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TRANSPORTATION SOLUTIONS LIMITED

28-60 Bronte Street North Transportation Impact Study & Parking Study

Paradigm Transportation Solutions Limited

November 2018

Project Summary

Project Number
170248

November 2018

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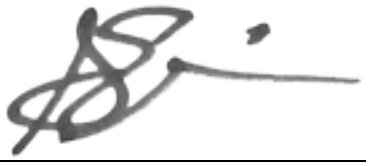
28-60 Main Street North
Transportation Impact Study & Parking Study

List of Revisions

Version	Date	Description
0.1.0	September 2018	Draft for Comment
0.2.0	October 2018	Updated Site Plan
2.0.0	November 2018	For Submission

Signatures and Seals



Signature

Engineer's Seal

Disclaimer

Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained by Korsiak Urban Planning to conduct this Transportation Impact Study and Parking Study for a proposed mixed-use development at 28-60 Bronte Street North in the Town of Milton, Ontario.

The purpose of this study is to determine the net impacts of the development traffic on the surrounding road network, document the adequacy of the proposed parking supply and provide options for reducing personal vehicle use through TDM policies. This study will identify any improvements, if needed, to support the development of the subject site.

Conclusions

This study evaluated the impacts associated within the construction of two building pads totaling 435 residential units and 1,195 square metres (12,862 square feet) of ground floor retail with a completion target date of 2021.

Access to the site is proposed via an all-movements connection to Bronte Street located opposite Victoria Street and a right-in/right-out driveway connection to Main Street.

Transportation Impact Study

The proposed development is projected to generate approximately 147 new vehicle trips during the weekday AM peak hour and 187 new vehicle trips during the weekday PM peak hour.

Detailed traffic analysis was conducted for each of the study area intersections under 2018 Base traffic conditions an 2026 Background and Total traffic conditions.

The capacity analysis showed that the study area intersections are not expected to experience significant impacts to operations as a result of the proposed development. It is acknowledged however that deficiencies currently exist and projected to occur at certain locations within the study area with anticipated growth in traffic, independent of the development. The following capacity constraints at the study area intersections are identified:

- **Bronte Street at Main Street** presently operates at LOS F for the eastbound shared through/right turn movement and westbound left turn movement. Increased delays are projected for these movements as well as the northbound left turn movement and southbound shared through/right turn movement under both Background and Total traffic conditions. The Town is aware of this and an Environmental Assessment is being undertaken.

- **Bronte Street at Mill Street** presently operates at LOS E for the westbound approach. With general background growth, the westbound approach is expected to degrade to LOS F during the PM peak hour with a volume to capacity ratio exceeding 1.0 under both Background and Total traffic conditions. The most feasible improvement option to the intersection would be to restrict westbound left turns during the weekday PM peak hour from Monday to Friday.
- **Bronte Street and Whitmer Street** presently operates at level of service C or better for all approaches. With general background growth, the northbound approach is expected to degrade to LOS E during the weekday AM peak hour under Background traffic conditions. Similar levels of operation are expected under the Total traffic conditions with only minor increase in delay resulting from site-generated traffic volumes. As northbound left turning traffic is currently and projected to be low, drivers are likely to seek an alternative route via Kendall Drive and Scott Boulevard. Northbound right turn-turn volumes are higher, and these drivers are not as likely to use alternative routes, however their delay can be reduced If capacity improvements occur at the intersection of Main Street and Bronte Street[1].
- **Bronte Street at Victoria Street/Driveway A** warrants installation of a 25-metre northbound left turn lane. However, as the Environmental Assessment identified roadway improvement along Bronte Street between Main Street and Steeles Avenue will include a centre turn lane, the implementation of a turn lane prior to this work being completed would be considered temporary and will involve considerable throw away costs. A left-turn lane is not recommended for implementation at this time. As the Bronte Street corridor from Main Street to Steeles Avenue was identified under the Town's Development Charges Study as requiring improvements, the funding for the centre turn lane can be derived from development charges.

A review of the existing traffic volumes suggests Mill Street is experiencing higher than expected volumes at the intersection with Bronte Street. With the construction of the new interchange at Highway 401 and Tremaine Road, it is anticipated that a portion of the traffic currently utilizing Mill Street as a by-pass route will be attracted to the new interchange. However, additional measures should be considered for implementation by the Town of Milton.

The development plan proposes aligning a driveway connection to Bronte Street directly opposite Victoria Street. However, as Victoria Street does not directly connect to the arterial roadway network, this would discourage traffic from the development to utilize this route. In terms of the development utilizing Mill Street, this route is also unlikely to be favoured by the proposed development as travel time benefits are not realized through these routes.

[1] TIS Sherwood Community Centre and Library, Prepared for Town of Milton by CIMA+, March 2017

Overall, the study finds that site generated traffic will not have a significant impact effect on traffic operations within the study area and the existing transportation infrastructure in the area, in conjunction with the proposed improvements as planned within the Environmental Assessment, can adequately accommodate the traffic volumes projected to be generated by the proposed development.

Parking Study

The proposed site provides for a total of 627 parking spaces; equating to a parking rate of 1.25 parking spaces per unit (resident and visitor) plus 60 spaces for the retail component. The parking requirement for the development under the Town of Milton's Zoning By-Law 016-2014 is 822 spaces; equating to a parking rate of 1.75 spaces per unit (resident and visitor) plus 60 spaces for the retail component.

The parking requirements outlined in Zoning By-Law 016-2014 is based on an approach the caters to auto oriented travel rather than transition to promote residential and visitor travel through sustainable modes. Parking ratios need to recognize empirical evidence that parking demand has many factors and varies according to household size, income, auto ownership, and locational factors such as proximity to other uses and availability of multiple transportation mobility options.

A review of actual parking demand that is likely to be generated by the proposed development has been considered to assess, independent and separate from a review of Zoning By-Law requirements. The actual demands established are based upon parking demand technical resources and information collected by Paradigm and others at comparable land uses. The actual parking demand for the proposed development based on this data is projected to be 499 vehicles. It should be noted that the parking demand value of 499 vehicles utilizes a simplistic approach. In actuality, the rates are expected to be marginally less, around 489 spaces with time of day shared parking demand incorporated.

The mode split characteristics of apartment units within the study area have also been reviewed from the 2016 Transportation Tomorrow Survey. This data stipulates that 20% of all travel is completed through sustainable mode choice and is consistent with the demand forecasts.

The transition from an automobile-dependent environment to one that is transit-supportive will require strategies to assist in shifting modal split and enabling the emergence of a more pedestrian-friendly transit-supportive environment. The over provision of free or low-cost parking creates areas that are dominated by parking infrastructure can have a negative impact on ridership and the pedestrian environment as well as providing an incentive for single-occupant vehicle use.

As the development promotes the use of other modes of transportation through limited on-site parking that will meet the projected demand, the development plays a significant role in setting an example for residents and visitors to consider non-automotive travel. This points to the importance of ongoing parking management and demand reduction strategies for these areas to ensure that an oversupply of parking is not provided that could hinder the ability to attract a significant portion of the population to transit mode choice.

Based on the imperial data collected as part of this study, it is evident that parking demand at typical apartments and smaller retail developments are significantly lower than the rates stipulated in the Town's Zoning By-law. The data collected at a local level and through industry standard data is reflected of real-world conditions and supports a lower level of parking demand than what current and proposed Zoning By-law requires.

The projected demand provides a statistically valid justification that the proposed parking supply of 627 spaces is sufficient for the intended use.

Transportation Demand Management

Implementation of the TDM plan as outlined herein may help to reduce personal automobile use and alleviate some need for parking which will assist in ensuring adequate parking is available for the proposed development.

Recommendations

Based on the findings of this study, it is recommended that:

- Modifications to the curb radius at Driveway A to Bronte Street North is recommended to accommodate large design vehicles entering from a right turn movement.
- The Town of Milton monitor traffic volumes within the study area, especially as infrastructure improvements (new Tremaine Road interchange) and Bronte Street improvements occur to ensure reasonable levels of service are provided;
- The Town of Milton review potential measures to reduce cut-through traffic that is presently occurring along Mill Street.

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Tables

1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) was retained by Korsiak Urban Planning to conduct this Transportation Impact Study and Parking Study for a proposed mixed-use development at 28-60 Bronte Street North in the Town of Milton, Ontario. **Figure 1.1** illustrates the location of the subject site and the study area.

The subject lands are currently occupied by an existing TSC Store. Access to the subject site is currently provided via two all-movement driveway connections to Bronte Street North. The north driveway connection is located immediately opposite Mill Street, and the south driveway connection is located approximately 35 metres north of the intersection of Bronte Street North and Main Street East. These existing land uses, and accesses will be removed to permit redevelopment of the site.

Pre-study consultation was undertaken with the Town of Milton via e-mail in October 2017.

1.2 Purpose and Scope

The purpose of this study is to determine the impacts of the development from a transportation perspective on the surrounding road and pedestrian network and identify any improvements necessary to accommodate the increase in traffic generated by the development.

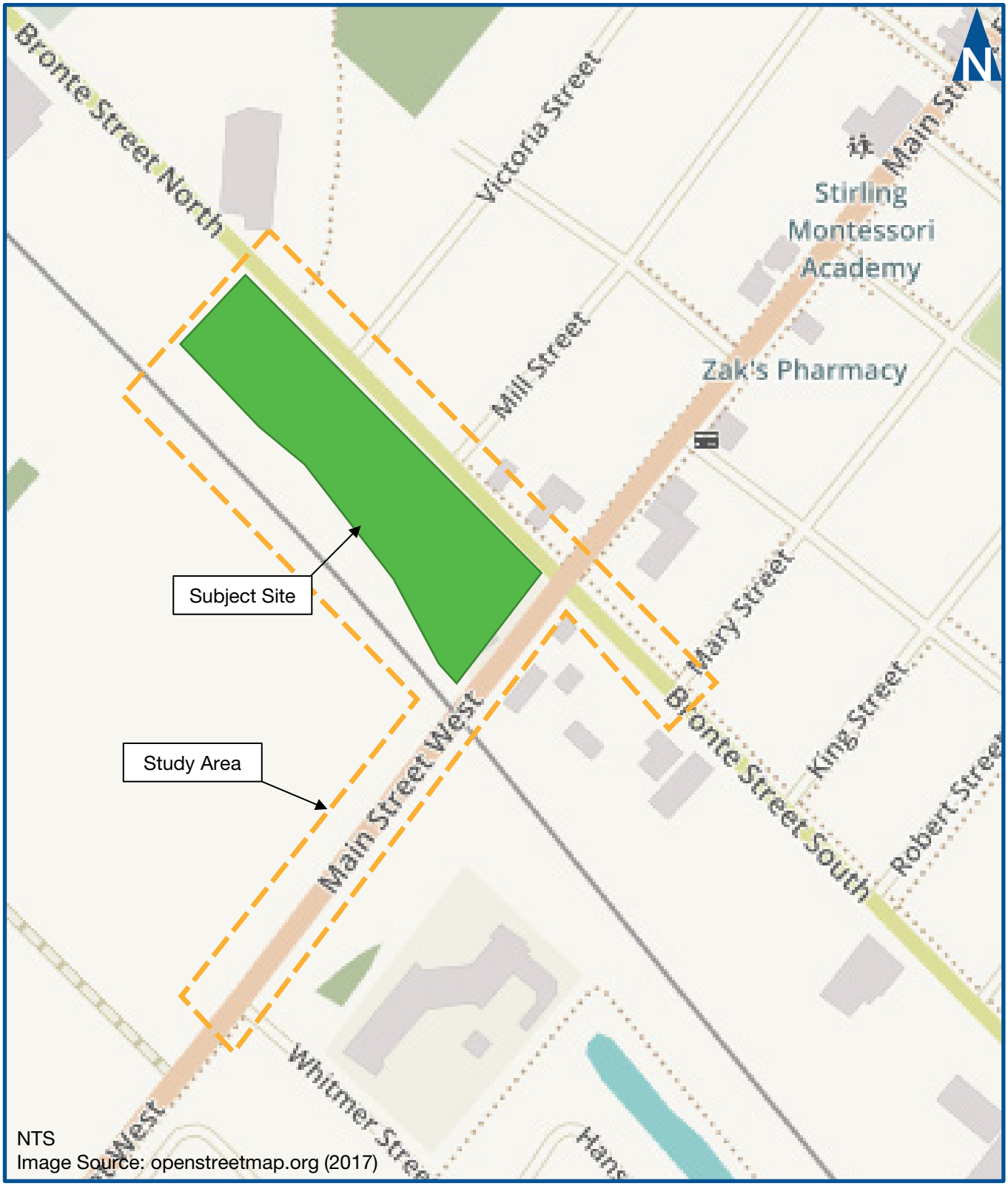
The scope of this study is to:

- Document current traffic and site conditions in the vicinity of the development;
- Estimate the background traffic growth in the area;
- Estimate the additional traffic forecast to be generated by the redevelopment of the subject site;
- Assign the forecast traffic volumes to the surrounding road network based on the existing traffic patterns in the study area;
- Assess the future background and future total traffic within the study area for a horizon year of five (5) years from build-out of the site;
- Identify any operational or safety concerns and any mitigation measures that may be required to improve operations;
- Review the proposed parking supply, and determine its adequacy compared to estimated parking demands; and
- Review and identify potential Transportation Demand Management (TDM) measures that can be implemented for the proposed development.

1.3 Study Area

Based on pre-consultation with the Town of Milton, the following intersections have been confirmed as requiring investigation with respect to the impacts of the additional traffic due to the development of the subject site:

- Bronte Street North and Victoria Street;
- Bronte Street North and Mill Street;
- Bronte Street North and Main Street East;
- Bronte Street South and Mary Street; and
- Main Street West and Whitmer Street.



