 | 14.3 | 24.7 | 9.6 | 11.5 |
| 95th Queue (m) | 65.1 | 54.2 | 43.2 | 37.5 | 30.0 | 43.5 | 23.2 | 21.5 |
| Link Distance (m) | 111.7 | 111.7 | | 426.9 | 426.9 | 245.5 | 245.5 | |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (m) | | | 110.0 | | | | | 75.0 |
| Storage Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |

## Intersection: 6: Planned Road 1 & Portage Parkway

| Movement | WB | NB |
|---|---|---|
| Directions Served | L | LR |
| Maximum Queue (m) | 16.4 | 40.7 |
| Average Queue (m) | 6.6 | 16.2 |
| 95th Queue (m) | 16.4 | 30.0 |
| Link Distance (m) | | 496.1 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 80.0 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 7: Planned Road 2 & Portage Parkway

| Movement | EB | EB | WB | NB |
|---|---|---|---|---|
| Directions Served | T | TR | L | LR |
| Maximum Queue (m) | 14.9 | 15.7 | 9.2 | 9.2 |
| Average Queue (m) | 0.5 | 1.0 | 2.0 | 4.2 |
| 95th Queue (m) | 4.9 | 7.5 | 8.2 | 11.3 |
| Link Distance (m) | 83.5 | 83.5 | | 155.3 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | 20.0 | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 8: Buttermill Avenue & Portage Parkway

| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | L | L | LTR | LTR |
| Maximum Queue (m) | 16.4 | 9.2 | 15.7 | 22.5 |
| Average Queue (m) | 6.4 | 2.1 | 6.7 | 9.9 |
| 95th Queue (m) | 13.7 | 8.3 | 13.8 | 21.2 |
| Link Distance (m) | | | 251.8 | 397.2 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | 50.0 | 70.0 | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 9: Planned Road 3 & Portage Parkway

| Movement | WB | NB |
|---|---|---|
| Directions Served | L | LR |
| Maximum Queue (m) | 9.1 | 9.1 |
| Average Queue (m) | 2.1 | 5.3 |
| 95th Queue (m) | 8.2 | 12.4 |
| Link Distance (m) | | 119.7 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 26.0 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 10: Planned Road 4 & Portage Parkway

| Movement | EB | WB | NB |
|---|---|---|---|
| Directions Served | TR | LT | LR |
| Maximum Queue (m) | 6.0 | 34.4 | 27.6 |
| Average Queue (m) | 0.2 | 11.3 | 12.4 |
| 95th Queue (m) | 2.0 | 26.0 | 21.5 |
| Link Distance (m) | 76.3 | 67.4 | 485.5 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 11: Planned Road 5 & Portage Parkway

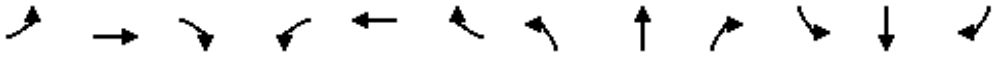
| Movement | WB | NB |
|---|---|---|
| Directions Served | L | LR |
| Maximum Queue (m) | 9.2 | 45.8 |
| Average Queue (m) | 0.3 | 17.4 |
| 95th Queue (m) | 3.0 | 31.2 |
| Link Distance (m) | | 441.9 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 30.0 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 12: Planned Road 6 & Portage Parkway

| Movement | WB | NB |
|---|---|---|
| Directions Served | L | LR |
| Maximum Queue (m) | 9.2 | 16.3 |
| Average Queue (m) | 1.8 | 5.7 |
| 95th Queue (m) | 7.7 | 13.4 |
| Link Distance (m) | | 227.4 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 30.0 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

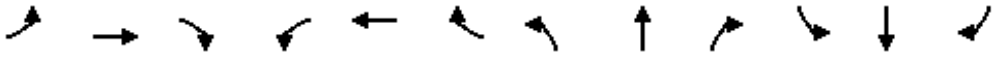
## Zone Summary

Zone wide Queuing Penalty: 19



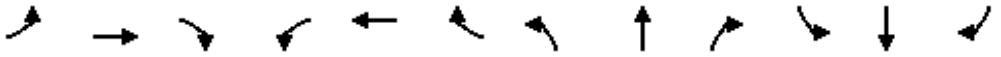
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 59 | 1015 | 114 | 155 | 1497 | 60 | 128 | 172 | 75 | 61 | 244 | 333 |
| Future Volume (vph) | 59 | 1015 | 114 | 155 | 1497 | 60 | 128 | 172 | 75 | 61 | 244 | 333 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.3 | | 4.0 | 2.5 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1752 | 3427 | | 1770 | 3454 | | 1770 | 1863 | 1583 | | 1807 | 1357 |
| Flt Permitted | 0.07 | 1.00 | | 0.09 | 1.00 | | 0.19 | 1.00 | 1.00 | | 0.89 | 1.00 |
| Satd. Flow (perm) | 120 | 3427 | | 174 | 3454 | | 350 | 1863 | 1583 | | 1620 | 1357 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.92 | 0.92 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.89 | 0.92 | 0.89 |
| Adj. Flow (vph) | 66 | 1140 | 124 | 168 | 1682 | 67 | 139 | 187 | 82 | 69 | 265 | 374 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 57 | 0 | 0 | 47 |
| Lane Group Flow (vph) | 66 | 1258 | 0 | 168 | 1747 | 0 | 139 | 187 | 25 | 0 | 334 | 327 |
| Heavy Vehicles (%) | 3% | 4% | 2% | 2% | 4% | 2% | 2% | 2% | 2% | 12% | 2% | 19% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm | Perm | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | | 6 | 7 |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 69.2 | 61.4 | | 79.3 | 68.5 | | 38.7 | 38.7 | 38.7 | | 28.9 | 36.7 |
| Effective Green, g (s) | 69.2 | 62.4 | | 79.3 | 69.5 | | 38.7 | 39.0 | 38.7 | | 29.4 | 37.7 |
| Actuated g/C Ratio | 0.54 | 0.49 | | 0.62 | 0.55 | | 0.30 | 0.31 | 0.30 | | 0.23 | 0.30 |
| Clearance Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.3 | 4.3 | | 4.5 | 3.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 165 | 1679 | | 295 | 1885 | | 180 | 570 | 481 | | 374 | 401 |
| v/s Ratio Prot | 0.02 | 0.37 | | 0.07 | c0.51 | | c0.04 | 0.10 | | | | c0.05 |
| v/s Ratio Perm | 0.19 | | | 0.29 | | | 0.19 | | 0.02 | | c0.21 | 0.19 |
| v/c Ratio | 0.40 | 0.75 | | 0.57 | 0.93 | | 0.77 | 0.33 | 0.05 | | 0.89 | 0.82 |
| Uniform Delay, d1 | 24.5 | 26.1 | | 19.1 | 26.6 | | 37.7 | 34.0 | 31.3 | | 47.4 | 41.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.6 | 3.1 | | 7.8 | 9.4 | | 18.3 | 0.3 | 0.0 | | 22.5 | 12.0 |
| Delay (s) | 26.1 | 29.3 | | 26.9 | 36.0 | | 56.1 | 34.4 | 31.4 | | 70.0 | 53.6 |
| Level of Service | C | C | | C | D | | E | C | C | | E | D |
| Approach Delay (s) | | 29.1 | | | 35.2 | | | 41.2 | | | 61.3 | |
| Approach LOS | | C | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 38.1 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 127.3 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 86.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 235 | 977 | 455 | 263 | 1084 | 96 | 110 | 434 | 151 | 81 | 435 | 345 |
| Future Volume (vph) | 235 | 977 | 455 | 263 | 1084 | 96 | 110 | 434 | 151 | 81 | 435 | 345 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | | 4.0 | 5.8 | | 4.0 | 5.8 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.98 | | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | 1719 | 3266 | | 1570 | 3332 | | | 3469 | 1461 | | 3372 | 1432 |
| Flt Permitted | 0.08 | 1.00 | | 0.07 | 1.00 | | | 0.60 | 1.00 | | 0.62 | 1.00 |
| Satd. Flow (perm) | 138 | 3266 | | 113 | 3332 | | | 2104 | 1461 | | 2100 | 1432 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 253 | 1051 | 489 | 283 | 1166 | 103 | 118 | 467 | 162 | 87 | 468 | 371 |
| RTOR Reduction (vph) | 0 | 42 | 0 | 0 | 5 | 0 | 0 | 0 | 118 | 0 | 0 | 222 |
| Lane Group Flow (vph) | 253 | 1498 | 0 | 283 | 1264 | 0 | 0 | 585 | 44 | 0 | 555 | 149 |
| Confl. Peds. (#/hr) | 2 | | 3 | 3 | | 2 | 3 | | 9 | 9 | | 3 |
| Heavy Vehicles (%) | 5% | 6% | 2% | 15% | 6% | 17% | 3% | 3% | 8% | 7% | 6% | 11% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 6 | | | 2 | |
| Permitted Phases | 4 | | | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | 82.7 | 60.6 | | 78.5 | 58.5 | | | 35.2 | 35.2 | | 35.2 | 35.2 |
| Effective Green, g (s) | 82.7 | 62.0 | | 78.5 | 59.9 | | | 37.0 | 35.2 | | 37.0 | 35.2 |
| Actuated g/C Ratio | 0.64 | 0.48 | | 0.60 | 0.46 | | | 0.28 | 0.27 | | 0.28 | 0.27 |
| Clearance Time (s) | 3.0 | 5.4 | | 3.0 | 5.4 | | | 5.8 | 5.8 | | 5.8 | 5.8 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 356 | 1557 | | 292 | 1535 | | | 598 | 395 | | 597 | 387 |
| v/s Ratio Prot | c0.12 | c0.46 | | c0.15 | 0.38 | | | | | | | |
| v/s Ratio Perm | 0.33 | | | 0.44 | | | | c0.28 | 0.03 | | 0.26 | 0.10 |
| v/c Ratio | 0.71 | 0.96 | | 0.97 | 0.82 | | | 0.98 | 0.11 | | 0.93 | 0.39 |
| Uniform Delay, d1 | 33.7 | 32.9 | | 42.8 | 30.5 | | | 46.1 | 35.6 | | 45.2 | 38.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.4 | 15.4 | | 45.4 | 5.1 | | | 31.8 | 0.6 | | 23.1 | 2.9 |
| Delay (s) | 45.2 | 48.3 | | 88.2 | 35.6 | | | 77.9 | 36.2 | | 68.3 | 41.5 |
| Level of Service | D | D | | F | D | | | E | D | | E | D |
| Approach Delay (s) | | 47.9 | | | 45.2 | | | 68.9 | | | 57.6 | |
| Approach LOS | | D | | | D | | | E | | | E | |

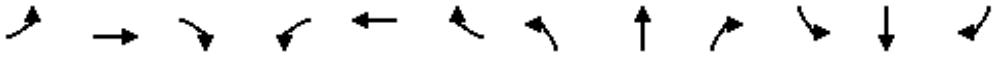
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 52.0 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 121.2% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 116 | 1022 | 74 | 286 | 1081 | 108 | 119 | 300 | 50 | 116 | 191 | 174 |
| Future Volume (vph) | 116 | 1022 | 74 | 286 | 1081 | 108 | 119 | 300 | 50 | 116 | 191 | 174 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.5 | 4.0 | 4.0 | 4.5 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.93 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1517 | 3376 | | 1770 | 3371 | | 1671 | 1810 | 1527 | 1640 | 1604 | |
| Flt Permitted | 0.08 | 1.00 | | 0.08 | 1.00 | | 0.14 | 1.00 | 1.00 | 0.28 | 1.00 | |
| Satd. Flow (perm) | 133 | 3376 | | 146 | 3371 | | 254 | 1810 | 1527 | 482 | 1604 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 132 | 1161 | 84 | 325 | 1228 | 123 | 135 | 341 | 57 | 132 | 217 | 198 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 0 | 42 | 0 | 26 | 0 |
| Lane Group Flow (vph) | 132 | 1241 | 0 | 325 | 1346 | 0 | 135 | 341 | 15 | 132 | 389 | 0 |
| Confl. Peds. (#/hr) | | | 2 | 2 | | | | | 3 | 3 | | |
| Heavy Vehicles (%) | 19% | 6% | 2% | 2% | 6% | 2% | 8% | 5% | 4% | 10% | 10% | 10% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 60.5 | 48.1 | | 73.1 | 57.7 | | 42.0 | 34.4 | 34.4 | 40.2 | 33.5 | |
| Effective Green, g (s) | 60.5 | 48.1 | | 73.1 | 57.7 | | 42.0 | 34.4 | 34.4 | 40.2 | 33.5 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.58 | 0.46 | | 0.33 | 0.27 | 0.27 | 0.32 | 0.26 | |
| Clearance Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.5 | 4.0 | 4.0 | 4.5 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 198 | 1281 | | 366 | 1535 | | 169 | 491 | 414 | 214 | 424 | |
| v/s Ratio Prot | 0.06 | c0.37 | | c0.15 | 0.40 | | c0.05 | 0.19 | | 0.03 | c0.24 | |
| v/s Ratio Perm | 0.25 | | | 0.36 | | | 0.22 | | 0.01 | 0.16 | | |
| v/c Ratio | 0.67 | 0.97 | | 0.89 | 0.88 | | 0.80 | 0.69 | 0.04 | 0.62 | 0.92 | |
| Uniform Delay, d1 | 24.9 | 38.6 | | 38.9 | 31.3 | | 33.7 | 41.4 | 34.0 | 34.9 | 45.3 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 16.4 | 18.7 | | 25.8 | 7.4 | | 22.5 | 4.2 | 0.0 | 5.2 | 24.5 | |
| Delay (s) | 41.3 | 57.3 | | 64.6 | 38.6 | | 56.2 | 45.7 | 34.0 | 40.1 | 69.7 | |
| Level of Service | D | E | | E | D | | E | D | C | D | E | |
| Approach Delay (s) | | 55.8 | | | 43.7 | | | 47.1 | | | 62.6 | |
| Approach LOS | | E | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 50.6 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 126.7 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 87.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



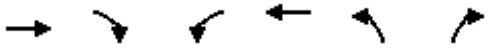
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 227 | 1079 | 182 | 71 | 700 | 39 | 195 | 1191 | 155 | 154 | 1211 | 480 |
| Future Volume (vph) | 227 | 1079 | 182 | 71 | 700 | 39 | 195 | 1191 | 155 | 154 | 1211 | 480 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | -0.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1442 | 1770 | 3511 | | 1703 | 3406 | 1583 | 1770 | 3312 | 1445 |
| Flt Permitted | 0.12 | 1.00 | 1.00 | 0.13 | 1.00 | | 0.08 | 1.00 | 1.00 | 0.08 | 1.00 | 1.00 |
| Satd. Flow (perm) | 215 | 3539 | 1442 | 236 | 3511 | | 139 | 3406 | 1583 | 153 | 3312 | 1445 |
| Peak-hour factor, PHF | 0.95 | 0.92 | 0.95 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.92 | 0.92 | 0.95 | 0.95 |
| Adj. Flow (vph) | 239 | 1173 | 192 | 77 | 761 | 42 | 205 | 1254 | 168 | 167 | 1275 | 505 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 3 | 0 | 0 | 0 | 77 | 0 | 0 | 74 |
| Lane Group Flow (vph) | 239 | 1173 | 118 | 77 | 800 | 0 | 205 | 1254 | 91 | 167 | 1275 | 431 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | | | | 1 |
| Heavy Vehicles (%) | 2% | 2% | 12% | 2% | 2% | 2% | 6% | 6% | 2% | 2% | 9% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 1 | 6 | | 5 | 2 | 7 |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | 49.7 | 41.6 | 41.6 | 36.7 | 31.6 | | 65.0 | 52.8 | 52.8 | 57.9 | 48.7 | 63.8 |
| Effective Green, g (s) | 49.7 | 44.6 | 44.6 | 36.7 | 34.6 | | 65.0 | 56.3 | 56.3 | 57.9 | 52.2 | 70.8 |
| Actuated g/C Ratio | 0.38 | 0.35 | 0.35 | 0.28 | 0.27 | | 0.50 | 0.44 | 0.44 | 0.45 | 0.40 | 0.55 |
| Clearance Time (s) | 3.0 | 7.0 | 7.0 | 3.0 | 7.0 | | 3.0 | 7.5 | 7.5 | 3.0 | 7.5 | 3.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 |
| Lane Grp Cap (vph) | 264 | 1221 | 497 | 127 | 940 | | 230 | 1484 | 689 | 183 | 1338 | 791 |
| v/s Ratio Prot | c0.11 | c0.33 | | 0.02 | 0.23 | | c0.09 | 0.37 | | 0.06 | c0.38 | 0.08 |
| v/s Ratio Perm | 0.24 | | 0.08 | 0.15 | | | 0.36 | | 0.06 | 0.34 | | 0.22 |
| v/c Ratio | 0.91 | 0.96 | 0.24 | 0.61 | 0.85 | | 0.89 | 0.85 | 0.13 | 0.91 | 0.95 | 0.54 |
| Uniform Delay, d1 | 34.6 | 41.4 | 30.2 | 37.7 | 44.9 | | 37.1 | 32.6 | 21.8 | 30.9 | 37.3 | 18.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 31.5 | 17.1 | 0.2 | 7.9 | 7.5 | | 32.0 | 6.1 | 0.4 | 42.3 | 15.7 | 0.8 |
| Delay (s) | 66.0 | 58.6 | 30.4 | 45.6 | 52.3 | | 69.1 | 38.6 | 22.2 | 73.2 | 53.0 | 19.6 |
| Level of Service | E | E | C | D | D | | E | D | C | E | D | B |
| Approach Delay (s) | | 56.3 | | | 51.8 | | | 40.8 | | | 46.0 | |
| Approach LOS | | E | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 48.2 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 129.2 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 91.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 488 | 754 | 404 | 578 | 746 | 235 |
| Future Volume (vph) | 488 | 754 | 404 | 578 | 746 | 235 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.5 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 3539 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.13 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1583 | 234 | 3539 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 530 | 820 | 439 | 628 | 811 | 255 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 164 |
| Lane Group Flow (vph) | 530 | 813 | 439 | 628 | 811 | 91 |
| Turn Type | Prot | pt+ov | pm+pt | NA | NA | Perm |
| Protected Phases | 4 | 4 5 | 5 | 2 | 6 | |
| Permitted Phases | | | 2 | | | 6 |
| Actuated Green, G (s) | 46.2 | 80.8 | 75.0 | 75.0 | 39.9 | 39.9 |
| Effective Green, g (s) | 46.2 | 80.8 | 75.0 | 75.0 | 39.9 | 39.9 |
| Actuated g/C Ratio | 0.36 | 0.63 | 0.58 | 0.58 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | | 4.5 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 632 | 989 | 499 | 2054 | 1092 | 488 |
| v/s Ratio Prot | 0.30 | c0.51 | 0.21 | 0.18 | 0.23 | |
| v/s Ratio Perm | | | c0.30 | | | 0.06 |
| v/c Ratio | 0.84 | 0.82 | 0.88 | 0.31 | 0.74 | 0.19 |
| Uniform Delay, d1 | 38.1 | 18.6 | 33.4 | 13.8 | 40.0 | 32.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.5 | 5.6 | 16.1 | 0.4 | 4.6 | 0.8 |
| Delay (s) | 47.6 | 24.2 | 49.5 | 14.2 | 44.6 | 33.6 |
| Level of Service | D | C | D | B | D | C |
| Approach Delay (s) | 33.4 | | | 28.7 | 42.0 | |
| Approach LOS | C | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 34.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 129.2 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

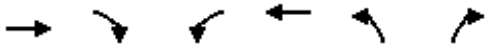
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1229 | 22 | 144 | 1669 | 43 | 112 |
| Future Volume (Veh/h) | 1229 | 22 | 144 | 1669 | 43 | 112 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1336 | 24 | 157 | 1814 | 47 | 122 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 108 | | | 205 | | |
| pX, platoon unblocked | | | 0.71 | | 0.84 | 0.71 |
| vC, conflicting volume | | | 1360 | | 2569 | 680 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 678 | | 916 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 76 | | 73 | 84 |
| cM capacity (veh/h) | | | 643 | | 173 | 766 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 891 | 469 | 157 | 907 | 907 | 169 |
| Volume Left | 0 | 0 | 157 | 0 | 0 | 47 |
| Volume Right | 0 | 24 | 0 | 0 | 0 | 122 |
| cSH | 1700 | 1700 | 643 | 1700 | 1700 | 392 |
| Volume to Capacity | 0.52 | 0.28 | 0.24 | 0.53 | 0.53 | 0.43 |
| Queue Length 95th (m) | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | 16.9 |
| Control Delay (s) | 0.0 | 0.0 | 12.4 | 0.0 | 0.0 | 21.0 |
| Lane LOS | | | B | | | C |
| Approach Delay (s) | 0.0 | | 1.0 | | | 21.0 |
| Approach LOS | | | | | | C |

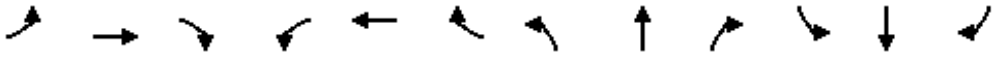
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.6 | | | |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1484 | 10 | 50 | 1469 | 8 | 56 |
| Future Volume (Veh/h) | 1484 | 10 | 50 | 1469 | 8 | 56 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1613 | 11 | 54 | 1597 | 9 | 61 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 208 | | | 105 | | |
| pX, platoon unblocked | | | 0.71 | | 0.82 | 0.71 |
| vC, conflicting volume | | | 1624 | | 2525 | 812 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1068 | | 840 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 88 | | 96 | 92 |
| cM capacity (veh/h) | | | 462 | | 220 | 772 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 1075 | 549 | 54 | 798 | 798 | 70 |
| Volume Left | 0 | 0 | 54 | 0 | 0 | 9 |
| Volume Right | 0 | 11 | 0 | 0 | 0 | 61 |
| cSH | 1700 | 1700 | 462 | 1700 | 1700 | 584 |
| Volume to Capacity | 0.63 | 0.32 | 0.12 | 0.47 | 0.47 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.0 | 3.2 | 0.0 | 0.0 | 3.2 |
| Control Delay (s) | 0.0 | 0.0 | 13.8 | 0.0 | 0.0 | 12.0 |
| Lane LOS | | | B | | | B |
| Approach Delay (s) | 0.0 | | 0.5 | | | 12.0 |
| Approach LOS | | | | | | B |

