Gladstone Village Development (Phase 1)

TIA Strategy Report

DRAFT

September 2021

Gladstone Village Development

(Phase 1)

TIA Strategy Report

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STRATEGY REPORT

Parsons has been retained by the Ottawa Community Housing Corporation to prepare a TIA in support of a Site Plan Application (SPA) for Phase 1 of a mixed-use development known as Gladstone Village. This document follows the TIA process as outlined in the City Transportation Impact Assessment (TIA) Guidelines (2017). The following report represents Step 4 – Strategy Report. The Screening Form has been provided in **Appendix A**.

1.0 SCREENING FORM

The Screening Form confirmed the need for a TIA Report based on the Trip Generation and Location triggers. The Trip Generation trigger was met as the development is anticipated to generate more than 60 person trips during peak hours. The Location trigger was met due to the location of the proposed development site in both a Transit-Oriented Development (TOD) zone and a Design Priority Area (DPA) and the designation of a boundary street as Spine Route and Transit Priority Corridor.

2.0 SCOPING REPORT

2.1. Existing and Planned Conditions

2.1.1. Proposed Development

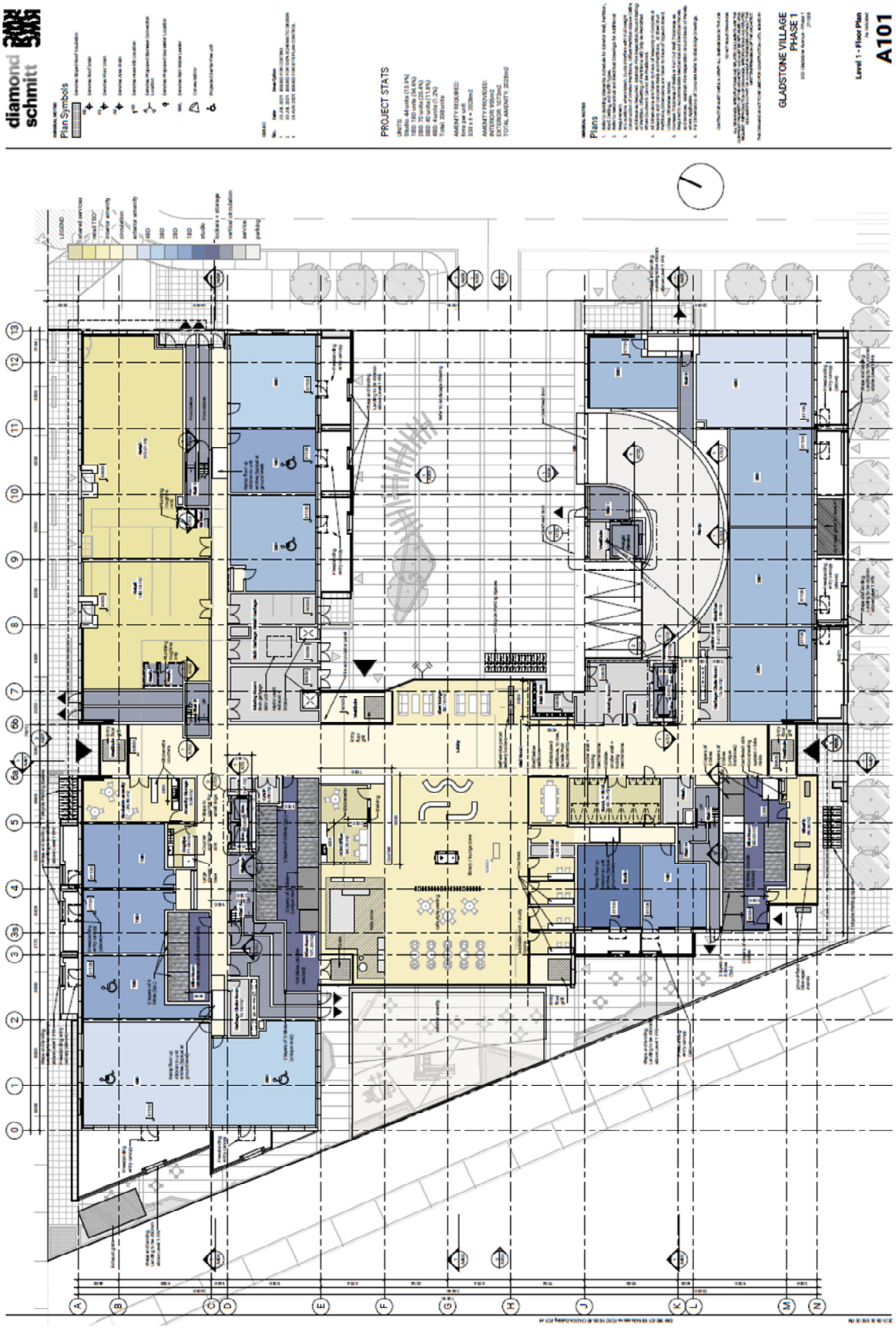
The proposed development site, representing Phase 1 of the Gladstone Village development, is located at the municipal address of 933 Gladstone Ave, in a vacant land north of Gladstone Ave and between Preston St and the Trillium Line LRT corridor, as shown in **Figure 1**. The local context (**Figure 1**) also illustrates the future internal road network of the site and location of proposed Active Transportation Corridor (ATC).

Phase 1 of Gladstone Village will consist of 338 apartment units and less than 4,000 ft^2 of first floor commercial space, housed within four buildings ranging from 4 to 18-storeys high. A total of 143 vehicle parking spaces will be provided, along with 341 bicycle parking spaces. The subject site is currently zoned as Mixed-Use Centre (MC). The estimated full buildout horizon for the proposed development is 2024.

The current Site Plan is shown in **Figure 2**. Vehicle access to the site's underground parking garage will be provided via a future internal street known as Street A, which will extend from Oak St and form a crescent within the site, before continuing south as Street B to Gladstone Ave. Another connection to the site will be provided at Street B via Balsam St. For reference, the conceptual plan for the fully developed Gladstone Village site has been provided in **Appendix B**.

Figure 1: Local Context

Figure 2: Proposed Site Plan



2.1.2. Existing Conditions

Area Road Network

The following roads were included in the TIA. Description for each road within the study area has been provided below.

Gladstone Ave is an east-west municipal major collector roadway within the City of Ottawa, that extends from Parkdale Ave in the west to Cartier St in the east. The roadway consists of a two-lane cross-section and a posted speed limit of 40km/h.

Somerset St W is an east-west municipal arterial roadway within the City of Ottawa, which extends from Queen Elizabeth Dr in the east to Garland St in the west, where it continues as Wellington St W. Within the study area, the roadway consists of a two-lane cross-section with an assumed speed limit of 50km/h.

Preston St is a north-south municipal arterial roadway within the City of Ottawa, that extends from Albert St in the north to Carling Ave in the south. An extension from Albert St to Sir John A. Macdonald Parkway is proposed in the City of Ottawa TMP. Within the study area, the roadway consists of a two-lane cross-section and an assumed speed limit of 50km/h.

Rochester St is a north-south municipal roadway within the City of Ottawa and is classified as a local road north of Gladstone Ave and a major collector south of thereof. The roadway extends from Carling Ave in the south and terminates at a neighborhood south of Albert St. The roadway consists of a two-lane cross-section, with an on-street parking lane available along both sides of the roadway. The posted speed limit is 50km/h.

Oak St is a short (dead-end) east-west municipal local roadway providing access to residential units and parking for the adjacent park area. The roadway consists of a two-lane cross-section, with a sidewalk facility on the south side only.

Laurel St is a short (dead-end) east-west municipal local roadway providing access to residential units. The roadway consists of a two-lane cross-section and sidewalk facilities on the north and south sides.

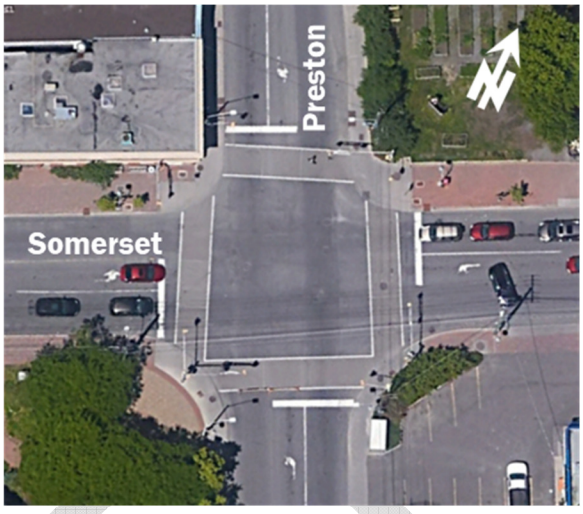
Larch St is a short (dead-end) east-west municipal local roadway providing access to residential units. The roadway consists of a two-lane cross-section and sidewalk facilities on the north side only.

Balsam St is a short (dead-end) east-west municipal local roadway providing access to residential units and the Preston Hardware store's parking lot. The roadway continues east of Gladstone Ave, extending to Booth St and consists of a two-lane cross-section and sidewalk facilities on the north and south sides.

Existing Study Area Intersections

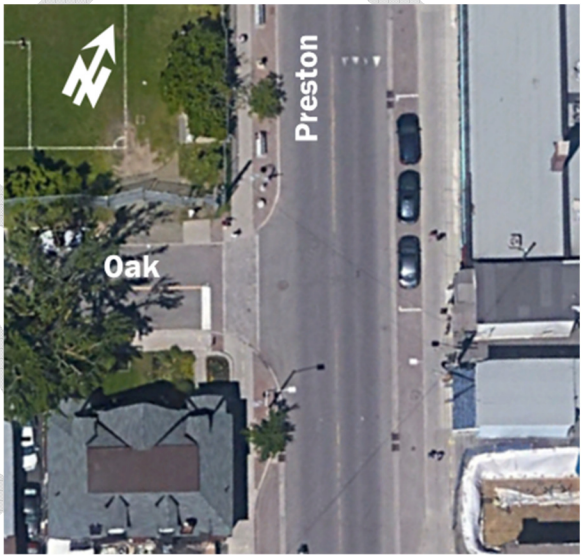
Preston/Somerset

The Preston/Somerset intersection is a four-legged signalized intersection. All legs of the intersection consist of a shared through/right-turn lane and an auxiliary left-turn lane. Right-turns on red are not permitted on weekdays between 7am and 7pm at this intersection.



Preston/Oak

The Preston/Oak intersection is an unsignalized three-legged "T" intersection, with STOP control on the minor movement only (Oak). The north leg (Preston) consists of a shared through/right-turn lane. The south leg (Preston) consists of a shared through/left-turn lane. The west leg (Oak) consists of a shared right-turn/left-turn lane. There are no restricted movements at this intersection.



Preston/Laurel

The Preston/Laurel intersection is an unsignalized three-legged "T" intersection, with STOP control on the minor movement only (Laurel). The north leg (Preston) consists of a shared through/right-turn lane. The south leg (Preston) consists of a shared through/left-turn lane. The west leg (Laurel) consists of a shared right-turn/left-turn lane. There are no restricted movements at this intersection.

Preston/Larch

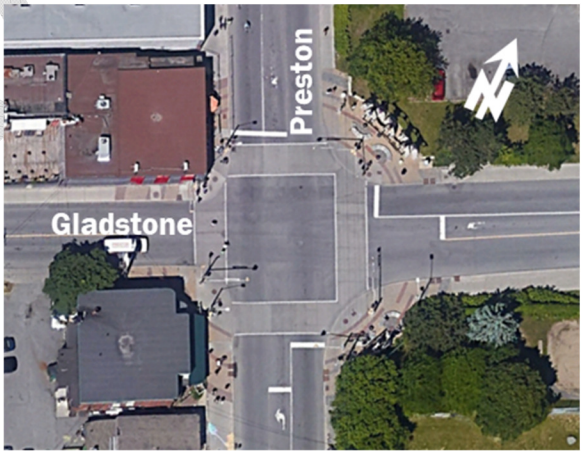
The Preston/Larch intersection is an unsignalized three-legged "T" intersection, with STOP control on the minor movement only (Larch). The north leg (Preston) consists of a shared through/right-turn lane. The south leg (Preston) consists of a shared through/left-turn lane. The west leg (Larch) consists of a shared right-turn/left-turn lane. There are no restricted movements at this intersection.

Preston/Balsam

The Preston/Balsam intersection is an unsignalized four-legged intersection, with STOP control on the minor movements (Balsam). All legs of the intersection consist of a single all-movement lane. A Pedestrian Crossover (PXO) is provided on the north leg of the intersection. There are no restricted movements at this intersection.

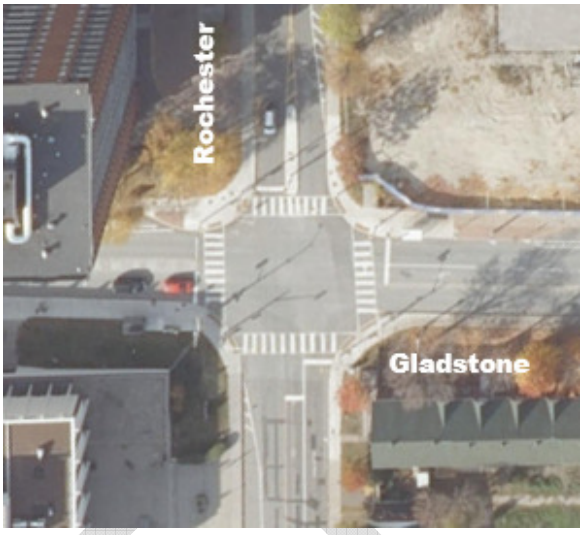
Preston/Gladstone

The Preston/Gladstone intersection is a signalized four-legged intersection. The north and south legs (Preston) consist of a shared through/right-turn lane and an auxiliary left-turn lane. The east leg (Gladstone) consists of a shared through/right-turn lane and an auxiliary left-turn lane. The west leg (Gladstone) consists of a single all-movement lane. There are no restricted movements at this intersection.



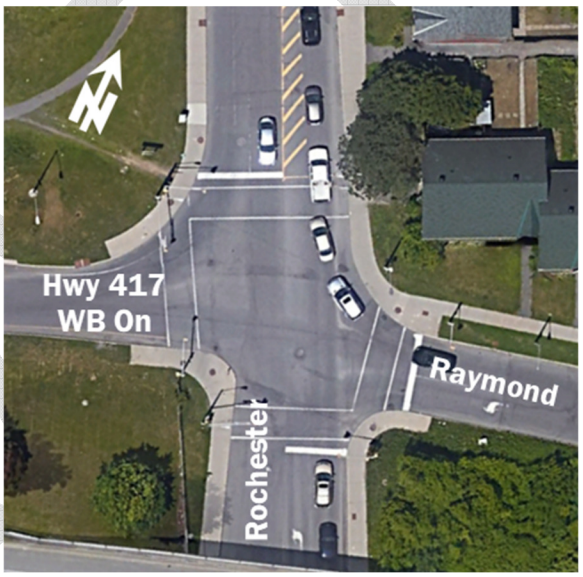
Gladstone/Rochester

The Gladstone/Rochester intersection is a signalized four-legged intersection. The east leg (Gladstone) consists of a shared through/right-turn lane and an auxiliary left-turn lane. The west leg consists of a shared through/right-turn lane. The south leg (Rochester) consists of a shared through/right-turn lane and an auxiliary left-turn lane. The north leg consists of a single all-movement lane. Eastbound left-turns are prohibited at this intersection and trucks are not permitted to enter the north leg.



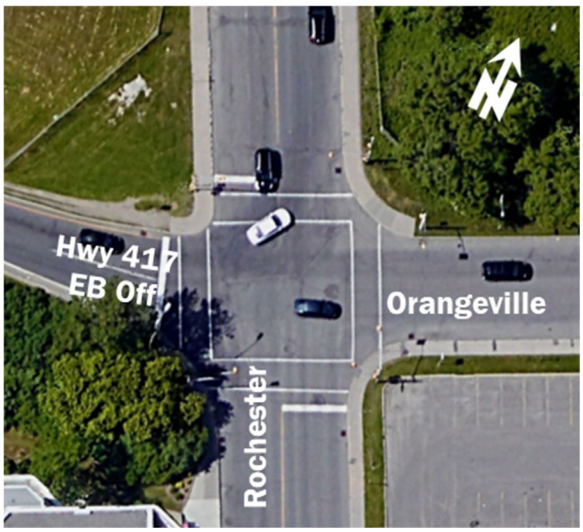
Rochester/Raymond/Hwy 417 WB On Ramp

The intersection is a signalized four-legged intersection, with signal control on the north, south and east legs. The west leg (Hwy 417 WB On Ramp) is a one-way westbound ramp. The south leg (Rochester) consists of a through lane and an auxiliary left-turn lane. The north leg (Rochester) consists of a through lane and an auxiliary right-turn lane. The east leg (Raymond) consists of a one-way westbound shared through/right-turn lane and an auxiliary left-turn lane. There are no restricted movements at this intersection.



Rochester/Orangeville/Hwy 417 EB Off Ramp

The intersection is a signalized four-legged intersection, with signal control on the north, south and west legs. The east leg (Orangeville) is a one-way eastbound roadway. The north leg (Rochester) consists of a through lane and a shared through/left-turn lane. The south leg (Rochester) consists of a through lane and a shared through/right-turn lane. The west leg (Hwy 417 WB Off Ramp) consists of a one-way eastbound through/left-turn lane and a through/right-turn lane. Trucks are not permitted to enter the east leg (Orangeville) of the intersection.



Existing Driveways to Adjacent Developments

Site access will be located along "Street A", which extends from west from Oak St, then forms a crescent within the site before venturing south to Gladstone Ave as "Street B". As Street A and Street B will form new internal roadways for the site, there are no adjacent development accesses along this road, within 200m of the proposed site access.

Existing Area Traffic Management Measures

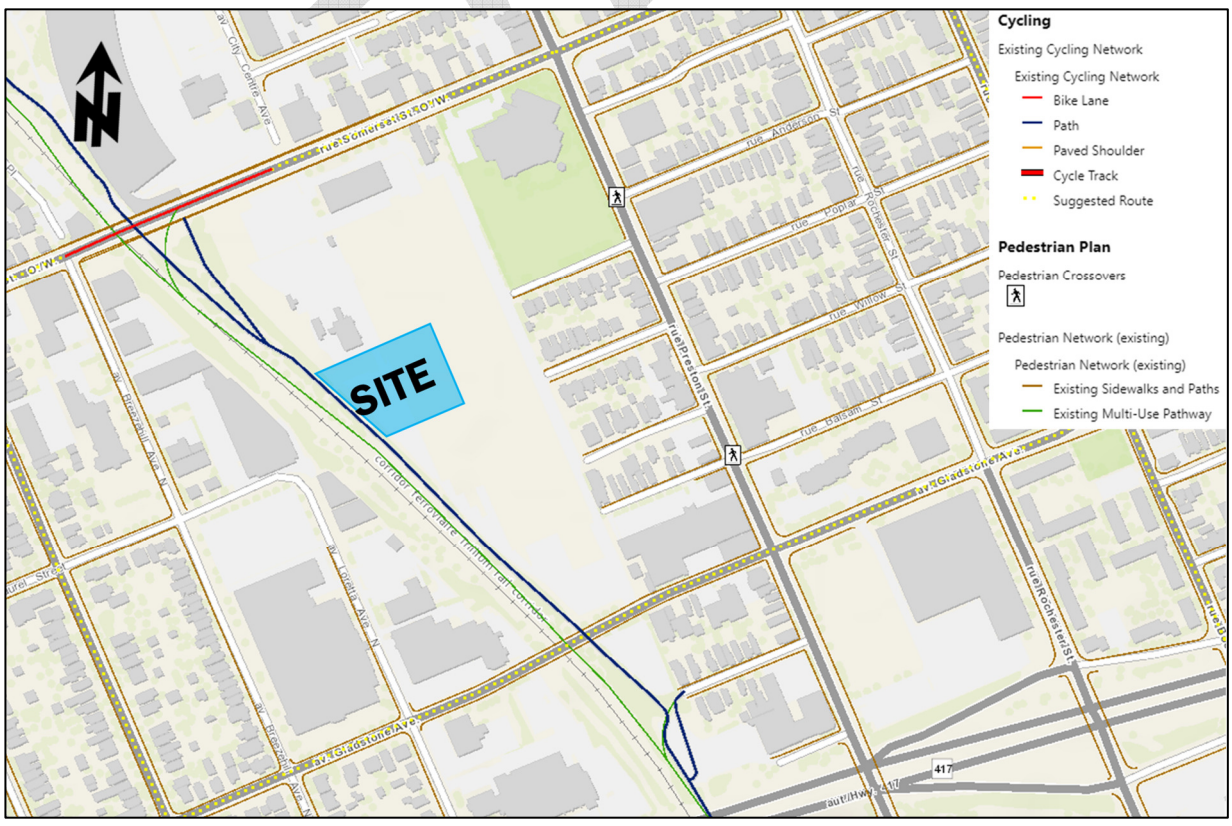
Existing area traffic management measures within the study area include pedestrian advance walk phases at signalized intersections, textured and zebra crosswalks at intersections, Pedestrian Crossovers (PXO) along Preston St, and bulb-outs and extended curbs for on-street parking.

Pedestrian/Cycling Network

The active transportation network facilities for pedestrians and cyclists are illustrated in **Figure 3**. As shown, sidewalk facilities are provided throughout the study area, including both sides of Preston St, Gladstone Ave, Rochester St, and Laurel St. They are also provided on the south side of Oak St, and on the north sides of Larch St and Balsam St (and partially on the south side of Balsam St). Two Pedestrian Crossovers (PXO) are provided along Preston St as shown in **Figure 3**, one located on the north leg of the Preston/Balsam intersection, and one on the south side of the Preston/Anderson intersection, approximately 35m north of Oak St.

In terms of cycling facilities, the Trillium Line Multi-Use Pathway (MUP) runs north-south, directly west of the proposed development and adjacent to the Trillium Line LRT corridor. This is a well-travelled MUP that provides regional pedestrian cycling connectivity from the Trans Canada Trail in the north (along the Ottawa River) to the Rideau Canal Western Pathway at Dow's Lake in the south. Additionally, a short bike lane segment is provided north of the development site along Somerset St W. Both Somerset St W and Gladstone Ave are suggested cycling routes and are both classified as spine routes in the City of Ottawa TMP.

Figure 3: Study Area Active Transportation Facilities



Transit Network

Due to the current circumstances regarding COVID-19, some bus services have been altered by OC Transpo to operate on a different schedule. The following description of OC Transpo routes within the study area reflect the current bus operations:

- **Route #2 (O-Train Bayview <-> South Keys):** this route operates as a replacement to the O-Train Line 2 during its expansion process. Route #2 operates at a rate of approximately every 12 minutes every day throughout the week. The nearest bus stop to the site is at the intersection of Preston/Balsam.
- **Route #11 (Parliament <-> Bayshore):** identified by OC Transpo as a "Frequent Route", this route operates all day, 7 days a week and at an average rate of every 15 minutes during weekday peak hours. The nearest bus stop to the site is at the intersection of Preston/Somerset.
- **Route #14 (St-Laurent <-> Tunney's Pasture):** identified by OC Transpo as a "Frequent Route", this route operates all day, 7 days a week and at an average rate of every 15-to-30 minutes during weekday peak hours. The nearest bus stop to the site is at the intersection of Preston/Gladstone.
- **Route #85 (Gatineau <-> Bayshore)**: identified by OC Transpo as a "Frequent Route", this route operates at a high frequency within the study area. Route #85 operates 7 days a week, at an average rate of every 15 minutes or less during weekday peak hours. The nearest bus stops to the site are along Preston St.
- **Route #114 (Rideau <-> Carlington)**: identified by OC Transpo as a "Local Route", this route operates from Monday to Friday on a selected trip only basis. The nearest bus stop to the site is at the intersection of Preston/Gladstone.

The transit network for the study area is illustrated in **Figure 4** and the transit route maps are provided in **Appendix C. Figure 5** illustrates the bus stop locations.

Figure 4: Area Transit Network

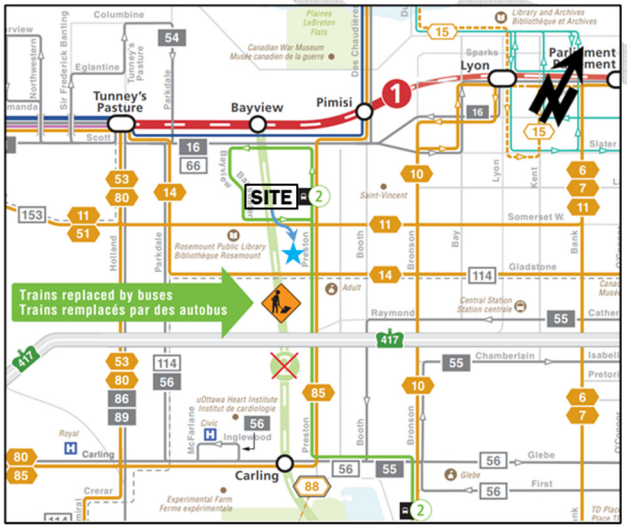


Figure 5: Bus Stop Locations

Peak Hour Travel Demands

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

- Preston/Somerset – Conducted Tuesday, June 20, 2017

- Gladstone/Preston – Conducted Tuesday, June 20, 2017
- Gladstone/Rochester – Conducted Wednesday, November 23, 2016
- Rochester/Raymond/Hwy 417 WB On Ramp – Conducted Wednesday, November 16, 2016
- Rochester/Orangeville/Hwy 417 EB Off Ramp – Conducted Wednesday, November 16, 2016

A morning and afternoon peak hour traffic count was completed separately by Parsons on December 2, 2020, for the intersection of Preston/Balsam. With regards to the other unsignalized intersections along Preston St, inbound and outbound traffic volumes from minor streets (Oak, Laurel and Larch) were assumed based on a conservative 1 vehicle trip per residential unit estimate. This is a conservative assumption as the 2020 TRANS Report methodology would result in negligible vehicle trips for these residential units.

The traffic volumes at study area intersections are illustrated in **Figure 6**, with raw traffic count data provided in **Appendix D**. For simplicity and to ensure a more conservative approach, the through volumes at all unsignalized intersections on Preston were balanced with the volumes at the intersection of Gladstone/Preston intersection.

Existing Road Safety Conditions

A five-year collision history data (2014-2018, inclusive) was requested and obtained from the City of Ottawa for all intersections and road segments within the study area. It was determined that a total of 124 collisions have occurred at intersections and road segments bounding the Gladstone Village site. Of the 124 collisions, 32 resulted from rear ends, 23 from turning movements, 23 from angled collisions, 17 from Single Vehicle (Other), 15 from sideswipes, 6 from Single Vehicle (Unattended), 6 from "other" and 2 from approaching. Furthermore, 81 (65%) collisions representing the majority of collisions, resulted in property damage only, while 42 (34%) resulted in non-fatal injuries and 1 collision was documented as "non-reportable". The source collision data provided by the City of Ottawa and detailed analysis results are provided in **Appendix E**.

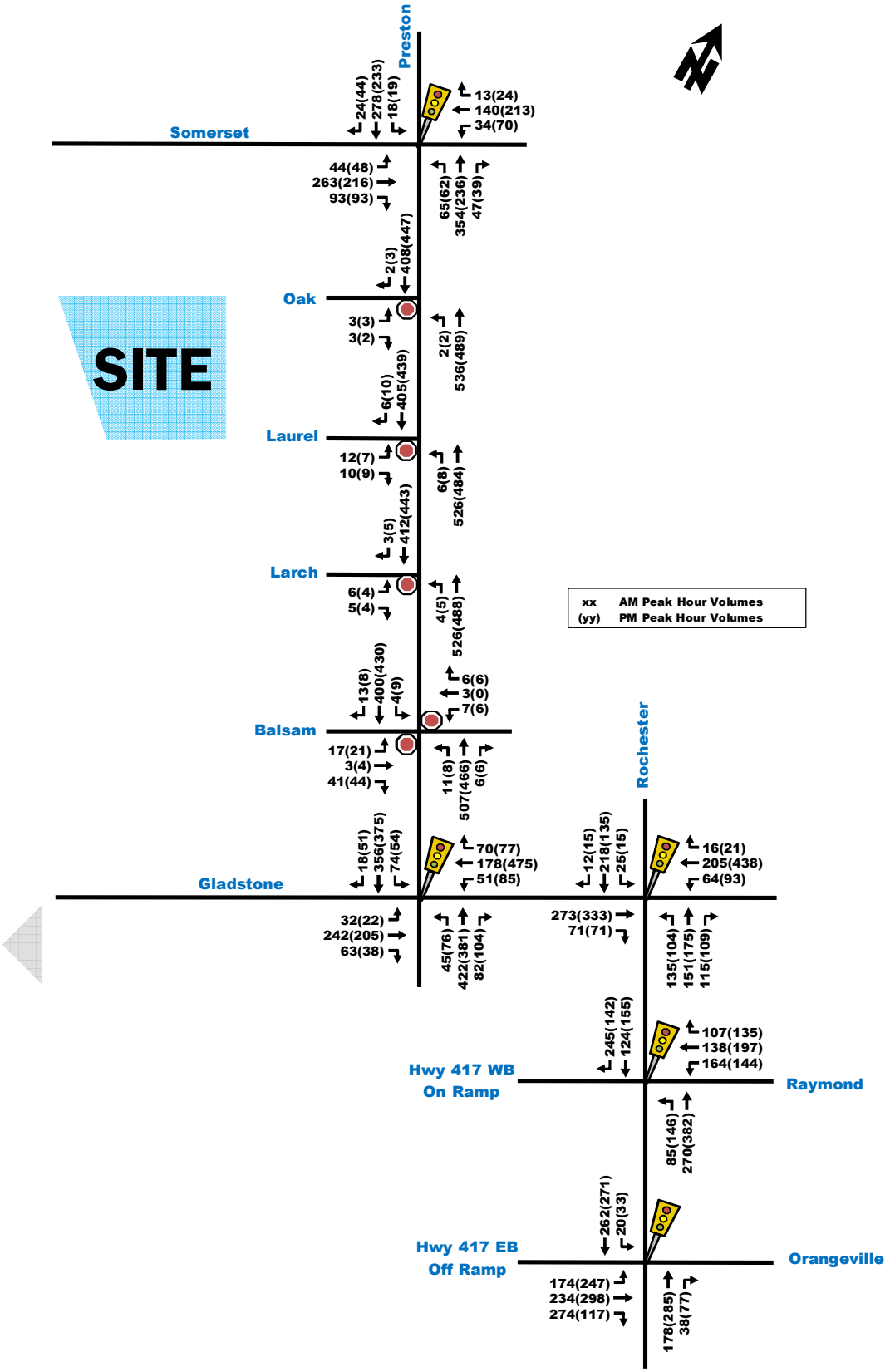
A standard unit of measure for assessing collisions at an intersection is based on the number of collisions per million entering vehicles (MEV). Intersections with a ratio of 1.0 Collisions/MEV or greater are considered to be at a higher risk for collisions. Based on the City of Ottawa TIA Guidelines (2017), a collision pattern is characterized as a sequence of more than six collisions of the same impact type occurring for a specific movement within a five-year period. At signalized intersections within the study area, reported collisions have historically taken place at a rate of:

- 0.79 Collisions/MEV at the intersection of Gladstone Ave/Preston St. A total of 30 collisions occurred at this intersection in the five-year period, with no particular collision patterns observed.
- 0.85 Collisions/MEV at the intersection of Gladstone Ave/Rochester St. A total of 25 collisions occurred at this intersection with no particular collision pattern observed. It should be noted that the EBL movement has been recently prohibited at this intersection, which will further reduce conflict points at the intersection.
- 0.76 Collisions/MEV at the intersection of Preston St/Somerset St W. A total of 25 collisions occurred at this intersection with no particular collision pattern observed.

With regards to road segments on the development site's boundary streets, the number of collisions that have occurred are as follows:

- 33 collisions at different locations along Preston St, between Somerset St W and Gladstone Ave. The collisions are comprised of 7 rear ends, 3 turning movement, 4 sideswipe, 6 angled, 1 approaching, 3 Single Vehicle (other), 6 Single Vehicle (unattended) and 3 "other" collisions.
- 4 collisions along Gladstone Ave, between Loretta Ave N and Preston St. The collisions are comprised of 1 rear end, 1 sideswipe, 1 angled and 1 approaching collisions.
- 5 collisions along Gladstone Ave, between Preston St and Rochester St. The collisions are comprised of 1 rear end, 1 turning movement, 1 sideswipe and 2 angled collisions.

Figure 6: Existing Peak Hour Traffic Volumes



With regards to active transportation (i.e. walking and biking) related collisions, the following collisions are documented out of the total 124 collisions in the study area:

- 19 collisions involved bicycles in the study area, where 2 resulted in property damage only and the rest resulted in non-fatal injury.
- 13 collisions involved pedestrians in the study area, all of which resulted in non-fatal injury.

The collision data outlined above was obtained at a time when 2019 data was not processed by City staff yet. Since then, 2019 data has become available. Due to discrepancies in data caused by the COVID-19 pandemic, 2020 collision data has not been made available. The 2019 data has been obtained from the "Open Ottawa" website and is summarized below:

- At Preston/Somerset intersection, 2 collisions comprised of Single Vehicle (other) have occurred in 2019. Both collisions involved pedestrians and resulted in non-fatal injury.
- At Gladstone/Preston intersection, 4 collisions comprised of 2 sideswipes and 2 rear ends have occurred in 2019, all of which resulted in P.D. only.
- At Gladstone/Rochester intersection, 4 collisions comprised of 1 angled, 1 rear end, 1 Single Vehicle (other) and 1 turning movement occurred in 2019, all of which resulted in P.D. only.
- Along Gladstone Ave, between Loretta Ave N and Preston St, 1 rear end collisions occurred in 2019 and resulted in P.D. only.
- Along Gladstone Ave, between Preston St and Rochester St, 2 non-fatal collisions comprised of 1 rear end and 1 turning movement occurred in 2019.
- Along Preston St, between Somerset St W and Gladstone Ave, 6 collisions comprised of 2 angled, 2 Single Vehicle (unattended), 1 Approaching and 1 Single Vehicle (other) occurred in 2019. Of the total, 5 collisions resulted in P.D. only and 1 in non-fatal collision.

Overall, there were no indications of significant safety concerns within the study area based on the historical collision review.

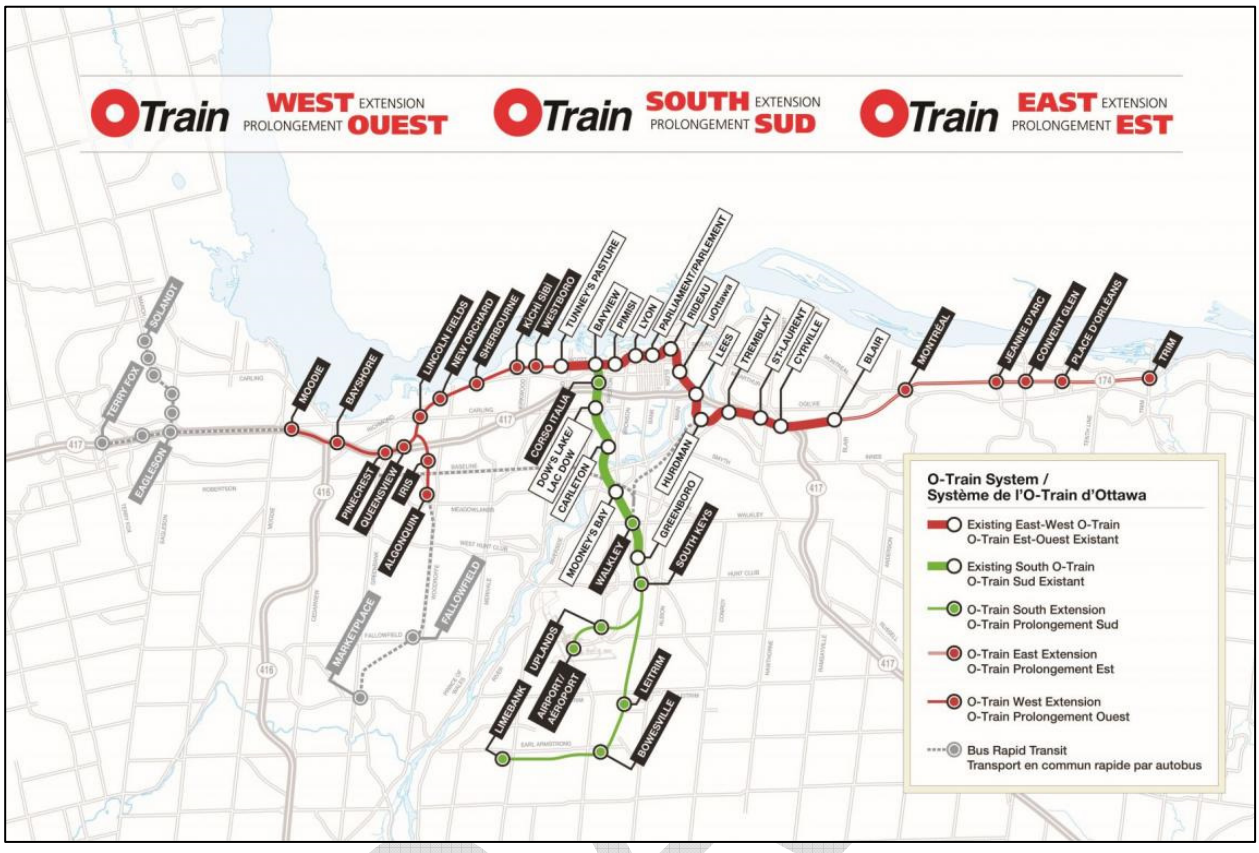
2.1.3. Planned Conditions

2.1.3.1. Future Transportation Network Changes

LRT Stage 2

The Light Rail Transit (LRT) in the City of Ottawa has entered Stage 2 of its development, which will include the extending of Trillium Line rail corridor to Limebank in Riverside South. The Trillium Line expansion is expected to be completed by year 2022. Along with the expansion, new stations will be constructed along the Trillium Line, including Corso Italia Station (formerly Gladstone Station), which will be constructed immediately north of Gladstone Ave and west of the proposed Gladstone Village development site. **Figure 7** illustrates the full expansion of the LRT Stage 2 system. The Trillium Line connects to the east-west LRT Confederation Line which will be extended in both the east and west directions by 2024 and 2025 respectively.

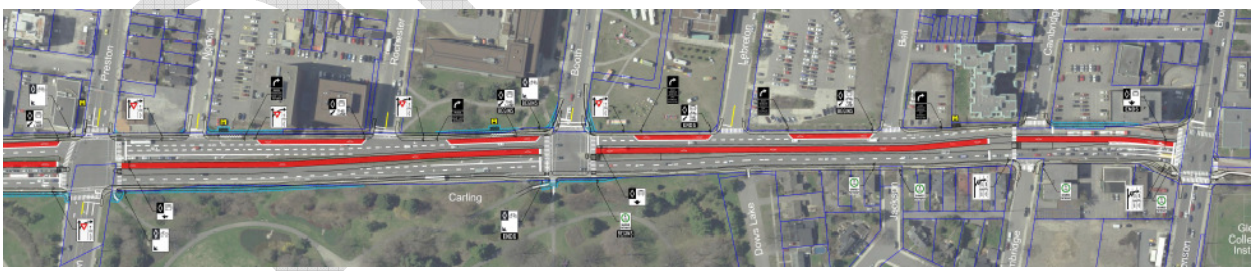
Figure 7: LRT Stage 2 Expansions Map



Carling Transit Priority Study

The Carling Avenue Transit Priority Study is currently underway to provide a Recommended Functional Design Plan. The current plan within the vicinity of the site is shown as Figure 8. The curbside bus lanes along Carling Ave are expected to be implemented by 2022, and median bus lanes are expected between 2026 and 2028.

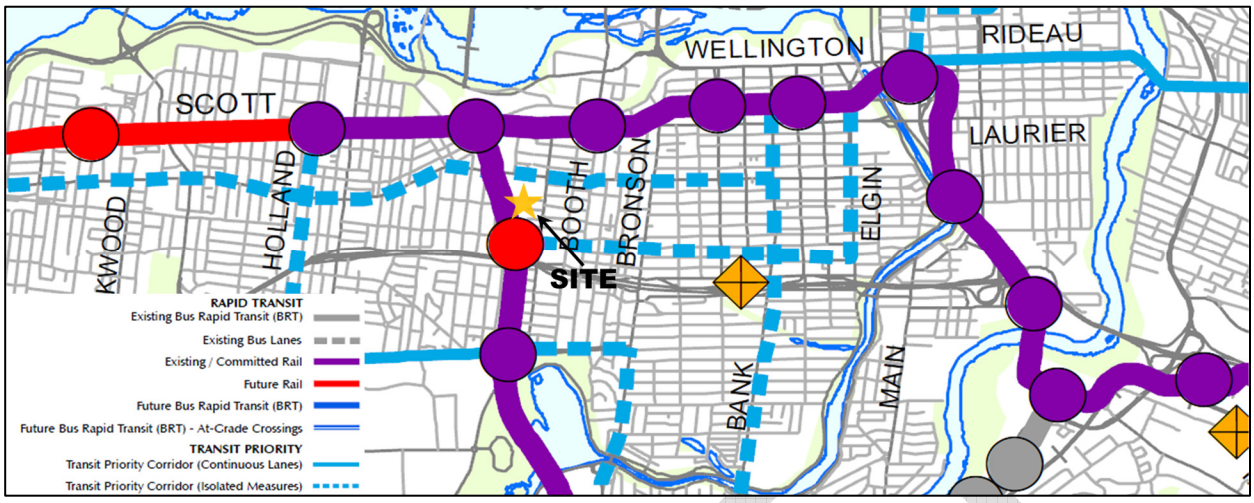
Figure 8: Carling Avenue Transit Priority Plan



Gladstone Transit Priority

As seen in Figure 9, Gladstone Avenue is proposed a transit priority corridor with isolated measures as per the 2031 Affordable Network within the TMP. The isolated transit priority corridor measures are proposed from Elgin Street to the future Corso Italia LRT Station, passing near to the site on Gladstone Avenue.

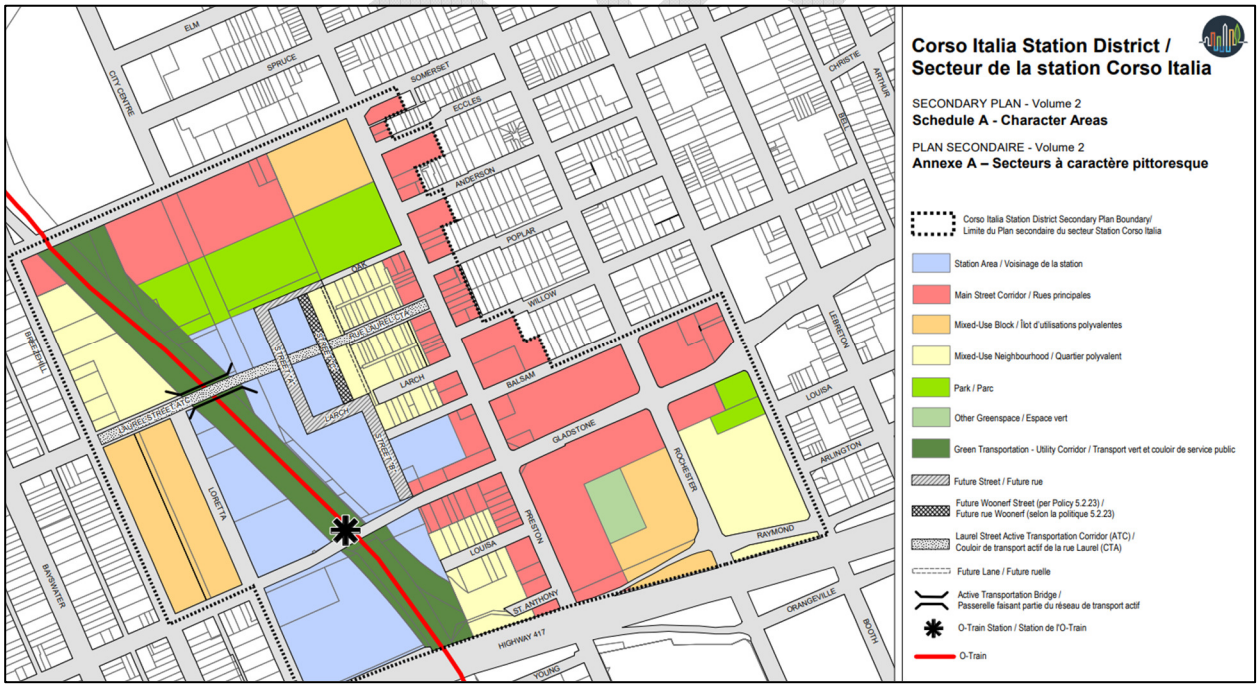
Figure 9: Transportation Master Plan: 2031 Affordable Network



Corso Italia (formerly Gladstone) Station District Secondary Plan

Previously, three planning studies were undertaken by the City of Ottawa around the future adjacent LRT Stations at Bayview Station, Gladstone Station and Preston-Carling (now known as Down's Lake) Station. The purpose of these studies was to examine how the areas around these stations may be redeveloped. Since then, Secondary Plans have been completed for both Bayview Station and Preston-Carling Station. The Gladstone Station study was put on hold for several years and reinitiated in May 2019. The potential land uses within the Corso Italia District, as provided in the Secondary Plan, are illustrated in **Figure 10**.

Figure 10: Corso Italia Station District Potential Land Use (from City of Ottawa)



Other Future Transportation Network Changes

The following are additional transportation network changes that are anticipated to occur in the future (likely long-term). However, no info is currently available regarding the extent and schedule of these modifications.

- The extension of Preston St from its north terminus at Albert St to Sir John A. Parkway as illustrated in the TMP's Network Concept and Affordable Network. City staff have confirmed that this has not been budgeted for as of yet.
- The Trillium Line MUP crossing at Gladstone Ave will be signalized in the future as part of the LRT Trillium Line expansion. The purpose of this signal is to provide a safe and efficient crossing for high volumes of pedestrians and cyclists.

2.1.3.1 Other Area Developments

The following section outlines adjacent developments within the study area. Based on the City of Ottawa's Development Applications search tool, many applications have been initiated surrounding the development site. However, the vast majority of these applications involve minor renovations to an existing development, or the construction of a low-rise residential building. **Figure 11** illustrates the locations of major other area developments, relative to the Gladstone Village development site.

Figure 11: Other Nearby Developments

951 Gladstone Ave and 145 Loretta Ave North

A mixed-use development proposed by Trinity Development Group, which will consist of 745 residential units, 206,480 sq.ft. of office space and 17,894 sq.ft. of retail space. The development will be fully constructed by 2023. During the morning peak hour, the development is anticipated to generate approximately 141 vehicle trips and 940 person trips. During the afternoon peak hour, the development is anticipated to generate approximately 144 vehicle trips and 958 person trips.

811 Gladstone Ave

A residential development is proposed by the Ottawa Community Housing Corporation at 811 Gladstone Ave, which will consist of 108 residential units and 32 townhomes. During the morning peak hour, the development is expected to generate a minimal 15 vehicle trips and 100 total person trips. During the afternoon peak hour,

the development is expected to generate a minimal 16 vehicle trips and 105 total person trips. Given the low projected number of vehicle trips, the traffic impact caused by this development is considered negligible. As such, it will not be included in the future background volumes illustrated in this report.

818 Gladstone Ave (Rochesterville Phase 2)

A mixed-use development is proposed by the Ottawa Community Housing Corporation at 818 Gladstone Ave. A Site Plan Application for Phase 2 of the development is currently in progress. Phase 2 will consist of 274 apartment units and 6,420 ft² of first floor commercial space, housed within 2 high-rise buildings and 32 townhome units. The expected buildout date is 2024.

Other Developments

The following are other anticipated future developments that were worth noting but were not included in the future background volumes due to lack of available information or were considered far enough away to have limited impact on the study area.

- **Preston Hardware**, located at 248 Preston St and along Balsam St, is planning to expand its premises by constructing a new residential development and providing truck access to the existing store. The status and timing of this development has yet to be defined at this time.
- A **Federal building (PSPC/Canada Lands)** is located at 1010 Somerset St W in the land directly north of the Gladstone Village site. Due to servicing limitations, the site may be redeveloped in conjunction with the development of Gladstone Village. The status and timing of this development has yet to be defined at this time.
- **The Ottawa Hospital** is constructing a new campus at 930 Carling Ave and 520 Preston St, approximately 1km south of the Gladstone Village site. The site will take up considerable space but is also anticipated to promote active and transit modes of travel. At the time of this study, a TIA Study was being prepared in support of a Zoning Application, and is expected to be presented before Planning Committee later this summer.
- **Canada Lands Company (CLC)** is proposing to construct a mixed-use development at 552 Booth St, consisting of five residential buildings containing 1,000 dwelling units and five heritage buildings containing 142,200 sq.ft. of retail/office space. The site was occupied by a Natural Resources Canada office/research complex and was acquired by Canada Lands in 2015. The new development was originally expected to be fully constructed by 2025. The CLC website indicates that the park in the southwest corner of the site is being constructed in the summer of 2021. However, there has been no updates regarding the construction schedule of the remainder of the site. While the development is expected to generate 175 vehicle trips during both morning and afternoon peak hours, most vehicles are anticipated to utilize both Hwy 417 and Carling Ave, which is outside the area of influence of the Gladstone Village site.

2.2. Study Area and Time Periods

Phase 1 of the Gladstone Village development is anticipated to be fully constructed by 2024. As such, horizon years 2024 and 2029 (i.e. five-years after development buildout) will be analyzed using the weekday morning and afternoon peak hour time period traffic volumes. Proposed study area intersections are outlined below and highlighted in **Figure 12**.

- Preston St/Somerset St W;
- Preston St/Gladstone Ave;
- Gladstone Ave/Rochester St;
- Rochester St/Raymond St/Hwy 417 WB On Ramp;
- Rochester St/Orangeville St/Hwy 417 EB Off Ramp;
- Preston St/Oak St;
- Preston St/Laurel St;
- Preston St/Larch St; and
- Preston St/Balsam St.

Figure 12: Study Area

2.3. Exemption Review

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

Table 1: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.3 New Street Networks	This element is only required for applications involving Plan of Subdivision.
4.2 Parking	4.2.2 Spillover Parking	Only required for Site Plans where parking supply is 15% below unconstrained demand.
4.8 Network Concept	All	Only required when proposed development generates more than 200 person-trips peak hour in excess of the equivalent volumes permitted by established zoning.

3.0 FORECASTING REPORT

3.1. Development Generated Travel Demand

3.1.1. Trip Generation and Mode Shares

The proposed development will consist of 338 residential units and less than 4,000 ft^2 of ground floor commercial space, housed within four apartment buildings that are 4 to 18-storeys high. Due to the small size of the commercial space, it is assumed that it will be utilized mostly by the residents of the building and will not generate any new trips. The appropriate trip generation rates for a high-rise apartment land use were obtained

from the 2020 TRANS Trip Generation Manual. Table 3 in the Manual provides person-trip rates during the peak AM and PM periods (7am-9:30am and 3:30PM-6PM). The trip rates are summarized in **Table 2** below.

Table 2: Trip Generation Trip Rates

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

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

Table 3: Apartment Units Peak Period Person Trip Generation

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
High-Rise Apartments	338	270	304

The proposed development is anticipated to generate 270 and 304 person trips during the morning and afternoon peak periods, respectively. The total peak period person trips in **Table 3** are then divided into different travel modes, as shown in **Table 4**, using mode share percentages obtained from the 2020 TRANS Manual for the "Ottawa Inner Area" district.

Table 4: Peak Period Trips Mode Shares Breakdown

Travel Mode	Mode Share	AM Peak Period Person Trip	Mode Share	PM Peak Period Person Trips
Auto Driver	27%	73	26%	79
Auto Passenger	6%	16	8%	24
Transit	28%	75	21%	64
Cycling	5%	13	6%	18
Walking	34%	92	39%	119
Total Person Trips	**100%**	**270**	**100%**	**304**

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

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

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

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

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

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

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

Using the conversion rates in **Table 5** and the peak period person trips for different travel modes in **Table 4**, the peak hour trips for different travel modes can be calculated as shown in **Table 6**. The actual peak hour mode share percentages can be reverse calculated using the percentage of each travel mode to the total person trips.

Table 6: Peak Hour Trips, with Actual Mode Share Percentages

Travel Mode	Peak Hour Mode Share Percentages	AM Peak Hour Trips	Peak Hour Mode Share Percentages	PM Peak Hour Trips
Auto Driver	24%	35	25%	34
Auto Passenger	4%	5	5%	7
Transit	29%	41	21%	30
Cycling	6%	8	6%	9
Walking	37%	52	43%	61
Total Person Trips	**100%**	141	**100%**	141

As shown in **Table 6**, the proposed development is anticipated to generate a total of approximately 141 person trips during both the morning and afternoon peak hours. Vehicle trips are anticipated to be approximately 35 veh/h during both the morning and afternoon peak hours. Active transportation mode shares (bike and walk) generate the highest number of trips for the proposed development (60 to 70 trips during peak hours), which is expected given the location of the development in a core sector of the City of Ottawa.

However, considering that the development will be located within a 250 m walking distance of the future Corso Italia LRT station, the transit mode share is expected to be significantly higher. As such the TRANS mode share assumptions were adjusted to reflect the opportune location of the site with respect to LRT and the Trillium Pathway more appropriately, as shown in **Table 7**. It was assumed that the same mode share distribution would occur in the morning and afternoon peak hours.

Table 7: Adjusted Mode Share Percentages and Peak Hour Trips

Travel Mode	Mode Share	AM Peak Hour Trips	PM Peak Hour Trips
Auto Driver	15%	21	21
Auto Passenger	5%	7	7
Transit	50%	71	71
Cycling	5%	7	7
Walking	25%	35	35
Total Person Trips	**100%**	**141**	**141**

Inbound and outbound percentages were obtained from Table 9 of the 2020 TRANS Manual and applied to each travel mode in **Table 7** as shown in **Table 8**.

Table 8: Inbound/Outbound Morning and Afternoon Person Trips

Travel Mode	Mode Shares	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Auto Driver	15%	7	14	21	12	9	21
Passenger	5%	2	5	7	4	3	7
Transit	50%	22	49	71	41	30	71
Bike	5%	2	5	7	4	3	7
Walk	25%	11	24	35	20	15	35
Total Person Trips	**100%**	**44**	**97**	**141**	**81**	**60**	**141**

As shown in **Table 8**, approximately 21 new vehicular trips, 71 new transit trips and 42 active transportation trips are expected in the morning and afternoon peak hours from the proposed development.

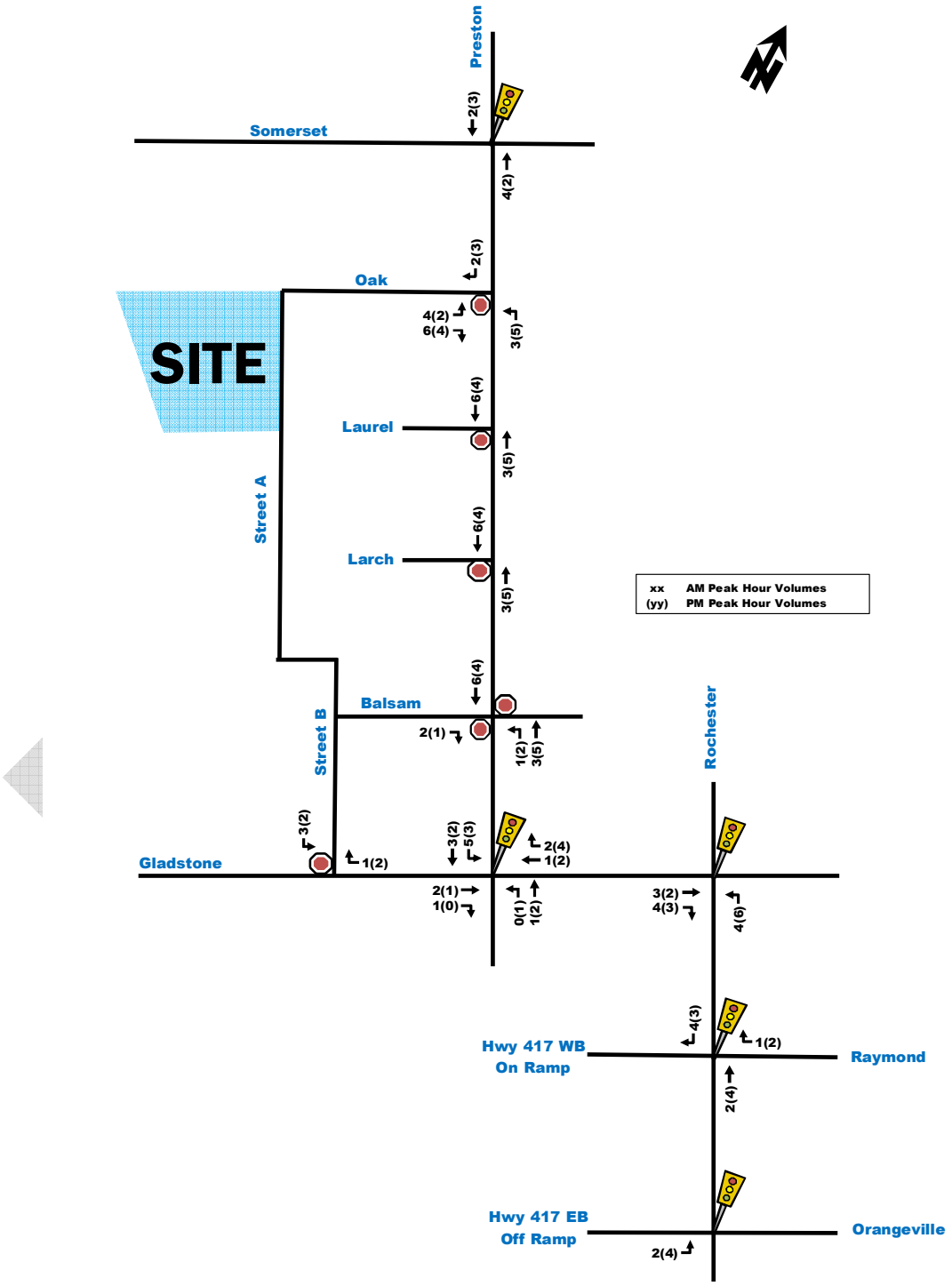
3.1.2. Trip Distribution and Assignment

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

- 25% to/from the north via Preston St;
- 25% to/from the south via Preston St;
- 20% to/from the east via Hwy 417 and Gladstone Ave; and,
- 30% to/from the west via Hwy 417.