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Location of Subject Site & Study Area
Town of Milton

2 Existing Conditions

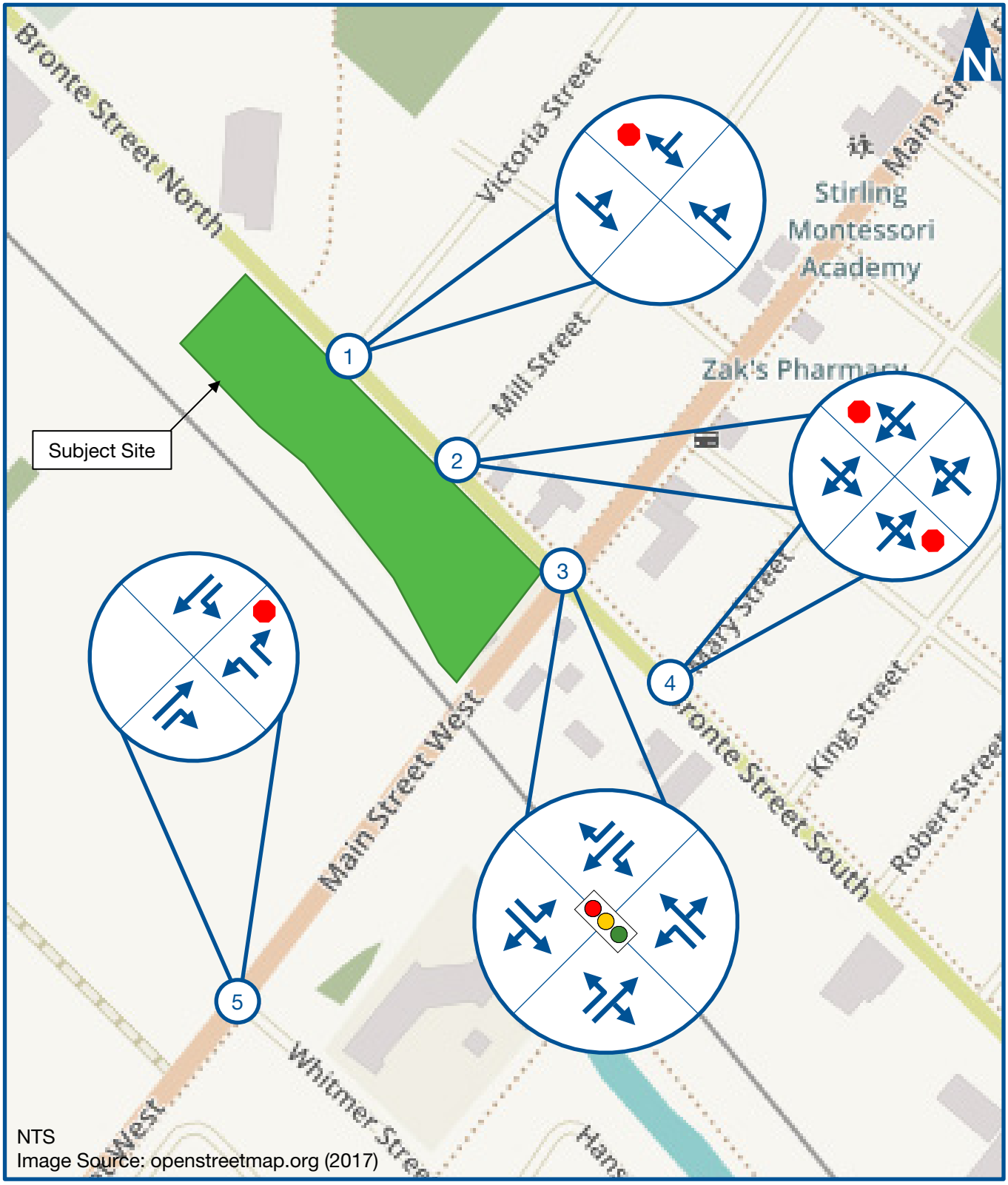
The section of the report provides an overview of the existing conditions of the roadways in the study area, and other features of the transportation network, including transit, and active transportation infrastructure.

2.1 Existing Roadways

The main roadways in the vicinity of the subject site that have been assessed include Upper James Street, Aldridge Street, Jameston Avenue and Hester Street. The characteristics of these roadways are as follows:

- **Bronte Street North** is a north-south, two-lane road with a rural cross-section that operates under the jurisdiction of the Town of Milton. The roadway is classified as a minor arterial under the Town's Official Plan. Within the study area, speed limit is unposted and assumed to be 50 kilometres per hour. Sidewalks are provided on both sides of the roadway
- **Main Street East** is an east-west, two-lane roadway with an urban cross-section that operates under the jurisdiction of the Town of Milton. The roadway is classified as a minor arterial west of Bronte Street, and as a multi-purpose arterial east of Bronte Street. Within the study area, the posted speed limit is 50 kilometres per hour. Sidewalks are provided on both sides of the roadway, except on the north side, west of Bronte Street. There is no provision for cycling facilities, requiring cyclists to share the road with motor vehicles. Truck traffic is prohibited on Main Street West, on both sides of Bronte Road North.
- **Mill Street** is an east-west, two-lane roadway with an urban cross-section that operates under the jurisdiction of the Town of Milton. The roadway is classified as a local road under the Town's Official Plan. Within the study area, the posed maximum speed limit is 50 kilometres per hour. Sidewalks are provided on both sides of the roadway; however, no cycling facilities are provided. Trucks are prohibited from using the roadway, and parking is prohibited on the south side of the road.
- **Victoria Street** is an east-west, two-lane roadway with an urban cross-section that operates under the jurisdiction of the Town of Milton. The roadway is classified as a local road under the Town's Official Plan. Within the study area, the maximum speed limit is unposted and assumed to be 50 kilometres per hour. Sidewalks are provided on both sides of the roadway; however, no cycling facilities are provided. Trucks are prohibited from using the roadway, and parking is prohibited on the north side of the road.

Figure 2.1 illustrates the existing lane arrangements and traffic control at the study area intersections.



Existing Lane Configurations and Traffic Control

2.2 Existing Transit Services

Milton Transit is the public transit operator in the Town of Milton and currently operates two surface bus routes within the study area. Information regarding each route is as follows:

- **Route 2 (Main)** provides service between the Milton Crossroads Centre and the Milton Hospital, with an intermediate stop including the Milton GO Station. Service is provided Monday to Saturday as follows:
  - Weekday service is provided from about 5:20 AM to 11:10 PM. Headways are on the order of 30 minutes during all service hours; and
  - Saturday service is provided form about 7:10 AM to 7:40 PM. Headways are on the order of 30 minutes during all service hours.
- **Route 6 (Scott)** provides service between the Milton GO Station and the neighbourhood west of Bronte Street South, south of Main Street West. Service is provided Monday to Saturday as follows:
  - Weekday service is provided from about 5:25 AM to 10:40 PM. Headways are on the order of 15 to 20 minutes during peak service hours, and 30 minutes during all other service hours; and
  - Saturday service is provided from about 7:40 AM to 7:10 PM. Headways are on the order of one hour (60 minutes) during all service hours.

Stops for these routes are located on the north and south sides of Main Street, east of Bronte Street.

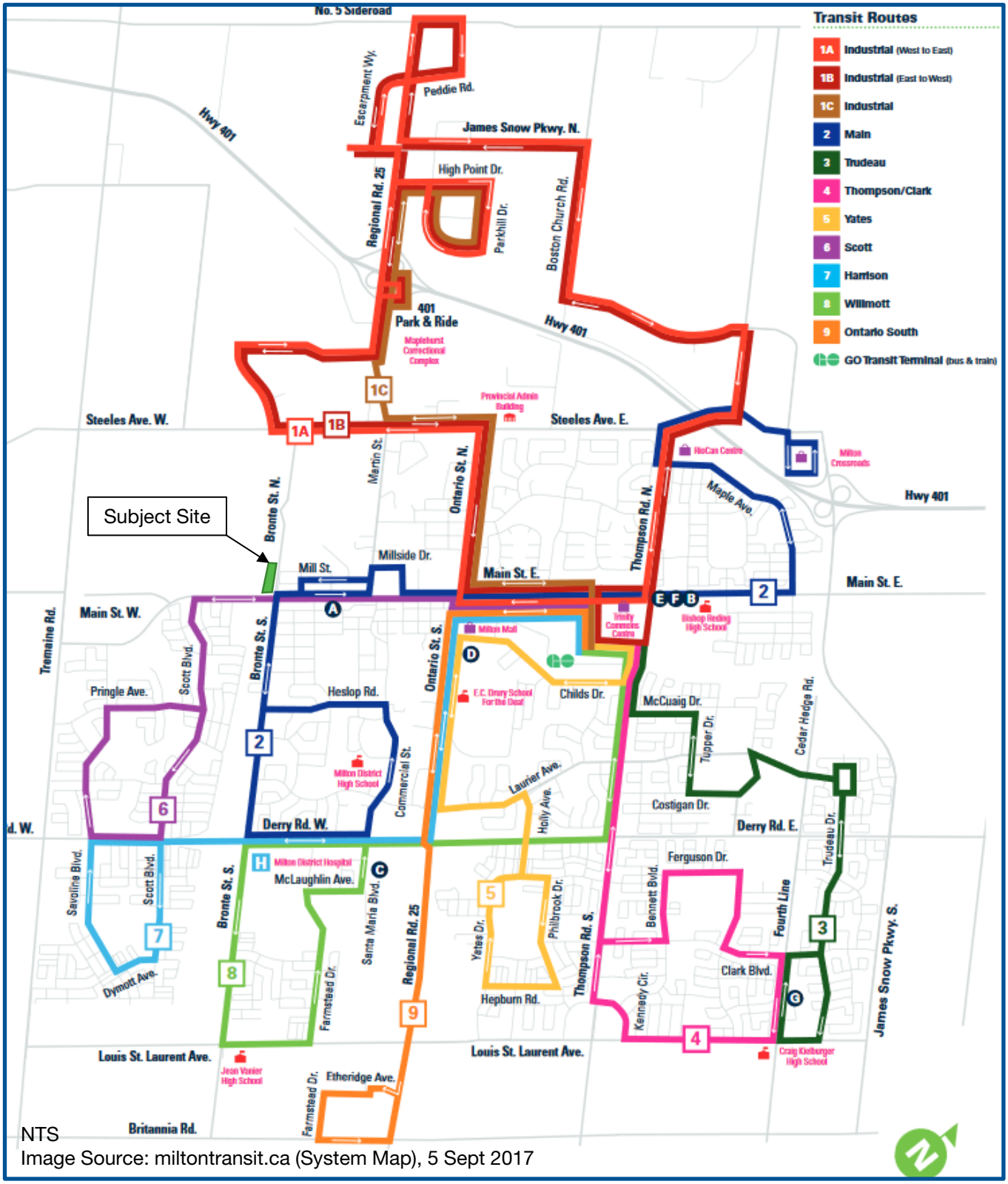


Image Source: miltontransit.ca (System Map), 5 Sept 2017

Milton Transit System Map

2.3 Existing Cycling Network

The Town and Region's cycling infrastructure consists of on-street and off-street facilities. On-street routes consist of bike lanes, signed bike routes, and paved shoulders. Off-road facilities are in the form of multi-use paths. Bike lanes are currently installed on Bronte Road South, terminating at Main Street. No other existing cycling facilities are provided in the study area.

A review of the Town of Milton's Trail and Cycling Master Plan[2] indicates the proposed development of the following cycling facilities:

- Bronte Street North: proposed in-boulevard multi-use trails, both sides of the road from Main Street to Steeles Avenue;
- Main Street West: proposed on-road bike lane from Whitmer Street to CNR Subway;
- Main Street West: proposed on-road signed route from CNR Subway to beyond Bronte Street North;
- Victoria Street: proposed on-road signed route; and
- Mary Street: proposed on-road signed route.

Figure 2.3 illustrates the proposed cycling infrastructure within the study area as documented in the Town's Trails and Cycling Master Plan Update.

2.4 Existing Pedestrian Network

Pedestrian sidewalks are provided on the east side of Bronte Street, and on both sides of Main Street east of Bronte Street. West of Bronte Street, sidewalks are provided on the south of Main Street. Sidewalks are provided on both sides of Victoria Street, Mill Street and Mary Street and provide excellent connectivity to the broader Town sidewalk network. The sidewalks in the study area were noted to be in good condition during the site visit.

[2] Town of Milton. June 2014. Trails and Cycling Master Plan Update. Prepared by MMM Group. Map 3.2: Proposed Facility Types

Existing and Proposed Cycling Facilities

2.5 Existing Traffic Volumes

To assess intersection operations, turning movement counts are used to quantify the movement of vehicles through the area. Existing traffic data at the intersection or on a road section forms the foundation for the analysis. The counts are usually taken during peak periods at an intersection to complete the level of service analysis under its worst-case operating conditions.

2.5.1 Traffic Data

Town staff advised recent weekday turning movement count data was available for the intersections of Main Street/Bronte Street and Main Street/Whitmer Street. These counts were completed in June 2016. Paradigm completed additional weekday turning movement counts on Tuesday, 7 November 2017 at the outstanding study intersections.

Upon reviewing the turning movement count data, large volume disparities were identified between the June 2016 count data and data collected in November 2017. To ensure accurate traffic volumes, the Bronte Street/Main Street and Main Street/Whitmer Street intersections were recounted in early December 2017.

It is noted that the disparity in traffic volumes between the Town provided data, and that collected in November 2017 may be attributed to the ongoing construction on Steeles Avenue from 400 metres west of Industrial Drive to Martin Street/Regional Road 25. This ongoing construction has the potential to impact travel routes in the study area.

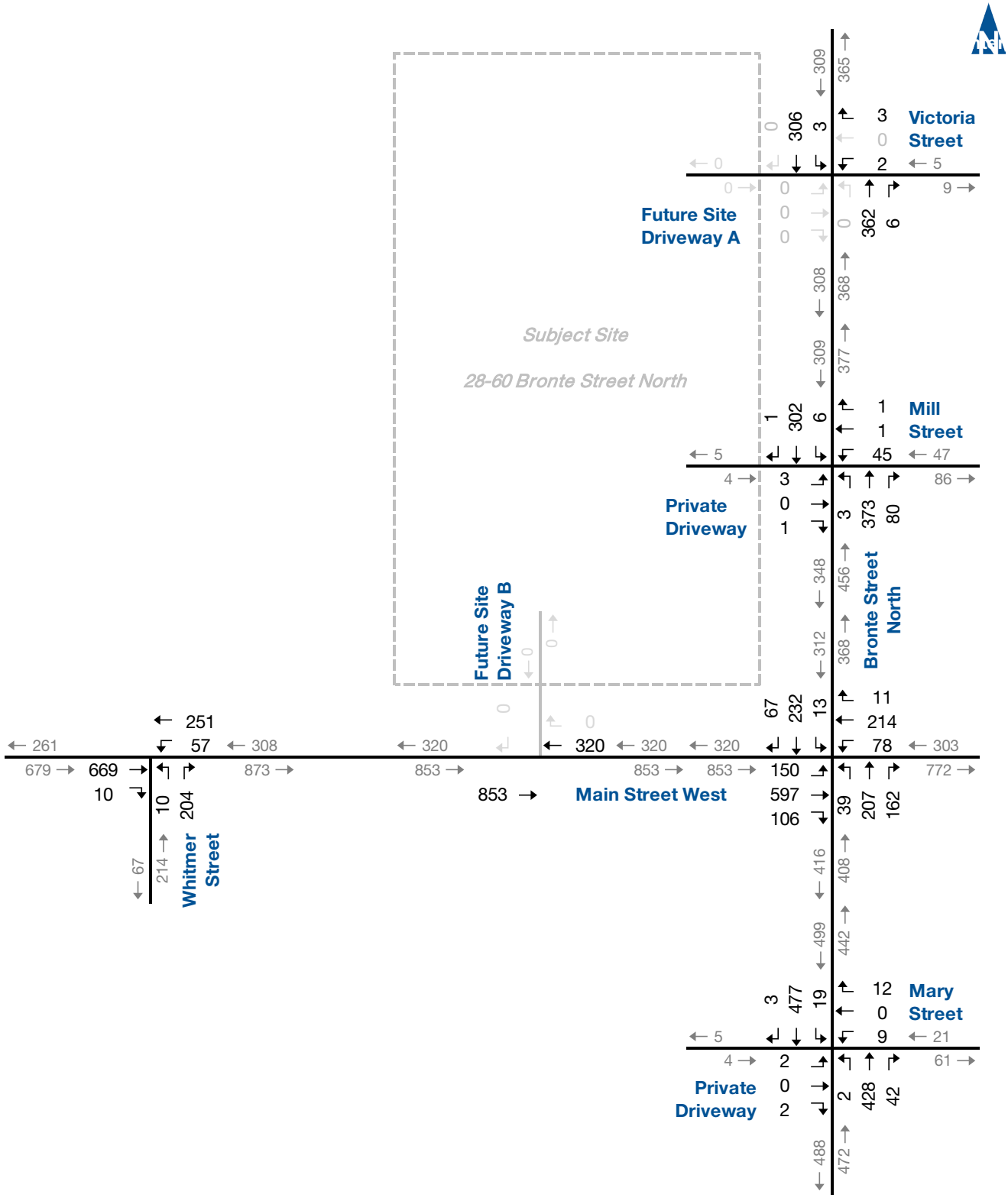
Appendix A contains the raw traffic data utilized in this report.