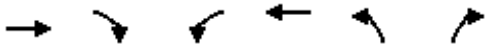
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.5 | | | |
| Intersection Capacity Utilization | 52.1% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 45 | 1149 | 15 | 0 | 1251 | 20 | 10 | 39 | 15 | 63 | 62 | 92 |
| Future Volume (Veh/h) | 45 | 1149 | 15 | 0 | 1251 | 20 | 10 | 39 | 15 | 63 | 62 | 92 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 49 | 1249 | 16 | 0 | 1360 | 22 | 11 | 42 | 16 | 68 | 67 | 100 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 226 | | | 192 | | | | | | | |
| pX, platoon unblocked | 0.66 | | | 0.63 | | | 0.79 | 0.79 | 0.63 | 0.79 | 0.79 | 0.66 |
| vC, conflicting volume | 1382 | | | 1265 | | | 2168 | 2737 | 632 | 2130 | 2734 | 691 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 557 | | | 225 | | | 39 | 755 | 0 | 0 | 751 | 0 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 93 | | | 100 | | | 98 | 83 | 98 | 90 | 73 | 86 |
| cM capacity (veh/h) | 669 | | | 838 | | | 493 | 248 | 678 | 652 | 249 | 718 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 49 | 833 | 432 | 0 | 907 | 475 | 69 | 235 |
| Volume Left | 49 | 0 | 0 | 0 | 0 | 0 | 11 | 68 |
| Volume Right | 0 | 0 | 16 | 0 | 0 | 22 | 16 | 100 |
| cSH | 669 | 1700 | 1700 | 1700 | 1700 | 1700 | 320 | 458 |
| Volume to Capacity | 0.07 | 0.49 | 0.25 | 0.00 | 0.53 | 0.28 | 0.22 | 0.51 |
| Queue Length 95th (m) | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 22.9 |
| Control Delay (s) | 10.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.3 | 20.8 |
| Lane LOS | B | | | | | | C | C |
| Approach Delay (s) | 0.4 | | | 0.0 | | | 19.3 | 20.8 |
| Approach LOS | | | | | | | C | C |

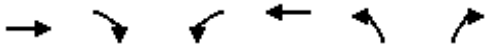
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.3 | | | |
| Intersection Capacity Utilization | 63.1% | ICU Level of Service | | B |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1217 | 10 | 50 | 1255 | 16 | 48 |
| Future Volume (Veh/h) | 1217 | 10 | 50 | 1255 | 16 | 48 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1323 | 11 | 54 | 1364 | 17 | 52 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 317 | | | 101 | | |
| pX, platoon unblocked | | | 0.67 | | 0.82 | 0.67 |
| vC, conflicting volume | | | 1334 | | 2118 | 667 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 512 | | 98 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 92 | | 97 | 93 |
| cM capacity (veh/h) | | | 703 | | 670 | 726 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 882 | 452 | 54 | 682 | 682 | 69 |
| Volume Left | 0 | 0 | 54 | 0 | 0 | 17 |
| Volume Right | 0 | 11 | 0 | 0 | 0 | 52 |
| cSH | 1700 | 1700 | 703 | 1700 | 1700 | 712 |
| Volume to Capacity | 0.52 | 0.27 | 0.08 | 0.40 | 0.40 | 0.10 |
| Queue Length 95th (m) | 0.0 | 0.0 | 2.0 | 0.0 | 0.0 | 2.6 |
| Control Delay (s) | 0.0 | 0.0 | 10.5 | 0.0 | 0.0 | 10.6 |
| Lane LOS | | | B | | | B |
| Approach Delay (s) | 0.0 | | 0.4 | | | 10.6 |
| Approach LOS | | | | | | B |

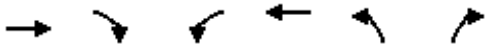
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.5 | | | |
| Intersection Capacity Utilization | 51.1% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1417 | 40 | 83 | 1292 | 54 | 82 |
| Future Volume (Veh/h) | 1417 | 40 | 83 | 1292 | 54 | 82 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1540 | 43 | 90 | 1404 | 59 | 89 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 98 | | | 92 | | |
| pX, platoon unblocked | | | 0.64 | | 0.75 | 0.64 |
| vC, conflicting volume | | | 1583 | | 2444 | 792 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 787 | | 967 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 83 | | 62 | 87 |
| cM capacity (veh/h) | | | 530 | | 156 | 694 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 1027 | 556 | 558 | 936 | 148 |
| Volume Left | 0 | 0 | 90 | 0 | 59 |
| Volume Right | 0 | 43 | 0 | 0 | 89 |
| cSH | 1700 | 1700 | 530 | 1700 | 293 |
| Volume to Capacity | 0.60 | 0.33 | 0.17 | 0.55 | 0.51 |
| Queue Length 95th (m) | 0.0 | 0.0 | 4.9 | 0.0 | 21.4 |
| Control Delay (s) | 0.0 | 0.0 | 4.7 | 0.0 | 29.3 |
| Lane LOS | | | A | | D |
| Approach Delay (s) | 0.0 | | 1.8 | | 29.3 |
| Approach LOS | | | | | D |

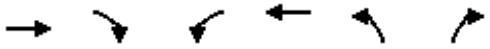
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 96.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1271 | 117 | 66 | 724 | 86 | 61 |
| Future Volume (Veh/h) | 1271 | 117 | 66 | 724 | 86 | 61 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1382 | 127 | 72 | 787 | 93 | 66 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 281 | | | 273 | | |
| pX, platoon unblocked | | | 0.68 | | 0.68 | 0.68 |
| vC, conflicting volume | | | 1509 | | 1983 | 754 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 804 | | 1502 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 87 | | 0 | 91 |
| cM capacity (veh/h) | | | 554 | | 66 | 736 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 921 | 588 | 72 | 394 | 394 | 159 |
| Volume Left | 0 | 0 | 72 | 0 | 0 | 93 |
| Volume Right | 0 | 127 | 0 | 0 | 0 | 66 |
| cSH | 1700 | 1700 | 554 | 1700 | 1700 | 107 |
| Volume to Capacity | 0.54 | 0.35 | 0.13 | 0.23 | 0.23 | 1.49 |
| Queue Length 95th (m) | 0.0 | 0.0 | 3.6 | 0.0 | 0.0 | 93.2 |
| Control Delay (s) | 0.0 | 0.0 | 12.5 | 0.0 | 0.0 | 335.7 |
| Lane LOS | | | B | | | F |
| Approach Delay (s) | 0.0 | | 1.0 | | | 335.7 |
| Approach LOS | | | | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 21.5 | | |
| Intersection Capacity Utilization | 61.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1229 | 30 | 32 | 607 | 51 | 13 |
| Future Volume (Veh/h) | 1229 | 30 | 32 | 607 | 51 | 13 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1336 | 33 | 35 | 660 | 55 | 14 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | 135 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 1369 | | 1752 | 684 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1369 | | 1752 | 684 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 93 | | 23 | 96 |
| cM capacity (veh/h) | | | 497 | | 71 | 391 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 891 | 478 | 35 | 330 | 330 | 69 |
| Volume Left | 0 | 0 | 35 | 0 | 0 | 55 |
| Volume Right | 0 | 33 | 0 | 0 | 0 | 14 |
| cSH | 1700 | 1700 | 497 | 1700 | 1700 | 85 |
| Volume to Capacity | 0.52 | 0.28 | 0.07 | 0.19 | 0.19 | 0.81 |
| Queue Length 95th (m) | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 33.3 |
| Control Delay (s) | 0.0 | 0.0 | 12.8 | 0.0 | 0.0 | 135.4 |
| Lane LOS | | | B | | | F |
| Approach Delay (s) | 0.0 | | 0.6 | | | 135.4 |
| Approach LOS | | | | | | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.6 | | | |
| Intersection Capacity Utilization | 45.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

## Intersection: 1: Applewood Crescent & Portage Parkway

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | T | R | LT | R |
| Maximum Queue (m) | 107.3 | 192.0 | 201.6 | 84.3 | 95.1 | 92.1 | 33.7 | 47.4 | 27.8 | 238.1 | 107.5 |
| Average Queue (m) | 15.5 | 104.7 | 109.4 | 31.2 | 85.4 | 87.1 | 18.3 | 26.4 | 11.3 | 120.9 | 76.1 |
| 95th Queue (m) | 56.6 | 182.9 | 186.1 | 75.9 | 93.7 | 91.0 | 36.0 | 49.4 | 23.0 | 234.6 | 132.6 |
| Link Distance (m) | | 316.0 | 316.0 | | 84.4 | 84.4 | | 481.8 | 481.8 | 568.0 | |
| Upstream Blk Time (%) | | | | 0 | 11 | 14 | | | | | |
| Queuing Penalty (veh) | | | | 0 | 91 | 122 | | | | | |
| Storage Bay Dist (m) | 100.0 | | | 90.0 | | | 50.0 | | | | 100.0 |
| Storage Blk Time (%) | | 13 | | 0 | 11 | | | 0 | | 18 | 4 |
| Queuing Penalty (veh) | | 8 | | 1 | 17 | | | 0 | | 59 | 13 |

## Intersection: 2: Edgeley Boulevard & Portage Parkway

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | LT | T | R | LT | T | R |
| Maximum Queue (m) | 57.4 | 91.0 | 90.1 | 152.1 | 159.9 | 98.6 | 327.0 | 309.8 | 35.4 | 456.1 | 470.1 | 107.5 |
| Average Queue (m) | 51.0 | 84.4 | 83.7 | 77.2 | 61.0 | 51.8 | 254.1 | 244.9 | 17.1 | 371.0 | 385.4 | 87.3 |
| 95th Queue (m) | 72.2 | 88.0 | 87.0 | 141.7 | 121.2 | 92.9 | 327.0 | 314.3 | 33.6 | 502.0 | 521.7 | 144.3 |
| Link Distance (m) | | 81.9 | 81.9 | | 201.4 | 201.4 | 488.8 | 488.8 | 488.8 | 483.7 | 483.7 | |
| Upstream Blk Time (%) | | 40 | 38 | | | | | | | | | |
| Queuing Penalty (veh) | | 312 | 290 | | | | | | | | | |
| Storage Bay Dist (m) | 50.0 | | | 145.0 | | | | | | | | 100.0 |
| Storage Blk Time (%) | 13 | 50 | | 1 | | | | | | | 60 | 6 |
| Queuing Penalty (veh) | 63 | 118 | | 4 | | | | | | | 206 | 14 |

## Intersection: 3: Millway Avenue & Portage Parkway

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | TR | L | TR |
| Maximum Queue (m) | 57.4 | 89.3 | 91.4 | 75.0 | 81.9 | 79.5 | 42.7 | 123.7 | 54.4 | 103.3 |
| Average Queue (m) | 34.7 | 84.4 | 84.6 | 57.9 | 72.0 | 62.1 | 28.0 | 71.8 | 30.8 | 73.6 |
| 95th Queue (m) | 70.9 | 88.5 | 90.5 | 84.7 | 89.2 | 88.9 | 46.5 | 105.7 | 53.4 | 103.3 |
| Link Distance (m) | | 80.6 | 80.6 | | 75.3 | 75.3 | 493.8 | 493.8 | 357.0 | 357.0 |
| Upstream Blk Time (%) | | 43 | 47 | 1 | 9 | 4 | | | | |
| Queuing Penalty (veh) | | 273 | 295 | 0 | 57 | 26 | | | | |
| Storage Bay Dist (m) | 50.0 | | | 80.0 | | | | | | |
| Storage Blk Time (%) | 1 | 55 | | 1 | 9 | | | | | |
| Queuing Penalty (veh) | 7 | 64 | | 8 | 24 | | | | | |

## Intersection: 4: Jane Street & Portage Parkway

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | L | T | T | R | L |
| Maximum Queue (m) | 67.2 | 77.6 | 77.9 | 67.3 | 57.3 | 258.2 | 254.0 | 199.8 | 250.6 | 239.1 | 24.5 | 157.4 |
| Average Queue (m) | 46.7 | 71.2 | 71.2 | 42.7 | 36.4 | 215.8 | 204.4 | 120.2 | 134.8 | 127.1 | 10.7 | 98.6 |
| 95th Queue (m) | 74.2 | 75.1 | 75.7 | 80.8 | 74.1 | 264.6 | 251.5 | 227.0 | 228.1 | 205.6 | 22.8 | 202.8 |
| Link Distance (m) | | 67.3 | 67.3 | | | 254.0 | 254.0 | | 465.0 | 465.0 | 465.0 | |
| Upstream Blk Time (%) | 0 | 44 | 47 | 1 | | 6 | 0 | | | | | |
| Queuing Penalty (veh) | 0 | 332 | 351 | 0 | | 24 | 1 | | | | | |
| Storage Bay Dist (m) | 60.0 | | | 60.0 | 50.0 | | | 140.0 | | | | 150.0 |
| Storage Blk Time (%) | 6 | 51 | 53 | 0 | | 84 | | 40 | 0 | | | 0 |
| Queuing Penalty (veh) | 33 | 115 | 96 | 2 | | 60 | | 237 | 1 | | | 0 |

## Intersection: 4: Jane Street & Portage Parkway

| Movement | SB | SB | SB |
|---|---|---|---|
| Directions Served | T | T | R |
| Maximum Queue (m) | 421.6 | 428.9 | 150.0 |
| Average Queue (m) | 376.1 | 385.4 | 143.0 |
| 95th Queue (m) | 455.5 | 461.8 | 185.9 |
| Link Distance (m) | 417.0 | 417.0 | |
| Upstream Blk Time (%) | 7 | 18 | |
| Queuing Penalty (veh) | 0 | 0 | |
| Storage Bay Dist (m) | | | 100.0 |
| Storage Blk Time (%) | 49 | 61 | 0 |
| Queuing Penalty (veh) | 76 | 292 | 0 |

## Intersection: 5: Creditstone Road & Portage Parkway

| Movement | EB | EB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | L | R | L | T | T | T | T | R |
| Maximum Queue (m) | 116.2 | 117.4 | 116.5 | 53.8 | 60.1 | 98.3 | 93.8 | 79.8 |
| Average Queue (m) | 101.4 | 109.8 | 71.4 | 29.5 | 29.4 | 77.9 | 70.2 | 22.0 |
| 95th Queue (m) | 126.8 | 124.1 | 112.9 | 48.6 | 51.5 | 105.5 | 102.0 | 50.3 |
| Link Distance (m) | 111.7 | 111.7 | | 426.9 | 426.9 | 245.5 | 245.5 | |
| Upstream Blk Time (%) | 6 | 7 | | | | | | |
| Queuing Penalty (veh) | 35 | 44 | | | | | | |
| Storage Bay Dist (m) | | | 110.0 | | | | | 75.0 |
| Storage Blk Time (%) | | | 2 | | | | 3 | 0 |
| Queuing Penalty (veh) | | | 5 | | | | 6 | 0 |

## Intersection: 6: Planned Road 1 & Portage Parkway

| Movement | EB | EB | WB | WB | WB | NB |
|---|---|---|---|---|---|---|
| Directions Served | T | TR | L | T | T | LR |
| Maximum Queue (m) | 87.5 | 91.4 | 47.1 | 60.8 | 60.4 | 175.9 |
| Average Queue (m) | 69.2 | 70.9 | 22.1 | 39.8 | 38.6 | 94.3 |
| 95th Queue (m) | 106.5 | 106.4 | 41.4 | 67.1 | 61.9 | 186.6 |
| Link Distance (m) | 84.4 | 84.4 | | 83.5 | 83.5 | 496.1 |
| Upstream Blk Time (%) | 5 | 7 | | | | |
| Queuing Penalty (veh) | 30 | 41 | | | | |
| Storage Bay Dist (m) | | | 80.0 | | | |
| Storage Blk Time (%) | | | | | | |
| Queuing Penalty (veh) | | | | | | |

## Intersection: 7: Planned Road 2 & Portage Parkway

| Movement | EB | EB | WB | NB |
|---|---|---|---|---|
| Directions Served | T | TR | L | LR |
| Maximum Queue (m) | 88.2 | 101.0 | 23.1 | 154.9 |
| Average Queue (m) | 86.2 | 88.9 | 12.6 | 86.3 |
| 95th Queue (m) | 88.2 | 96.3 | 24.4 | 155.3 |
| Link Distance (m) | 83.5 | 83.5 | | 155.3 |
| Upstream Blk Time (%) | 21 | 24 | | 3 |
| Queuing Penalty (veh) | 142 | 158 | | 0 |
| Storage Bay Dist (m) | | | 20.0 | |
| Storage Blk Time (%) | | | 6 | |
| Queuing Penalty (veh) | | | 47 | |

## Intersection: 8: Buttermill Avenue & Portage Parkway

| Movement | EB | EB | EB | WB | NB | SB |
|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | TR | LTR | LTR |
| Maximum Queue (m) | 21.6 | 61.5 | 40.4 | 6.0 | 34.4 | 401.8 |
| Average Queue (m) | 7.1 | 17.0 | 19.8 | 0.4 | 12.3 | 273.0 |
| 95th Queue (m) | 18.2 | 50.4 | 43.2 | 2.9 | 26.2 | 416.3 |
| Link Distance (m) | | 201.4 | 201.4 | 72.6 | 251.8 | 397.2 |
| Upstream Blk Time (%) | | | | | | 12 |
| Queuing Penalty (veh) | | | | | | 0 |
| Storage Bay Dist (m) | 50.0 | | | | | |
| Storage Blk Time (%) | | 2 | | | | |
| Queuing Penalty (veh) | | 1 | | | | |

## Intersection: 9: Planned Road 3 & Portage Parkway

| Movement | EB | EB | WB | NB |
|---|---|---|---|---|
| Directions Served | T | TR | L | LR |
| Maximum Queue (m) | 82.4 | 76.8 | 21.1 | 53.1 |
| Average Queue (m) | 68.7 | 69.9 | 6.7 | 32.6 |
| 95th Queue (m) | 91.4 | 85.9 | 15.5 | 53.7 |
| Link Distance (m) | 72.6 | 72.6 | | 119.7 |
| Upstream Blk Time (%) | 19 | 23 | | |
| Queuing Penalty (veh) | 117 | 143 | | |
| Storage Bay Dist (m) | | | 26.0 | |
| Storage Blk Time (%) | | | 0 | |
| Queuing Penalty (veh) | | | 0 | |

## Intersection: 10: Planned Road 4 & Portage Parkway

| Movement | EB | EB | WB | WB | NB |
|---|---|---|---|---|---|
| Directions Served | T | TR | LT | T | LR |
| Maximum Queue (m) | 80.4 | 78.0 | 79.0 | 85.2 | 490.1 |
| Average Queue (m) | 67.2 | 69.9 | 62.0 | 43.9 | 370.8 |
| 95th Queue (m) | 84.7 | 85.3 | 91.3 | 93.3 | 528.5 |
| Link Distance (m) | 75.3 | 75.3 | 67.3 | 67.3 | 485.5 |
| Upstream Blk Time (%) | 3 | 8 | 22 | 4 | 9 |
| Queuing Penalty (veh) | 21 | 45 | 151 | 27 | 0 |
| Storage Bay Dist (m) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

## Intersection: 11: Planned Road 5 & Portage Parkway

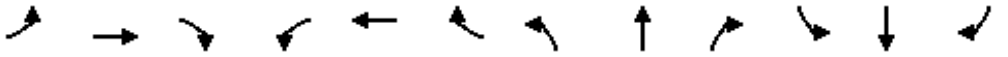
| Movement | EB | WB | WB | NB |
|---|---|---|---|---|
| Directions Served | TR | L | T | LR |
| Maximum Queue (m) | 13.2 | 26.7 | 28.6 | 53.3 |
| Average Queue (m) | 0.9 | 15.0 | 3.0 | 28.4 |
| 95th Queue (m) | 6.3 | 26.5 | 16.2 | 54.3 |
| Link Distance (m) | 254.0 | | 121.4 | 441.9 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | 30.0 | | |
| Storage Blk Time (%) | | 0 | 0 | |
| Queuing Penalty (veh) | | 1 | 0 | |

## Intersection: 12: Planned Road 6 & Portage Parkway

| Movement | EB | EB | WB | WB | NB |
|---|---|---|---|---|---|
| Directions Served | T | TR | L | T | LR |
| Maximum Queue (m) | 34.5 | 69.5 | 15.4 | 6.6 | 36.8 |
| Average Queue (m) | 9.4 | 22.5 | 6.9 | 0.4 | 14.3 |
| 95th Queue (m) | 29.5 | 60.8 | 15.9 | 3.1 | 32.8 |
| Link Distance (m) | 121.4 | 121.4 | | 111.7 | 227.4 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (m) | | | 30.0 | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