The anticipated new auto trips of the proposed development (provided in **Table 8**) were then assigned to the road network as shown in **Figure 13**.

Figure 13: Site-Generated Traffic Volumes



3.2. Background Network Traffic

3.2.1. Transportation Network Plans

Refer to **Section 2.1.3.1** for a detailed description of future transportation network changes. Major changes include the construction of the Corso Italia Station along the Trillium Line and the LRT corridor extensions which will bring 77% of all residents in the City of Ottawa within a five-kilometer radius of the rail (as cited by the City of Ottawa's LRT Stage 2 Project Overview page).

3.2.2. Background Growth

A regression analysis was conducted using historic traffic count data (years 2002, 2004, 2006, 2011 and 2017) at the intersection of Gladstone/Preston. The results are summarized in **Table 9** below, with detailed analysis provided in **Appendix F**.

Table 9: Historical Background Traffic Growth at Gladstone/Preston

Time Period	Percent Annual Change				
	North Leg	South Leg	East Leg	West Leg	Overall
8 hrs	-1.32%	-1.07%	0.23%	1.27%	**-0.38%**
AM Peak	-1.43%	-1.00%	0.70%	1.42%	**-0.29%**
PM Peak	-1.60%	-1.67%	0.67%	2.21%	**-0.13%**

As shown in **Table 9**, the intersection of Gladstone/Preston only experienced growth on the west leg of the intersection. We expect this may be the result of cut-through WB traffic utilizing local roads on Gladstone Ave to access more major roadways, such as Wellington St and Carling Ave. It may also be the result of more traffic utilizing the Hwy 417 WB on-ramp on Parkdale Ave. All other legs of the intersection have experienced either negative growth or no growth.

Given that the future Corso Italia Station and the LRT expansions will result in increased transit trips and reduced vehicle trips in the study area, a traffic growth rate of 0% will be applied to the study area intersections.

3.2.3. Other Developments

As mentioned in **Section 2.1.3.1**, three adjacent future developments with active development applications have been identified in the study area. Traffic volumes anticipated to be generated by the future development at 811 Gladstone are minimal and are not included in the future background traffic. Traffic volumes generated by the following adjacent future developments will be considered:

- 945 Gladstone Ave and 145 Loretta Ave North – **Figure 14**
- 818 Gladstone Ave (Rochesterville Phase 2) – **Figure 15**

Both developments are assumed to be fully constructed by full-buildout of Gladstone Village Phase 1 (i.e. horizon year 2024).

Figure 14: 951 Gladstone and 145 Loretta Ave Site-Generated Traffic Volumes

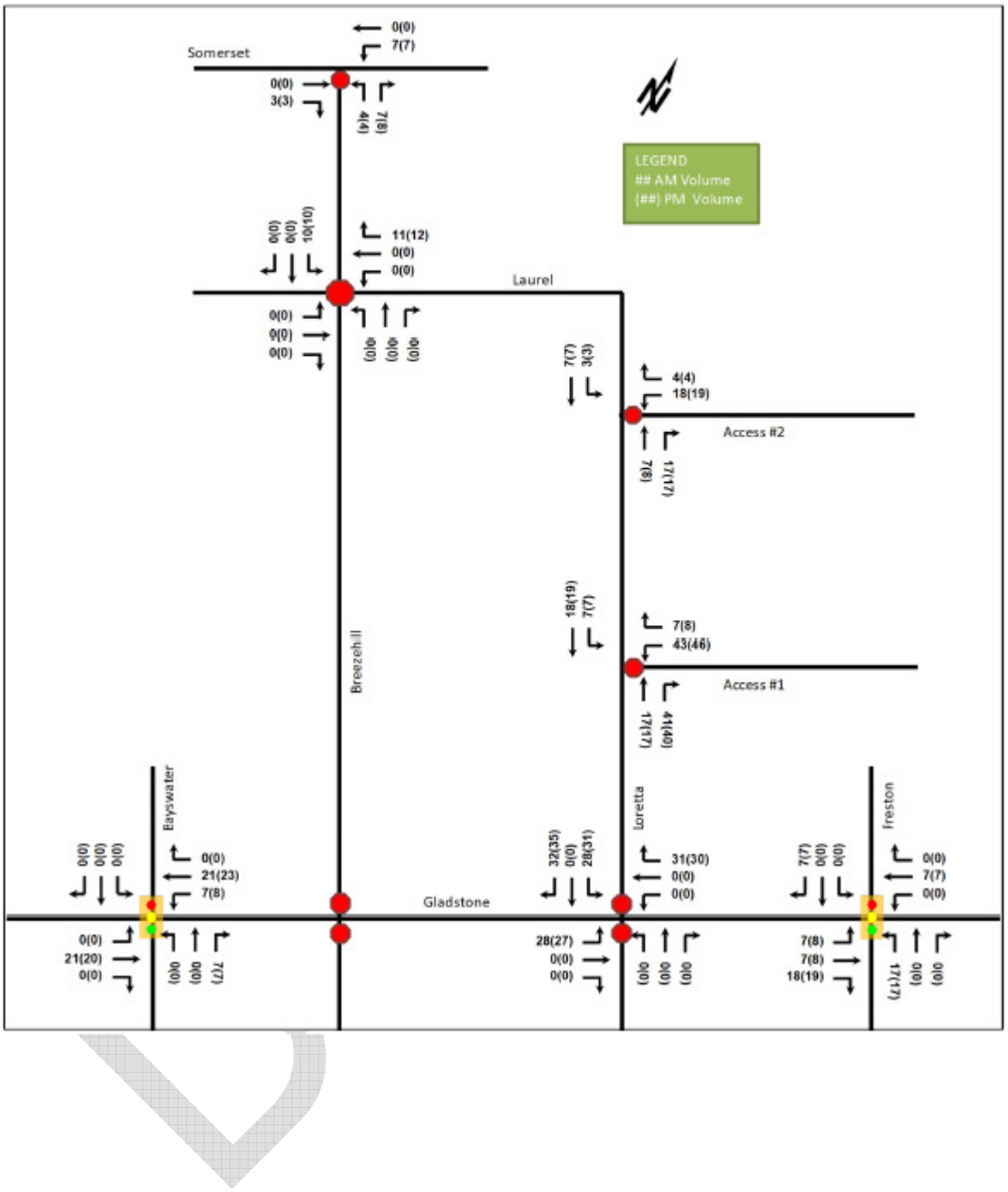
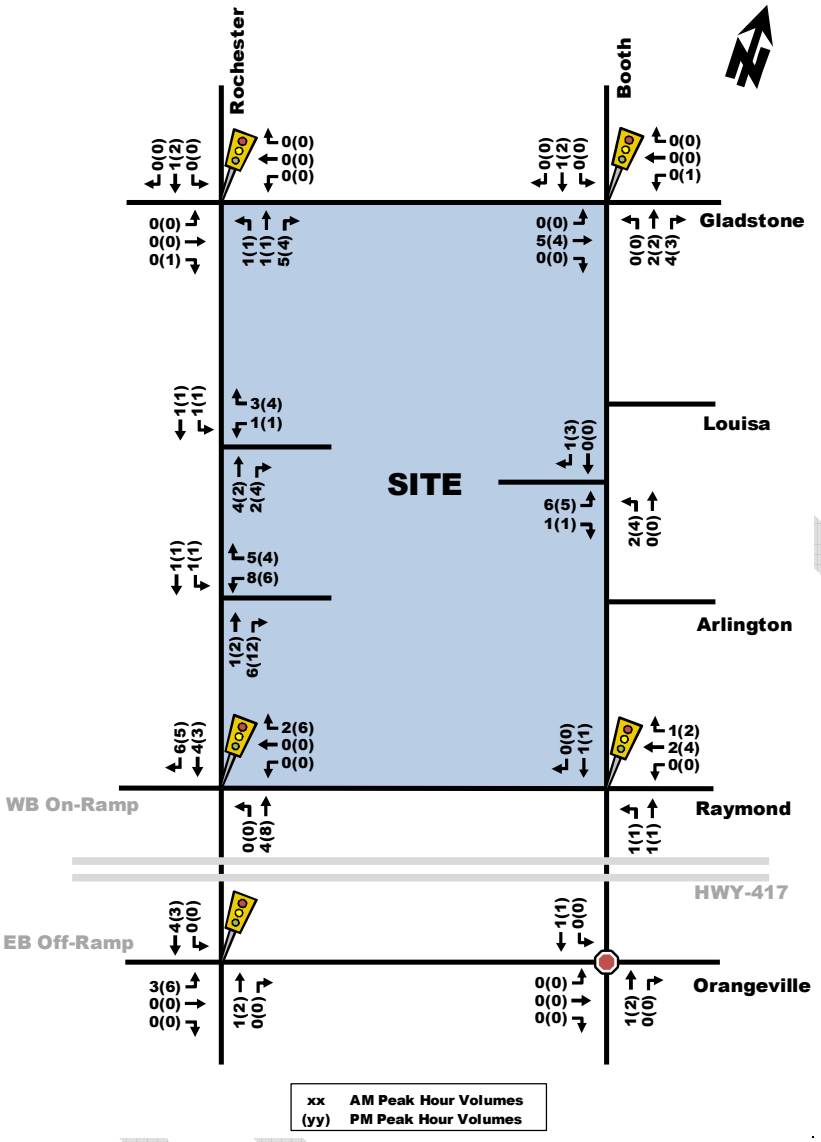


Figure 15: 818 Gladstone (Rochesterville Phase 2) Site-Generated Traffic Volumes



3.3. Demand Rationalization

The proposed development is anticipated to add approximately 20 vehicle trips during peak hours (i.e. approximately 1 vehicle every 3 minutes), which is considered to be a negligible amount of traffic. The future Corso Italia Station will offset the majority of trips generated by the development through transit. Based on the total projected traffic volumes, traffic along Preston St may reach approximately 500 to 550 veh/h in the peak direction, which is considered manageable for an arterial road. Similarly, traffic along Gladstone Ave may reach approximately 600 to 650 veh/h in the peak direction, which is considered manageable for a major collector road.

4.0 ANALYSIS

4.1. Development Design

A description of the available and proposed transportation network elements for different travel modes is provided in the sections below. Note that the City of Ottawa's TDM-Supportive Development Design and Infrastructure has been provided in **Appendix G**.

4.1.1. Vehicle Circulation, Location and Design of Auto and Bicycle Parking

Oak St will extend into the site as shown in the full conceptual plan (**Appendix B**), connecting to 'Street A', which forms a crescent within the site and continues south as 'Street B' towards Gladstone Ave, providing vehicle access to Balsam St as well.

Car parking spaces are proposed to be provided in an underground parking garage for residents and visitors. Bicycle parking spaces are anticipated to be provided both in the underground parking garage and on the surface. An Uber waiting lounge is depicted on the Site Plan near the building's central access. Additionally, a room is provided on the main floor for scooter/foldable stroller storage.

A moving room, loading/unloading and garbage pick-up area for trucks is provided slightly north of the central access to the building. A secondary moving room is provided to the south, by the three surface parking spaces.

4.1.2. Pedestrian/Cycling Routes and Facilities

As illustrated in the Phase 1 Site Plan (**Figure 2**) and the full conceptual plan (**Appendix B**), pedestrian and cycling facilities will be provided throughout the Gladstone Village site, including sidewalks along both sides of the internal site roads, Street A and Street B, which connect to sidewalk facilities of the external road network. A pedestrian promenade will also be provided east of Street A.

Internal pathways connect to the Trillium Line MUP, including a pathway that extends from Laurel St and connects to Loretta Ave N across the Trillium Line Rail Corridor via a pedestrian bridge. Along the Laurel St MUP/Active Transportation Corridor (ATC), multiple pedestrian crossings are provided at the internal site roads. Based on a future desire line extending from existing sidewalks provided on Laurel St and connecting to the proposed Laurel ATC, a Pedestrian Crossover (PXO) on Preston St at Laurel St may improve crossing and accessibility to the ATC if future conditions and pedestrian demand warrants it.

The Corso Italia Station District Secondary Planning Study proposed that a new north-south MUP be provided on the west side of the Trillium Line transit corridor, between the Queensway bridge and Somerset St W. This MUP will be constructed on private properties west of the Trillium Line transit corridor, as the properties undergo redevelopment. The purpose of this MUP is to provide better accessibility for LRT users that are west of the transit corridor.

4.1.3. Transit Accessibility

The Corso Italia LRT Station will be located within 250m walking distance of the Gladstone Village Phase 1 development. Connectivity to the station is provided via the internal pathways and sidewalks, as well as the Trillium Line MUP. Transit operations of the existing bus routes operating in the area may be modified by OC Transpo once the Corso Italia LRT Station is fully constructed. Otherwise, bus routes will continue to operate as mentioned in **Section 2.1.2: Transit Network**.

4.2. Parking

Based on the City of Ottawa Parking Provisions, Gladstone Village is located in "Area Z", where no off-street motor vehicle parking is required to serve the residential or commercial land uses of the site. Visitor parking in Area Z is required at a rate of 0.1 spaces per unit, excluding the first 12 units, with no more than 30 visitor spaces required. This equates to 30 visitor parking spaces required for the 338 proposed apartment units. Additionally, bike parking spaces are required at a rate of 0.5 spaces per dwelling unit, which equates to approximately 169 bike parking spaces for the 338 apartment units.

Phase 1 of Gladstone Village currently proposes to provide approximately 143 vehicle parking spaces in an underground parking garage, as well as approximately 341 bicycle parking spaces, located on both ground floor and in the underground parking garage. Based on the parking layout, 13 vehicle spaces are anticipated to be allocated for commercial use, 16 spaces for visitors and 114 for residents. As such, visitor parking may be less than required. However, based on the City of Ottawa Parking Provisions, parking may be shared between visitor spaces and commercial spaces at different time periods throughout the week. Additionally, the development's proximity to the future Corso Italia Station may reduce the need for visitors to utilize parking spaces.

4.3. Boundary Street Design

Using discrete quantitative methods, the Multi-Modal Level of Service (MMLOS) analysis describes the level of convenience and comfort experienced by pedestrians, cyclists, transit, and trucks. MMLOS analysis was conducted at the boundary roads of the proposed development, Gladstone Ave, Oak St, and Balsam St. The geometry and features along the boundary streets are anticipated to be the same in both existing and future horizon year conditions. Below is a description of the proposed development's boundary streets at the site's frontage:

Gladstone Ave (major collector road classification)

- 2.0m wide sidewalk and no boulevard,
- 2 lanes total (1 EB and 1 WB),
- 3.7m wide lanes,
- Operating speed of 40km/h,
- More than 3000 average daily curb lane traffic volume,
- No on-street parking, cycling facilities or transit facilities, and
- Not a designated truck route.

Oak St and Balsam St (local road classifications)

- 1.8m wide sidewalk and no boulevard,
- 2 lanes total (1 EB and 1 WB),
- 3.5m wide curb-side lanes,
- Operating speed of 40km/h or less,
- Less than 3000 average daily curb lane traffic volume,
- On-street parking on one side of the road,
- No cycling or transit facilities, and
- Not a designated truck route.

Detailed analysis results have been provided in **Appendix H**. **Table 10** below provides a summary of the results, along with the minimum desirable targets obtained from the MMLOS Guidelines, for each respective travel mode. The targets are based on the proposed development site's location in a "within 300m of a school" Policy Area for existing conditions and in a "within 600m of a rapid transit station" Policy Area for future conditions, both of which provide the same MMLOS targets.

Table 10: MMLOS Analysis, Boundary Road Segments

Road Segment	Level of Service							
	Pedestrian (PLOS)		Bicycle (BLOS)		Transit (TLOS)		Truck (TkLOS)	
	PLOS	Target	BLOS	Target	TLOS	Target	TkLOS	Target
Gladstone Ave	C	A	B	B	D	D	B	No Target
Oak St	B	A	A	D	N/A	N/A	N/A	No Target
Balsam St	B	A	A	D	N/A	N/A	C	No Target

Red font in the table above indicates that the respective desirable target has not been met. As shown in **Table 10**, the pedestrian LOS targets are not met at any of the road segments. Gladstone Ave does not achieve the PLOS 'A' due to the high average daily curb lane traffic volume and lack of boulevard. Oak St and Balsam St both would require wider boulevard and sidewalk widths to achieve the PLOS 'A', which may not be achievable due to a limited right-of-way.

It should be noted that there are no applicable TLOS results or targets for Oak St and Balsam St as they are local roads with limited accessibility and no transit operations. Similarly, trucks are rarely anticipated to access Oak St, as such, there is no applicable analysis result. On Balsam St, trucks may access the Preston Hardware Store in existing and future conditions, this will be discussed in more detail in **Section 4.4**. Note that no TkLOS targets are available for these boundary roads in the MMLOS Guidelines.

4.4. Access Intersection Design

Access to the underground parking lot of the Phase 1 development will be provided via an approximately 7m wide ramp within the site. Parking spaces within the underground parking garage are 5.2m long and 2.6m wide, as per the requirements of the City of Ottawa Parking Provisions. Driveway aisles between parking areas are 6.0m wide. On the ground level, the Phase 1 site provides an internal vehicle circulation area.

Vehicle access to the development site is provided via three different roadways, which includes Oak St, Balsam St and Gladstone Ave. Stop control will be utilized at the Street B approach to Gladstone Ave, as well as the Balsam St approach to Street B.

4.4.1. Oak Street Access

Oak St currently provides access to single-family homes on south side and a parking on the north side adjacent to Plouffe Park. No changes to the existing Preston/Oak design were anticipated.

4.4.2. Balsam Street Access

Balsam currently provides access to the local businesses (primarily the Preston Hardware) and a small number of single-family homes. There are no plans to alter the design of the Preston/Balsam intersection to support the subject site. It is expected that this roadway will provide secondary access to Gladstone Village, adding a small amount of new traffic to the roadway. Operationally, no modifications are expected to be needed to support the proposed development. This location was also the preferred location for secondary access to the site based on public feedback. However, there are potential design constraints to connecting to Balsam St. Two corner buildings abut the property line at the intersection of Preston St, and only 11.5m of right-of-way is available.

4.4.3. Gladstone Avenue Access

The Trillium Pathway crosses Gladstone approximately 45m west of the proposed Gladstone/Street B access location, and City staff have indicated that this crossing will be signalized in the future once the Corso Italia LRT Station is constructed. The purpose of the signal is to "provide safe crossing for pedestrians and cyclists and accommodate increasing demand." The proximity of these two future intersections may create design challenges, particularly if an eastbound left-turn lane or traffic signal are triggered at Gladstone/Street B in the

future. At this time, a left-turn lane was not found warranted given the low volumes generated by Phase 1 of the development. Therefore, a traffic control signal was not considered at this intersection.

Another consideration for the Gladstone/Street B intersection is the Preston Hardware site at the northwest corner of Preston/Gladstone, directly adjacent to the future Street B connection. At the time of this study, the owners of these lands indicated their intention to expand the existing business and redesign the site. One of the key issues cited by the local Councilor was the existing truck loading bay fronting onto Gladstone Ave, which causes trucks to block the sidewalk and portions of the roadway at certain times of the day. The implications and possible mitigation of this concern were not considered in this TIA due to the uncertain timing and status of the Preston Hardware development proposal but should be reviewed during the future Preston Hardware development application.

4.5. Transportation Demand Management

4.5.1. Context for TDM

The proposed development is located in both a Design Priority Area (DPA), known as Preston/Champagne Mixed Use Centre, and a Transit-Oriented Development (DPA) zone, where the future Corso Italia LRT Station is located within 250m. The property is owned and will be managed by the Ottawa Community Housing (OCH) Corporation.

Given the proposed land-use of the development as a residential building, it is assumed that most trips generated will be from residents leaving the site in the AM peak to go to work and returning to the site in the PM peak. **Sections 3.1.1** and **3.1.2** describe how many trips are anticipated per travel mode and anticipates the likely locations that they will travel to and from based on the OD-Survey 2011 for Ottawa.

The development is proposing to provide 338 apartment units in a 4 to 18-storey high building. A breakdown of the unit types on the Site Plan indicates that the units provided will consist of 44 studio units, 180 one-bedroom units, 70 two-bedroom units, 40 three-bedroom units and 4 four-bedroom units.

4.5.2. Need and Opportunity

The proposed development is located in a well-developed core area of the City of Ottawa, where transit and active transportation facilities, such as the LRT, the bike pathways and the sidewalks, are well-maintained and developed, which naturally results in increased transit and active transportation usage and decreased auto trips.

The proximity of the development to the future Corso Italia LRT Station and the current ongoing east, west and south expansions of the LRT would further result in an increasing transit usage. As highlighted by the Corso Italia Station District Secondary Plan, the City has been adopting aggressive policies in transit-oriented development (TOD) in hopes of reducing personal vehicle use.

The proposed development is expected to utilize Transportation Demand Management (TDM) measures to maintain sustainable transit and active mode shares, as described in more detail in **Section 4.5.3** below.

4.5.3. TDM Program

The TDM Infrastructure and TDM Measures Checklists have been provided in **Appendix G**. The proposed measures in each respective checklists are identified below.

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

- All ten (10) Required measures related to Walking and Cycling (facilities and bicycle parking) and Vehicle Parking have been satisfied

- Eleven (11) out of fourteen (14) basic measures related to Walking and Cycling and Parking have been satisfied, namely:
    - Locating building close to the street.
    - Locating building entrances to minimize walk distance to sidewalks and transit.
    - Locating building doors and windows to ensure visibility of pedestrians.
    - Providing safe, direct and attractive walking routes to transit.
    - Ensuring walking routes are secure, visible, and lighted.
    - Designing roads for cyclist circulation.
    - Providing lighting, landscaping and benches along walking and cycling routes.
    - Providing wayfinding signage for site access.
    - Providing bicycle parking equivalent to expected number of resident-owned and visitor cyclists.
    - Providing parking for long-term and short-term users.
    - Provide shared parking for different uses (i.e. visitors, commercial, etc.)
- Three (3) out of seven (7) better measures related to Walking and Cycling and Carsharing and Bikesharing have been satisfied, namely:
    - Providing secure bike parking spaces equivalent to at least the number of units.
    - Providing a permanent bike repair station.
    - Providing carshare parking spaces for tenants and the benefit of the surrounding community.

Proposed measures identified in the TDM Measures Checklist are:

- Display walking and cycling information at major entrances.
- Display transit information at major entrances.
- Provide on-site carshare vehicles for residents and carshare memberships.
- Unbundle parking costs from monthly rent.
- Provide multi-modal travel information package to new residents.

4.6. Neighbourhood Traffic Management

This module compares the maximum one-way traffic of a local or collector road during morning and afternoon peak hours, to the respective threshold provided by the City of Ottawa TIA Guidelines.

Site-generated traffic of the proposed development are expected to use local roads Oak St, Balsam St and Raymond St, as well as major collector roads Rochester St and Gladstone Ave as part of their access route to/from the proposed development. The thresholds provided in the TIA Guidelines indicate a maximum one-way traffic of 120 veh/h for local roads and 600 veh/h for major collector roads, during peak hours. Using the total projected 2029 traffic volumes in **Figure 17**, future traffic volumes along these roads were projected to be as follows:

- Along Oak St and Balsam St, traffic volumes do not exceed the 120 veh/h threshold of a local road.
- Along Rochester St, traffic volumes do not exceed the 600 veh/h threshold of a major collector road.
- Along Raymond St, traffic volumes approach 500 veh/h in the WB direction of the Rochester/Raymond intersection during both peak hours. This volume is approaching the threshold of a major collector road. It should be noted that this volume of traffic is nearly the same in existing conditions. However, this is not an unexpected volume given that Raymond St is used to access the Hwy 417 ramp at Rochester St.

  Additionally, sidewalks and on-street parking are provided on the north side of the road, with narrowing of intersections through bulb-outs, all of which help reduce traffic speeds. Nonetheless, given its direct connection to the Rochester Hwy 417 WB on ramp, an upgrade to a collector or major collector classification may be more appropriate.

- Along Gladstone Ave, a traffic volume greater than 600 veh/h (635 veh/h) is projected in the WB egress of the intersection of Gladstone/Preston during the afternoon peak hour, which slightly exceeds the 600 veh/h threshold of a major collector road. The existing traffic volumes are operating at the threshold limit. However, the current classification is considered appropriate given the City's goals of promoting alternate modes of travel such as pedestrian, cycling and transit, especially within the City Inner Area.

  The City has been retrofitting Gladstone Ave and its intersections in recent years with traffic calming measures, such as intersection narrowings, specialized pavement markings/treatments and ensuring that intersections meet AODA compliance. For example, at the Rochester/Gladstone intersection, a safety review was conducted by the City that recently resulted in the removal of the EBL turn lane and movement, the repainting of zebra crosswalks and pavement markings, and the providing of TWSIs for pedestrian crossings.

  Therefore, the current road classification was deemed appropriate along Gladstone Ave within the study area.

4.7. Transit

As shown in **Table 8**, Phase 1 of Gladstone Village is expected to generate approximately 71 transit person trips during both peak hours. With the existing bus routes in the study area, as well as the future Corso Italia Station which will be constructed by 2022, the transit network will have sufficient capacity that can easily accommodate the future site-generate transit trips.

4.8. Review of Network Concept

Exempt – see **Table 1**.

4.9. Intersection Design

4.9.1. Intersection Control

Stop control will be provided on 'Street B' approaching Gladstone Ave, as well as on Balsam St approaching 'Street B'. All other off-site intersection controls in the study area will continue to operate as in existing conditions.

4.9.2. Intersection Design

Synchro 10 Trafficware was used to analyze intersection performance of intersections within the study area. Critical movements at each of the intersections were assessed based on either the movement with the highest volume-to-capacity ratio (for signalized intersections), or the movement experiencing the highest average delay (for unsignalized intersections). It should be noted that, as per the TIA Guidelines, the Peak Hour Factor (PHF) used for analysis was 0.90 in existing conditions and 1.0 in all future scenario conditions. All Synchro report outputs for existing and future conditions have been provided in **Appendix I**.

Existing Conditions

Table 11 below summarizes the intersection performance of study area intersections, based on existing conditions traffic volumes illustrated in **Figure 6**.

Table 11: Existing Conditions Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Preston/Somerset (S)	D(B)	0.86(0.68)	EBT(EBT)	29.1(23.3)	C(A)	0.72(0.55)
Preston/Gladstone (S)	E(E)	0.94(0.97)	EBT(WBT)	25.2(30.9)	B(C)	0.68(0.80)
Rochester/Gladstone (S)	C(B)	0.73(0.70)	EBT(WBT)	22.9(24.2)	A(B)	0.59(0.61)
Rochester/Hwy 417 WB on/Raymond (S)	B(C)	0.64(0.74)	WBT(WBT)	13.5(16.5)	A(A)	0.50(0.57)
Rochester/Hwy 417 EB off/Orangeville (S)	D(E)	0.86(0.92)	EBT(EBT)	19.2(24.9)	B(A)	0.63(0.48)
Preston/Oak (U)	B(C)	14.0(15.2)	EB(EB)	0.1(0.1)	-	-
Preston/Laurel (U)	C(C)	15.2(15.6)	EB(EB)	0.4(0.4)	-	-
Preston/Larch (U)	C(C)	15.9(17.3)	EB(EB)	0.3(0.2)	-	-
Preston/Balsam (U)	C(D)	22.0(25.5)	WB(EB)	1.7(2.3)	-	-
Note: Analysis of signalized intersections assumes a PHF of 0.9 and a saturation flow rate of 1800 veh/h/lane. (S) – Signalized intersection, movement with highest v/c ratio identified as critical movement. (U) – Unsignalized intersection, movement with highest average delay identified as critical movement.						

As shown in **Table 11**, the signalized intersections 'as a whole' operate at a LOS 'C' or better during the morning and afternoon peak hours. The critical EBT and WBT movements at the intersection of Preston/Gladstone operate near capacity during the morning and afternoon peak hour respectively, along with the critical EBT movement at the intersection of Rochester/Orangeville during the afternoon peak hour. With regards to unsignalized intersections, critical movements operate at a LOS 'C' or better during both peak hours.

Future Background 2029

Future background 2029 volumes are determined by adding the future adjacent development traffic volumes (**Figure 14** and **Figure 15**) onto the existing traffic volumes (**Figure 6**). Since there is no anticipated background growth rate and all future adjacent development volumes are added to horizon year 2024, traffic volumes are anticipated to be similar for horizon year 2029. **Table 12** below summarizes the Synchro traffic operations at study area intersections, based on future background 2029 traffic volumes.

Table 12: Future Background 2029 Conditions Intersection Performance

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Preston/Somerset (S)	C(B)	0.79(0.63)	EBT(EBT)	26.6(22.3)	B(A)	0.66(0.51)
Preston/Gladstone (S)	E(D)	0.94(0.89)	EBT(WBT)	23.3(24.5)	B(C)	0.65(0.73)
Rochester/Gladstone (S)	B(B)	0.67(0.64)	EBT(WBT)	21.2(22.7)	A(A)	0.54(0.56)
Rochester/Hwy 417 WB on/Raymond (S)	A(C)	0.60(0.72)	WBT(WBT)	13.0(15.8)	A(A)	0.46(0.54)
Rochester/Hwy 417 EB off/Orangeville (S)	D(D)	0.82(0.86)	EBT(EBT)	17.5(22.1)	A(A)	0.59(0.44)
Preston/Oak (U)	B(B)	13.7(14.4)	EB(EB)	0.1(0.1)	-	-
Preston/Laurel (U)	B(B)	14.5(14.7)	EB(EB)	0.4(0.4)	-	-
Preston/Larch (U)	C(C)	15.2(16.1)	EB(EB)	0.2(0.2)	-	-
Preston/Balsam (U)	C(C)	17.4(21.4)	WB(EB)	1.6(1.9)	-	-
Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane. (S) – Signalized intersection, movement with highest v/c ratio identified as critical movement. (U) – Unsignalized intersection, movement with highest average delay identified as critical movement.						

As shown in **Table 12**, operations are similar to or slightly better than existing conditions due to increasing the PHF to 1.0 and limited growth on the adjacent road network. However, the eastbound through movement at Preston/Gladstone continues to experience congestion during the morning peak hour.

Total Projected 2029

Total projected traffic volumes can be determined by superimposing the site-generated traffic volumes (**Figure 13**) onto the future background 2029 volumes (**Figure 16**). The total projected 2029 traffic volumes are

illustrated in **Figure 17**. **Table 13** below summarizes the Synchro traffic operations at study area intersections, based on total projected 2029 traffic volumes.

Table 13: Total Projected 2029 Conditions Traffic Volumes

Intersection	Weekday AM Peak (PM Peak)					
	Critical Movement			Intersection 'As a Whole'		
	LOS	max. v/c or avg. delay (s)	Movement	Delay (s)	LOS	v/c
Preston/Somerset (S)	C(B)	0.80(0.63)	EBT(EBT)	27.5(22.4)	B(A)	0.66(0.51)
Preston/Gladstone (S)	B(C)	0.68(0.78)	NBT(WBT)	20.7(24.3)	B(B)	0.62(0.69)
Rochester/Gladstone (S)	B(B)	0.68(0.64)	EBT(WBT)	21.5(22.7)	A(A)	0.55(0.56)
Rochester/Hwy 417 WB on/Raymond (S)	B(C)	0.61(0.72)	WBT(WBT)	13.0(15.8)	A(A)	0.47(0.54)
Rochester/Hwy 417 EB off/Orangeville (S)	D(D)	0.82(0.86)	EBT(EBT)	17.6(22.2)	A(A)	0.59(0.44)
Preston/Oak (U)	B(B)	13.5(14.2)	EB(EB)	0.3(0.3)	-	-
Preston/Laurel (U)	B(C)	14.9(15.0)	EB(EB)	0.4(0.4)	-	-
Preston/Larch (U)	C(C)	15.7(16.6)	EB(EB)	0.2(0.2)	-	-
Preston/Balsam (U)	C(C)	18.4(23.3)	WB(EB)	1.7(2.1)	-	-
Gladstone/Street B (U)	B(B)	13.5(14.5)	SB(SB)	0.1(0.0)	-	-

Note: Analysis of signalized intersections assumes a PHF of 1.0 and a saturation flow rate of 1800 veh/h/lane.
(S) – Signalized intersection, movement with highest v/c ratio identified as critical movement.
(U) – Unsignalized intersection, movement with highest average delay identified as critical movement.

As shown in **Table 13**, the signalized intersections 'as a whole' are projected to operate at a LOS 'B' or better during the morning and afternoon peak hours, with critical movements operating at LOS 'D' or better. The Preston/Gladstone intersection shows improved overall operations as the phase splits were optimized in Synchro for both peak hours, which improved traffic operations. Critical movements of unsignalized intersections, including the future Gladstone/Street 'B' intersection, operated at a LOS 'C' or better during both peak hours.

4.9.3. Trillium Pathway Crossing at Gladstone

City staff have confirmed that the Trillium Pathway crossing at Gladstone Ave will be signalized as part of the LRT Phase 2 work. The traffic signal was modelled in Synchro to determine if there will be queueing along the Gladstone Ave corridor between the Pathway and Preston St, and its interaction with the proposed Gladstone Village Street B/Gladstone access intersection. The planned Pathway signal will be located approximately 155m west of the Gladstone/Preston intersection and 45m west of the future Gladstone/Street B intersection.

The future signalized crossing was modeled in Synchro using a pedestrian phase, where amber, red, walk and don't walk times were determined using the Ontario Traffic Manual (OTM) Book 12 methodology. Additionally, a pretimed signal control was provided and the cycle length was optimized to ensure the most optimal traffic operations are available. This approach represents a worst-case scenario where the Pathway signal would activate every cycle to provide crossing time for pedestrians and cyclists. In reality, the traffic signal would only be triggered when a user is present.

Based on the analysis results, it was determined that the WB 95th percentile queue length at the future signalized crossing is projected to be approximately 75m in the future. It was also determined that the EB 95th percentile queue length at the Gladstone/Preston intersection is projected to be approximately 70m in the future. As such, the projected future queue lengths are not expected to exceed the available storage space of 155m between the future signalized crossing and the Gladstone/Preston intersection.

The WB queue length at the future Pathway signal may occasionally spillback to the future Gladstone/Street B intersection, under this worst-case scenario as the 95th percentile queue length exceeds the 45m spacing. However, the 50th percentile queue length, which represents the average queue length experienced by traffic during the peak hour, indicates that the queue length is expected to be less than 45m. Therefore, there is not expected to be significant queuing concerns through this corridor during peak hour periods in typical traffic conditions.

Figure 16: Future Background 2029 Traffic Volumes

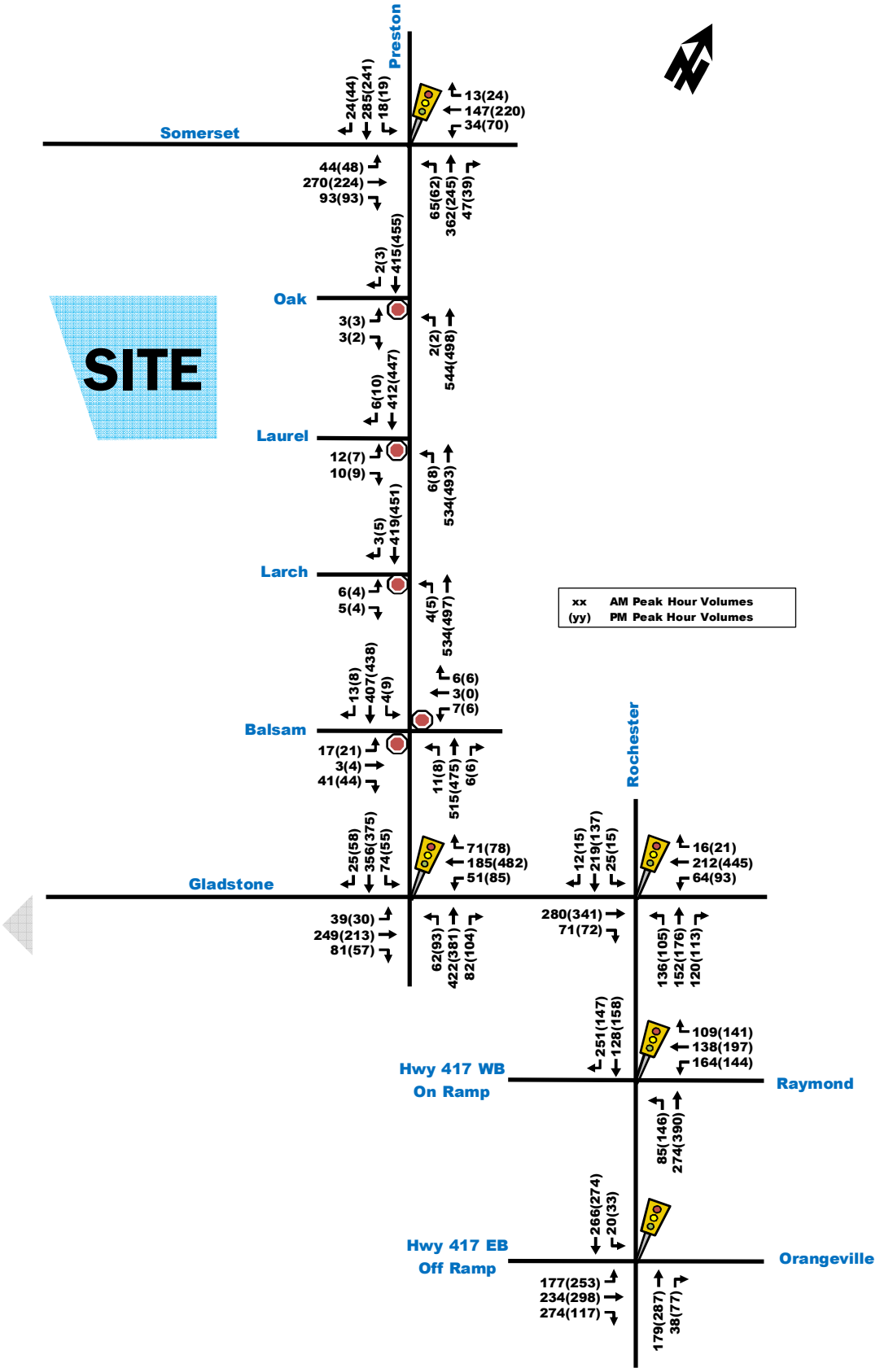
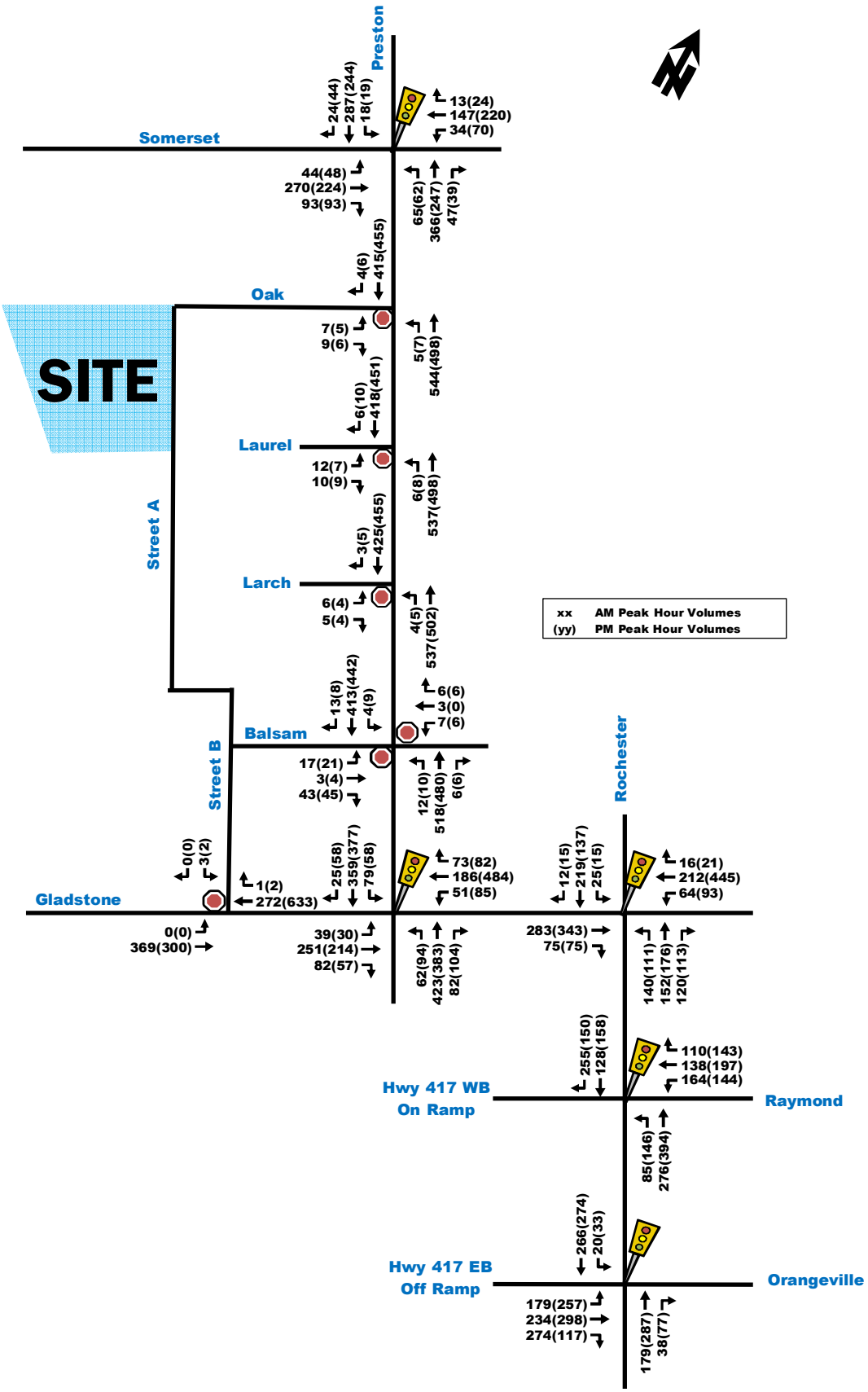


Figure 17: Total Projected 2029 Traffic Volumes



Intersection MMLOS Analysis

As per requirements of the TIA Guidelines, MMLOS analysis was conducted for signalized intersections. While no signalized intersections exist at the frontage of the proposed development site, the intersection of Preston/Gladstone was analyzed as it is within reasonable distance. Since there are no anticipated future modifications at this intersection, analysis was conducted assuming existing conditions.

The analysis is conducted for four different travel modes, including pedestrian, cyclist, transit, and trucks. For each travel mode, a minimum desirable LOS target is obtained from the City of Ottawa TIA Guidelines. In existing conditions, the MMLOS targets are based on a "within 300m of a school" policy area, while in future conditions they are based on a "within 600m of a rapid transit station" policy area. Note that both policy areas provide the exact same MMLOS targets. A summary of the analysis results and respective minimum desirable LOS targets are provided in **Table 14**, with the detailed analysis provided in **Appendix H**.

Table 14: Signalized Intersection MMLOS Analysis

Intersection	Level of Service							
	Pedestrian (PLOS)		Bicycle (BLOS)		Transit (TLOS)		Truck (TkLOS)	
	PLOS	Target	BLOS	Target	TLOS	Target	TkLOS	Target
Preston/Gladstone	C	A	D	C	F	D	F	D

Red font in the table above indicates that the desirable target LOS is not achieved. As shown in **Table 14**, none of the minimum desirable LOS targets have been met at the intersection of Preston/Gladstone due to the following reasons:

- With regards to pedestrian LOS, the results are largely based on the number of lanes that pedestrians have to cross, followed by the degree of comfort and safety that pedestrians feel while crossing. This includes factors such as the amount of interference with crossing pedestrians due to permissible vehicle left-turns and right-turns. To achieve a PLOS 'A' at this particular intersection, given that reducing the number of lanes is not an ideal solution, raised crosswalks would need to be provided along with protected vehicle left-turns and prohibited right-turns on red. Nonetheless, there are currently no safety concerns at this intersection with regards to pedestrians.

- With regards to bicycle LOS, the target LOS is not achieved due to the lack of cycling facilities at the intersection (i.e. cyclists operate in mixed traffic conditions). However, there are no safety concerns for cyclists at this intersection, as operating speeds are low in the area and the Trillium Line Pathway provides a high level of safe connectivity dedicated to pedestrians and cyclists.

- With regards to transit LOS, the target LOS is not achieved due to the high delays experienced by the east and west approaches (Gladstone Ave) of the intersection. Since buses operate in mixed traffic, they experience the same level of delay as general traffic at the intersection. Adjusting the signal timing and phasing of the intersection to provide more dedicated green time to the Gladstone Ave approaches may help reduce the traffic delays.

- With regards to truck LOS, the target LOS is not achieved due to the narrow corner radiuses of the intersection and the number of receiving lanes (1 receiving lane on all legs of the intersection). However, it should be noted that the MMLOS Guidelines do not take into account the geometric arrangement of the left-turn lanes. The stop bars of the left-turn lanes on the east and south legs of the intersection are set back from the stop bars of their respective through/right-turn lanes, thereby providing ample room for trucks to complete their left or right turning movements.

5.0 FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

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

Proposed Development

- Ottawa Community Housing Corporation is proposing a large-scale mixed-use development known as Gladstone Village in a vacant land located in the northeast quadrant of the Gladstone/Trillium Line Corridor crossing. A Site Plan Application is being submitted for Phase 1 of the development, which will be constructed by 2024.
- Phase 1 will consist of 338 apartment units housed in a 4 to 18-storey residential building, as well as less than 4,000 ft^2 of commercial space.
- Approximately 143 vehicle parking spaces are provided in an underground parking garage. Additionally, 341 bicycle parking spaces are provided on the ground floor and in the underground parking garage.
- Access to the development will be provided via internal site driveways known as Street A and Street B, which will connect with Oak St, Balsam St and Gladstone Ave.
- The development is anticipated to generate approximately 141 person trips during peak hours, which includes 21 vehicle trips, 7 passenger trips, 71 transit trips and 42 active transport (walking and cycling) trips.
- Phase 1 of Gladstone Village will be located within 250m of the future Corso Italia LRT Station (formerly Gladstone Station), which is anticipated to be constructed by 2022 as part of the Stage 2 O-Train Trillium Line 2 expansion. As a result, transit usage was expected to be very high, and active transportation modes were also expected to be high given the City's intensification policies reflected in the Corso Italia Station District Secondary Plan.
- A suite of TDM measures are anticipated to be adopted by the Ottawa Community Housing (OCH) Corporation for the purpose of ensuring sustainable transit and active mode travel patterns are maintained. This includes displaying multi-modal travel information for walking, cycling and transit, as well as providing on-site carshare vehicles and unbundling parking costs from monthly rent. Additional key measures include:
    - Providing safe, direct and attractive walking routes to transit.
    - Designing roads for cyclist circulation.
    - Providing lighting, landscaping and benches along walking and cycling routes.
    - Providing a permanent bike repair station.

Existing and Future Background Conditions

- In existing conditions, signalized intersections 'as a whole' operated acceptably at a LOS 'C' or better during peak hours. Only certain movements will experience temporary congestion during the peak periods.

  Critical movements at unsignalized intersections operated acceptably at a LOS 'D' or better during peak hours.
- A review of historical traffic volumes indicated a decreasing growth trend at the Gladstone/Preston intersection. Therefore, a linear background traffic growth rate of 0% per year was applied to study area intersections. A select number of adjacent development traffic volumes were added separately based on currently active development applications.

- Given that no background growth rate was applied to study area intersections and all future adjacent development traffic was added to horizon year 2024, traffic volumes are assumed to be the same at horizon year 2029.
- In the future background 2029 conditions, overall study area conditions were shown to operate similar to existing conditions, with some movements continuing to experience temporary congestion.
- MMLOS analysis for boundary streets was conducted for Gladstone Ave, Oak St and Balsam St. The results indicate that the pedestrian LOS targets are not met on any of the boundary roads. Bicycle, transit, and truck targets were met.
- MMLOS analysis was conducted for the signalized intersection Preston/Gladstone. The analysis indicated that the desirable LOS targets were not achieved. However, there are no safety concerns anticipated.

Projected Conditions

- With regards to neighbourhood traffic management:
    - It was determined that the current road classification for Oak St, Balsam St, Rochester St and Gladstone Ave were appropriate for the site context. No interventions are recommended.
    - Along Raymond St, an upgrade from local road to a collector or major collector road classification may be appropriate, as it provides direct access to the Hwy 417 WB on-ramp at Rochester St causing one-way traffic volumes to approach 500 veh/h in peak periods.
- In the 2029 total projected conditions future vehicle/walking/cycling trips on the adjacent road network generated by the proposed development were incorporated in the Synchro model. The intersection analysis results have been summarized below:
    - All signalized intersections within the study area operated ‘as a whole’ at a LOS ‘B’ or better during both peak hours. The Preston/Gladstone intersection signal timings were optimized in Synchro, resulting in improved intersection operations.
    - Critical movements of unsignalized intersections, including the future Street B site access at Gladstone Ave, operate at a LOS ‘C’ or better during both peak hours.

Design Considerations

- Stop control was assumed on Street B approaching Gladstone Ave, as well as on Balsam St approaching Street B.
- Queue lengths were assessed at the future signalized Trillium Pathway/Gladstone Ave crossing, to ensure spillback was not excessive with the Gladstone intersections at Street B and Preston St. Analysis determined that the average queue length would not cause any blockages or spillbacks. However, queue lengths may occasionally extend past Street B at the WB approach of the new signal, resulting in short-term spillback that can temporarily block traffic from exiting Street B.
- Another consideration for the Gladstone/Street B intersection is the adjacent Preston Hardware site. At the time of this study, the owners were contemplating an expansion; however, no information was available regarding the future site plan. Therefore, the scope and implications of the expansion could not be considered in this TIA and should be reviewed as part of any future Site Plan Control application for the Preston Hardware site.
- Balsam currently provides access to the local businesses (primarily the Preston Hardware Store) and single-family homes. There are no plans to alter the design of the Preston/Balsam intersection to support the subject site. The intersection operates at a LOS D ultimately, without consideration of the

Preston Hardware potential expansion. It is noteworthy that Balsam St is highly constrained at Preston St by two corner buildings that abut the property line with a total right-of-way of only 11.5m.

- Based on a design review of the proposed access intersections, no significant off-site roadway modifications were expected. Therefore, an RMA is not required.
- If future pedestrian/cycling demand warrants it, a new pedestrian crossing (PXO) may be considered the Preston/Laurel intersection, to provide pedestrians with a higher quality crossing across Preston St. This location was considered suitable for a PXO based on the potential desire line through the proposed development and crossing over the Trillium Line.
- The development is proposing to provide a pathway connection from Laurel St to the existing Trillium Pathway, where a pedestrian bridge crossing the Trillium Line Transit Corridor and connecting to Loretta Ave N will be provided. The pathway, known as Laurel Active Transport Corridor (ATC) will provide multiple pedestrian crossing points at internal site driveways, as well as a connection to a pedestrian promenade east of Street B.
- It is indicated by the Corso Italia Station District Secondary Plan Study that a new north-south MUP will be constructed on private properties west of the Trillium Line transit corridor, as the properties undergo redevelopment. The purpose of this MUP is to provide better accessibility for LRT users that are west of the transit corridor.

Overall, the proposed development as outlined in the preceding study can be accommodated by the adjacent road network at the 2024 and 2029 horizon years. The development plan leverages its location in close proximity to the future Corso Italia LRT Station with abundant active transportation facilities and a modern site design to mitigate traffic impacts. The analysis confirmed that no off-site roadway modifications were needed to support the development based on information available at the time of this study. A key consideration for City staff is the status of the anticipated Preston Hardware site expansion, which may trigger some design and capacity challenges in the future. Overall, the proposed development is recommended to proceed from a transportation perspective.

Appendix A:

Screening Form

Office: +1 613.738.4160
1223 Michael Street, Suite 100|Ottawa, ON K1J 7T2

City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	15-Jun-21
Project	Gladstone Village Phase 1 SPA
Project Number	908979-10072

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

Module 1.1 - Description of Proposed Development	
Municipal Address	933 Gladstone Ave, Ottawa, ON K1Y 3E5
Description of location	Located by the Trillium Line corridor at the Gladstone LRT stn.
Land Use	Residential apartment building with small retail stores
Development Size	332 apartment units and 166 parking spaces
Number of Accesses and Locations	Access located along future Oak St extension to Gladstone Ave
Development Phasing	Phase 1
Buildout Year	2024 (estimated)
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	332	Units
Trip Generation Trigger Met?	Yes	

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	Yes
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes
Location Trigger Met?	Yes

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	No	
A proposed driveway is within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions) or within auxiliary lanes of an intersection;	No	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	No	
The development includes a drive-thru facility	No	
Safety Trigger Met?	No	

Appendix B:

Gladstone Village Full Conceptual Plan

PRESTON ST.

PLANT RECREATION CENTRE

PLOUFFE PARK

OAK ST.

LAUREL ST.

LARCH ST.

BALSAM ST.

GLADSTONE AVE.

SOMERSET ST.