2.5.2 Balancing

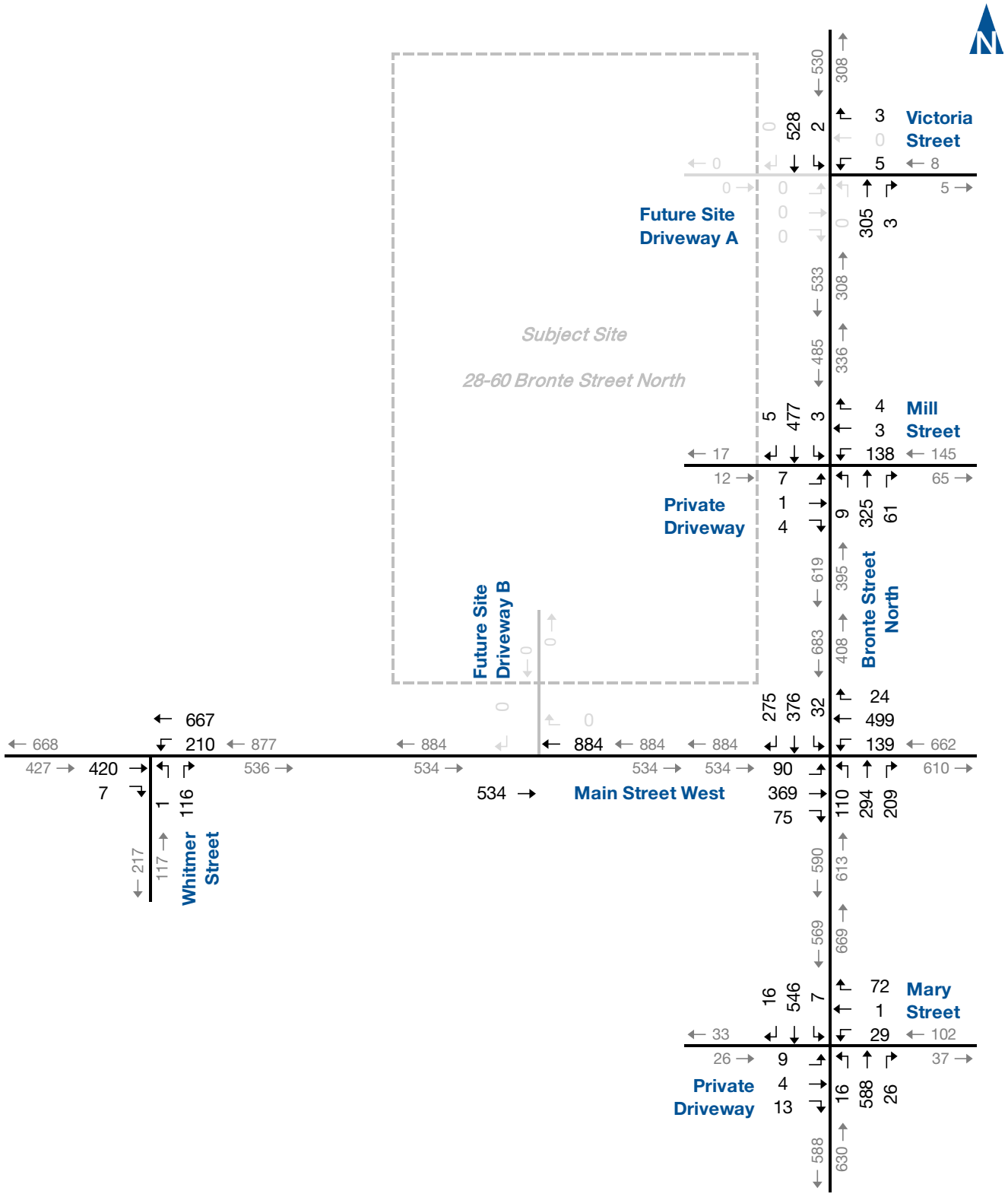
Due to the varying peak hours and other driveway connections onto the study area roadways, the traffic volumes have not been balanced between intersections.

2.5.3 Base Year Volumes

Figure 2.4 illustrates the existing base year (2018) weekday AM and PM peak hour traffic volumes.



2018 Base Year Traffic Volumes AM Peak Hour



2018 Base Year Traffic Volumes PM Peak Hour

2.6 Existing Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the delay experienced by drivers at intersections. It is based on the delay experienced by individual vehicles executing the various movements at an intersection. The delay is related to the number of vehicles desiring to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on several criteria including, but not limited to, vehicle headways, intersection geometry, vehicle composition, opposing traffic flows, and for signalized intersections, signal timing.

Table 2.1 summarizes the level of service criteria for signalized and stop controlled intersections. The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections or 50 seconds for unsignalized intersections, or when the volume-to-capacity ratio is greater than 1.00, the movement is classed as LOS F, and improvements are usually implemented, if feasible. LOS E is generally used as a guideline for the determination of road improvement needs on through lanes, while LOS F may be acceptable for left-turn movements at peak times, depending on delays. It is recognized that the guidelines for determining improvements can vary in different municipalities.

TABLE 2.1: VEHICLE LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersections Average Total Delay (sec/veh)	Unsignalized Intersections Average Total Delay (sec/veh)
A	< = 10	< = 10
B	> 10 & < = 20	> 10 & < = 15
C	> 20 & < = 35	> 15 & < = 25
D	> 35 & < = 55	> 25 & < = 35
E	> 55 & < = 80	> 35 & < = 50
F	> 80	> 50

The operations of the intersections in the study area were evaluated with the existing turning movement volumes using Synchro 9.1 with Highway Capacity Manual (HCM) 2000 procedures. The intersection analysis considered the following measures of performance:

- The volume to capacity ratio for each intersection;
- The LOS for each turning movement. LOS is based on the average control delay per vehicle; and
- The estimated 95th percentile queue length.

The key parameters used in the analysis include:

- Existing lane configurations as documented during the site visit;
- Heavy vehicle percentages as derived from the existing turning movement counts;
- Overall intersection peak hour factors (PHF) as derived from the existing turning movement counts;
- Signal timing as provided by the Town of Milton and adjusted to reflect actual operating conditions identified during the site visit[3];
- Ten (10) iterations of SimTraffic queueing analyses, with a ten (10) minute seed time and sixty (60) minute recording time; and
- Synchro default values for all other inputs.

Table 2.2 summarizes the results of the analysis for the existing weekday AM, and weekday PM peak hour intersection operations. The key results of the analysis are as follows:

- At the intersection of Main Street and Bronte Street, the eastbound left-turn movements queue length exceeds the available lane storage by 44 metres during the AM Peak Hour. The eastbound shared through/right-turn movement along Main Street at Bronte Street is currently operating at LOS F during the AM peak hour, with a v/c ratio exceeding 1.00 and a queue length exceeding the available lane storage by 12 metres;
- At the intersection of Main Street and Whitmer Street, the northbound right-turn movements queue length exceeds the available lane storage by 24 metres during the AM peak hour. The westbound, northbound and southbound left turn movements queue lengths also exceed the available lane storage during the PM peak hour.

Appendix B contains the detailed Synchro and SimTraffic reports.

[3] During the site visit, the maximum recall for eastbound/westbound and southbound/northbound traffic was noted to be 35 seconds and 45 seconds respectively. The timing plan provided by the Town of Milton identified the maximum recall for eastbound/westbound and southbound/northbound traffic as 45 seconds and 35 seconds, respectively. Timings noted during the site visit have been used in the analyses.

TABLE 2.2: BASE YEAR TRAFFIC OPERATIONS SUMMARY – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	1 - Bronte Street & Victoria Street	TWSC	LOS					B		B	**B**		A	>	**A**	<	A		**A**	
			Delay					12		12	**12**		0	>	**0**	<	0		**0**	
			V/C					0.01		0.01			0.24	>		<	0.00			
			Q					5		5			-	>		<	4			
			Ex					-		-			-	>		<	-			
			Avail.					-		-			-	>		<	-			
	2 - Bronte Street & Mill Street	TWSC	LOS	<	C	>	**C**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	17	>	**17**	<	20	>	**20**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.01	>		<	0.19	>		<	0.00	>		<	0.01	>		
			Q	<	8	>		<	15	>		<	3	>		<	8	>		
			Ex	<	-	>		<	-	>		<	-	>		<	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	3 - Bronte Street & Main Street	TCS	LOS	C	F	>	**E**	F	B	B	**D**	B	B	>	**B**	B	B	>	**B**	**D**
			Delay	22	89	>	**77**	92	20	16	**38**	11	15	>	**14**	11	14	>	**14**	**47**
			V/C	0.39	1.09	>		0.89	0.33	0.01		0.08	0.42	>		0.03	0.36	>		**0.70**
			Q	134	382	>		52	430	30		20	58	>		14	55	>		
			Ex	90	-	>		40	-	45		55	-	>		30	-	>		
			Avail.	-44	-	>		-12	-	15		35	-	>		16	-	>		
	4 - Bronte Street & Mary Street	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	13	>	**13**	<	13	>	**13**	<	0	>	**0**	<	1	>	**1**	
			V/C	<	0.01	>		<	0.05	>		<	0.00	>		<	0.02	>		
			Q	<	6	>		<	12	>		<	3	>		<	15	>		
			Ex	<	-	>		<	-	>		<	-	>		<	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	5 - Main Street & Whitmer Street	TWSC	LOS		A	A	**A**	A	A		**A**	C		C	**C**					
			Delay		0	0	**0**	10	0		**2**	22		22	**22**					
			V/C		0.42	0.01		0.07	0.16			0.51		0.51						
			Q		130	87		16	-			236		69						
			Ex		-	-		100	-			-		45						
			Avail.		-	-		84	-			-		-24						
PM Peak Hour	1 - Bronte Street & Victoria Street	TWSC	LOS					B		B	**B**		A	>	**A**	<	A		**A**	
			Delay					15		15	**15**		0	>	**0**	<	0		**0**	
			V/C					0.02		0.02			0.20	>		<	0.00			
			Q					9		9			-	>		<	5			
			Ex					-		-			-	>		<	-			
			Avail.					-		-			-	>		<	-			
	2 - Bronte Street & Mill Street	TWSC	LOS	<	C	>	**C**	<	E	>	**E**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	18	>	**18**	<	47	>	**47**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.05	>		<	0.67	>		<	0.01	>		<	0.00	>		
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			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	3 - Bronte Street & Main Street	TCS	LOS	C	C	>	**C**	D	C	B	**C**	C	B	>	**B**	B	C	>	**C**	**C**
			Delay	33	27	>	**28**	39	30	16	**31**	24	17	>	**19**	12	22	>	**21**	**25**
			V/C	0.56	0.67	>		0.69	0.75	0.02		0.55	0.57	>		0.11	0.73	>		**0.74**
			Q	59	88	>		59	423	45		77	102	>		35	98	>		
			Ex	90	-	>		40	-	45		55	-	>		30	-	>		
			Avail.	31	-	>		-19	-	0		-22	-	>		-5	-	>		
	4 - Bronte Street & Mary Street	TWSC	LOS	<	C	>	**C**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	16	>	**16**	<	18	>	**18**	<	1	>	**1**	<	0	>	**0**	
			V/C	<	0.08	>		<	0.28	>		<	0.02	>		<	0.01	>		
			Q	<	47	>		<	188	>		<	283	>		<	21	>		
			Ex	<	-	>		<	-	>		<	-	>		<	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	5 - Main Street & Whitmer Street	TWSC	LOS		A	A	**A**	A	A		**A**	B		B	**B**					
			Delay		0	0	**0**	9	0		**2**	12		12	**12**					
			V/C		0.25	0.00		0.19	0.40			0.19		0.19						
			Q		-	0		1	-			23		1						
			Ex		-	-		100	-			-		45						
			Avail.		-	-		99	-			-		44						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)
Ex. - Existing Available Storage (m)
Avail. - Available Storage (m)

TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
AWSC - All-Way Stop Control

<- Shared Left/Through Lane
>- Shared Right/Through Lane

3 Development Concept

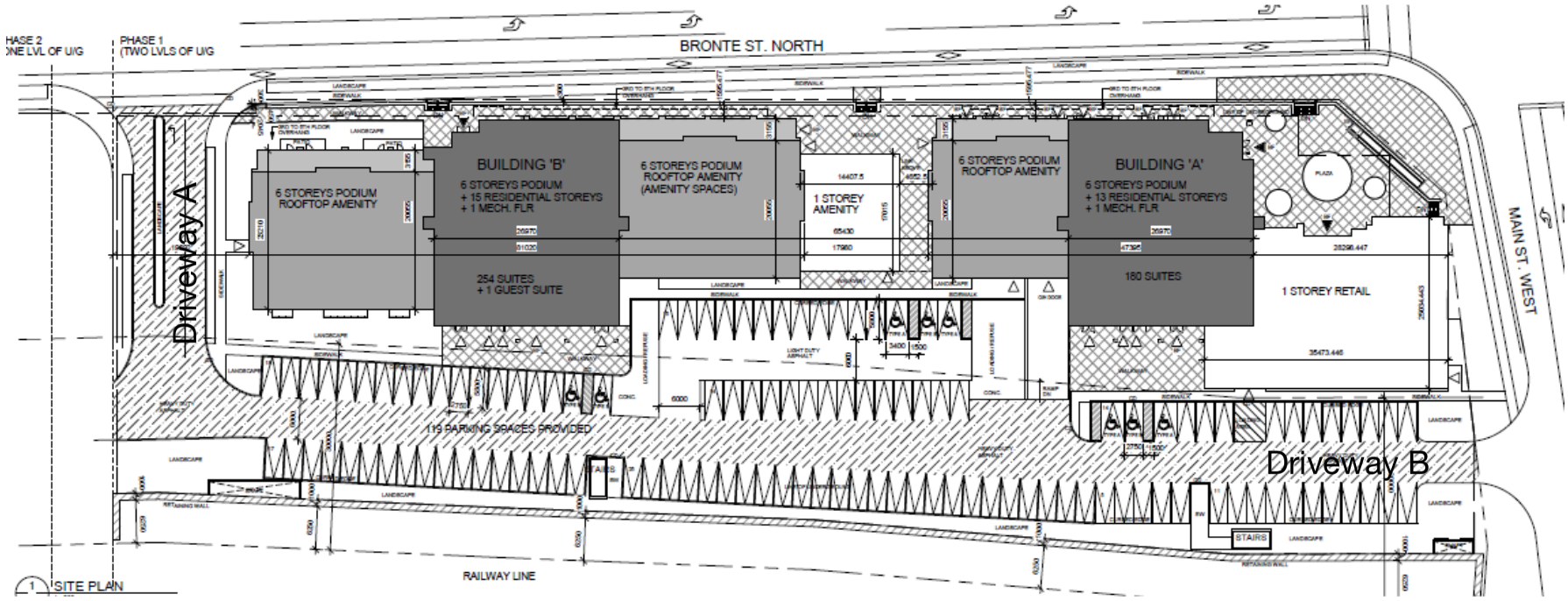
3.1 Development Description

The subject site is currently occupied by a TSC Store that will be demolished. The proposed redevelopment program includes constructing two (2) multi-storey buildings that will contain a total of 435 residential units with 1,195 square metres (12,862 square feet) of ground floor retail with a completion target date of 2021. The specifics of the buildings are as follows:

- Building A
  - 19 stories;
  - 180 residential units; and
  - 1,195 square metres (12,862 square feet) of ground floor retail.
- Building B
  - 21 stories;
  - 255 residential units; and
  - 2,112 square metres (22,733 square feet) of amenity space.