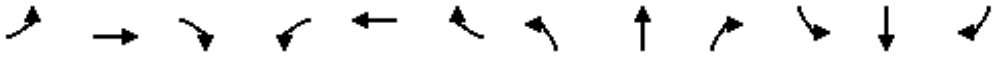
## Zone Summary

Zone wide Queuing Penalty: 4706



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 158 | 784 | 54 | 91 | 449 | 323 | 90 | 58 | 58 | 16 | 51 | 76 |
| Future Volume (vph) | 158 | 784 | 54 | 91 | 449 | 323 | 90 | 58 | 58 | 16 | 51 | 76 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.3 | 4.3 | 4.3 | | 4.5 | 4.0 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.94 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | | 0.99 | | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | | 3425 | | | 3289 | | 1770 | 1863 | 1583 | | 1797 | 1357 |
| Flt Permitted | | 0.56 | | | 0.70 | | 0.71 | 1.00 | 1.00 | | 0.94 | 1.00 |
| Satd. Flow (perm) | | 1929 | | | 2306 | | 1322 | 1863 | 1583 | | 1712 | 1357 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.92 | 0.92 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.89 | 0.92 | 0.89 |
| Adj. Flow (vph) | 178 | 881 | 59 | 99 | 504 | 363 | 98 | 63 | 63 | 18 | 55 | 85 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 100 | 0 | 0 | 0 | 43 | 0 | 0 | 54 |
| Lane Group Flow (vph) | 0 | 1114 | 0 | 0 | 866 | 0 | 98 | 63 | 20 | 0 | 73 | 31 |
| Heavy Vehicles (%) | 3% | 4% | 2% | 2% | 4% | 2% | 2% | 2% | 2% | 12% | 2% | 19% |
| Turn Type | pm+pt | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | pm+ov |
| Protected Phases | 7 | 4 | | | 8 | | | 2 | | | 6 | 7 |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 51.2 | | | 42.9 | | 27.8 | 27.8 | 27.8 | | 27.6 | 31.9 |
| Effective Green, g (s) | | 52.2 | | | 43.9 | | 27.8 | 27.8 | 27.8 | | 27.6 | 31.9 |
| Actuated g/C Ratio | | 0.59 | | | 0.50 | | 0.31 | 0.31 | 0.31 | | 0.31 | 0.36 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | 4.3 | 4.3 | 4.3 | | 4.5 | 4.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1230 | | | 1146 | | 416 | 586 | 498 | | 535 | 490 |
| v/s Ratio Prot | | c0.05 | | | | | | 0.03 | | | | 0.00 |
| v/s Ratio Perm | | c0.48 | | | 0.38 | | c0.07 | | 0.01 | | 0.04 | 0.02 |
| v/c Ratio | | 0.91 | | | 0.76 | | 0.24 | 0.11 | 0.04 | | 0.14 | 0.06 |
| Uniform Delay, d1 | | 15.9 | | | 17.9 | | 22.4 | 21.5 | 21.0 | | 21.8 | 18.4 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 9.6 | | | 2.9 | | 1.3 | 0.4 | 0.1 | | 0.1 | 0.1 |
| Delay (s) | | 25.5 | | | 20.8 | | 23.7 | 21.8 | 21.1 | | 21.9 | 18.5 |
| Level of Service | | C | | | C | | C | C | C | | C | B |
| Approach Delay (s) | | 25.5 | | | 20.8 | | | 22.5 | | | 20.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 23.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 88.3 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 75.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 154 | 615 | 184 | 81 | 539 | 88 | 176 | 224 | 113 | 43 | 220 | 88 |
| Future Volume (vph) | 154 | 615 | 184 | 81 | 539 | 88 | 176 | 224 | 113 | 43 | 220 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 4.0 | 5.8 | | 4.0 | 5.8 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 1.00 | | | 1.00 | 0.97 | | 1.00 | 0.99 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.98 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | | 1778 | 1561 | | 1711 | | | 3427 | 1448 | | 3370 | 1434 |
| Flt Permitted | | 0.65 | 1.00 | | 0.32 | | | 0.71 | 1.00 | | 0.84 | 1.00 |
| Satd. Flow (perm) | | 1166 | 1561 | | 546 | | | 2474 | 1448 | | 2850 | 1434 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 166 | 661 | 198 | 87 | 580 | 95 | 189 | 241 | 122 | 46 | 237 | 95 |
| RTOR Reduction (vph) | 0 | 0 | 96 | 0 | 6 | 0 | 0 | 0 | 74 | 0 | 0 | 58 |
| Lane Group Flow (vph) | 0 | 827 | 102 | 0 | 756 | 0 | 0 | 430 | 48 | 0 | 283 | 37 |
| Confl. Peds. (#/hr) | 2 | | 3 | 3 | | 2 | 3 | | 9 | 9 | | 3 |
| Heavy Vehicles (%) | 5% | 6% | 2% | 15% | 6% | 17% | 3% | 3% | 8% | 7% | 6% | 11% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 6 | | | 2 | |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | | 37.6 | 37.6 | | 37.6 | | | 31.7 | 31.7 | | 31.7 | 31.7 |
| Effective Green, g (s) | | 39.0 | 39.0 | | 39.0 | | | 33.5 | 31.7 | | 33.5 | 31.7 |
| Actuated g/C Ratio | | 0.48 | 0.48 | | 0.48 | | | 0.42 | 0.39 | | 0.42 | 0.39 |
| Clearance Time (s) | | 5.4 | 5.4 | | 5.4 | | | 5.8 | 5.8 | | 5.8 | 5.8 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 564 | 756 | | 264 | | | 1029 | 570 | | 1186 | 564 |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.71 | 0.07 | | c1.39 | | | c0.17 | 0.03 | | 0.10 | 0.03 |
| v/c Ratio | | 1.47 | 0.14 | | 2.86 | | | 0.42 | 0.08 | | 0.24 | 0.07 |
| Uniform Delay, d1 | | 20.8 | 11.4 | | 20.8 | | | 16.6 | 15.3 | | 15.2 | 15.2 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 219.4 | 0.1 | | 849.5 | | | 1.2 | 0.3 | | 0.5 | 0.2 |
| Delay (s) | | 240.2 | 11.5 | | 870.3 | | | 17.9 | 15.6 | | 15.7 | 15.4 |
| Level of Service | | F | B | | F | | | B | B | | B | B |
| Approach Delay (s) | | 196.0 | | | 870.3 | | | 17.4 | | | 15.6 | |
| Approach LOS | | F | | | F | | | B | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 323.7 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.85 | | |
| Actuated Cycle Length (s) | 80.5 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 144.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 118 | 543 | 11 | 120 | 622 | 72 | 57 | 214 | 50 | 71 | 82 | 60 |
| Future Volume (vph) | 118 | 543 | 11 | 120 | 622 | 72 | 57 | 214 | 50 | 71 | 82 | 60 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | | | 0.99 | | 1.00 | 0.97 | | 1.00 | 0.94 | |
| Flt Protected | | 0.99 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1736 | | | 1774 | | 1671 | 1753 | | 1395 | 1535 | |
| Flt Permitted | | 0.74 | | | 0.81 | | 0.57 | 1.00 | | 0.30 | 1.00 | |
| Satd. Flow (perm) | | 1294 | | | 1440 | | 1003 | 1753 | | 436 | 1535 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 134 | 617 | 12 | 136 | 707 | 82 | 65 | 243 | 57 | 81 | 93 | 68 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 0 | 763 | 0 | 0 | 922 | 0 | 65 | 290 | 0 | 81 | 130 | 0 |
| Confl. Peds. (#/hr) | | | 2 | 2 | | | | | 3 | 3 | | |
| Heavy Vehicles (%) | 19% | 6% | 2% | 2% | 6% | 2% | 8% | 5% | 4% | 29% | 13% | 20% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 57.2 | | | 57.2 | | 18.6 | 18.6 | | 18.6 | 18.6 | |
| Effective Green, g (s) | | 57.2 | | | 57.2 | | 18.6 | 18.6 | | 18.6 | 18.6 | |
| Actuated g/C Ratio | | 0.68 | | | 0.68 | | 0.22 | 0.22 | | 0.22 | 0.22 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 883 | | | 982 | | 222 | 389 | | 96 | 340 | |
| v/s Ratio Prot | | | | | | | | 0.17 | | | 0.08 | |
| v/s Ratio Perm | | 0.59 | | | c0.64 | | 0.06 | | | c0.19 | | |
| v/c Ratio | | 0.86 | | | 0.94 | | 0.29 | 0.75 | | 0.84 | 0.38 | |
| Uniform Delay, d1 | | 10.3 | | | 11.7 | | 27.1 | 30.4 | | 31.2 | 27.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 8.8 | | | 15.8 | | 0.7 | 7.6 | | 45.7 | 0.7 | |
| Delay (s) | | 19.1 | | | 27.5 | | 27.9 | 38.0 | | 76.9 | 28.4 | |
| Level of Service | | B | | | C | | C | D | | E | C | |
| Approach Delay (s) | | 19.1 | | | 27.5 | | | 36.2 | | | 44.6 | |
| Approach LOS | | B | | | C | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 27.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 83.8 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 89.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

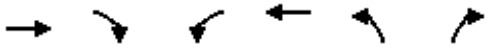
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 120 | 354 | 175 | 41 | 415 | 68 | 290 | 771 | 254 | 170 | 882 | 220 |
| Future Volume (vph) | 120 | 354 | 175 | 41 | 415 | 68 | 290 | 771 | 254 | 170 | 882 | 220 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 7.0 | 4.0 | | 7.0 | | 4.0 | 4.0 | 7.5 | 7.5 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1840 | 1442 | | 1823 | | 1703 | 3406 | 1583 | 1770 | 3312 | 1428 |
| Flt Permitted | | 0.50 | 1.00 | | 0.43 | | 0.16 | 1.00 | 1.00 | 0.35 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 926 | 1442 | | 788 | | 286 | 3406 | 1583 | 643 | 3312 | 1428 |
| Peak-hour factor, PHF | 0.95 | 0.92 | 0.95 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.92 | 0.92 | 0.95 | 0.95 |
| Adj. Flow (vph) | 126 | 385 | 184 | 45 | 451 | 74 | 305 | 812 | 276 | 185 | 928 | 232 |
| RTOR Reduction (vph) | 0 | 0 | 92 | 0 | 4 | 0 | 0 | 0 | 92 | 0 | 0 | 121 |
| Lane Group Flow (vph) | 0 | 511 | 92 | 0 | 566 | 0 | 305 | 812 | 184 | 185 | 928 | 111 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | | | | 1 |
| Heavy Vehicles (%) | 2% | 2% | 12% | 2% | 2% | 2% | 6% | 6% | 2% | 2% | 9% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | | pm+pt | NA | Perm | Perm | NA | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 1 | 6 | | | 2 | |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | | 37.6 | 37.6 | | 37.6 | | 67.9 | 67.9 | 67.9 | 48.5 | 48.5 | 48.5 |
| Effective Green, g (s) | | 37.6 | 40.6 | | 37.6 | | 67.9 | 71.4 | 67.9 | 48.5 | 52.0 | 52.0 |
| Actuated g/C Ratio | | 0.31 | 0.34 | | 0.31 | | 0.57 | 0.60 | 0.57 | 0.40 | 0.43 | 0.43 |
| Clearance Time (s) | | 7.0 | 7.0 | | 7.0 | | 4.0 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 290 | 487 | | 246 | | 343 | 2026 | 895 | 259 | 1435 | 618 |
| v/s Ratio Prot | | | | | | | c0.11 | 0.24 | | | 0.28 | |
| v/s Ratio Perm | | 0.55 | 0.06 | | c0.72 | | c0.39 | | 0.12 | 0.29 | | 0.08 |
| v/c Ratio | | 1.76 | 0.19 | | 2.30 | | 0.89 | 0.40 | 0.21 | 0.71 | 0.65 | 0.18 |
| Uniform Delay, d1 | | 41.2 | 28.1 | | 41.2 | | 21.5 | 12.9 | 12.8 | 29.9 | 26.8 | 20.9 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 356.7 | 0.2 | | 597.8 | | 23.2 | 0.6 | 0.5 | 15.5 | 2.3 | 0.6 |
| Delay (s) | | 397.9 | 28.3 | | 639.0 | | 44.7 | 13.5 | 13.3 | 45.5 | 29.0 | 21.5 |
| Level of Service | | F | C | | F | | D | B | B | D | C | C |
| Approach Delay (s) | | 300.1 | | | 639.0 | | | 20.3 | | | 30.0 | |
| Approach LOS | | F | | | F | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 160.2 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.45 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 19.5 |
| Intersection Capacity Utilization | 121.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 256 | 456 | 165 | 450 | 481 | 233 |
| Future Volume (vph) | 256 | 456 | 165 | 450 | 481 | 233 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 3539 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.45 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1583 | 840 | 3539 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 278 | 496 | 179 | 489 | 523 | 253 |
| RTOR Reduction (vph) | 0 | 201 | 0 | 0 | 0 | 94 |
| Lane Group Flow (vph) | 278 | 295 | 179 | 489 | 523 | 159 |
| Turn Type | Prot | Perm | Perm | NA | NA | Perm |
| Protected Phases | 4 | | | 2 | 6 | |
| Permitted Phases | | 4 | 2 | | | 6 |
| Actuated Green, G (s) | 18.2 | 18.2 | 44.5 | 44.5 | 44.5 | 44.5 |
| Effective Green, g (s) | 18.2 | 18.2 | 44.5 | 44.5 | 44.5 | 44.5 |
| Actuated g/C Ratio | 0.26 | 0.26 | 0.63 | 0.63 | 0.63 | 0.63 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 455 | 407 | 528 | 2227 | 2227 | 996 |
| v/s Ratio Prot | 0.16 | | | 0.14 | 0.15 | |
| v/s Ratio Perm | | c0.19 | c0.21 | | | 0.10 |
| v/c Ratio | 0.61 | 0.72 | 0.34 | 0.22 | 0.23 | 0.16 |
| Uniform Delay, d1 | 23.1 | 24.0 | 6.2 | 5.6 | 5.7 | 5.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.4 | 6.3 | 1.7 | 0.2 | 0.2 | 0.3 |
| Delay (s) | 25.6 | 30.2 | 7.9 | 5.9 | 5.9 | 5.7 |
| Level of Service | C | C | A | A | A | A |
| Approach Delay (s) | 28.6 | | | 6.4 | 5.9 | |
| Approach LOS | C | | | A | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 14.0 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.45 | | |
| Actuated Cycle Length (s) | 70.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

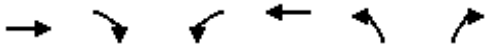
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 818 | 40 | 50 | 811 | 52 | 50 |
| Future Volume (Veh/h) | 818 | 40 | 50 | 811 | 52 | 50 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 889 | 43 | 54 | 882 | 57 | 54 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 108 | | | 205 | | |
| pX, platoon unblocked | | | 0.83 | | 0.83 | 0.83 |
| vC, conflicting volume | | | 932 | | 1460 | 466 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 510 | | 1145 | 0 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 94 | | 62 | 94 |
| cM capacity (veh/h) | | | 873 | | 150 | 901 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 593 | 339 | 348 | 588 | 111 |
| Volume Left | 0 | 0 | 54 | 0 | 57 |
| Volume Right | 0 | 43 | 0 | 0 | 54 |
| cSH | 1700 | 1700 | 873 | 1700 | 253 |
| Volume to Capacity | 0.35 | 0.20 | 0.06 | 0.35 | 0.44 |
| Queue Length 95th (m) | 0.0 | 0.0 | 1.6 | 0.0 | 16.8 |
| Control Delay (s) | 0.0 | 0.0 | 2.1 | 0.0 | 29.9 |
| Lane LOS | | | A | | D |
| Approach Delay (s) | 0.0 | | 0.8 | | 29.9 |
| Approach LOS | | | | | D |

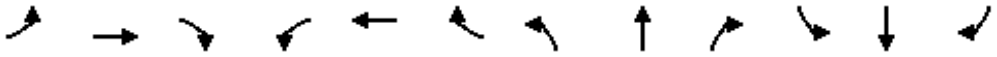
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 904 | 30 | 17 | 786 | 6 | 19 |
| Future Volume (Veh/h) | 904 | 30 | 17 | 786 | 6 | 19 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 983 | 33 | 18 | 854 | 7 | 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) | 208 | | | 105 | | |
| pX, platoon unblocked | | | 0.87 | | 0.87 | 0.87 |
| vC, conflicting volume | | | 1016 | | 1462 | 508 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 709 | | 1225 | 123 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 98 | | 95 | 97 |
| cM capacity (veh/h) | | | 767 | | 145 | 784 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 655 | 361 | 303 | 569 | 28 |
| Volume Left | 0 | 0 | 18 | 0 | 7 |
| Volume Right | 0 | 33 | 0 | 0 | 21 |
| cSH | 1700 | 1700 | 767 | 1700 | 373 |
| Volume to Capacity | 0.39 | 0.21 | 0.02 | 0.33 | 0.08 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.6 | 0.0 | 1.9 |
| Control Delay (s) | 0.0 | 0.0 | 0.8 | 0.0 | 15.4 |
| Lane LOS | | | A | | C |
| Approach Delay (s) | 0.0 | | 0.3 | | 15.4 |
| Approach LOS | | | | | C |

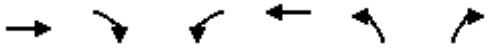
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 43.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 47 | 699 | 25 | 20 | 654 | 36 | 5 | 15 | 5 | 27 | 21 | 9 |
| Future Volume (Veh/h) | 47 | 699 | 25 | 20 | 654 | 36 | 5 | 15 | 5 | 27 | 21 | 9 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 51 | 760 | 27 | 22 | 711 | 39 | 5 | 16 | 5 | 29 | 23 | 10 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 226 | | | 192 | | | | | | | |
| pX, platoon unblocked | 0.72 | | | 0.59 | | | 0.73 | 0.73 | 0.59 | 0.73 | 0.73 | 0.72 |
| vC, conflicting volume | 750 | | | 787 | | | 1672 | 1670 | 774 | 1663 | 1664 | 730 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 454 | | | 286 | | | 862 | 859 | 263 | 850 | 851 | 427 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 94 | | | 97 | | | 97 | 92 | 99 | 84 | 88 | 98 |
| cM capacity (veh/h) | 793 | | | 749 | | | 166 | 195 | 456 | 176 | 197 | 450 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 838 | 772 | 26 | 62 |
| Volume Left | 51 | 22 | 5 | 29 |
| Volume Right | 27 | 39 | 5 | 10 |
| cSH | 793 | 749 | 211 | 204 |
| Volume to Capacity | 0.06 | 0.03 | 0.12 | 0.30 |
| Queue Length 95th (m) | 1.6 | 0.7 | 3.3 | 9.8 |
| Control Delay (s) | 1.7 | 0.8 | 24.4 | 30.1 |
| Lane LOS | A | A | C | D |
| Approach Delay (s) | 1.7 | 0.8 | 24.4 | 30.1 |
| Approach LOS | | | C | D |

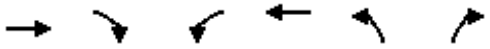
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.7 | | | |
| Intersection Capacity Utilization | 73.1% | ICU Level of Service | D | |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 706 | 25 | 21 | 718 | 9 | 16 |
| Future Volume (Veh/h) | 706 | 25 | 21 | 718 | 9 | 16 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 767 | 27 | 23 | 780 | 10 | 17 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 317 | | | 101 | | |
| pX, platoon unblocked | | | 0.64 | | 0.80 | 0.64 |
| vC, conflicting volume | | | 794 | | 1606 | 780 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 399 | | 727 | 378 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 97 | | 97 | 96 |
| cM capacity (veh/h) | | | 744 | | 304 | 429 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 794 | 803 | 27 |
| Volume Left | 0 | 23 | 10 |
| Volume Right | 27 | 0 | 17 |
| cSH | 1700 | 744 | 372 |
| Volume to Capacity | 0.47 | 0.03 | 0.07 |
| Queue Length 95th (m) | 0.0 | 0.8 | 1.9 |
| Control Delay (s) | 0.0 | 0.8 | 15.4 |
| Lane LOS | | A | C |
| Approach Delay (s) | 0.0 | 0.8 | 15.4 |
| Approach LOS | | | C |

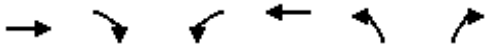
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.7 | | |
| Intersection Capacity Utilization | 64.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 653 | 11 | 74 | 851 | 51 | 34 |
| Future Volume (Veh/h) | 653 | 11 | 74 | 851 | 51 | 34 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 710 | 12 | 80 | 925 | 55 | 37 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 98 | | | 92 | | |
| pX, platoon unblocked | | | 0.76 | | 0.73 | 0.76 |
| vC, conflicting volume | | | 722 | | 1801 | 716 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 482 | | 1186 | 474 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 90 | | 60 | 92 |
| cM capacity (veh/h) | | | 826 | | 138 | 451 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 722 | 1005 | 92 |
| Volume Left | 0 | 80 | 55 |
| Volume Right | 12 | 0 | 37 |
| cSH | 1700 | 826 | 191 |
| Volume to Capacity | 0.42 | 0.10 | 0.48 |
| Queue Length 95th (m) | 0.0 | 2.6 | 18.8 |
| Control Delay (s) | 0.0 | 2.7 | 40.3 |
| Lane LOS | | A | E |
| Approach Delay (s) | 0.0 | 2.7 | 40.3 |
| Approach LOS | | | E |

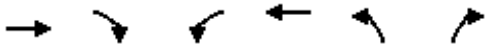
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.5 | | |
| Intersection Capacity Utilization | 98.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 698 | 80 | 2 | 444 | 80 | 61 |
| Future Volume (Veh/h) | 698 | 80 | 2 | 444 | 80 | 61 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 759 | 87 | 2 | 483 | 87 | 66 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 281 | | | 273 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 846 | | 1048 | 423 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 846 | | 1048 | 423 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 61 | 89 |
| cM capacity (veh/h) | | | 787 | | 223 | 579 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 506 | 340 | 2 | 242 | 242 | 153 |
| Volume Left | 0 | 0 | 2 | 0 | 0 | 87 |
| Volume Right | 0 | 87 | 0 | 0 | 0 | 66 |
| cSH | 1700 | 1700 | 787 | 1700 | 1700 | 303 |
| Volume to Capacity | 0.30 | 0.20 | 0.00 | 0.14 | 0.14 | 0.50 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 21.4 |
| Control Delay (s) | 0.0 | 0.0 | 9.6 | 0.0 | 0.0 | 28.4 |
| Lane LOS | | | A | | | D |
| Approach Delay (s) | 0.0 | | 0.0 | | | 28.4 |
| Approach LOS | | | | | | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.9 | | | |
| Intersection Capacity Utilization | 36.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 708 | 10 | 11 | 387 | 21 | 4 |
| Future Volume (Veh/h) | 708 | 10 | 11 | 387 | 21 | 4 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 770 | 11 | 12 | 421 | 23 | 4 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | 135 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 781 | | 1010 | 390 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 781 | | 1010 | 390 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 99 | | 90 | 99 |
| cM capacity (veh/h) | | | 832 | | 233 | 608 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 513 | 268 | 12 | 210 | 210 | 27 |
| Volume Left | 0 | 0 | 12 | 0 | 0 | 23 |
| Volume Right | 0 | 11 | 0 | 0 | 0 | 4 |
| cSH | 1700 | 1700 | 832 | 1700 | 1700 | 256 |
| Volume to Capacity | 0.30 | 0.16 | 0.01 | 0.12 | 0.12 | 0.11 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 2.8 |
| Control Delay (s) | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 20.7 |
| Lane LOS | | | A | | | C |
| Approach Delay (s) | 0.0 | | 0.3 | | | 20.7 |
| Approach LOS | | | | | | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 0.5 | | | |
| Intersection Capacity Utilization | 29.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

## Intersection: 1: Applewood Crescent & Portage Parkway

| Movement | EB | EB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | TR | LT | TR | L | T | R | LT | R |
| Maximum Queue (m) | 288.6 | 250.8 | 54.1 | 43.3 | 15.2 | 21.5 | 28.5 | 15.6 | 21.7 |
| Average Queue (m) | 195.3 | 167.7 | 31.0 | 33.2 | 7.8 | 9.6 | 12.3 | 10.8 | 13.6 |
| 95th Queue (m) | 303.8 | 271.7 | 50.6 | 48.0 | 19.0 | 24.1 | 28.0 | 17.6 | 25.6 |
| Link Distance (m) | 315.9 | 315.9 | 84.3 | 84.3 | | 483.6 | 483.6 | 380.6 | |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (m) | | | | | 50.0 | | | | 100.0 |
| Storage Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |

## Intersection: 2: Edgeley Boulevard & Portage Parkway

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | LT | T | R | LT | T | R |
| Maximum Queue (m) | 85.1 | 19.9 | 200.8 | 58.6 | 47.3 | 10.5 | 43.5 | 13.8 | 15.9 |
| Average Queue (m) | 83.8 | 13.8 | 150.3 | 50.8 | 19.1 | 4.7 | 33.6 | 7.2 | 11.2 |
| 95th Queue (m) | 85.3 | 22.1 | 211.1 | 64.1 | 48.7 | 10.2 | 48.4 | 14.5 | 17.2 |
| Link Distance (m) | 82.0 | 82.0 | 200.7 | 250.5 | 250.5 | 250.5 | 423.2 | 423.2 | |
| Upstream Blk Time (%) | 54 | | 3 | | | | | | |
| Queuing Penalty (veh) | 250 | | 21 | | | | | | |
| Storage Bay Dist (m) | | | | | | | | | 100.0 |
| Storage Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |

## Intersection: 3: Millway Avenue & Portage Parkway

| Movement | EB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | TR | L | TR |
| Maximum Queue (m) | 87.0 | 81.4 | 21.5 | 60.4 | 115.2 | 128.1 |
| Average Queue (m) | 74.2 | 78.9 | 14.2 | 34.8 | 82.1 | 41.0 |
| 95th Queue (m) | 111.9 | 81.7 | 21.8 | 66.4 | 142.3 | 113.9 |
| Link Distance (m) | 83.6 | 76.8 | 109.9 | 109.9 | | 346.2 |
| Upstream Blk Time (%) | 47 | 18 | | | | |
| Queuing Penalty (veh) | 342 | 162 | | | | |
| Storage Bay Dist (m) | | | | | 120.0 | |
| Storage Blk Time (%) | | | | | 16 | 1 |
| Queuing Penalty (veh) | | | | | 23 | 0 |