Highrise

Midrise

Lowrise

STREET B

STREET A

Phase 1

O 4

N 4

M 4

L 4

J 4 storeys

K 4 storeys

H 4

F 1 4

F 6 storeys

G 18 storeys

E 8 storeys

D 20 storeys

C 8 storeys

B 24 storeys

A 30 storeys

MUP

MUP

GLADSTONE STATION

LORETTA

*** CONCEPTUAL PLAN**

NOTE: *This is an Ottawa Community Housing concept plan depicting possible building massing and street/pathway connections. A comprehensive transportation study has yet to be undertaken to support this concept plan and its assumptions. This plan will be updated pursuant to (among other things) a neighbourhood scale transportation study and its findings, supporting appropriate street connections to Preston and Gladstone, coupled with possible traffic calming measures.*

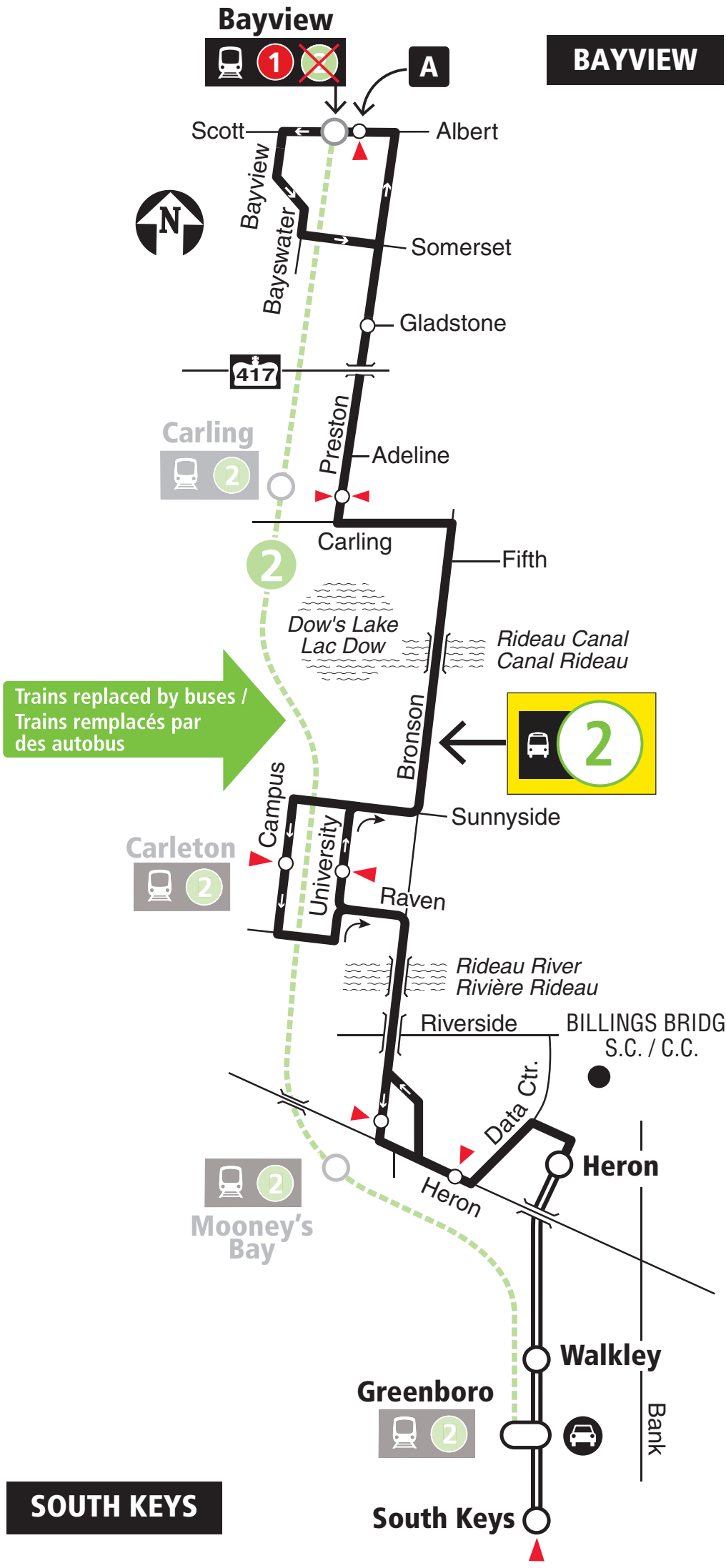
Appendix C:

Transit Route Maps

2 BAYVIEW / SOUTH KEYS

Bus service during O-Train Line 2 expansion

Service d'autobus durant le prolongement de la Ligne 2 de l'O-Train



Transitway & Station

Limited stops / Arrêts limités

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2020.09

Schedule / Horaire.....613-560-1000

Text / Texto 560560

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

Customer Service
Service à la clientèle **613-741-4390**

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

Security / Sécurité **613-741-2478**

Effective Fall 2020
En vigueur automne 2020

OC Transpo

INFO 613-741-4390
octranspo.com

11 Fréquent

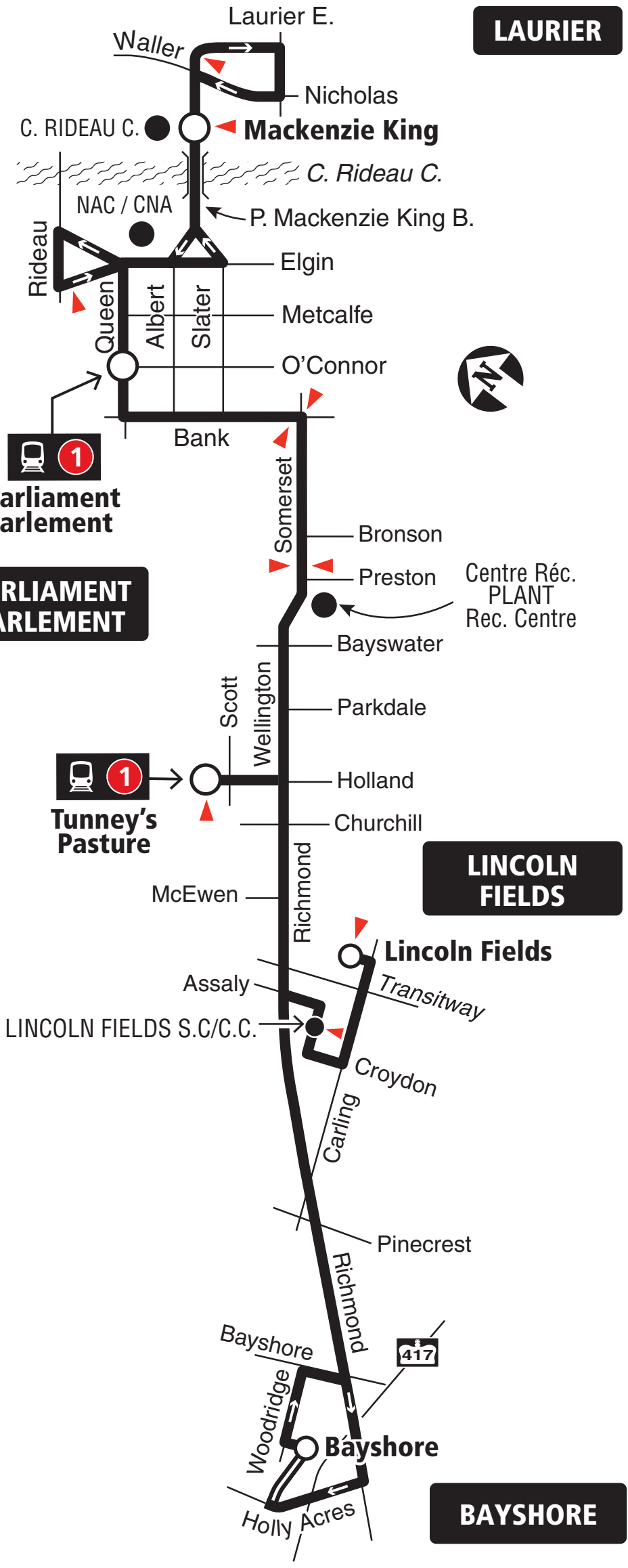
LINCOLN FIELDS BAYSHORE

PARLIAMENT/ PARLEMENT LAURIER

7 days a week / 7 jours par semaine

All day service

Service toute la journée



Transitway & Station

Timepoint / Heures de passage

2021.06

Schedule / Horaire 613-560-1000

Text / Texto* 560560

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

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

Customer Service
Service à la clientèle **613-741-4390**

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

Security / Sécurité **613-741-2478**

Effective June 20, 2021

En vigueur 20 juin 2021

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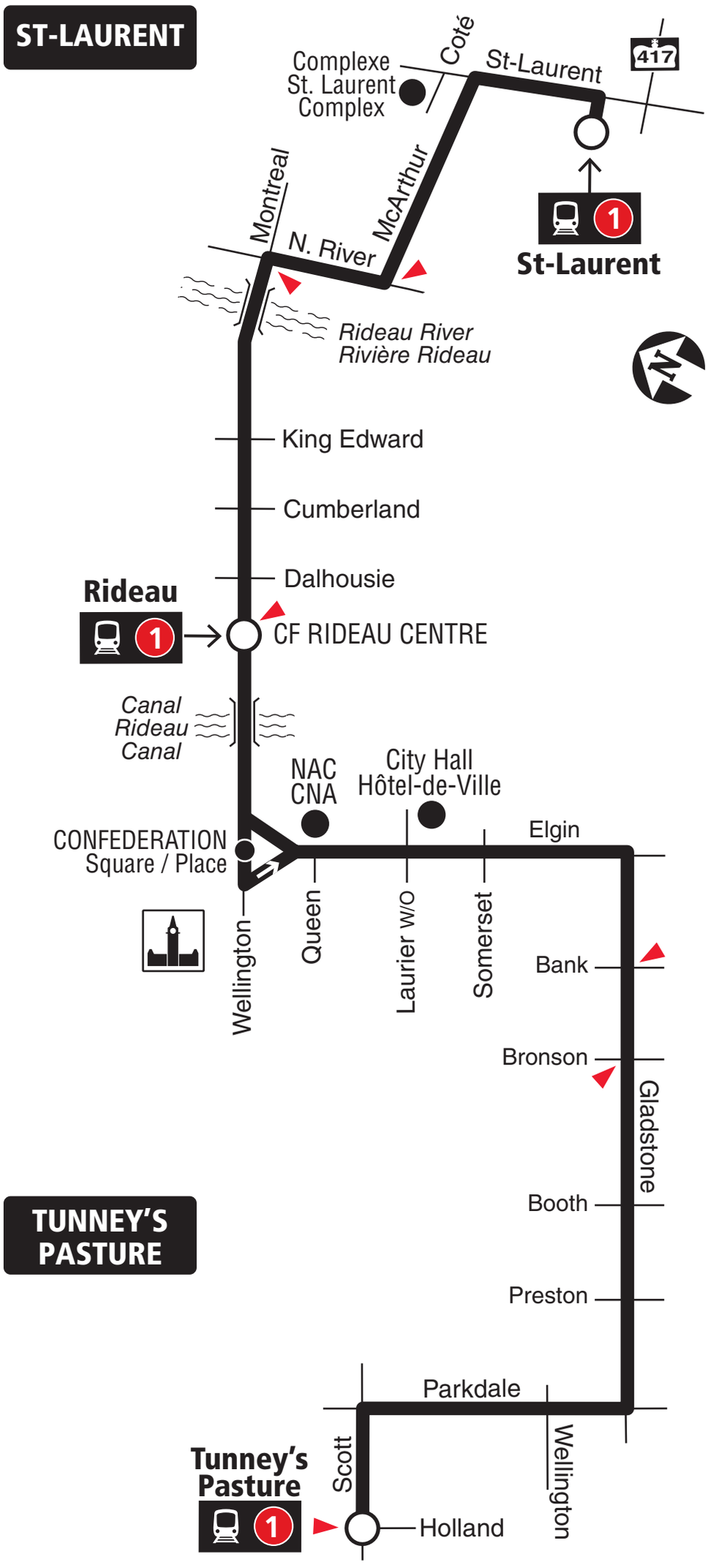
ST-LAURENT
Complexe St. Laurent Complex
Côté
St-Laurent
417
Montreal
McArthur
N. River
1
St-Laurent
Rideau River
Rivière Rideau
N
King Edward
Cumberland
Dalhousie
Rideau
1
CF RIDEAU CENTRE
Canal
Rideau
Canal
NAC
CNA
City Hall
Hôtel-de-Ville
CONFEDERATION
Square / Place
Elgin
Wellington
Queen
Laurier W/O
Somerset
Bank
Bronson
Gladstone
Booth
Preston
TUNNEY'S
PASTURE
Parkdale
Scott
Wellington
Tunney's
Pasture
1
Holland
Station
Timepoint / Heures de passage

2020.09

85

Fréquent

GATINEAU

BAYSHORE

7 days a week / 7 jours par semaine

All day service

Service toute la journée

GATINEAU

BAYSHORE

Station

Timepoint / Heures de passage

2020.04

Schedule / Horaire.....613-560-1000

Text / Texto 560560

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

Customer Service
Service à la clientèle **613-741-4390**

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

Security / Sécurité **613-741-2478**

Effective May 3, 2020

En vigueur 3 mai 2020

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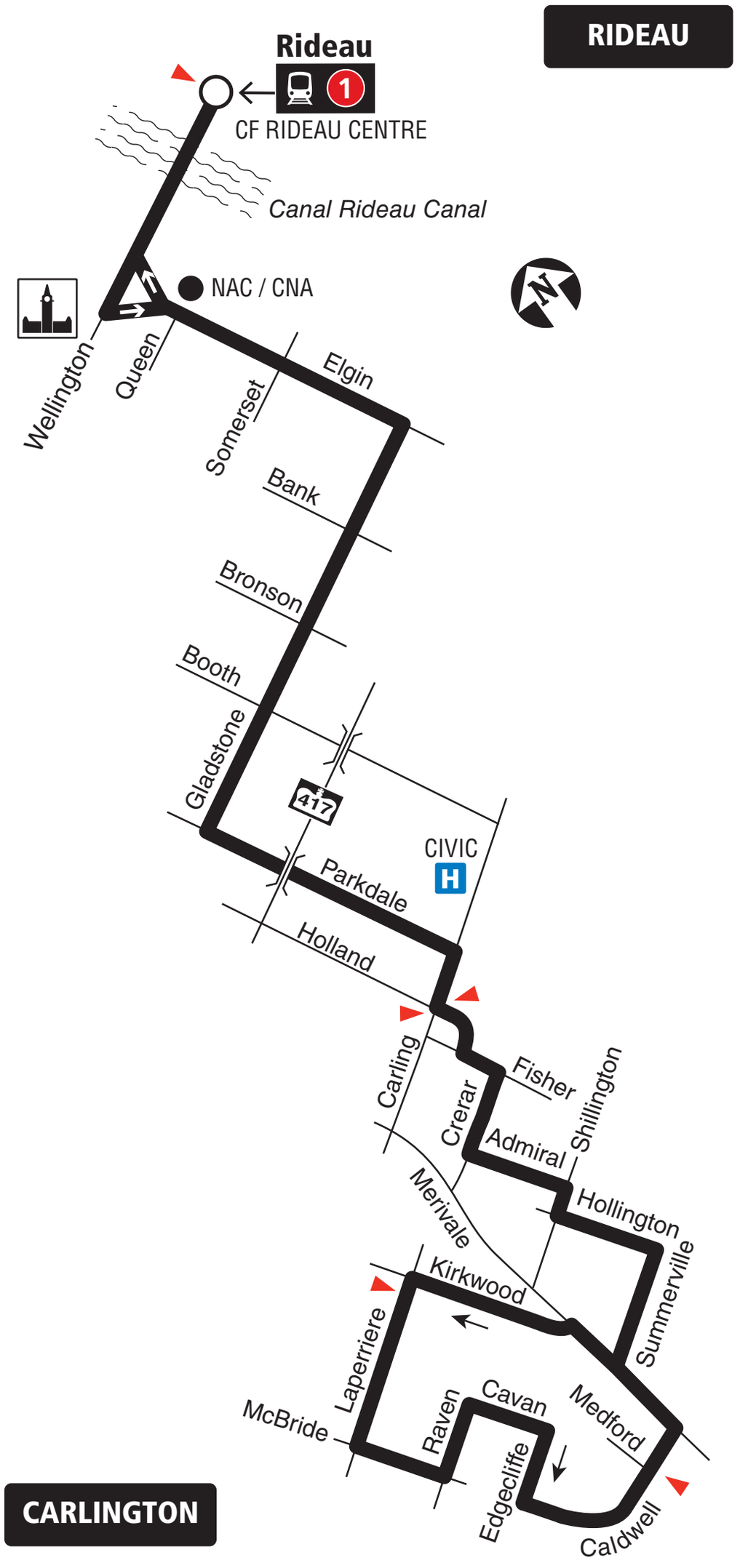

RIDEAU
Rideau
1
CF RIDEAU CENTRE
Canal Rideau Canal
NAC / CNA
Wellington
Queen
Somerset
Elgin
Bank
Bronson
Booth
Gladstone
417
CIVIC
H
Parkdale
Holland
Carling
Crerar
Fisher
Admiral
Shillington
Merivale
Hollington
Kirkwood
Summerville
Laperriere
McBride
Raven
Cavan
Medford
Edgecliffe
Caldwell
CARLINGTON
Station
Timepoint / Heures de passage

2020.08

Appendix D:

Traffic Data

5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017
Full Length (7AM-10AM, 11:30AM-1:30PM, 3PM-6PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa
100 Constellation Dr, Nepean, ON, K2G 5J9, CA

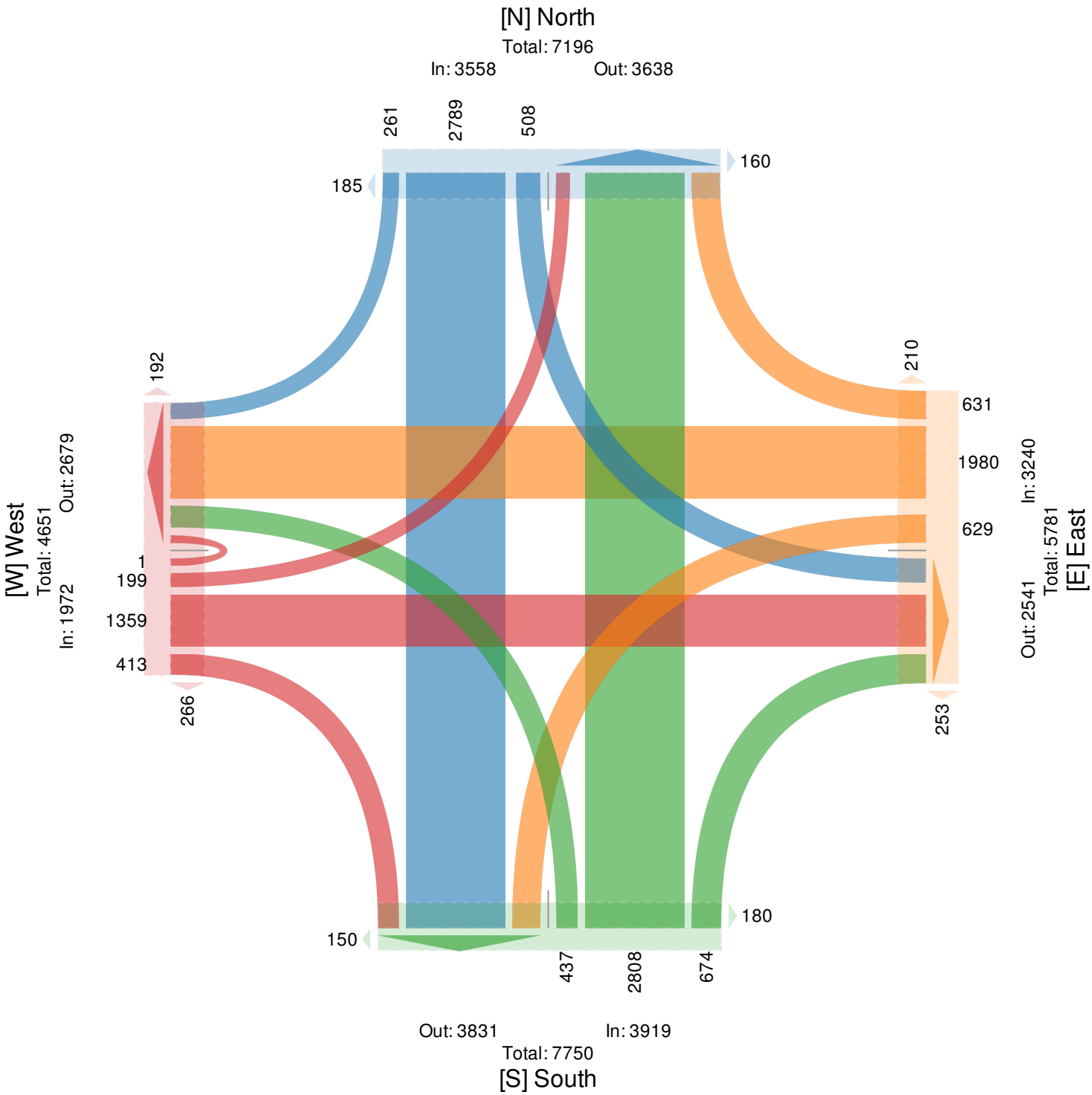
Leg	North						East						South						West						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2017-06-20 7:00AM	2	82	12	0	**96**	3	19	33	10	0	**62**	3	16	66	12	0	**94**	1	11	27	4	0	**42**	1	**294**
7:15AM	3	106	14	0	**123**	5	12	26	10	0	**48**	4	19	78	3	0	**100**	7	8	27	2	0	**37**	3	**308**
7:30AM	8	70	10	0	**88**	10	12	26	8	0	**46**	12	15	85	13	0	**113**	7	13	33	3	0	**49**	8	**296**
7:45AM	7	92	17	0	**116**	6	14	28	13	0	**55**	14	15	95	13	0	**123**	19	11	39	12	0	**62**	12	**356**
Hourly Total	20	350	53	0	**423**	24	57	113	41	0	**211**	33	65	324	41	0	**430**	34	43	126	21	0	**190**	24	**1254**
8:00AM	4	88	19	0	**111**	7	23	32	13	0	**68**	16	17	99	12	0	**128**	10	16	49	8	0	**73**	9	**380**
8:15AM	10	95	18	0	**123**	9	17	44	19	0	**80**	15	27	104	14	0	**145**	8	19	65	9	0	**93**	4	**441**
8:30AM	4	93	20	0	**117**	22	14	54	6	0	**74**	40	22	121	9	0	**152**	26	15	68	5	0	**88**	21	**431**
8:45AM	0	80	17	0	**97**	16	16	48	13	0	**77**	23	16	98	10	0	**124**	13	13	60	10	0	**83**	10	**381**
Hourly Total	18	356	74	0	**448**	54	70	178	51	0	**299**	94	82	422	45	0	**549**	57	63	242	32	0	**337**	44	**1633**
9:00AM	10	110	21	0	**141**	6	17	40	12	0	**69**	9	20	82	13	0	**115**	12	13	28	5	0	**46**	3	**371**
9:15AM	8	95	23	0	**126**	6	21	43	13	0	**77**	14	18	62	19	0	**99**	8	14	29	8	0	**51**	5	**353**
9:30AM	11	86	24	0	**121**	9	17	30	22	0	**69**	3	17	83	14	0	**114**	4	10	32	9	1	**52**	9	**356**
9:45AM	3	77	17	0	**97**	10	17	41	13	0	**71**	12	19	73	10	0	**102**	9	11	33	4	0	**48**	10	**318**
Hourly Total	32	368	85	0	**485**	31	72	154	60	0	**286**	38	74	300	56	0	**430**	33	48	122	26	1	**197**	27	**1398**
11:30AM	4	63	20	0	**87**	4	20	23	32	0	**75**	14	20	70	8	0	**98**	9	14	27	5	0	**46**	8	**306**
11:45AM	13	91	15	0	**119**	9	27	54	27	0	**108**	9	23	71	9	0	**103**	8	13	41	2	0	**56**	11	**386**
Hourly Total	17	154	35	0	**206**	13	47	77	59	0	**183**	23	43	141	17	0	**201**	17	27	68	7	0	**102**	19	**692**
12:00PM	12	88	11	0	**111**	13	28	42	31	0	**101**	13	21	80	13	0	**114**	14	13	37	5	0	**55**	18	**381**
12:15PM	6	68	16	0	**90**	9	29	45	22	0	**96**	8	25	89	11	0	**125**	14	14	36	5	0	**55**	27	**366**
12:30PM	11	97	19	0	**127**	9	28	36	21	0	**85**	20	19	55	7	0	**81**	10	13	34	6	0	**53**	16	**346**
12:45PM	4	78	21	0	**103**	8	25	47	22	0	**94**	16	27	64	16	0	**107**	8	19	33	8	0	**60**	13	**364**
Hourly Total	33	331	67	0	**431**	39	110	170	96	0	**376**	57	92	288	47	0	**427**	46	59	140	24	0	**223**	74	**1457**
1:00PM	9	85	15	0	**109**	11	21	47	25	0	**93**	14	19	89	13	0	**121**	6	19	42	9	0	**70**	20	**393**
1:15PM	8	79	30	0	**117**	6	21	45	21	0	**87**	12	23	75	14	0	**112**	4	11	35	10	0	**56**	12	**372**
Hourly Total	17	164	45	0	**226**	17	42	92	46	0	**180**	26	42	164	27	0	**233**	10	30	77	19	0	**126**	32	**765**
3:00PM	9	97	8	0	**114**	7	27	65	26	0	**118**	14	29	84	15	0	**128**	6	26	44	5	0	**75**	16	**435**
3:15PM	9	98	17	0	**124**	11	15	66	17	0	**98**	19	24	119	21	0	**164**	9	11	42	6	0	**59**	10	**445**
3:30PM	10	73	14	0	**97**	5	20	96	27	0	**143**	11	16	99	12	0	**127**	10	14	42	5	0	**61**	17	**428**
3:45PM	8	87	12	0	**107**	11	15	98	19	0	**132**	13	16	113	14	0	**143**	21	14	55	10	0	**79**	11	**461**
Hourly Total	36	355	51	0	**442**	34	77	325	89	0	**491**	57	85	415	62	0	**562**	46	65	183	26	0	**274**	54	**1769**
4:00PM	10	83	15	0	**108**	14	14	105	22	0	**141**	14	19	120	27	0	**166**	8	9	46	4	0	**59**	22	**474**
4:15PM	10	97	13	0	**120**	15	20	112	20	0	**152**	16	23	106	14	0	**143**	10	11	52	3	0	**66**	20	**481**
4:30PM	9	90	9	0	**108**	16	20	111	24	0	**155**	22	29	86	16	0	**131**	10	13	55	8	0	**76**	33	**470**
4:45PM	10	107	15	0	**132**	12	24	128	21	0	**173**	12	25	93	22	0	**140**	16	6	46	3	0	**55**	28	**500**
Hourly Total	39	377	52	0	**468**	57	78	456	87	0	**621**	64	96	405	79	0	**580**	44	39	199	18	0	**256**	103	**1925**
5:00PM	22	81	17	0	**120**	16	13	124	20	0	**157**	18	27	96	24	0	**147**	15	8	52	8	0	**68**	23	**492**
5:15PM	9	85	7	0	**101**	17	20	108	24	0	**152**	22	25	80	13	0	**118**	13	9	48	1	0	**58**	18	**429**
5:30PM	7	72	16	0	**95**	18	25	95	27	0	**147**	8	31	87	13	0	**131**	9	9	54	8	0	**71**	13	**444**
5:45PM	11	96	6	0	**113**	25	20	88	29	0	**137**	23	12	86	13	0	**111**	6	13	48	9	0	**70**	27	**431**
Hourly Total	49	334	46	0	**429**	76	78	415	100	0	**593**	71	95	349	63	0	**507**	43	39	202	26	0	**267**	81	**1796**
Total	261	2789	508	0	**3558**	345	631	1980	629	0	**3240**	463	674	2808	437	0	**3919**	330	413	1359	199	1	**1972**	458	**12689**
% Approach	7.3%	78.4%	14.3%	0%	-	-	19.5%	61.1%	19.4%	0%	-	-	17.2%	71.7%	11.2%	0%	-	-	20.9%	68.9%	10.1%	0.1%	-	-	-
% Total	2.1%	22.0%	4.0%	0%	**28.0%**	-	5.0%	15.6%	5.0%	0%	**25.5%**	-	5.3%	22.1%	3.4%	0%	**30.9%**	-	3.3%	10.7%	1.6%	0%	**15.5%**	-	-
Lights and Motorcycles	238	2540	429	0	**3207**	-	548	1751	584	0	**2883**	-	641	2562	416	0	**3619**	-	392	1137	181	1	**1711**	-	11420
% Lights and Motorcycles	91.2%	91.1%	84.4%	0%	**90.1%**	-	86.8%	88.4%	92.8%	0%	**89.0%**	-	95.1%	91.2%	95.2%	0%	**92.3%**	-	94.9%	83.7%	91.0%	100%	**86.8%**	-	90.0%
Heavy	8	195	70	0	**273**	-	78	81	21	0	**180**	-	27	201	16	0	**244**	-	12	77	13	0	**102**	-	799
% Heavy	3.1%	7.0%	13.8%	0%	**7.7%**	-	12.4%	4.1%	3.3%	0%	**5.6%**	-	4.0%	7.2%	3.7%	0%	**6.2%**	-	2.9%	5.7%	6.5%	0%	**5.2%**	-	6.3%
Bicycles on Road	15	54	9	0	**78**	-	5	148	24	0	**177**	-	6	45	5	0	**56**	-	9	145	5	0	**159**	-	470
% Bicycles on Road	5.7%	1.9%	1.8%	0%	**2.2%**	-	0.8%	7.5%	3.8%	0%	**5.5%**	-	0.9%	1.6%	1.1%	0%	**1.4%**	-	2.2%	10.7%	2.5%	0%	**8.1%**	-	3.7%
Pedestrians	-	-	-	-	-	345	-	-	-	-	-	463	-	-	-	-	-	330	-	-	-	-	-	458	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017
Full Length (7AM-10AM, 11:30AM-1:30PM, 3PM-6PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa
100 Constellation Dr, Nepean, ON, K2G 5J9, CA



5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017
AM Peak (8AM - 9AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa
100 Constellation Dr, Nepean, ON, K2G 5J9, CA

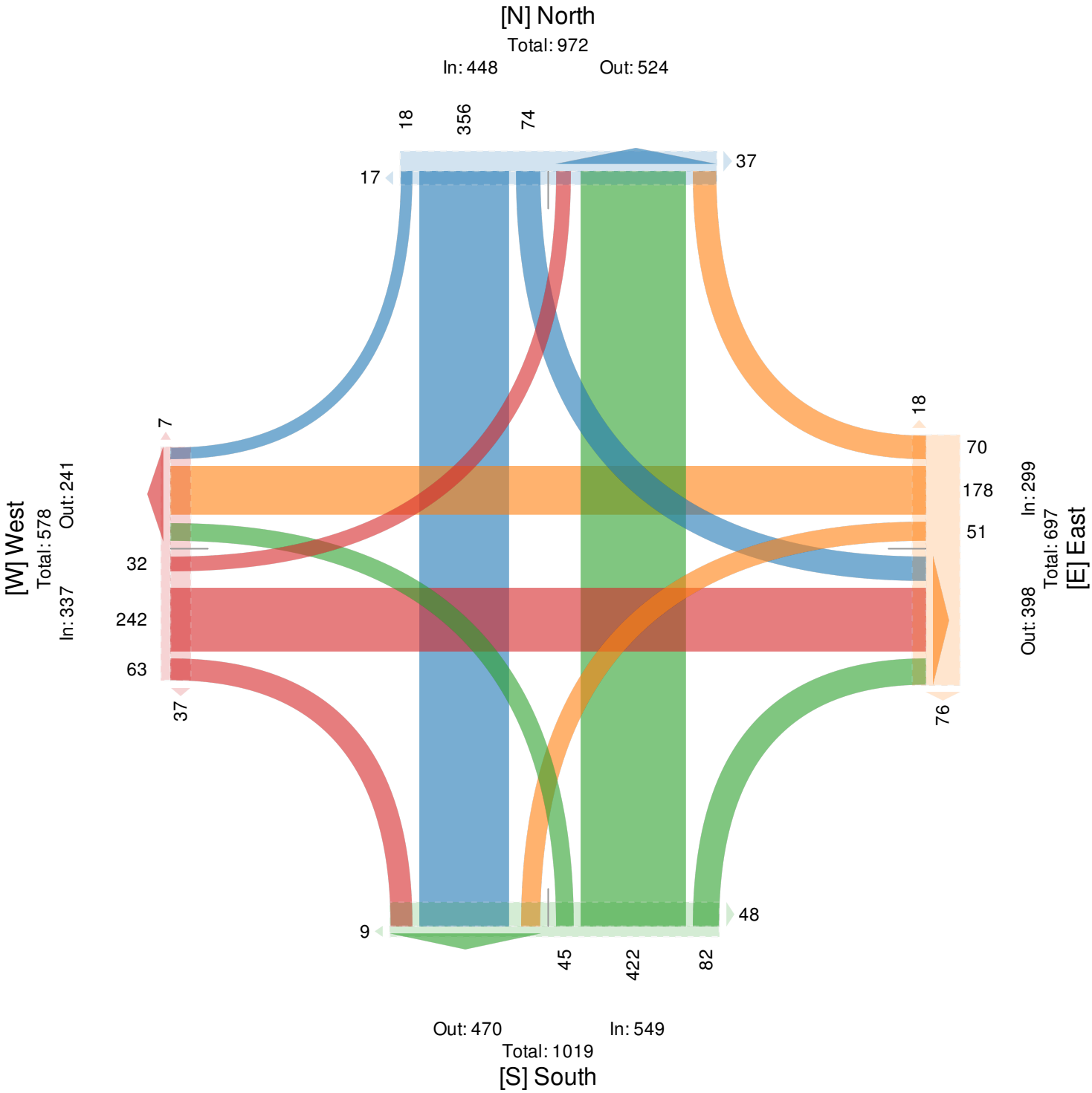
Leg	North						East						South						West						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2017-06-20 8:00AM	4	88	19	0	**111**	7	23	32	13	0	**68**	16	17	99	12	0	**128**	10	16	49	8	0	**73**	9	**380**
8:15AM	10	95	18	0	**123**	9	17	44	19	0	**80**	15	27	104	14	0	**145**	8	19	65	9	0	**93**	4	**441**
8:30AM	4	93	20	0	**117**	22	14	54	6	0	**74**	40	22	121	9	0	**152**	26	15	68	5	0	**88**	21	**431**
8:45AM	0	80	17	0	**97**	16	16	48	13	0	**77**	23	16	98	10	0	**124**	13	13	60	10	0	**83**	10	**381**
Total	18	356	74	0	**448**	54	70	178	51	0	**299**	94	82	422	45	0	**549**	57	63	242	32	0	**337**	44	**1633**
% Approach	4.0%	79.5%	16.5%	0%	-	-	23.4%	59.5%	17.1%	0%	-	-	14.9%	76.9%	8.2%	0%	-	-	18.7%	71.8%	9.5%	0%	-	-	-
% Total	1.1%	21.8%	4.5%	0%	**27.4%**	-	4.3%	10.9%	3.1%	0%	**18.3%**	-	5.0%	25.8%	2.8%	0%	**33.6%**	-	3.9%	14.8%	2.0%	0%	**20.6%**	-	-
PHF	0.450	0.937	0.925	-	**0.911**	-	0.761	0.824	0.671	-	**0.934**	-	0.759	0.872	0.804	-	**0.903**	-	0.829	0.890	0.800	-	**0.906**	-	0.926
Lights and Motorcycles	16	319	62	0	**397**	-	58	146	44	0	**248**	-	76	385	44	0	**505**	-	59	187	27	0	**273**	-	1423
% Lights and Motorcycles	88.9%	89.6%	83.8%	0%	**88.6%**	-	82.9%	82.0%	86.3%	0%	**82.9%**	-	92.7%	91.2%	97.8%	0%	**92.0%**	-	93.7%	77.3%	84.4%	0%	**81.0%**	-	87.1%
Heavy	0	26	11	0	**37**	-	10	12	4	0	**26**	-	5	28	1	0	**34**	-	3	10	4	0	**17**	-	114
% Heavy	0%	7.3%	14.9%	0%	**8.3%**	-	14.3%	6.7%	7.8%	0%	**8.7%**	-	6.1%	6.6%	2.2%	0%	**6.2%**	-	4.8%	4.1%	12.5%	0%	**5.0%**	-	7.0%
Bicycles on Road	2	11	1	0	**14**	-	2	20	3	0	**25**	-	1	9	0	0	**10**	-	1	45	1	0	**47**	-	96
% Bicycles on Road	11.1%	3.1%	1.4%	0%	**3.1%**	-	2.9%	11.2%	5.9%	0%	**8.4%**	-	1.2%	2.1%	0%	0%	**1.8%**	-	1.6%	18.6%	3.1%	0%	**13.9%**	-	5.9%
Pedestrians	-	-	-	-	-	54	-	-	-	-	-	94	-	-	-	-	-	57	-	-	-	-	-	44	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017
AM Peak (8AM - 9AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa
100 Constellation Dr, Nepean, ON, K2G 5J9, CA



5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017
Midday Peak (11:45AM - 12:45PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa
100 Constellation Dr, Nepean, ON, K2G 5J9, CA

Leg / Direction	North Southbound						East Westbound						South Northbound						West Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2017-06-20 11:45AM	13	91	15	0	**119**	9	27	54	27	0	**108**	9	23	71	9	0	**103**	8	13	41	2	0	**56**	11	**386**
12:00PM	12	88	11	0	**111**	13	28	42	31	0	**101**	13	21	80	13	0	**114**	14	13	37	5	0	**55**	18	**381**
12:15PM	6	68	16	0	**90**	9	29	45	22	0	**96**	8	25	89	11	0	**125**	14	14	36	5	0	**55**	27	**366**
12:30PM	11	97	19	0	**127**	9	28	36	21	0	**85**	20	19	55	7	0	**81**	10	13	34	6	0	**53**	16	**346**
Total	42	344	61	0	**447**	40	112	177	101	0	**390**	50	88	295	40	0	**423**	46	53	148	18	0	**219**	72	**1479**
% Approach	9.4%	77.0%	13.6%	0%	**-**	-	28.7%	45.4%	25.9%	0%	**-**	-	20.8%	69.7%	9.5%	0%	**-**	-	24.2%	67.6%	8.2%	0%	**-**	-	-
% Total	2.8%	23.3%	4.1%	0%	**30.2%**	-	7.6%	12.0%	6.8%	0%	**26.4%**	-	5.9%	19.9%	2.7%	0%	**28.6%**	-	3.6%	10.0%	1.2%	0%	**14.8%**	-	-
PHF	0.808	0.887	0.803	-	**0.880**	-	0.966	0.819	0.815	-	**0.903**	-	0.880	0.829	0.769	-	**0.846**	-	0.946	0.902	0.750	-	**0.978**	-	0.958
Lights and Motorcycles	37	309	54	0	**400**	-	97	162	99	0	**358**	-	86	269	37	0	**392**	-	51	132	17	0	**200**	-	1350
% Lights and Motorcycles	88.1%	89.8%	88.5%	0%	**89.5%**	-	86.6%	91.5%	98.0%	0%	**91.8%**	-	97.7%	91.2%	92.5%	0%	**92.7%**	-	96.2%	89.2%	94.4%	0%	**91.3%**	-	91.3%
Heavy	3	28	6	0	**37**	-	14	10	1	0	**25**	-	2	19	3	0	**24**	-	1	9	1	0	**11**	-	97
% Heavy	7.1%	8.1%	9.8%	0%	**8.3%**	-	12.5%	5.6%	1.0%	0%	**6.4%**	-	2.3%	6.4%	7.5%	0%	**5.7%**	-	1.9%	6.1%	5.6%	0%	**5.0%**	-	6.6%
Bicycles on Road	2	7	1	0	**10**	-	1	5	1	0	**7**	-	0	7	0	0	**7**	-	1	7	0	0	**8**	-	32
% Bicycles on Road	4.8%	2.0%	1.6%	0%	**2.2%**	-	0.9%	2.8%	1.0%	0%	**1.8%**	-	0%	2.4%	0%	0%	**1.7%**	-	1.9%	4.7%	0%	0%	**3.7%**	-	2.2%
Pedestrians	-	-	-	-	-	40	-	-	-	-	-	50	-	-	-	-	-	46	-	-	-	-	-	72	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017
Midday Peak (11:45AM - 12:45PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa
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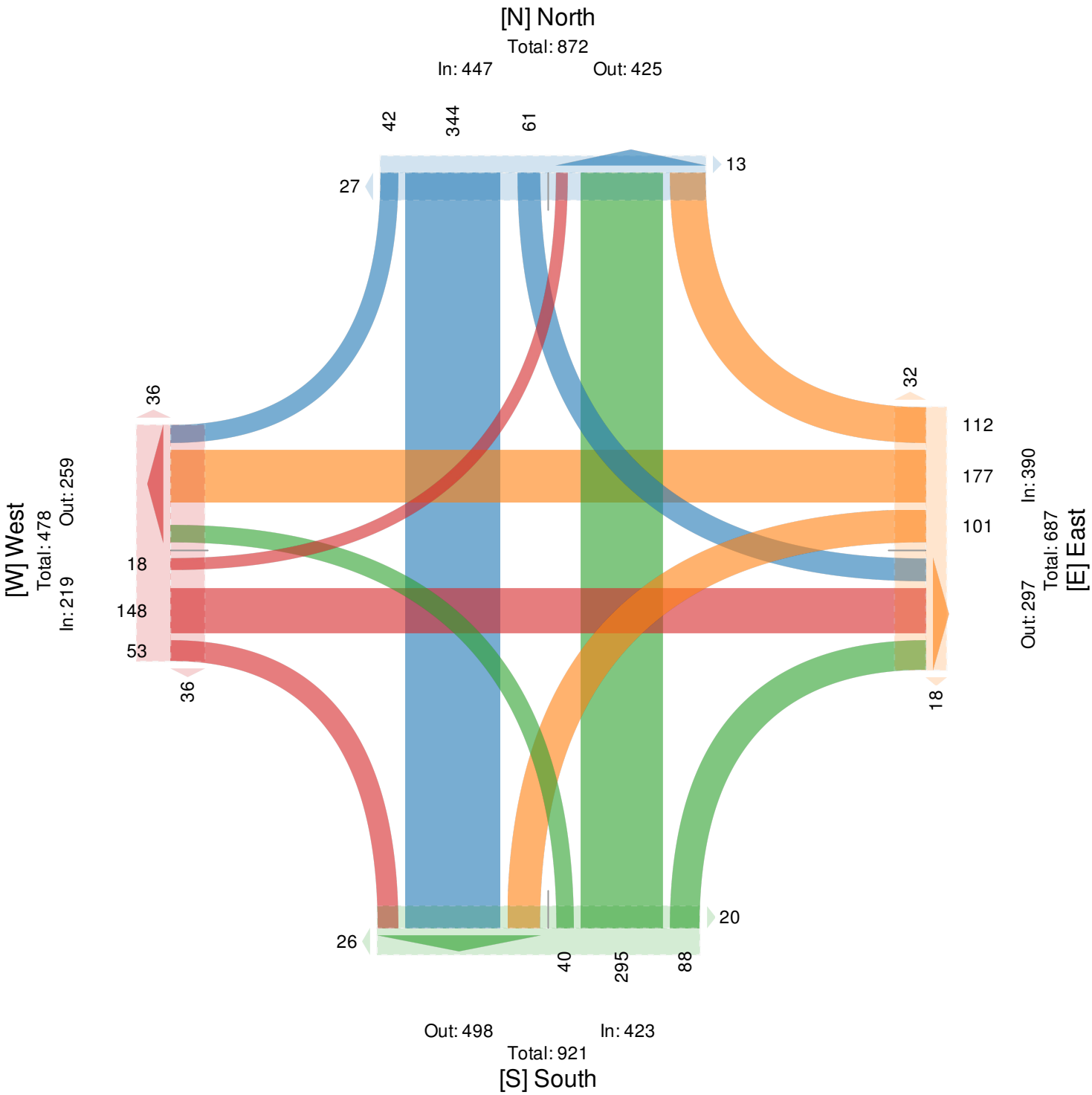


5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017

PM Peak (4:15PM - 5:15PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)

All Movements

ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa

100 Constellation Dr, Nepean, ON, K2G 5J9, CA

Leg	North						East						South						West						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2017-06-20 4:15PM	10	97	13	0	**120**	15	20	112	20	0	**152**	16	23	106	14	0	**143**	10	11	52	3	0	**66**	20	**481**
4:30PM	9	90	9	0	**108**	16	20	111	24	0	**155**	22	29	86	16	0	**131**	10	13	55	8	0	**76**	33	**470**
4:45PM	10	107	15	0	**132**	12	24	128	21	0	**173**	12	25	93	22	0	**140**	16	6	46	3	0	**55**	28	**500**
5:00PM	22	81	17	0	**120**	16	13	124	20	0	**157**	18	27	96	24	0	**147**	15	8	52	8	0	**68**	23	**492**
Total	51	375	54	0	**480**	59	77	475	85	0	**637**	68	104	381	76	0	**561**	51	38	205	22	0	**265**	104	**1943**
% Approach	10.6%	78.1%	11.3%	0%	-	-	12.1%	74.6%	13.3%	0%	-	-	18.5%	67.9%	13.5%	0%	-	-	14.3%	77.4%	8.3%	0%	-	-	-
% Total	2.6%	19.3%	2.8%	0%	**24.7%**	-	4.0%	24.4%	4.4%	0%	**32.8%**	-	5.4%	19.6%	3.9%	0%	**28.9%**	-	2.0%	10.6%	1.1%	0%	**13.6%**	-	-
PHF	0.580	0.876	0.794	-	**0.909**	-	0.802	0.928	0.885	-	**0.921**	-	0.897	0.899	0.792	-	**0.954**	-	0.731	0.932	0.688	-	**0.872**	-	0.972
Lights and Motorcycles	49	345	47	0	**441**	-	68	431	79	0	**578**	-	100	353	76	0	**529**	-	38	178	20	0	**236**	-	1784
% Lights and Motorcycles	96.1%	92.0%	87.0%	0%	**91.9%**	-	88.3%	90.7%	92.9%	0%	**90.7%**	-	96.2%	92.7%	100%	0%	**94.3%**	-	100%	86.8%	90.9%	0%	**89.1%**	-	91.8%
Heavy	0	19	5	0	**24**	-	9	8	1	0	**18**	-	1	21	0	0	**22**	-	0	9	0	0	**9**	-	73
% Heavy	0%	5.1%	9.3%	0%	**5.0%**	-	11.7%	1.7%	1.2%	0%	**2.8%**	-	1.0%	5.5%	0%	0%	**3.9%**	-	0%	4.4%	0%	0%	**3.4%**	-	3.8%
Bicycles on Road	2	11	2	0	**15**	-	0	36	5	0	**41**	-	3	7	0	0	**10**	-	0	18	2	0	**20**	-	86
% Bicycles on Road	3.9%	2.9%	3.7%	0%	**3.1%**	-	0%	7.6%	5.9%	0%	**6.4%**	-	2.9%	1.8%	0%	0%	**1.8%**	-	0%	8.8%	9.1%	0%	**7.5%**	-	4.4%
Pedestrians	-	-	-	-	-	59	-	-	-	-	-	68	-	-	-	-	-	51	-	-	-	-	-	104	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5318201 Gladstone and Preston - June - 20th - TMC

Tue Jun 20, 2017

PM Peak (4:15PM - 5:15PM) - Overall Peak Hour

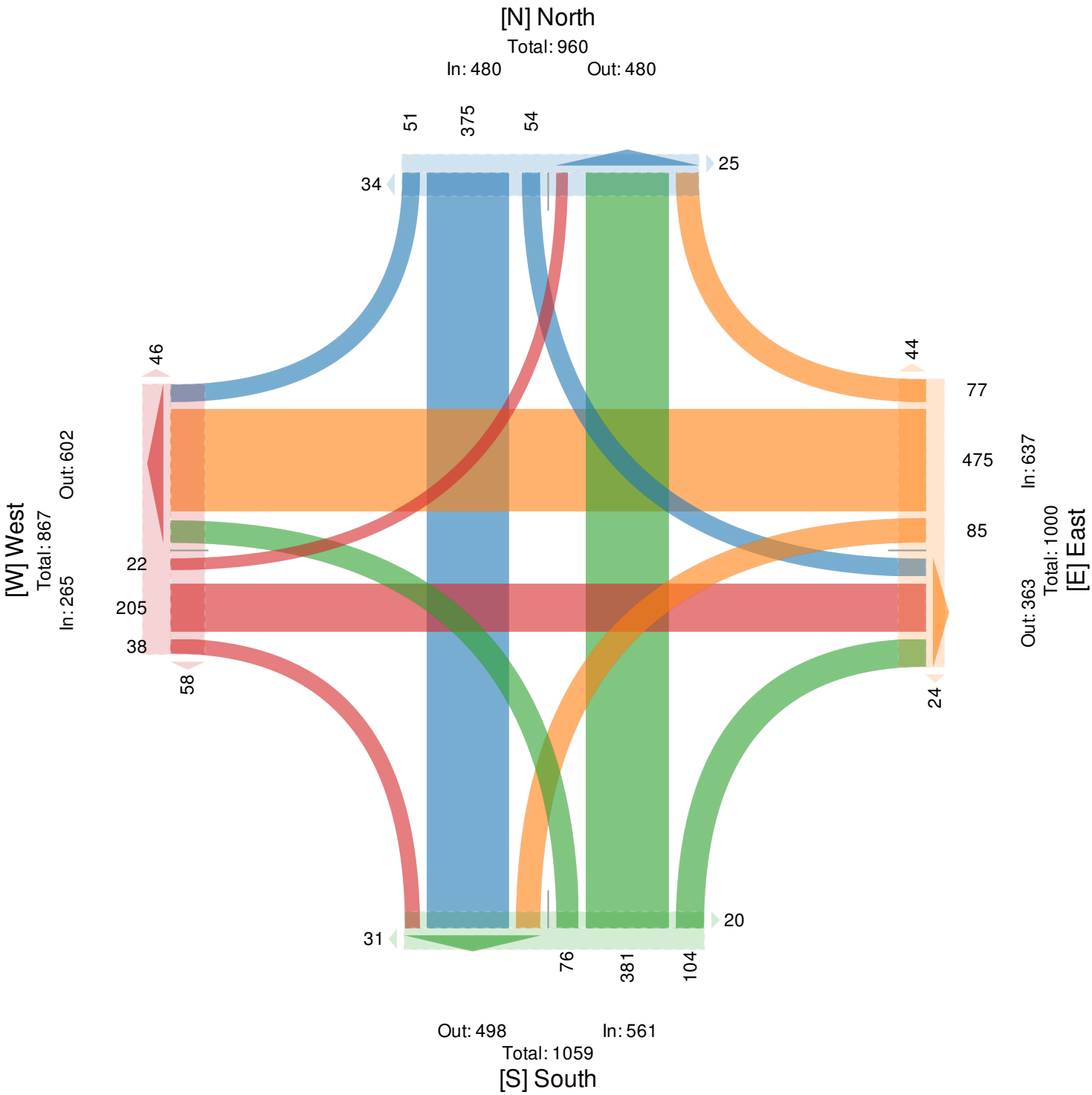
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)

All Movements

ID: 425814, Location: 45.404641, -75.711905, Site Code: 37132103

Provided by: City of Ottawa

100 Constellation Dr, Nepean, ON, K2G 5J9, CA



Transportation Services - Traffic Services

W.O. 36537

Turning Movement Count - 15 Minute Summary Report

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		ROCHESTER ST									GLADSTONE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	28	21	12	**61**	5	38	0	**43**	**104**	0	36	17	**53**	11	24	5	**40**	**93**	**197**
07:15	07:30	26	21	13	**60**	2	21	2	**25**	**85**	0	47	17	**64**	13	41	2	**56**	**120**	**205**
07:30	07:45	26	19	17	**62**	1	41	1	**43**	**105**	1	38	14	**53**	17	32	2	**51**	**104**	**209**
07:45	08:00	48	30	25	**103**	8	37	4	**49**	**152**	1	68	15	**84**	18	40	2	**60**	**144**	**296**
08:00	08:15	37	30	21	**88**	7	46	1	**54**	**142**	1	63	12	**76**	20	53	1	**74**	**150**	**292**
08:15	08:30	31	32	24	**87**	11	53	4	**68**	**155**	1	72	9	**82**	12	49	5	**66**	**148**	**303**
08:30	08:45	31	45	36	**112**	4	66	4	**74**	**186**	5	72	30	**107**	23	44	6	**73**	**180**	**366**
08:45	09:00	36	44	34	**114**	3	53	3	**59**	**173**	4	55	20	**79**	9	59	4	**72**	**151**	**324**
09:00	09:15	42	34	21	**97**	4	41	2	**47**	**144**	6	57	16	**79**	15	46	4	**65**	**144**	**288**
09:15	09:30	36	38	13	**87**	2	23	5	**30**	**117**	3	67	12	**82**	22	52	0	**74**	**156**	**273**
09:30	09:45	22	28	19	**69**	6	32	3	**41**	**110**	7	51	18	**76**	16	40	4	**60**	**136**	**246**
09:45	10:00	21	28	25	**74**	4	21	4	**29**	**103**	4	52	13	**69**	18	48	8	**74**	**143**	**246**
11:30	11:45	31	29	27	**87**	4	34	10	**48**	**135**	2	55	26	**83**	14	55	10	**79**	**162**	**297**
11:45	12:00	41	42	25	**108**	2	27	8	**37**	**145**	4	54	16	**74**	15	49	5	**69**	**143**	**288**
12:00	12:15	36	28	19	**83**	13	30	1	**44**	**127**	3	59	24	**86**	14	54	5	**73**	**159**	**286**
12:15	12:30	30	29	24	**83**	8	34	2	**44**	**127**	2	52	14	**68**	10	48	5	**63**	**131**	**258**
12:30	12:45	28	25	22	**75**	6	26	1	**33**	**108**	4	52	20	**76**	11	76	7	**94**	**170**	**278**
12:45	13:00	24	37	21	**82**	13	34	4	**51**	**133**	3	60	15	**78**	21	46	4	**71**	**149**	**282**
13:00	13:15	24	38	28	**90**	7	44	2	**53**	**143**	4	47	15	**66**	26	60	4	**90**	**156**	**299**
13:15	13:30	27	37	26	**90**	12	27	5	**44**	**134**	5	73	18	**96**	19	61	5	**85**	**181**	**315**
15:00	15:15	30	50	29	**109**	5	42	3	**50**	**159**	3	67	23	**93**	19	68	3	**90**	**183**	**342**
15:15	15:30	37	52	28	**117**	4	49	4	**57**	**174**	1	50	13	**64**	25	70	3	**98**	**162**	**336**
15:30	15:45	39	47	22	**108**	3	37	4	**44**	**152**	1	58	18	**77**	32	84	7	**123**	**200**	**352**
15:45	16:00	26	36	24	**86**	6	29	3	**38**	**124**	5	95	15	**115**	20	107	7	**134**	**249**	**373**
16:00	16:15	23	45	32	**100**	2	41	4	**47**	**147**	2	68	27	**97**	32	120	7	**159**	**256**	**403**
16:15	16:30	23	44	23	**90**	2	34	3	**39**	**129**	7	87	10	**104**	21	102	4	**127**	**231**	**360**
16:30	16:45	32	50	30	**112**	5	31	5	**41**	**153**	4	65	19	**88**	20	109	3	**132**	**220**	**373**
16:45	17:00	30	49	26	**105**	5	39	5	**49**	**154**	4	52	18	**74**	22	104	3	**129**	**203**	**357**
17:00	17:15	28	49	36	**113**	3	34	4	**41**	**154**	4	69	16	**89**	26	114	3	**143**	**232**	**386**
17:15	17:30	36	60	29	**125**	4	29	4	**37**	**162**	1	67	16	**84**	21	99	7	**127**	**211**	**373**
17:30	17:45	29	41	30	**100**	6	31	6	**43**	**143**	4	74	4	**82**	19	121	1	**141**	**223**	**366**
17:45	18:00	36	45	21	**102**	7	26	4	**37**	**139**	1	37	6	**44**	15	104	12	**131**	**175**	**314**
TOTAL:		994	1203	782	**2979**	174	1150	115	**1439**	**4418**	97	1919	526	**2542**	596	2179	148	**2923**	**5465**	**9883**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
36537

GLADSTONE AVE @ ROCHESTER ST

Count Date: Wednesday, November 23, 2016 **Start Time:** 07:00

	ROCHESTER ST			GLADSTONE AVE			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	1	1	**2**	4	2	**6**	**8**
08:00 09:00	0	2	**2**	11	4	**15**	**17**
09:00 10:00	1	1	**2**	3	4	**7**	**9**
11:30 12:30	1	0	**1**	3	3	**6**	**7**
12:30 13:30	3	1	**4**	5	1	**6**	**10**
15:00 16:00	0	0	**0**	0	3	**3**	**3**
16:00 17:00	0	1	**1**	1	6	**7**	**8**
17:00 18:00	2	0	**2**	4	8	**12**	**14**
Total	8	6	**14**	31	31	**62**	**76**

Comment:

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

Transportation Services - Traffic Services

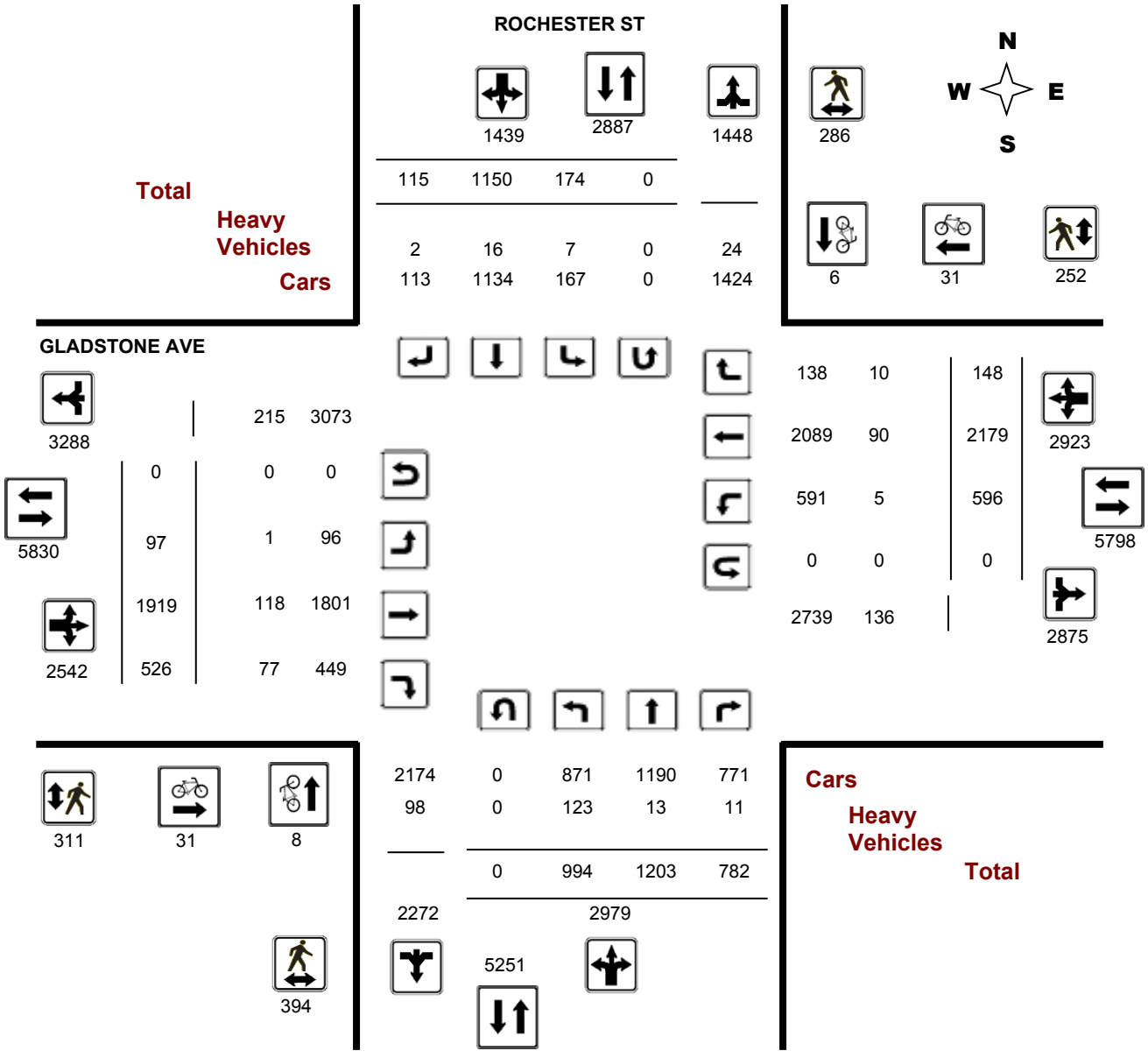
Turning Movement Count - Full Study Diagram

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016

WO#: 36537

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 36537

Turning Movement Count - Heavy Vehicle Report

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016

		ROCHESTER ST									GLADSTONE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	08:00	11	2	1	**14**	1	5	0	**6**	**20**	1	16	15	**32**	0	11	3	**14**	**46**	**66**
08:00	09:00	15	3	3	**21**	2	3	0	**5**	**26**	0	16	9	**25**	1	8	0	**9**	**34**	**60**
09:00	10:00	19	2	1	**22**	0	0	0	**0**	**22**	0	17	21	**38**	2	10	1	**13**	**51**	**73**
11:30	12:30	17	1	2	**20**	0	3	1	**4**	**24**	0	20	9	**29**	1	12	2	**15**	**44**	**68**
12:30	13:30	16	2	2	**20**	1	2	0	**3**	**23**	0	18	11	**29**	1	19	1	**21**	**50**	**73**
15:00	16:00	24	1	1	**26**	0	0	1	**1**	**27**	0	14	6	**20**	0	13	1	**14**	**34**	**61**
16:00	17:00	13	1	1	**15**	3	2	0	**5**	**20**	0	11	1	**12**	0	9	1	**10**	**22**	**42**
17:00	18:00	8	1	0	**9**	0	1	0	**1**	**10**	0	6	5	**11**	0	8	1	**9**	**20**	**30**
Sub Total		123	13	11	**147**	7	16	2	**25**	**172**	1	118	77	**196**	5	90	10	**105**	**301**	**473**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		123	13	11	**0**	7	16	2	**25**	**172**	1	118	77	**196**	5	90	10	**105**	**301**	**473**