Access to the site is currently provided to Bronte Street North through two driveway connections. It is the intent of the applicant to abandon these connections in lieu of two new connections. Driveway 'A' is proposed operate as all-movements connection and will be located immediately opposite Victoria Street. Driveway 'B' is proposed operate as a right-in/right-out (RIRO) connection and will be located 55 metres west of Bronte Street.

Figure 3.1 illustrates the conceptual site plan.



Conceptual Site Plan

3.2 Development Trip Generation

3.2.1 Trip Generation Methodology

Trip generation information is used to forecast the anticipated level of new vehicular activity to occur as a result of the development of the subject site. The Institute of Transportation Engineers' (ITE) Trip Generation Manual[4] was used to the estimate the AM and PM peak hour traffic volumes generated by the development. The following land use codes were referenced:

- **LUC 222 (Multi-Family Housing – High Rise)**: This land use is described as apartments, townhouses, and condominiums that have more than ten levels, and likely have one or more elevators. The R^2 value of the trip generation equation for this land use code is greater than 0.75 for the weekday peak hours and the independent variables are within range. As both these criteria have been met, the equation rates have been utilized[5].
- **LUC 820 (Shopping Centre)**: This land use code is described as an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. The composition is related to its market area in terms of size, location, and type of store(s). The R^2 value of the trip generation equation is noted to be less than 0.75 for the weekday AM peak hour, but greater during the weekday PM peak hour. As the coefficient of determination has not been met for both peak hours, the average rates have been utilized

3.2.2 Internal Trips

The trip generation estimates for mixed-use developments should consider that there may be some multi-purpose trips. To avoid double-counting of site trips, an estimate of the multi-purpose trips is deducted from the overall (base) site trip generation. However, to remain conservative with the analysis, no internal trips have been considered.

[4] Institute of Transportation Engineers (ITE). 2017. *Trip Generation Manual*, 10th Edition. Washington D.C.
[5] ITE. 2014. *Trip Generation Handbook*, 3rd Edition. Washington D.C.

3.2.3 Pass-By Trips

Pass-by trips are a subset of trip generation that only apply to commercial/retail land uses and represent a portion of the traffic already using a roadway that may stop at a business along a route. An example of a pass-by trips is a motorist driving home from work and stopping for groceries on the way.

The estimates of pass-by trips were derived using the ITE Trip Generation Handbook[6]. It is noted that pass-by trips are already included in the background traffic stream and do not load additional traffic onto the road network. The ITE Trip Generation Handbook identifies the following pass-by rates:

- **LUC 820 (Shopping Centre)** - 34% be applied to the weekday PM peak hour.

3.2.4 Modal Split

As requested by Town staff during pre-consultation, no adjustments have been made to account for alternate modes of transportation (transit, cycling, and/or walking) which could reduce the trip generations estimates.

3.2.5 Trip Generation Estimates

Table 3.1 summarizes the trip generation estimates for the weekday AM and PM peak hours. These estimates summarize the trip generation reductions noted above.

TABLE 3.1: ESTIMATED TRIP GENERATION

Land Use Code	Variable	Trips	AM Peak Hour				PM Peak Hour			
			Rate	In	Out	Total	Rate	In	Out	Total
222 - Multi-Family Housing - High Rise (Dwelling Units)	435	Total	Eq.[1]	32	103	**135**	Eq.[1]	95	61	**156**
		New	-	**32**	**103**	**135**	-	**95**	**61**	**156**
820 - Shopping Centre (GLA - sq. ft.)	12,862	Total	0.94	7	5	**12**	3.81	23	26	**49**
		Pass-by	0%	0	0	**0**	34%	9	9	**18**
		New	-	**7**	**3**	**12**	-	**14**	**17**	**31**
Total Trip Generation		**Total**	**-**	**39**	**108**	**147**	**-**	**118**	**87**	**205**
		Pass-by	**-**	**0**	**0**	**0**	**-**	**9**	**9**	**18**
		New	**-**	**39**	**106**	**147**	**-**	**109**	**78**	**187**

[1] Regression Equation LUC 222 - AM T = 0.28(X) + 12.86 | PM T = 0.34(X) + 8.56

A total of 147 new weekday AM and 187 new weekday PM peak hour trips are forecast to be added to the study area roadways.

[6] Institute of Transportation Engineers. Trip Generation Handbook, 2nd Edition. Washington D.C. 2004.

3.3 Development Distribution and Assignment

The trip distribution within the study area has been estimated based on a review of the existing traffic patterns and distribution along the study area roadways. During pre-consultation, Town staff advised of ongoing roadway improvements on Tremaine Road[7], which will include the construction of a new interchange with Highway 401.

To account for future travel pattern changes resulting from these roadway improvements, adjustments to the existing trip distribution patterns were made for vehicles destined to/from the north and west of the subject site.

Table 3.2 summarizes the estimated trip distribution for the development.

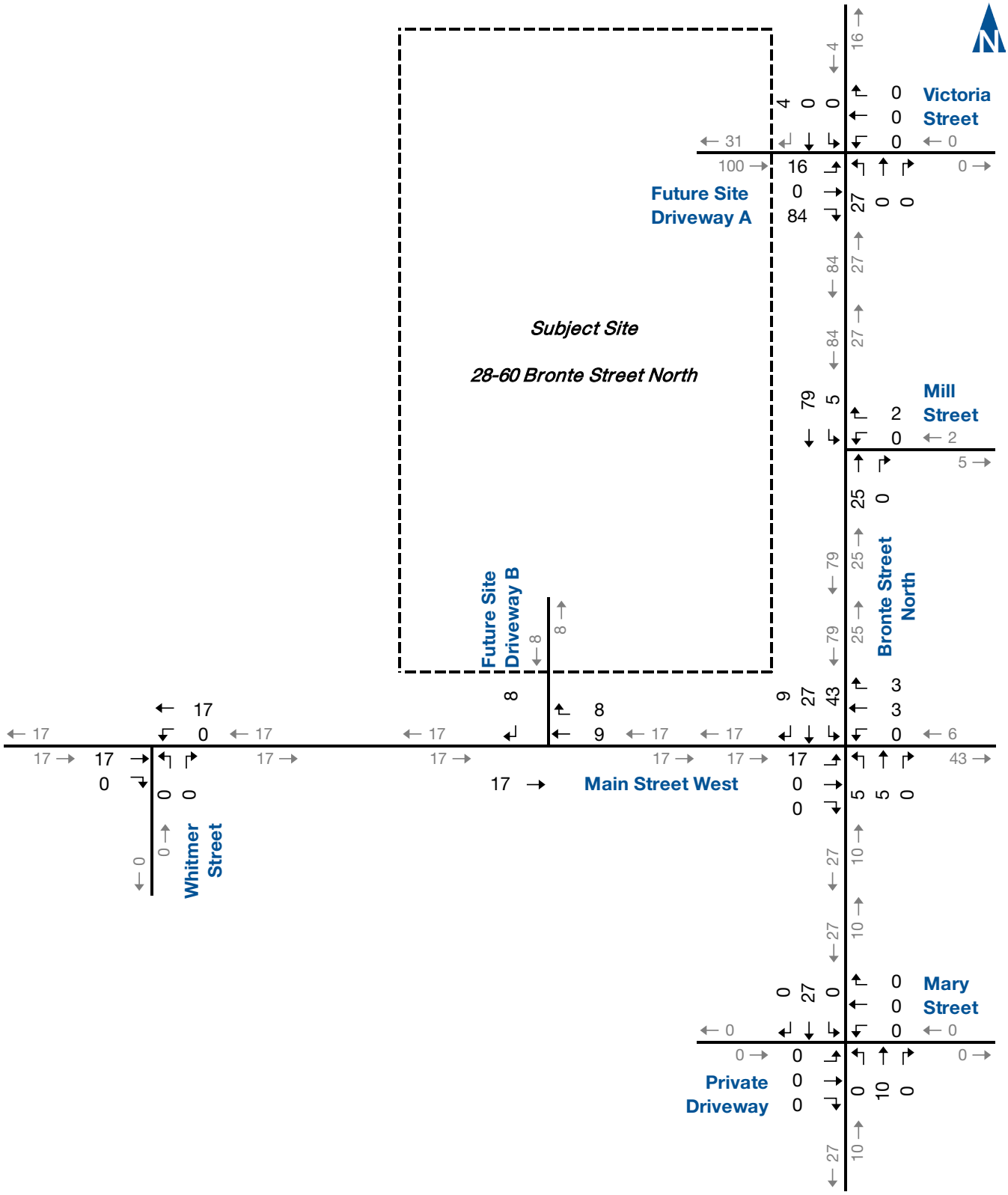
TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

Origin/Destination	AM Peak		PM Peak	
	Inbound	Outbound	Inbound	Outbound
North via Bronte Street	10%	15%	15%	10%
East via Mill Street	5%	5%	5%	5%
East via Main Street	15%	40%	30%	25%
South via Bronte Street	25%	25%	25%	25%
West via Main Street	45%	15%	25%	35%
Total	**100%**	**100%**	**100%**	**100%**

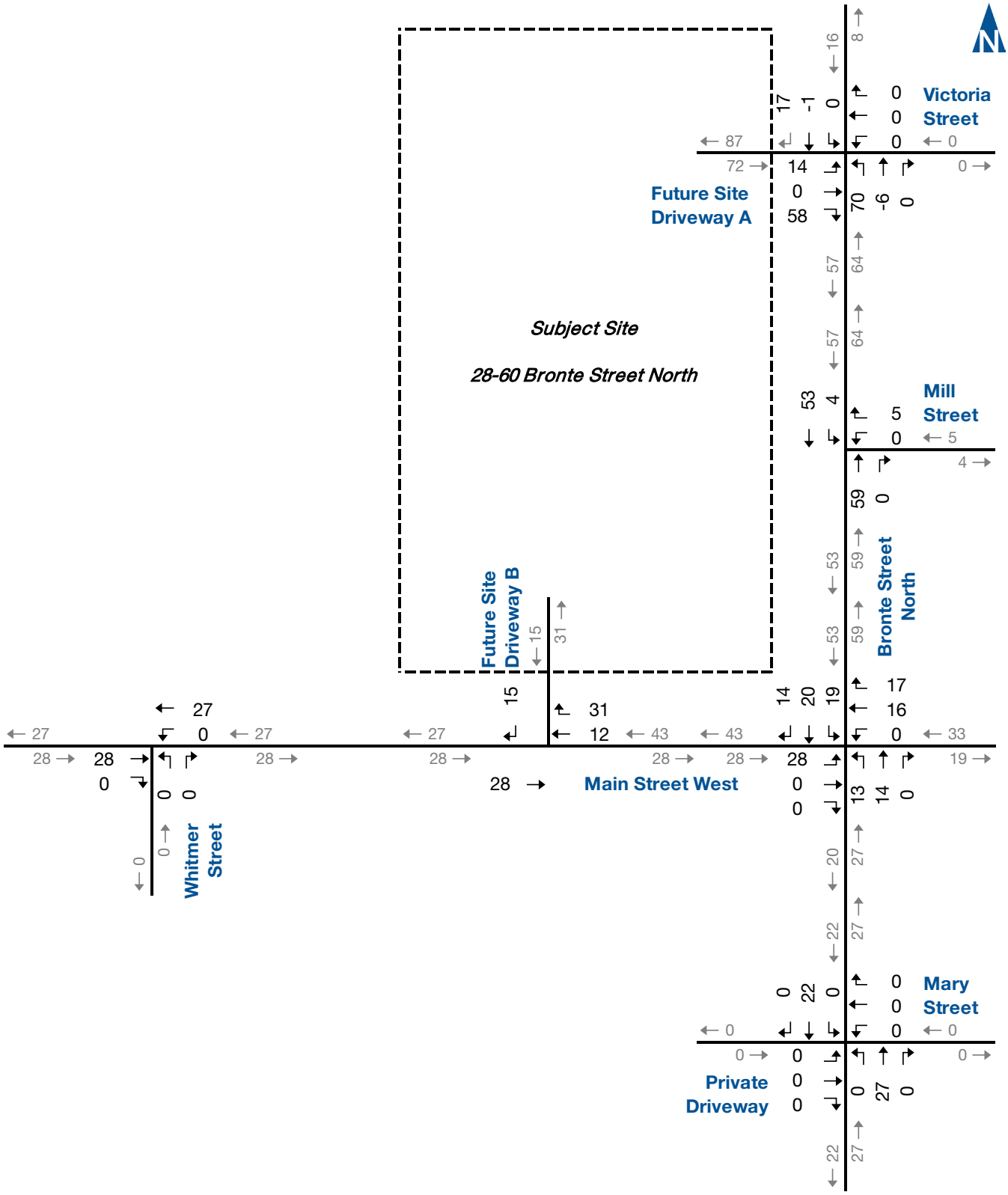
Using the trip generation and trip distribution estimates, the site traffic was assigned to the road network. The assignment of site generated traffic to specific travel routes was based on observed traffic flow conditions on available routes, and the assumption that most motorists will seek the fastest and most direct routes to and from the site.

Figure 3.2 illustrates the weekday peak hour site generated traffic volumes.

[7] Region of Halton. *Tremaine Road, Steeles Avenue to No. 5 Side Road.* http://www.halton.ca/living_in_halton/construction_projects/tremaine_road__steeles_avenue_to_no__5_side_road/



Site Generated Traffic Forecast
AM Peak Hour



Site Generated Traffic Forecast
PM Peak Hour

4 Future Conditions

To be consistent with the terms of reference established with the Town of Milton a horizon year of 2026, five (5) years from build out of the site has been used for traffic forecasting and analyses purposes.

4.1 Traffic Growth

Traffic growth on area roadways is a function of the expected land development, economic activity, and changes in demographics. A frequently used procedure is to estimate an annual percentage increase and apply that increase to the study area traffic volumes. An alternative procedure is to identify estimated traffic generated by specific planned major developments that would be expected to affect the project study area roadways. For the purpose of this assessment, both methods were utilized.