## Intersection: 4: Jane Street & Portage Parkway

| Movement | EB | EB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | L | T | T | R | L | T | T | R |
| Maximum Queue (m) | 72.8 | 65.7 | 254.8 | 162.1 | 148.4 | 60.1 | 27.5 | 33.9 | 96.9 | 81.4 | 52.3 |
| Average Queue (m) | 69.5 | 30.0 | 199.8 | 108.3 | 62.9 | 45.5 | 10.4 | 25.4 | 73.5 | 65.8 | 33.2 |
| 95th Queue (m) | 73.7 | 76.7 | 273.7 | 177.9 | 134.2 | 64.7 | 25.4 | 35.9 | 100.5 | 89.5 | 57.3 |
| Link Distance (m) | 67.2 | | 253.8 | | 470.5 | 470.5 | 470.5 | | 319.4 | 319.4 | |
| Upstream Blk Time (%) | 76 | 0 | 5 | | | | | | | | |
| Queuing Penalty (veh) | 525 | 0 | 24 | | | | | | | | |
| Storage Bay Dist (m) | | 60.0 | | 140.0 | | | | 150.0 | | | 100.0 |
| Storage Blk Time (%) | 87 | 0 | | 8 | | | | | | | |
| Queuing Penalty (veh) | 152 | 1 | | 30 | | | | | | | |

## Intersection: 5: Creditstone Road & Portage Parkway

| Movement | EB | EB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | L | R | L | T | T | T | T | R |
| Maximum Queue (m) | 27.6 | 22.5 | 22.7 | 22.1 | 15.0 | 9.3 | 9.1 | 27.8 |
| Average Queue (m) | 19.7 | 16.0 | 18.7 | 16.3 | 10.3 | 8.1 | 4.7 | 13.9 |
| 95th Queue (m) | 31.1 | 24.6 | 25.6 | 24.5 | 14.2 | 11.2 | 11.5 | 26.2 |
| Link Distance (m) | 111.7 | 111.7 | | 426.9 | 426.9 | 245.5 | 245.5 | |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (m) | | | 110.0 | | | | 75.0 | |
| Storage Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |

## Intersection: 6: Planned Road 1 & Portage Parkway

| Movement | EB | EB | WB | NB |
|---|---|---|---|---|
| Directions Served | T | TR | LT | LR |
| Maximum Queue (m) | 86.0 | 90.6 | 34.3 | 21.5 |
| Average Queue (m) | 38.6 | 29.7 | 6.9 | 11.4 |
| 95th Queue (m) | 103.1 | 92.2 | 29.5 | 19.7 |
| Link Distance (m) | 84.3 | 84.3 | 83.5 | 497.8 |
| Upstream Blk Time (%) | 20 | 14 | | |
| Queuing Penalty (veh) | 86 | 59 | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 7: Planned Road 2 & Portage Parkway

| Movement | EB | EB | NB |
|---|---|---|---|
| Directions Served | T | TR | LR |
| Maximum Queue (m) | 92.5 | 84.1 | 27.7 |
| Average Queue (m) | 67.4 | 43.9 | 13.6 |
| 95th Queue (m) | 124.2 | 104.6 | 26.5 |
| Link Distance (m) | 83.5 | 83.5 | 157.0 |
| Upstream Blk Time (%) | 45 | 0 | |
| Queuing Penalty (veh) | 194 | 2 | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 8: Buttermill Avenue & Portage Parkway

| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 66.7 | 58.3 | 9.3 | 28.4 |
| Average Queue (m) | 28.7 | 18.6 | 6.5 | 14.2 |
| 95th Queue (m) | 71.1 | 58.2 | 12.5 | 26.7 |
| Link Distance (m) | 200.7 | 72.8 | 257.2 | 402.6 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 9: Planned Road 3 & Portage Parkway

| Movement | EB | NB |
|---|---|---|
| Directions Served | UTR | LR |
| Maximum Queue (m) | 77.3 | 8.7 |
| Average Queue (m) | 50.5 | 1.7 |
| 95th Queue (m) | 101.1 | 7.5 |
| Link Distance (m) | 72.8 | 123.4 |
| Upstream Blk Time (%) | 29 | |
| Queuing Penalty (veh) | 215 | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 10: Planned Road 4 & Portage Parkway

| Movement | EB | WB | NB |
|---|---|---|---|
| Directions Served | UTR | LT | LR |
| Maximum Queue (m) | 81.1 | 73.4 | 14.7 |
| Average Queue (m) | 75.5 | 59.4 | 10.1 |
| 95th Queue (m) | 88.3 | 83.2 | 17.6 |
| Link Distance (m) | 76.8 | 67.2 | 490.9 |
| Upstream Blk Time (%) | 43 | 5 | |
| Queuing Penalty (veh) | 286 | 46 | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 11: Planned Road 5 & Portage Parkway

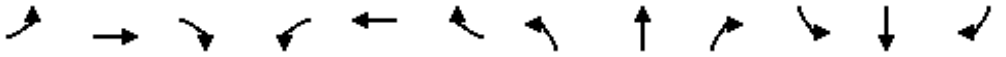
| Movement | WB | WB | NB |
|---|---|---|---|
| Directions Served | T | T | LR |
| Maximum Queue (m) | 21.5 | 22.0 | 27.9 |
| Average Queue (m) | 4.3 | 4.4 | 19.4 |
| 95th Queue (m) | 18.5 | 19.0 | 27.5 |
| Link Distance (m) | 121.4 | 121.4 | 442.0 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 12: Planned Road 6 & Portage Parkway

| Movement | NB |
|---|---|
| Directions Served | LR |
| Maximum Queue (m) | 9.2 |
| Average Queue (m) | 1.8 |
| 95th Queue (m) | 7.9 |
| Link Distance (m) | 227.4 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (m) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

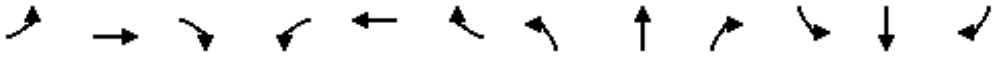
## Network Summary

Network wide Queuing Penalty: 2417



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 59 | 1015 | 114 | 155 | 1497 | 60 | 128 | 172 | 75 | 61 | 244 | 333 |
| Future Volume (vph) | 59 | 1015 | 114 | 155 | 1497 | 60 | 128 | 172 | 75 | 61 | 244 | 333 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 3.0 | 4.0 | 4.3 | | 4.0 | 2.5 |
| Lane Util. Factor | | 0.95 | | | 0.95 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | | 3422 | | | 3446 | | 1770 | 1863 | 1583 | | 1807 | 1357 |
| Flt Permitted | | 0.61 | | | 0.58 | | 0.15 | 1.00 | 1.00 | | 0.88 | 1.00 |
| Satd. Flow (perm) | | 2085 | | | 2005 | | 279 | 1863 | 1583 | | 1612 | 1357 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.92 | 0.92 | 0.89 | 0.89 | 0.92 | 0.92 | 0.92 | 0.89 | 0.92 | 0.89 |
| Adj. Flow (vph) | 66 | 1140 | 124 | 168 | 1682 | 67 | 139 | 187 | 82 | 69 | 265 | 374 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 61 | 0 | 0 | 34 |
| Lane Group Flow (vph) | 0 | 1324 | 0 | 0 | 1915 | 0 | 139 | 187 | 21 | 0 | 334 | 340 |
| Heavy Vehicles (%) | 3% | 4% | 2% | 2% | 4% | 2% | 2% | 2% | 2% | 12% | 2% | 19% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm | Perm | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | | 6 | 7 |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | | 84.5 | | | 84.5 | | 33.2 | 33.2 | 33.2 | | 23.5 | 30.0 |
| Effective Green, g (s) | | 86.5 | | | 86.5 | | 33.2 | 33.5 | 33.2 | | 24.0 | 31.0 |
| Actuated g/C Ratio | | 0.67 | | | 0.67 | | 0.26 | 0.26 | 0.26 | | 0.18 | 0.24 |
| Clearance Time (s) | | 5.0 | | | 5.0 | | 3.0 | 4.3 | 4.3 | | 4.5 | 3.0 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 1464 | | | 1417 | | 145 | 480 | 404 | | 297 | 323 |
| v/s Ratio Prot | | 0.05 | | | c0.08 | | c0.05 | 0.10 | | | | 0.06 |
| v/s Ratio Perm | | 0.55 | | | 0.82 | | 0.20 | | 0.01 | | c0.21 | 0.19 |
| v/c Ratio | | 0.90 | | | 1.35 | | 0.96 | 0.39 | 0.05 | | 1.12 | 1.05 |
| Uniform Delay, d1 | | 18.3 | | | 21.8 | | 45.1 | 39.8 | 36.5 | | 53.0 | 49.5 |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 8.2 | | | 162.9 | | 61.5 | 0.5 | 0.1 | | 90.1 | 64.3 |
| Delay (s) | | 26.5 | | | 184.6 | | 106.6 | 40.3 | 36.6 | | 143.1 | 113.8 |
| Level of Service | | C | | | F | | F | D | D | | F | F |
| Approach Delay (s) | | 26.5 | | | 184.6 | | | 62.2 | | | 127.6 | |
| Approach LOS | | C | | | F | | | E | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 115.7 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 119.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 235 | 977 | 455 | 263 | 1084 | 96 | 110 | 434 | 151 | 81 | 435 | 345 |
| Future Volume (vph) | 235 | 977 | 455 | 263 | 1084 | 96 | 110 | 434 | 151 | 81 | 435 | 345 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 4.0 | 5.8 | | 4.0 | 5.8 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | 1.00 | | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.98 | | 1.00 | | | 1.00 | 0.96 | | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.99 | 1.00 | | 0.99 | 1.00 |
| Satd. Flow (prot) | | 1778 | 1558 | | 1720 | | | 3469 | 1438 | | 3371 | 1432 |
| Flt Permitted | | 0.52 | 1.00 | | 0.03 | | | 0.59 | 1.00 | | 0.60 | 1.00 |
| Satd. Flow (perm) | | 925 | 1558 | | 53 | | | 2066 | 1438 | | 2038 | 1432 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 253 | 1051 | 489 | 283 | 1166 | 103 | 118 | 467 | 162 | 87 | 468 | 371 |
| RTOR Reduction (vph) | 0 | 0 | 34 | 0 | 2 | 0 | 0 | 0 | 98 | 0 | 0 | 278 |
| Lane Group Flow (vph) | 0 | 1304 | 455 | 0 | 1550 | 0 | 0 | 585 | 64 | 0 | 555 | 93 |
| Confl. Peds. (#/hr) | 2 | | 3 | 3 | | 2 | 3 | | 9 | 9 | | 3 |
| Heavy Vehicles (%) | 5% | 6% | 2% | 15% | 6% | 17% | 3% | 3% | 8% | 7% | 6% | 11% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 6 | | | 2 | |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | | 83.1 | 76.6 | | 83.1 | | | 32.7 | 32.7 | | 32.7 | 32.7 |
| Effective Green, g (s) | | 85.9 | 78.0 | | 85.9 | | | 34.5 | 32.7 | | 34.5 | 32.7 |
| Actuated g/C Ratio | | 0.66 | 0.60 | | 0.66 | | | 0.27 | 0.25 | | 0.27 | 0.25 |
| Clearance Time (s) | | 5.4 | 5.4 | | 5.4 | | | 5.8 | 5.8 | | 5.8 | 5.8 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 663 | 934 | | 136 | | | 548 | 361 | | 540 | 360 |
| v/s Ratio Prot | | c0.12 | | | c0.69 | | | | | | | |
| v/s Ratio Perm | | 1.18 | 0.29 | | 6.87 | | | c0.28 | 0.04 | | 0.27 | 0.07 |
| v/c Ratio | | 1.97 | 0.49 | | 11.40 | | | 1.07 | 0.18 | | 1.03 | 0.26 |
| Uniform Delay, d1 | | 22.0 | 14.7 | | 22.0 | | | 47.8 | 38.1 | | 47.8 | 39.0 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 440.5 | 1.8 | | 4693.0 | | | 57.7 | 1.1 | | 46.0 | 1.7 |
| Delay (s) | | 462.6 | 16.5 | | 4715.1 | | | 105.5 | 39.2 | | 93.8 | 40.7 |
| Level of Service | | F | B | | F | | | F | D | | F | D |
| Approach Delay (s) | | 340.9 | | | 4715.1 | | | 91.1 | | | 72.5 | |
| Approach LOS | | F | | | F | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 1607.1 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.66 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 11.0 |
| Intersection Capacity Utilization | 206.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 116 | 1022 | 74 | 286 | 1081 | 108 | 119 | 300 | 50 | 116 | 191 | 174 |
| Future Volume (vph) | 116 | 1022 | 74 | 286 | 1081 | 108 | 119 | 300 | 50 | 116 | 191 | 174 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | | | 4.0 | | 4.5 | 4.0 | | 4.5 | 4.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.99 | | | 0.99 | | 1.00 | 0.98 | | 1.00 | 0.93 | |
| Flt Protected | | 1.00 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1751 | | | 1776 | | 1671 | 1766 | | 1641 | 1604 | |
| Flt Permitted | | 0.68 | | | 0.52 | | 0.14 | 1.00 | | 0.14 | 1.00 | |
| Satd. Flow (perm) | | 1203 | | | 940 | | 251 | 1766 | | 247 | 1604 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 132 | 1161 | 84 | 325 | 1228 | 123 | 135 | 341 | 57 | 132 | 217 | 198 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 25 | 0 |
| Lane Group Flow (vph) | 0 | 1375 | 0 | 0 | 1674 | 0 | 135 | 393 | 0 | 132 | 390 | 0 |
| Confl. Peds. (#/hr) | | | 2 | 2 | | | | | 3 | 3 | | |
| Heavy Vehicles (%) | 19% | 6% | 2% | 2% | 6% | 2% | 8% | 5% | 4% | 10% | 10% | 10% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 81.5 | | | 81.5 | | 33.0 | 28.0 | | 33.0 | 28.0 | |
| Effective Green, g (s) | | 81.5 | | | 81.5 | | 33.0 | 28.0 | | 33.0 | 28.0 | |
| Actuated g/C Ratio | | 0.63 | | | 0.63 | | 0.25 | 0.22 | | 0.25 | 0.22 | |
| Clearance Time (s) | | 4.0 | | | 4.0 | | 4.5 | 4.0 | | 4.5 | 4.0 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 781 | | | 631 | | 118 | 380 | | 116 | 345 | |
| v/s Ratio Prot | | 0.09 | | | c0.13 | | c0.04 | 0.22 | | 0.04 | 0.24 | |
| v/s Ratio Perm | | 1.01 | | | c1.53 | | c0.25 | | | 0.24 | | |
| v/c Ratio | | 1.76 | | | 2.65 | | 1.14 | 1.03 | | 1.14 | 1.13 | |
| Uniform Delay, d1 | | 24.2 | | | 24.2 | | 47.5 | 51.0 | | 47.5 | 51.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 347.6 | | | 748.2 | | 126.8 | 55.5 | | 125.4 | 88.5 | |
| Delay (s) | | 371.8 | | | 772.5 | | 174.2 | 106.5 | | 172.9 | 139.5 | |
| Level of Service | | F | | | F | | F | F | | F | F | |
| Approach Delay (s) | | 371.8 | | | 772.5 | | | 123.7 | | | 147.6 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 472.6 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 2.22 | | |
| Actuated Cycle Length (s) | 130.0 | Sum of lost time (s) | 15.5 |
| Intersection Capacity Utilization | 174.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

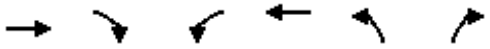
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 227 | 1079 | 182 | 71 | 700 | 39 | 195 | 1191 | 155 | 154 | 1211 | 480 |
| Future Volume (vph) | 227 | 1079 | 182 | 71 | 700 | 39 | 195 | 1191 | 155 | 154 | 1211 | 480 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | -0.5 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1847 | 1442 | | 1843 | | 1703 | 3406 | 1583 | 1770 | 3312 | 1434 |
| Flt Permitted | | 0.58 | 1.00 | | 0.12 | | 0.11 | 1.00 | 1.00 | 0.11 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1078 | 1442 | | 224 | | 191 | 3406 | 1583 | 210 | 3312 | 1434 |
| Peak-hour factor, PHF | 0.95 | 0.92 | 0.95 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.92 | 0.92 | 0.95 | 0.95 |
| Adj. Flow (vph) | 239 | 1173 | 192 | 77 | 761 | 42 | 205 | 1254 | 168 | 167 | 1275 | 505 |
| RTOR Reduction (vph) | 0 | 0 | 40 | 0 | 2 | 0 | 0 | 0 | 57 | 0 | 0 | 46 |
| Lane Group Flow (vph) | 0 | 1412 | 152 | 0 | 878 | 0 | 205 | 1254 | 111 | 167 | 1275 | 459 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | | | | 1 |
| Heavy Vehicles (%) | 2% | 2% | 12% | 2% | 2% | 2% | 6% | 6% | 2% | 2% | 9% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 1 | 6 | | 5 | 2 | 7 |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | 6 | 2 | | 2 |
| Actuated Green, G (s) | | 68.4 | 68.4 | | 59.0 | | 46.0 | 37.5 | 37.5 | 42.0 | 35.5 | 41.9 |
| Effective Green, g (s) | | 71.4 | 71.4 | | 62.0 | | 46.0 | 41.0 | 41.0 | 42.0 | 39.0 | 48.9 |
| Actuated g/C Ratio | | 0.55 | 0.55 | | 0.48 | | 0.35 | 0.32 | 0.32 | 0.32 | 0.30 | 0.38 |
| Clearance Time (s) | | 7.0 | 7.0 | | 7.0 | | 3.0 | 7.5 | 7.5 | 3.0 | 7.5 | 3.0 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 0.2 | 0.2 | 3.0 | 0.2 | 3.0 |
| Lane Grp Cap (vph) | | 648 | 792 | | 106 | | 166 | 1075 | 499 | 145 | 994 | 539 |
| v/s Ratio Prot | | c0.16 | | | | | c0.08 | 0.37 | | 0.06 | c0.38 | 0.06 |
| v/s Ratio Perm | | 1.04 | 0.11 | | c3.93 | | 0.35 | | 0.07 | 0.31 | | 0.26 |
| v/c Ratio | | 2.18 | 0.19 | | 8.29 | | 1.23 | 1.17 | 0.22 | 1.15 | 1.28 | 0.85 |
| Uniform Delay, d1 | | 29.2 | 14.7 | | 34.0 | | 36.3 | 44.5 | 32.7 | 40.5 | 45.5 | 37.2 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 535.6 | 0.1 | | 3298.4 | | 146.8 | 85.2 | 1.0 | 121.3 | 135.0 | 12.3 |
| Delay (s) | | 564.9 | 14.8 | | 3332.3 | | 183.0 | 129.7 | 33.7 | 161.8 | 180.4 | 49.4 |
| Level of Service | | F | B | | F | | F | F | C | F | F | D |
| Approach Delay (s) | | 499.1 | | | 3332.3 | | | 126.5 | | | 144.8 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 696.7 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 5.05 | | |
| Actuated Cycle Length (s) | 129.9 | Sum of lost time (s) | 14.0 |
| Intersection Capacity Utilization | 170.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 488 | 754 | 404 | 578 | 746 | 235 |
| Future Volume (vph) | 488 | 754 | 404 | 578 | 746 | 235 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.5 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1583 | 1770 | 3539 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.13 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1583 | 234 | 3539 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 530 | 820 | 439 | 628 | 811 | 255 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 0 | 164 |
| Lane Group Flow (vph) | 530 | 813 | 439 | 628 | 811 | 91 |
| Turn Type | Prot | pt+ov | pm+pt | NA | NA | Perm |
| Protected Phases | 4 | 4 5 | 5 | 2 | 6 | |
| Permitted Phases | | | 2 | | | 6 |
| Actuated Green, G (s) | 46.2 | 80.8 | 75.0 | 75.0 | 39.9 | 39.9 |
| Effective Green, g (s) | 46.2 | 80.8 | 75.0 | 75.0 | 39.9 | 39.9 |
| Actuated g/C Ratio | 0.36 | 0.63 | 0.58 | 0.58 | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | | 4.5 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 632 | 989 | 499 | 2054 | 1092 | 488 |
| v/s Ratio Prot | 0.30 | c0.51 | 0.21 | 0.18 | 0.23 | |
| v/s Ratio Perm | | | c0.30 | | | 0.06 |
| v/c Ratio | 0.84 | 0.82 | 0.88 | 0.31 | 0.74 | 0.19 |
| Uniform Delay, d1 | 38.1 | 18.6 | 33.4 | 13.8 | 40.0 | 32.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.5 | 5.6 | 16.1 | 0.4 | 4.6 | 0.8 |
| Delay (s) | 47.6 | 24.2 | 49.5 | 14.2 | 44.6 | 33.6 |
| Level of Service | D | C | D | B | D | C |
| Approach Delay (s) | 33.4 | | | 28.7 | 42.0 | |
| Approach LOS | C | | | C | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 34.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 129.2 | Sum of lost time (s) | 12.5 |
| Intersection Capacity Utilization | 80.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

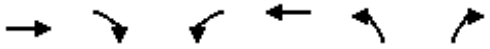
c Critical Lane Group



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1229 | 22 | 144 | 1669 | 43 | 112 |
| Future Volume (Veh/h) | 1229 | 22 | 144 | 1669 | 43 | 112 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1336 | 24 | 157 | 1814 | 47 | 122 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 108 | | | 205 | | |
| pX, platoon unblocked | | | 0.80 | | 0.80 | 0.80 |
| vC, conflicting volume | | | 1360 | | 2569 | 680 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 938 | | 2458 | 82 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 73 | | 0 | 84 |
| cM capacity (veh/h) | | | 578 | | 15 | 764 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 891 | 469 | 762 | 1209 | 169 |
| Volume Left | 0 | 0 | 157 | 0 | 47 |
| Volume Right | 0 | 24 | 0 | 0 | 122 |
| cSH | 1700 | 1700 | 578 | 1700 | 50 |
| Volume to Capacity | 0.52 | 0.28 | 0.27 | 0.71 | 3.37 |
| Queue Length 95th (m) | 0.0 | 0.0 | 8.8 | 0.0 | Err |
| Control Delay (s) | 0.0 | 0.0 | 7.3 | 0.0 | Err |
| Lane LOS | | | A | | F |
| Approach Delay (s) | 0.0 | | 2.8 | | Err |
| Approach LOS | | | | | F |