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

Transportation Services - Traffic Services

Work Order
36537

Turning Movement Count - Pedestrian Volume Report

GLADSTONE AVE @ ROCHESTER ST

Count Date: Wednesday, November 23, 2016 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	4	3	**7**	1	2	**3**	**10**
07:15 07:30	4	5	**9**	4	6	**10**	**19**
07:30 07:45	6	10	**16**	12	6	**18**	**34**
07:45 08:00	6	2	**8**	6	4	**10**	**18**
07:00 08:00	20	20	**40**	23	18	**41**	**81**
08:00 08:15	37	9	**46**	15	30	**45**	**91**
08:15 08:30	13	7	**20**	14	5	**19**	**39**
08:30 08:45	26	26	**52**	32	14	**46**	**98**
08:45 09:00	19	6	**25**	8	9	**17**	**42**
08:00 09:00	95	48	**143**	69	58	**127**	**270**
09:00 09:15	24	8	**32**	8	11	**19**	**51**
09:15 09:30	18	4	**22**	12	12	**24**	**46**
09:30 09:45	6	6	**12**	14	6	**20**	**32**
09:45 10:00	22	10	**32**	23	16	**39**	**71**
09:00 10:00	70	28	**98**	57	45	**102**	**200**
11:30 11:45	11	3	**14**	7	5	**12**	**26**
11:45 12:00	24	8	**32**	12	19	**31**	**63**
12:00 12:15	7	8	**15**	10	3	**13**	**28**
12:15 12:30	12	14	**26**	19	8	**27**	**53**
11:30 12:30	54	33	**87**	48	35	**83**	**170**
12:30 12:45	12	3	**15**	12	3	**15**	**30**
12:45 13:00	10	8	**18**	3	10	**13**	**31**
13:00 13:15	14	12	**26**	11	14	**25**	**51**
13:15 13:30	20	13	**33**	14	13	**27**	**60**
12:30 13:30	56	36	**92**	40	40	**80**	**172**
15:00 15:15	5	8	**13**	8	4	**12**	**25**
15:15 15:30	9	6	**15**	15	7	**22**	**37**
15:30 15:45	4	11	**15**	4	1	**5**	**20**
15:45 16:00	5	12	**17**	2	2	**4**	**21**
15:00 16:00	23	37	**60**	29	14	**43**	**103**
16:00 16:15	8	7	**15**	6	1	**7**	**22**
16:15 16:30	12	17	**29**	6	6	**12**	**41**
16:30 16:45	4	13	**17**	10	6	**16**	**33**
16:45 17:00	12	12	**24**	4	6	**10**	**34**
16:00 17:00	36	49	**85**	26	19	**45**	**130**
17:00 17:15	6	8	**14**	4	2	**6**	**20**
17:15 17:30	5	10	**15**	5	8	**13**	**28**
17:30 17:45	8	9	**17**	3	6	**9**	**26**
17:45 18:00	21	8	**29**	7	7	**14**	**43**
17:00 18:00	40	35	**75**	19	23	**42**	**117**
Total	394	286	**680**	311	252	**563**	**1243**

Comment:

Transportation Services - Traffic Services

Work Order 36537

Turning Movement Count - Full Study Summary Report

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	ROCHESTER ST									GLADSTONE AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	128	91	67	**286**	16	137	7	**160**	**446**	2	189	63	**254**	59	137	11	**207**	**461**	**907**
08:00 09:00	135	151	115	**401**	25	218	12	**255**	**656**	11	262	71	**344**	64	205	16	**285**	**629**	**1285**
09:00 10:00	121	128	78	**327**	16	117	14	**147**	**474**	20	227	59	**306**	71	186	16	**273**	**579**	**1053**
11:30 12:30	138	128	95	**361**	27	125	21	**173**	**534**	11	220	80	**311**	53	206	25	**284**	**595**	**1129**
12:30 13:30	103	137	97	**337**	38	131	12	**181**	**518**	16	232	68	**316**	77	243	20	**340**	**656**	**1174**
15:00 16:00	132	185	103	**420**	18	157	14	**189**	**609**	10	270	69	**349**	96	329	20	**445**	**794**	**1403**
16:00 17:00	108	188	111	**407**	14	145	17	**176**	**583**	17	272	74	**363**	95	435	17	**547**	**910**	**1493**
17:00 18:00	129	195	116	**440**	20	120	18	**158**	**598**	10	247	42	**299**	81	438	23	**542**	**841**	**1439**
Sub Total	994	1203	782	**2979**	174	1150	115	**1439**	**4418**	97	1919	526	**2542**	596	2179	148	**2923**	**5465**	**9883**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	994	1203	782	**2979**	174	1150	115	**1439**	**4418**	97	1919	526	**2542**	596	2179	148	**2923**	**5465**	**9883**
EQ 12Hr	1382	1672	1087	**4141**	242	1598	160	**2000**	**6141**	135	2667	731	**3533**	828	3029	206	**4063**	**7596**	**13737**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	1243	1505	978	**3727**	218	1439	144	**1800**	**5527**	121	2401	658	**3180**	746	2726	185	**3657**	**6837**	**12364**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	1629	1971	1282	**4882**	285	1885	188	**2358**	**7240**	159	3145	862	**4166**	977	3571	243	**4790**	**8956**	**16196**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

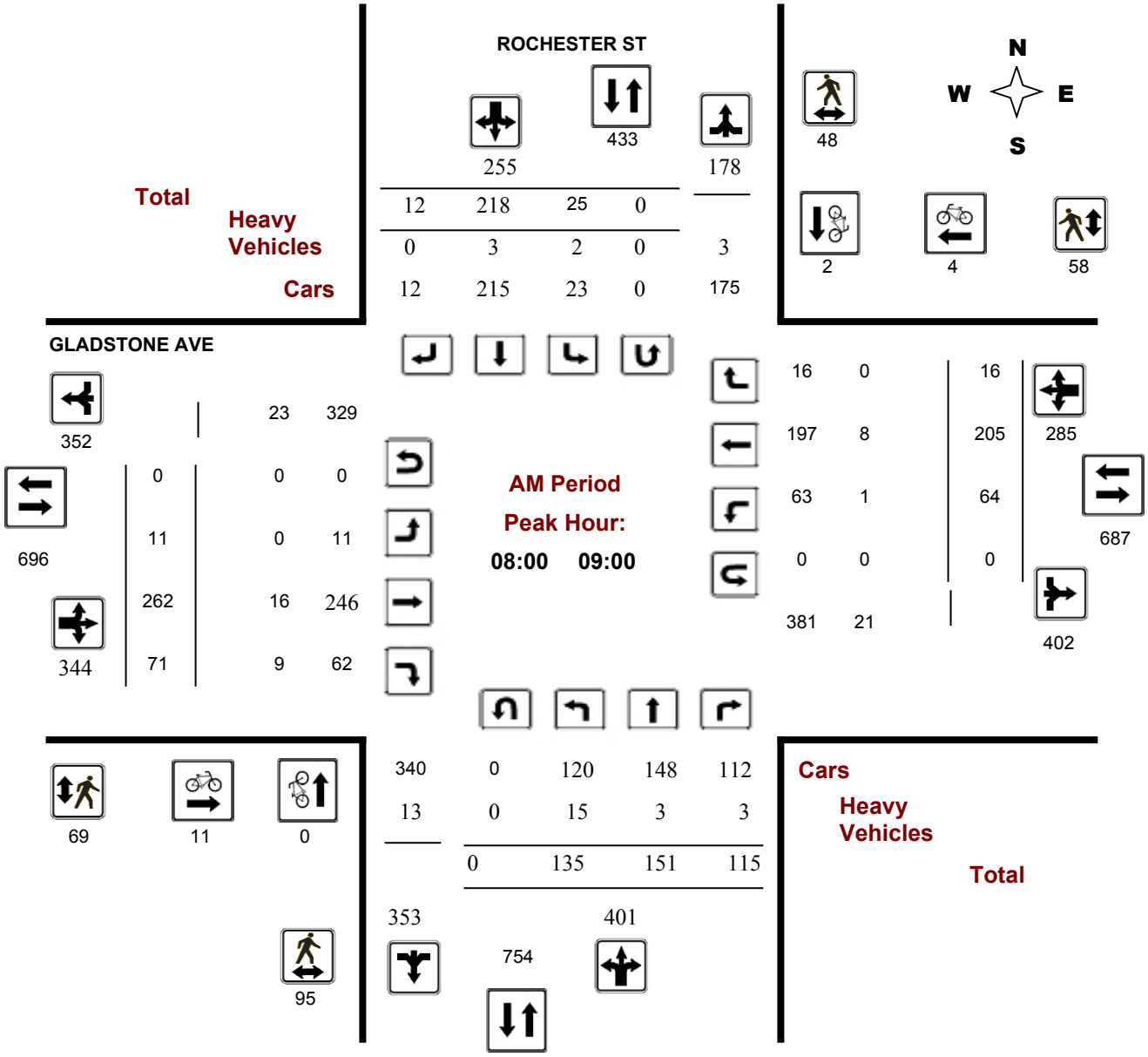
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016 **WO No:** 36537

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



Comments

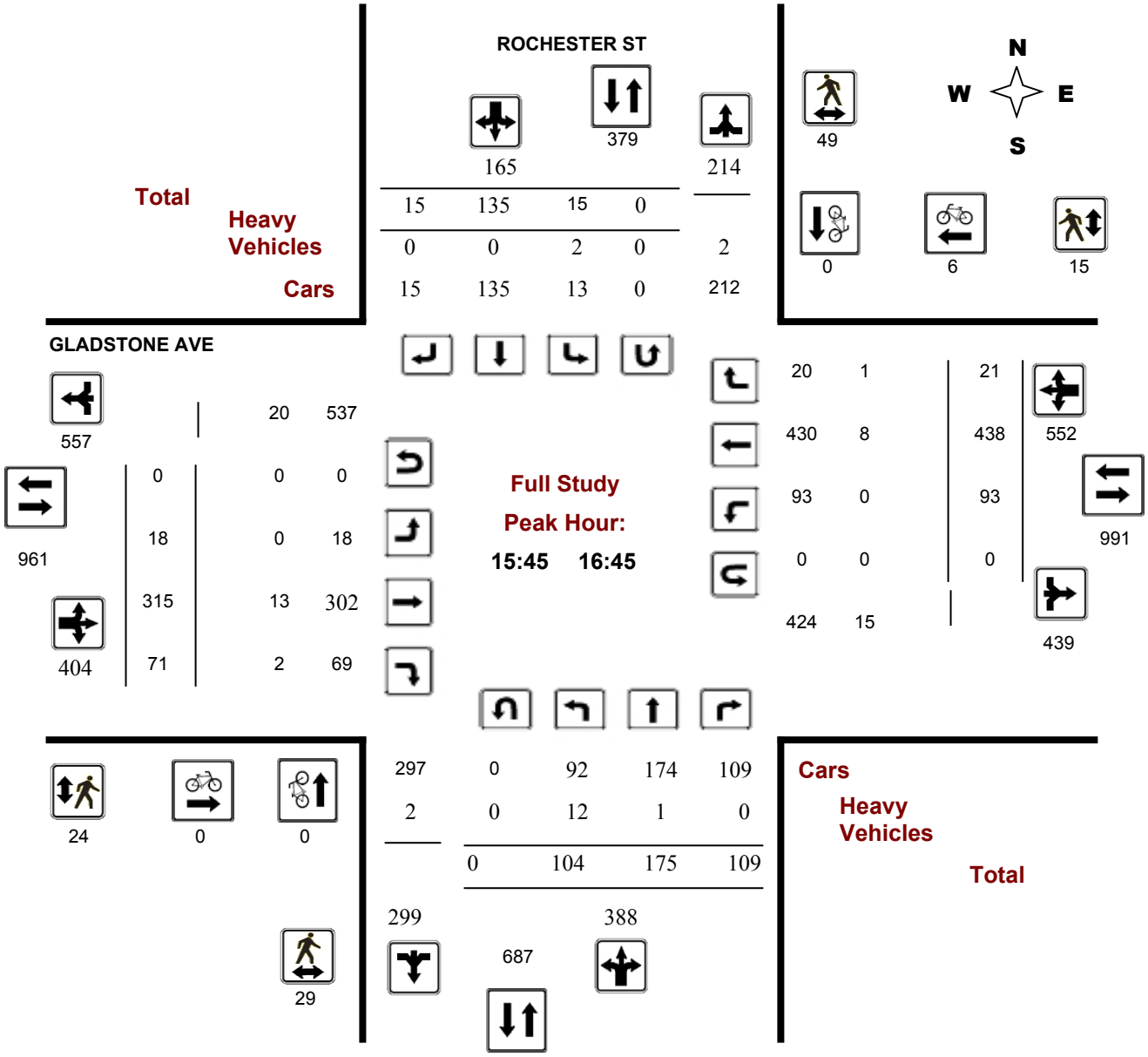
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016 **WO No:** 36537

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



Comments

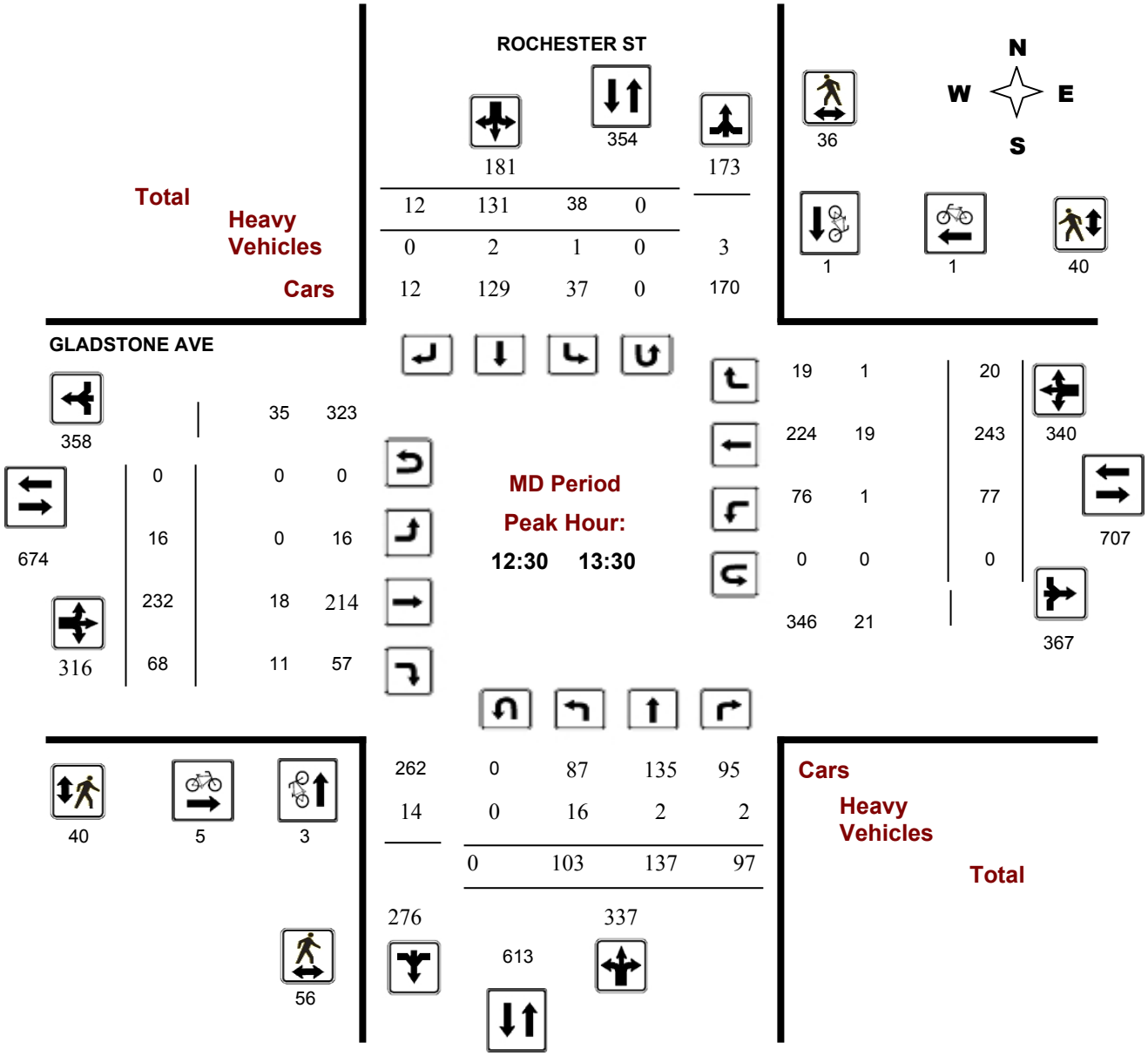
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016 **WO No:** 36537

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



Comments

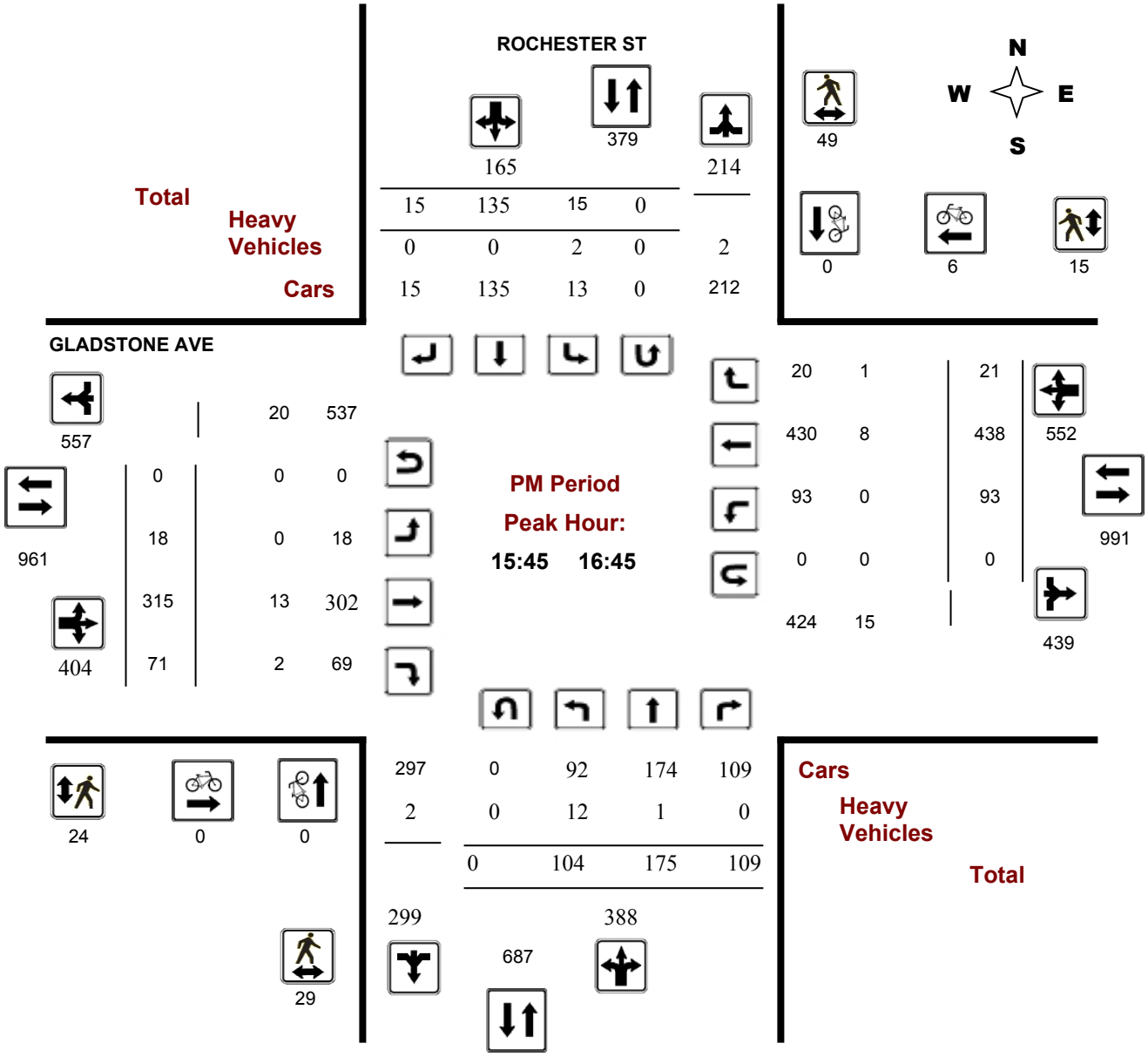
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016 **WO No:** 36537

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



Comments

Transportation Services - Traffic Services

Work Order
36537

Turning Movement Count - 15 Min U-Turn Total Report

GLADSTONE AVE @ ROCHESTER ST

Survey Date: Wednesday, November 23, 2016

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

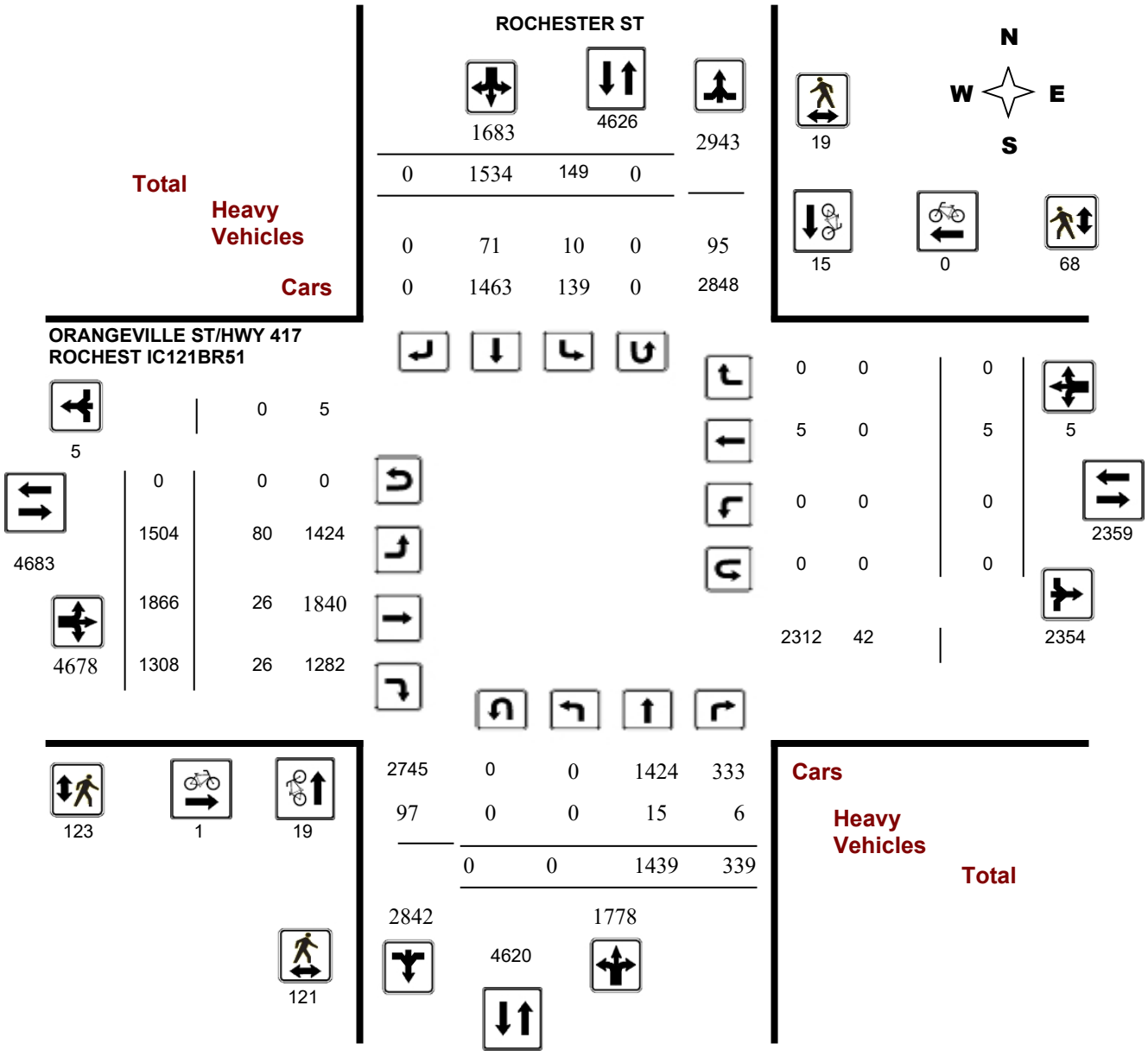
Transportation Services - Traffic Services

Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016
Start Time: 07:00
WO No: 36479
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

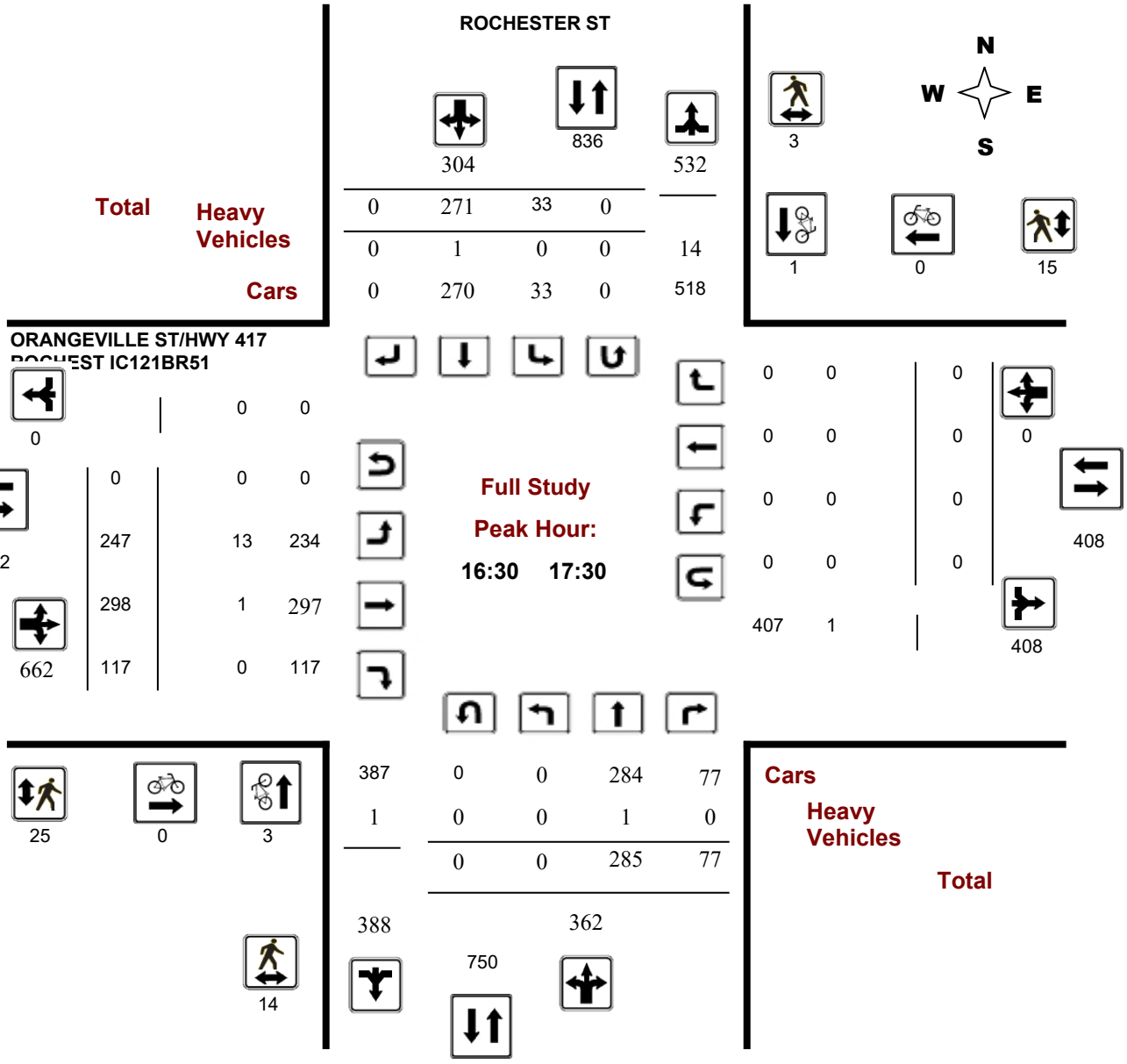
Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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

Full Study Peak Hour Diagram



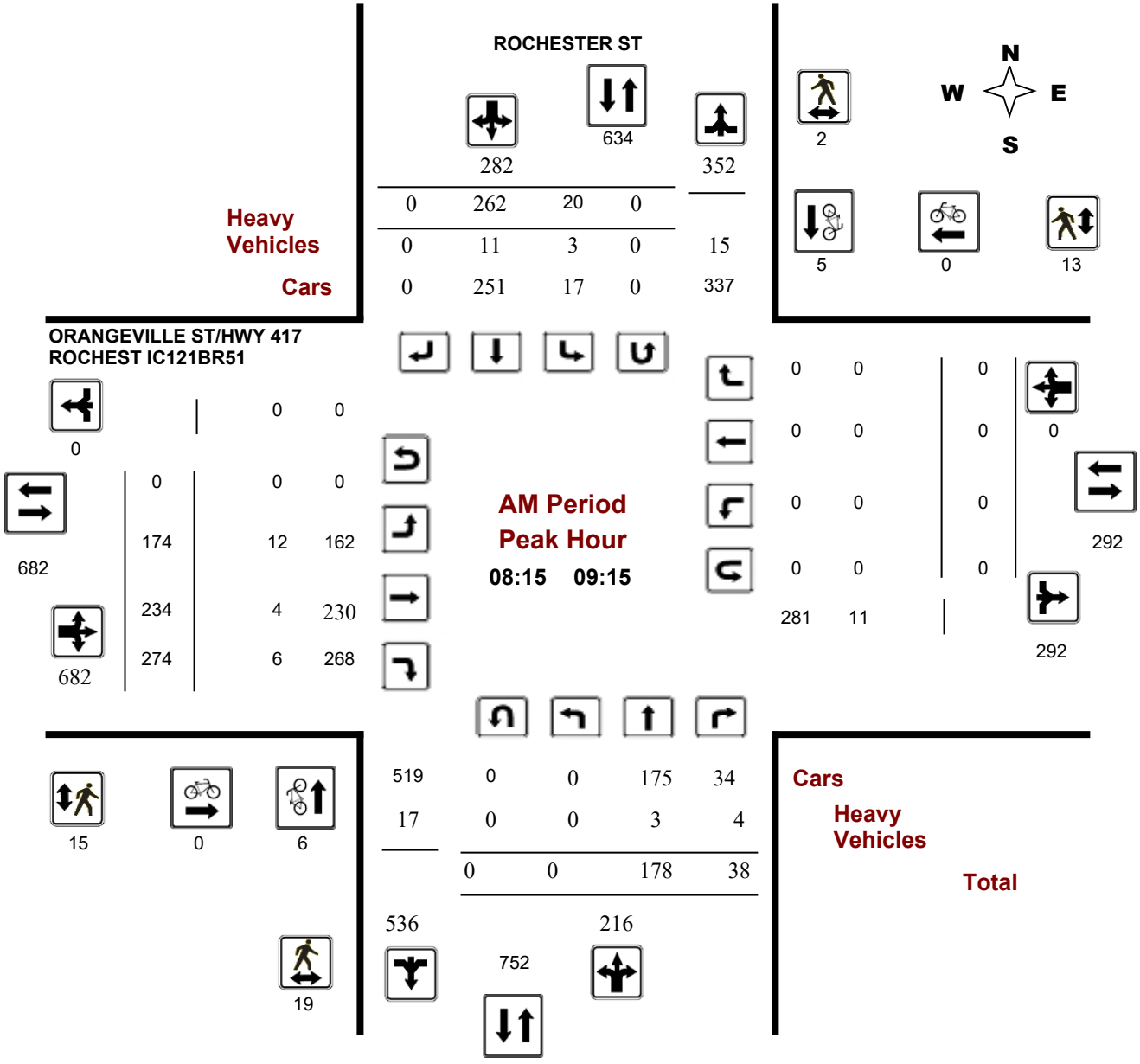
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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



Comments

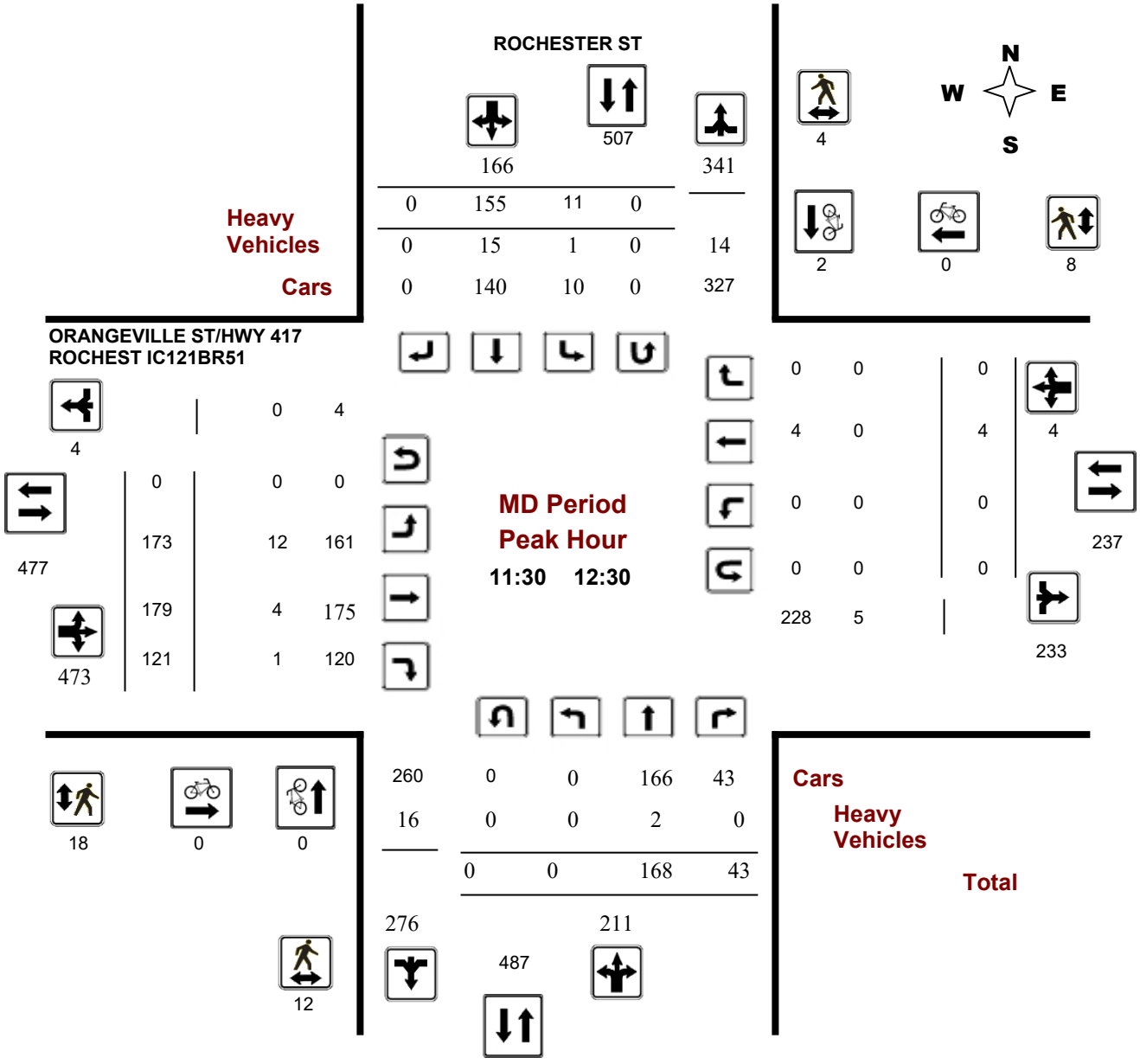
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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



Comments

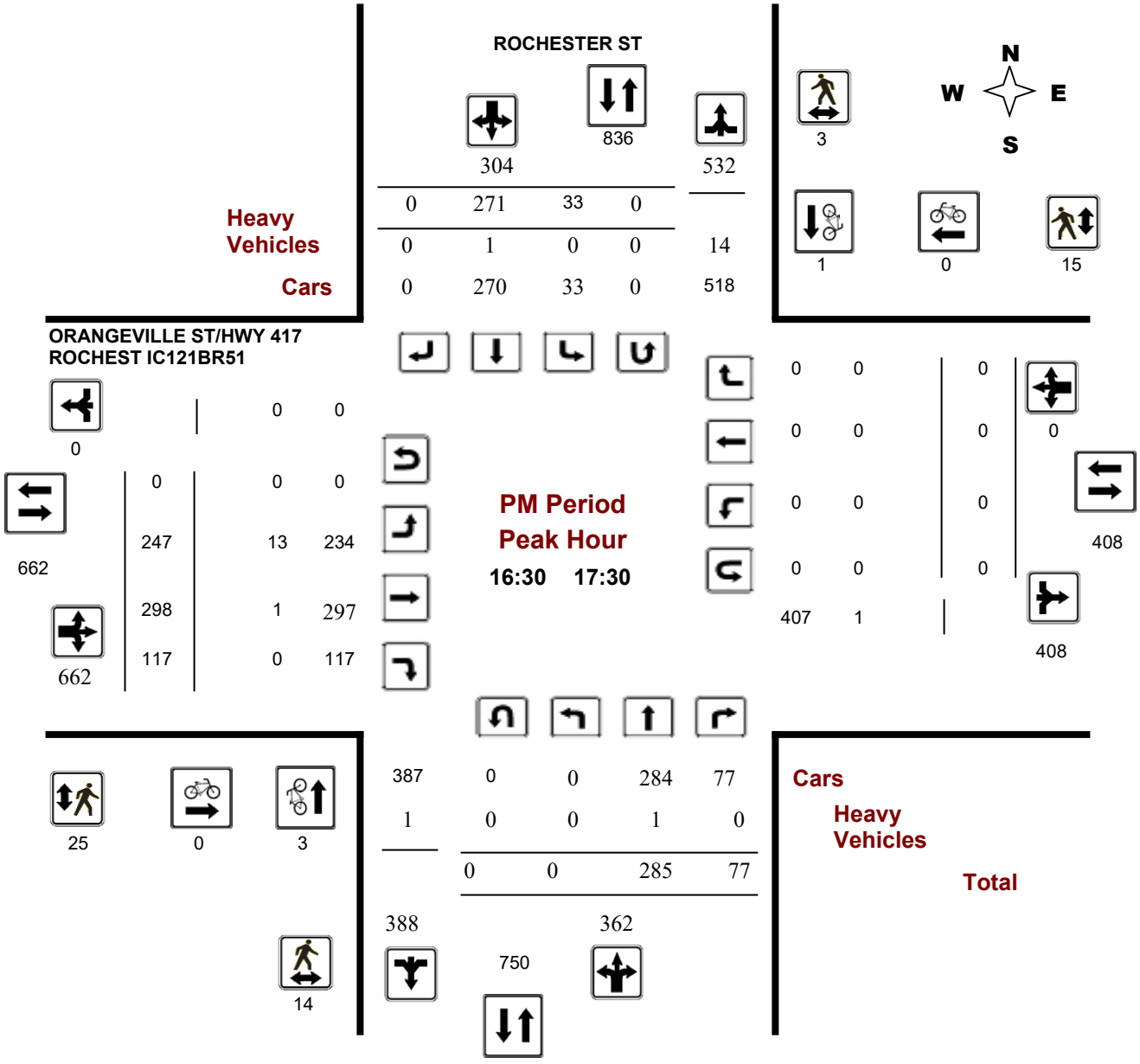
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 16, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor

.90

	ROCHESTER ST									ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	93	13	**106**	6	147	0	**153**	**259**	159	225	234	**618**	0	0	0	**0**	**618**	**877**
08:00 09:00	0	173	40	**213**	21	240	0	**261**	**474**	183	234	263	**680**	0	0	0	**0**	**680**	**1154**
09:00 10:00	0	133	26	**159**	17	202	0	**219**	**378**	177	215	247	**639**	0	1	0	**1**	**640**	**1018**
11:30 12:30	0	168	43	**211**	11	155	0	**166**	**377**	173	179	121	**473**	0	4	0	**4**	**477**	**854**
12:30 13:30	0	132	29	**161**	16	135	0	**151**	**312**	135	176	126	**437**	0	0	0	**0**	**437**	**749**
15:00 16:00	0	235	43	**278**	18	151	0	**169**	**447**	221	242	82	**545**	0	0	0	**0**	**545**	**992**
16:00 17:00	0	296	90	**386**	36	257	0	**293**	**679**	209	238	115	**562**	0	0	0	**0**	**562**	**1241**
17:00 18:00	0	209	55	**264**	24	247	0	**271**	**535**	247	357	120	**724**	0	0	0	**0**	**724**	**1259**
Sub Total	0	1439	339	**1778**	149	1534	0	**1683**	**3461**	1504	1866	1308	**4678**	0	5	0	**5**	**4683**	**8144**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	0	1439	339	**1778**	149	1534	0	**1683**	**3461**	1504	1866	1308	**4678**	0	5	0	**5**	**4683**	**8144**
EQ 12Hr	0	2000	471	**2471**	207	2132	0	**2339**	**4811**	2091	2594	1818	**6502**	0	7	0	**7**	**6509**	**11320**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	1697	400	**2096**	176	1809	0	**1984**	**4330**	1773	2200	1542	**5515**	0	6	0	**6**	**5858**	**10188**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**0.9**					
AVG 24Hr	0	2223	524	**2746**	230	2369	0	**2599**	**5345**	2323	2882	2020	**7225**	0	8	0	**8**	**7233**	**12578**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

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

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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

Full Study 15 Minute Increments

		ROCHESTER ST									ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	20	3	23	2	29	0	31	199	38	61	58	157	0	0	0	0	199	211
07:15	07:30	0	22	3	25	0	38	0	38	223	41	52	59	152	0	0	0	0	223	215
07:30	07:45	0	29	2	31	1	34	0	35	214	33	58	52	143	0	0	0	0	214	209
07:45	08:00	0	22	5	27	3	46	0	49	256	47	54	65	166	0	0	0	0	256	242
08:00	08:15	0	34	8	42	7	56	0	63	312	48	58	69	175	0	0	0	0	312	280
08:15	08:30	0	44	8	52	5	70	0	75	334	38	53	55	146	0	0	0	0	334	273
08:30	08:45	0	58	13	71	6	51	0	57	341	47	59	57	163	0	0	0	0	341	291
08:45	09:00	0	37	11	48	3	63	0	66	346	50	64	82	196	0	0	0	0	346	310
09:00	09:15	0	39	6	45	6	78	0	84	365	39	58	80	177	0	0	0	0	365	306
09:15	09:30	0	34	5	39	4	40	0	44	273	51	57	65	173	0	0	0	0	273	256
09:30	09:45	0	32	6	38	4	49	0	53	267	38	45	57	140	0	0	0	0	267	231
09:45	10:00	0	28	9	37	3	35	0	38	232	49	55	45	149	0	1	0	1	232	225
11:30	11:45	0	36	11	47	2	39	0	41	232	45	52	24	121	0	0	0	0	232	209
11:45	12:00	0	38	10	48	1	32	0	33	224	47	44	26	117	0	0	0	0	224	198
12:45	13:00	0	30	12	42	2	39	0	41	239	40	41	47	128	0	0	0	0	239	211
12:00	12:15	0	48	9	57	3	48	0	51	282	48	38	30	116	0	4	0	4	282	228
12:15	12:30	0	46	13	59	5	36	0	41	256	33	45	41	119	0	0	0	0	256	219
12:30	12:45	0	35	6	41	4	31	0	35	200	35	43	23	101	0	0	0	0	200	177
13:00	13:15	0	25	7	32	9	32	0	41	179	32	44	17	93	0	0	0	0	179	166
13:15	13:30	0	42	4	46	1	33	0	34	222	28	48	39	115	0	0	0	0	222	195
15:00	15:15	0	81	12	93	1	28	0	29	298	47	55	20	122	0	0	0	0	298	244
15:15	15:30	0	54	10	64	7	38	0	45	280	55	68	24	147	0	0	0	0	280	256
15:30	15:45	0	45	5	50	7	33	0	40	246	61	52	17	130	0	0	0	0	246	220
15:45	16:00	0	55	16	71	3	52	0	55	312	58	67	21	146	0	0	0	0	312	272
16:00	16:15	0	84	22	106	13	53	0	66	372	44	44	19	107	0	0	0	0	372	279
16:15	16:30	0	61	20	81	6	67	0	73	365	52	72	31	155	0	0	0	0	365	309
16:30	16:45	0	91	31	122	8	71	0	79	440	50	66	27	143	0	0	0	0	440	344
16:45	17:00	0	60	17	77	9	66	0	75	379	63	56	38	157	0	0	0	0	379	309
17:00	17:15	0	62	19	81	10	70	0	80	378	64	75	21	160	0	0	0	0	378	321
17:15	17:30	0	72	10	82	6	64	0	70	389	70	101	31	202	0	0	0	0	389	354
17:30	17:45	0	41	17	58	3	70	0	73	347	57	81	48	186	0	0	0	0	347	317
17:45	18:00	0	34	9	43	5	43	0	48	244	56	100	20	176	0	0	0	0	244	267
Total:		0	1439	339	1778	149	1534	0	1683	9246	1504	1866	1308	4678	0	5	0	5	9246	8,144

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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

Full Study Cyclist Volume

		ROCHESTER ST			ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	2	2	4	0	0	0	4
08:15	08:30	3	0	3	0	0	0	3
08:30	08:45	1	2	3	0	0	0	3
08:45	09:00	2	1	3	0	0	0	3
09:00	09:15	0	2	2	0	0	0	2
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	1	1	0	0	0	1
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	1	1	0	0	0	1
11:45	12:00	0	1	1	0	0	0	1
12:45	13:00	0	1	1	0	0	0	1
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	2	0	2	0	0	0	2
13:00	13:15	1	0	1	0	0	0	1
13:15	13:30	1	1	2	0	0	0	2
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	2	0	2	0	0	0	2
15:30	15:45	1	1	2	0	0	0	2
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	1	0	1	0	0	0	1
16:15	16:30	0	1	1	1	0	1	2
16:30	16:45	1	0	1	0	0	0	1
16:45	17:00	2	0	2	0	0	0	2
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	1	1	0	0	0	1
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		19	15	**34**	1	0	1	35

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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

Full Study Pedestrian Volume

	ROCHESTER ST			ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	4	0	**4**	0	2	**2**	**6**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	7	0	**7**	2	1	**3**	**10**
07:45 08:00	6	0	**6**	5	3	**8**	**14**
08:00 08:15	6	0	**6**	2	3	**5**	**11**
08:15 08:30	10	1	**11**	5	7	**12**	**23**
08:30 08:45	4	1	**5**	5	2	**7**	**12**
08:45 09:00	1	0	**1**	4	2	**6**	**7**
09:00 09:15	4	0	**4**	1	2	**3**	**7**
09:15 09:30	2	0	**2**	1	3	**4**	**6**
09:30 09:45	7	3	**10**	7	2	**9**	**19**
09:45 10:00	1	0	**1**	0	1	**1**	**2**
11:30 11:45	2	0	**2**	2	1	**3**	**5**
11:45 12:00	2	0	**2**	2	2	**4**	**6**
12:45 13:00	2	0	**2**	4	0	**4**	**6**
12:00 12:15	2	2	**4**	3	1	**4**	**8**
12:15 12:30	6	2	**8**	11	4	**15**	**23**
12:30 12:45	8	1	**9**	4	2	**6**	**15**
13:00 13:15	2	1	**3**	2	2	**4**	**7**
13:15 13:30	1	0	**1**	6	1	**7**	**8**
15:00 15:15	2	0	**2**	4	0	**4**	**6**
15:15 15:30	1	0	**1**	5	0	**5**	**6**
15:30 15:45	2	0	**2**	2	2	**4**	**6**
15:45 16:00	2	2	**4**	4	3	**7**	**11**
16:00 16:15	7	2	**9**	3	4	**7**	**16**
16:15 16:30	10	0	**10**	6	0	**6**	**16**
16:30 16:45	5	2	**7**	5	5	**10**	**17**
16:45 17:00	1	0	**1**	11	3	**14**	**15**
17:00 17:15	6	0	**6**	3	2	**5**	**11**
17:15 17:30	2	1	**3**	6	5	**11**	**14**
17:30 17:45	2	0	**2**	4	2	**6**	**8**
17:45 18:00	4	1	**5**	4	1	**5**	**10**
Total	121	19	**140**	123	68	**191**	**331**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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

Full Study Heavy Vehicles

		ROCHESTER ST									ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**3**	0	0	0	**1**	**4**	1	1	3	**5**	0	0	0	**1**	**6**	**5**
07:15	07:30	0	0	0	**4**	0	3	0	**5**	**9**	2	0	1	**3**	0	0	0	**0**	**3**	**6**
07:30	07:45	0	0	0	**2**	0	1	0	**1**	**3**	0	0	1	**1**	0	0	0	**0**	**1**	**2**
07:45	08:00	0	0	0	**2**	1	0	0	**1**	**3**	0	0	2	**2**	0	0	0	**1**	**3**	**3**
08:00	08:15	0	0	1	**7**	1	2	0	**5**	**12**	2	0	4	**6**	0	0	0	**2**	**8**	**10**
08:15	08:30	0	1	0	**5**	0	2	0	**7**	**12**	4	0	2	**6**	0	0	0	**0**	**6**	**9**
08:30	08:45	0	1	0	**3**	2	0	0	**6**	**9**	3	1	2	**6**	0	0	0	**3**	**9**	**9**
08:45	09:00	0	0	3	**6**	0	2	0	**3**	**9**	1	1	1	**3**	0	0	0	**4**	**7**	**8**
09:00	09:15	0	1	1	**10**	1	7	0	**13**	**23**	4	2	1	**7**	0	0	0	**4**	**11**	**17**
09:15	09:30	0	0	0	**5**	0	5	0	**5**	**10**	0	3	0	**3**	0	0	0	**3**	**6**	**8**
09:30	09:45	0	3	0	**4**	1	1	0	**6**	**10**	1	1	0	**2**	0	0	0	**2**	**4**	**7**
09:45	10:00	0	1	0	**7**	1	6	0	**12**	**19**	4	0	0	**4**	0	0	0	**1**	**5**	**12**
11:30	11:45	0	0	0	**6**	0	6	0	**10**	**16**	4	1	0	**5**	0	0	0	**1**	**6**	**11**
11:45	12:00	0	1	0	**5**	0	4	0	**8**	**13**	3	1	0	**4**	0	0	0	**1**	**5**	**9**
12:45	13:00	0	1	0	**6**	0	4	0	**8**	**14**	3	2	1	**6**	0	0	0	**2**	**8**	**11**
12:00	12:15	0	1	0	**3**	0	2	0	**8**	**11**	5	0	0	**5**	0	0	0	**0**	**5**	**8**
12:15	12:30	0	0	0	**4**	1	3	0	**4**	**8**	0	2	1	**3**	0	0	0	**3**	**6**	**7**
12:30	12:45	0	1	0	**6**	0	5	0	**7**	**13**	1	0	0	**1**	0	0	0	**0**	**1**	**7**
13:00	13:15	0	0	0	**5**	0	4	0	**10**	**15**	6	0	1	**7**	0	0	0	**0**	**7**	**11**
13:15	13:30	0	0	0	**7**	0	5	0	**8**	**15**	3	3	2	**8**	0	0	0	**3**	**11**	**13**
15:00	15:15	0	0	0	**3**	1	2	0	**5**	**8**	2	2	1	**5**	0	0	0	**3**	**8**	**8**
15:15	15:30	0	0	1	**3**	1	1	0	**4**	**7**	2	1	1	**4**	0	0	0	**3**	**7**	**7**
15:30	15:45	0	1	0	**2**	0	0	0	**4**	**6**	3	1	1	**5**	0	0	0	**1**	**6**	**6**
15:45	16:00	0	0	0	**1**	0	1	0	**5**	**6**	4	1	0	**5**	0	0	0	**1**	**6**	**6**
16:00	16:15	0	1	0	**5**	0	4	0	**7**	**12**	2	0	0	**2**	0	0	0	**0**	**2**	**7**
16:15	16:30	0	1	0	**2**	0	0	0	**4**	**6**	3	0	1	**4**	0	0	0	**0**	**4**	**5**
16:30	16:45	0	0	0	**1**	0	1	0	**3**	**4**	2	0	0	**2**	0	0	0	**0**	**2**	**3**
16:45	17:00	0	0	0	**0**	0	0	0	**3**	**3**	3	0	0	**3**	0	0	0	**0**	**3**	**3**
17:00	17:15	0	1	0	**1**	0	0	0	**5**	**6**	4	1	0	**5**	0	0	0	**1**	**6**	**6**
17:15	17:30	0	0	0	**0**	0	0	0	**4**	**4**	4	0	0	**4**	0	0	0	**0**	**4**	**4**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**1**	0	0	0	**1**	**2**	**1**
17:45	18:00	0	0	0	**0**	0	0	0	**4**	**4**	4	1	0	**5**	0	0	0	**1**	**6**	**5**
Total:	None	0	15	6	**118**	10	71	0	**176**	**294**	80	26	26	**132**	0	0	0	**42**	**174**	**234**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51 @ ROC

Survey Date: Wednesday, November 16, 2016 **WO No:** 36479

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

Full Study 15 Minute U-Turn Total

Time Period		ROCHESTER ST		ORANGEVILLE ST/HWY 417 ROCHEST IC121BR51		Total
		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:45	13:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

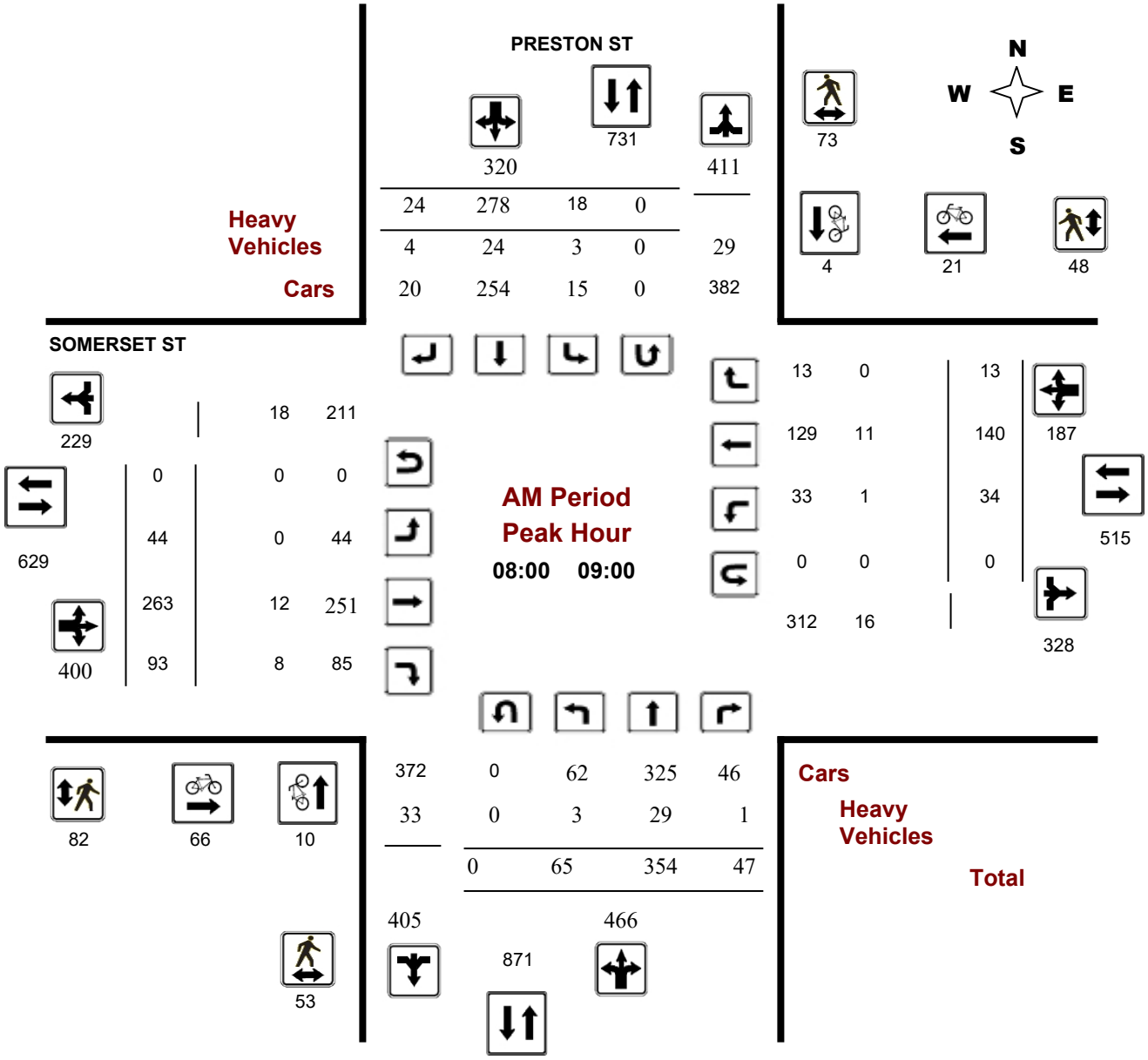
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017
Start Time: 07:00