4.1.1 General Background Growth

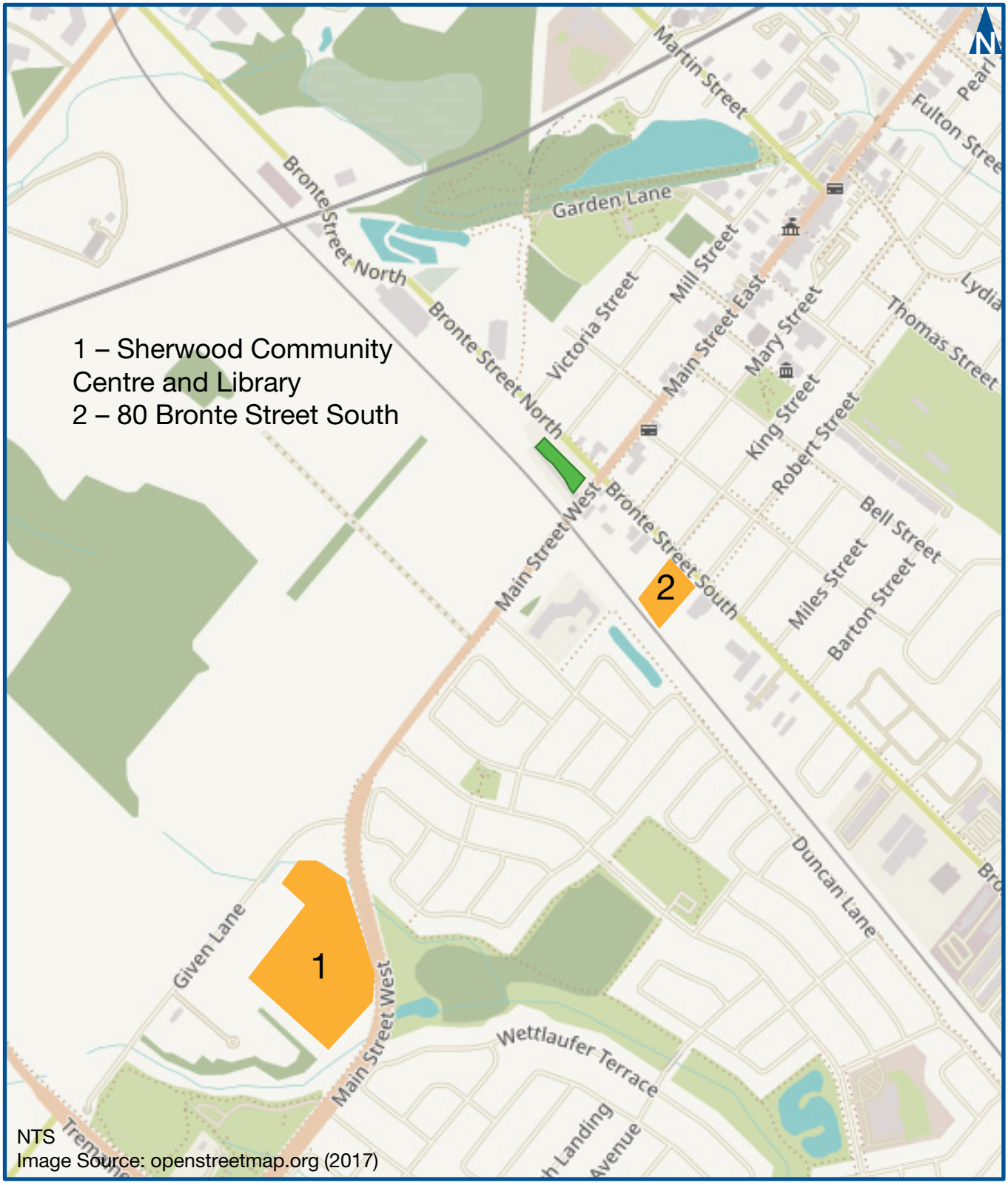
A growth rate of 2.0% compounded per annum has been applied to the base year traffic volumes to account for population and employment growth. This results in total growth of 19.5% at 2026. This growth rate was confirmed as acceptable by Town staff during pre-consultation and is consistent with other Transportation Impact Studies completed for other developments within the vicinity of the subject site.

4.1.2 Other Area Developments

During pre-study consultation, two (2) approved or in-stream developments within the vicinity of the study area were identified. Traffic generated by these developments is included over and above the general background growth. **Figure 4.1** illustrates the location of these developments in relation to the subject site. For the purposes of this study, these developments have been assumed to be built-out and fully operational at the 2026 horizon.

The traffic estimated to be generated by these developments have been estimated based on the Transportation Impact Studies provided for each development[8,9].

[8] Ibid.
[9] 80 Bronte Street South. *Traffic Impact Study*. HDR. October 2016.



NTS
Image Source: openstreetmap.org (2017)

paradigm TRANSPORTATION SOLUTIONS LIMITED

Other Approved and In-Stream Developments

4.1.3 Background Projections

The background traffic volumes within the study area are estimated to consist of generalized background traffic growth along with traffic related to the nearby developments. **Figure 4.2** illustrates the 2026 Background traffic forecasts.

4.1.4 Total Projections

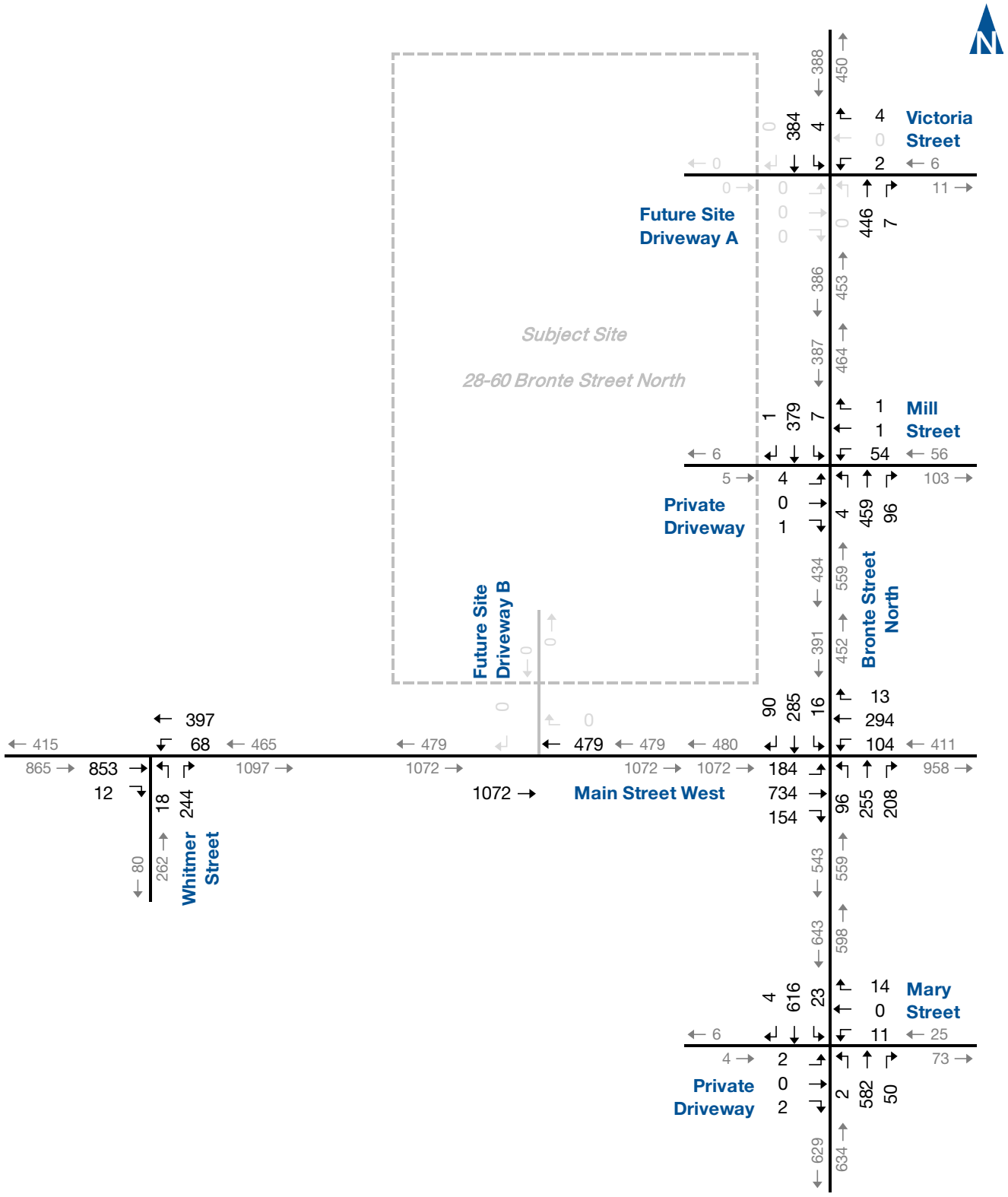
The total traffic volumes within the study area are estimated to consist of generalized background traffic growth, traffic related to the nearby developments and development site-generated traffic. **Figure 4.3** illustrates the 2026 Total traffic forecasts.

4.2 Planned Infrastructure Improvements

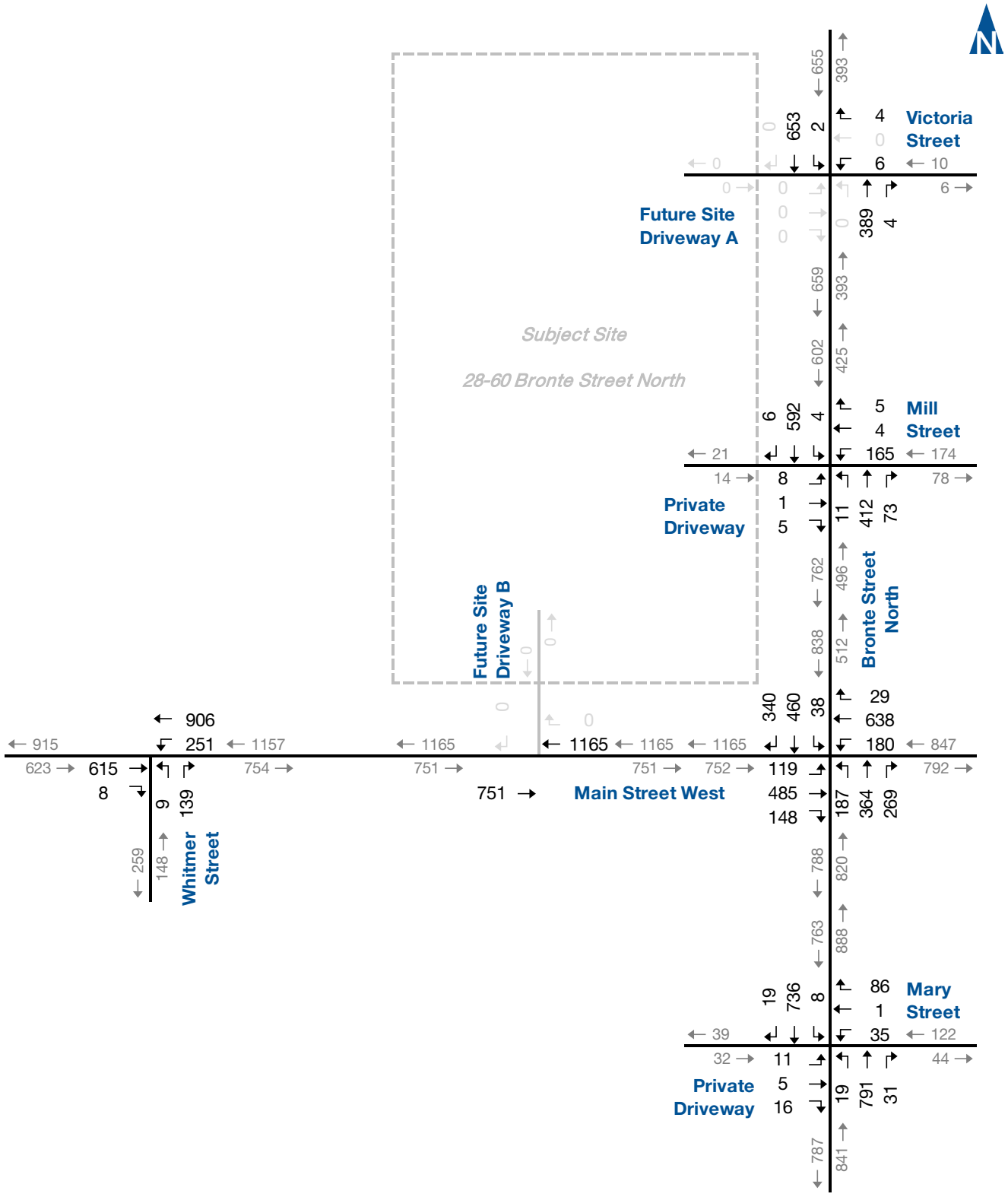
During pre-consultation Town staff advised that an Environmental Assessment was ongoing for the Bronte Street corridor between Main Street and Steeles Avenue to address capacity issues within the corridor and at the Main Street/Bronte Street intersection. Town staff advised that geometric improvements documented in the Milton Community Centre TIS[10] could be referenced in this study.

A review of this TIS identified that the preferred option (Option 3A) does not include additional capacity at the intersection of Main Street and Bronte Street. Minor widening is proposed for bicycle lanes; however, the lane configuration is similar to existing, with additional storage length for the southbound left-turn lane.

[10] Sherwood Community Centre and Library. *Transportation Impact Study*. CIMA+. March 2017.



2026 Background Traffic Forecast AM Peak Hour



2026 Background Traffic Forecast PM Peak Hour

4.3 Intersection Capacity Analysis

The 2026 background and total traffic operations were evaluated using Synchro 9.2 with HCM 2000 procedures. The intersection improvements summarized in **Section 4.2** are assumed to be in place under the 2026 horizon. Signal timings at the Main Street/Bronte Street intersection have been optimized to ensure a reasonable level of service is maintained, if possible.

4.3.1 2026 Background Traffic Operations

Table 4.1 summarizes the 2026 background traffic level of service conditions. The key results of the analyses are as follows:

- At the intersection of Main Street and Bronte Street the following critical movements are noted:
  - Eastbound shared through/right-turn movement is forecast to operate at LOS C with a v/c ratio of 0.87 and 95th percentile queues that exceed available lane storage by 33 metres during the AM peak hour;
  - Westbound left-turn movement on Main Street at Bronte Street is forecast to operate at LOS E, with a v/c ratio of 0.88, and 95th percentile queues that exceed lane storage by 17 metres during the AM peak hour;
  - Northbound left-turn movement on Bronte Street at Main Street is forecast to operate with 9th percentile queues that exceed available lane storage by 24 metres during the AM peak hour;
  - Northbound through movement on Bronte Street at Main Street is forecast to operate at LOS D, with a v/c ratio of 0.90 during the AM peak hour;
  - Eastbound, westbound, and northbound left-turn movements are forecast to operate at LOS F, with v/c ratio approaching and exceeding 1.00with 95th percentile queues that exceed available lane storage by 8-20 metres respectively during the PM peak hour
- At the intersection of Main Street and Whitmer Street the northbound right-turn movement on Whitmer Street at Main Street is forecast to operate with 95th percentile queues that exceed available lane storage by 16 metres during the AM peak hour;
- At the intersection of Mill Street and Bronte Street the westbound approach on Mill Street at Bronte Street is forecast to operate at LOS F with a v/c ratio exceeding 1.00 during the PM peak hour;

Appendix C contains the detailed Synchro reports.