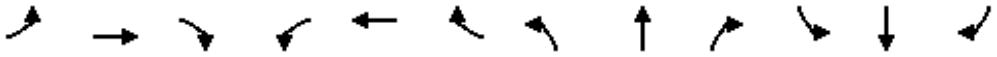
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 484.4 | | |
| Intersection Capacity Utilization | 104.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1484 | 10 | 50 | 1469 | 8 | 56 |
| Future Volume (Veh/h) | 1484 | 10 | 50 | 1469 | 8 | 56 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1613 | 11 | 54 | 1597 | 9 | 61 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 208 | | | 105 | | |
| pX, platoon unblocked | | | 0.80 | | 0.80 | 0.80 |
| vC, conflicting volume | | | 1624 | | 2525 | 812 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1288 | | 2409 | 278 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 87 | | 53 | 89 |
| cM capacity (veh/h) | | | 429 | | 19 | 578 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 |
|---|---|---|---|---|---|
| Volume Total | 1075 | 549 | 586 | 1065 | 70 |
| Volume Left | 0 | 0 | 54 | 0 | 9 |
| Volume Right | 0 | 11 | 0 | 0 | 61 |
| cSH | 1700 | 1700 | 429 | 1700 | 122 |
| Volume to Capacity | 0.63 | 0.32 | 0.13 | 0.63 | 0.57 |
| Queue Length 95th (m) | 0.0 | 0.0 | 3.4 | 0.0 | 22.5 |
| Control Delay (s) | 0.0 | 0.0 | 3.8 | 0.0 | 68.2 |
| Lane LOS | | | A | | F |
| Approach Delay (s) | 0.0 | | 1.3 | | 68.2 |
| Approach LOS | | | | | F |

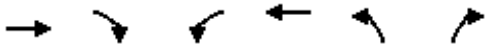
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.1 | | | |
| Intersection Capacity Utilization | 87.5% | ICU Level of Service | | E |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 45 | 1149 | 15 | 0 | 1251 | 20 | 10 | 39 | 15 | 63 | 62 | 92 |
| Future Volume (Veh/h) | 45 | 1149 | 15 | 0 | 1251 | 20 | 10 | 39 | 15 | 63 | 62 | 92 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 49 | 1249 | 16 | 0 | 1360 | 22 | 11 | 42 | 16 | 68 | 67 | 100 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | 226 | | | 192 | | | | | | | |
| pX, platoon unblocked | 0.35 | | | 0.36 | | | 0.67 | 0.67 | 0.36 | 0.67 | 0.67 | 0.35 |
| vC, conflicting volume | 1382 | | | 1265 | | | 2860 | 2737 | 1257 | 2763 | 2734 | 1371 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1159 | | | 847 | | | 1379 | 1195 | 825 | 1234 | 1191 | 1127 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 77 | | | 100 | | | 0 | 56 | 88 | 0 | 30 | 0 |
| cM capacity (veh/h) | 209 | | | 284 | | | 0 | 95 | 134 | 49 | 96 | 86 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 1314 | 1382 | 69 | 235 |
| Volume Left | 49 | 0 | 11 | 68 |
| Volume Right | 16 | 22 | 16 | 100 |
| cSH | 209 | 284 | 0 | 72 |
| Volume to Capacity | 0.23 | 0.00 | Err | 3.25 |
| Queue Length 95th (m) | 7.1 | 0.0 | Err | Err |
| Control Delay (s) | 25.3 | 0.0 | Err | Err |
| Lane LOS | D | | F | F |
| Approach Delay (s) | 25.3 | 0.0 | Err | Err |
| Approach LOS | | | F | F |

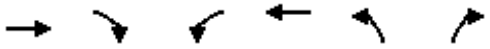
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | Err | | |
| Intersection Capacity Utilization | | 123.6% | ICU Level of Service | H |
| Analysis Period (min) | | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1217 | 10 | 50 | 1255 | 16 | 48 |
| Future Volume (Veh/h) | 1217 | 10 | 50 | 1255 | 16 | 48 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1323 | 11 | 54 | 1364 | 17 | 52 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 317 | | | 101 | | |
| pX, platoon unblocked | | | 0.38 | | 0.63 | 0.38 |
| vC, conflicting volume | | | 1334 | | 2800 | 1328 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1058 | | 1334 | 1043 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 78 | | 80 | 50 |
| cM capacity (veh/h) | | | 247 | | 84 | 105 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 1334 | 1418 | 69 |
| Volume Left | 0 | 54 | 17 |
| Volume Right | 11 | 0 | 52 |
| cSH | 1700 | 247 | 99 |
| Volume to Capacity | 0.78 | 0.22 | 0.70 |
| Queue Length 95th (m) | 0.0 | 6.5 | 28.5 |
| Control Delay (s) | 0.0 | 23.6 | 100.7 |
| Lane LOS | | C | F |
| Approach Delay (s) | 0.0 | 23.6 | 100.7 |
| Approach LOS | | | F |

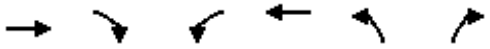
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 14.3 | | |
| Intersection Capacity Utilization | 117.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1417 | 40 | 83 | 1292 | 54 | 82 |
| Future Volume (Veh/h) | 1417 | 40 | 83 | 1292 | 54 | 82 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1540 | 43 | 90 | 1404 | 59 | 89 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 98 | | | 92 | | |
| pX, platoon unblocked | | | 0.32 | | 0.60 | 0.32 |
| vC, conflicting volume | | | 1583 | | 3146 | 1562 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1761 | | 2142 | 1693 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 20 | | 0 | 0 |
| cM capacity (veh/h) | | | 113 | | 6 | 37 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 1583 | 1494 | 148 |
| Volume Left | 0 | 90 | 59 |
| Volume Right | 43 | 0 | 89 |
| cSH | 1700 | 113 | 13 |
| Volume to Capacity | 0.93 | 0.80 | 11.58 |
| Queue Length 95th (m) | 0.0 | 36.5 | Err |
| Control Delay (s) | 0.0 | 107.9 | Err |
| Lane LOS | | F | F |
| Approach Delay (s) | 0.0 | 107.9 | Err |
| Approach LOS | | | F |

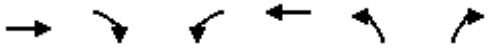
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 508.9 | | |
| Intersection Capacity Utilization | 150.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1271 | 117 | 66 | 724 | 86 | 61 |
| Future Volume (Veh/h) | 1271 | 117 | 66 | 724 | 86 | 61 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1382 | 127 | 72 | 787 | 93 | 66 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | 281 | | | 273 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 1509 | | 1983 | 754 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1509 | | 1983 | 754 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 84 | | 0 | 81 |
| cM capacity (veh/h) | | | 439 | | 45 | 351 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 921 | 588 | 72 | 394 | 394 | 159 |
| Volume Left | 0 | 0 | 72 | 0 | 0 | 93 |
| Volume Right | 0 | 127 | 0 | 0 | 0 | 66 |
| cSH | 1700 | 1700 | 439 | 1700 | 1700 | 70 |
| Volume to Capacity | 0.54 | 0.35 | 0.16 | 0.23 | 0.23 | 2.27 |
| Queue Length 95th (m) | 0.0 | 0.0 | 4.6 | 0.0 | 0.0 | 120.5 |
| Control Delay (s) | 0.0 | 0.0 | 14.8 | 0.0 | 0.0 | 706.6 |
| Lane LOS | | | B | | | F |
| Approach Delay (s) | 0.0 | | 1.2 | | | 706.6 |
| Approach LOS | | | | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 44.9 | | |
| Intersection Capacity Utilization | 61.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1229 | 30 | 32 | 607 | 51 | 13 |
| Future Volume (Veh/h) | 1229 | 30 | 32 | 607 | 51 | 13 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 1336 | 33 | 35 | 660 | 55 | 14 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | 135 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 1369 | | 1752 | 684 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1369 | | 1752 | 684 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 93 | | 23 | 96 |
| cM capacity (veh/h) | | | 497 | | 71 | 391 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 891 | 478 | 35 | 330 | 330 | 69 |
| Volume Left | 0 | 0 | 35 | 0 | 0 | 55 |
| Volume Right | 0 | 33 | 0 | 0 | 0 | 14 |
| cSH | 1700 | 1700 | 497 | 1700 | 1700 | 85 |
| Volume to Capacity | 0.52 | 0.28 | 0.07 | 0.19 | 0.19 | 0.81 |
| Queue Length 95th (m) | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 33.3 |
| Control Delay (s) | 0.0 | 0.0 | 12.8 | 0.0 | 0.0 | 135.4 |
| Lane LOS | | | B | | | F |
| Approach Delay (s) | 0.0 | | 0.6 | | | 135.4 |
| Approach LOS | | | | | | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 4.6 | | | |
| Intersection Capacity Utilization | 45.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

## Intersection: 1: Applewood Crescent & Portage Parkway

| Movement | EB | EB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | TR | LT | TR | L | T | R | LT | R |
| Maximum Queue (m) | 320.6 | 327.9 | 84.3 | 89.0 | 57.3 | 91.1 | 46.8 | 589.0 | 107.5 |
| Average Queue (m) | 317.8 | 318.0 | 63.0 | 67.3 | 29.7 | 43.3 | 29.2 | 578.0 | 66.0 |
| 95th Queue (m) | 322.7 | 325.8 | 88.5 | 96.4 | 60.2 | 77.2 | 50.0 | 587.0 | 149.9 |
| Link Distance (m) | 316.0 | 316.0 | 84.3 | 84.3 | | 483.6 | 483.6 | 569.8 | |
| Upstream Blk Time (%) | 100 | 99 | 1 | 4 | | | | 96 | |
| Queuing Penalty (veh) | 0 | 0 | 5 | 35 | | | | 0 | |
| Storage Bay Dist (m) | | | | | 50.0 | | | | 100.0 |
| Storage Blk Time (%) | | | | | 6 | 3 | | 84 | 5 |
| Queuing Penalty (veh) | | | | | 11 | 3 | | 281 | 16 |

## Intersection: 2: Edgeley Boulevard & Portage Parkway

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | LT | T | R | LT | T | R |
| Maximum Queue (m) | 85.9 | 25.4 | 204.0 | 289.6 | 276.0 | 183.4 | 490.0 | 490.0 | 107.5 |
| Average Queue (m) | 84.1 | 7.5 | 183.9 | 204.3 | 192.8 | 85.2 | 322.1 | 323.8 | 52.2 |
| 95th Queue (m) | 86.2 | 23.4 | 209.8 | 296.1 | 280.4 | 182.6 | 552.9 | 558.2 | 138.0 |
| Link Distance (m) | 81.9 | 81.9 | 200.9 | 490.6 | 490.6 | 490.6 | 485.4 | 485.4 | |
| Upstream Blk Time (%) | 76 | | 2 | | | | 34 | 36 | |
| Queuing Penalty (veh) | 585 | | 32 | | | | 0 | 0 | |
| Storage Bay Dist (m) | | | | | | | | | 100.0 |
| Storage Blk Time (%) | | | | | | | | 20 | 0 |
| Queuing Penalty (veh) | | | | | | | | 70 | 1 |

## Intersection: 3: Millway Avenue & Portage Parkway

| Movement | EB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | TR | L | TR |
| Maximum Queue (m) | 85.1 | 80.9 | 361.7 | 453.5 | 198.4 | 149.8 |
| Average Queue (m) | 82.9 | 78.6 | 221.0 | 399.3 | 112.3 | 100.7 |
| 95th Queue (m) | 85.8 | 81.0 | 322.1 | 452.4 | 198.3 | 156.4 |
| Link Distance (m) | 79.9 | 76.1 | 499.2 | 499.2 | 362.4 | 362.4 |
| Upstream Blk Time (%) | 67 | 30 | | | | |
| Queuing Penalty (veh) | 851 | 402 | | | | |
| Storage Bay Dist (m) | | | | | | |
| Storage Blk Time (%) | | | | | | |
| Queuing Penalty (veh) | | | | | | |

## Intersection: 4: Jane Street & Portage Parkway

| Movement | EB | EB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | L | T | T | R | L | T | T | R |
| Maximum Queue (m) | 73.0 | 67.2 | 257.7 | 200.0 | 489.8 | 480.9 | 482.1 | 157.3 | 432.6 | 438.1 | 150.0 |
| Average Queue (m) | 70.8 | 18.0 | 255.8 | 199.2 | 474.8 | 471.8 | 444.0 | 61.7 | 428.6 | 433.0 | 150.0 |
| 95th Queue (m) | 72.5 | 60.9 | 257.6 | 201.4 | 489.5 | 498.2 | 633.3 | 173.6 | 432.7 | 440.2 | 150.0 |
| Link Distance (m) | 67.2 | | 253.8 | | 470.5 | 470.5 | 470.5 | | 422.2 | 422.2 | |
| Upstream Blk Time (%) | 57 | 0 | 55 | | 86 | 66 | 36 | | 51 | 95 | |
| Queuing Penalty (veh) | 856 | 0 | 445 | | 0 | 0 | 0 | | 0 | 0 | |
| Storage Bay Dist (m) | | 60.0 | | 140.0 | | | | 150.0 | | | 100.0 |
| Storage Blk Time (%) | 68 | 0 | | 100 | 54 | | | 0 | 20 | 31 | 99 |
| Queuing Penalty (veh) | 124 | 1 | | 595 | 105 | | | 0 | 31 | 151 | 599 |

## Intersection: 5: Creditstone Road & Portage Parkway

| Movement | EB | EB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | L | R | L | T | T | T | T | R |
| Maximum Queue (m) | 70.9 | 76.1 | 117.4 | 331.3 | 301.2 | 84.5 | 74.0 | 81.6 |
| Average Queue (m) | 33.0 | 36.3 | 98.6 | 143.9 | 128.6 | 58.2 | 44.2 | 41.9 |
| 95th Queue (m) | 59.9 | 76.2 | 145.7 | 331.6 | 287.3 | 82.2 | 75.8 | 80.3 |
| Link Distance (m) | 111.7 | 111.7 | | 426.9 | 426.9 | 245.5 | 245.5 | |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (m) | | | 110.0 | | | | | 75.0 |
| Storage Blk Time (%) | | | 51 | | | | 0 | 6 |
| Queuing Penalty (veh) | | | 147 | | | | 0 | 23 |

## Intersection: 6: Planned Road 1 & Portage Parkway

| Movement | EB | EB | WB | WB | NB |
|---|---|---|---|---|---|
| Directions Served | T | TR | LT | T | LR |
| Maximum Queue (m) | 96.3 | 96.6 | 87.2 | 84.2 | 502.4 |
| Average Queue (m) | 88.7 | 86.9 | 25.3 | 19.9 | 325.6 |
| 95th Queue (m) | 94.1 | 97.5 | 78.6 | 66.2 | 567.0 |
| Link Distance (m) | 84.3 | 84.3 | 83.5 | 83.5 | 497.8 |
| Upstream Blk Time (%) | 83 | 58 | 5 | 0 | 13 |
| Queuing Penalty (veh) | 480 | 334 | 35 | 3 | 0 |
| Storage Bay Dist (m) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

## Intersection: 7: Planned Road 2 & Portage Parkway

| Movement | EB | EB | WB | NB |
|---|---|---|---|---|
| Directions Served | T | TR | LT | LR |
| Maximum Queue (m) | 91.4 | 98.6 | 29.4 | 161.6 |
| Average Queue (m) | 85.7 | 47.1 | 4.5 | 80.5 |
| 95th Queue (m) | 88.9 | 120.4 | 20.0 | 170.1 |
| Link Distance (m) | 83.5 | 83.5 | 81.9 | 157.0 |
| Upstream Blk Time (%) | 82 | 11 | | 10 |
| Queuing Penalty (veh) | 547 | 75 | | 0 |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 8: Buttermill Avenue & Portage Parkway

| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 205.7 | 72.8 | 159.8 | 407.2 |
| Average Queue (m) | 198.7 | 9.6 | 78.2 | 397.6 |
| 95th Queue (m) | 221.1 | 41.6 | 146.1 | 426.1 |
| Link Distance (m) | 200.9 | 72.8 | 257.2 | 402.6 |
| Upstream Blk Time (%) | 45 | 0 | | 85 |
| Queuing Penalty (veh) | 545 | 2 | | 0 |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 9: Planned Road 3 & Portage Parkway

| Movement | EB | WB | NB |
|---|---|---|---|
| Directions Served | UTR | LT | LR |
| Maximum Queue (m) | 75.3 | 16.8 | 129.7 |
| Average Queue (m) | 73.8 | 1.7 | 118.7 |
| 95th Queue (m) | 75.2 | 9.4 | 137.0 |
| Link Distance (m) | 72.8 | 79.9 | 125.1 |
| Upstream Blk Time (%) | 66 | | 48 |
| Queuing Penalty (veh) | 809 | | 0 |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 10: Planned Road 4 & Portage Parkway

| Movement | EB | WB | NB |
|---|---|---|---|
| Directions Served | UTR | LT | LR |
| Maximum Queue (m) | 81.4 | 72.5 | 501.3 |
| Average Queue (m) | 79.0 | 69.8 | 375.4 |
| 95th Queue (m) | 81.2 | 72.7 | 550.8 |
| Link Distance (m) | 76.1 | 67.2 | 490.9 |
| Upstream Blk Time (%) | 38 | 35 | 24 |
| Queuing Penalty (veh) | 454 | 477 | 0 |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 11: Planned Road 5 & Portage Parkway

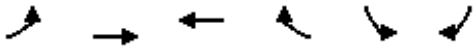
| Movement | WB | WB | WB | NB |
|---|---|---|---|---|
| Directions Served | L | T | T | LR |
| Maximum Queue (m) | 37.4 | 133.0 | 134.3 | 445.9 |
| Average Queue (m) | 14.9 | 123.0 | 123.2 | 253.8 |
| 95th Queue (m) | 45.1 | 142.2 | 142.7 | 456.3 |
| Link Distance (m) | | 121.4 | 121.4 | 442.0 |
| Upstream Blk Time (%) | | 60 | 66 | 6 |
| Queuing Penalty (veh) | | 197 | 217 | 0 |
| Storage Bay Dist (m) | 30.0 | | | |
| Storage Blk Time (%) | 0 | 93 | | |
| Queuing Penalty (veh) | 0 | 62 | | |

## Intersection: 12: Planned Road 6 & Portage Parkway

| Movement | WB | WB | WB | NB |
|---|---|---|---|---|
| Directions Served | L | T | T | LR |
| Maximum Queue (m) | 37.5 | 119.6 | 125.0 | 103.9 |
| Average Queue (m) | 20.5 | 101.2 | 102.2 | 38.8 |
| 95th Queue (m) | 50.4 | 158.2 | 156.6 | 92.7 |
| Link Distance (m) | | 111.7 | 111.7 | 227.4 |
| Upstream Blk Time (%) | | 30 | 34 | |
| Queuing Penalty (veh) | | 95 | 108 | |
| Storage Bay Dist (m) | 30.0 | | | |
| Storage Blk Time (%) | 0 | 87 | | |
| Queuing Penalty (veh) | 0 | 28 | | |

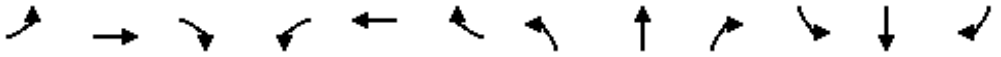
## Zone Summary

Zone wide Queuing Penalty: 9836



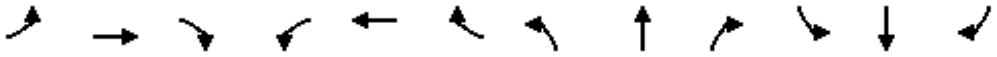
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 155 | 374 | 266 | 227 | 41 | 36 |
| Future Volume (vph) | 155 | 374 | 266 | 227 | 41 | 36 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | | 0.95 | 0.95 | | 1.00 | |
| Frt | | 1.00 | 0.93 | | 0.94 | |
| Flt Protected | | 0.99 | 1.00 | | 0.97 | |
| Satd. Flow (prot) | | 3431 | 3260 | | 1505 | |
| Flt Permitted | | 0.64 | 1.00 | | 0.97 | |
| Satd. Flow (perm) | | 2220 | 3260 | | 1505 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 174 | 420 | 299 | 255 | 46 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 163 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 0 | 594 | 391 | 0 | 67 | 0 |
| Heavy Vehicles (%) | 3% | 4% | 4% | 2% | 12% | 19% |
| Turn Type | Perm | NA | NA | | Prot | |
| Protected Phases | | 4 | 8 | | 2 | |
| Permitted Phases | 4 | | | | | |
| Actuated Green, G (s) | | 21.5 | 21.5 | | 31.9 | |
| Effective Green, g (s) | | 22.5 | 22.5 | | 32.2 | |
| Actuated g/C Ratio | | 0.36 | 0.36 | | 0.51 | |
| Clearance Time (s) | | 5.0 | 5.0 | | 4.3 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | | 796 | 1169 | | 772 | |
| v/s Ratio Prot | | | 0.12 | | c0.04 | |
| v/s Ratio Perm | | c0.27 | | | | |
| v/c Ratio | | 0.75 | 0.33 | | 0.09 | |
| Uniform Delay, d1 | | 17.6 | 14.6 | | 7.8 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | | 3.8 | 0.2 | | 0.2 | |
| Delay (s) | | 21.4 | 14.8 | | 8.0 | |
| Level of Service | | C | B | | A | |
| Approach Delay (s) | | 21.4 | 14.8 | | 8.0 | |
| Approach LOS | | C | B | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 17.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.36 | | |
| Actuated Cycle Length (s) | 62.7 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 47.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 93 | 275 | 212 | 55 | 250 | 36 | 228 | 215 | 106 | 15 | 159 | 44 |
| Future Volume (vph) | 93 | 275 | 212 | 55 | 250 | 36 | 228 | 215 | 106 | 15 | 159 | 44 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 1.00 | | | 0.99 | | | 1.00 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.97 | | | 0.97 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | | 1774 | 1561 | | 1708 | | | 3282 | | | 3249 | |
| Flt Permitted | | 0.77 | 1.00 | | 0.75 | | | 0.73 | | | 0.91 | |
| Satd. Flow (perm) | | 1385 | 1561 | | 1299 | | | 2450 | | | 2968 | |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 100 | 296 | 228 | 59 | 269 | 39 | 245 | 231 | 114 | 16 | 171 | 47 |
| RTOR Reduction (vph) | 0 | 0 | 147 | 0 | 6 | 0 | 0 | 19 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 0 | 396 | 81 | 0 | 361 | 0 | 0 | 571 | 0 | 0 | 214 | 0 |
| Confl. Peds. (#/hr) | 2 | | 3 | 3 | | 2 | 3 | | 9 | 9 | | 3 |
| Heavy Vehicles (%) | 5% | 6% | 2% | 15% | 6% | 17% | 3% | 3% | 8% | 7% | 6% | 11% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 6 | | | 2 | |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | | 2 | | |
| Actuated Green, G (s) | | 24.8 | 24.8 | | 24.8 | | | 37.6 | | | 37.6 | |
| Effective Green, g (s) | | 26.2 | 26.2 | | 26.2 | | | 39.4 | | | 39.4 | |
| Actuated g/C Ratio | | 0.36 | 0.36 | | 0.36 | | | 0.54 | | | 0.54 | |
| Clearance Time (s) | | 5.4 | 5.4 | | 5.4 | | | 5.8 | | | 5.8 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 493 | 555 | | 462 | | | 1311 | | | 1588 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | c0.29 | 0.05 | | 0.28 | | | c0.23 | | | 0.07 | |
| v/c Ratio | | 0.80 | 0.15 | | 0.78 | | | 0.44 | | | 0.13 | |
| Uniform Delay, d1 | | 21.4 | 16.1 | | 21.1 | | | 10.4 | | | 8.6 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 9.2 | 0.1 | | 8.4 | | | 1.1 | | | 0.2 | |
| Delay (s) | | 30.6 | 16.2 | | 29.5 | | | 11.4 | | | 8.7 | |
| Level of Service | | C | B | | C | | | B | | | A | |
| Approach Delay (s) | | 25.3 | | | 29.5 | | | 11.4 | | | 8.7 | |
| Approach LOS | | C | | | C | | | B | | | A | |