WO No: 37133
Device: Miovision



Comments

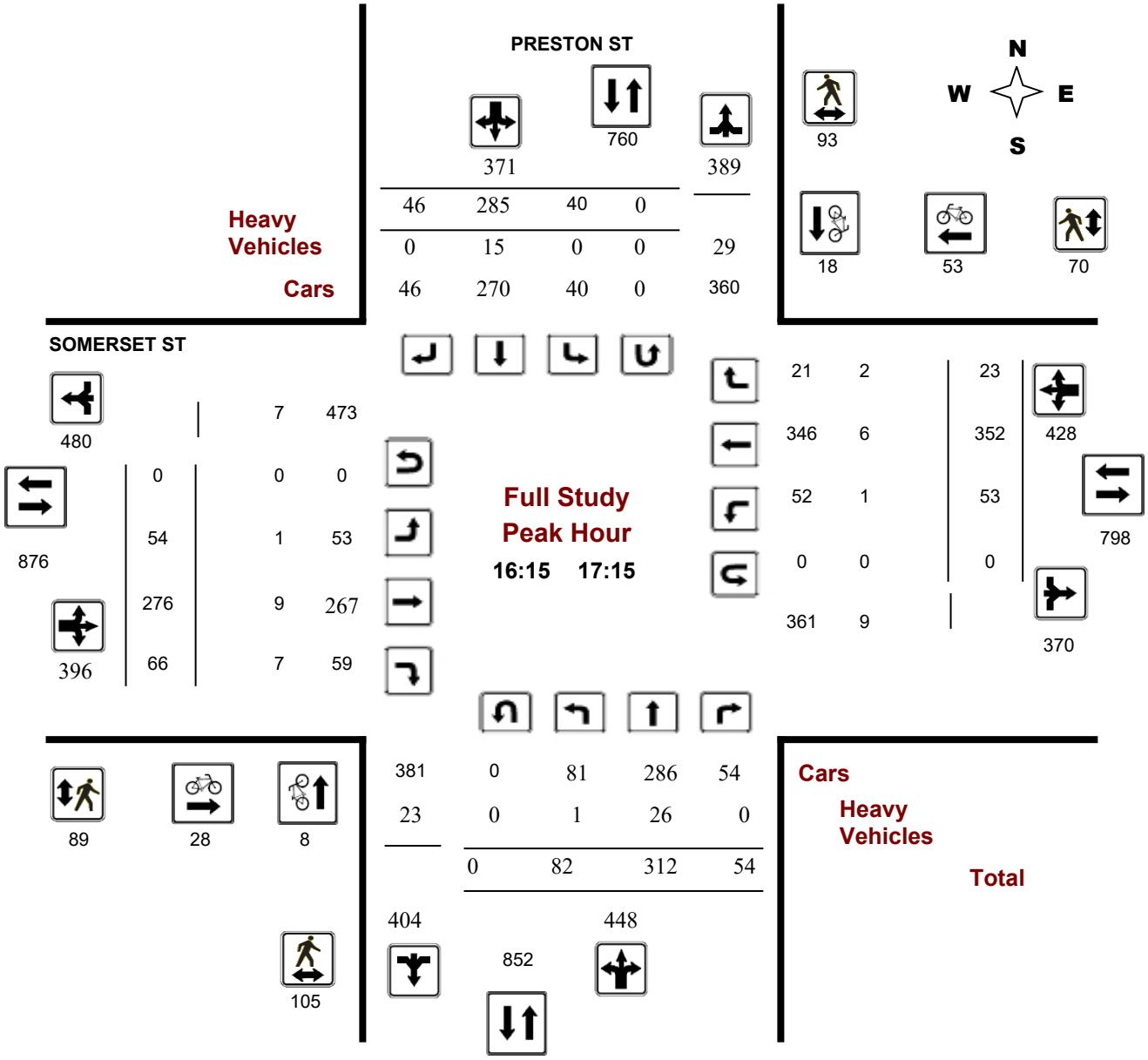
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017
Start Time: 07:00

WO No: 37133
Device: Miovision



Comments

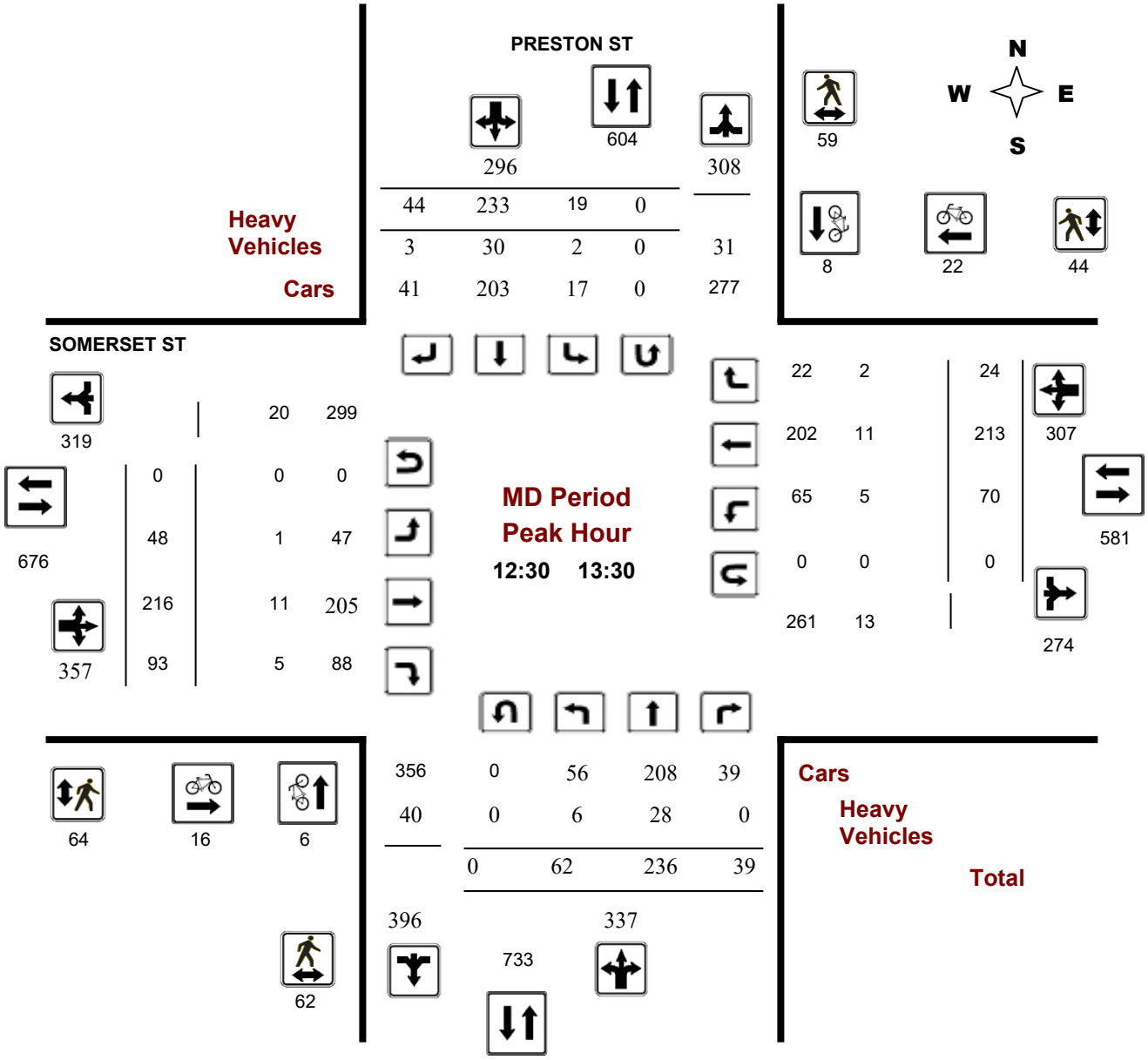
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017
Start Time: 07:00

WO No: 37133
Device: Miovision



Comments

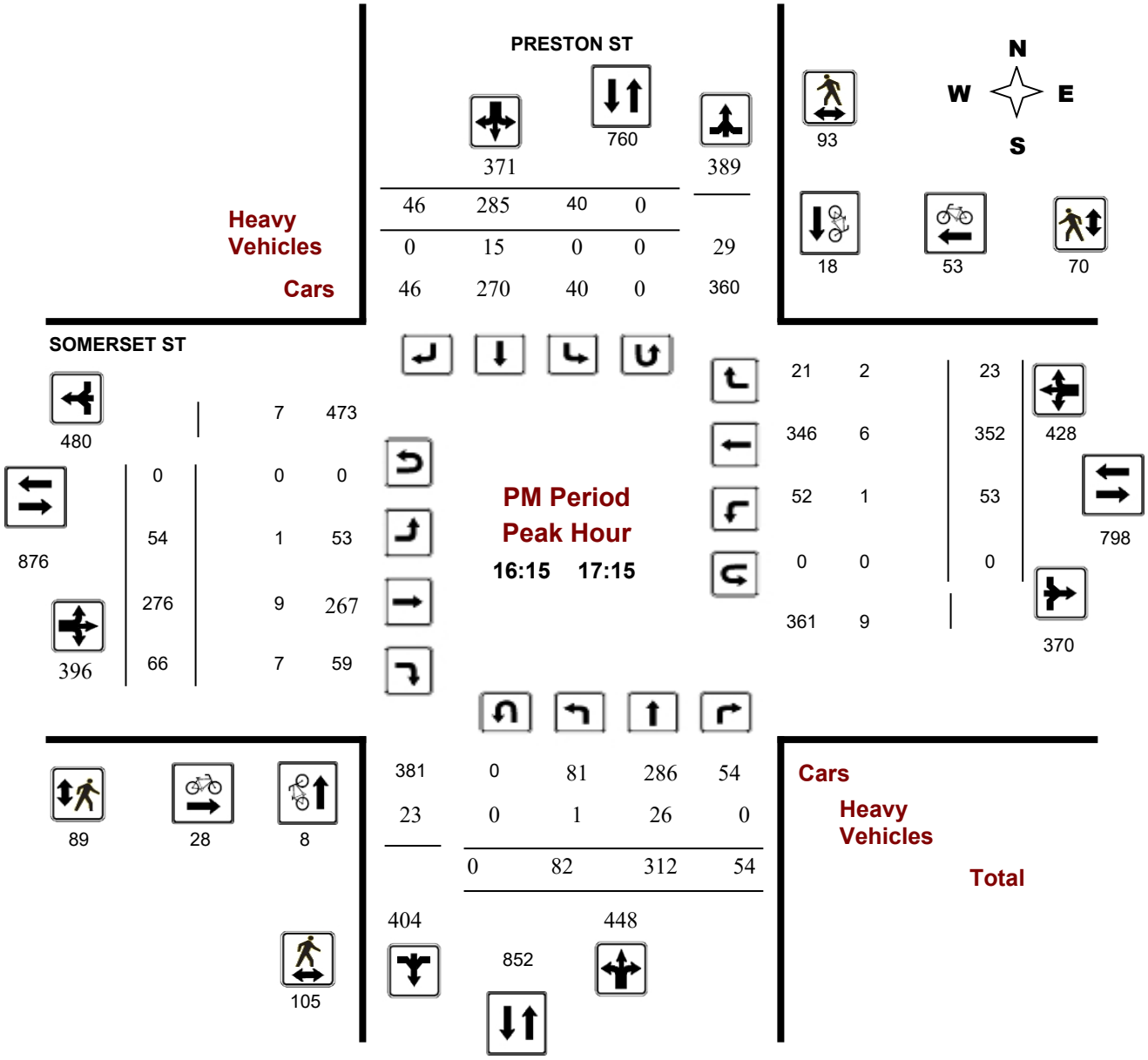
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017
Start Time: 07:00

WO No: 37133
Device: Miovision



Comments

Transportation Services - Traffic Services

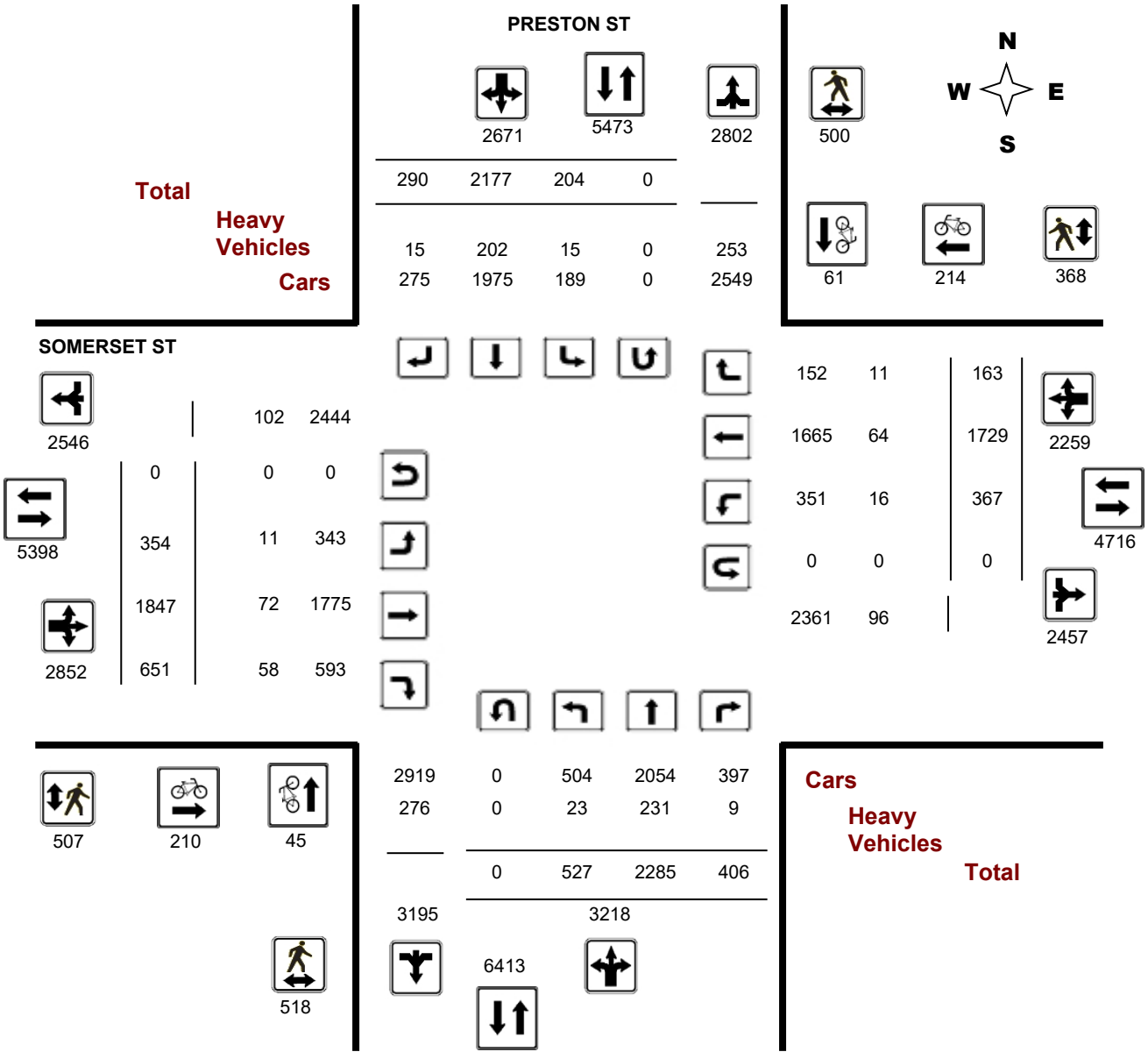
Turning Movement Count - Full Study Diagram

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017

WO#: 37133

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order
37133

Turning Movement Count - Full Study Summary Report

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
.90

Full Study

	PRESTON ST									SOMERSET ST									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	39	260	51	**350**	18	315	20	**353**	**703**	29	164	73	**266**	35	97	11	**143**	**409**	**1112**
08:00 09:00	65	354	47	**466**	18	278	24	**320**	**786**	44	263	93	**400**	34	140	13	**187**	**587**	**1373**
09:00 10:00	52	239	51	**342**	22	328	38	**388**	**730**	38	196	85	**319**	31	146	13	**190**	**509**	**1239**
11:30 12:30	68	221	54	**343**	24	222	37	**283**	**626**	45	212	74	**331**	43	181	26	**250**	**581**	**1207**
12:30 13:30	62	236	39	**337**	19	233	44	**296**	**633**	48	216	93	**357**	70	213	24	**307**	**664**	**1297**
15:00 16:00	79	342	54	**475**	39	263	41	**343**	**818**	55	246	81	**382**	46	273	24	**343**	**725**	**1543**
16:00 17:00	77	323	56	**456**	49	282	46	**377**	**833**	40	268	64	**372**	57	346	19	**422**	**794**	**1627**
17:00 18:00	85	310	54	**449**	15	256	40	**311**	**760**	55	282	88	**425**	51	333	33	**417**	**842**	**1602**
Sub Total	527	2285	406	**3218**	204	2177	290	**2671**	**5889**	354	1847	651	**2852**	367	1729	163	**2259**	**5111**	**11000**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	527	2285	406	**3218**	204	2177	290	**2671**	**5889**	354	1847	651	**2852**	367	1729	163	**2259**	**5111**	**11000**
EQ 12Hr	733	3176	564	**4473**	284	3026	403	**3713**	**8186**	492	2567	905	**3964**	510	2403	227	**3140**	**7104**	**15290**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	659	2859	508	**4026**	255	2723	363	**3341**	**7367**	443	2311	814	**3568**	459	2163	204	**2826**	**6394**	**13761**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	864	3745	665	**5274**	334	3568	475	**4377**	**9651**	580	3027	1067	**4674**	601	2834	267	**3702**	**8376**	**18027**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

Transportation Services - Traffic Services

W.O. 37133

Turning Movement Count - 15 Minute Summary Report

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		PRESTON ST									SOMERSET ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	10	50	10	**70**	3	72	3	**78**	**148**	3	31	17	**51**	11	21	1	**33**	**84**	**232**
07:15	07:30	7	60	11	**78**	8	86	4	**98**	**176**	9	35	20	**64**	7	19	6	**32**	**96**	**272**
07:30	07:45	14	83	14	**111**	4	76	6	**86**	**197**	9	44	17	**70**	6	29	2	**37**	**107**	**304**
07:45	08:00	8	67	16	**91**	3	81	7	**91**	**182**	8	54	19	**81**	11	28	2	**41**	**122**	**304**
08:00	08:15	17	90	11	**118**	6	79	5	**90**	**208**	10	65	25	**100**	3	36	4	**43**	**143**	**351**
08:15	08:30	12	86	13	**111**	3	73	14	**90**	**201**	8	72	29	**109**	11	37	4	**52**	**161**	**362**
08:30	08:45	14	88	10	**112**	5	63	5	**73**	**185**	12	68	20	**100**	8	30	3	**41**	**141**	**326**
08:45	09:00	22	90	13	**125**	4	63	0	**67**	**192**	14	58	19	**91**	12	37	2	**51**	**142**	**334**
09:00	09:15	12	73	13	**98**	7	105	9	**121**	**219**	5	46	26	**77**	6	44	4	**54**	**131**	**350**
09:15	09:30	12	67	9	**88**	7	90	13	**110**	**198**	11	52	21	**84**	12	29	3	**44**	**128**	**326**
09:30	09:45	13	58	12	**83**	1	70	10	**81**	**164**	14	55	27	**96**	7	43	4	**54**	**150**	**314**
09:45	10:00	15	41	17	**73**	7	63	6	**76**	**149**	8	43	11	**62**	6	30	2	**38**	**100**	**249**
11:30	11:45	18	41	15	**74**	6	48	7	**61**	**135**	9	43	19	**71**	9	35	6	**50**	**121**	**256**
11:45	12:00	18	43	9	**70**	7	63	7	**77**	**147**	10	62	19	**91**	13	40	7	**60**	**151**	**298**
12:00	12:15	19	50	16	**85**	8	60	10	**78**	**163**	11	49	20	**80**	13	51	7	**71**	**151**	**314**
12:15	12:30	13	87	14	**114**	3	51	13	**67**	**181**	15	58	16	**89**	8	55	6	**69**	**158**	**339**
12:30	12:45	12	44	6	**62**	7	70	15	**92**	**154**	14	52	22	**88**	22	60	6	**88**	**176**	**330**
12:45	13:00	10	64	7	**81**	6	54	14	**74**	**155**	13	59	19	**91**	11	44	2	**57**	**148**	**303**
13:00	13:15	17	64	13	**94**	1	55	8	**64**	**158**	12	45	35	**92**	18	46	11	**75**	**167**	**325**
13:15	13:30	23	64	13	**100**	5	54	7	**66**	**166**	9	60	17	**86**	19	63	5	**87**	**173**	**339**
15:00	15:15	9	88	12	**109**	5	64	12	**81**	**190**	11	60	20	**91**	13	52	6	**71**	**162**	**352**
15:15	15:30	22	89	10	**121**	9	68	13	**90**	**211**	18	59	24	**101**	14	71	6	**91**	**192**	**403**
15:30	15:45	19	86	16	**121**	8	68	8	**84**	**205**	12	56	21	**89**	10	77	5	**92**	**181**	**386**
15:45	16:00	29	79	16	**124**	17	63	8	**88**	**212**	14	71	16	**101**	9	73	7	**89**	**190**	**402**
16:00	16:15	23	80	16	**119**	17	62	9	**88**	**207**	6	57	23	**86**	16	76	6	**98**	**184**	**391**
16:15	16:30	17	97	18	**132**	13	66	10	**89**	**221**	14	82	15	**111**	12	76	2	**90**	**201**	**422**
16:30	16:45	15	68	11	**94**	7	82	11	**100**	**194**	8	70	17	**95**	14	104	7	**125**	**220**	**414**
16:45	17:00	22	78	11	**111**	12	72	16	**100**	**211**	12	59	9	**80**	15	90	4	**109**	**189**	**400**
17:00	17:15	28	69	14	**111**	8	65	9	**82**	**193**	20	65	25	**110**	12	82	10	**104**	**214**	**407**
17:15	17:30	15	74	15	**104**	1	68	10	**79**	**183**	11	77	19	**107**	14	88	7	**109**	**216**	**399**
17:30	17:45	20	86	10	**116**	6	65	6	**77**	**193**	14	80	24	**118**	9	98	8	**115**	**233**	**426**
17:45	18:00	22	81	15	**118**	0	58	15	**73**	**191**	10	60	20	**90**	16	65	8	**89**	**179**	**370**
TOTAL:		527	2285	406	**3218**	204	2177	290	**2671**	**5889**	354	1847	651	**2852**	367	1729	163	**2259**	**5111**	**11000**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
37133

PRESTON ST @ SOMERSET ST

Count Date: Tuesday, June 20, 2017

Start Time: 07:00

	PRESTON ST			SOMERSET ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	4	4	**8**	29	10	**39**	**47**
08:00 09:00	10	4	**14**	66	21	**87**	**101**
09:00 10:00	7	9	**16**	26	15	**41**	**57**
11:30 12:30	1	5	**6**	14	20	**34**	**40**
12:30 13:30	6	8	**14**	16	22	**38**	**52**
15:00 16:00	5	3	**8**	13	24	**37**	**45**
16:00 17:00	7	16	**23**	25	46	**71**	**94**
17:00 18:00	5	12	**17**	21	56	**77**	**94**
Total	45	61	**106**	210	214	**424**	**530**

Comment:

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

Transportation Services - Traffic Services

W.O. 37133

Turning Movement Count - Heavy Vehicle Report

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017

		PRESTON ST									SOMERSET ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	08:00	2	26	6	**34**	2	25	1	**28**	**62**	1	11	9	**21**	3	8	0	**11**	**32**	**94**
08:00	09:00	3	29	1	**33**	3	24	4	**31**	**64**	0	12	8	**20**	1	11	0	**12**	**32**	**96**
09:00	10:00	4	34	2	**40**	2	43	4	**49**	**89**	2	7	10	**19**	4	9	0	**13**	**32**	**121**
11:30	12:30	4	35	0	**39**	4	28	2	**34**	**73**	5	7	6	**18**	2	6	4	**12**	**30**	**103**
12:30	13:30	6	28	0	**34**	2	30	3	**35**	**69**	1	11	5	**17**	5	11	2	**18**	**35**	**104**
15:00	16:00	2	32	0	**34**	1	22	1	**24**	**58**	1	11	9	**21**	0	9	3	**12**	**33**	**91**
16:00	17:00	2	26	0	**28**	0	17	0	**17**	**45**	1	8	6	**15**	1	6	2	**9**	**24**	**69**
17:00	18:00	0	21	0	**21**	1	13	0	**14**	**35**	0	5	5	**10**	0	4	0	**4**	**14**	**49**
Sub Total		23	231	9	**263**	15	202	15	**232**	**495**	11	72	58	**141**	16	64	11	**91**	**232**	**727**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		23	231	9	**0**	15	202	15	**232**	**495**	11	72	58	**141**	16	64	11	**91**	**232**	**727**

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

Transportation Services - Traffic Services

Work Order
37133

Turning Movement Count - Pedestrian Volume Report

PRESTON ST @ SOMERSET ST

Count Date: Tuesday, June 20, 2017 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	7	1	**8**	6	5	**11**	**19**
07:15 07:30	2	6	**8**	2	8	**10**	**18**
07:30 07:45	9	7	**16**	12	5	**17**	**33**
07:45 08:00	11	7	**18**	6	9	**15**	**33**
07:00 08:00	29	21	**50**	26	27	**53**	**103**
08:00 08:15	7	17	**24**	22	11	**33**	**57**
08:15 08:30	21	18	**39**	18	16	**34**	**73**
08:30 08:45	11	20	**31**	18	12	**30**	**61**
08:45 09:00	14	18	**32**	24	9	**33**	**65**
08:00 09:00	53	73	**126**	82	48	**130**	**256**
09:00 09:15	11	9	**20**	7	4	**11**	**31**
09:15 09:30	6	7	**13**	8	7	**15**	**28**
09:30 09:45	4	11	**15**	7	11	**18**	**33**
09:45 10:00	13	11	**24**	21	8	**29**	**53**
09:00 10:00	34	38	**72**	43	30	**73**	**145**
11:30 11:45	17	5	**22**	14	7	**21**	**43**
11:45 12:00	21	12	**33**	15	11	**26**	**59**
12:00 12:15	14	15	**29**	11	5	**16**	**45**
12:15 12:30	27	18	**45**	15	4	**19**	**64**
11:30 12:30	79	50	**129**	55	27	**82**	**211**
12:30 12:45	14	21	**35**	16	9	**25**	**60**
12:45 13:00	11	15	**26**	19	10	**29**	**55**
13:00 13:15	24	15	**39**	22	16	**38**	**77**
13:15 13:30	13	8	**21**	7	9	**16**	**37**
12:30 13:30	62	59	**121**	64	44	**108**	**229**
15:00 15:15	14	15	**29**	16	22	**38**	**67**
15:15 15:30	30	15	**45**	21	11	**32**	**77**
15:30 15:45	17	11	**28**	9	6	**15**	**43**
15:45 16:00	12	25	**37**	20	12	**32**	**69**
15:00 16:00	73	66	**139**	66	51	**117**	**256**
16:00 16:15	15	18	**33**	16	16	**32**	**65**
16:15 16:30	24	18	**42**	20	11	**31**	**73**
16:30 16:45	29	23	**52**	25	23	**48**	**100**
16:45 17:00	16	23	**39**	23	15	**38**	**77**
16:00 17:00	84	82	**166**	84	65	**149**	**315**
17:00 17:15	36	29	**65**	21	21	**42**	**107**
17:15 17:30	24	32	**56**	21	24	**45**	**101**
17:30 17:45	29	26	**55**	23	22	**45**	**100**
17:45 18:00	15	24	**39**	22	9	**31**	**70**
17:00 18:00	104	111	**215**	87	76	**163**	**378**
Total	518	500	**1018**	507	368	**875**	**1893**

Comment:

Transportation Services - Traffic Services

Work Order
37133

Turning Movement Count - 15 Min U-Turn Total Report

PRESTON ST @ SOMERSET ST

Survey Date: Tuesday, June 20, 2017

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

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Turn Count Summary

Location: Preston St at Balsam St, Ottawa, Ontario
GPS Coordinates:
Date: 2020-12-02
Day of week: Wednesday
Weather: Light Flurries
Analyst: Basel Ansari

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	2	85	2	0	0	2	0	35	4	4	0	7	141
07:45	3	84	3	0	0	0	5	59	3	4	1	7	169
08:00	1	61	0	0	0	3	2	73	4	5	0	13	162
08:15	1	69	1	1	0	3	6	43	4	2	0	6	136
08:30	0	75	2	1	0	1	1	70	1	2	1	7	161
08:45	1	62	3	1	1	3	4	67	1	3	0	11	157
09:00	1	64	2	1	0	1	1	73	3	7	2	10	165
09:15	2	59	6	4	2	1	5	61	1	5	0	13	159

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	2	76	2	0	0	2	0	27	4	3	0	7	123
07:45	3	76	3	0	0	0	5	50	3	4	1	7	152
08:00	1	51	0	0	0	2	2	61	3	4	0	13	137
08:15	1	61	1	1	0	3	6	37	4	2	0	6	122
08:30	0	71	2	1	0	1	1	65	1	2	1	7	152
08:45	1	55	3	1	1	3	4	59	1	3	0	11	142
09:00	1	59	2	1	0	1	1	65	3	7	2	10	152
09:15	2	52	6	4	2	1	5	52	1	5	0	13	143

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	0	9	0	0	0	0	0	8	0	1	0	0	18
07:45	0	7	0	0	0	0	0	8	0	0	0	0	15
08:00	0	9	0	0	0	1	0	12	1	1	0	0	24
08:15	0	8	0	0	0	0	0	6	0	0	0	0	14
08:30	0	4	0	0	0	0	0	5	0	0	0	0	9
08:45	0	7	0	0	0	0	0	8	0	0	0	0	15
09:00	0	4	0	0	0	0	0	8	0	0	0	0	12
09:15	0	7	0	0	0	0	0	9	0	0	0	0	16

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	1	0	0	0	0	0	1	0	0	0	0	2
08:00	0	1	0	0	0	0	0	0	0	0	0	0	1
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	1	0	0	0	0	0	0	0	0	0	0	1
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:30	4	4	8	0	4	4	0	0	0	0	0	0	12
07:45	1	0	1	0	4	4	6	0	6	0	2	2	13
08:00	3	1	4	1	0	1	2	0	2	0	1	1	8
08:15	3	3	6	0	7	7	6	0	6	0	6	6	25
08:30	7	3	10	8	2	10	0	0	0	0	4	4	24
08:45	9	2	11	5	9	14	2	0	2	0	4	4	31
09:00	4	9	13	2	5	7	8	0	8	0	5	5	33
09:15	4	1	5	1	2	3	4	0	4	0	3	3	15

Intersection Peak Hour

08:30 - 09:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	4	260	13	7	3	6	11	271	6	17	3	41	642
Factor	0.50	0.87	0.54	0.44	0.38	0.50	0.55	0.93	0.50	0.61	0.38	0.79	0.97
Approach Factor	0.90			0.57			0.94			0.80			

Peak Hour Vehicle Summary

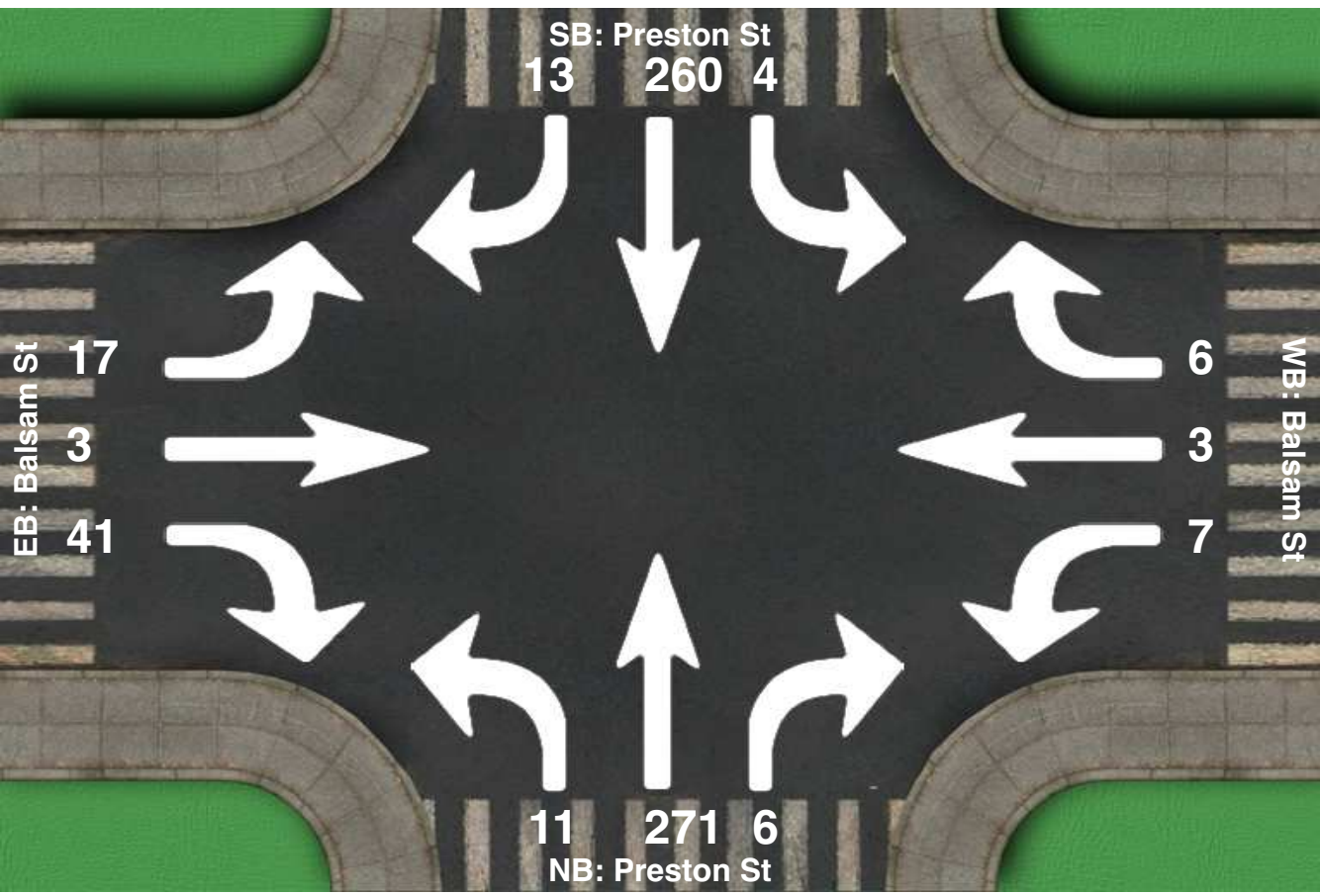
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	4	237	13	7	3	6	11	241	6	17	3	41	589
Truck	0	22	0	0	0	0	0	30	0	0	0	0	52
Bicycle	0	1	0	0	0	0	0	0	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	24	15	39	16	18	34	14	0	14	0	16	16	103

Intersection Peak Hour

Location: Preston St at Balsam St, Ottawa, Ontario
GPS Coordinates:
Date: 2020-12-02
Day of week: Wednesday
Weather: Light Flurries
Analyst: Basel Ansari



Intersection Peak Hour

08:30 - 09:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	4	260	13	7	3	6	11	271	6	17	3	41	642
Factor	0.50	0.87	0.54	0.44	0.38	0.50	0.55	0.93	0.50	0.61	0.38	0.79	0.97
Approach Factor	0.90			0.57			0.94			0.80			

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Turn Count Summary

Location: Preston St at Balsam St, Ottawa, Ontario
GPS Coordinates:
Date: 2020-12-02
Day of week: Wednesday
Weather: Overcast
Analyst: Basel Ansari

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	67	1	0	0	2	1	105	3	6	1	6	192
16:00	8	75	0	1	0	5	2	98	2	5	1	10	207
16:15	1	69	6	1	0	3	6	114	3	3	1	12	219
16:30	2	72	0	3	0	0	0	105	1	5	0	10	198
16:45	2	76	1	0	0	2	1	106	2	5	0	14	209
17:00	4	72	1	2	0	1	1	109	0	8	3	8	209
17:15	1	70	1	3	0	3	0	97	2	1	0	3	181
17:30	1	70	0	0	0	0	1	77	3	1	0	2	155
17:45	0	0	0	0	0	0	0	1	0	0	0	0	1

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	61	1	0	0	2	1	97	2	6	1	6	177
16:00	8	70	0	1	0	5	2	89	2	5	1	10	193
16:15	0	64	6	1	0	2	6	108	3	3	1	12	206
16:30	2	65	0	3	0	0	0	99	1	5	0	10	185
16:45	2	72	1	0	0	2	1	102	2	5	0	14	201
17:00	4	67	0	2	0	1	1	105	0	8	3	8	199
17:15	1	62	1	2	0	3	0	93	2	1	0	3	168
17:30	1	66	0	0	0	0	1	72	3	1	0	2	146
17:45	0	0	0	0	0	0	0	1	0	0	0	0	1

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	4	0	0	0	0	0	7	1	0	0	0	12
16:00	0	5	0	0	0	0	0	8	0	0	0	0	13
16:15	1	4	0	0	0	1	0	5	0	0	0	0	11
16:30	0	6	0	0	0	0	0	6	0	0	0	0	12
16:45	0	4	0	0	0	0	0	4	0	0	0	0	8
17:00	0	5	0	0	0	0	0	4	0	0	0	0	9
17:15	0	6	0	0	0	0	0	4	0	0	0	0	10
17:30	0	4	0	0	0	0	0	5	0	0	0	0	9
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	2	0	0	0	0	0	1	0	0	0	0	3
16:00	0	0	0	0	0	0	0	1	0	0	0	0	1
16:15	0	1	0	0	0	0	0	1	0	0	0	0	2
16:30	0	1	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	1	0	0	0	0	0	0	0	0	0	1
17:15	0	2	0	1	0	0	0	0	0	0	0	0	3
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
15:45	7	3	10	0	7	7	5	0	5	0	12	12	34
16:00	5	0	5	2	1	3	6	0	6	0	1	1	15
16:15	6	1	7	2	9	11	4	0	4	0	2	2	24
16:30	5	1	6	4	9	13	9	0	9	0	9	9	37
16:45	4	5	9	6	9	15	10	0	10	0	4	4	38
17:00	4	1	5	11	13	24	12	0	12	0	2	2	43
17:15	9	1	10	0	4	4	10	0	10	0	4	4	28
17:30	4	0	4	0	2	2	7	0	7	0	4	4	17
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	289	8	6	0	6	8	434	6	21	4	44	835
Factor	0.56	0.95	0.33	0.50	0.00	0.50	0.33	0.95	0.50	0.66	0.33	0.79	0.95
Approach Factor	0.97			0.75			0.91			0.91			

Peak Hour Vehicle Summary

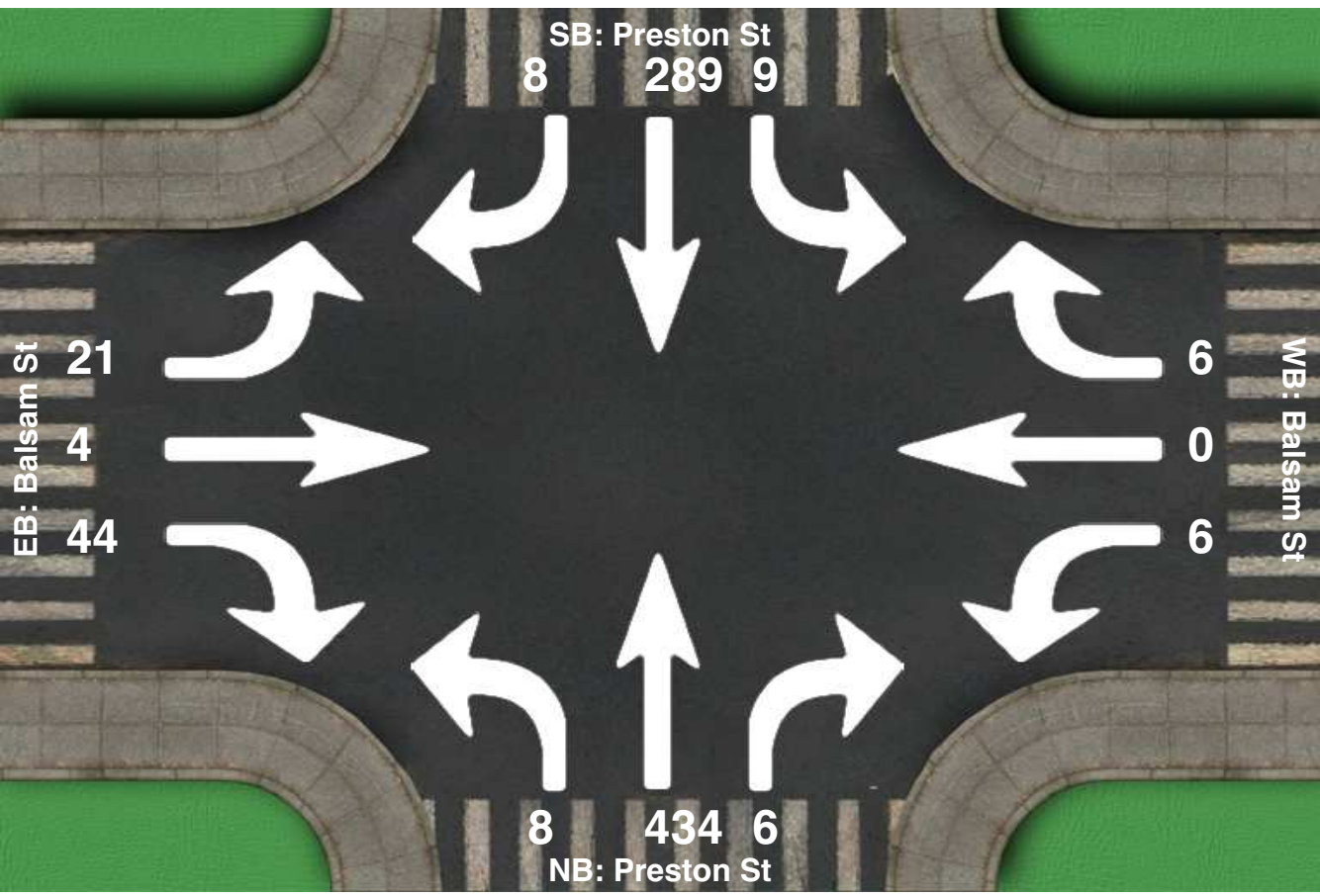
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	8	268	7	6	0	5	8	414	6	21	4	44	791
Truck	1	19	0	0	0	1	0	19	0	0	0	0	40
Bicycle	0	2	1	0	0	0	0	1	0	0	0	0	4

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	19	8	27	23	40	63	35	0	35	0	17	17	142

Intersection Peak Hour

Location: Preston St at Balsam St, Ottawa, Ontario
GPS Coordinates:
Date: 2020-12-02
Day of week: Wednesday
Weather: Overcast
Analyst: Basel Ansari



Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	289	8	6	0	6	8	434	6	21	4	44	835
Factor	0.56	0.95	0.33	0.50	0.00	0.50	0.33	0.95	0.50	0.66	0.33	0.79	0.95
Approach Factor	0.97			0.75			0.91			0.91			

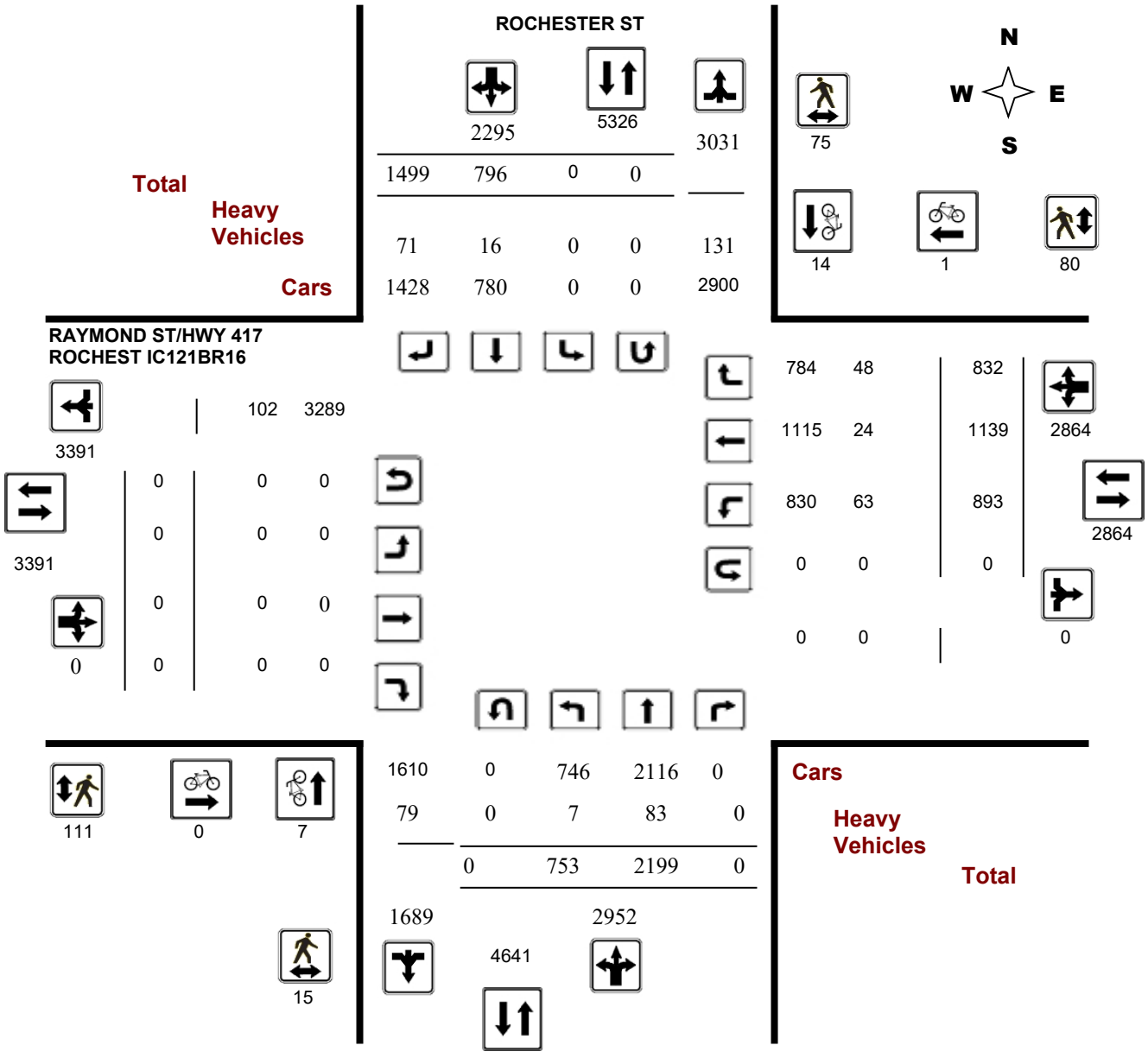
Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016
Start Time: 07:00
WO No: 36480
Device: Miovision

Full Study Diagram



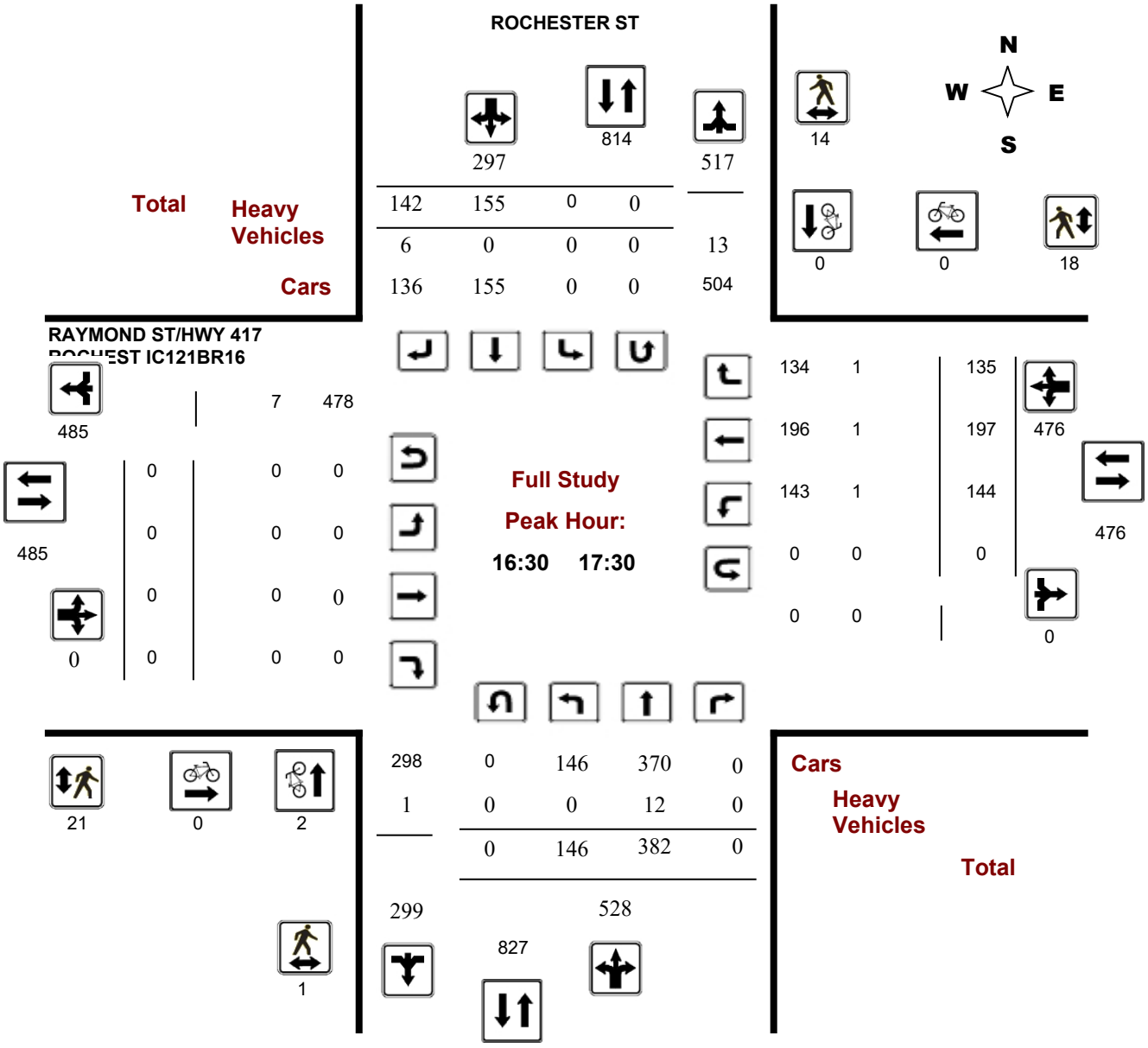
Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016
Start Time: 07:00
WO No: 36480
Device: Miovision

Full Study Peak Hour Diagram



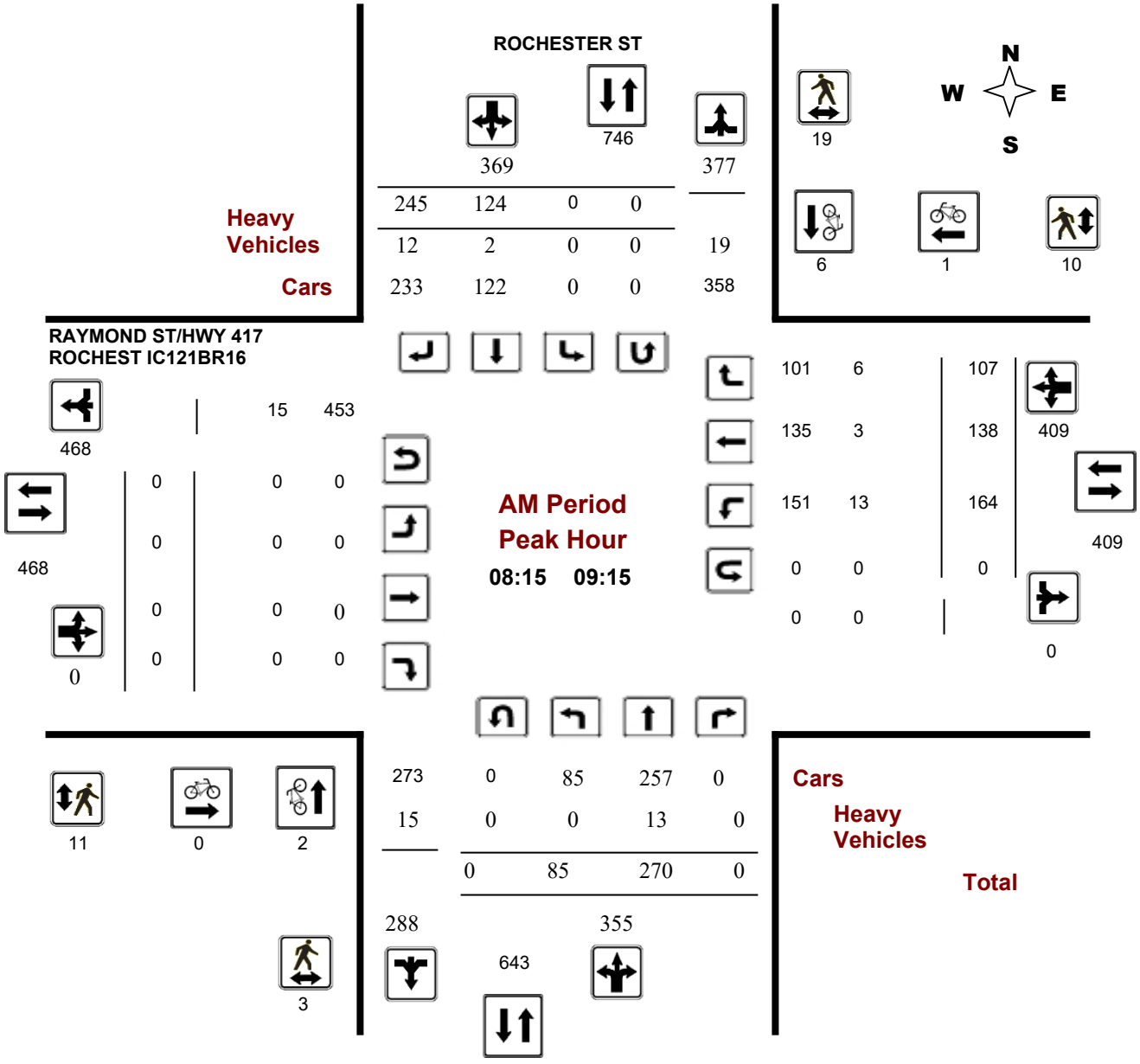
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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



Comments

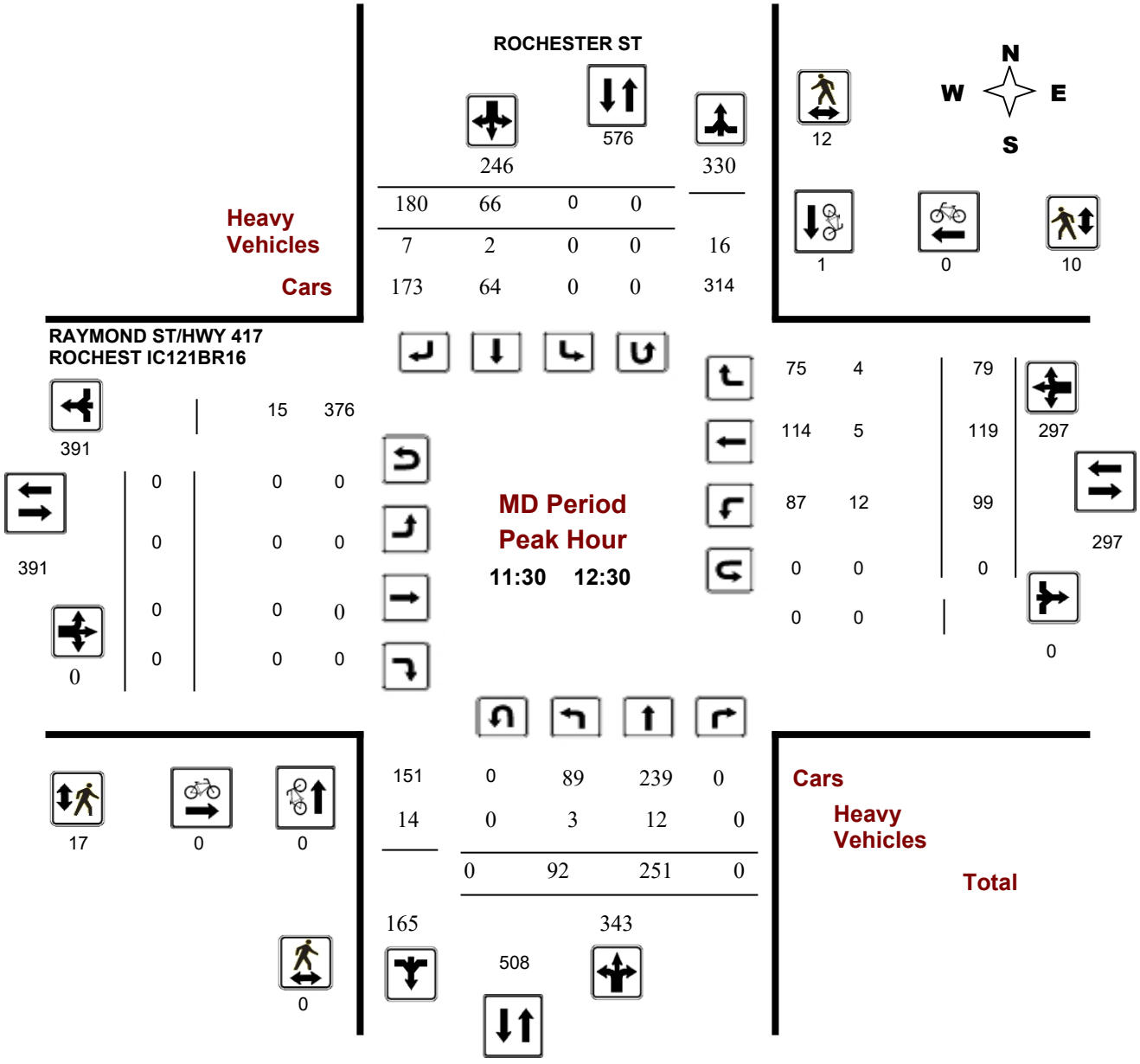
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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