TABLE 4.1: 2026 BACKGROUND TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	1 - Bronte Street & Victoria Street	TWSC	LOS					B		B	**B**		A	>	**A**	A	A		**A**	
			Delay					13		13	**13**		0	>	**0**	8	0		**0**	
			V/C					0.01		0.01			0.30	>		0.00	0.25			
			Q					7		7			-	>		3	7			
			Ex					-		-			-	>		30	-			
			Avail.					-		-			-	>		27	-			
	2 - Bronte Street & Mill Street	TWSC	LOS	<	C	>	**C**	<	D	>	**D**	<	A	>	**A**	A	A	>	**A**	
			Delay	<	24	>	**24**	<	30	>	**30**	<	0	>	**0**	9	0	>	**0**	
			V/C	<	0.03	>		<	0.31	>		<	0.00	>		0.01	0.26	>		
			Q	<	8	>		<	19	>		<	7	>		5	22	>		
			Ex	<	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		-	-	>		
	3 - Bronte Street & Main Street	TCS	LOS	B	C	>	**C**	E	B	A	**C**	D	D	>	**D**	C	D	>	**D**	**C**
			Delay	11	26	>	**24**	72	10	8	**26**	45	54	>	**52**	29	40	>	**40**	**33**
			V/C	0.32	0.87	>		0.88	0.28	0.01		0.63	0.91	>		0.19	0.76	>		**0.89**
			Q	123	268	>		57	442	24		79	94	>		18	94	>		
			Ex	90	-	>		40	-	45		55	-	>		85	-	>		
			Avail.	-33	-	>		-17	-	21		-24	-	>		67	-	>		
	4 - Bronte Street & Mary Street	TWSC	LOS	<	B	>	**B**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	15	>	**15**	<	15	>	**15**	<	0	>	**0**	<	1	>	**1**	
			V/C	<	0.01	>		<	0.07	>		<	0.00	>		<	0.03	>		
			Q	<	7	>		<	30	>		<	274	>		<	49	>		
			Ex	<	-	>		<	-	>		<	-	>		<	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	5 - Main Street & Whitmer Street	TWSC	LOS		A	A	**A**	B	A		**A**	E		E	**E**					
			Delay		0	0	**0**	11	0		**2**	46		46	**46**					
			V/C		0.54	0.01		0.10	0.25			0.80		0.80						
			Q		29	16		19	-			119		61						
			Ex		-	-		100	-			-		45						
			Avail.		-	-		81	-			-		-16						
PM Peak Hour	1 - Bronte Street & Victoria Street	TWSC	LOS					C		C	**C**		A	>	**A**	A	A		**A**	
			Delay					18		18	**18**		0	>	**0**	8	0		**0**	
			V/C					0.04		0.04			0.25	>		0.00	0.42			
			Q					9		9			-	>		16	42			
			Ex					-		-			-	>		30	-			
			Avail.					-		-			-	>		14	-			
	2 - Bronte Street & Mill Street	TWSC	LOS	<	C	>	**C**	<	F	>	**F**	<	A	>	**A**	A	A	>	**A**	
			Delay	<	24	>	**24**	<	177	>	**177**	<	0	>	**0**	9	0	>	**0**	
			V/C	<	0.07	>		<	1.16	>		<	0.01	>		0.00	0.39	>		
			Q	<	12	>		<	199	>		<	12	>		3	74	>		
			Ex	<	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		-	-	>		
	3 - Bronte Street & Main Street	TCS	LOS	F	C	>	**D**	F	C	B	**E**	F	C	>	**F**	B	E	>	**E**	**E**
			Delay	92	30	>	**40**	254	29	11	**76**	286	31	>	**89**	19	80	>	**77**	**71**
			V/C	0.98	0.87	>		1.44	0.87	0.02		1.52	0.87	>		0.31	1.09	>		**1.47**
			Q	110	224	>		52	366	37		63	94	>		22	92	>		
			Ex	90	-	>		40	-	45		55	-	>		85	-	>		
			Avail.	-20	-	>		-12	-	8		-8	-	>		63	-	>		
	4 - Bronte Street & Mary Street	TWSC	LOS	<	C	>	**C**	<	D	>	**D**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	23	>	**23**	<	29	>	**29**	<	1	>	**1**	<	0	>	**0**	
			V/C	<	0.14	>		<	0.47	>		<	0.03	>		<	0.01	>		
			Q	<	56	>		<	165	>		<	213	>		<	18	>		
			Ex	<	-	>		<	-	>		<	-	>		<	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	5 - Main Street & Whitmer Street	TWSC	LOS		A	A	**A**	B	A		**A**	C		C	**B**					
			Delay		0	0	**0**	10	0		**2**	17		17	**12**					
			V/C		0.37	0.00		0.27	0.54			0.30		0.30						
			Q		6	0		22	-			7		20						
			Ex		-	-		100	-			-		45						
			Avail.		-	-		78	-			-		25						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)
Ex. - Existing Available Storage (m)
Avail. - Available Storage (m)

TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
AWSC - All-Way Stop Control

<- Shared Left/Through Lane
>- Shared Right/Through Lane

4.3.2 2026 Total Traffic Operations

Table 4.2 details the 2026 total traffic level of service conditions. The key results of the analysis are as follows:

- At the intersection of Main Street and Bronte Street the following critical movements are noted:
  - Eastbound through movement projected to operate at LOS D, with a v/c ratio of 0.97 during the AM peak hour;
  - Westbound left-turn movement projected to operate at LOS F, with a v/c ratio exceeding 1.00 and 95th percentile queues that exceed available lane storage by 10 metres during the AM peak hour;
  - Northbound and southbound left-turn movements on Bronte Street at Main Street are forecast to operate with 95th percentile queues that exceed available lane storage by 11-24 metres respectively during the AM peak hour;
  - Eastbound, westbound, and southbound left-turn movements at are projected to operate at LOS F, with v/c ratio exceeding 1.00 and 95th percentile queues that exceed available lane storage by 3 -12 metres during the PM peak hour;
- At the intersection of Main Street and Whitmer Street the northbound approach is projected to operate at LOS E, with a v/c ratio of 0.82, and 95th percentile queues that exceed 21 metres during the AM peak hour;
- At the intersection of Bronte Street and Victoria Street/Driveway A the eastbound left turn movement projected to operate at LOS E, with a v/c ratio of 0.12;
- At the intersection of Main Street and Driveway B the eastbound right turn movement projected to operate at LOS E, with a v/c ratio of 0.14;

Appendix D contains the detailed Synchro reports.

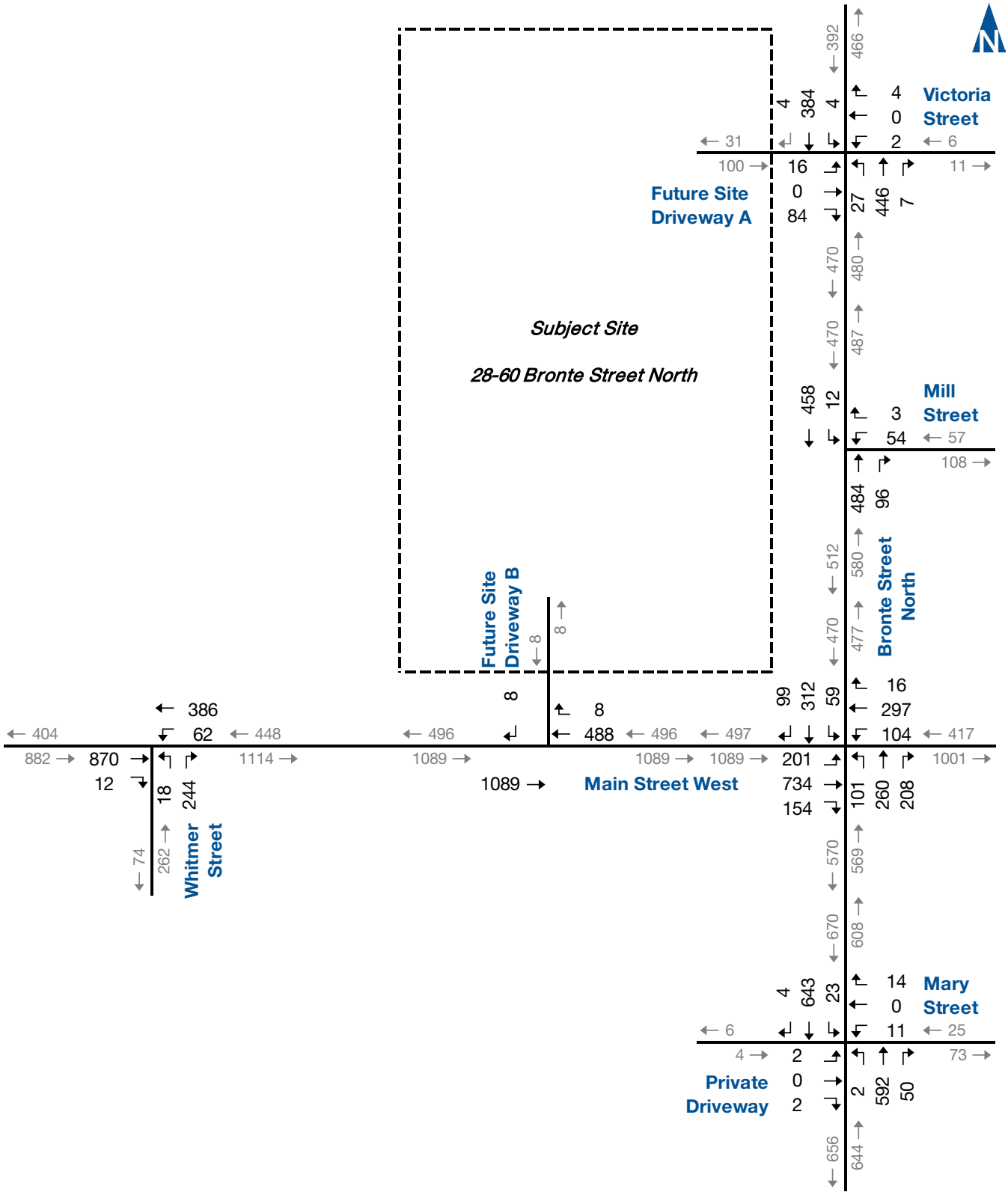
4.3.3 Operational Summary

The results of the analysis indicate that despite optimization of signal timings, the intersection of Bronte Street and Main Street is forecast to operate with several movements operating over capacity with extensive queue lengths under both background and total conditions. The addition of site-generated traffic increases the overall intersection delay by 3 seconds in the AM peak hour, and 12 seconds in the PM peak hour.

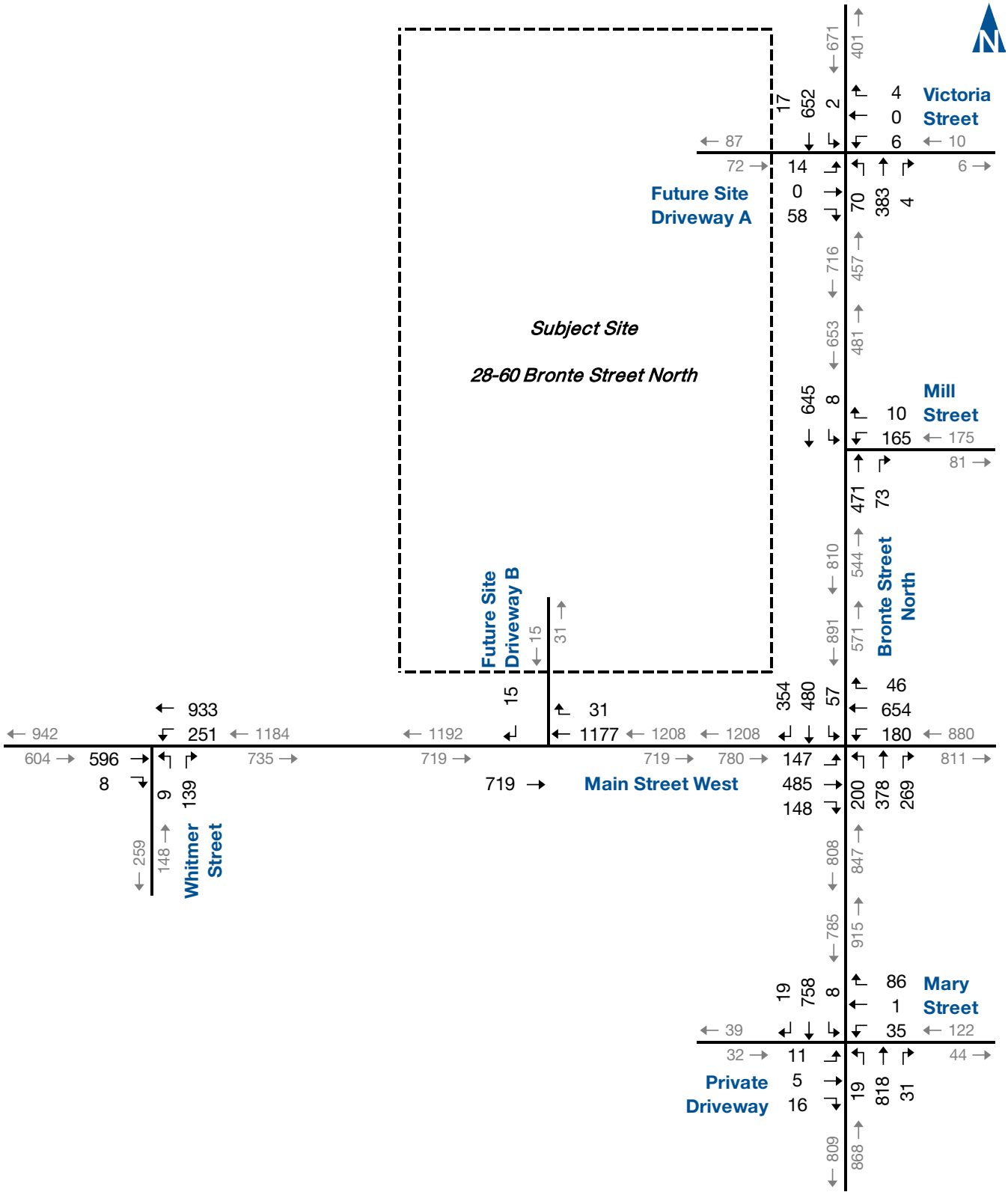
The proposed driveway connection to Bronte Street is proposed to operate with acceptable levels of delay (LOS C) in the AM peak hour, increasing to LOS E in the PM peak hour. The low v/c ratios indicate this delay is caused by the large volume of conflicting (northbound/southbound) traffic which

provides limited opportunities for outbound left-turning vehicles to enter the traffic stream.

The proposed driveway connection to Main Street is proposed to operate with acceptable levels of service (LOS B) in the AM peak hour, increasing to LOS E in the PM peak hour. The low v/c ratio indicates this delay is associated with the large volume of westbound traffic on Main Street which provides limited opportunities for outbound right-turning vehicles to enter the traffic stream.