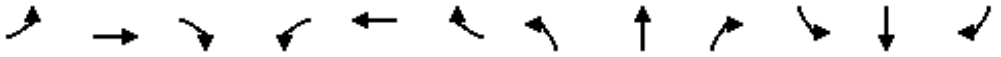
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 19.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.58 | | |
| Actuated Cycle Length (s) | 73.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 104.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 64 | 204 | 3 | 42 | 289 | 39 | 24 | 129 | 23 | 24 | 30 | 25 |
| Future Volume (vph) | 64 | 204 | 3 | 42 | 289 | 39 | 24 | 129 | 23 | 24 | 30 | 25 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 73 | 232 | 3 | 48 | 328 | 44 | 27 | 147 | 26 | 27 | 34 | 28 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 308 | 420 | 200 | 89 |
| Volume Left (vph) | 73 | 48 | 27 | 27 |
| Volume Right (vph) | 3 | 44 | 26 | 28 |
| Hadj (s) | 0.20 | 0.05 | 0.04 | 0.21 |
| Departure Headway (s) | 5.7 | 5.4 | 6.2 | 6.6 |
| Degree Utilization, x | 0.49 | 0.63 | 0.34 | 0.16 |
| Capacity (veh/h) | 591 | 638 | 520 | 450 |
| Control Delay (s) | 14.1 | 17.2 | 12.3 | 10.9 |
| Approach Delay (s) | 14.1 | 17.2 | 12.3 | 10.9 |
| Approach LOS | B | C | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 14.8 | | |
| Level of Service | B | | |
| Intersection Capacity Utilization | 43.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 42 | 1 | 113 | 0 | 5 | 1 | 338 | 980 | 16 | 9 | 967 | 118 |
| Future Volume (vph) | 42 | 1 | 113 | 0 | 5 | 1 | 338 | 980 | 16 | 9 | 967 | 118 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.95 | 1.00 | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1776 | 1442 | | 1587 | | 1703 | 3399 | | 1770 | 3312 | 1441 |
| Flt Permitted | | 0.73 | 1.00 | | 1.00 | | 0.23 | 1.00 | | 0.27 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1354 | 1442 | | 1587 | | 414 | 3399 | | 508 | 3312 | 1441 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 44 | 1 | 119 | 0 | 5 | 1 | 356 | 1032 | 17 | 9 | 1018 | 124 |
| RTOR Reduction (vph) | 0 | 0 | 105 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| Lane Group Flow (vph) | 0 | 45 | 14 | 0 | 5 | 0 | 356 | 1049 | 0 | 9 | 1018 | 100 |
| Confl. Peds. (#/hr) | | | | | | | 1 | | | | | 1 |
| Heavy Vehicles (%) | 2% | 2% | 12% | 2% | 20% | 2% | 6% | 6% | 2% | 2% | 9% | 4% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 15 |
| Turn Type | Perm | NA | Perm | | NA | | pm+pt | NA | | Perm | NA | Perm |
| Protected Phases | | 4 | | | 8 | | 1 | 6 | | | 2 | |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | | 2 | | 2 |
| Actuated Green, G (s) | | 10.5 | 10.5 | | 10.5 | | 87.5 | 87.5 | | 75.5 | 75.5 | 75.5 |
| Effective Green, g (s) | | 13.5 | 13.5 | | 13.5 | | 87.5 | 91.0 | | 79.0 | 79.0 | 79.0 |
| Actuated g/C Ratio | | 0.12 | 0.12 | | 0.12 | | 0.78 | 0.81 | | 0.70 | 0.70 | 0.70 |
| Clearance Time (s) | | 7.0 | 7.0 | | 7.0 | | 4.0 | 7.5 | | 7.5 | 7.5 | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 0.2 | | 0.2 | 0.2 | 0.2 |
| Lane Grp Cap (vph) | | 162 | 173 | | 190 | | 413 | 2749 | | 356 | 2325 | 1011 |
| v/s Ratio Prot | | | | | 0.00 | | c0.06 | 0.31 | | | 0.31 | |
| v/s Ratio Perm | | c0.03 | 0.01 | | | | c0.61 | | | 0.02 | | 0.07 |
| v/c Ratio | | 0.28 | 0.08 | | 0.03 | | 0.86 | 0.38 | | 0.03 | 0.44 | 0.10 |
| Uniform Delay, d1 | | 45.1 | 44.0 | | 43.7 | | 6.6 | 3.0 | | 5.1 | 7.2 | 5.4 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.9 | 0.2 | | 0.1 | | 16.7 | 0.4 | | 0.1 | 0.6 | 0.2 |
| Delay (s) | | 46.0 | 44.2 | | 43.8 | | 23.2 | 3.4 | | 5.2 | 7.8 | 5.6 |
| Level of Service | | D | D | | D | | C | A | | A | A | A |
| Approach Delay (s) | | 44.7 | | | 43.8 | | | 8.4 | | | 7.5 | |
| Approach LOS | | D | | | D | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 10.3 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.78 | | |
| Actuated Cycle Length (s) | 112.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

## Intersection: 1: Portage Parkway & Applewood Crescent

| Movement | EB | EB | WB | WB | SB |
|---|---|---|---|---|---|
| Directions Served | LT | T | T | TR | LR |
| Maximum Queue (m) | 50.4 | 36.8 | 29.1 | 47.5 | 14.6 |
| Average Queue (m) | 40.7 | 21.0 | 18.8 | 25.6 | 6.3 |
| 95th Queue (m) | 54.1 | 36.1 | 34.2 | 45.3 | 15.6 |
| Link Distance (m) | 323.2 | 323.2 | 290.9 | 290.9 | 380.5 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (m) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

## Intersection: 2: Edgeley Boulevard & Portage Parkway

| Movement | EB | EB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | LT | TR | LT | TR |
| Maximum Queue (m) | 142.1 | 22.7 | 98.0 | 51.3 | 19.3 | 21.4 | 14.5 |
| Average Queue (m) | 94.5 | 11.7 | 68.5 | 34.5 | 15.0 | 18.9 | 7.9 |
| 95th Queue (m) | 152.6 | 20.8 | 98.1 | 50.3 | 19.5 | 23.4 | 15.6 |
| Link Distance (m) | 290.9 | 290.9 | 396.8 | 252.3 | 252.3 | 424.9 | 424.9 |
| Upstream Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |
| Storage Bay Dist (m) | | | | | | | |
| Storage Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

## Intersection: 3: Millway Avenue & Portage Parkway

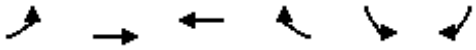
| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 49.5 | 36.2 | 19.4 | 26.7 |
| Average Queue (m) | 20.9 | 25.5 | 15.0 | 13.4 |
| 95th Queue (m) | 45.5 | 42.3 | 21.0 | 25.1 |
| Link Distance (m) | 396.8 | 80.9 | 106.1 | 346.2 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 4: Jane Street & Portage Parkway/Commercial Access

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | L | T | TR | L | T | T | R |
| Maximum Queue (m) | 13.2 | 31.9 | 20.8 | 74.6 | 41.7 | 41.3 | 7.7 | 68.4 | 54.7 | 18.5 |
| Average Queue (m) | 7.2 | 19.2 | 7.6 | 52.4 | 19.4 | 23.0 | 1.5 | 48.8 | 45.0 | 7.2 |
| 95th Queue (m) | 16.1 | 33.2 | 20.2 | 80.5 | 40.5 | 45.4 | 6.6 | 77.0 | 66.2 | 17.3 |
| Link Distance (m) | 65.6 | 65.6 | 42.6 | | 470.2 | 470.2 | 307.1 | 307.1 | 307.1 | |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | | | | 140.0 | | | | | | 40.0 |
| Storage Blk Time (%) | | | | | | | | | 4 | |
| Queuing Penalty (veh) | | | | | | | | | 5 | |

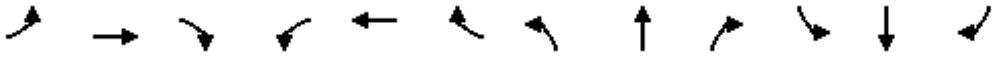
## Network Summary

Network wide Queuing Penalty: 5



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 11 | 178 | 743 | 34 | 209 | 211 |
| Future Volume (vph) | 11 | 178 | 743 | 34 | 209 | 211 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | |
| Lane Util. Factor | | 0.95 | 0.95 | | 1.00 | |
| Frt | | 1.00 | 0.99 | | 0.93 | |
| Flt Protected | | 1.00 | 1.00 | | 0.98 | |
| Satd. Flow (prot) | | 3448 | 3497 | | 1678 | |
| Flt Permitted | | 0.86 | 1.00 | | 0.98 | |
| Satd. Flow (perm) | | 2982 | 3497 | | 1678 | |
| Peak-hour factor, PHF | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 | 0.79 |
| Adj. Flow (vph) | 14 | 225 | 941 | 43 | 265 | 267 |
| RTOR Reduction (vph) | 0 | 0 | 4 | 0 | 23 | 0 |
| Lane Group Flow (vph) | 0 | 239 | 980 | 0 | 509 | 0 |
| Heavy Vehicles (%) | 27% | 3% | 2% | 15% | 2% | 4% |
| Turn Type | Perm | NA | NA | | Prot | |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | 4 | | | | | |
| Actuated Green, G (s) | | 28.7 | 28.7 | | 44.9 | |
| Effective Green, g (s) | | 29.7 | 29.7 | | 45.2 | |
| Actuated g/C Ratio | | 0.36 | 0.36 | | 0.55 | |
| Clearance Time (s) | | 5.0 | 5.0 | | 4.3 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | |
| Lane Grp Cap (vph) | | 1068 | 1252 | | 914 | |
| v/s Ratio Prot | | | c0.28 | | c0.30 | |
| v/s Ratio Perm | | 0.08 | | | | |
| v/c Ratio | | 0.22 | 0.78 | | 0.56 | |
| Uniform Delay, d1 | | 18.6 | 23.7 | | 12.3 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | |
| Incremental Delay, d2 | | 0.1 | 3.3 | | 2.4 | |
| Delay (s) | | 18.7 | 27.0 | | 14.8 | |
| Level of Service | | B | C | | B | |
| Approach Delay (s) | | 18.7 | 27.0 | | 14.8 | |
| Approach LOS | | B | C | | B | |

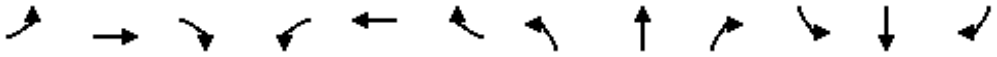
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 22.1 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 82.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 78 | 270 | 371 | 158 | 360 | 22 | 225 | 243 | 59 | 11 | 486 | 206 |
| Future Volume (vph) | 78 | 270 | 371 | 158 | 360 | 22 | 225 | 243 | 59 | 11 | 486 | 206 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | | 4.0 | | | 4.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | | 0.95 | | | 0.95 | |
| Frpb, ped/bikes | | 1.00 | 0.98 | | 1.00 | | | 1.00 | | | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | | 0.98 | | | 0.96 | |
| Flt Protected | | 0.99 | 1.00 | | 0.99 | | | 0.98 | | | 1.00 | |
| Satd. Flow (prot) | | 1810 | 1559 | | 1786 | | | 3359 | | | 3318 | |
| Flt Permitted | | 0.80 | 1.00 | | 0.67 | | | 0.54 | | | 0.94 | |
| Satd. Flow (perm) | | 1456 | 1559 | | 1216 | | | 1845 | | | 3133 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 82 | 284 | 391 | 166 | 379 | 23 | 237 | 256 | 62 | 12 | 512 | 217 |
| RTOR Reduction (vph) | 0 | 0 | 85 | 0 | 2 | 0 | 0 | 10 | 0 | 0 | 48 | 0 |
| Lane Group Flow (vph) | 0 | 366 | 306 | 0 | 566 | 0 | 0 | 545 | 0 | 0 | 693 | 0 |
| Confl. Peds. (#/hr) | 3 | | 3 | 3 | | 3 | 11 | | 4 | 4 | | 11 |
| Heavy Vehicles (%) | 3% | 4% | 2% | 3% | 3% | 31% | 2% | 4% | 3% | 9% | 2% | 6% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | Perm | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 43.4 | 43.4 | | 43.4 | | | 35.4 | | | 35.4 | |
| Effective Green, g (s) | | 44.8 | 44.8 | | 44.8 | | | 37.2 | | | 37.2 | |
| Actuated g/C Ratio | | 0.50 | 0.50 | | 0.50 | | | 0.41 | | | 0.41 | |
| Clearance Time (s) | | 5.4 | 5.4 | | 5.4 | | | 5.8 | | | 5.8 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 724 | 776 | | 605 | | | 762 | | | 1294 | |
| v/s Ratio Prot | | | | | | | | | | | | |
| v/s Ratio Perm | | 0.25 | 0.20 | | c0.47 | | | c0.30 | | | 0.22 | |
| v/c Ratio | | 0.51 | 0.39 | | 0.94 | | | 1.11dl | | | 0.54 | |
| Uniform Delay, d1 | | 15.2 | 14.1 | | 21.2 | | | 22.0 | | | 19.9 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 0.6 | 0.3 | | 21.9 | | | 5.7 | | | 1.6 | |
| Delay (s) | | 15.7 | 14.4 | | 43.1 | | | 27.7 | | | 21.5 | |
| Level of Service | | B | B | | D | | | C | | | C | |
| Approach Delay (s) | | 15.1 | | | 43.1 | | | 27.7 | | | 21.5 | |
| Approach LOS | | B | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 25.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 112.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

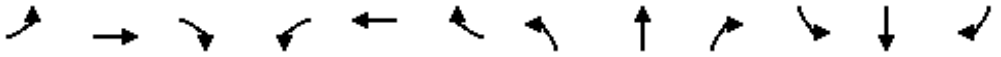
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 28 | 300 | 59 | 101 | 349 | 12 | 43 | 48 | 76 | 46 | 233 | 100 |
| Future Volume (vph) | 28 | 300 | 59 | 101 | 349 | 12 | 43 | 48 | 76 | 46 | 233 | 100 |
| 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) | 31 | 330 | 65 | 111 | 384 | 13 | 47 | 53 | 84 | 51 | 256 | 110 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 426 | 508 | 184 | 417 |
| Volume Left (vph) | 31 | 111 | 47 | 51 |
| Volume Right (vph) | 65 | 13 | 84 | 110 |
| Hadj (s) | 0.00 | 0.09 | -0.14 | -0.08 |
| Departure Headway (s) | 8.0 | 8.1 | 9.1 | 8.0 |
| Degree Utilization, x | 0.95 | 1.00 | 0.46 | 0.93 |
| Capacity (veh/h) | 426 | 508 | 372 | 417 |
| Control Delay (s) | 58.8 | 71.7 | 19.7 | 54.3 |
| Approach Delay (s) | 58.8 | 71.7 | 19.7 | 54.3 |
| Approach LOS | F | F | C | F |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 57.1 | | |
| Level of Service | F | | |
| Intersection Capacity Utilization | 79.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 106 | 1 | 205 | 5 | 3 | 8 | 178 | 1106 | 3 | 7 | 1122 | 159 |
| Future Volume (vph) | 106 | 1 | 205 | 5 | 3 | 8 | 178 | 1106 | 3 | 7 | 1122 | 159 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | | 1.00 | 0.99 | | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 0.85 | | 0.93 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.95 | 1.00 | | 0.98 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1767 | 1560 | | 1448 | | 1671 | 3404 | | 1582 | 3505 | 1446 |
| Flt Permitted | | 0.72 | 1.00 | | 0.92 | | 0.18 | 1.00 | | 0.24 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1329 | 1560 | | 1348 | | 324 | 3404 | | 404 | 3505 | 1446 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 112 | 1 | 216 | 5 | 3 | 8 | 187 | 1164 | 3 | 7 | 1181 | 167 |
| RTOR Reduction (vph) | 0 | 0 | 139 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| Lane Group Flow (vph) | 0 | 113 | 77 | 0 | 9 | 0 | 187 | 1167 | 0 | 7 | 1181 | 138 |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 5 | | 2 | 2 | | 5 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 40% | 2% | 13% | 8% | 6% | 3% | 14% | 3% | 3% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 15 |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | Perm | NA | Perm |
| Protected Phases | | 4 | | | 8 | | 1 | 6 | | | 2 | |
| Permitted Phases | 4 | | 4 | 8 | | | 6 | | | 2 | | 2 |
| Actuated Green, G (s) | | 17.3 | 17.3 | | 17.3 | | 108.2 | 108.2 | | 93.9 | 93.9 | 93.9 |
| Effective Green, g (s) | | 20.3 | 20.3 | | 20.3 | | 108.2 | 111.7 | | 97.4 | 97.4 | 97.4 |
| Actuated g/C Ratio | | 0.15 | 0.15 | | 0.15 | | 0.77 | 0.80 | | 0.70 | 0.70 | 0.70 |
| Clearance Time (s) | | 7.0 | 7.0 | | 7.0 | | 4.0 | 7.5 | | 7.5 | 7.5 | 7.5 |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 192 | 226 | | 195 | | 349 | 2715 | | 281 | 2438 | 1006 |
| v/s Ratio Prot | | | | | | | c0.04 | 0.34 | | | 0.34 | |
| v/s Ratio Perm | | c0.09 | 0.05 | | 0.01 | | c0.37 | | | 0.02 | | 0.10 |
| v/c Ratio | | 0.59 | 0.34 | | 0.05 | | 0.54 | 0.43 | | 0.02 | 0.48 | 0.14 |
| Uniform Delay, d1 | | 55.9 | 53.8 | | 51.5 | | 7.3 | 4.4 | | 6.6 | 9.8 | 7.2 |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 4.6 | 0.9 | | 0.1 | | 1.6 | 0.5 | | 0.2 | 0.7 | 0.3 |
| Delay (s) | | 60.5 | 54.7 | | 51.6 | | 8.9 | 4.9 | | 6.8 | 10.5 | 7.5 |
| Level of Service | | E | D | | D | | A | A | | A | B | A |
| Approach Delay (s) | | 56.7 | | | 51.6 | | | 5.4 | | | 10.1 | |
| Approach LOS | | E | | | D | | | A | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 13.2 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 140.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

## Intersection: 1: Portage Parkway & Applewood Crescent

| Movement | EB | EB | WB | WB | SB |
|---|---|---|---|---|---|
| Directions Served | LT | T | T | TR | LR |
| Maximum Queue (m) | 21.4 | 15.8 | 53.5 | 58.6 | 52.4 |
| Average Queue (m) | 14.3 | 9.9 | 43.2 | 48.2 | 37.6 |
| 95th Queue (m) | 21.8 | 15.8 | 57.5 | 61.5 | 54.4 |
| Link Distance (m) | 323.2 | 323.2 | 290.9 | 290.9 | 380.5 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (m) | | | | | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

## Intersection: 2: Edgeley Boulevard & Portage Parkway

| Movement | EB | EB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | LT | TR | LT | TR |
| Maximum Queue (m) | 111.0 | 26.4 | 145.2 | 90.9 | 75.6 | 39.7 | 44.2 |
| Average Queue (m) | 61.2 | 21.4 | 87.5 | 76.0 | 58.3 | 31.8 | 35.5 |
| 95th Queue (m) | 105.5 | 29.0 | 150.1 | 97.9 | 81.3 | 47.1 | 48.1 |
| Link Distance (m) | 290.9 | 290.9 | 396.8 | 252.3 | 252.3 | 424.9 | 424.9 |
| Upstream Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |
| Storage Bay Dist (m) | | | | | | | |
| Storage Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

## Intersection: 3: Millway Avenue & Portage Parkway

| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 63.5 | 65.1 | 22.2 | 40.6 |
| Average Queue (m) | 42.1 | 45.4 | 18.1 | 31.1 |
| 95th Queue (m) | 62.9 | 70.9 | 22.7 | 39.3 |
| Link Distance (m) | 396.8 | 80.9 | 106.1 | 346.2 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 4: Jane Street & Portage Parkway/Commercial Access

| Movement | EB | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|
| Directions Served | LT | R | LTR | L | T | TR | T | T | R |
| Maximum Queue (m) | 45.1 | 18.8 | 14.7 | 18.8 | 78.6 | 81.7 | 98.3 | 57.8 | 24.7 |
| Average Queue (m) | 25.7 | 13.6 | 5.5 | 14.8 | 40.8 | 35.2 | 55.7 | 36.3 | 11.2 |
| 95th Queue (m) | 48.0 | 17.9 | 14.6 | 20.1 | 76.3 | 75.0 | 93.1 | 56.6 | 24.7 |
| Link Distance (m) | 65.6 | 65.6 | 42.6 | | 470.2 | 470.2 | 307.1 | 307.1 | |
| Upstream Blk Time (%) | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | |
| Storage Bay Dist (m) | | | | 140.0 | | | | | 40.0 |
| Storage Blk Time (%) | | | | | | | | 5 | |
| Queuing Penalty (veh) | | | | | | | | 8 | |