Comments

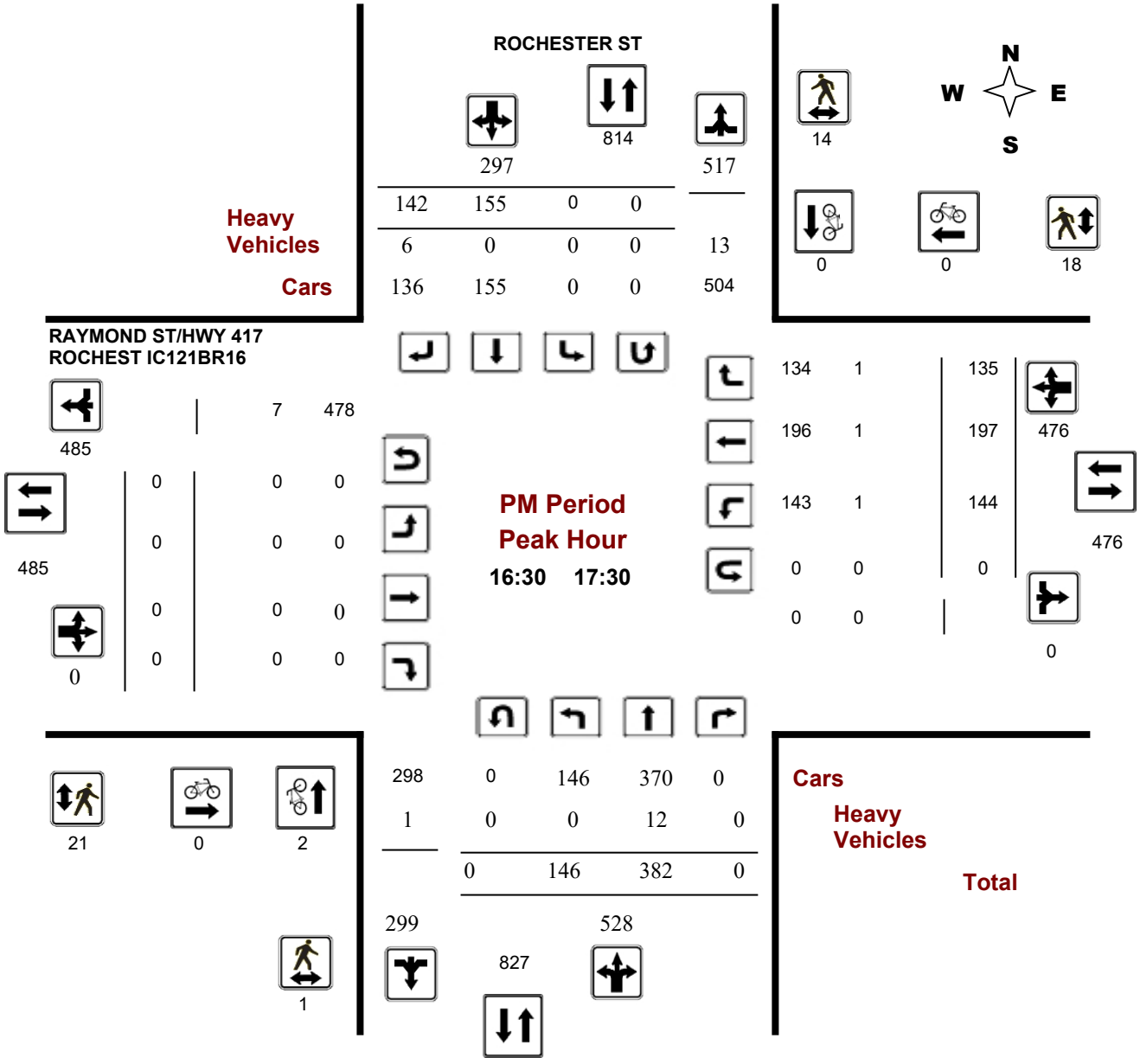
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 16, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor

.90

	ROCHESTER ST									RAYMOND ST/HWY 417 ROCHEST IC121BR1									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	53	200	0	**253**	0	55	186	**241**	**494**	0	0	0	**0**	100	125	84	**309**	**309**	**803**
08:00 09:00	87	275	0	**362**	0	108	249	**357**	**719**	0	0	0	**0**	158	139	103	**400**	**400**	**1119**
09:00 10:00	68	246	0	**314**	0	100	192	**292**	**606**	0	0	0	**0**	119	118	101	**338**	**338**	**944**
11:30 12:30	92	251	0	**343**	0	66	180	**246**	**589**	0	0	0	**0**	99	119	79	**297**	**297**	**886**
12:30 13:30	63	204	0	**267**	0	78	219	**297**	**564**	0	0	0	**0**	74	101	79	**254**	**254**	**818**
15:00 16:00	137	324	0	**461**	0	102	202	**304**	**765**	0	0	0	**0**	72	179	121	**372**	**372**	**1137**
16:00 17:00	151	347	0	**498**	0	151	136	**287**	**785**	0	0	0	**0**	138	208	133	**479**	**479**	**1264**
17:00 18:00	102	352	0	**454**	0	136	135	**271**	**725**	0	0	0	**0**	133	150	132	**415**	**415**	**1140**
Sub Total	753	2199	0	**2952**	0	796	1499	**2295**	**5247**	0	0	0	**0**	893	1139	832	**2864**	**2864**	**8111**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	753	2199	0	**2952**	0	796	1499	**2295**	**5247**	0	0	0	**0**	893	1139	832	**2864**	**2864**	**8111**
EQ 12Hr	1047	3057	0	**4103**	0	1106	2084	**3190**	**7293**	0	0	0	**0**	1241	1583	1156	**3981**	**3981**	**11274**

Note: These values are calculated by multiplying the totals by the appropriate expansion factor. **1.39**

AVG 12Hr	888	2593	0	**3480**	0	938	1767	**2706**	**6564**	0	0	0	**0**	1053	1343	981	**3377**	**3583**	**10147**

Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. **0.9**

AVG 24Hr	1163	3396	0	**4559**	0	1229	2315	**3545**	**8104**	0	0	0	**0**	1379	1759	1285	**4423**	**4423**	**12527**

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**

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

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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

Full Study 15 Minute Increments

		ROCHESTER ST									RAYMOND ST/HWY 417 ROCHEST IC121BR16									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	10	49	0	59	0	10	38	48	208	0	0	0	0	21	19	21	61	208	168
07:15	07:30	15	48	0	63	0	5	45	50	214	0	0	0	0	35	41	13	89	214	202
07:30	07:45	16	46	0	62	0	17	49	66	222	0	0	0	0	14	29	17	60	222	188
07:45	08:00	12	57	0	69	0	23	54	77	289	0	0	0	0	30	36	33	99	289	245
08:00	08:15	19	66	0	85	0	23	56	79	319	0	0	0	0	39	35	27	101	319	265
08:15	08:30	24	58	0	82	0	34	71	105	341	0	0	0	0	41	42	21	104	341	291
08:30	08:45	23	82	0	105	0	26	55	81	351	0	0	0	0	33	37	24	94	351	280
08:45	09:00	21	69	0	90	0	25	67	92	352	0	0	0	0	45	25	31	101	352	283
09:00	09:15	17	61	0	78	0	39	52	91	345	0	0	0	0	45	34	31	110	345	279
09:15	09:30	21	65	0	86	0	26	53	79	298	0	0	0	0	20	34	22	76	298	241
09:30	09:45	15	57	0	72	0	20	43	63	258	0	0	0	0	28	22	18	68	258	203
09:45	10:00	15	63	0	78	0	15	44	59	271	0	0	0	0	26	28	30	84	271	221
11:30	11:45	17	65	0	82	0	12	40	52	258	0	0	0	0	29	27	18	74	258	208
11:45	12:00	17	68	0	85	0	19	48	67	282	0	0	0	0	17	32	26	75	282	227
12:00	12:15	31	65	0	96	0	19	50	69	296	0	0	0	0	30	33	17	80	296	245
12:15	12:30	27	53	0	80	0	16	42	58	248	0	0	0	0	23	27	18	68	248	206
12:30	12:45	18	52	0	70	0	19	45	64	240	0	0	0	0	17	27	18	62	240	196
12:45	13:00	13	57	0	70	0	20	59	79	263	0	0	0	0	20	20	17	57	263	206
13:00	13:15	13	44	0	57	0	21	55	76	243	0	0	0	0	20	29	25	74	243	207
13:15	13:30	19	51	0	70	0	18	60	78	253	0	0	0	0	17	25	19	61	253	209
15:00	15:15	49	79	0	128	0	19	52	71	339	0	0	0	0	12	49	30	91	339	290
15:15	15:30	36	73	0	109	0	30	65	95	355	0	0	0	0	14	47	34	95	355	299
15:30	15:45	27	83	0	110	0	21	56	77	336	0	0	0	0	19	40	26	85	336	272
15:45	16:00	25	89	0	114	0	32	29	61	354	0	0	0	0	27	43	31	101	354	276
16:00	16:15	40	84	0	124	0	34	39	73	377	0	0	0	0	29	47	33	109	377	306
16:15	16:30	31	81	0	112	0	42	26	68	366	0	0	0	0	33	59	30	122	366	302
16:30	16:45	53	85	0	138	0	37	35	72	402	0	0	0	0	35	44	35	114	402	324
16:45	17:00	27	97	0	124	0	38	36	74	409	0	0	0	0	41	58	35	134	409	332
17:00	17:15	32	93	0	125	0	35	39	74	396	0	0	0	0	41	54	28	123	396	322
17:15	17:30	34	107	0	141	0	45	32	77	434	0	0	0	0	27	41	37	105	434	323
17:30	17:45	18	81	0	99	0	39	32	71	363	0	0	0	0	35	30	38	103	363	273
17:45	18:00	18	71	0	89	0	17	32	49	285	0	0	0	0	30	25	29	84	285	222
Total:		753	2199	0	2952	0	796	1499	2295	9967	0	0	0	0	893	1139	832	2864	9967	8,111

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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

Full Study Cyclist Volume

		ROCHESTER ST			RAYMOND ST/HWY 417 ROCHEST IC121BR16			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	1	0	1	0	0	0	1
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	2	2	0	0	0	2
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	1	2	3	0	1	1	4
08:45	09:00	1	2	3	0	0	0	3
09:00	09:15	0	2	2	0	0	0	2
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	1	1	0	0	0	1
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	1	1	0	0	0	1
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	1	0	1	0	0	0	1
12:45	13:00	0	1	1	0	0	0	1
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	1	1	0	0	0	1
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	1	1	2	0	0	0	2
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	1	1	0	0	0	1
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	2	0	2	0	0	0	2
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		7	14	**21**	0	1	1	22

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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

Full Study Pedestrian Volume

	ROCHESTER ST			RAYMOND ST/HWY 417 ROCHEST IC121BR16			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	0	0	**0**	0	2	**2**	**2**
07:15 07:30	0	1	**1**	2	1	**3**	**4**
07:30 07:45	0	3	**3**	0	1	**1**	**4**
07:45 08:00	0	0	**0**	5	4	**9**	**9**
08:00 08:15	0	2	**2**	3	1	**4**	**6**
08:15 08:30	3	11	**14**	6	4	**10**	**24**
08:30 08:45	0	2	**2**	2	2	**4**	**6**
08:45 09:00	0	2	**2**	3	2	**5**	**7**
09:00 09:15	0	4	**4**	0	2	**2**	**6**
09:15 09:30	0	2	**2**	1	3	**4**	**6**
09:30 09:45	0	7	**7**	7	3	**10**	**17**
09:45 10:00	1	2	**3**	2	1	**3**	**6**
11:30 11:45	0	4	**4**	4	0	**4**	**8**
11:45 12:00	0	5	**5**	2	2	**4**	**9**
12:00 12:15	0	2	**2**	2	2	**4**	**6**
12:15 12:30	0	1	**1**	9	6	**15**	**16**
12:30 12:45	6	0	**6**	7	8	**15**	**21**
12:45 13:00	0	4	**4**	4	1	**5**	**9**
13:00 13:15	1	2	**3**	2	2	**4**	**7**
13:15 13:30	0	0	**0**	4	1	**5**	**5**
15:00 15:15	0	0	**0**	5	0	**5**	**5**
15:15 15:30	0	1	**1**	4	0	**4**	**5**
15:30 15:45	0	2	**2**	2	2	**4**	**6**
15:45 16:00	1	1	**2**	1	6	**7**	**9**
16:00 16:15	0	0	**0**	3	2	**5**	**5**
16:15 16:30	0	1	**1**	6	1	**7**	**8**
16:30 16:45	0	6	**6**	2	5	**7**	**13**
16:45 17:00	1	3	**4**	9	4	**13**	**17**
17:00 17:15	0	4	**4**	4	3	**7**	**11**
17:15 17:30	0	1	**1**	6	6	**12**	**13**
17:30 17:45	1	1	**2**	3	1	**4**	**6**
17:45 18:00	1	1	**2**	1	2	**3**	**5**
Total	15	75	**90**	111	80	**191**	**281**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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

Full Study Heavy Vehicles

		ROCHESTER ST									RAYMOND ST/HWY 417 ROCHEST IC121BR16									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	1	0	**1**	0	0	0	**3**	**4**	0	0	0	**0**	0	0	2	**2**	**2**	**3**
07:15	07:30	0	0	0	**3**	0	0	6	**7**	**10**	0	0	0	**6**	3	0	1	**4**	**10**	**10**
07:30	07:45	0	0	0	**1**	0	1	4	**9**	**10**	0	0	0	**5**	0	1	4	**5**	**10**	**10**
07:45	08:00	0	0	0	**1**	0	1	3	**6**	**7**	0	0	0	**5**	0	2	2	**4**	**9**	**8**
08:00	08:15	0	2	0	**5**	0	2	1	**8**	**13**	0	0	0	**4**	1	3	3	**7**	**11**	**12**
08:15	08:30	0	3	0	**5**	0	0	1	**5**	**10**	0	0	0	**2**	2	1	1	**4**	**6**	**8**
08:30	08:45	0	4	0	**6**	0	0	2	**8**	**14**	0	0	0	**2**	2	0	2	**4**	**6**	**10**
08:45	09:00	0	1	0	**3**	0	1	3	**5**	**8**	0	0	0	**4**	1	1	0	**2**	**6**	**7**
09:00	09:15	0	5	0	**14**	0	1	6	**15**	**29**	0	0	0	**7**	8	1	3	**12**	**19**	**24**
09:15	09:30	0	2	0	**6**	0	1	3	**8**	**14**	0	0	0	**3**	3	0	2	**5**	**8**	**11**
09:30	09:45	2	1	0	**5**	0	1	2	**7**	**12**	0	0	0	**4**	1	0	3	**4**	**8**	**10**
09:45	10:00	1	4	0	**12**	0	1	9	**15**	**27**	0	0	0	**11**	6	1	1	**8**	**19**	**23**
11:30	11:45	1	3	0	**8**	0	0	1	**6**	**14**	0	0	0	**3**	4	1	2	**7**	**10**	**12**
11:45	12:00	0	4	0	**9**	0	2	2	**8**	**17**	0	0	0	**4**	3	2	0	**5**	**9**	**13**
12:00	12:15	1	5	0	**8**	0	0	4	**11**	**19**	0	0	0	**7**	2	2	2	**6**	**13**	**16**
12:15	12:30	1	0	0	**4**	0	0	0	**0**	**4**	0	0	0	**1**	3	0	0	**3**	**4**	**4**
12:30	12:45	0	2	0	**6**	0	0	2	**8**	**14**	0	0	0	**3**	4	1	4	**9**	**12**	**13**
12:45	13:00	0	4	0	**8**	0	0	3	**12**	**20**	0	0	0	**4**	4	1	5	**10**	**14**	**17**
13:00	13:15	0	7	0	**11**	0	0	4	**15**	**26**	0	0	0	**4**	4	0	4	**8**	**12**	**19**
13:15	13:30	0	3	0	**9**	0	2	3	**8**	**17**	0	0	0	**3**	4	0	0	**4**	**7**	**12**
15:00	15:15	0	2	0	**5**	0	1	1	**6**	**11**	0	0	0	**1**	2	0	2	**4**	**5**	**8**
15:15	15:30	0	2	0	**4**	0	2	0	**5**	**9**	0	0	0	**0**	0	0	1	**1**	**1**	**5**
15:30	15:45	0	4	0	**4**	0	0	1	**7**	**11**	0	0	0	**6**	0	5	2	**7**	**13**	**12**
15:45	16:00	1	3	0	**5**	0	0	1	**4**	**9**	0	0	0	**2**	1	0	0	**1**	**3**	**6**
16:00	16:15	0	2	0	**6**	0	0	2	**5**	**11**	0	0	0	**2**	4	0	1	**5**	**7**	**9**
16:15	16:30	0	4	0	**4**	0	0	1	**5**	**9**	0	0	0	**2**	0	1	0	**1**	**3**	**6**
16:30	16:45	0	1	0	**2**	0	0	2	**4**	**6**	0	0	0	**2**	1	0	1	**2**	**4**	**5**
16:45	17:00	0	3	0	**3**	0	0	2	**5**	**8**	0	0	0	**2**	0	0	0	**0**	**2**	**5**
17:00	17:15	0	4	0	**4**	0	0	2	**6**	**10**	0	0	0	**2**	0	0	0	**0**	**2**	**6**
17:15	17:30	0	4	0	**4**	0	0	0	**4**	**8**	0	0	0	**1**	0	1	0	**1**	**2**	**5**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
17:45	18:00	0	3	0	**3**	0	0	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
Total:	None	7	83	0	**169**	0	16	71	**218**	**387**	0	0	0	**102**	63	24	48	**135**	**237**	**312**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

RAYMOND ST/HWY 417 ROCHEST IC121BR16 @ ROCHEST

Survey Date: Wednesday, November 16, 2016 **WO No:** 36480

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

Full Study 15 Minute U-Turn Total

Time Period		ROCHESTER ST		RAYMOND ST/HWY 417 ROCHEST IC121BR16		Total
		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Appendix E:

Collision Data

Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	29	9	12	15	2	4	6	4	81	65%
Non-fatal injury	2	14	3	8	0	13	0	2	42	34%
Non-reportable	1	0	0	0	0	0	0	0	1	1%
Total	**32**	**23**	**15**	**23**	**2**	**17**	**6**	**6**	**124**	100%
	#1 or 26%	#2 or 19%	#5 or 12%	#2 or 19%	#8 or 2%	#4 or 14%	#6 or 5%	#6 or 5%		

ANDERSON ST/PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	5	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	1	1	0	1	0	1	0	5	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**1**	**1**	**0**	**1**	**0**	**1**	**0**	**5**	100%
	20%	20%	20%	0%	20%	0%	20%	0%		

BALSAM ST/PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	0	1	0	0	0	1	3	75%
Non-fatal injury	0	0	0	1	0	0	0	0	1	25%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**4**	100%
	25%	0%	0%	50%	0%	0%	0%	25%		

ECCLES ST/PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	2	0	0	1	0	0	0	0	3	75%
Non-fatal injury	0	0	0	0	0	1	0	0	1	25%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**4**	100%
	50%	0%	0%	25%	0%	25%	0%	0%		

GLADSTONE AVE/LORETTA AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	0	0	0	0%
Non-fatal injury	0	1	0	0	0	1	0	0	2	100%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	100%
	0%	50%	0%	0%	0%	50%	0%	0%		

GLADSTONE AVE/PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	30	20,800	1825	**0.79**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	9	2	2	2	0	2	0	2	19	63%
Non-fatal injury	1	5	0	0	0	4	0	0	10	33%
Non-reportable	1	0	0	0	0	0	0	0	1	3%
Total	**11**	**7**	**2**	**2**	**0**	**6**	**0**	**2**	**30**	100%
	37%	23%	7%	7%	0%	20%	0%	7%		

GLADSTONE AVE/ROCHESTER ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	25	16,196	1825	**0.85**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	4	2	2	6	0	0	0	0	14	56%
Non-fatal injury	0	2	0	4	0	4	0	1	11	44%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**4**	**4**	**2**	**10**	**0**	**4**	**0**	**1**	**25**	100%
	16%	16%	8%	40%	0%	16%	0%	4%		

GLADSTONE AVE, LORETTA AVE N to PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	4	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	0	1	1	1	0	0	0	4	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**4**	100%
	25%	0%	25%	25%	25%	0%	0%	0%		

GLADSTONE AVE, PRESTON ST to ROCHESTER ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	5	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	1	1	0	1	0	0	0	0	3	60%
Non-fatal injury	0	0	1	1	0	0	0	0	2	40%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**1**	**1**	**2**	**0**	**0**	**0**	**0**	**5**	100%
	20%	20%	20%	40%	0%	0%	0%	0%		

LARCH ST/PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	2	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	1	0	1	50%
Non-fatal injury	0	1	0	0	0	0	0	0	1	50%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	100%
	0%	50%	0%	0%	0%	0%	50%	0%		

LAUREL ST/PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	1	0	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	0%	100%	0%	0%	0%	0%	0%	0%		

POPLAR ST/PRESTON ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	1	n/a	1825	**n/a**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total	
P.D. only	0	0	0	0	0	0	0	0	0	0%
Non-fatal injury	1	0	0	0	0	0	0	0	1	100%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	100%	0%	0%	0%	0%	0%	0%	0%		

PRESTON ST/SOMERSET ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2014-2018	25	18,027	1825	**0.76**

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	SMV other	SMV unattended vehicle	Other	Total

P.D. only	8	2	4	1	0	1	0	0	16	64%
Non-fatal injury	0	5	1	1	0	2	0	0	9	36%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**8**	**7**	**5**	**2**	**0**	**3**	**0**	**0**	**25**	100%
	32%	28%	20%	8%	0%	12%	0%	0%		

PRESTON ST/WILLOW ST

Years	*Total # Collisions*	*24 Hr AADT Veh Volume*	*Days*	*Collisions/MEV*
2014-2018	2	n/a	1825	**n/a**

Classification of Accident	*Rear End*	*Turning Movement*	*Sideswipe*	*Angle*	*Approaching*	*SMV other*	*SMV unattended vehicle*	*Other*	*Total*	
P.D. only	0	0	0	1	0	0	0	0	1	50%
Non-fatal injury	0	0	0	1	0	0	0	0	1	50%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	100%
	0%	0%	0%	100%	0%	0%	0%	0%		

PRESTON ST, ANDERSON ST to OAK ST

Years	*Total # Collisions*	*24 Hr AADT Veh Volume*	*Days*	*Collisions/MEV*
2014-2018	5	n/a	1825	**n/a**

Classification of Accident	*Rear End*	*Turning Movement*	*Sideswipe*	*Angle*	*Approaching*	*SMV other*	*SMV unattended vehicle*	*Other*	*Total*	
P.D. only	0	0	1	0	0	0	1	0	2	40%
Non-fatal injury	0	0	1	0	0	1	0	1	3	60%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**1**	**5**	100%
	0%	0%	40%	0%	0%	20%	20%	20%		

PRESTON ST, BALSAM ST to GLADSTONE AVE

Years	*Total # Collisions*	*24 Hr AADT Veh Volume*	*Days*	*Collisions/MEV*
2014-2018	3	n/a	1825	**n/a**

Classification of Accident	*Rear End*	*Turning Movement*	*Sideswipe*	*Angle*	*Approaching*	*SMV other*	*SMV unattended vehicle*	*Other*	*Total*	
P.D. only	1	0	0	1	0	0	1	0	3	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	100%
	33%	0%	0%	33%	0%	0%	33%	0%		

PRESTON ST, ECCLES ST to ANDERSON ST

Years	*Total # Collisions*	*24 Hr AADT Veh Volume*	*Days*	*Collisions/MEV*
2014-2018	1	n/a	1825	**n/a**

Classification of Accident	*Rear End*	*Turning Movement*	*Sideswipe*	*Angle*	*Approaching*	*SMV other*	*SMV unattended vehicle*	*Other*	*Total*	
P.D. only	0	0	1	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	0%	0%	100%	0%	0%	0%	0%	0%		

PRESTON ST, LARCH ST to BALSAM ST

Years	*Total # Collisions*	*24 Hr AADT Veh Volume*	*Days*	*Collisions/MEV*
2014-2018	1	n/a	1825	**n/a**

Classification of Accident	*Rear End*	*Turning Movement*	*Sideswipe*	*Angle*	*Approaching*	*SMV other*	*SMV unattended vehicle*	*Other*	*Total*	
P.D. only	0	0	0	0	0	0	0	1	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	100%
	0%	0%	0%	0%	0%	0%	0%	100%		

PRESTON ST, LAUREL ST to WILLOW ST

Years	*Total # Collisions*	*24 Hr AADT Veh Volume*	*Days*	*Collisions/MEV*
2014-2018	1	n/a	1825	**n/a**

Classification of Accident	*Rear End*	*Turning Movement*	*Sideswipe*	*Angle*	*Approaching*	*SMV other*	*SMV unattended vehicle*	*Other*	*Total*	
P.D. only	1	0	0	0	0	0	0	0	1	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%

Total	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	100%
	100%	0%	0%	0%	0%	0%	0%	0%		

PRESTON ST, SOMERSET ST W to ECCLES ST

Years	*Total # Collisions*	*24 Hr AADT Veh Volume*	*Days*	*Collisions/MEV*
2014-2018	3	n/a	1825	**n/a**

Classification of Accident	*Rear End*	*Turning Movement*	*Sideswipe*	*Angle*	*Approaching*	*SMV other*	*SMV unattended vehicle*	*Other*	*Total*	
P.D. only	0	0	0	0	0	1	2	0	3	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non-reportable	0	0	0	0	0	0	0	0	0	0%
Total	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**	100%
	0%	0%	0%	0%	0%	33%	67%	0%		

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: ANDERSON ST @ PRESTON ST

Traffic Control: Stop sign **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Aug-23, Tue,12:13	Clear	Rear end	P.D. only	Dry	North	Going ahead	Delivery van	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-13, Fri,16:15	Clear	Approaching	P.D. only	Dry	North	Unknown	Unknown	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Feb-11, Sat,09:25	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2017-May-02, Tue,17:03	Clear	SMV unattended vehicle	P.D. only	Dry	West	Turning left	Truck and trailer	Unattended vehicle	
2018-Aug-24, Fri,21:06	Clear	Sideswipe	P.D. only	Dry	South	Pulling away from shoulder or curb	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: BALSAM ST @ PRESTON ST

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

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

2015-Apr-09, Thu,10:39	Clear	Other	P.D. only	Dry	East	Reversing	Truck - closed	Other motor vehicle	
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Sep-14, Mon,09:19	Clear	Rear end	P.D. only	Dry	South	Going ahead	Passenger van	Other motor vehicle	
					South	Slowing or stopping	Pick-up truck	Other motor vehicle	
2018-Jun-08, Fri,15:58	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Cyclist	
					South	Going ahead	Bicycle	Other motor vehicle	
2018-Aug-22, Wed,13:09	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: ECCLES ST @ PRESTON ST

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Oct-24, Fri,08:52	Clear	Angle	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jun-15, Mon,18:00	Clear	SMV other	Non-fatal injury	Dry	West	Turning right	Pick-up truck	Pedestrian	1
2016-Aug-17, Wed,17:23	Clear	Rear end	P.D. only	Dry	North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Passenger van	Other motor vehicle	

2017-Oct-28, Sat,19:25	Clear	Rear end	P.D. only	Dry	South	Going ahead	Passenger van	Other motor vehicle	
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Location: GLADSTONE AVE @ LORETTA AVE

Traffic Control: Stop sign **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Nov-11, Wed,19:26	Rain	Turning movement	Non-fatal injury	Wet	East	Making "U" turn	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-15, Fri,22:14	Clear	SMV other	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Pedestrian	1

Location: GLADSTONE AVE @ PRESTON ST

Traffic Control: Traffic signal **Total Collisions:** 30

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-03, Fri,14:00	Clear	Rear end	Non-reportable	Dry	North	Slowing or stopping	Pick-up truck	Other motor vehicle	
					North	Stopped	Pick-up truck	Other motor vehicle	
2014-Feb-03, Mon,16:20	Clear	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Apr-20, Sun,11:48	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

2014-May-08, Thu,14:17	Clear	Other	P.D. only	Dry	West	Reversing	Truck - open	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2014-Nov-08, Sat,12:01	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2014-Sep-11, Thu,21:26	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Cyclist
					East	Going ahead	Bicycle	Other motor vehicle
2014-Nov-18, Tue,08:57	Clear	Turning movement	P.D. only	Dry	East	Turning right	Truck and trailer	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
2014-Nov-10, Mon,17:47	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Cyclist
					West	Going ahead	Bicycle	Other motor vehicle
2014-Oct-01, Wed,17:08	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Pick-up truck	Cyclist
					East	Going ahead	Bicycle	Other motor vehicle
2014-Dec-02, Tue,08:44	Clear	Other	P.D. only	Dry	East	Reversing	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle

2015-Apr-22, Wed,22:52	Clear	Rear end	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Nov-24, Mon,01:08	Clear	SMV other	P.D. only	Wet	North	Changing lanes	Automobile, station wagon	Other	
2015-Apr-15, Wed,20:20	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jun-23, Tue,16:20	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Pick-up truck	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2015-Jun-08, Mon,12:00	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Pick-up truck	Other motor vehicle	
					East	Slowing or stopping	Unknown	Other motor vehicle	
2015-Jul-10, Fri,07:30	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Apr-01, Fri,06:23	Clear	SMV other	Non-fatal injury	Wet	North	Turning right	Automobile, station wagon	Pedestrian	1
2016-Feb-12, Fri,17:40	Snow	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	

2016-Aug-09, Tue,18:13	Clear	Turning movement	Non-fatal injury	Dry	East	Going ahead	Bicycle	Other motor vehicle	
					East	Turning right	Automobile, station wagon	Cyclist	
2016-Aug-10, Wed,09:45	Clear	Rear end	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Oct-23, Fri,14:02	Clear	Sideswipe	P.D. only	Dry	West	Overtaking	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Aug-11, Tue,11:15	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Pick-up truck	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2016-Jun-29, Wed,09:45	Clear	SMV other	P.D. only	Dry	East	Turning left	Truck and trailer	Pole (utility, power)	
2016-Jul-26, Tue,15:25	Clear	SMV other	Non-fatal injury	Dry	West	Turning right	Truck and trailer	Pedestrian	1
2017-Oct-23, Mon,14:18	Clear	Angle	P.D. only	Dry	North	Reversing	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Dec-27, Wed,09:15	Snow	Turning movement	P.D. only	Ice	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

2018-Jan-10, Wed,14:37	Clear	Rear end	P.D. only	Slush	West	Going ahead	Truck - closed	Other motor vehicle	
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Apr-04, Wed,14:25	Clear	SMV other	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Pedestrian	1
2018-Jun-29, Fri,07:26	Clear	Turning movement	Non-fatal injury	Dry	West	Turning right	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-05, Mon,17:14	Rain	SMV other	Non-fatal injury	Wet	East	Turning right	Automobile, station wagon	Pedestrian	1

Location: GLADSTONE AVE @ ROCHESTER ST

Traffic Control: Traffic signal **Total Collisions:** 25

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-06, Thu,12:00	Clear	Rear end	P.D. only	Wet	East	Going ahead	Police vehicle	Other motor vehicle	
					East	Stopped	Municipal transit bus	Other motor vehicle	
2014-Mar-08, Sat,16:39	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Dec-05, Fri,14:41	Clear	SMV other	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Pedestrian	1
2014-Oct-05, Sun,13:00	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Feb-05, Thu,19:37	Clear	Angle	P.D. only	Wet	East	Going ahead	Pick-up truck	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2014-Dec-28, Sun,13:14	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-May-27, Wed,15:13	Clear	SMV other	Non-fatal injury	Dry	West	Turning left	Pick-up truck	Pedestrian	1
2015-Aug-05, Wed,07:58	Clear	Sideswipe	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2015-May-14, Thu,09:25	Clear	Sideswipe	P.D. only	Dry	West	Turning right	Truck and trailer	Other motor vehicle	
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Apr-28, Thu,10:10	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Aug-30, Tue,22:34	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Other motor vehicle	

2016-Feb-03, Wed,09:46	Freezing Rain	Turning movement	P.D. only	Wet	South	Making "U" turn	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Feb-08, Mon,19:14	Clear	Turning movement	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Cyclist	
					West	Going ahead	Bicycle	Other motor vehicle	
2016-Sep-07, Wed,14:22	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					North	Going ahead	Passenger van	Other motor vehicle	
2016-Nov-08, Tue,11:32	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Pedestrian	1
2016-Jul-15, Fri,16:47	Rain	Angle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2017-Feb-09, Thu,12:15	Clear	Angle	P.D. only	Dry	North	Unknown	Unknown	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jan-19, Thu,06:58	Clear	Angle	Non-fatal injury	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Mar-14, Tue,15:04	Snow	Rear end	P.D. only	Loose snow	South	Slowing or stopping	Pick-up truck	Other motor vehicle	

					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-May-23, Tue,10:16	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Pick-up truck	Cyclist	
					East	Going ahead	Bicycle	Other motor vehicle	
2017-Jul-29, Sat,14:46	Clear	Other	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Pedestrian	1
					North	Stopped	Automobile, station wagon	Pedestrian	
2018-Jan-09, Tue,18:55	Clear	Turning movement	P.D. only	Wet	West	Turning left	Delivery van	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-10, Sat,23:48	Clear	Angle	P.D. only	Slush	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Sep-14, Fri,18:10	Clear	Angle	P.D. only	Dry	East	Going ahead	Bicycle	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Cyclist	
2018-Dec-19, Wed,13:25	Clear	SMV other	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Pedestrian	1

Location: GLADSTONE AVE btwn LORETTA AVE N & PRESTON ST

Traffic Control: No control

Total Collisions: 4

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

2014-Sep-11, Thu,11:18	Clear	Angle	P.D. only	Dry	South	Reversing	Pick-up truck	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	
2014-Sep-04, Thu,14:06	Clear	Rear end	P.D. only	Dry	West	Going ahead	Motorcycle	Other motor vehicle	
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Feb-10, Sat,19:11	Snow	Approaching	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-17, Sat,18:30	Clear	Sideswipe	P.D. only	Wet	West	Unknown	Unknown	Other motor vehicle	
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Location: GLADSTONE AVE btwn PRESTON ST & ROCHESTER ST

Traffic Control: No control **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-May-27, Tue,08:52	Clear	Sideswipe	Non-fatal injury	Dry	East	Pulling onto shoulder or toward curb	Municipal transit bus	Cyclist	
					East	Going ahead	Bicycle	Other motor vehicle	
2015-Sep-10, Thu,17:30	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Overtaking	Automobile, station wagon	Other motor vehicle	

2015-Oct-29, Thu,16:32	Clear	Angle	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Cyclist
					West	Going ahead	Bicycle	Other motor vehicle
2016-Jun-03, Fri,13:28	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2018-Oct-17, Wed,13:27	Clear	Turning movement	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle

Location: LARCH ST @ PRESTON ST

Traffic Control: Stop sign

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jul-16, Sat,13:04	Clear	Turning movement	Non-fatal injury	Dry	South	Going ahead	Bicycle	Other motor vehicle	
					North	Turning left	Automobile, station wagon	Cyclist	
2017-Oct-06, Fri,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	

Location: LAUREL ST @ PRESTON ST

Traffic Control: Stop sign

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-May-01, Mon,16:00	Rain	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: POPLAR ST @ PRESTON ST

Traffic Control: Stop sign

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-May-15, Mon,11:46	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Truck - dump	Other motor vehicle	
					South	Turning left	Delivery van	Other motor vehicle	

Location: PRESTON ST @ SOMERSET ST

Traffic Control: Traffic signal

Total Collisions: 25

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Apr-12, Sat,14:24	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Cyclist	
					East	Going ahead	Bicycle	Other motor vehicle	
2014-Aug-06, Wed,07:52	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Bicycle	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Cyclist	
2014-Dec-22, Mon,17:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Apr-08, Wed,16:47	Clear	Turning movement	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Cyclist	
					West	Going ahead	Bicycle	Other motor vehicle	
2015-Mar-31, Tue,15:15	Clear	Sideswipe	P.D. only	Dry	South	Unknown	Unknown	Other motor vehicle	

					South	Turning right	Pick-up truck	Other motor vehicle	
2015-Sep-23, Wed,16:11	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Tow truck	Other motor vehicle	
2015-Mar-16, Mon,13:30	Clear	Rear end	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Feb-08, Sun,13:40	Snow	Rear end	P.D. only	Slush	West	Unknown	Unknown	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Oct-01, Thu,17:28	Clear	SMV other	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Pedestrian	1
2016-Jun-10, Fri,07:50	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Bicycle	Other	
2015-Oct-24, Sat,23:53	Rain	Turning movement	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Municipal transit bus	Other motor vehicle	
2015-Oct-30, Fri,11:41	Clear	Turning movement	Non-fatal injury	Dry	West	Going ahead	Bicycle	Other motor vehicle	
					West	Turning right	Automobile, station wagon	Cyclist	
2015-Sep-15, Tue,18:35	Clear	Sideswipe	P.D. only	Dry	North	Unknown	Unknown	Other motor vehicle	

					North	Turning left	Automobile, station wagon	Other motor vehicle
2015-Jul-28, Tue,08:30	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2016-Feb-17, Wed,16:42	Snow	Angle	P.D. only	Slush	West	Turning right	Pick-up truck	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2016-Jun-26, Sun,13:58	Clear	Sideswipe	Non-fatal injury	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Motorcycle	Other motor vehicle
2016-Jul-09, Sat,20:32	Rain	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Apr-05, Tue,15:07	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2017-Oct-05, Thu,17:53	Clear	Turning movement	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Cyclist
					West	Going ahead	Bicycle	Other motor vehicle

2016-Dec-07, Wed,14:15	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle
2017-Sep-28, Thu,17:00	Clear	Sideswipe	P.D. only	Dry	West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Nov-28, Tue,17:54	Clear	SMV other	P.D. only	Dry	West	Going ahead	Unknown	Pole (utility, power)
2018-Jun-19, Tue,16:36	Clear	Sideswipe	P.D. only	Dry	North	Overtaking	Automobile, station wagon	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2018-Aug-17, Fri,16:29	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Oct-25, Thu,16:59	Clear	Turning movement	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle

Location: PRESTON ST @ WILLOW ST

Traffic Control: Stop sign

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Apr-21, Fri,07:00	Rain	Angle	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

2018-Oct-27, Sat,12:02	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: PRESTON ST btwn ANDERSON ST & OAK ST

Traffic Control: No control **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jul-29, Tue,17:05	Clear	Sideswipe	Non-fatal injury	Dry	North	Stopped	Automobile, station wagon	Cyclist	
					North	Going ahead	Bicycle	Other motor vehicle	
2014-Sep-09, Tue,14:09	Clear	Sideswipe	P.D. only	Dry	North	Pulling away from shoulder or curb	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Truck - closed	Other motor vehicle	
2015-Sep-06, Sun,17:00	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Pedestrian	1
2018-Feb-07, Wed,10:30	Snow	SMV unattended vehicle	P.D. only	Slush	Unknown	Unknown	Unknown	Unattended vehicle	
2018-Aug-02, Thu,19:06	Clear	Other	Non-fatal injury	Dry	South	Reversing	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Delivery van	Other motor vehicle	

Location: PRESTON ST btwn BALSAM ST & GLADSTONE AVE

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-May-05, Tue,16:20	Clear	Angle	P.D. only	Dry	South	Unknown	Bicycle	Other motor vehicle	

					West	Turning left	Automobile, station wagon	Cyclist
2016-Sep-26, Mon,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle
2017-Feb-21, Tue,11:51	Clear	Rear end	P.D. only	Dry	South	Going ahead	Truck - tractor	Other motor vehicle
					South	Slowing or stopping	Pick-up truck	Other motor vehicle

Location: PRESTON ST btwn ECCLES ST & ANDERSON ST

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-06, Thu,08:20	Clear	Sideswipe	P.D. only	Dry	North	Overtaking	Automobile, station wagon	Other motor vehicle	
					North	Pulling away from shoulder or curb	Municipal transit bus	Other motor vehicle	

Location: PRESTON ST btwn LARCH ST & BALSAM ST

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Apr-10, Tue,13:05	Clear	Other	P.D. only	Dry	South	Reversing	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	

Location: PRESTON ST btwn LAUREL ST & WILLOW ST

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Mar-29, Tue,10:35	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle	

					North	Turning left	Automobile, station wagon	Other motor vehicle	

Location: PRESTON ST btwn SOMERSET ST W & ECCLES ST

Traffic Control: No control

Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-08, Sun,12:50	Snow	SMV unattended vehicle	P.D. only	Packed snow	South	Going ahead	Automobile, station wagon	Unattended vehicle	
2016-Feb-05, Fri,10:29	Clear	SMV unattended vehicle	P.D. only	Dry	South	Reversing	Pick-up truck	Unattended vehicle	
2018-Aug-09, Thu,18:26	Clear	SMV other	P.D. only	Dry	South	Turning left	Bus (other)	Building or wall	

Appendix F:

Background Growth Analysis

Gladstone/Preston
8 hrs

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2002	Friday, June 14	4341	4668	4623	4635	3352	2816	2160	2357	28952
2004	Wednesday, June 16	4324	4396	4676	4782	3202	2964	2080	2140	28564
2006	Wednesday, May 10	3065	4065	3974	3154	2767	2168	1415	1834	22442
2011	Tuesday, June 28	5060	2706	3444	4859	3805	3381	2149	3512	28916
2017	Tuesday, June 20	3558	3638	3919	3831	3240	2541	1972	2679	25378

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2002	4668	4341	9009	28952				
2004	4396	4324	8720	28564	-5.8%	-0.4%	-3.2%	-1.3%
2006	4065	3065	7130	22442	-7.5%	-29.1%	-18.2%	-21.4%
2011	2706	5060	7766	28916	-33.4%	65.1%	8.9%	28.8%
2017	3638	3558	7196	25378	34.4%	-29.7%	-7.3%	-12.2%

Regression Estimate	2002	4423	4163	8586
Regression Estimate	2017	3102	3930	7031
Average Annual Change		**-2.34%**	**-0.38%**	**-1.32%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2002	2160	2357	4517	28952				
2004	2080	2140	4220	28564	-3.7%	-9.2%	-6.6%	-1.3%
2006	1415	1834	3249	22442	-32.0%	-14.3%	-23.0%	-21.4%
2011	2149	3512	5661	28916	51.9%	91.5%	74.2%	28.8%
2017	1972	2679	4651	25378	-8.2%	-23.7%	-17.8%	-12.2%

Regression Estimate	2002	1952	2164	4116
Regression Estimate	2017	1960	3015	4975
Average Annual Change		**0.03%**	**2.23%**	**1.27%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2002	2816	3352	6168	28952				
2004	2964	3202	6166	28564	5.3%	-4.5%	0.0%	-1.3%
2006	2168	2767	4935	22442	-26.9%	-13.6%	-20.0%	-21.4%
2011	3381	3805	7186	28916	56.0%	37.5%	45.6%	28.8%
2017	2541	3240	5781	25378	-24.8%	-14.8%	-19.6%	-12.2%

Regression Estimate	2002	2777	3186	5963
Regression Estimate	2017	2769	3404	6173
Average Annual Change		**-0.02%**	**0.44%**	**0.23%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2002	4623	4635	9258	28952				
2004	4676	4782	9458	28564	1.1%	3.2%	2.2%	-1.3%
2006	3974	3154	7128	22442	-15.0%	-34.0%	-24.6%	-21.4%
2011	3444	4859	8303	28916	-13.3%	54.1%	16.5%	28.8%
2017	3919	3831	7750	25378	13.8%	-21.2%	-6.7%	-12.2%

Regression Estimate	2002	4488	4424	8913
Regression Estimate	2017	3586	3994	7579
Average Annual Change		**-1.49%**	**-0.68%**	**-1.07%**

Gladstone/Preston
AM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2002	Friday, June 14	615	581	573	624	342	338	264	251	3588
2004	Wednesday, June 16	628	604	623	630	312	381	293	241	3712
2006	Wednesday, May 10	518	627	612	524	354	388	273	218	3514
2011	Tuesday, June 28	767	343	474	731	421	523	334	399	3992
2017	Tuesday, June 20	448	524	549	470	299	398	337	241	3266

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2002	581	615	1196	3588				
2004	604	628	1232	3712	4.0%	2.1%	3.0%	3.5%
2006	627	518	1145	3514	3.8%	-17.5%	-7.1%	-5.3%
2011	343	767	1110	3992	-45.3%	48.1%	-3.1%	13.6%
2017	524	448	972	3266	52.8%	-41.6%	-12.4%	-18.2%

Regression Estimate	2002	594	632	1226
Regression Estimate	2017	449	539	988
Average Annual Change		**-1.85%**	**-1.05%**	**-1.43%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2002	264	251	515	3588				
2004	293	241	534	3712	11.0%	-4.0%	3.7%	3.5%
2006	273	218	491	3514	-6.8%	-9.5%	-8.1%	-5.3%
2011	334	399	733	3992	22.3%	83.0%	49.3%	13.6%
2017	337	241	578	3266	0.9%	-39.6%	-21.1%	-18.2%

Regression Estimate	2002	270	251	521
Regression Estimate	2017	345	298	644
Average Annual Change		**1.65%**	**1.16%**	**1.42%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2002	338	342	680	3588				
2004	381	312	693	3712	12.7%	-8.8%	1.9%	3.5%
2006	388	354	742	3514	1.8%	13.5%	7.1%	-5.3%
2011	523	421	944	3992	34.8%	18.9%	27.2%	13.6%
2017	398	299	697	3266	-23.9%	-29.0%	-26.2%	-18.2%

Regression Estimate	2002	372	348	720
Regression Estimate	2017	456	342	799
Average Annual Change		**1.38%**	**-0.11%**	**0.70%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2002	573	624	1197	3588				
2004	623	630	1253	3712	8.7%	1.0%	4.7%	3.5%
2006	612	524	1136	3514	-1.8%	-16.8%	-9.3%	-5.3%
2011	474	731	1205	3992	-22.5%	39.5%	6.1%	13.6%
2017	549	470	1019	3266	15.8%	-35.7%	-15.4%	-18.2%

Regression Estimate	2002	599	632	1231
Regression Estimate	2017	517	541	1058
Average Annual Change		**-0.97%**	**-1.03%**	**-1.00%**

Gladstone/Preston
PM Peak

Year	Date	North Leg		South Leg		East Leg		West Leg		Total
		SB	NB	NB	SB	WB	EB	EB	WB	
2002	Friday, June 14	581	648	652	678	559	390	315	391	4214
2004	Wednesday, June 16	586	635	733	735	543	514	387	365	4498
2006	Wednesday, May 10	393	587	569	413	431	331	211	273	3208
2011	Tuesday, June 28	625	409	508	634	689	450	315	644	4274
2017	Tuesday, June 20	480	480	561	498	637	363	265	602	3886

North Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2002	648	581	1229	4214				
2004	635	586	1221	4498	-2.0%	0.9%	-0.7%	6.7%
2006	587	393	980	3208	-7.6%	-32.9%	-19.7%	-28.7%
2011	409	625	1034	4274	-30.3%	59.0%	5.5%	33.2%
2017	480	480	960	3886	17.4%	-23.2%	-7.2%	-9.1%

Regression Estimate	2002	636	550	1187
Regression Estimate	2017	425	507	932
Average Annual Change		**-2.65%**	**-0.54%**	**-1.60%**

West Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2002	315	391	706	4214				
2004	387	365	752	4498	22.9%	-6.6%	6.5%	6.7%
2006	211	273	484	3208	-45.5%	-25.2%	-35.6%	-28.7%
2011	315	644	959	4274	49.3%	135.9%	98.1%	33.2%
2017	265	602	867	3886	-15.9%	-6.5%	-9.6%	-9.1%

Regression Estimate	2002	320	332	652
Regression Estimate	2017	266	640	906
Average Annual Change		**-1.23%**	**4.47%**	**2.21%**

East Leg

Year	Counts				% Change			
	EB	*WB*	*EB+WB*	*INT*	*EB*	*WB*	*EB+WB*	*INT*
2002	390	559	949	4214				
2004	514	543	1057	4498	31.8%	-2.9%	11.4%	6.7%
2006	331	431	762	3208	-35.6%	-20.6%	-27.9%	-28.7%
2011	450	689	1139	4274	36.0%	59.9%	49.5%	33.2%
2017	363	637	1000	3886	-19.3%	-7.5%	-12.2%	-9.1%

Regression Estimate	2002	428	514	941
Regression Estimate	2017	382	659	1041
Average Annual Change		**-0.74%**	**1.67%**	**0.67%**

South Leg

Year	Counts				% Change			
	NB	*SB*	*NB+SB*	*INT*	*NB*	*SB*	*NB+SB*	*INT*
2002	652	678	1330	4214				
2004	733	735	1468	4498	12.4%	8.4%	10.4%	6.7%
2006	569	413	982	3208	-22.4%	-43.8%	-33.1%	-28.7%
2011	508	634	1142	4274	-10.7%	53.5%	16.3%	33.2%
2017	561	498	1059	3886	10.4%	-21.5%	-7.3%	-9.1%

Regression Estimate	2002	663	651	1314
Regression Estimate	2017	518	502	1020
Average Annual Change		**-1.63%**	**-1.72%**	**-1.67%**

Appendix G:

TDM Checklists

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

Legend

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

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

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

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

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☒ Yes, we can displays relevant bus and LRT maps showing connectivity
BETTER		3.1.2 Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2 Transit fare incentives	
BASIC	*	3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☐
BETTER		3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3 Enhanced public transit service	
BETTER	*	3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4 Private transit service	
BETTER		3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4. CARSHARING & BIKESHARING	
		4.1 Bikeshare stations & memberships	
BETTER		4.1.1 Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2 Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2 Carshare vehicles & memberships	
BETTER		4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents	☒ Yes, we are exploring the potential to have a Communauto parking space at grade, serving our residents
BETTER		4.2.2 Provide residents with carshare memberships, either free or subsidized	☒ If viable with Communauto, an exclusive discount to our OCH tenants will be offered, yes.
		5. PARKING	
		5.1 Priced parking	
BASIC	*	5.1.1 Unbundle parking cost from purchase price *(condominium)*	☐
BASIC	*	5.1.2 Unbundle parking cost from monthly rent *(multi-family)*	☒ Yes, rent for parking is separate from the apartment rental

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		6. TDM MARKETING & COMMUNICATIONS	
		6.1 Multimodal travel information	
BASIC	*	6.1.1 Provide a multimodal travel option information package to new residents	☒ Yes, we can certainly do this as part of a welcome package for new tenants
		6.2 Personalized trip planning	
BETTER	*	6.2.1 Offer personalized trip planning to new residents	☐

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

Legend

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

	TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1. WALKING & CYCLING: ROUTES	
	1.1 Building location & access points	
BASIC	1.1.1 Locate building close to the street, and do not locate parking areas between the street and building entrances	☒ Yes, the building is right at street edge with only parking limited to drop-off/pick-up and 5min delivery. All assigned parking is below-grade via rampway.
BASIC	1.1.2 Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☒ Yes, the building has entrances/exits to north/south and east/west sides to adjoining streets, sidewalks and MUPs.
BASIC	1.1.3 Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☒ Yes, this has been achieved with generous windows/glazing for visibility and safety.
	1.2 Facilities for walking & cycling	
REQUIRED	1.2.1 Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☒ Yes, this is absolutely achieved with north/south sidewalks, north/south MUP, east/west MUP, east/west sidewalks, etc. The Gladstone LRT station and bus stops are but a couple blocks to the south and the Preston bus stops are but a couple blocks to the east. Connections to either are direct and unobstructed; accessible with ease.
REQUIRED	1.2.2 Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☒ Yes, this is absolutely achieved as conveyed in our site plan and landscape plan. The connectivity and circulation was a guiding element of our massing and initial design work for the building and site.