2026 Total Traffic Forecast AM Peak Hour



2026 Total Traffic Forecast PM Peak Hour

TABLE 4.2: 2026 FUTURE TOTAL TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	1 - Bronte Street & Victoria Street/Driveway A	TWSC	LOS	C	B	>	**B**	<	C	>	**C**	<	A	>	**A**	A	A	>	**A**	
			Delay	23	12	>	**14**	<	17	>	**17**	<	1	>	**1**	8	0	>	**2**	
			V/C	0.08	0.15	>		<	0.02	>		<	0.03	>		0.00	0.26	>		
			Q	8	23	>		<	7	>		<	15	>		5	67	>		
			Ex	-	-	>		<	-	>		<	-	>		30	-	>		
			Avail.	-	-	>		<	-	>		<	-	>		25	-	>		
	2 - Bronte Street & Mill Street	TWSC	LOS					D		D	**D**		A	>	**A**	A	A		**A**	
			Delay					29		29	**29**		0	>	**0**	9	0		**0**	
			V/C					0.30		0.30			0.39	>		0.02	0.31			
			Q					18		18			2	>		11	43			
			Ex					-		-			-	>		-	-			
			Avail.					-		-			-	>		-	-			
	3 - Bronte Street & Main Street	TCS	LOS	B	D	>	**D**	F	B	A	**D**	C	D	>	**D**	C	C	>	**C**	**D**
			Delay	13	40	>	**35**	144	11	9	**44**	34	36	>	**36**	32	32	>	**32**	**36**
			V/C	0.39	0.97	>		1.11	0.32	0.01		0.58	0.82	>		0.47	0.75	>		**1.00**
			Q	48	66	>		50	410	26		79	98	>		74	90	>		
			Ex	90	-	>		40	-	45		55	-	>		85	-	>		
			Avail.	42	-	>		-10	-	19		-24	-	>		11	-	>		
	4 - Bronte Street & Mary Street	TWSC	LOS	<	C	>	**C**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	15	>	**15**	<	15	>	**15**	<	0	>	**0**	<	1	>	**1**	
			V/C	<	0.01	>		<	0.07	>		<	0.00	>		<	0.03	>		
			Q	<	10	>		<	43	>		<	224	>		<	42	>		
			Ex	<	-	>		<	-	>		<	-	>		<	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	5 - Main Street & Whitmer Street	TWSC	LOS		A	A	**A**	B	A		**A**	E		E	**E**					
			Delay		0	0	**0**	11	0		**2**	49		49	**49**					
			V/C		0.55	0.01		0.09	0.24			0.82		0.82						
			Q		72	48		19	-			204		66						
			Ex		-	-		100	-			-		45						
			Avail.		-	-		81	-			-		-21						
	6 - Main Street & Driveway B	TWSC	LOS		A		**A**		A	>	**A**							B	**B**	
			Delay		0		**0**		0	>	**0**							12	**12**	
			V/C		0.35				0.32	>								0.02		
			Q		62				297	>								8		
			Ex		-				-	>								45		
			Avail.		-				-	>								37		
PM Peak Hour	1 - Bronte Street & Victoria Street/Driveway A	TWSC	LOS	E	B	>	**C**	<	D	>	**D**	<	A	>	**A**	A	A	>	**A**	
			Delay	37	15	>	**19**	<	32	>	**32**	<	2	>	**2**	8	0	>	**0**	
			V/C	0.12	0.15	>		<	0.08	>		<	0.09	>		0.00	0.43	>		
			Q	3	4	>		<	2	>		<	2	>		0	0	>		
			Ex	-	-	>		<	-	>		<	-	>		30	-	>		
			Avail.	-	-	>		<	-	>		<	-	>		30	-	>		
	2 - Bronte Street & Mill Street	TWSC	LOS					F		F	**F**		A	>	**A**	A	A		**A**	
			Delay					189		189	**189**		0	0	**0**	9	0		**0**	
			V/C					1.19		1.19			0.35	>		0.01	0.42			
			Q					175		175			4	>		89	89			
			Ex					-		-			-	>		-	-			
			Avail.					-		-			-	>		-	-			
	3 - Bronte Street & Main Street	TCS	LOS	F	C	>	**E**	F	B	A	**E**	F	C	>	**F**	C	F	>	**F**	**F**
			Delay	166	30	>	**56**	254	15	0	**76**	330	33	>	**103**	26	98	>	**93**	**83**
			V/C	1.21	0.87	>		1.44	0.89	0.03		1.62	0.89	>		0.48	1.14	>		**1.52**
			Q	53	66	>		52	334	48		63	94	>		23	90	>		
			Ex	90	-	>		40	-	45		55	-	>		85	-	>		
			Avail.	37	-	>		-12	-	-3		-8	-	>		62	-	>		
	4 - Bronte Street & Mary Street	TWSC	LOS	<	C	>	**C**	<	D	>	**D**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	24	>	**24**	<	31	>	**31**	<	1	>	**1**	<	0	>	**0**	
			V/C	<	0.15	>		<	0.50	>		<	0.03	>		<	0.01	>		
			Q	<	57	>		<	158	>		<	213	>		<	8	>		
			Ex	<	-	>		<	-	>		<	-	>		<	-	>		
			Avail.	<	-	>		<	-	>		<	-	>		<	-	>		
	5 - Main Street & Whitmer Street	TWSC	LOS		A	A	**A**	B	A		**A**	C		C	**C**					
			Delay		0	0	**0**	10	0		**2**	17		17	**17**					
			V/C		0.36	0.00		0.26	0.56			0.56		0.56						
			Q		1	1		23	-			6		19						
			Ex		-	-		100	-			-		45						
			Avail.		-	-		77	-			-		26						
	6 - Main Street & Driveway B	TWSC	LOS		A		**A**		A	>	**A**							E	**E**	
			Delay		0		**0**		0	>	**0**							43	**43**	
			V/C		0.23				0.77	>								0.14		
			Q		41				121	>								9		
			Ex		-				-	>								45		
			Avail.		-				-	>								36		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)
Ex. - Existing Available Storage (m)
Avail. - Available Storage (m)

TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
AWSC - All-Way Stop Control

<- Shared Left/Through Lane
>- Shared Right/Through Lane

4.4 Cut Through Traffic

Based on pre-consultation, Town staff requested the impact of cut-through traffic be considered. The development plan proposes aligning a driveway connection to Bronte Street directly opposite Victoria Street. However, as Victoria Street does not directly connect to the arterial roadway network, this would discourage traffic from the development to utilize this route.

In terms of the development utilizing Mill Street, this route is also unlikely to be favoured by the proposed development as a primary route to/from the north. The projected travel times of the routes have been calculated based on uninterrupted travel time (length of route multiplied by the travel speed) and the amount of delay motorists would experience at the various intersections along the route. **Figure 4.4** illustrates the routes.

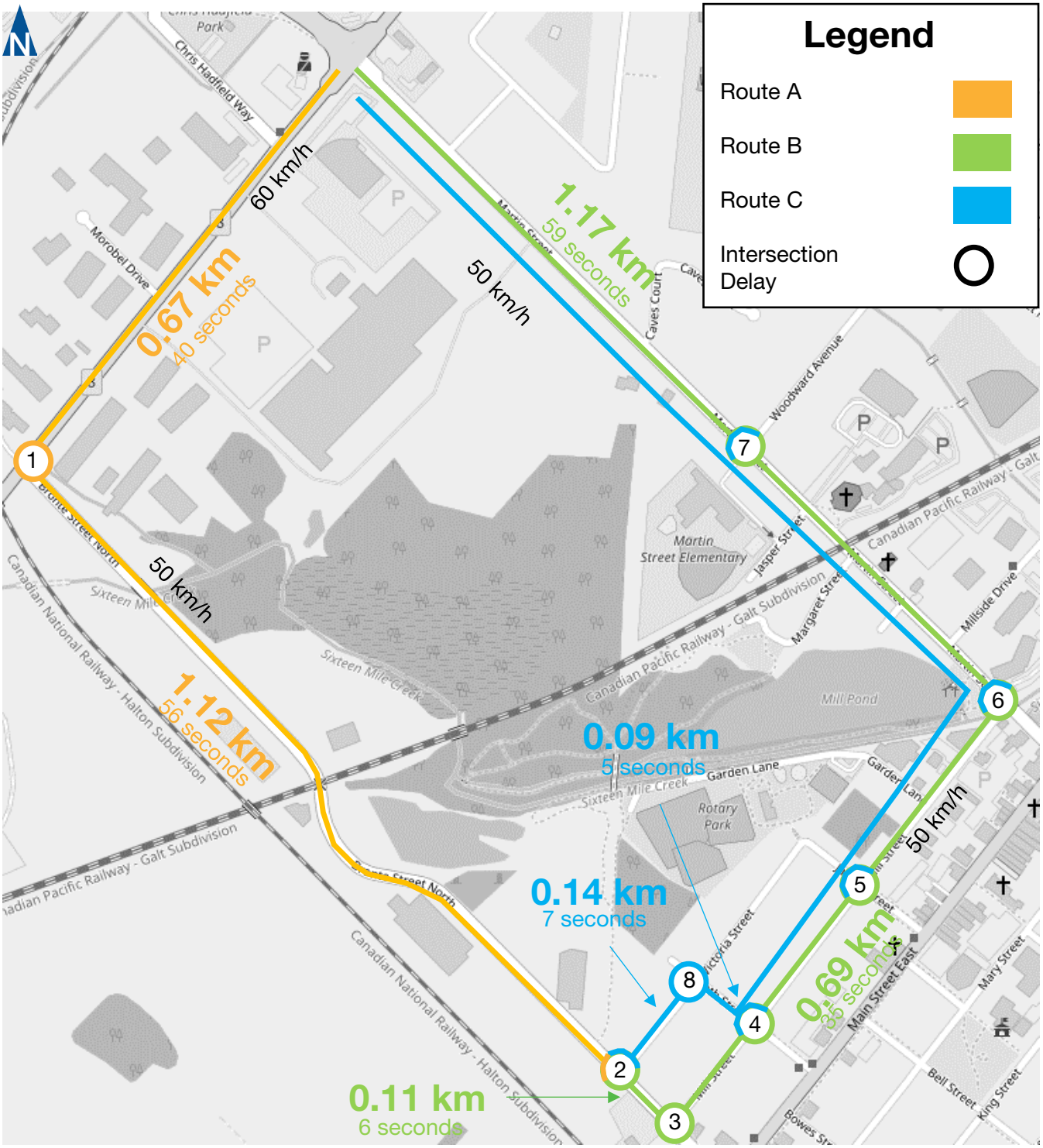
Table 4.3 outlines the projected travel time calculations depicting Route B and C (Mill Street Cut-Through Routes) to be 17 to 170 second slower than Route A (Bronte Street).

TABLE 4.3: PROJECTED TRAVEL TIME

Travel Time - To the North (AM Peak Hour)			Route					
			A (s)		B (s)		C (s)	
		Uninterrupted Travel Time	96		100		106	
Intersection Delay	1	Bronte Street at Steeles Avenue	55	NBR[A]	-		-	
	2	Bronte Street at Victoria Street	17	EBL[B]	12	EBR[B]	12	EBT[B]
	3	Bronte Street at Mill Street	-		9	SBL[B]	-	
	4	Mill Street at Elizabeth Street	-		10	EBT[C]	35	SBL[A]
	5	Mill Street at James Street	-		10	EBT[C]	10	EBT[C]
	6	Mill Street at Martin Street	-		55	WBL[A]	55	WBL[A]
	7	Martin Street at Woodward Avenue	-		10	NBT[C]	10	NBT[C]
	8	Victoria at Elizabeth Street	-		-		0	EBR[D]
		Total Time (S)	**168**		**206**		**228**	

Travel Time - From the North (PM Peak Hour)			Route					
			A (s)		B (s)		C (s)	
		Uninterrupted Travel Time	96		100		106	
Intersection Delay	1	Bronte Street at Steeles Avenue	55	WBL[A]	-		-	
	2	Bronte Street at Victoria Street	0	SBR[B]	2	NBL[B]	32	WBT[B]
	3	Bronte Street at Mill Street	-		189	WBR[B]	-	
	4	Mill Street at Elizabeth Street	-		10	WBT[C]	0	WBR[D]
	5	Mill Street at James Street	-		10	WBT[C]	10	WBT[C]
	6	Mill Street at Martin Street	-		0	SBR[D]	0	SBR[D]
	7	Martin Street at Woodward Avenue	-		10	SBT[C]	10	SBT[C]
	8	Victoria at Elizabeth Street	-		-		10	NBL[C]
		Total Time (S)	**151**		**321**		**168**	

A Assumed to operate at LOS D or better
B Delays projected (Table 4.2)
C Assumed to operate at LOS A (10s of de
D Assumed no delay



NTS
Image Source: openstreetmap.org (2017)

Projected Uninterrupted Travel Time

Review of the existing traffic volumes suggests Victoria Street is not experiencing higher than normal volumes whereas the volumes along Mill Street suggests that the volumes are higher than expected.

The high volumes on Mill Street is likely due to motorists seeking to bypass congestion on major surrounding streets with the cut-through movements primary occurring during the PM peak hour. It is assumed that a large percentage of this cut through traffic it destined to areas further to the west given the pattern of volumes, high westbound left turn at Bronte Street and Mill Street coupled by the high volume of southbound right turns at the intersection of Bronte Street and Main Street.

With the construction of the new interchange at Highway 401 and Tremaine Road, it is anticipated that a portion of the traffic currently utilizing Mill Street as a by-pass route will be attracted to the new interchange. However, additional measures should be considered for implementation by the Town of Milton.

The most feasible improvement option in the interim would be to restrict southbound right turns at Martin Street and Mill Street during the weekday PM peak hours from Monday to Friday. Restricting this movement would impact resident's circulation patterns, however as there are multiple access points to the neighbourhood from Bronte Street as well as Main Street, the restrictions would not significantly impact residential access.

An alternative to restricted access to Mill Street would be through traffic calming measures that could be implemented which would make traversing Mill Street as a shortcut undesirable. The logic behind traffic calming is to reduce speeds and remove the time-saving benefit of using Mill Street instead of other routes.

Another factor that needs to consider prior to any mitigation implemented is residential approval. While some residents may strongly desire a mitigation, other residents may find it as a major inconvenience to their commute. Residents should be made aware of the potential impacts and unforeseen consequences of any mitigation to cut-through traffic.

5 Remedial Measures

5.1 Intersection / Roadway Mitigation

5.1.1 Bronte Street and Mill Street

Under the base year traffic scenario, the westbound approach currently operates at LOS E during the PM peak hour. With general background growth, the westbound approach is expected to degrade to LOS F during the PM peak hour with a volume to capacity ratio exceeding 1.0.

The overall impact of site related traffic volumes on the minor movement delay is negligible as the proposed development does not add significant traffic volume to the critical movement at this intersection (westbound approach).

As Mill Street is located less than 200 metres from the signalized intersection of Bronte Street and Main Street, the potential to upgrade the traffic control is not a recommended given the limited spacing.

The most feasible improvement option to the intersection would be to restrict westbound left turns during the weekday PM peak hour from Monday to Friday. This would reduce the amount of delay significantly. Left turning vehicles would most likely re-route to Elizabeth Street and James Street intersection with Main Street East where these diverted trips would translate into southbound right turns at these intersections.

5.1.2 Bronte Street and Main Street

Under the base year traffic scenario, the eastbound through movement is operating at LOS F with a volume to capacity ratio exceeding 1.0. Under the background conditions, several movements are projected to operate with increased delay and over capacity during the PM peak hour. Improvements at this intersection are required to improve capacity independent of the development. The Town is aware of this and an Environmental Assessment is being undertaken.

As this intersection was identified under the Town's Development Charges Study as requiring improvements, the funding for this improvement can be derived from development charges.

5.1.3 Bronte Street and Whitmer Street

Under the base year traffic scenario, the northbound approach currently operates at LOS C. With general background growth, the northbound approach is expected to degrade to LOS E during the weekday AM peak hour. Similar levels of operation are expected under the Total traffic conditions with only minor increase in delay resulting from site-generated traffic volumes.

The high delays projected at this intersection can be attributed mostly to the high through volumes along Main Street and long queue created from the upstream signalized intersection at Bronte Street. As northbound left turning traffic is currently and projected to be low, drivers are likely to seek an alternative route via Kendall Drive and Scott Boulevard. Northbound right turn-turn volumes are higher, and these drivers are not as likely to use alternative routes, however their delay can be reduced If capacity improvements occur at the intersection of Main Street and Bronte Street[11].

5.1.4 Main Street and Driveway B

Under the total traffic scenario, the southbound right turn movement is projected to operate at LOS E. The volume to capacity ratio is projected at 0.14 indicating this movement still has sufficient capacity under stop sign control and delay is largely a result of the high through volume along Main Street. If capacity improvements occur at the intersection of Main Street and Bronte Street, the delay at this intersection can be reduced.

5.2 Auxiliary Turn Lanes

5.2.1 Left-Turn Lane Warrants

Auxiliary turn lanes are usually provided on roadways where traffic intending to complete a left turn against approaching traffic incurs significant delay due to opposing traffic volumes. In instances where this left-turn movement is being made from a through traffic lane, this delay is passed onto other motorists travelling in the same direction. The need for an exclusive left-turn lane is usually determined by comparing the percentage of left-turning traffic against the opposing traffic stream.