## Network Summary

Network wide Queuing Penalty: 8

# Appendix B: 2031 Traffic Forecasting

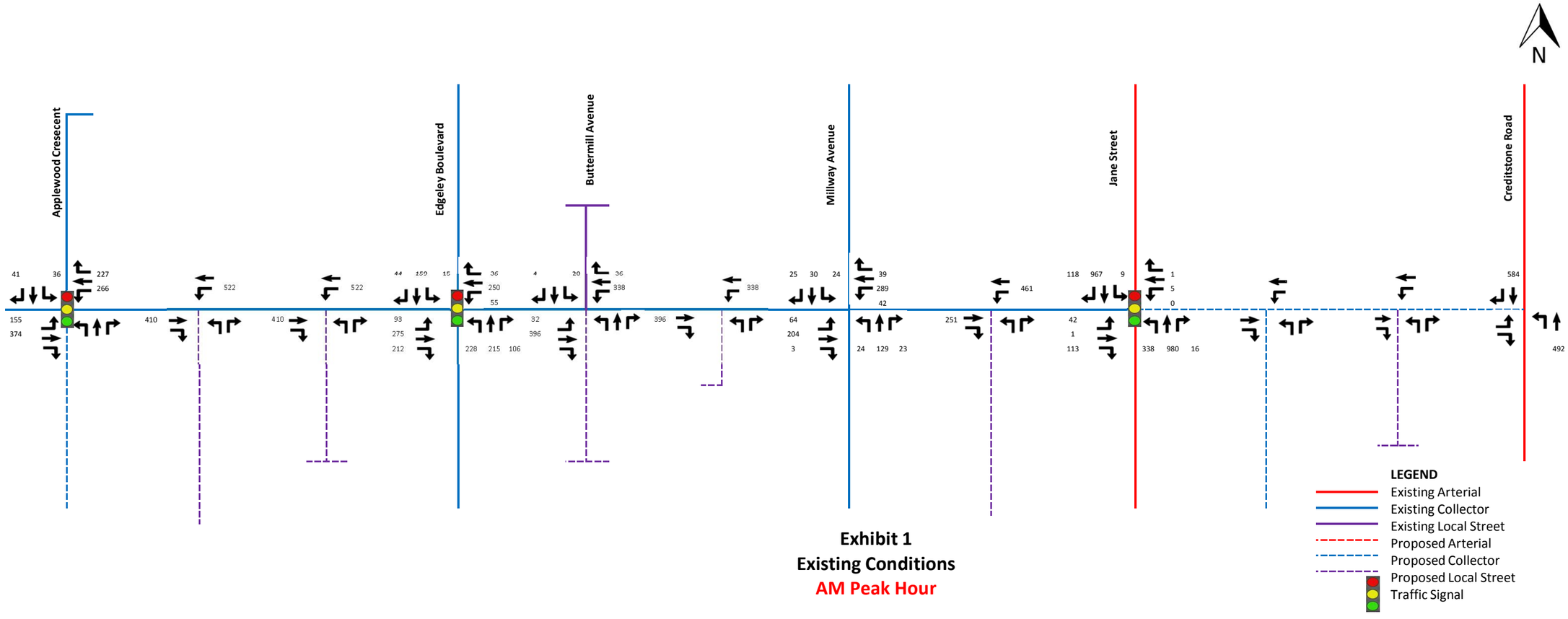



**Exhibit 1**
**Existing Conditions**
**AM Peak Hour**

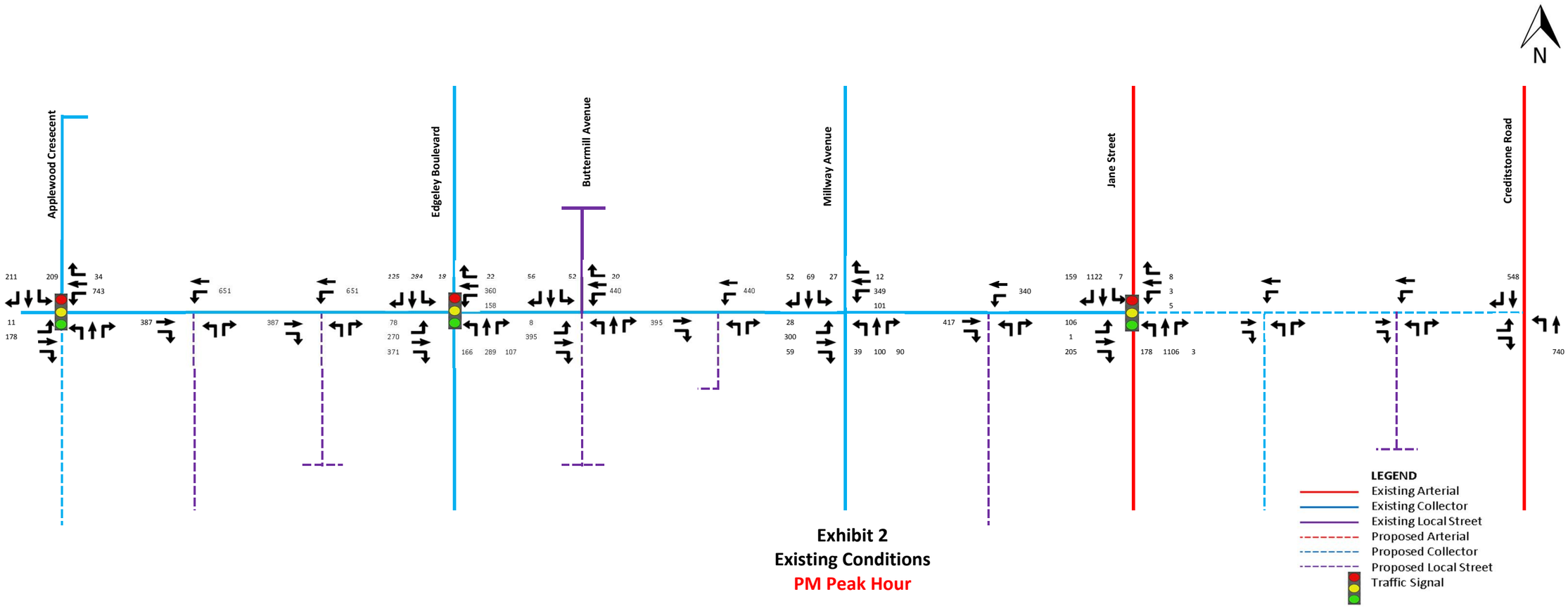



**Exhibit 2**
**Existing Conditions**
**PM Peak Hour**

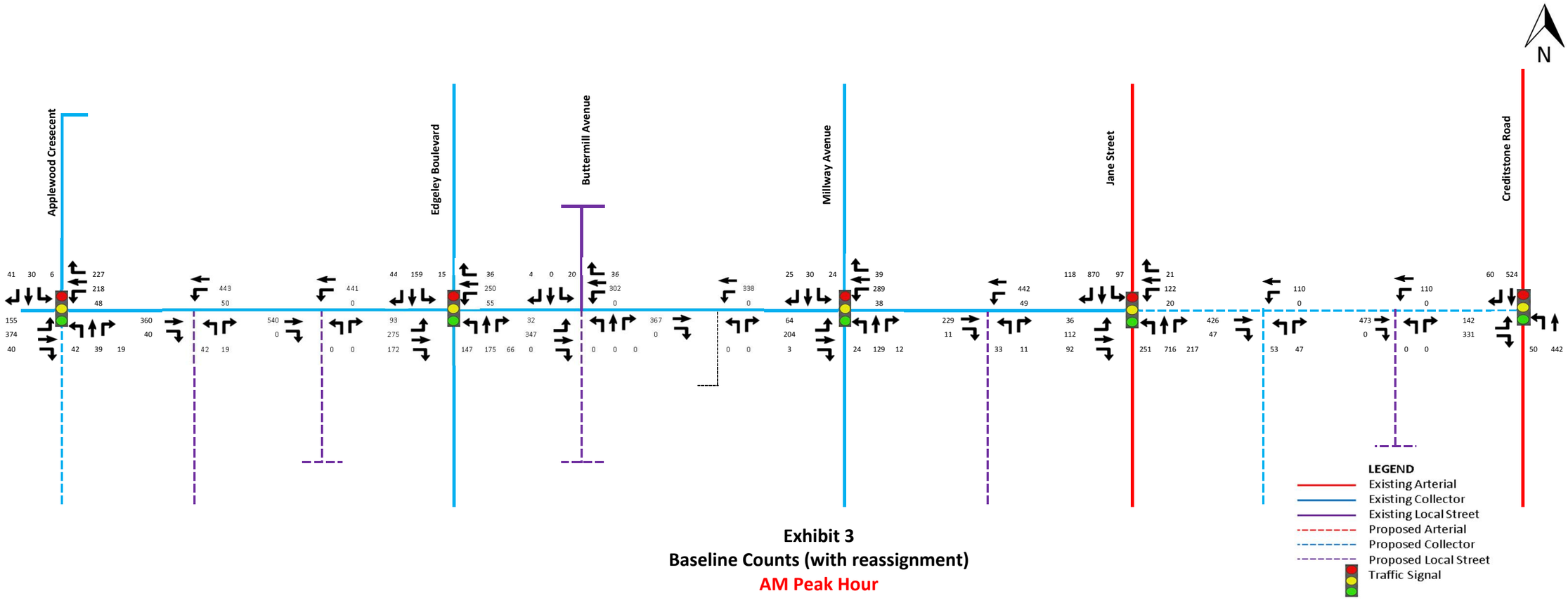



**Exhibit 3**
**Baseline Counts (with reassignment)**
**AM Peak Hour**

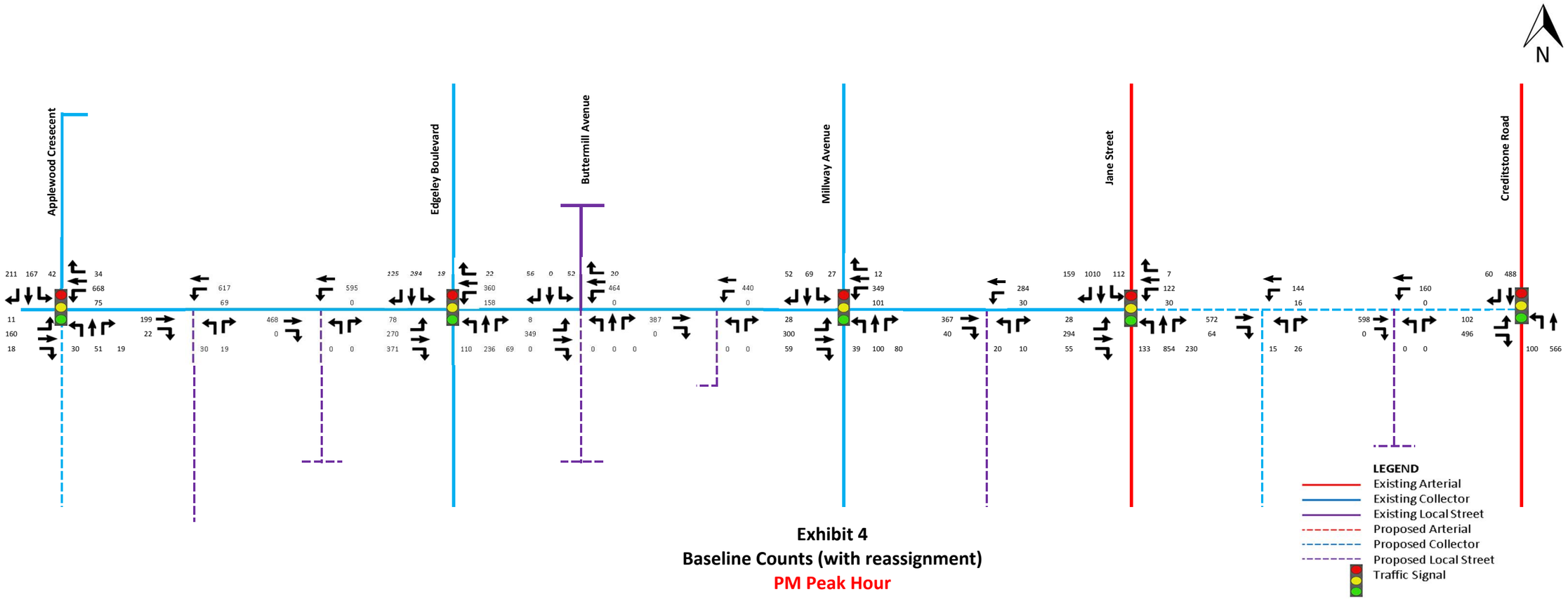



**Exhibit 4**
**Baseline Counts (with reassignment)**
**PM Peak Hour**

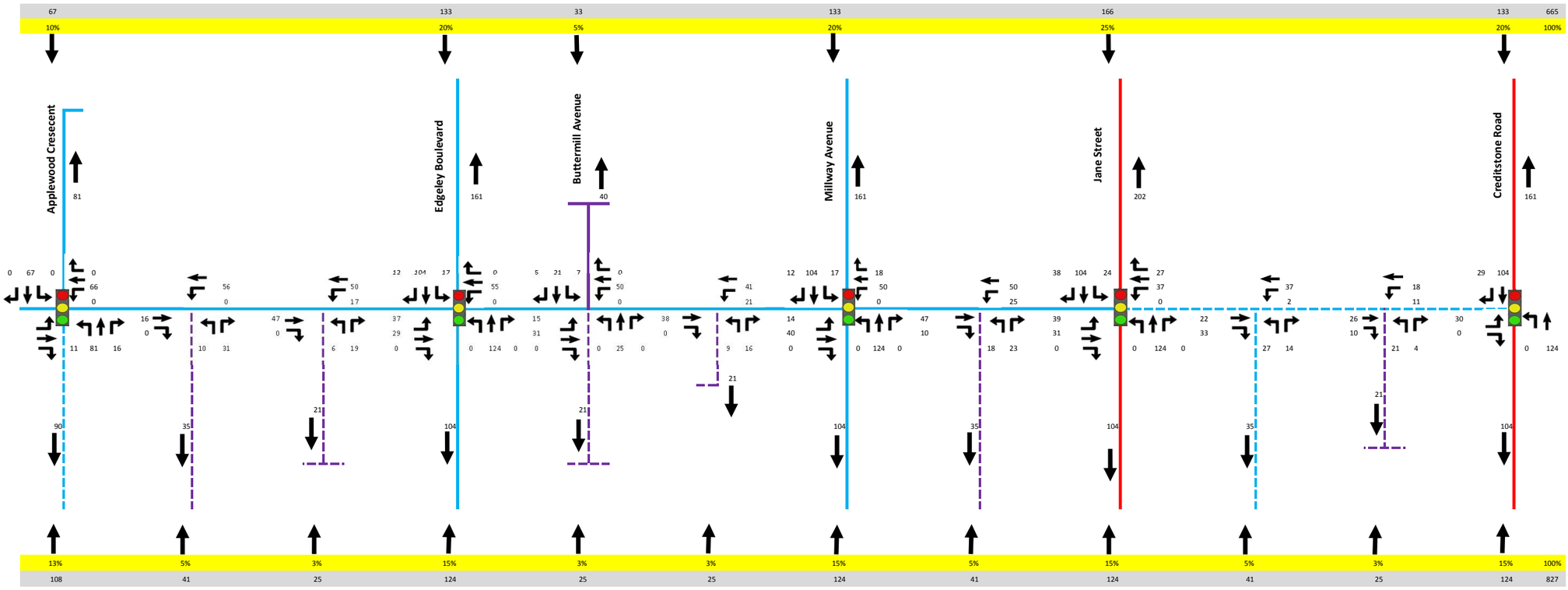



**Exhibit 5**
**North-South Growth Assignment**
**AM Peak Hour**

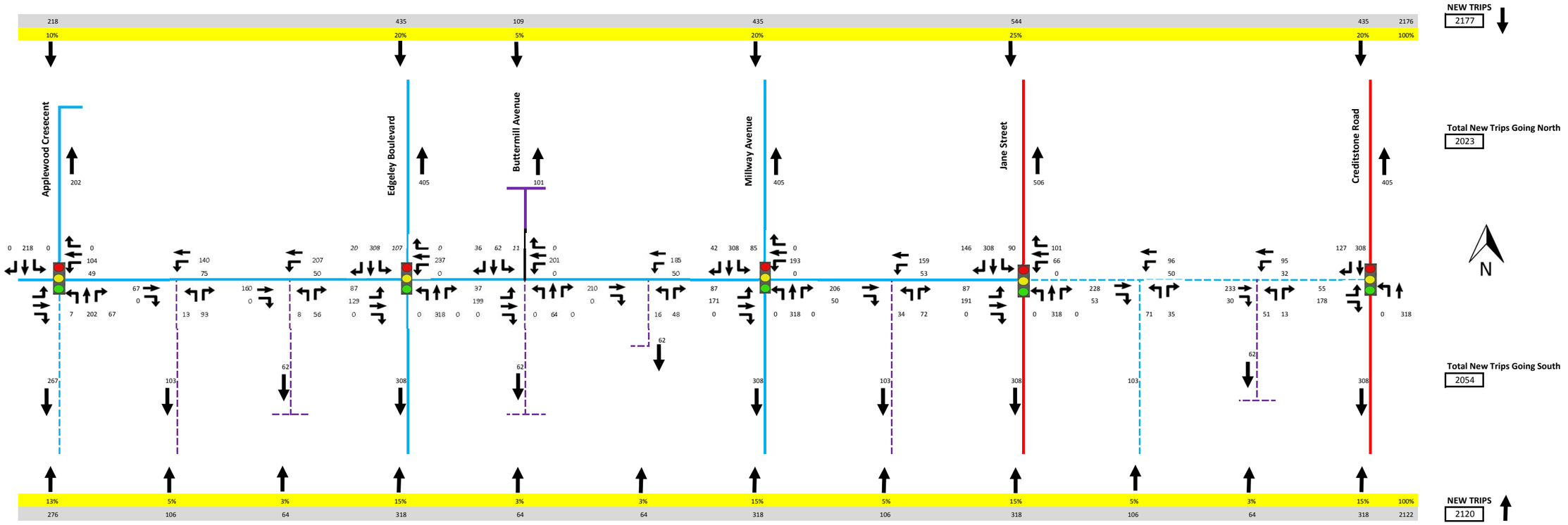



**Exhibit 6**
**North-South Growth Assignment**
**PM Peak Hour**

**LEGEND**
- Existing Arterial
- Existing Collector
- Existing Local Street
- Proposed Arterial
- Proposed Collector
- Proposed Local Street
- Traffic Signal