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

	TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2. WALKING & CYCLING: END-OF-TRIP FACILITIES	
	2.1 Bicycle parking	
REQUIRED	2.1.1 Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☒ Yes, we have 1:1 provision of bike parking below-grade, on ground floor of building and outdoors, in generous locations alongside 2 MUPs for added convenience.
REQUIRED	2.1.2 Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☒ Yes, as noted we have 1:1 provision of bike parking well located.
REQUIRED	2.1.3 Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☒ Yes, we will be meeting all applicable such requirements.
BASIC	2.1.4 Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☒ Yes, we will be providing 1:1 bike parking, including visitor bike parking spaces outdoors.
	2.2 Secure bicycle parking	
REQUIRED	2.2.1 Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☒ Yes, this will be achieved.
BETTER	2.2.2 Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☒ Yes, this will be achieved, as noted.
	2.3 Bicycle repair station	
BETTER	2.3.1 Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☒ Yes, this will be achieved in our ground floor bike storage room, conveniently alongside the n/s and e/w MUPs.
	3. TRANSIT	
	3.1 Customer amenities	
BASIC	3.1.1 Provide shelters, lighting and benches at any on-site transit stops	☐ not applicable
BASIC	3.1.2 Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐ not applicable
BETTER	3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐ not applicable

	TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4. RIDESHARING	
	4.1 Pick-up & drop-off facilities	
BASIC	4.1.1 Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐ not applicable, albeit we have temporary drop-off and pick-up spaces (e.g. 5min use) for food or parcel delivery, Uber, ParaTranspo, etc in front of the building
	5. CARSHARING & BIKESHARING	
	5.1 Carshare parking spaces	
BETTER	5.1.1 Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☒ We are pursuing 1 space for Communauto car share for our tenants and the benefit of the surrounding community
	5.2 Bikeshare station location	
BETTER	5.2.1 Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6. PARKING	
	6.1 Number of parking spaces	
REQUIRED	6.1.1 Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☒ Our underground parking (P1 only) will be compliant with zoning
BASIC	6.1.2 Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☒ Yes, this is the case
BASIC	6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☒ Yes, we are entertaining upwards of 3,000 ft2 of retail space on the ground floor, hence the sharing of visitor spaces for such with the residential use of the building
BETTER	6.1.4 Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2 Separate long-term & short-term parking areas	
BETTER	6.2.1 Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐

Appendix H:

MMLOS Analysis Sheets

Multi-Modal Level of Service - Segments Form

Consultant	**Parsons**	**Project**	**477237-01000**
Scenario	**Existing**	**Date**	**25-Feb-21**
Comments			

SEGMENTS		**Street A**	Gladstone Ave	Oak St	Balsam St
			1	2	3
Pedestrian	Sidewalk Width Boulevard Width	-	≥ 2 m < 0.5	1.8 m < 0.5 m	1.8 m < 0.5 m
	Avg Daily Curb Lane Traffic Volume		> 3000	≤ 3000	≤ 3000
	Operating Speed On-Street Parking		> 30 to 50 km/h no	> 30 to 50 km/h yes	> 30 to 50 km/h yes
	Exposure to Traffic PLoS		**C**	**B**	**B**
	Effective Sidewalk Width				
	Pedestrian Volume				
	Crowding PLoS		-	-	-
	Level of Service		**-**	**-**	**-**
Bicycle	Type of Cycling Facility	**B**	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)	≤ 2 (no centreline)
	Operating Speed		>40 to <50 km/h	≤ 40 km/h	≤ 40 km/h
	# of Lanes & Operating Speed LoS		**B**	**A**	**A**
	Bike Lane (+ Parking Lane) Width				
	Bike Lane Width LoS		-	-	-
	Bike Lane Blockages				
	Blockage LoS		-	-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		**A**	**A**	**A**
	Level of Service		**B**	**A**	**A**
Transit	Facility Type	**D**	Mixed Traffic		
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8		
	Level of Service		**D**	**-**	**-**
Truck	Truck Lane Width	**C**	> 3.7 m		≤ 3.5 m
	Travel Lanes per Direction		1		1
	Level of Service		**B**	**-**	**C**

Multi-Modal Level of Service - Intersections Form

Consultant	**Parsons**	**Project**	**477237-01000**
Scenario	**Existing**	**Date**	**18-Jan-21**
Comments			

INTERSECTIONS		**GLADSTONE / PRESTON**			
	Crossing Side	**NORTH**	**SOUTH**	**EAST**	**WEST**
Pedestrian	Lanes	3	3	3	0 - 2
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel
	Corner Radius	5-10m	10-15m	5-10m	5-10m
	Crosswalk Type	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement
	PETSI Score	**74**	**73**	**74**	**89**
	Ped. Exposure to Traffic LoS	**C**	**C**	**C**	**B**
	Cycle Length				
	Effective Walk Time				
	Average Pedestrian Delay				
	Pedestrian Delay LoS	**-**	**-**	**-**	**-**
	Level of Service	**C**	**C**	**C**	**B**
		C			
	Approach From	**NORTH**	**SOUTH**	**EAST**	**WEST**
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Right Turn Lane Configuration	≤ 50 m	≤ 50 m	≤ 50 m	≤ 50 m
	Right Turning Speed	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	≤ 25 km/h
	Cyclist relative to RT motorists	**D**	**D**	**D**	**D**
	Separated or Mixed Traffic	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**
	Left Turn Approach	One lane crossed	One lane crossed	One lane crossed	No lane crossed
	Operating Speed	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	≤ 40 km/h	≤ 40 km/h
	Left Turning Cyclist	**D**	**D**	**B**	**B**
	Level of Service	**D**	**D**	**D**	**D**
		D			
Transit	Average Signal Delay	≤ 10 sec	≤ 20 sec	> 40 sec	> 40 sec
	Level of Service	**B**	**C**	**F**	**F**
		F			
Truck	Effective Corner Radius	< 10 m	10 - 15 m	< 10 m	< 10 m
	Number of Receiving Lanes on Departure from Intersection	1	1	1	1
	Level of Service	**F**	**E**	**F**	**F**
		F			

Appendix I:

Synchro Analysis Reports

Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	263	93	34	140	13	65	354	47	18	278	24
Future Volume (vph)	44	263	93	34	140	13	65	354	47	18	278	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	25.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	20.0			25.0			25.0			20.0		
Right Turn on Red			No			No			No			No
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		291.7			195.3			168.5			148.6	
Travel Time (s)		21.0			14.1			12.1			10.7	
Lane Group Flow (vph)	49	395	0	38	170	0	72	445	0	20	336	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	19.6	19.6		19.6	19.6		21.7	21.7		21.7	21.7	
Total Split (s)	26.0	26.0		26.0	26.0		34.0	34.0		34.0	34.0	
Total Split (%)	37.1%	37.1%		37.1%	37.1%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.7	5.7		5.7	5.7	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	20.4	20.4		20.4	20.4		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.40	0.40		0.40	0.40	
v/c Ratio	0.17	0.86		0.26	0.35		0.24	0.66		0.08	0.49	
Control Delay	20.6	45.1		24.4	22.1		21.8	28.6		14.1	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.6	45.1		24.4	22.1		21.8	28.6		14.1	18.6	
LOS	C	D		C	C		C	C		B	B	
Approach Delay		42.4			22.5			27.7			18.4	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	4.8	48.6		3.8	17.4		8.0	54.0		1.6	31.6	
Queue Length 95th (m)	12.5	#94.1		11.5	32.6		m14.0	m81.9		5.6	53.2	
Internal Link Dist (m)		267.7			171.3			144.5			124.6	
Turn Bay Length (m)	25.0			25.0			25.0			20.0		
Base Capacity (vph)	280	457		149	489		304	677		242	681	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.86		0.26	0.35		0.24	0.66		0.08	0.49	

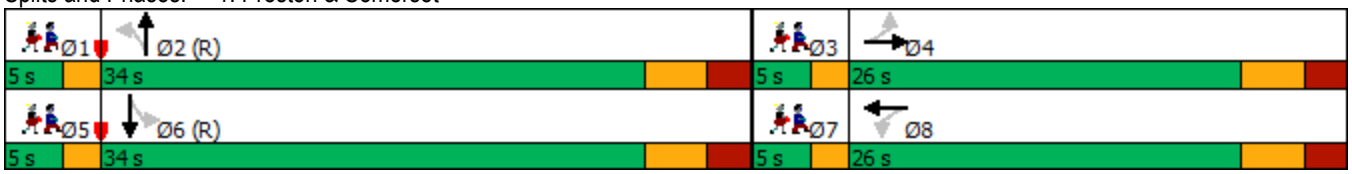
Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 37 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 80.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Preston & Somerset

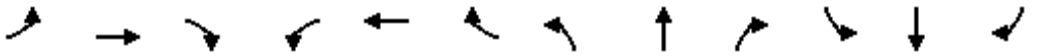


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	242	63	51	178	70	45	422	82	74	356	18
Future Volume (vph)	32	242	63	51	178	70	45	422	82	74	356	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	20.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	2.5			35.0			25.0			25.0		
Right Turn on Red			No			Yes			Yes			No
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		363.2			191.0			179.1			84.8	
Travel Time (s)		32.7			17.2			12.9			6.1	
Lane Group Flow (vph)	0	375	0	57	276	0	50	560	0	82	416	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		23.7	23.7		23.7	23.7	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5		6.5	6.5		5.7	5.7		5.7	5.7	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		18.5		18.5	18.5		39.3	39.3		39.3	39.3	
Actuated g/C Ratio		0.26		0.26	0.26		0.56	0.56		0.56	0.56	
v/c Ratio		0.94		0.35	0.63		0.11	0.60		0.24	0.43	
Control Delay		60.8		28.0	28.0		8.1	12.9		12.3	11.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		60.8		28.0	28.0		8.1	12.9		12.3	11.9	
LOS		E		C	C		A	B		B	B	
Approach Delay		60.8			28.0			12.5			12.0	
Approach LOS		E			C			B			B	
Queue Length 50th (m)		47.9		6.0	28.4		2.8	42.0		4.5	23.0	
Queue Length 95th (m)		#95.8		15.9	51.8		7.4	69.7		m11.0	m47.5	
Internal Link Dist (m)		339.2			167.0			155.1			60.8	
Turn Bay Length (m)				20.0			15.0			25.0		
Base Capacity (vph)		399		164	435		436	940		337	960	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.94		0.35	0.63		0.11	0.60		0.24	0.43	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 37 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 55	

Control Type: Pretimed
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 25.2 Intersection LOS: C
Intersection Capacity Utilization 94.2% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Preston & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	273	71	64	205	16	135	151	115	25	218	12
Future Volume (vph)	0	273	71	64	205	16	135	151	115	25	218	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	25.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	2.5			15.0			30.0			2.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		191.0			122.6			188.6			155.0	
Travel Time (s)		17.2			11.0			13.6			11.2	
Lane Group Flow (vph)	0	382	0	71	246	0	150	296	0	0	283	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		23.2		23.2	23.2		21.8	21.8		21.8	21.8	
Total Split (s)		25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (%)		41.7%		41.7%	41.7%		41.7%	41.7%		41.7%	41.7%	
Yellow Time (s)		3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)		3.2		3.2	3.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.2		6.2	6.2		5.8	5.8			5.8	
Lead/Lag		Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)		18.8		18.8	18.8		19.2	19.2			19.2	
Actuated g/C Ratio		0.31		0.31	0.31		0.32	0.32			0.32	
v/c Ratio		0.73		0.35	0.46		0.52	0.54			0.53	
Control Delay		27.3		22.0	19.4		27.1	20.0			20.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		27.3		22.0	19.4		27.1	20.0			20.9	
LOS		C		C	B		C	C			C	
Approach Delay		27.3			20.0			22.4			20.9	
Approach LOS		C			B			C			C	
Queue Length 50th (m)		34.5		5.9	20.7		16.7	21.1			24.7	
Queue Length 95th (m)		#70.6		15.8	38.2		34.0	36.7			44.6	
Internal Link Dist (m)		167.0			98.6			164.6			131.0	
Turn Bay Length (m)				25.0			30.0					
Base Capacity (vph)		525		202	538		289	550			530	
Starvation Cap Reductn		0		0	0		0	0			0	
Spillback Cap Reductn		0		0	0		0	0			0	
Storage Cap Reductn		0		0	0		0	0			0	
Reduced v/c Ratio		0.73		0.35	0.46		0.52	0.54			0.53	

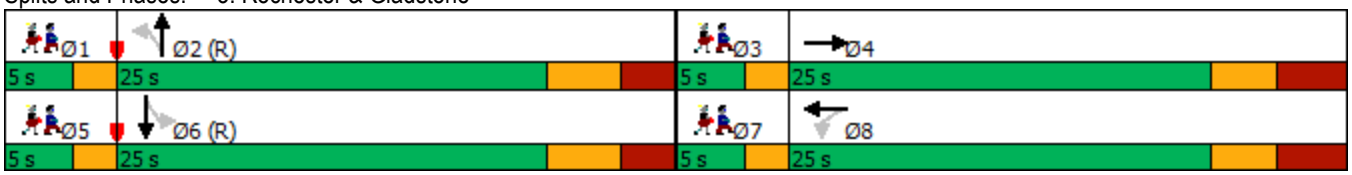
Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 13 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

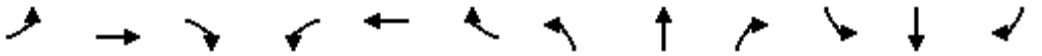
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	8%	8%	8%	8%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 81.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Rochester & Gladstone





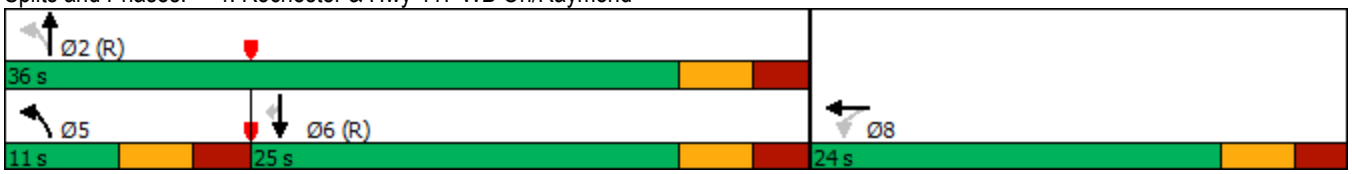
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	164	138	107	85	270	0	0	124	245
Future Volume (vph)	0	0	0	164	138	107	85	270	0	0	124	245
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		30.0
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.6			119.6			107.1			188.6	
Travel Time (s)		10.8			8.6			7.7			13.6	
Lane Group Flow (vph)	0	0	0	182	272	0	94	300	0	0	138	272
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8			2					6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				23.7	23.7		10.9	27.9			24.9	24.9
Total Split (s)				24.0	24.0		11.0	36.0			25.0	25.0
Total Split (%)				40.0%	40.0%		18.3%	60.0%			41.7%	41.7%
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	3.3
All-Red Time (s)				2.4	2.4		2.6	2.6			2.6	2.6
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				5.7	5.7		5.9	5.9			5.9	5.9
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Act Effct Green (s)				13.6	13.6		34.8	34.8			25.0	25.0
Actuated g/C Ratio				0.23	0.23		0.58	0.58			0.42	0.42
v/c Ratio				0.47	0.64		0.15	0.29			0.19	0.36
Control Delay				23.5	22.5		5.9	6.8			13.9	7.8
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				23.5	22.5		5.9	6.8			13.9	7.8
LOS				C	C		A	A			B	A
Approach Delay					22.9			6.6			9.9	
Approach LOS					C			A			A	
Queue Length 50th (m)				17.6	20.2		3.1	17.4			11.2	6.4
Queue Length 95th (m)				29.7	36.7		12.0	32.0			m20.8	m21.4
Internal Link Dist (m)		125.6			95.6			83.1			164.6	
Turn Bay Length (m)												30.0
Base Capacity (vph)				515	543		624	1033			742	762
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.35	0.50		0.15	0.29			0.19	0.36

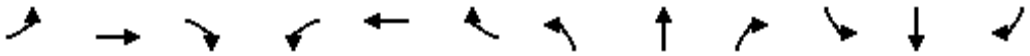
Intersection Summary	
Area Type:	Other

Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 53 (88%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 13.5	Intersection LOS: B
Intersection Capacity Utilization 52.1%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 4: Rochester & Hwy 417 WB On/Raymond



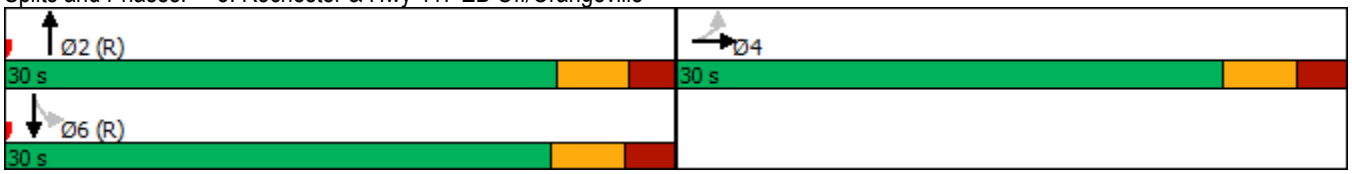


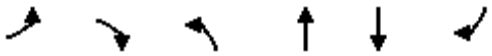
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	234	274	0	0	0	0	178	38	20	262	0
Future Volume (vph)	174	234	274	0	0	0	0	178	38	20	262	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	20.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	15.0			2.5			2.5			2.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.3			110.8			180.4			107.1	
Travel Time (s)		14.1			8.0			13.0			7.7	
Lane Group Flow (vph)	193	564	0	0	0	0	0	240	0	0	313	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.6	23.6						23.4		23.6	23.6	
Total Split (s)	30.0	30.0						30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%						50.0%		50.0%	50.0%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3						2.1		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0						0.0			0.0	
Total Lost Time (s)	5.6	5.6						5.4			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)	21.7	21.7						27.3			27.1	
Actuated g/C Ratio	0.36	0.36						0.46			0.45	
v/c Ratio	0.32	0.86						0.16			0.22	
Control Delay	14.4	28.2						9.1			13.9	
Queue Delay	0.0	0.0						0.0			0.0	
Total Delay	14.4	28.2						9.1			13.9	
LOS	B	C						A			B	
Approach Delay		24.7						9.1			13.9	
Approach LOS		C						A			B	
Queue Length 50th (m)	13.6	40.6						6.8			12.1	
Queue Length 95th (m)	26.0	#90.3						12.8			19.1	
Internal Link Dist (m)		171.3			86.8			156.4			83.1	
Turn Bay Length (m)	20.0											
Base Capacity (vph)	688	725						1513			1417	
Starvation Cap Reductn	0	0						0			0	
Spillback Cap Reductn	0	0						0			0	
Storage Cap Reductn	0	0						0			0	
Reduced v/c Ratio	0.28	0.78						0.16			0.22	

Intersection Summary	
Area Type:	Other

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 52 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.2 Intersection LOS: B
Intersection Capacity Utilization 64.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

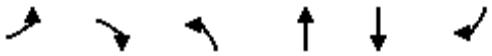
Splits and Phases: 5: Rochester & Hwy 417 EB Off/Orangeville





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	3	2	536	408	2
Future Volume (vph)	3	3	2	536	408	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	109.4			78.4	168.5	
Travel Time (s)	9.8			5.6	12.1	
Lane Group Flow (vph)	6	0	0	598	455	0
Sign Control	Stop			Free	Free	

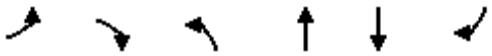
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	3	2	536	408	2
Future Volume (Veh/h)	3	3	2	536	408	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	3	2	596	453	2
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				286	169	
pX, platoon unblocked	0.94	0.88	0.88			
vC, conflicting volume	1104	504	505			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	795	371	372			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	100			
cM capacity (veh/h)	318	567	998			

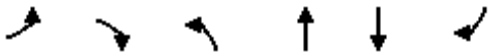
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	598	455
Volume Left	3	2	0
Volume Right	3	0	2
cSH	408	998	1700
Volume to Capacity	0.01	0.00	0.27
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	14.0	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	14.0	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	10	6	526	405	6
Future Volume (vph)	12	10	6	526	405	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	106.7			77.5	78.4	
Travel Time (s)	9.6			5.6	5.6	
Lane Group Flow (vph)	24	0	0	591	457	0
Sign Control	Stop			Free	Free	

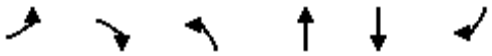
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	10	6	526	405	6
Future Volume (Veh/h)	12	10	6	526	405	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	11	7	584	450	7
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				208	247	
pX, platoon unblocked	0.89	0.91	0.91			
vC, conflicting volume	1102	504	507			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	814	399	403			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	99			
cM capacity (veh/h)	293	561	997			

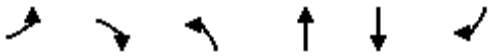
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	24	591	457
Volume Left	13	7	0
Volume Right	11	0	7
cSH	375	997	1700
Volume to Capacity	0.06	0.01	0.27
Queue Length 95th (m)	1.6	0.2	0.0
Control Delay (s)	15.2	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	15.2	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	5	4	526	412	3
Future Volume (vph)	6	5	4	526	412	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	105.8			45.4	77.5	
Travel Time (s)	9.5			3.3	5.6	
Lane Group Flow (vph)	13	0	0	588	461	0
Sign Control	Stop			Free	Free	

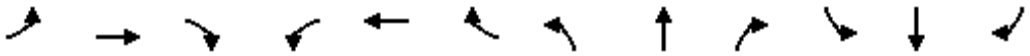
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	5	4	526	412	3
Future Volume (Veh/h)	6	5	4	526	412	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	6	4	584	458	3
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	324	
pX, platoon unblocked	0.85	0.94	0.94			
vC, conflicting volume	1102	510	511			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	869	446	447			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	100			
cM capacity (veh/h)	259	549	997			

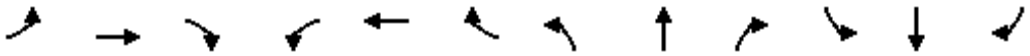
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	588	461
Volume Left	7	4	0
Volume Right	6	0	3
cSH	343	997	1700
Volume to Capacity	0.04	0.00	0.27
Queue Length 95th (m)	0.9	0.1	0.0
Control Delay (s)	15.9	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.9	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	3	41	7	3	6	11	507	6	4	400	13
Future Volume (vph)	17	3	41	7	3	6	11	507	6	4	400	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		110.8			167.0			84.8			45.4	
Travel Time (s)		10.0			15.0			6.1			3.3	
Lane Group Flow (vph)	0	68	0	0	18	0	0	582	0	0	462	0
Sign Control		Stop			Stop			Free			Free	

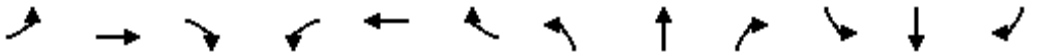
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	3	41	7	3	6	11	507	6	4	400	13
Future Volume (Veh/h)	17	3	41	7	3	6	11	507	6	4	400	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	3	46	8	3	7	12	563	7	4	444	14
Pedestrians		30			31						42	
Lane Width (m)		3.7			3.7						3.7	
Walking Speed (m/s)		1.1			1.1						1.1	
Percent Blockage		3			3						4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								85			370	
pX, platoon unblocked	0.82	0.82	0.96	0.82	0.82	0.80	0.96			0.80		
vC, conflicting volume	1130	1114	481	1128	1118	640	488			601		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	950	930	444	948	935	424	451			375		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	99	92	95	99	99	99			100		
cM capacity (veh/h)	169	203	576	164	202	470	1040			918		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	68	18	582	462
Volume Left	19	8	12	4
Volume Right	46	7	7	14
cSH	328	230	1040	918
Volume to Capacity	0.21	0.08	0.01	0.00
Queue Length 95th (m)	5.8	1.9	0.3	0.1
Control Delay (s)	18.8	22.0	0.3	0.1
Lane LOS	C	C	A	A
Approach Delay (s)	18.8	22.0	0.3	0.1
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	53.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	216	93	70	213	24	62	236	39	19	233	44
Future Volume (vph)	48	216	93	70	213	24	62	236	39	19	233	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	25.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			No			No			No
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		291.7			195.3			168.5			148.6	
Travel Time (s)		21.0			14.1			12.1			10.7	
Lane Group Flow (vph)	53	343	0	78	264	0	69	305	0	21	308	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	19.6	19.6		19.6	19.6		21.7	21.7		21.7	21.7	
Total Split (s)	29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0	
Total Split (%)	41.4%	41.4%		41.4%	41.4%		44.3%	44.3%		44.3%	44.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.7	5.7		5.7	5.7	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	23.4	23.4		23.4	23.4		25.3	25.3		25.3	25.3	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.36	0.36		0.36	0.36	
v/c Ratio	0.20	0.68		0.36	0.48		0.25	0.51		0.07	0.52	
Control Delay	19.1	28.4		23.8	22.0		19.8	22.5		15.7	21.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.1	28.4		23.8	22.0		19.8	22.5		15.7	21.5	
LOS	B	C		C	C		B	C		B	C	
Approach Delay		27.2			22.4			22.0			21.2	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	4.9	38.1		7.6	26.9		8.0	37.5		1.8	31.1	
Queue Length 95th (m)	12.7	#65.5		18.9	46.7		m11.7	m51.9		6.1	53.0	
Internal Link Dist (m)		267.7			171.3			144.5			124.6	
Turn Bay Length (m)	25.0			25.0			25.0			20.0		
Base Capacity (vph)	264	503		214	553		273	598		283	589	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.68		0.36	0.48		0.25	0.51		0.07	0.52	

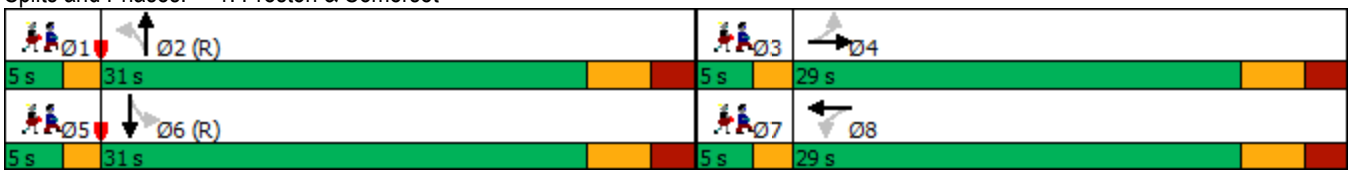
Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 32 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

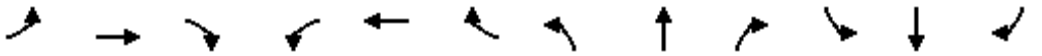
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Preston & Somerset



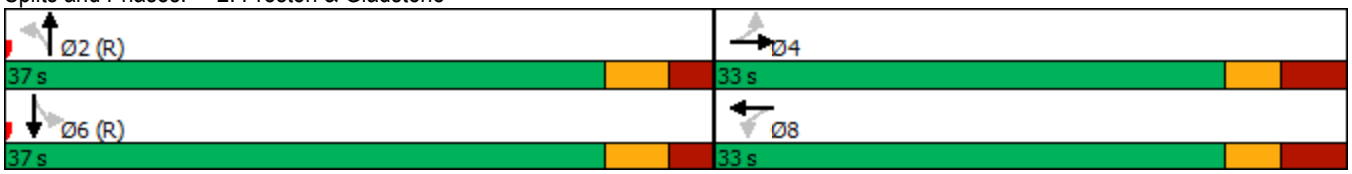


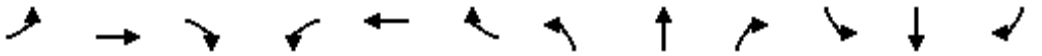
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	205	38	85	475	77	76	381	104	54	375	51
Future Volume (vph)	22	205	38	85	475	77	76	381	104	54	375	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	20.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			Yes			Yes			No
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		363.2			191.0			179.1			84.8	
Travel Time (s)		32.7			17.2			12.9			6.1	
Lane Group Flow (vph)	0	294	0	94	614	0	84	539	0	60	474	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		23.7	23.7		23.7	23.7	
Total Split (s)	33.0	33.0		33.0	33.0		37.0	37.0		37.0	37.0	
Total Split (%)	47.1%	47.1%		47.1%	47.1%		52.9%	52.9%		52.9%	52.9%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5		6.5	6.5		5.7	5.7		5.7	5.7	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		26.5		26.5	26.5		31.3	31.3		31.3	31.3	
Actuated g/C Ratio		0.38		0.38	0.38		0.45	0.45		0.45	0.45	
v/c Ratio		0.68		0.29	0.97		0.31	0.73		0.27	0.63	
Control Delay		28.2		18.3	53.7		16.5	22.0		17.5	19.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		28.2		18.3	53.7		16.5	22.0		17.5	19.9	
LOS		C		B	D		B	C		B	B	
Approach Delay		28.2			49.0			21.3			19.6	
Approach LOS		C			D			C			B	
Queue Length 50th (m)		31.4		8.4	75.6		6.7	52.5		4.8	46.5	
Queue Length 95th (m)		#61.1		18.9	#139.6		16.8	88.1		m11.7	77.9	
Internal Link Dist (m)		339.2			167.0			155.1			60.8	
Turn Bay Length (m)				20.0			15.0			25.0		
Base Capacity (vph)		431		326	631		270	743		226	748	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.68		0.29	0.97		0.31	0.73		0.27	0.63	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 40 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	

Control Type: Pretimed
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 30.9 Intersection LOS: C
Intersection Capacity Utilization 86.2% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Preston & Gladstone





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	333	71	93	438	21	104	175	109	15	135	15
Future Volume (vph)	0	333	71	93	438	21	104	175	109	15	135	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	25.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		191.0			122.6			188.6			155.0	
Travel Time (s)		17.2			11.0			13.6			11.2	
Lane Group Flow (vph)	0	449	0	103	510	0	116	315	0	0	184	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		23.2		23.2	23.2		21.8	21.8		21.8	21.8	
Total Split (s)		40.0		40.0	40.0		30.0	30.0		30.0	30.0	
Total Split (%)		50.0%		50.0%	50.0%		37.5%	37.5%		37.5%	37.5%	
Yellow Time (s)		3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)		3.2		3.2	3.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.2		6.2	6.2		5.8	5.8			5.8	
Lead/Lag		Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)		33.8		33.8	33.8		24.2	24.2			24.2	
Actuated g/C Ratio		0.42		0.42	0.42		0.30	0.30			0.30	
v/c Ratio		0.63		0.38	0.70		0.36	0.60			0.36	
Control Delay		22.1		21.2	25.2		25.9	26.2			23.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		22.1		21.2	25.2		25.9	26.2			23.5	
LOS		C		C	C		C	C			C	
Approach Delay		22.1			24.5			26.1			23.5	
Approach LOS		C			C			C			C	
Queue Length 50th (m)		49.8		10.5	61.2		13.7	35.2			20.8	
Queue Length 95th (m)		79.8		23.7	95.9		27.9	60.6			37.7	
Internal Link Dist (m)		167.0			98.6			164.6			131.0	
Turn Bay Length (m)				25.0			30.0					
Base Capacity (vph)		717		269	726		321	525			507	
Starvation Cap Reductn		0		0	0		0	0			0	
Spillback Cap Reductn		0		0	0		0	0			0	
Storage Cap Reductn		0		0	0		0	0			0	
Reduced v/c Ratio		0.63		0.38	0.70		0.36	0.60			0.36	

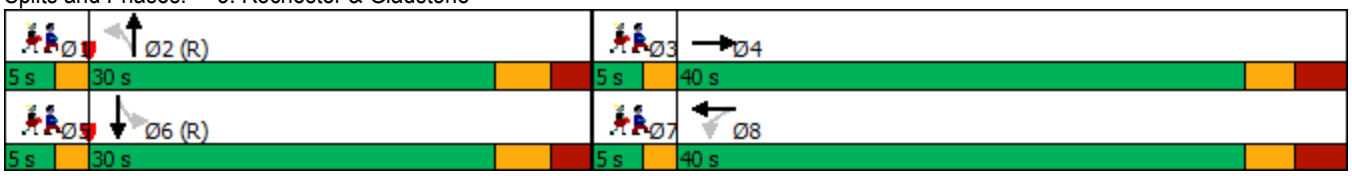
Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 50 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

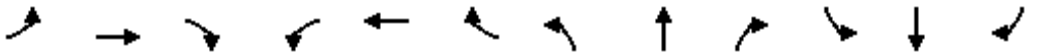
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	6%	6%	6%	6%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 24.2 Intersection LOS: C
Intersection Capacity Utilization 82.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Rochester & Gladstone



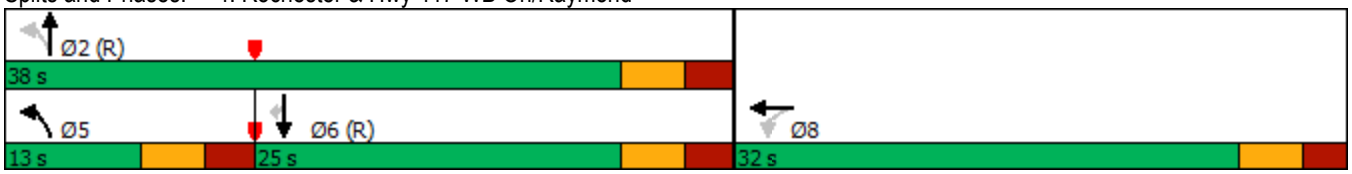


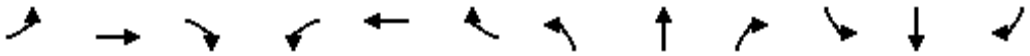
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	144	197	135	146	382	0	0	155	142
Future Volume (vph)	0	0	0	144	197	135	146	382	0	0	155	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		30.0
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.6			119.6			107.1			188.6	
Travel Time (s)		10.8			8.6			7.7			13.6	
Lane Group Flow (vph)	0	0	0	160	369	0	162	424	0	0	172	158
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8			2					6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				23.7	23.7		10.9	27.9			24.9	24.9
Total Split (s)				32.0	32.0		13.0	38.0			25.0	25.0
Total Split (%)				45.7%	45.7%		18.6%	54.3%			35.7%	35.7%
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	3.3
All-Red Time (s)				2.4	2.4		2.6	2.6			2.6	2.6
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				5.7	5.7		5.9	5.9			5.9	5.9
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Act Effct Green (s)				19.4	19.4		39.0	39.0			25.2	25.2
Actuated g/C Ratio				0.28	0.28		0.56	0.56			0.36	0.36
v/c Ratio				0.34	0.74		0.27	0.43			0.27	0.26
Control Delay				20.6	28.2		8.4	10.4			19.7	5.1
Queue Delay				0.0	0.0		0.0	0.5			0.0	0.0
Total Delay				20.6	28.2		8.4	10.9			19.7	5.1
LOS				C	C		A	B			B	A
Approach Delay					25.9			10.2			12.7	
Approach LOS					C			B			B	
Queue Length 50th (m)				16.5	36.7		10.1	35.9			16.2	0.0
Queue Length 95th (m)				26.5	55.7		24.5	54.9			33.4	12.1
Internal Link Dist (m)		125.6			95.6			83.1			164.6	
Turn Bay Length (m)												30.0
Base Capacity (vph)				636	652		598	994			643	616
Starvation Cap Reductn				0	0		0	225			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.25	0.57		0.27	0.55			0.27	0.26

Intersection Summary	
Area Type:	Other

Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 8 (11%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Rochester & Hwy 417 WB On/Raymond



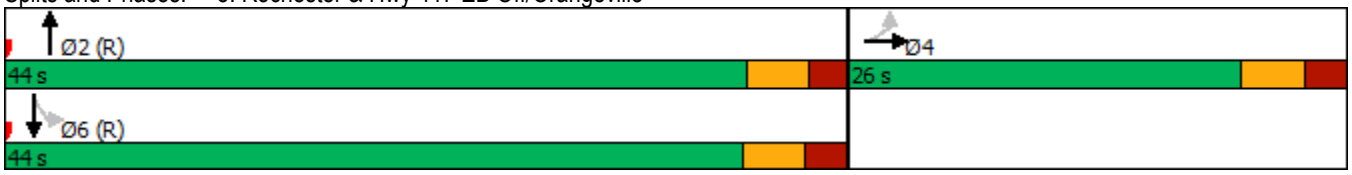


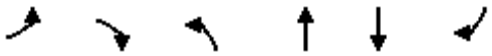
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	298	117	0	0	0	0	285	77	33	271	0
Future Volume (vph)	247	298	117	0	0	0	0	285	77	33	271	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	20.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.3			110.8			180.4			107.1	
Travel Time (s)		14.1			8.0			13.0			7.7	
Lane Group Flow (vph)	274	461	0	0	0	0	0	403	0	0	338	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.6	23.6						23.4		23.6	23.6	
Total Split (s)	26.0	26.0						44.0		44.0	44.0	
Total Split (%)	37.1%	37.1%						62.9%		62.9%	62.9%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3						2.1		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0						0.0			0.0	
Total Lost Time (s)	5.6	5.6						5.4			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)	19.8	19.8						39.2			39.0	
Actuated g/C Ratio	0.28	0.28						0.56			0.56	
v/c Ratio	0.57	0.92						0.22			0.20	
Control Delay	26.8	49.9						6.6			11.2	
Queue Delay	0.0	0.0						0.0			0.0	
Total Delay	26.8	49.9						6.6			11.2	
LOS	C	D						A			B	
Approach Delay		41.3						6.6			11.2	
Approach LOS		D						A			B	
Queue Length 50th (m)	30.1	54.2						10.2			12.6	
Queue Length 95th (m)	51.8	#105.6						16.6			18.6	
Internal Link Dist (m)		171.3			86.8			156.4			83.1	
Turn Bay Length (m)	20.0											
Base Capacity (vph)	492	514						1850			1664	
Starvation Cap Reductn	0	0						0			0	
Spillback Cap Reductn	0	0						40			0	
Storage Cap Reductn	0	0						0			0	
Reduced v/c Ratio	0.56	0.90						0.22			0.20	

Intersection Summary	
Area Type:	Other

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 67 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 24.9 Intersection LOS: C
Intersection Capacity Utilization 66.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

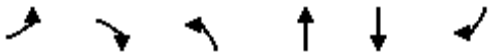
Splits and Phases: 5: Rochester & Hwy 417 EB Off/Orangeville





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	2	2	489	447	3
Future Volume (vph)	3	2	2	489	447	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	109.4			78.4	168.5	
Travel Time (s)	9.8			5.6	12.1	
Lane Group Flow (vph)	5	0	0	545	500	0
Sign Control	Stop			Free	Free	

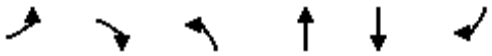
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	2	2	489	447	3
Future Volume (Veh/h)	3	2	2	489	447	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	2	2	543	497	3
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				286	169	
pX, platoon unblocked	0.91	0.91	0.91			
vC, conflicting volume	1096	548	550			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	829	451	453			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	296	526	958			

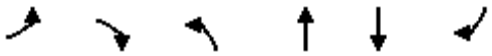
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	545	500
Volume Left	3	2	0
Volume Right	2	0	3
cSH	359	958	1700
Volume to Capacity	0.01	0.00	0.29
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	15.2	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.2	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		38.8%	ICU Level of Service
Analysis Period (min)		15	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	9	8	484	439	10
Future Volume (vph)	7	9	8	484	439	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	106.7			77.5	78.4	
Travel Time (s)	9.6			5.6	5.6	
Lane Group Flow (vph)	18	0	0	547	499	0
Sign Control	Stop			Free	Free	

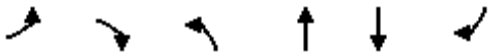
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	9	8	484	439	10
Future Volume (Veh/h)	7	9	8	484	439	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	10	9	538	488	11
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				208	247	
pX, platoon unblocked	0.85	0.94	0.94			
vC, conflicting volume	1100	544	549			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	874	484	489			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	99			
cM capacity (veh/h)	258	523	963			

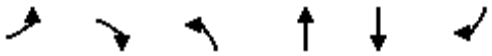
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	18	547	499
Volume Left	8	9	0
Volume Right	10	0	11
cSH	359	963	1700
Volume to Capacity	0.05	0.01	0.29
Queue Length 95th (m)	1.2	0.2	0.0
Control Delay (s)	15.6	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	15.6	0.3	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	4	5	488	443	5
Future Volume (vph)	4	4	5	488	443	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	105.8			45.4	77.5	
Travel Time (s)	9.5			3.3	5.6	
Lane Group Flow (vph)	8	0	0	548	498	0
Sign Control	Stop			Free	Free	

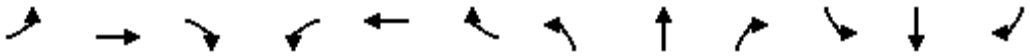
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	4	5	488	443	5
Future Volume (Veh/h)	4	4	5	488	443	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	4	4	6	542	492	6
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	324	
pX, platoon unblocked	0.79	0.99	0.99			
vC, conflicting volume	1099	545	548			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	964	535	538			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	212	514	972			

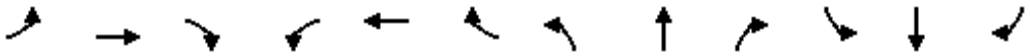
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	548	498
Volume Left	4	6	0
Volume Right	4	0	6
cSH	300	972	1700
Volume to Capacity	0.03	0.01	0.29
Queue Length 95th (m)	0.6	0.1	0.0
Control Delay (s)	17.3	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	17.3	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	4	44	6	0	6	8	466	6	9	430	8
Future Volume (vph)	21	4	44	6	0	6	8	466	6	9	430	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		110.8			167.0			84.8			45.4	
Travel Time (s)		10.0			15.0			6.1			3.3	
Lane Group Flow (vph)	0	76	0	0	14	0	0	534	0	0	497	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.2%		ICU Level of Service A	
Analysis Period (min) 15			

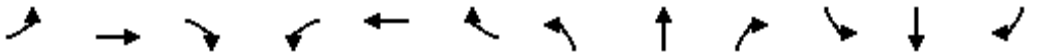


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	4	44	6	0	6	8	466	6	9	430	8
Future Volume (Veh/h)	21	4	44	6	0	6	8	466	6	9	430	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	4	49	7	0	7	9	518	7	10	478	9
Pedestrians		58			25						59	
Lane Width (m)		3.7			3.7						3.7	
Walking Speed (m/s)		1.1			1.1						1.1	
Percent Blockage		5			2						6	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								85			370	
pX, platoon unblocked	0.76	0.76		0.76	0.76	0.76				0.76		
vC, conflicting volume	1166	1128	540	1118	1130	606	545			550		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1062	1013	540	999	1014	327	545			254		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	82	98	90	95	100	99	99			99		
cM capacity (veh/h)	126	165	512	136	165	503	969			976		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	76	14	534	497
Volume Left	23	7	9	10
Volume Right	49	7	7	9
cSH	251	214	969	976
Volume to Capacity	0.30	0.07	0.01	0.01
Queue Length 95th (m)	9.4	1.6	0.2	0.2
Control Delay (s)	25.5	23.0	0.3	0.3
Lane LOS	D	C	A	A
Approach Delay (s)	25.5	23.0	0.3	0.3
Approach LOS	D	C		

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Future Background 2029



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	270	93	34	147	13	65	362	47	18	285	24
Future Volume (vph)	44	270	93	34	147	13	65	362	47	18	285	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	25.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			No			No			No
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		291.7			195.3			168.5			148.6	
Travel Time (s)		21.0			14.1			12.1			10.7	
Lane Group Flow (vph)	44	363	0	34	160	0	65	409	0	18	309	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	19.6	19.6		19.6	19.6		21.7	21.7		21.7	21.7	
Total Split (s)	26.0	26.0		26.0	26.0		34.0	34.0		34.0	34.0	
Total Split (%)	37.1%	37.1%		37.1%	37.1%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.7	5.7		5.7	5.7	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	20.4	20.4		20.4	20.4		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.40	0.40		0.40	0.40	
v/c Ratio	0.16	0.79		0.20	0.33		0.20	0.60		0.07	0.45	
Control Delay	20.2	38.0		22.4	21.7		21.3	27.3		13.8	17.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.2	38.0		22.4	21.7		21.3	27.3		13.8	17.9	
LOS	C	D		C	C		C	C		B	B	
Approach Delay		36.0			21.8			26.5			17.7	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	4.2	43.4		3.3	16.3		7.1	47.5		1.4	28.5	
Queue Length 95th (m)	11.4	#83.7		10.2	30.7		m13.6	m73.8		5.1	48.3	
Internal Link Dist (m)		267.7			171.3			144.5			124.6	
Turn Bay Length (m)	25.0			25.0			25.0			20.0		
Base Capacity (vph)	282	458		170	490		321	678		267	681	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.79		0.20	0.33		0.20	0.60		0.07	0.45	

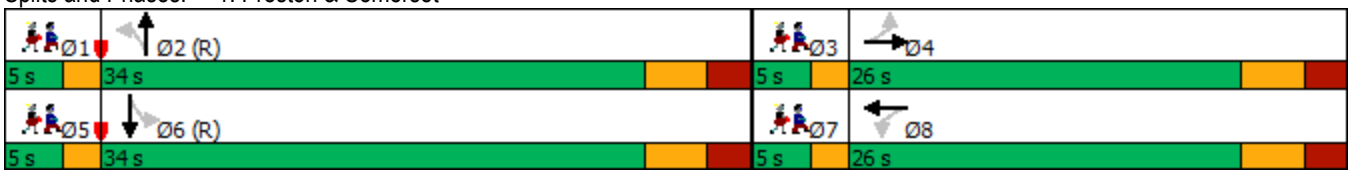
Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 37 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 81.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Preston & Somerset

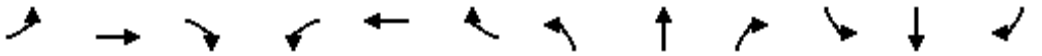


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	249	81	51	185	71	62	422	82	74	356	25
Future Volume (vph)	39	249	81	51	185	71	62	422	82	74	356	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	20.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			Yes			Yes			No
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		164.8			191.0			179.1			84.8	
Travel Time (s)		14.8			17.2			12.9			6.1	
Lane Group Flow (vph)	0	369	0	51	256	0	62	504	0	74	381	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		23.7	23.7		23.7	23.7	
Total Split (s)	25.0	25.0		25.0	25.0		45.0	45.0		45.0	45.0	
Total Split (%)	35.7%	35.7%		35.7%	35.7%		64.3%	64.3%		64.3%	64.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5		6.5	6.5		5.7	5.7		5.7	5.7	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		18.5		18.5	18.5		39.3	39.3		39.3	39.3	
Actuated g/C Ratio		0.26		0.26	0.26		0.56	0.56		0.56	0.56	
v/c Ratio		0.94		0.30	0.59		0.13	0.54		0.20	0.40	
Control Delay		54.1		26.5	26.4		8.2	11.8		11.1	11.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		54.1		26.5	26.4		8.2	11.8		11.1	11.1	
LOS		D		C	C		A	B		B	B	
Approach Delay		54.1			26.4			11.4			11.1	
Approach LOS		D			C			B			B	
Queue Length 50th (m)		22.7		5.3	25.9		3.5	35.6		3.8	19.7	
Queue Length 95th (m)		#86.7		14.5	47.8		8.8	59.5		m9.8	m42.2	
Internal Link Dist (m)		140.8			167.0			155.1			60.8	
Turn Bay Length (m)				20.0			15.0			25.0		
Base Capacity (vph)		392		168	435		461	940		375	955	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.94		0.30	0.59		0.13	0.54		0.20	0.40	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 37 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	

Control Type: Pretimed
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 96.7% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Preston & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	280	71	64	212	16	136	152	120	25	219	12
Future Volume (vph)	0	280	71	64	212	16	136	152	120	25	219	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	25.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		191.0			122.6			188.6			155.0	
Travel Time (s)		17.2			11.0			13.6			11.2	
Lane Group Flow (vph)	0	351	0	64	228	0	136	272	0	0	256	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		23.2		23.2	23.2		21.8	21.8		21.8	21.8	
Total Split (s)		25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (%)		41.7%		41.7%	41.7%		41.7%	41.7%		41.7%	41.7%	
Yellow Time (s)		3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)		3.2		3.2	3.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.2		6.2	6.2		5.8	5.8			5.8	
Lead/Lag		Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)		18.8		18.8	18.8		19.2	19.2			19.2	
Actuated g/C Ratio		0.31		0.31	0.31		0.32	0.32			0.32	
v/c Ratio		0.67		0.29	0.42		0.45	0.49			0.48	
Control Delay		24.3		19.8	18.8		25.0	19.1			19.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		24.3		19.8	18.8		25.0	19.1			19.8	
LOS		C		B	B		C	B			B	
Approach Delay		24.3			19.0			21.1			19.8	
Approach LOS		C			B			C			B	
Queue Length 50th (m)		30.9		5.2	18.9		15.1	24.3			21.8	
Queue Length 95th (m)		#56.8		14.0	35.3		31.3	33.7			40.1	
Internal Link Dist (m)		167.0			98.6			164.6			131.0	
Turn Bay Length (m)				25.0			30.0					
Base Capacity (vph)		525		223	539		305	550			533	
Starvation Cap Reductn		0		0	0		0	0			0	
Spillback Cap Reductn		0		0	0		0	0			0	
Storage Cap Reductn		0		0	0		0	0			0	
Reduced v/c Ratio		0.67		0.29	0.42		0.45	0.49			0.48	

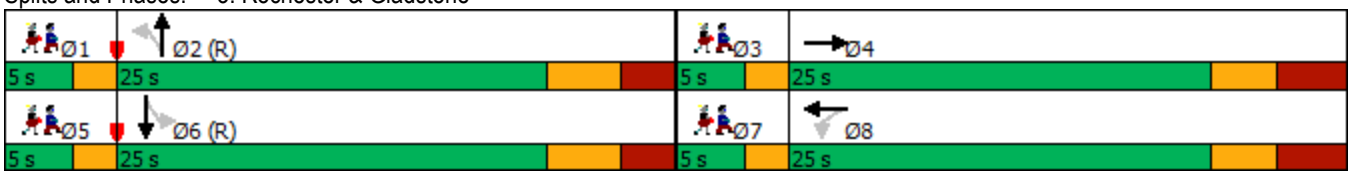
Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 13 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

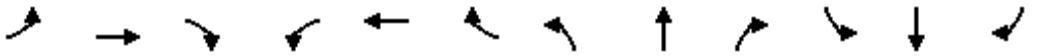
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	8%	8%	8%	8%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 82.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Rochester & Gladstone





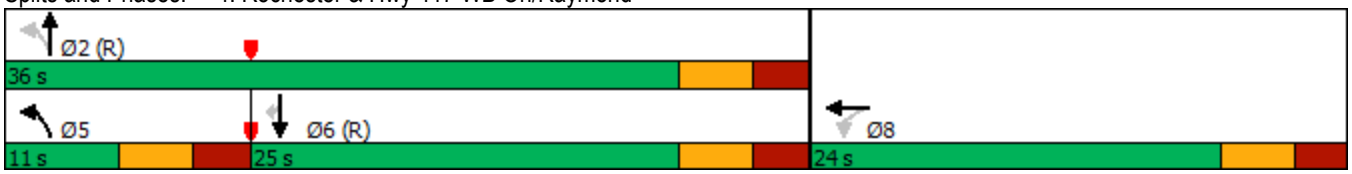
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	164	138	109	85	274	0	0	128	251
Future Volume (vph)	0	0	0	164	138	109	85	274	0	0	128	251
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		30.0
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.6			119.6			107.1			188.6	
Travel Time (s)		10.8			8.6			7.7			13.6	
Lane Group Flow (vph)	0	0	0	164	247	0	85	274	0	0	128	251
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8			2					6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				23.7	23.7		10.9	27.9			24.9	24.9
Total Split (s)				24.0	24.0		11.0	36.0			25.0	25.0
Total Split (%)				40.0%	40.0%		18.3%	60.0%			41.7%	41.7%
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	3.3
All-Red Time (s)				2.4	2.4		2.6	2.6			2.6	2.6
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				5.7	5.7		5.9	5.9			5.9	5.9
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Act Effct Green (s)				13.1	13.1		35.3	35.3			25.5	25.5
Actuated g/C Ratio				0.22	0.22		0.59	0.59			0.42	0.42
v/c Ratio				0.44	0.60		0.13	0.26			0.17	0.33
Control Delay				23.3	21.0		5.6	6.5			13.8	7.8
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				23.3	21.0		5.6	6.5			13.8	7.8
LOS				C	C		A	A			B	A
Approach Delay					21.9			6.3			9.8	
Approach LOS					C			A			A	
Queue Length 50th (m)				16.1	17.8		1.8	16.3			10.2	4.0
Queue Length 95th (m)				26.8	32.3		11.4	29.5			m19.9	m20.3
Internal Link Dist (m)		125.6			95.6			83.1			164.6	
Turn Bay Length (m)												30.0
Base Capacity (vph)				515	543		638	1048			756	759
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.32	0.45		0.13	0.26			0.17	0.33

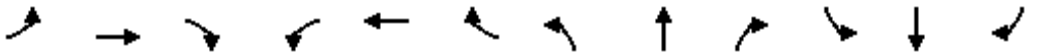
Intersection Summary	
Area Type:	Other

Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 53 (88%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 52.6%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 4: Rochester & Hwy 417 WB On/Raymond



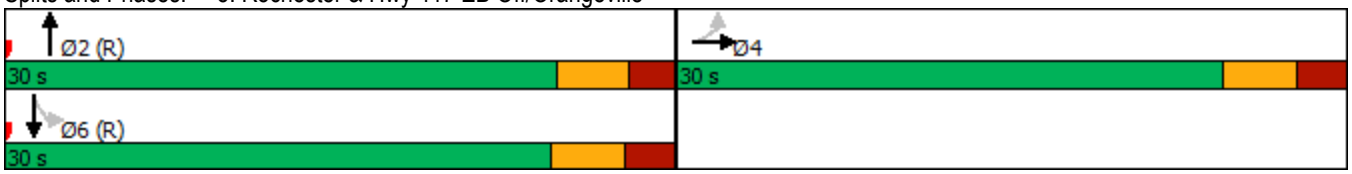


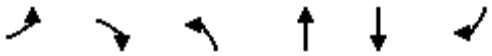
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	234	274	0	0	0	0	179	38	20	266	0
Future Volume (vph)	177	234	274	0	0	0	0	179	38	20	266	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	20.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.3			110.8			180.4			107.1	
Travel Time (s)		14.1			8.0			13.0			7.7	
Lane Group Flow (vph)	177	508	0	0	0	0	0	217	0	0	286	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.6	23.6						23.4		23.6	23.6	
Total Split (s)	30.0	30.0						30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%						50.0%		50.0%	50.0%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3						2.1		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0						0.0			0.0	
Total Lost Time (s)	5.6	5.6						5.4			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)	20.2	20.2						28.8			28.6	
Actuated g/C Ratio	0.34	0.34						0.48			0.48	
v/c Ratio	0.31	0.82						0.14			0.19	
Control Delay	15.0	24.8						8.7			13.0	
Queue Delay	0.0	0.0						0.0			0.0	
Total Delay	15.0	24.8						8.7			13.0	
LOS	B	C						A			B	
Approach Delay		22.3						8.7			13.0	
Approach LOS		C						A			B	
Queue Length 50th (m)	13.3	36.1						5.7			10.9	
Queue Length 95th (m)	23.9	64.7						11.8			17.5	
Internal Link Dist (m)		171.3			86.8			156.4			83.1	
Turn Bay Length (m)	20.0											
Base Capacity (vph)	688	725						1590			1498	
Starvation Cap Reductn	0	0						0			0	
Spillback Cap Reductn	0	0						0			0	
Storage Cap Reductn	0	0						0			0	
Reduced v/c Ratio	0.26	0.70						0.14			0.19	

Intersection Summary	
Area Type:	Other

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 52 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 17.5 Intersection LOS: B
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15

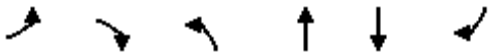
Splits and Phases: 5: Rochester & Hwy 417 EB Off/Orangeville





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	3	2	544	415	2
Future Volume (vph)	3	3	2	544	415	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	109.4			78.4	168.5	
Travel Time (s)	9.8			5.6	12.1	
Lane Group Flow (vph)	6	0	0	546	417	0
Sign Control	Stop			Free	Free	

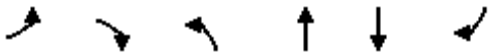
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	3	2	544	415	2
Future Volume (Veh/h)	3	3	2	544	415	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	3	2	544	415	2
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				286	169	
pX, platoon unblocked	0.94	0.90	0.90			
vC, conflicting volume	1014	466	467			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	783	349	351			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	100			
cM capacity (veh/h)	324	594	1035			

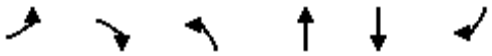
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	6	546	417
Volume Left	3	2	0
Volume Right	3	0	2
cSH	420	1035	1700
Volume to Capacity	0.01	0.00	0.25
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	13.7	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	13.7	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	10	6	534	412	6
Future Volume (vph)	12	10	6	534	412	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	106.7			77.5	78.4	
Travel Time (s)	9.6			5.6	5.6	
Lane Group Flow (vph)	22	0	0	540	418	0
Sign Control	Stop			Free	Free	

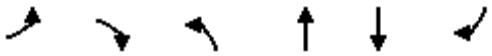
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	10	6	534	412	6
Future Volume (Veh/h)	12	10	6	534	412	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	10	6	534	412	6
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				208	247	
pX, platoon unblocked	0.92	0.92	0.92			
vC, conflicting volume	1011	465	468			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	780	380	383			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	99			
cM capacity (veh/h)	316	588	1035			

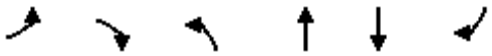
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	22	540	418
Volume Left	12	6	0
Volume Right	10	0	6
cSH	400	1035	1700
Volume to Capacity	0.05	0.01	0.25
Queue Length 95th (m)	1.3	0.1	0.0
Control Delay (s)	14.5	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	14.5	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	5	4	534	419	3
Future Volume (vph)	6	5	4	534	419	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	105.8			45.4	77.5	
Travel Time (s)	9.5			3.3	5.6	
Lane Group Flow (vph)	11	0	0	538	422	0
Sign Control	Stop			Free	Free	

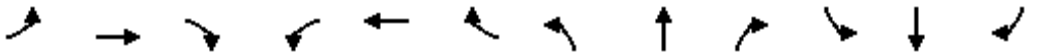
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	5	4	534	419	3
Future Volume (Veh/h)	6	5	4	534	419	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	5	4	534	419	3
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	324	
pX, platoon unblocked	0.87	0.96	0.96			
vC, conflicting volume	1012	470	472			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	837	428	429			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	278	574	1034			

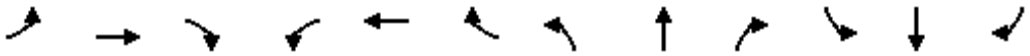
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	538	422
Volume Left	6	4	0
Volume Right	5	0	3
cSH	363	1034	1700
Volume to Capacity	0.03	0.00	0.25
Queue Length 95th (m)	0.7	0.1	0.0
Control Delay (s)	15.2	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.2	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	3	41	7	3	6	11	515	6	4	407	13
Future Volume (vph)	17	3	41	7	3	6	11	515	6	4	407	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		110.8			167.0			84.8			45.4	
Travel Time (s)		10.0			15.0			6.1			3.3	
Lane Group Flow (vph)	0	61	0	0	16	0	0	532	0	0	424	0
Sign Control		Stop			Stop			Free			Free	

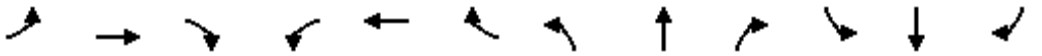
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	3	41	7	3	6	11	515	6	4	407	13
Future Volume (Veh/h)	17	3	41	7	3	6	11	515	6	4	407	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	3	41	7	3	6	11	515	6	4	407	13
Pedestrians		30			31						42	
Lane Width (m)		3.7			3.7						3.7	
Walking Speed (m/s)		1.1			1.1						1.1	
Percent Blockage		3			3						4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								85			370	
pX, platoon unblocked	0.84	0.84	0.99	0.84	0.84	0.83	0.99			0.83		
vC, conflicting volume	1041	1026	444	1035	1029	591	450			552		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	914	895	428	907	899	408	434			361		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	99	93	96	99	99	99			100		
cM capacity (veh/h)	184	219	601	183	218	500	1078			968		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	61	16	532	424
Volume Left	17	7	11	4
Volume Right	41	6	6	13
cSH	350	250	1078	968
Volume to Capacity	0.17	0.06	0.01	0.00
Queue Length 95th (m)	4.7	1.6	0.2	0.1
Control Delay (s)	17.4	20.4	0.3	0.1
Lane LOS	C	C	A	A
Approach Delay (s)	17.4	20.4	0.3	0.1
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	53.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	224	93	70	220	24	62	245	39	19	241	44
Future Volume (vph)	48	224	93	70	220	24	62	245	39	19	241	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	25.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			No			No			No
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		291.7			195.3			168.5			148.6	
Travel Time (s)		21.0			14.1			12.1			10.7	
Lane Group Flow (vph)	48	317	0	70	244	0	62	284	0	19	285	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	19.6	19.6		19.6	19.6		21.7	21.7		21.7	21.7	
Total Split (s)	29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0	
Total Split (%)	41.4%	41.4%		41.4%	41.4%		44.3%	44.3%		44.3%	44.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.7	5.7		5.7	5.7	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	23.4	23.4		23.4	23.4		25.3	25.3		25.3	25.3	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.36	0.36		0.36	0.36	
v/c Ratio	0.17	0.63		0.31	0.44		0.22	0.47		0.06	0.48	
Control Delay	18.6	26.3		21.9	21.3		19.5	22.2		15.5	20.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.6	26.3		21.9	21.3		19.5	22.2		15.5	20.7	
LOS	B	C		C	C		B	C		B	C	
Approach Delay		25.2			21.4			21.7			20.4	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	4.4	34.4		6.7	24.6		7.0	33.9		1.6	28.3	
Queue Length 95th (m)	11.7	59.2		16.7	43.0		m11.3	m52.5		5.6	48.6	
Internal Link Dist (m)		267.7			171.3			144.5			124.6	
Turn Bay Length (m)	25.0			25.0			25.0			20.0		
Base Capacity (vph)	275	505		229	554		287	598		297	590	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.63		0.31	0.44		0.22	0.47		0.06	0.48	

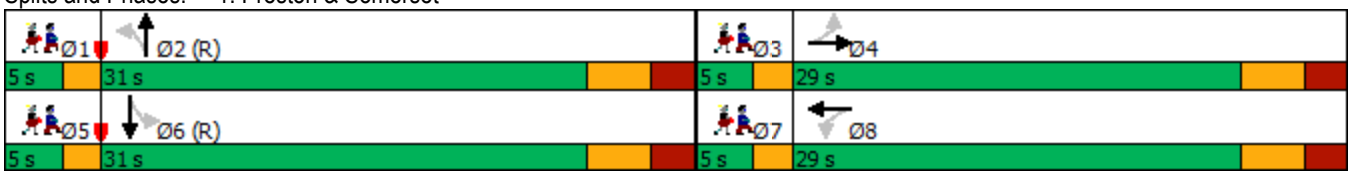
Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 32 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 72.8% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Preston & Somerset

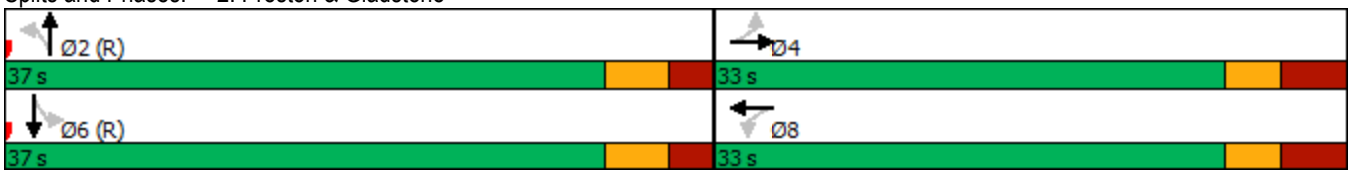


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	213	57	85	482	78	93	381	104	55	375	58
Future Volume (vph)	30	213	57	85	482	78	93	381	104	55	375	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	20.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			Yes			Yes			No
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		164.4			191.0			179.1			84.8	
Travel Time (s)		14.8			17.2			12.9			6.1	
Lane Group Flow (vph)	0	300	0	85	560	0	93	485	0	55	433	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		23.7	23.7		23.7	23.7	
Total Split (s)	33.0	33.0		33.0	33.0		37.0	37.0		37.0	37.0	
Total Split (%)	47.1%	47.1%		47.1%	47.1%		52.9%	52.9%		52.9%	52.9%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5		6.5	6.5		5.7	5.7		5.7	5.7	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		26.5		26.5	26.5		31.3	31.3		31.3	31.3	
Actuated g/C Ratio		0.38		0.38	0.38		0.45	0.45		0.45	0.45	
v/c Ratio		0.67		0.26	0.89		0.31	0.65		0.21	0.58	
Control Delay		20.5		17.8	39.0		16.2	19.4		15.6	18.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		20.5		17.8	39.0		16.2	19.4		15.6	18.3	
LOS		C		B	D		B	B		B	B	
Approach Delay		20.5			36.2			18.9			18.0	
Approach LOS		C			D			B			B	
Queue Length 50th (m)		14.6		7.5	65.3		7.5	44.8		4.2	40.1	
Queue Length 95th (m)		#59.5		17.4	#122.3		17.8	75.2		m10.7	70.7	
Internal Link Dist (m)		140.4			167.0			155.1			60.8	
Turn Bay Length (m)				20.0			15.0			25.0		
Base Capacity (vph)		450		324	631		298	742		262	746	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.67		0.26	0.89		0.31	0.65		0.21	0.58	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 40 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

Control Type: Pretimed
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 24.5 Intersection LOS: C
Intersection Capacity Utilization 95.7% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Preston & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	341	72	93	445	21	105	176	113	15	137	15
Future Volume (vph)	0	341	72	93	445	21	105	176	113	15	137	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	25.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		191.0			122.6			188.6			155.0	
Travel Time (s)		17.2			11.0			13.6			11.2	
Lane Group Flow (vph)	0	413	0	93	466	0	105	289	0	0	167	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		23.2		23.2	23.2		21.8	21.8		21.8	21.8	
Total Split (s)		40.0		40.0	40.0		30.0	30.0		30.0	30.0	
Total Split (%)		50.0%		50.0%	50.0%		37.5%	37.5%		37.5%	37.5%	
Yellow Time (s)		3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)		3.2		3.2	3.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.2		6.2	6.2		5.8	5.8			5.8	
Lead/Lag		Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)		33.8		33.8	33.8		24.2	24.2			24.2	
Actuated g/C Ratio		0.42		0.42	0.42		0.30	0.30			0.30	
v/c Ratio		0.58		0.32	0.64		0.32	0.55			0.33	
Control Delay		20.9		19.2	23.2		24.8	24.6			23.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		20.9		19.2	23.2		24.8	24.6			23.0	
LOS		C		B	C		C	C			C	
Approach Delay		20.9			22.5			24.6			23.0	
Approach LOS		C			C			C			C	
Queue Length 50th (m)		44.5		9.1	53.9		12.2	31.0			18.7	
Queue Length 95th (m)		71.6		20.5	84.8		25.1	54.5			34.4	
Internal Link Dist (m)		167.0			98.6			164.6			131.0	
Turn Bay Length (m)				25.0			30.0					
Base Capacity (vph)		716		295	726		333	525			510	
Starvation Cap Reductn		0		0	0		0	0			0	
Spillback Cap Reductn		0		0	0		0	0			0	
Storage Cap Reductn		0		0	0		0	0			0	
Reduced v/c Ratio		0.58		0.32	0.64		0.32	0.55			0.33	

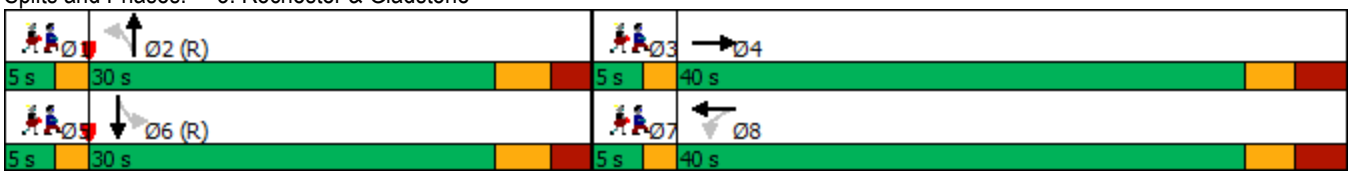
Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 50 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

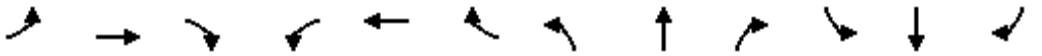
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	6%	6%	6%	6%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 22.7 Intersection LOS: C
Intersection Capacity Utilization 83.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: Rochester & Gladstone



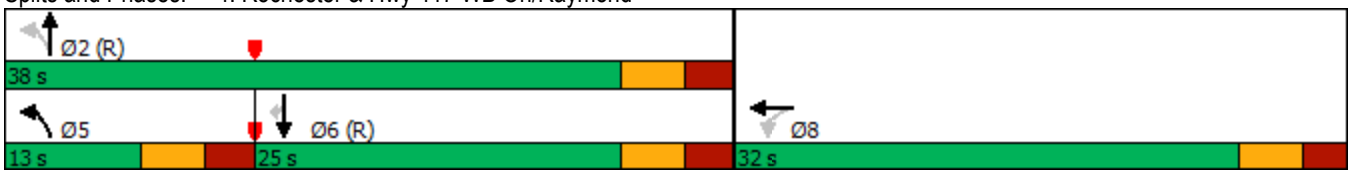


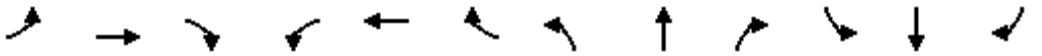
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	144	197	141	146	390	0	0	158	147
Future Volume (vph)	0	0	0	144	197	141	146	390	0	0	158	147
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		30.0
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.6			119.6			107.1			188.6	
Travel Time (s)		10.8			8.6			7.7			13.6	
Lane Group Flow (vph)	0	0	0	144	338	0	146	390	0	0	158	147
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8			2					6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				23.7	23.7		10.9	27.9			24.9	24.9
Total Split (s)				32.0	32.0		13.0	38.0			25.0	25.0
Total Split (%)				45.7%	45.7%		18.6%	54.3%			35.7%	35.7%
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	3.3
All-Red Time (s)				2.4	2.4		2.6	2.6			2.6	2.6
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				5.7	5.7		5.9	5.9			5.9	5.9
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Act Effct Green (s)				18.1	18.1		40.3	40.3			29.1	29.1
Actuated g/C Ratio				0.26	0.26		0.58	0.58			0.42	0.42
v/c Ratio				0.33	0.72		0.23	0.38			0.21	0.22
Control Delay				21.3	27.6		7.6	9.3			18.1	4.9
Queue Delay				0.0	0.0		0.0	0.4			0.0	0.0
Total Delay				21.3	27.6		7.6	9.7			18.1	4.9
LOS				C	C		A	A			B	A
Approach Delay					25.7			9.2			11.7	
Approach LOS					C			A			B	
Queue Length 50th (m)				15.1	32.8		7.4	32.0			14.0	0.0
Queue Length 95th (m)				24.3	49.9		22.6	51.8			30.8	11.7
Internal Link Dist (m)		125.6			95.6			83.1			164.6	
Turn Bay Length (m)												30.0
Base Capacity (vph)				636	652		627	1026			740	679
Starvation Cap Reductn				0	0		0	257			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.23	0.52		0.23	0.51			0.21	0.22

Intersection Summary	
Area Type:	Other

Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 8 (11%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Rochester & Hwy 417 WB On/Raymond



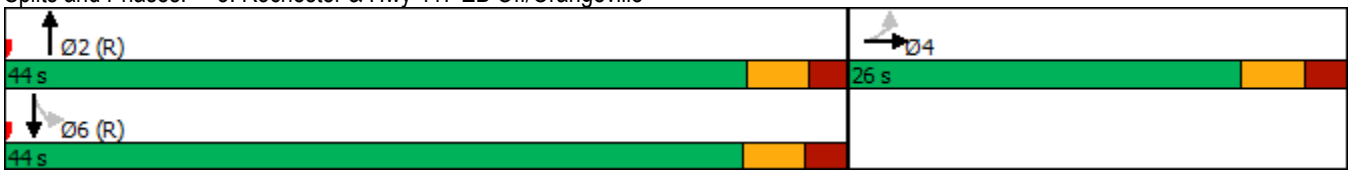


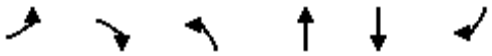
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	253	298	117	0	0	0	0	287	77	33	274	0
Future Volume (vph)	253	298	117	0	0	0	0	287	77	33	274	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	20.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.3			110.8			180.4			107.1	
Travel Time (s)		14.1			8.0			13.0			7.7	
Lane Group Flow (vph)	253	415	0	0	0	0	0	364	0	0	307	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.6	23.6						23.4		23.6	23.6	
Total Split (s)	26.0	26.0						44.0		44.0	44.0	
Total Split (%)	37.1%	37.1%						62.9%		62.9%	62.9%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3						2.1		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0						0.0			0.0	
Total Lost Time (s)	5.6	5.6						5.4			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)	19.1	19.1						39.9			39.7	
Actuated g/C Ratio	0.27	0.27						0.57			0.57	
v/c Ratio	0.55	0.86						0.19			0.18	
Control Delay	26.5	41.7						6.3			11.0	
Queue Delay	0.0	0.0						0.0			0.0	
Total Delay	26.5	41.7						6.3			11.0	
LOS	C	D						A			B	
Approach Delay		35.9						6.3			11.0	
Approach LOS		D						A			B	
Queue Length 50th (m)	27.4	46.7						8.9			11.3	
Queue Length 95th (m)	47.8	#90.6						14.8			17.0	
Internal Link Dist (m)		171.3			86.8			156.4			83.1	
Turn Bay Length (m)	20.0											
Base Capacity (vph)	492	514						1884			1714	
Starvation Cap Reductn	0	0						0			0	
Spillback Cap Reductn	0	0						9			0	
Storage Cap Reductn	0	0						0			0	
Reduced v/c Ratio	0.51	0.81						0.19			0.18	

Intersection Summary	
Area Type:	Other

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 67 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 66.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

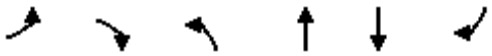
Splits and Phases: 5: Rochester & Hwy 417 EB Off/Orangeville





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	2	2	498	455	3
Future Volume (vph)	3	2	2	498	455	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	109.4			78.4	168.5	
Travel Time (s)	9.8			5.6	12.1	
Lane Group Flow (vph)	5	0	0	500	458	0
Sign Control	Stop			Free	Free	

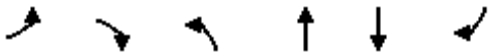
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	2	2	498	455	3
Future Volume (Veh/h)	3	2	2	498	455	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	2	2	498	455	3
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				286	169	
pX, platoon unblocked	0.95	0.92	0.92			
vC, conflicting volume	1008	506	508			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	795	421	423			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	322	555	998			

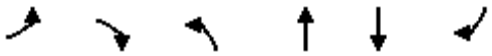
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	500	458
Volume Left	3	2	0
Volume Right	2	0	3
cSH	387	998	1700
Volume to Capacity	0.01	0.00	0.27
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	14.4	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	14.4	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	9	8	493	447	10
Future Volume (vph)	7	9	8	493	447	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	106.7			77.5	78.4	
Travel Time (s)	9.6			5.6	5.6	
Lane Group Flow (vph)	16	0	0	501	457	0
Sign Control	Stop			Free	Free	

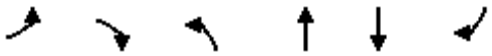
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	9	8	493	447	10
Future Volume (Veh/h)	7	9	8	493	447	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	9	8	493	447	10
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				208	247	
pX, platoon unblocked	0.88	0.96	0.96			
vC, conflicting volume	1011	502	507			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	836	457	462			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	99			
cM capacity (veh/h)	282	551	1002			

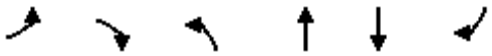
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	501	457
Volume Left	7	8	0
Volume Right	9	0	10
cSH	389	1002	1700
Volume to Capacity	0.04	0.01	0.27
Queue Length 95th (m)	1.0	0.2	0.0
Control Delay (s)	14.7	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	14.7	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	4	5	497	451	5
Future Volume (vph)	4	4	5	497	451	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	105.8			45.4	77.5	
Travel Time (s)	9.5			3.3	5.6	
Lane Group Flow (vph)	8	0	0	502	456	0
Sign Control	Stop			Free	Free	

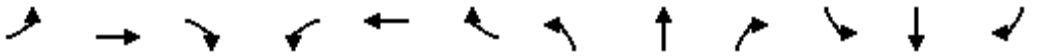
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	4	5	497	451	5
Future Volume (Veh/h)	4	4	5	497	451	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	4	5	497	451	5
Pedestrians	50					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	5					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	324	
pX, platoon unblocked	0.82					
vC, conflicting volume	1010	504	506			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	907	504	506			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	240	542	1009			

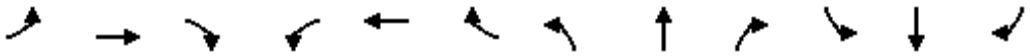
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	502	456
Volume Left	4	5	0
Volume Right	4	0	5
cSH	332	1009	1700
Volume to Capacity	0.02	0.00	0.27
Queue Length 95th (m)	0.6	0.1	0.0
Control Delay (s)	16.1	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	16.1	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	4	44	6	0	6	8	475	6	9	438	8
Future Volume (vph)	21	4	44	6	0	6	8	475	6	9	438	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		110.8			167.0			84.8			45.4	
Travel Time (s)		10.0			15.0			6.1			3.3	
Lane Group Flow (vph)	0	69	0	0	12	0	0	489	0	0	455	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.7%		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)	21	4	44	6	0	6	8	475	6	9	438	8
Future Volume (Veh/h)	21	4	44	6	0	6	8	475	6	9	438	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	4	44	6	0	6	8	475	6	9	438	8
Pedestrians		58			25						59	
Lane Width (m)		3.7			3.7						3.7	
Walking Speed (m/s)		1.1			1.1						1.1	
Percent Blockage		5			2						6	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								85			370	
pX, platoon unblocked	0.80	0.80		0.80	0.80	0.80				0.80		
vC, conflicting volume	1077	1040	500	1025	1041	562	504			506		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	973	926	500	908	928	330	504			260		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	98	92	96	100	99	99			99		
cM capacity (veh/h)	153	196	540	169	195	526	1003			1021		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	69	12	489	455
Volume Left	21	6	8	9
Volume Right	44	6	6	8
cSH	288	256	1003	1021
Volume to Capacity	0.24	0.05	0.01	0.01
Queue Length 95th (m)	7.0	1.1	0.2	0.2
Control Delay (s)	21.4	19.8	0.2	0.3
Lane LOS	C	C	A	A
Approach Delay (s)	21.4	19.8	0.2	0.3
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	49.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Total Projected 2029

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	270	93	34	147	13	65	366	47	18	287	24
Future Volume (vph)	44	270	93	34	147	13	65	366	47	18	287	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	25.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			No			No			No
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		291.7			195.3			168.5			148.6	
Travel Time (s)		21.0			14.1			12.1			10.7	
Lane Group Flow (vph)	44	363	0	34	160	0	65	413	0	18	311	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	19.6	19.6		19.6	19.6		21.7	21.7		21.7	21.7	
Total Split (s)	26.0	26.0		26.0	26.0		34.0	34.0		34.0	34.0	
Total Split (%)	37.1%	37.1%		37.1%	37.1%		48.6%	48.6%		48.6%	48.6%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.7	5.7		5.7	5.7	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	20.4	20.4		20.4	20.4		28.3	28.3		28.3	28.3	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.40	0.40		0.40	0.40	
v/c Ratio	0.16	0.80		0.20	0.33		0.21	0.61		0.07	0.46	
Control Delay	20.4	38.6		22.5	21.8		22.8	29.7		13.8	18.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.4	38.6		22.5	21.8		22.8	29.7		13.8	18.0	
LOS	C	D		C	C		C	C		B	B	
Approach Delay		36.7			21.9			28.7			17.8	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	4.3	43.6		3.3	16.3		7.4	54.9		1.4	28.8	
Queue Length 95th (m)	11.5	#84.1		10.2	30.7		m12.6	81.8		5.1	48.8	
Internal Link Dist (m)		267.7			171.3			144.5			124.6	
Turn Bay Length (m)	25.0			25.0			25.0			20.0		
Base Capacity (vph)	275	454		168	489		316	677		263	680	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.80		0.20	0.33		0.21	0.61		0.07	0.46	

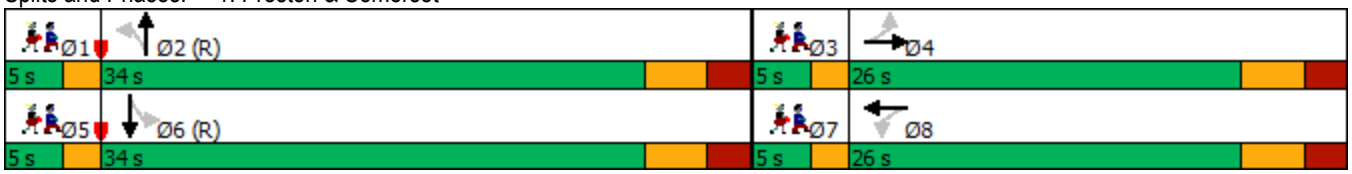
Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 37 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

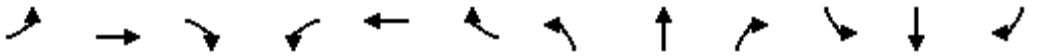
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 81.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Preston & Somerset



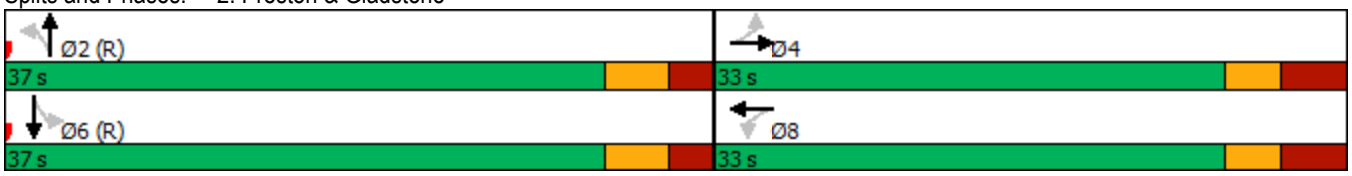


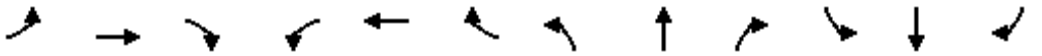
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	251	82	51	186	73	62	423	82	79	359	25
Future Volume (vph)	39	251	82	51	186	73	62	423	82	79	359	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	20.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			Yes			Yes			No
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		137.7			191.0			179.1			84.8	
Travel Time (s)		12.4			17.2			12.9			6.1	
Lane Group Flow (vph)	0	372	0	51	259	0	62	505	0	79	384	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		23.7	23.7		23.7	23.7	
Total Split (s)	33.0	33.0		33.0	33.0		37.0	37.0		37.0	37.0	
Total Split (%)	47.1%	47.1%		47.1%	47.1%		52.9%	52.9%		52.9%	52.9%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5		6.5	6.5		5.7	5.7		5.7	5.7	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		26.5		26.5	26.5		31.3	31.3		31.3	31.3	
Actuated g/C Ratio		0.38		0.38	0.38		0.45	0.45		0.45	0.45	
v/c Ratio		0.66		0.18	0.42		0.19	0.68		0.32	0.51	
Control Delay		19.5		16.5	16.6		13.6	20.3		25.5	26.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		19.5		16.5	16.6		13.6	20.3		25.5	26.0	
LOS		B		B	B		B	C		C	C	
Approach Delay		19.5			16.6			19.6			25.9	
Approach LOS		B			B			B			C	
Queue Length 50th (m)		21.2		4.3	21.0		4.7	48.2		7.8	45.2	
Queue Length 95th (m)		31.2		11.5	39.2		11.9	79.9		m18.8	m69.7	
Internal Link Dist (m)		113.7			167.0			155.1			60.8	
Turn Bay Length (m)				20.0			15.0			25.0		
Base Capacity (vph)		562		289	610		329	748		248	760	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.66		0.18	0.42		0.19	0.68		0.32	0.51	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 37 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 50	

Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 97.4% ICU Level of Service F
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Preston & Gladstone





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	283	75	64	212	16	140	152	120	25	219	12
Future Volume (vph)	0	283	75	64	212	16	140	152	120	25	219	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	25.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		191.0			122.6			188.6			155.0	
Travel Time (s)		17.2			11.0			13.6			11.2	
Lane Group Flow (vph)	0	358	0	64	228	0	140	272	0	0	256	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		23.2		23.2	23.2		21.8	21.8		21.8	21.8	
Total Split (s)		25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (%)		41.7%		41.7%	41.7%		41.7%	41.7%		41.7%	41.7%	
Yellow Time (s)		3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)		3.2		3.2	3.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.2		6.2	6.2		5.8	5.8			5.8	
Lead/Lag		Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)		18.8		18.8	18.8		19.2	19.2			19.2	
Actuated g/C Ratio		0.31		0.31	0.31		0.32	0.32			0.32	
v/c Ratio		0.68		0.29	0.42		0.46	0.49			0.48	
Control Delay		25.1		20.1	18.8		25.3	19.1			19.8	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		25.1		20.1	18.8		25.3	19.1			19.8	
LOS		C		C	B		C	B			B	
Approach Delay		25.1			19.1			21.2			19.8	
Approach LOS		C			B			C			B	
Queue Length 50th (m)		31.6		5.3	18.9		15.6	24.2			21.8	
Queue Length 95th (m)		#60.0		14.1	35.3		31.9	33.7			40.1	
Internal Link Dist (m)		167.0			98.6			164.6			131.0	
Turn Bay Length (m)				25.0			30.0					
Base Capacity (vph)		523		217	538		305	550			533	
Starvation Cap Reductn		0		0	0		0	0			0	
Spillback Cap Reductn		0		0	0		0	0			0	
Storage Cap Reductn		0		0	0		0	0			0	
Reduced v/c Ratio		0.68		0.29	0.42		0.46	0.49			0.48	

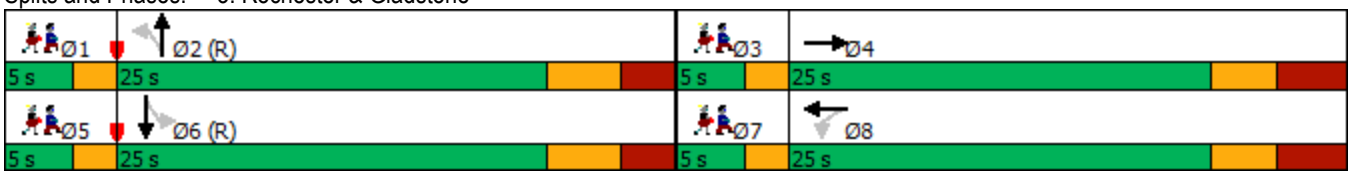
Intersection Summary	
Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 13 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

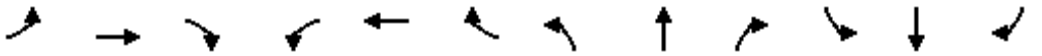
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	8%	8%	8%	8%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 21.5 Intersection LOS: C
Intersection Capacity Utilization 82.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Rochester & Gladstone





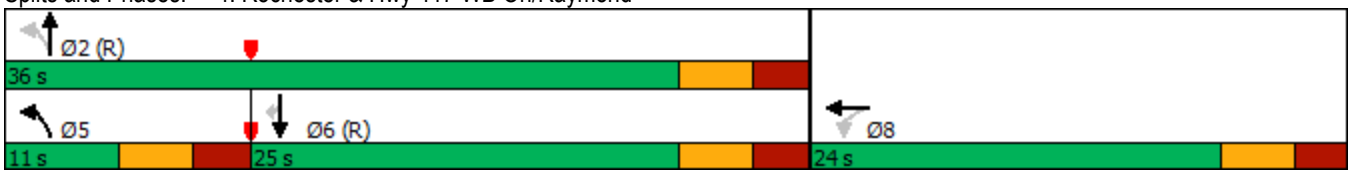
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	164	138	110	85	276	0	0	128	255
Future Volume (vph)	0	0	0	164	138	110	85	276	0	0	128	255
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		30.0
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.6			119.6			107.1			188.6	
Travel Time (s)		10.8			8.6			7.7			13.6	
Lane Group Flow (vph)	0	0	0	164	248	0	85	276	0	0	128	255
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8			2					6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				23.7	23.7		10.9	27.9			24.9	24.9
Total Split (s)				24.0	24.0		11.0	36.0			25.0	25.0
Total Split (%)				40.0%	40.0%		18.3%	60.0%			41.7%	41.7%
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	3.3
All-Red Time (s)				2.4	2.4		2.6	2.6			2.6	2.6
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				5.7	5.7		5.9	5.9			5.9	5.9
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Act Effct Green (s)				13.1	13.1		35.3	35.3			25.5	25.5
Actuated g/C Ratio				0.22	0.22		0.59	0.59			0.42	0.42
v/c Ratio				0.44	0.61		0.13	0.26			0.17	0.33
Control Delay				23.3	21.0		5.6	6.5			13.7	7.7
Queue Delay				0.0	0.0		0.0	0.0			0.0	0.0
Total Delay				23.3	21.0		5.6	6.5			13.7	7.7
LOS				C	C		A	A			B	A
Approach Delay					21.9			6.3			9.7	
Approach LOS					C			A			A	
Queue Length 50th (m)				16.1	17.8		1.8	16.3			10.1	4.0
Queue Length 95th (m)				26.8	32.4		11.4	29.9			m19.6	m20.0
Internal Link Dist (m)		125.6			95.6			83.1			164.6	
Turn Bay Length (m)												30.0
Base Capacity (vph)				515	543		638	1048			756	762
Starvation Cap Reductn				0	0		0	0			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.32	0.46		0.13	0.26			0.17	0.33

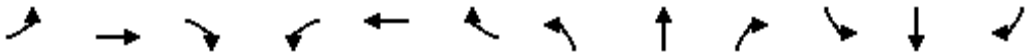
Intersection Summary	
Area Type:	Other

Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 53 (88%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 52.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 4: Rochester & Hwy 417 WB On/Raymond



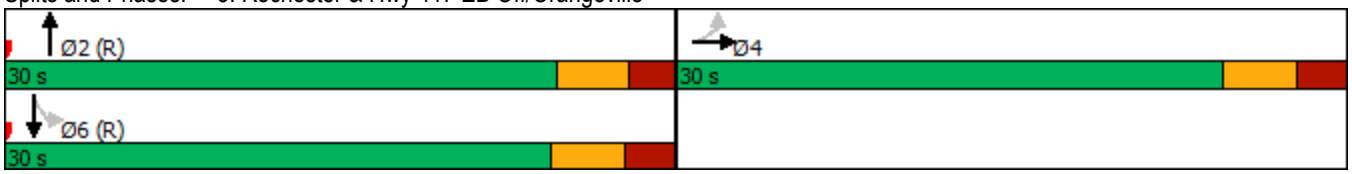


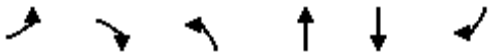
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	234	274	0	0	0	0	179	38	20	266	0
Future Volume (vph)	179	234	274	0	0	0	0	179	38	20	266	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	20.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.3			110.8			180.4			107.1	
Travel Time (s)		14.1			8.0			13.0			7.7	
Lane Group Flow (vph)	179	508	0	0	0	0	0	217	0	0	286	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.6	23.6						23.4		23.6	23.6	
Total Split (s)	30.0	30.0						30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%						50.0%		50.0%	50.0%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3						2.1		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0						0.0			0.0	
Total Lost Time (s)	5.6	5.6						5.4			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)	20.2	20.2						28.8			28.6	
Actuated g/C Ratio	0.34	0.34						0.48			0.48	
v/c Ratio	0.31	0.82						0.14			0.19	
Control Delay	15.0	24.8						8.7			13.0	
Queue Delay	0.0	0.0						0.0			0.0	
Total Delay	15.0	24.8						8.7			13.0	
LOS	B	C						A			B	
Approach Delay		22.3						8.7			13.0	
Approach LOS		C						A			B	
Queue Length 50th (m)	13.4	36.1						5.7			11.0	
Queue Length 95th (m)	24.1	64.7						11.8			17.5	
Internal Link Dist (m)		171.3			86.8			156.4			83.1	
Turn Bay Length (m)	20.0											
Base Capacity (vph)	688	725						1590			1498	
Starvation Cap Reductn	0	0						0			0	
Spillback Cap Reductn	0	0						0			0	
Storage Cap Reductn	0	0						0			0	
Reduced v/c Ratio	0.26	0.70						0.14			0.19	

Intersection Summary	
Area Type:	Other

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 52 (87%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 64.8% ICU Level of Service C
Analysis Period (min) 15

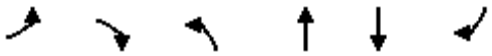
Splits and Phases: 5: Rochester & Hwy 417 EB Off/Orangeville





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	9	5	544	415	4
Future Volume (vph)	7	9	5	544	415	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	109.4			78.4	168.5	
Travel Time (s)	9.8			5.6	12.1	
Lane Group Flow (vph)	16	0	0	549	419	0
Sign Control	Stop			Free	Free	

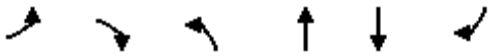
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	9	5	544	415	4
Future Volume (Veh/h)	7	9	5	544	415	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	9	5	544	415	4
Pedestrians	60					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	6					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				286	169	
pX, platoon unblocked	0.91	0.90	0.90			
vC, conflicting volume	1031	477	479			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	731	360	362			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	100			
cM capacity (veh/h)	332	580	1013			

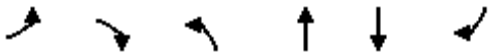
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	549	419
Volume Left	7	5	0
Volume Right	9	0	4
cSH	437	1013	1700
Volume to Capacity	0.04	0.00	0.25
Queue Length 95th (m)	0.9	0.1	0.0
Control Delay (s)	13.5	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	13.5	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	10	6	537	418	6
Future Volume (vph)	12	10	6	537	418	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	106.7			77.5	78.4	
Travel Time (s)	9.6			5.6	5.6	
Lane Group Flow (vph)	22	0	0	543	424	0
Sign Control	Stop			Free	Free	

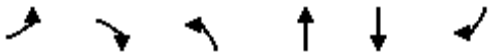
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	10	6	537	418	6
Future Volume (Veh/h)	12	10	6	537	418	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	10	6	537	418	6
Pedestrians	60					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	6					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				208	247	
pX, platoon unblocked	0.86	0.92	0.92			
vC, conflicting volume	1030	481	484			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	756	397	400			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	99			
cM capacity (veh/h)	304	569	1010			

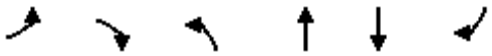
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	22	543	424
Volume Left	12	6	0
Volume Right	10	0	6
cSH	386	1010	1700
Volume to Capacity	0.06	0.01	0.25
Queue Length 95th (m)	1.4	0.1	0.0
Control Delay (s)	14.9	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	14.9	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	5	4	537	425	3
Future Volume (vph)	6	5	4	537	425	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	105.8			45.4	77.5	
Travel Time (s)	9.5			3.3	5.6	
Lane Group Flow (vph)	11	0	0	541	428	0
Sign Control	Stop			Free	Free	

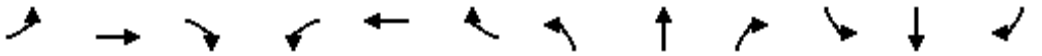
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	5	4	537	425	3
Future Volume (Veh/h)	6	5	4	537	425	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	5	4	537	425	3
Pedestrians	60					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	6					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	324	
pX, platoon unblocked	0.82	0.96	0.96			
vC, conflicting volume	1032	486	488			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	818	444	446			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	266	556	1010			

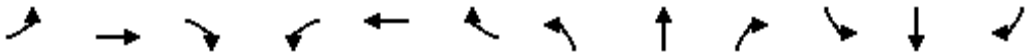
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	541	428
Volume Left	6	4	0
Volume Right	5	0	3
cSH	349	1010	1700
Volume to Capacity	0.03	0.00	0.25
Queue Length 95th (m)	0.7	0.1	0.0
Control Delay (s)	15.7	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	15.7	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	3	43	7	3	6	12	518	6	4	413	13
Future Volume (vph)	17	3	43	7	3	6	12	518	6	4	413	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		110.8			167.0			84.8			45.4	
Travel Time (s)		10.0			15.0			6.1			3.3	
Lane Group Flow (vph)	0	63	0	0	16	0	0	536	0	0	430	0
Sign Control		Stop			Stop			Free			Free	

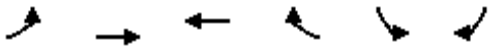
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	3	43	7	3	6	12	518	6	4	413	13
Future Volume (Veh/h)	17	3	43	7	3	6	12	518	6	4	413	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	3	43	7	3	6	12	518	6	4	413	13
Pedestrians		40			40						50	
Lane Width (m)		3.7			3.7						3.7	
Walking Speed (m/s)		1.1			1.1						1.1	
Percent Blockage		4			4						5	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								85			370	
pX, platoon unblocked	0.79	0.79	0.99	0.79	0.79	0.78	0.99			0.78		
vC, conflicting volume	1070	1056	460	1057	1059	611	466			564		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912	894	444	896	898	362	450			301		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	99	93	96	99	99	99			100		
cM capacity (veh/h)	168	202	582	169	201	489	1053			947		

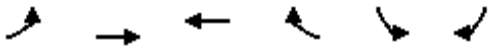
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	63	16	536	430
Volume Left	17	7	12	4
Volume Right	43	6	6	13
cSH	332	233	1053	947
Volume to Capacity	0.19	0.07	0.01	0.00
Queue Length 95th (m)	5.2	1.7	0.3	0.1
Control Delay (s)	18.4	21.6	0.3	0.1
Lane LOS	C	C	A	A
Approach Delay (s)	18.4	21.6	0.3	0.1
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	369	272	1	3	0
Future Volume (vph)	0	369	272	1	3	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40	40		40	
Link Distance (m)		30.0	137.7		80.4	
Travel Time (s)		2.7	12.4		7.2	
Lane Group Flow (vph)	0	369	273	0	3	0
Sign Control		Free	Free		Stop	

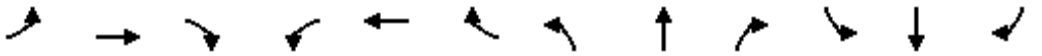
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	369	272	1	3	0
Future Volume (Veh/h)	0	369	272	1	3	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	369	272	1	3	0
Pedestrians					10	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		30	138			
pX, platoon unblocked					0.90	
vC, conflicting volume	283				652	282
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	283				555	282
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1267				438	749

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	369	273	3
Volume Left	0	0	3
Volume Right	0	1	0
cSH	1267	1700	438
Volume to Capacity	0.00	0.16	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	13.3
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.3
Approach LOS			B

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		30.5%	ICU Level of Service
Analysis Period (min)		15	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	224	93	70	220	24	62	247	39	19	244	44
Future Volume (vph)	48	224	93	70	220	24	62	247	39	19	244	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	25.0		0.0	25.0		0.0	25.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			No			No			No
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		291.7			195.3			168.5			148.6	
Travel Time (s)		21.0			14.1			12.1			10.7	
Lane Group Flow (vph)	48	317	0	70	244	0	62	286	0	19	288	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	19.6	19.6		19.6	19.6		21.7	21.7		21.7	21.7	
Total Split (s)	29.0	29.0		29.0	29.0		31.0	31.0		31.0	31.0	
Total Split (%)	41.4%	41.4%		41.4%	41.4%		44.3%	44.3%		44.3%	44.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.7	5.7		5.7	5.7	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	23.4	23.4		23.4	23.4		25.3	25.3		25.3	25.3	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.36	0.36		0.36	0.36	
v/c Ratio	0.18	0.63		0.31	0.44		0.22	0.48		0.07	0.49	
Control Delay	18.7	26.5		22.1	21.3		19.3	22.2		15.5	20.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.7	26.5		22.1	21.3		19.3	22.2		15.5	20.9	
LOS	B	C		C	C		B	C		B	C	
Approach Delay		25.4			21.5			21.7			20.5	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	4.4	34.4		6.7	24.6		7.1	33.2		1.6	28.6	
Queue Length 95th (m)	11.8	59.5		16.8	43.0		m10.7	m48.9		5.6	49.2	
Internal Link Dist (m)		267.7			171.3			144.5			124.6	
Turn Bay Length (m)	25.0			25.0			25.0			20.0		
Base Capacity (vph)	268	501		225	552		281	596		291	588	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.63		0.31	0.44		0.22	0.48		0.07	0.49	

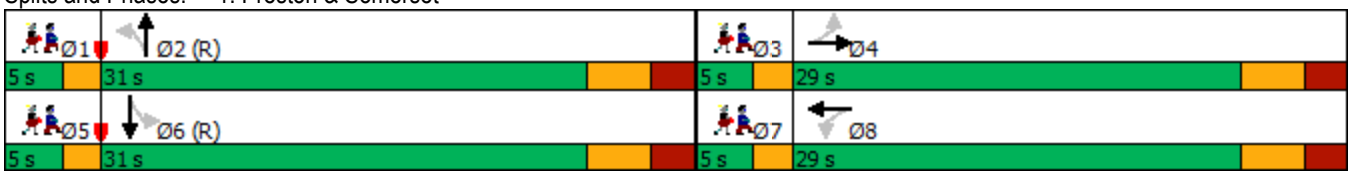
Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 32 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 22.4 Intersection LOS: C
Intersection Capacity Utilization 73.1% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Preston & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	214	57	85	484	82	94	383	104	58	377	58
Future Volume (vph)	30	214	57	85	484	82	94	383	104	58	377	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	20.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			No			Yes			Yes			No
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		130.3			191.0			179.1			84.8	
Travel Time (s)		11.7			17.2			12.9			6.1	
Lane Group Flow (vph)	0	301	0	85	566	0	94	487	0	58	435	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		23.7	23.7		23.7	23.7	
Total Split (s)	37.0	37.0		37.0	37.0		33.0	33.0		33.0	33.0	
Total Split (%)	52.9%	52.9%		52.9%	52.9%		47.1%	47.1%		47.1%	47.1%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.4	2.4		2.4	2.4	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5		6.5	6.5		5.7	5.7		5.7	5.7	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		30.5		30.5	30.5		27.3	27.3		27.3	27.3	
Actuated g/C Ratio		0.44		0.44	0.44		0.39	0.39		0.39	0.39	
v/c Ratio		0.50		0.22	0.78		0.41	0.75		0.29	0.67	
Control Delay		13.6		14.4	26.2		22.2	26.8		25.0	28.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		13.6		14.4	26.2		22.2	26.8		25.0	28.7	
LOS		B		B	C		C	C		C	C	
Approach Delay		13.6			24.7			26.0			28.3	
Approach LOS		B			C			C			C	
Queue Length 50th (m)		14.9		6.7	59.4		8.7	50.9		6.2	52.9	
Queue Length 95th (m)		22.6		15.5	#110.9		21.2	#95.4		m14.4	82.1	
Internal Link Dist (m)		106.3			167.0			155.1			60.8	
Turn Bay Length (m)				20.0			15.0			25.0		
Base Capacity (vph)		607		379	722		231	646		197	648	
Starvation Cap Reductn		0		0	0		0	0		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	0	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.50		0.22	0.78		0.41	0.75		0.29	0.67	

Intersection Summary

Area Type: Other

Cycle Length: 70

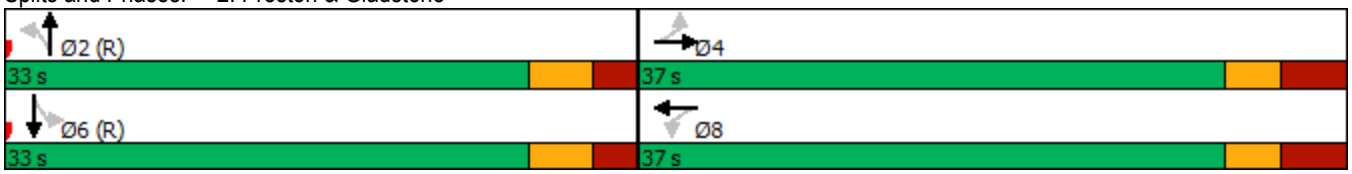
Actuated Cycle Length: 70

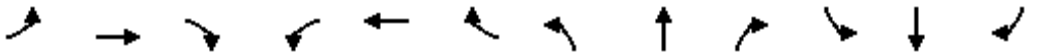
Offset: 40 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 24.3 Intersection LOS: C
Intersection Capacity Utilization 96.0% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Preston & Gladstone





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	343	75	93	445	21	111	176	113	15	137	15
Future Volume (vph)	0	343	75	93	445	21	111	176	113	15	137	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	25.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		191.0			122.6			188.6			155.0	
Travel Time (s)		17.2			11.0			13.6			11.2	
Lane Group Flow (vph)	0	418	0	93	466	0	111	289	0	0	167	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases				8			2			6		
Minimum Split (s)		23.2		23.2	23.2		21.8	21.8		21.8	21.8	
Total Split (s)		40.0		40.0	40.0		30.0	30.0		30.0	30.0	
Total Split (%)		50.0%		50.0%	50.0%		37.5%	37.5%		37.5%	37.5%	
Yellow Time (s)		3.0		3.0	3.0		3.3	3.3		3.3	3.3	
All-Red Time (s)		3.2		3.2	3.2		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)		6.2		6.2	6.2		5.8	5.8			5.8	
Lead/Lag		Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)		33.8		33.8	33.8		24.2	24.2			24.2	
Actuated g/C Ratio		0.42		0.42	0.42		0.30	0.30			0.30	
v/c Ratio		0.58		0.32	0.64		0.33	0.55			0.33	
Control Delay		21.0		19.3	23.2		25.1	24.6			23.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0	
Total Delay		21.0		19.3	23.2		25.1	24.6			23.0	
LOS		C		B	C		C	C			C	
Approach Delay		21.0			22.5			24.7			23.0	
Approach LOS		C			C			C			C	
Queue Length 50th (m)		45.1		9.1	53.9		13.0	31.0			18.7	
Queue Length 95th (m)		72.9		20.5	84.9		26.4	54.5			34.4	
Internal Link Dist (m)		167.0			98.6			164.6			131.0	
Turn Bay Length (m)				25.0			30.0					
Base Capacity (vph)		716		291	725		333	525			510	
Starvation Cap Reductn		0		0	0		0	0			0	
Spillback Cap Reductn		0		0	0		0	0			0	
Storage Cap Reductn		0		0	0		0	0			0	
Reduced v/c Ratio		0.58		0.32	0.64		0.33	0.55			0.33	

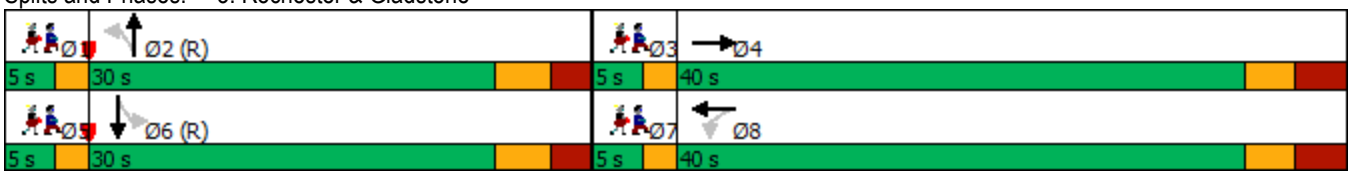
Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 50 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	

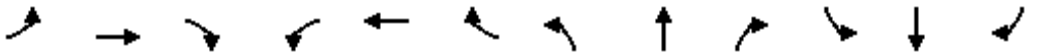
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (m)				
Storage Lanes				
Taper Length (m)				
Right Turn on Red				
Link Speed (k/h)				
Link Distance (m)				
Travel Time (s)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Minimum Split (s)	5.0	5.0	5.0	5.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	6%	6%	6%	6%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Control Type: Pretimed	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 22.7	Intersection LOS: C
Intersection Capacity Utilization 83.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Rochester & Gladstone



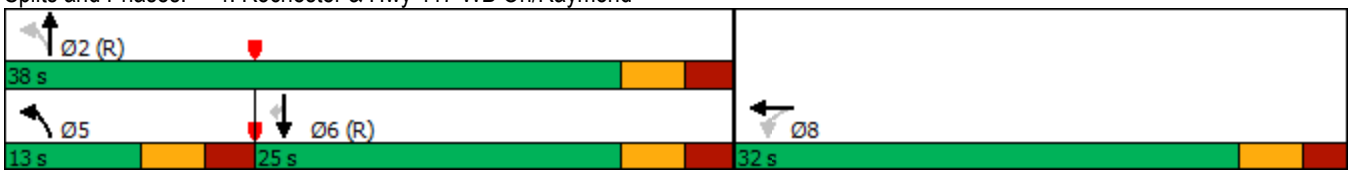


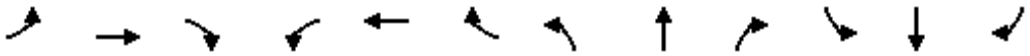
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	144	197	143	146	394	0	0	158	150
Future Volume (vph)	0	0	0	144	197	143	146	394	0	0	158	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		30.0
Storage Lanes	0		0	1		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.6			119.6			107.1			188.6	
Travel Time (s)		10.8			8.6			7.7			13.6	
Lane Group Flow (vph)	0	0	0	144	340	0	146	394	0	0	158	150
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					8		5	2			6	
Permitted Phases				8			2					6
Detector Phase				8	8		5	2			6	6
Switch Phase												
Minimum Initial (s)				10.0	10.0		5.0	10.0			10.0	10.0
Minimum Split (s)				23.7	23.7		10.9	27.9			24.9	24.9
Total Split (s)				32.0	32.0		13.0	38.0			25.0	25.0
Total Split (%)				45.7%	45.7%		18.6%	54.3%			35.7%	35.7%
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	3.3
All-Red Time (s)				2.4	2.4		2.6	2.6			2.6	2.6
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)				5.7	5.7		5.9	5.9			5.9	5.9
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Act Effct Green (s)				18.2	18.2		40.2	40.2			29.0	29.0
Actuated g/C Ratio				0.26	0.26		0.57	0.57			0.41	0.41
v/c Ratio				0.33	0.72		0.23	0.38			0.21	0.22
Control Delay				21.2	27.6		7.6	9.4			18.1	4.9
Queue Delay				0.0	0.0		0.0	0.4			0.0	0.0
Total Delay				21.2	27.6		7.6	9.8			18.1	4.9
LOS				C	C		A	A			B	A
Approach Delay					25.7			9.2			11.7	
Approach LOS					C			A			B	
Queue Length 50th (m)				15.1	33.0		7.3	32.6			14.0	0.0
Queue Length 95th (m)				24.3	50.1		22.8	52.4			30.8	11.9
Internal Link Dist (m)		125.6			95.6			83.1			164.6	
Turn Bay Length (m)												30.0
Base Capacity (vph)				636	653		626	1025			739	680
Starvation Cap Reductn				0	0		0	257			0	0
Spillback Cap Reductn				0	0		0	0			0	0
Storage Cap Reductn				0	0		0	0			0	0
Reduced v/c Ratio				0.23	0.52		0.23	0.51			0.21	0.22

Intersection Summary	
Area Type:	Other

Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 8 (11%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Rochester & Hwy 417 WB On/Raymond



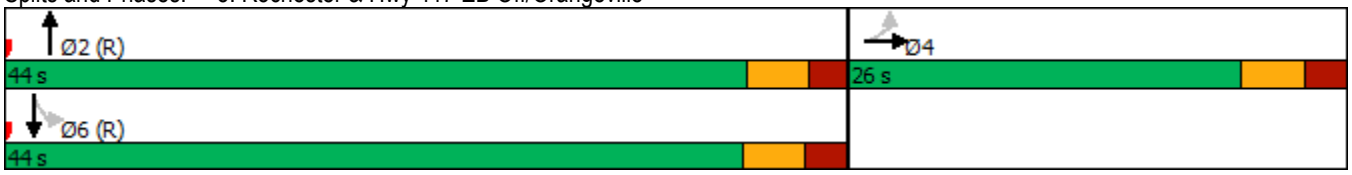


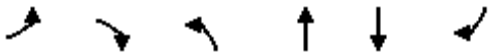
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	298	117	0	0	0	0	287	77	33	274	0
Future Volume (vph)	257	298	117	0	0	0	0	287	77	33	274	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	20.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.3			110.8			180.4			107.1	
Travel Time (s)		14.1			8.0			13.0			7.7	
Lane Group Flow (vph)	257	415	0	0	0	0	0	364	0	0	307	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.6	23.6						23.4		23.6	23.6	
Total Split (s)	26.0	26.0						44.0		44.0	44.0	
Total Split (%)	37.1%	37.1%						62.9%		62.9%	62.9%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3						2.1		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0						0.0			0.0	
Total Lost Time (s)	5.6	5.6						5.4			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)	19.1	19.1						39.9			39.7	
Actuated g/C Ratio	0.27	0.27						0.57			0.57	
v/c Ratio	0.56	0.86						0.19			0.18	
Control Delay	26.7	41.7						6.3			11.0	
Queue Delay	0.0	0.0						0.0			0.0	
Total Delay	26.7	41.7						6.3			11.0	
LOS	C	D						A			B	
Approach Delay		35.9						6.3			11.0	
Approach LOS		D						A			B	
Queue Length 50th (m)	27.9	46.7						8.9			11.3	
Queue Length 95th (m)	48.5	#90.6						14.8			17.0	
Internal Link Dist (m)		171.3			86.8			156.4			83.1	
Turn Bay Length (m)	20.0											
Base Capacity (vph)	492	514						1884			1714	
Starvation Cap Reductn	0	0						0			0	
Spillback Cap Reductn	0	0						16			0	
Storage Cap Reductn	0	0						0			0	
Reduced v/c Ratio	0.52	0.81						0.19			0.18	

Intersection Summary	
Area Type:	Other

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 67 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 22.2 Intersection LOS: C
Intersection Capacity Utilization 66.6% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

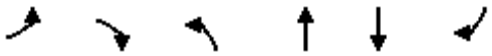
Splits and Phases: 5: Rochester & Hwy 417 EB Off/Orangeville





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	6	7	498	455	6
Future Volume (vph)	5	6	7	498	455	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	109.4			78.4	168.5	
Travel Time (s)	9.8			5.6	12.1	
Lane Group Flow (vph)	11	0	0	505	461	0
Sign Control	Stop			Free	Free	

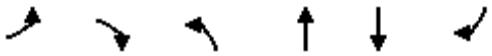
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	6	7	498	455	6
Future Volume (Veh/h)	5	6	7	498	455	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	6	7	498	455	6
Pedestrians	60					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	6					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				286	169	
pX, platoon unblocked	0.92	0.92	0.92			
vC, conflicting volume	1030	518	521			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	793	431	434			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	309	541	976			

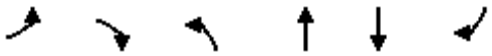
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	505	461
Volume Left	5	7	0
Volume Right	6	0	6
cSH	404	976	1700
Volume to Capacity	0.03	0.01	0.27
Queue Length 95th (m)	0.6	0.2	0.0
Control Delay (s)	14.2	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	14.2	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	9	8	498	451	10
Future Volume (vph)	7	9	8	498	451	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	106.7			77.5	78.4	
Travel Time (s)	9.6			5.6	5.6	
Lane Group Flow (vph)	16	0	0	506	461	0
Sign Control	Stop			Free	Free	

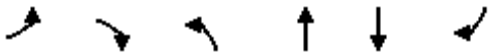
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	9	8	498	451	10
Future Volume (Veh/h)	7	9	8	498	451	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	9	8	498	451	10
Pedestrians	60					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	6					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				208	247	
pX, platoon unblocked	0.86	0.96	0.96			
vC, conflicting volume	1030	516	521			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	837	471	476			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	99			
cM capacity (veh/h)	271	535	980			

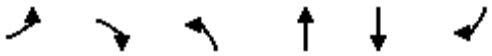
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	506	461
Volume Left	7	8	0
Volume Right	9	0	10
cSH	375	980	1700
Volume to Capacity	0.04	0.01	0.27
Queue Length 95th (m)	1.0	0.2	0.0
Control Delay (s)	15.0	0.2	0.0
Lane LOS	C	A	
Approach Delay (s)	15.0	0.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	4	5	502	455	5
Future Volume (vph)	4	4	5	502	455	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)	40			50	50	
Link Distance (m)	105.8			45.4	77.5	
Travel Time (s)	9.5			3.3	5.6	
Lane Group Flow (vph)	8	0	0	507	460	0
Sign Control	Stop			Free	Free	

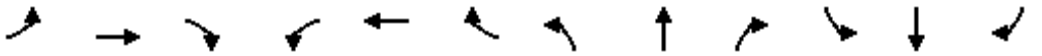
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	4	5	502	455	5
Future Volume (Veh/h)	4	4	5	502	455	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	4	5	502	455	5
Pedestrians	60					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	6					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	324	
pX, platoon unblocked	0.80					
vC, conflicting volume	1030	518	520			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	911	518	520			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	228	527	988			

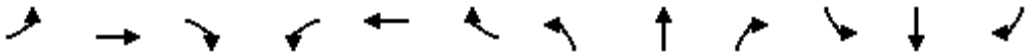
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	507	460
Volume Left	4	5	0
Volume Right	4	0	5
cSH	319	988	1700
Volume to Capacity	0.03	0.01	0.27
Queue Length 95th (m)	0.6	0.1	0.0
Control Delay (s)	16.6	0.1	0.0
Lane LOS	C	A	
Approach Delay (s)	16.6	0.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	4	45	6	0	6	10	480	6	9	442	8
Future Volume (vph)	21	4	45	6	0	6	10	480	6	9	442	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		110.8			167.0			84.8			45.4	
Travel Time (s)		10.0			15.0			6.1			3.3	
Lane Group Flow (vph)	0	70	0	0	12	0	0	496	0	0	459	0
Sign Control		Stop			Stop			Free			Free	

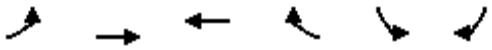
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	4	45	6	0	6	10	480	6	9	442	8
Future Volume (Veh/h)	21	4	45	6	0	6	10	480	6	9	442	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	4	45	6	0	6	10	480	6	9	442	8
Pedestrians		70			35						70	
Lane Width (m)		3.7			3.7						3.7	
Walking Speed (m/s)		1.1			1.1						1.1	
Percent Blockage		7			3						7	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								85			370	
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77				0.77		
vC, conflicting volume	1113	1075	516	1049	1076	588	520			521		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1001	952	516	918	953	323	520			237		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	84	98	91	96	100	99	99			99		
cM capacity (veh/h)	135	178	522	155	178	503	978			997		

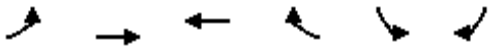
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	70	12	496	459
Volume Left	21	6	10	9
Volume Right	45	6	6	8
cSH	265	237	978	997
Volume to Capacity	0.26	0.05	0.01	0.01
Queue Length 95th (m)	7.8	1.2	0.2	0.2
Control Delay (s)	23.3	21.0	0.3	0.3
Lane LOS	C	C	A	A
Approach Delay (s)	23.3	21.0	0.3	0.3
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	51.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	300	633	2	2	0
Future Volume (vph)	0	300	633	2	2	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Link Speed (k/h)		40	40		40	
Link Distance (m)		38.2	130.3		79.4	
Travel Time (s)		3.4	11.7		7.1	
Lane Group Flow (vph)	0	300	635	0	2	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	300	633	2	2	0
Future Volume (Veh/h)	0	300	633	2	2	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	300	633	2	2	0
Pedestrians					10	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		38	130			
pX, platoon unblocked	0.74				0.78	0.74
vC, conflicting volume	645				944	644
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344				556	343
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	890				380	513

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	300	635	2
Volume Left	0	0	2
Volume Right	0	2	0
cSH	890	1700	380
Volume to Capacity	0.00	0.37	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	14.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		45.3%	ICU Level of Service
Analysis Period (min)		15	