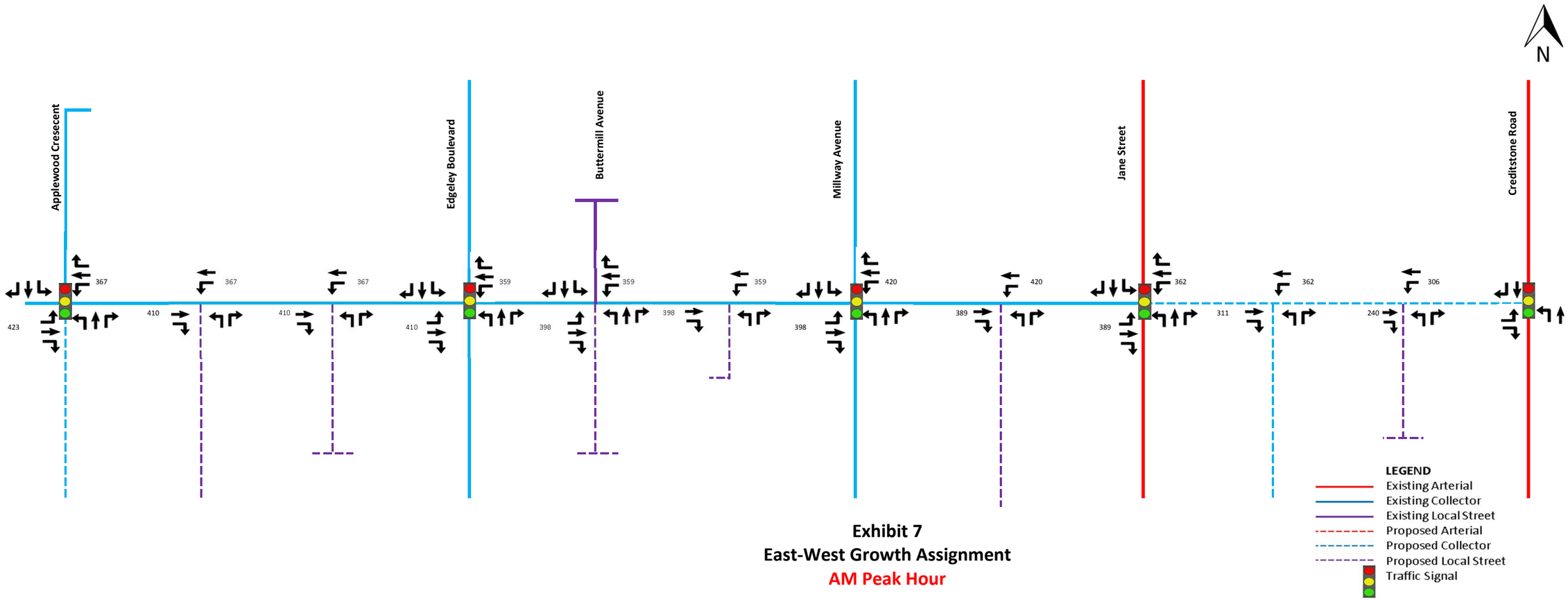



**Exhibit 7**
**East-West Growth Assignment**
**AM Peak Hour**

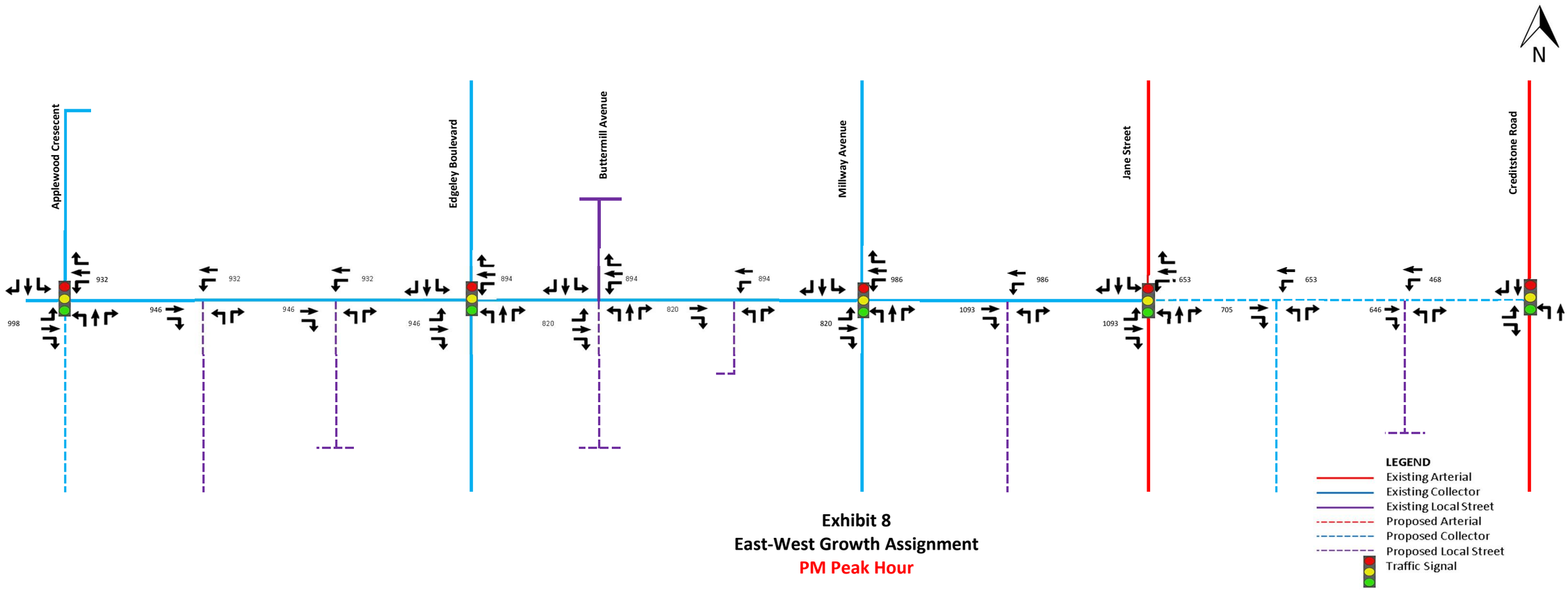



**Exhibit 8**
**East-West Growth Assignment**
**PM Peak Hour**

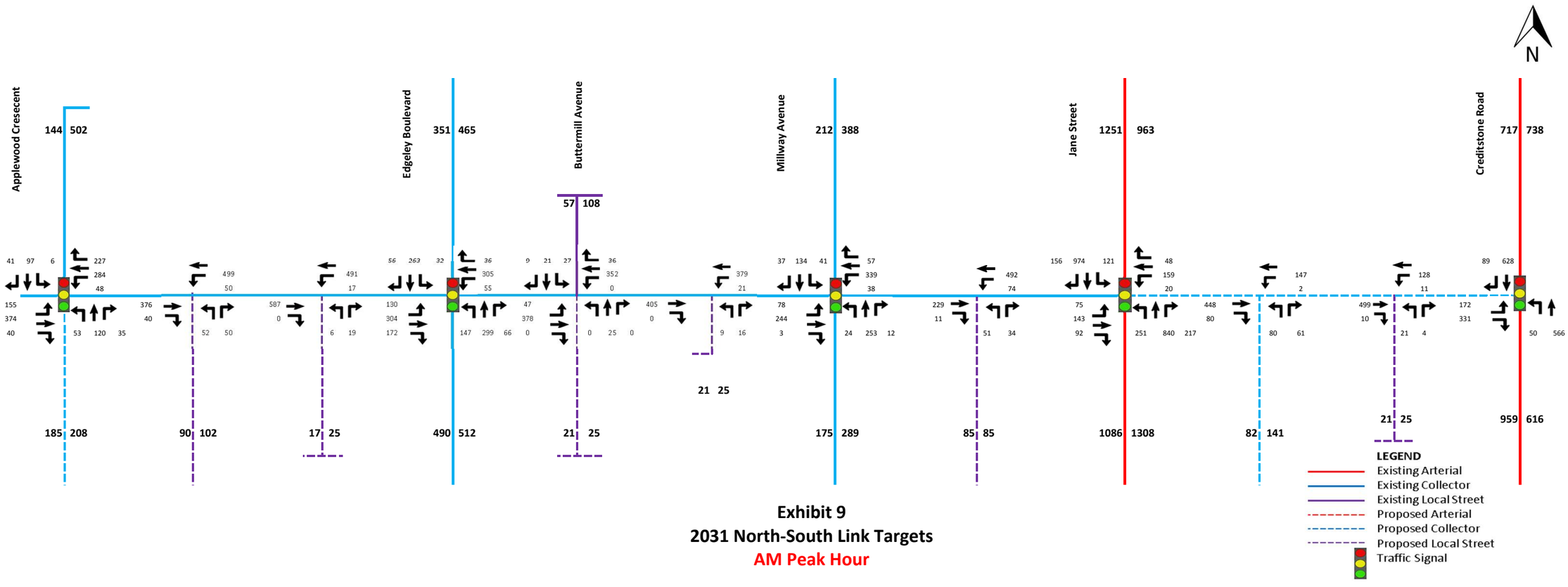



**Exhibit 9**
**2031 North-South Link Targets**
**AM Peak Hour**


**Exhibit 10**
**2031 North-South Link Targets**
**PM Peak Hour**

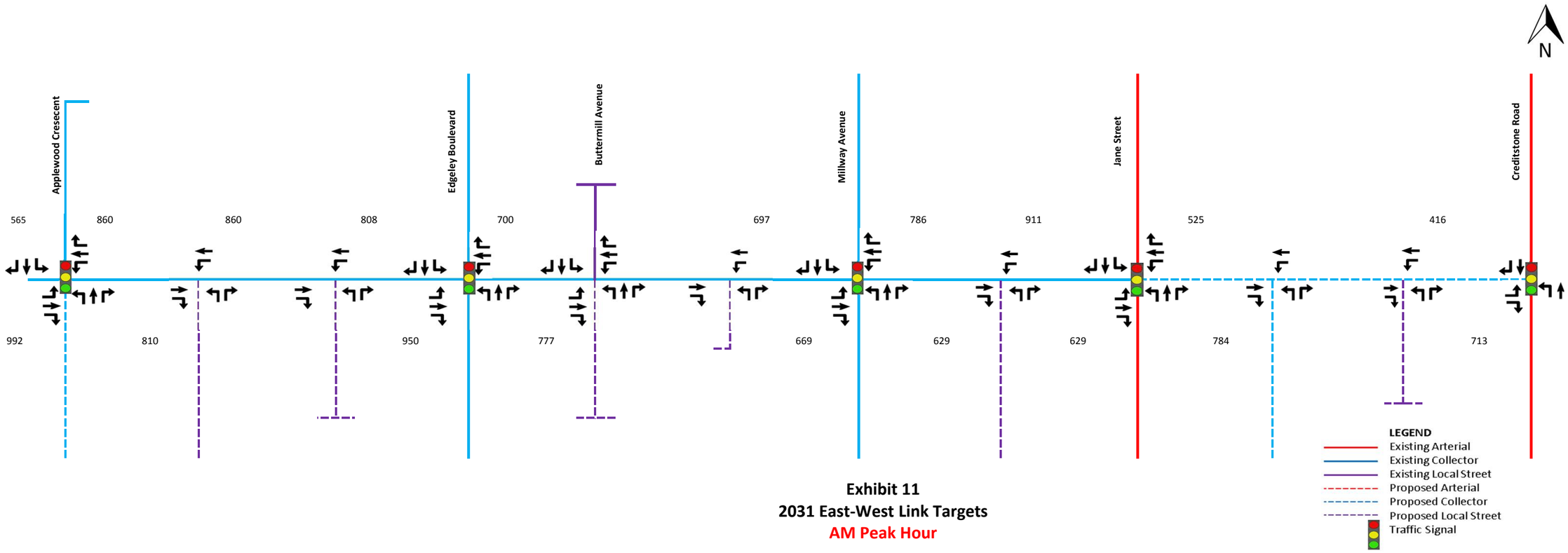



**Exhibit 11**
**2031 East-West Link Targets**
**AM Peak Hour**

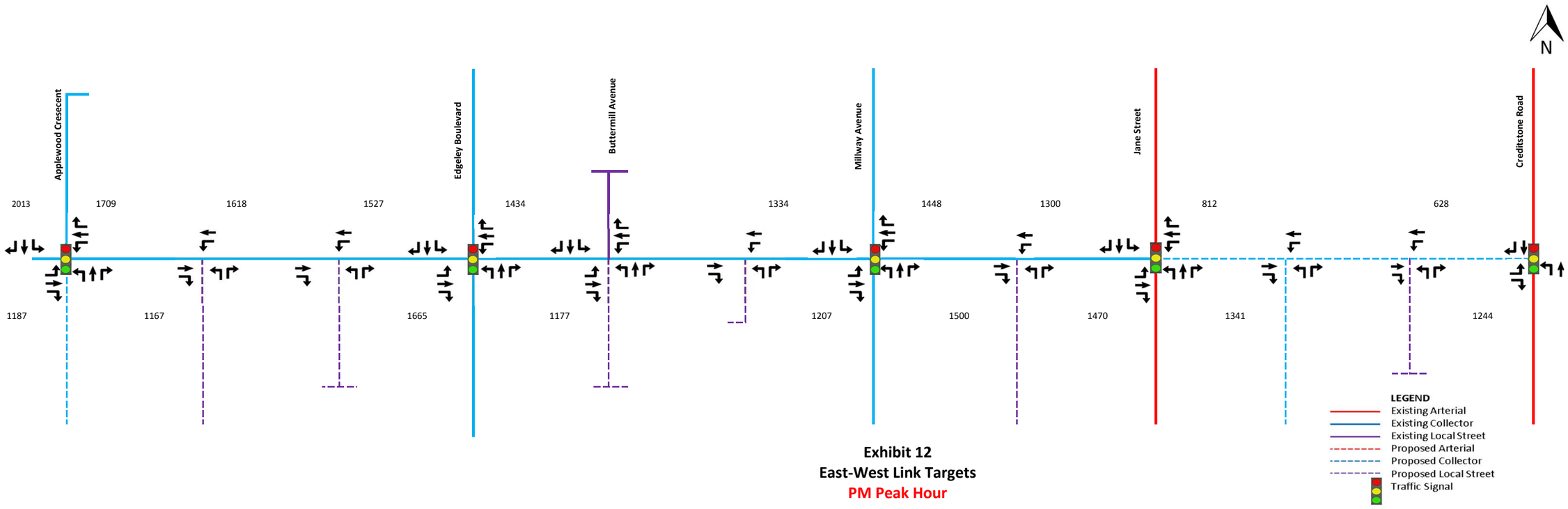



**Exhibit 12**
**East-West Link Targets**
**PM Peak Hour**

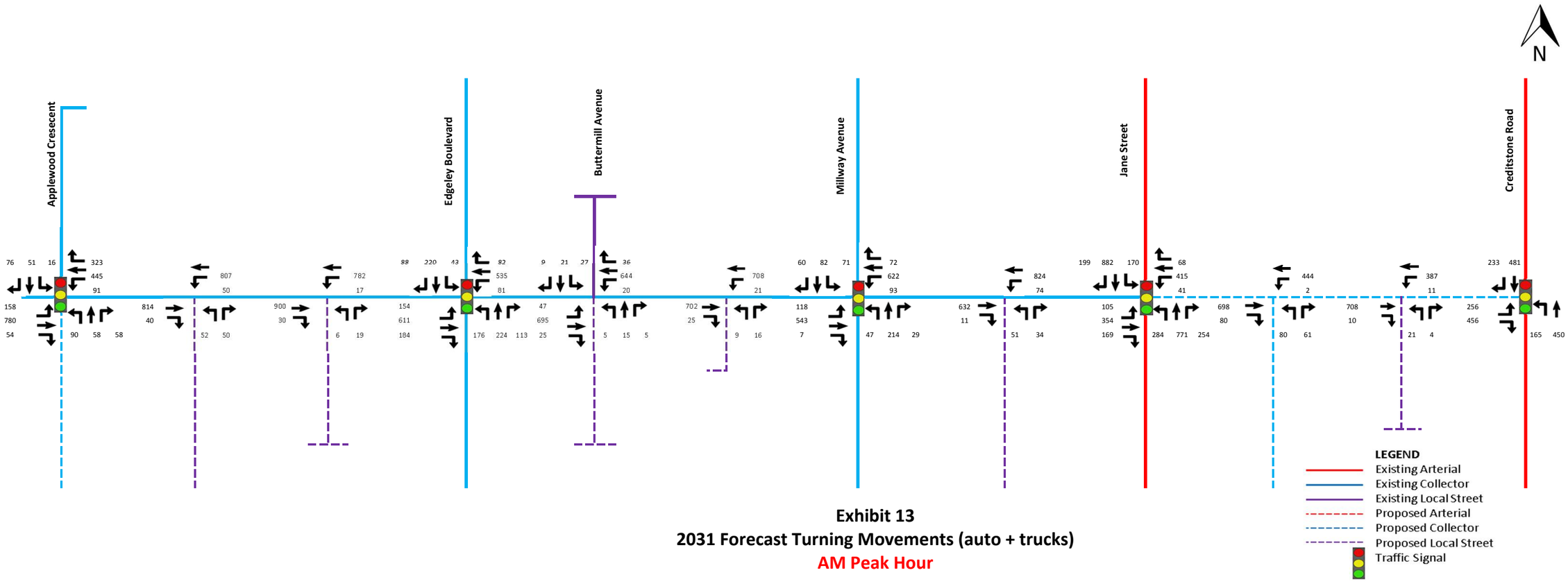



**Exhibit 13**
**2031 Forecast Turning Movements (auto + trucks)**
**AM Peak Hour**

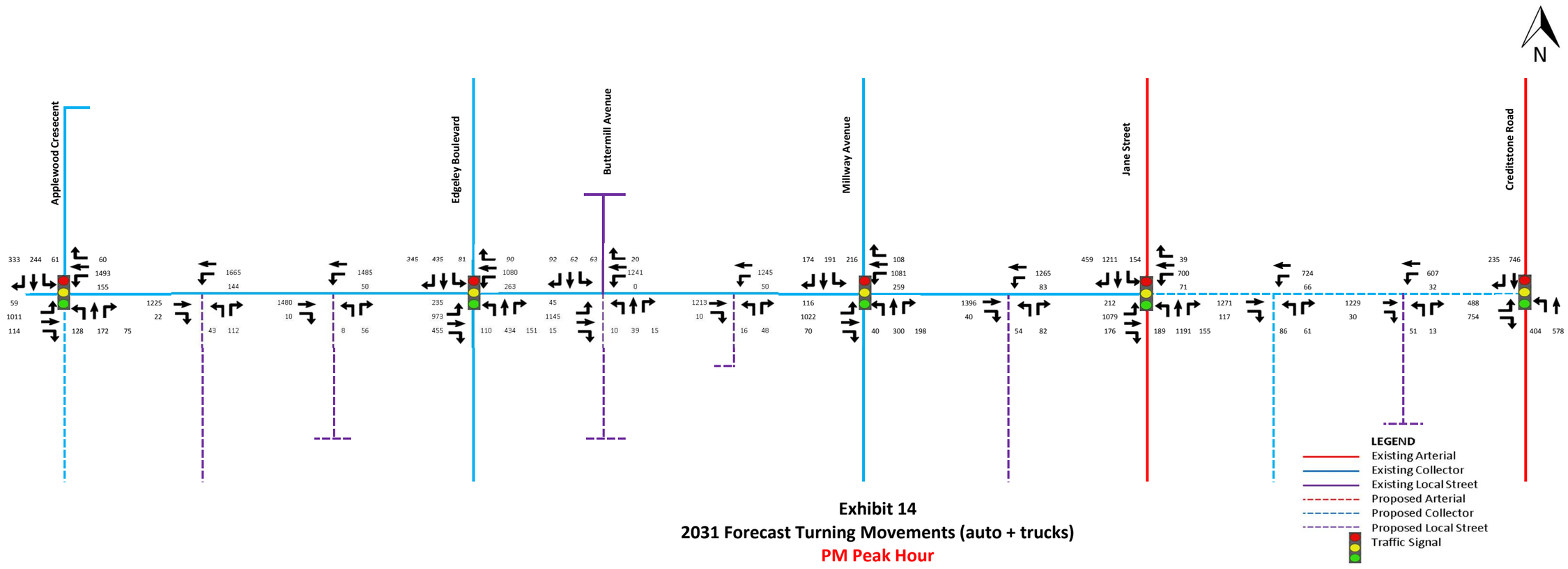



**Exhibit 14**
**2031 Forecast Turning Movements (auto + trucks)**
**PM Peak Hour**

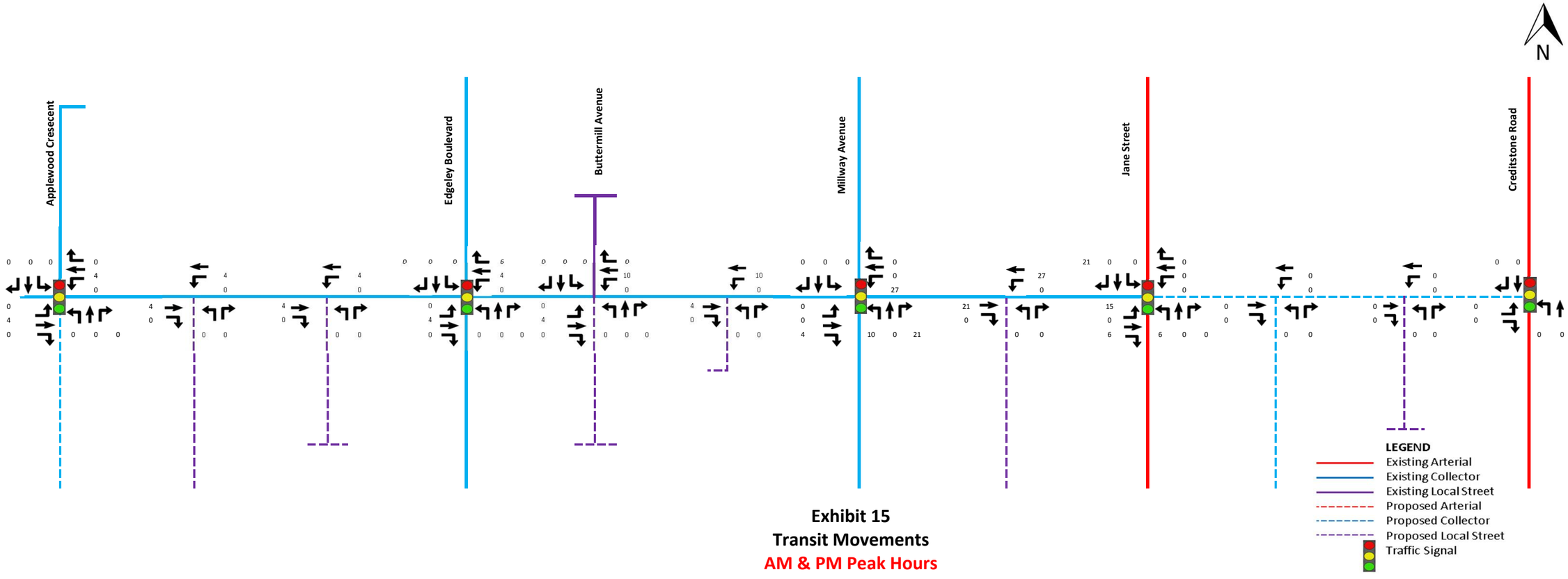



**Exhibit 15**
**Transit Movements**
**AM & PM Peak Hours**

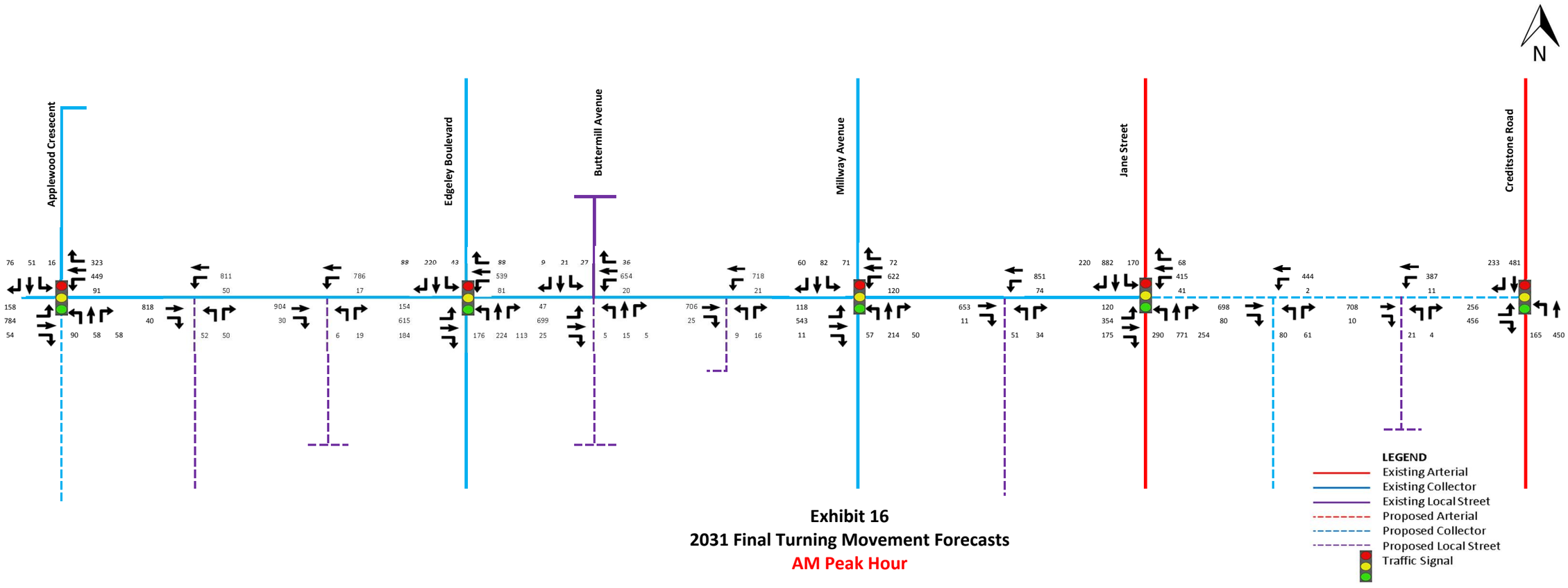



**Exhibit 16**
**2031 Final Turning Movement Forecasts**
**AM Peak Hour**

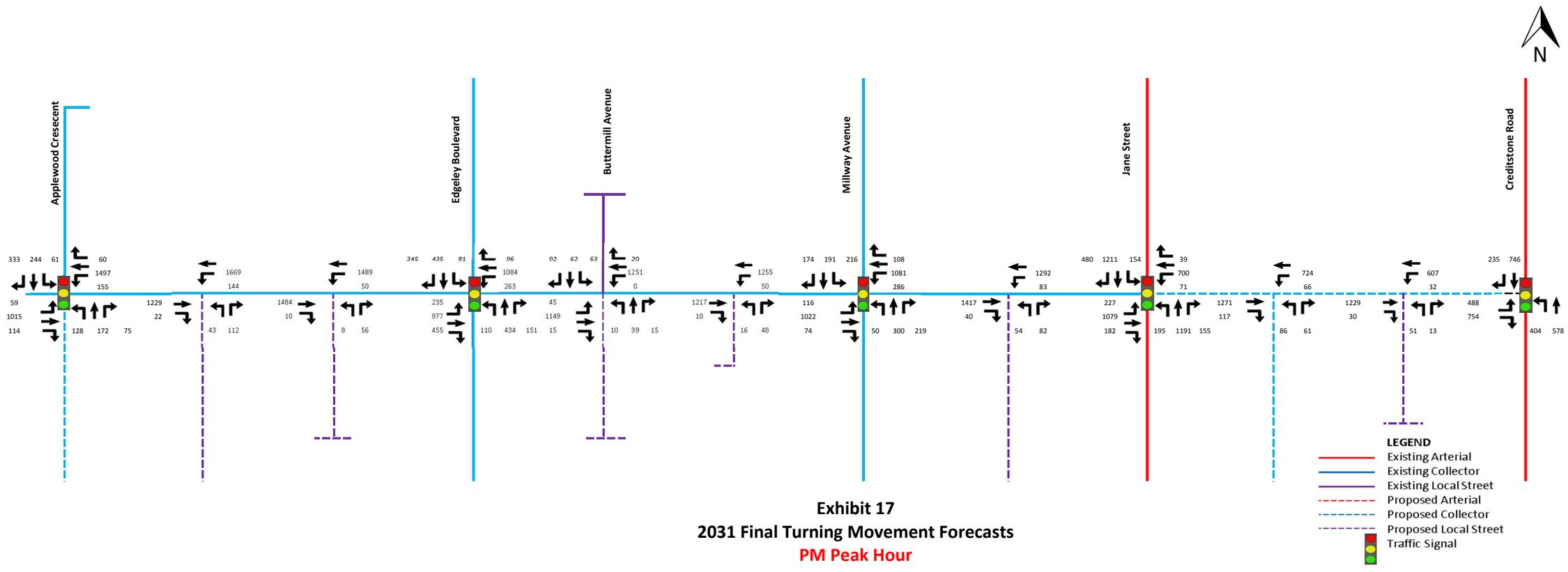



**Exhibit 17**
**2031 Final Turning Movement Forecasts**
**PM Peak Hour**