The Ministry of Transportation's Geometric Design Standards Manual contains several nomographs which account for various inputs (opposing traffic volume, roadway speed, left-turn volumes, etc.), and evaluate whether an exclusive left-turn lane is warranted.

Bronte Street at Victoria Street/Driveway 'A' has been reviewed to determine if traffic volumes warrant a northbound left-turn lane. A design speed of 60 kilometres per hour (10 kilometres above the assumed speed limit of 50 kilometres per hour) has been utilized for analysis purposes.

Appendix E contains the left-turn warrant nomographs and our findings indicate the following:

- A northbound left-turn lane with 25 metres of storage is warranted at the 2026 total traffic horizon.

The Class EA identified roadway improvement along Bronte Street between Main Street and Steeles Avenue will include a centre turn lane, the

[11] TIS Sherwood Community Centre and Library, Prepared for Town of Milton by CIMA+, March 2017

implementation of a turn lane prior to this work being completed would be considered “throw-away”.

Based on intersection projected to operate with acceptable levels of service with minimal queues in the interim with the current configuration as documented in **Section 4.4**, the provision of a northbound left turn lane should not be implemented at this time given this turn lane would be temporary and will involve considerable throw away costs.

As the Bronte Street corridor from Main Street to Steeles Avenue was identified under the Town’s Development Charges Study as requiring improvements, the funding for the centre turn lane can be derived from development charges.

5.2.2 Right-Turn Lane Warrants

Although right-turns are generally made more efficiently than left-turn movements, exclusive right-turn lanes are often provided for many of the same reasons that left-turn lanes are provided. In general, an exclusive right-turn lane should be considered when the volume of right-turning traffic is between 10 and 20 percent of the through volume, subject to a minimum of 60 vehicles per hour (vph) in the design hour. Based on the traffic forecasts, our findings indicate the following:

- A southbound exclusive right-turn lane is not warranted on Bronte Street at Victoria Street/Driveway ‘A’; and
- A westbound right-turn lane is not warranted on Main Street at Driveway ‘B’.

5.3 Sight Distance Assessment

Paradigm staff completed a field assessment to measure the available sight distances at the proposed driveway connections to Bronte Street and Main Street. The assessment was completed in accordance with the methodology contained in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads.[12] The following object heights were utilized in the field measurements:

- **Object Height (Vehicle tail or brake light) – 0.60 metres:** Research indicates that 95 percent of tail light heights and 90 percent of headlight heights exceed this value. Note that the recommended vehicle tail light height to use when determining stopping sight distance on a roadway has been revised in the 2017 edition of the TAC Geometric Design Guide. The previous (1999) edition recommended a vehicle tail light height of 0.38 metres.
- **Driver Eye Height – 1.08 metres**: Research indicates that more than 90 percent of all passenger car driver eye heights exceed 1.08 metres and is appropriate for design.
- **Top of Car – 1.30 metres**.

The main measurements for outbound traffic were taken three (3) metres back from the existing edge of pavement, representing the position of a driver executing a turning movement from the minor roadway. The main measurements for inbound traffic were taken from the within the centre of the travel lane on the main roadway, assuming a vehicle position perpendicular to the proposed driveway's centreline.

In order to determine if adequate sight distance will be available for the site driveway connections to Bronte Street and Main Street, a design speed of 60 kilometres per hour (10 kilometres per hour above the posted speed limit) was used for analysis purposes. Based on a 60 kilometre per hour design speed, the following sight distances apply:

- Minimum stopping sight distance[13]: 85 metres
- Decision sight distance – Left Turn from Stop[14]: 130 metres
- Decision sight distance – Right Turn from Stop[15]: 110 metres

[12] Transportation Association of Canada. *Geometric Design Guide for Canadian Roads.* June 2017.
[13] Ibid. Table 2.5.2: Stopping Sight Distance on Level Roadways for Automobiles.
[14] Ibid. Table 9.9.4: Design Intersection Sight Distance – Case B1, Left Turn from Stop.
[15] Ibid. Table 9.9.6: Design Intersection Sight Distance – Case B2, Right Turn from Stop.

5.3.1 Bronte Street and Driveway 'A'

Table 5.1 details the sight distances assessed and summarizes the minimum sight distance requirements and field measurements taken at the proposed driveway location on Bronte Street.

TABLE 5.1: SIGHT DISTANCE SUMMARY – DRIVEWAY 'A'

Sight Distance	Sight Distance (metres)	Driver Eye Height (metres)	Object Height (metres)	Field Measurement (metres)	Satisfactory
Stopping Sight Distance - Westbound	85	1.08	0.60	>85	Yes
Stopping Sight Distance - Eastbound				>85	Yes
Left-Turn from Stop	130	1.08	1.30	>130	Yes
Right-Turn from Stop	110	1.08	1.30	>110	Yes

The field measurements taken at the proposed driveway connection location to Bronte Street satisfy the minimum sight distances suggested by TAC for a stop-controlled condition under a 60 kilometre per hour design speed.

5.3.2 Main Street and Driveway 'B'

Table 5.2 details the sight distances assessed and summarizes the minimum sight distance requirements and field measurements taken at the proposed driveway location on Main Street. As the connection is proposed to operate as right-in/right-out, sight distance for eastbound approaching vehicles, and outbound left-turn movements have not been analyzed.

TABLE 5.2: SIGHT DISTANCE SUMMARY

Sight Distance	Sight Distance (metres)	Driver Eye Height (metres)	Object Height (metres)	Field Measurement (metres)	Satisfactory
Stopping Sight Distance - Westbound	85	1.08	0.60	>85	Yes
Right-Turn from Stop	110	1.08	1.30	>110	Yes

The field measurements taken at the proposed driveway connection location to Main Street appear to satisfy the minimum sight distances suggested by TAC for a stop-controlled condition under a 60 kilometre per hour design speed.

5.4 Swept Path Analyses

The truck turning assessment was completed using AutoTURN swept path analysis software to ensure adequate manoeuvrability through the site. The vehicle movements were examined using a CAD base file of the development plan dated 01 October 2018.. The swept path analysis was conducted to examine the on-site maneuverability the larger design vehicles expected to utilize the site; Heavy Single Unit (HSU) and Front-End Loader Garbage Truck (Custom).

The vehicle dimensions for the garbage truck are based on specifications outlined in the Development Design Guidelines for Source Separation of Solid Waste[16]. **Appendix F** provides the vehicle manoeuvring analysis, as well as the profile and dimensions of the design vehicles.

The AutoTURN analyses indicate that the design vehicles have minor difficulty entering the development through the driveway connection to Bronte Street North. Modifications to the curb radius at Driveway A is required to accommodate these vehicles entering the site.

In terms of overall manoeuvring from a site circulation perspective, the AutoTURN swept path analysis indicates the large design vehicles will function adequately.

[16] Development Design Guidelines for Source Separation of Solid Waste, Regional Official Plan Guidelines, Prepared by Region of Halton, Version 1.0, June 18, 2014.

6 Parking Assessment

As with any equilibrium system, there are a minimum of two components that are required to be in balance and to reach the equilibrium point. With parking systems this requires the balance of parking supply and demand. Reaching an appropriate supply level is equally important as demand. The ubiquitous oversupply of cheap and accessible parking has long been identified as a major contributing factor to the growth in single-occupant vehicle (SOV) travel.

There is a strong focus on the pedestrian environment and an emphasis upon active transportation. As the development proposal places a focus on accommodating a suitable pedestrian environment, one that would encourage active transportation based on the de-emphasis on parking, the use of blanketly applying the Zoning By-law across the development does not reflect these goals.

6.1 Zoning Parking Requirements

The current parking requirements for this development are governed by the Town of Milton's Zoning By-law 016-2014. It is recognized that the actual demand for parking spaces may vary from development to development.

6.1.1 Town of Milton Zoning By-law 016-2014

The minimum parking rates for the proposed development under Zoning By-law 016-2014 are as follows:

- 1.5 parking spaces per unit plus 0.25 parking spaces for visitor parking in a designated visitor parking area; and
- 1.0. parking space per 20 square metres (215 square feet) gross floor area.

Table 6.1 summarizes the minimum parking standard calculations.

TABLE 6.1: ZONING BY-LAW PARKING REQUIREMENTS

Use	Units	GFA	Town of Milton By-Law 016-2014	
		m^2	Parking Rate	Parking Spaces Required
Apartment - Residents	435	-	1.5 spaces per unit	652.5
Apartment - Visitors	435		0.25 spaces per unit	108.8
Retail	-	1,195	1.0 spaces per 20 m^2 GFA	59.8
			Total Parking Required	**821.1**

The parking requirements for the development under the Town's current Zoning By-Law is 822 spaces. The development is proposing 627 parking spaces.

However, there are a number of considerations that justify a parking supply that is lower than is required under the Town's standard by-law, as explained in the remainder of this Chapter.

6.2 Parking Demand Forecasts

A review of actual parking demands that are likely to be generated by the proposed development has been considered to assess, independent and separate from a review of Zoning By-Law requirements.

The "real" demands established for each land use are based upon a review of parking demand technical resources and information collected by Paradigm and others at comparable land uses. The established demands consider a number of influencing factors that are in-play including market demands and the effects of interaction between uses.

A summary discussion relating to each of the major land use components is provided in the following sections.

6.2.1 Residential and Visitor Demand

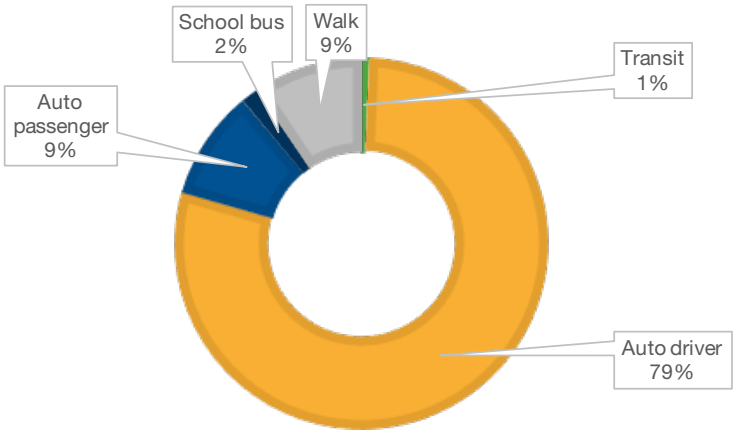
Parking rates defined by municipalities associated with multiple-family land uses tend to be conservative in nature to account for automobile trips as the primary trip modes.

A review of travel characteristics provided by the 2016 Transportation Tomorrow Survey (TTS) for residents living in the area surrounding the site confirms that a significant proportion of travel undertaken during the morning and afternoon peak periods is by non-auto means.

Information provided by the TTS program for the study area (GTA 2006 Zones 4122,4123,4126 and 4192) suggests that the proportion of people who choose to drive in the area is on average 79%. Based on this data it is reasonable to assume that only 80% of unit owners would require the use of an automobile for everyday travel whereas the remainder of the trips are fulfilled through transit and active modes.

Chart 6.2 outlines the 2016 peak period trip characteristics within the study area.

CHART 6.2: TRIPS IN STUDY AREA



To determine demand for the residential component, parking data for residential buildings was compiled from parking utilization studies completed within the Milton market for a typical multi-family building. It is noted that a comparable site (residential and ground floor commercial) could not be located given this type of development is relatively new.

The parking utilization surveys were undertaken at two different residential sites. The parking utilization surveys were carried out in 15-minute increments from the hours of 4:00 PM to 10:00 PM at 33 Whitmer Street and 100 Millside Drive. Available information about each site, such as the number of units, walking distance to the nearest GO Station, peak parking demand and demand rates is outlined in **Table 6.3**.

TABLE 6.3: RESIDENTIAL PARKING SURVEY RESULTS

Municipality	Address	Distance to Rail Station	Number of Units	Type	Demand	
					Peak Parking Demand	Rater Per Unit
Milton	33 Whitmer Street	1.9 km (GO Milton)	148	Resident	127	0.86
				Visitor	31	0.21
Milton	100 Millside Drive	2.0 km (GO Milton)	154	Resident	123	0.80
				Visitor	21	0.14

Both sites experienced a similar parking rate around 1.00 space per unit that included residential and visitor demand. By comparing these rates to the rates contained in the Zoning By-law, the demand is noted to be almost half of what the Town requires indicating an oversupply of over 50% is occurring at multi-family buildings. **Appendix G** provides the parking survey data.

Chart 6.4 - **6.5** outlines the parking demand trend of the surveyed sites.

CHART 6.4: 33 WHITMER STREET DEMAND TREND

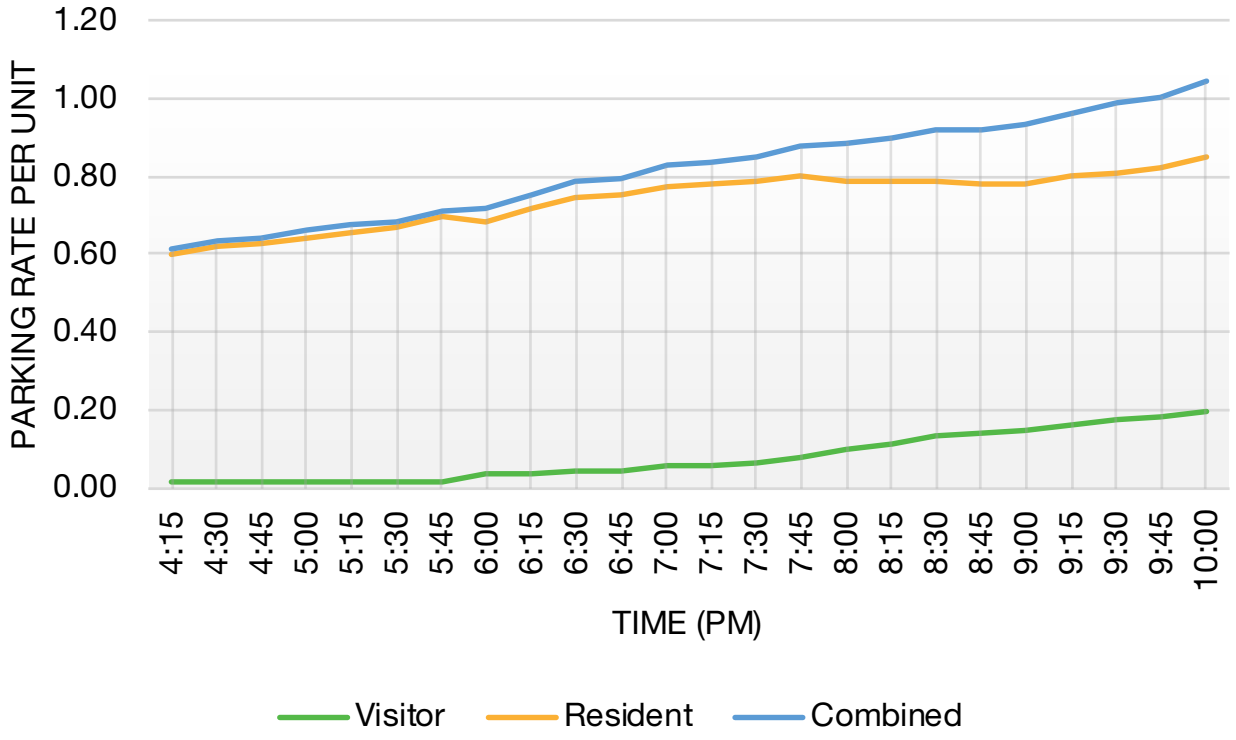
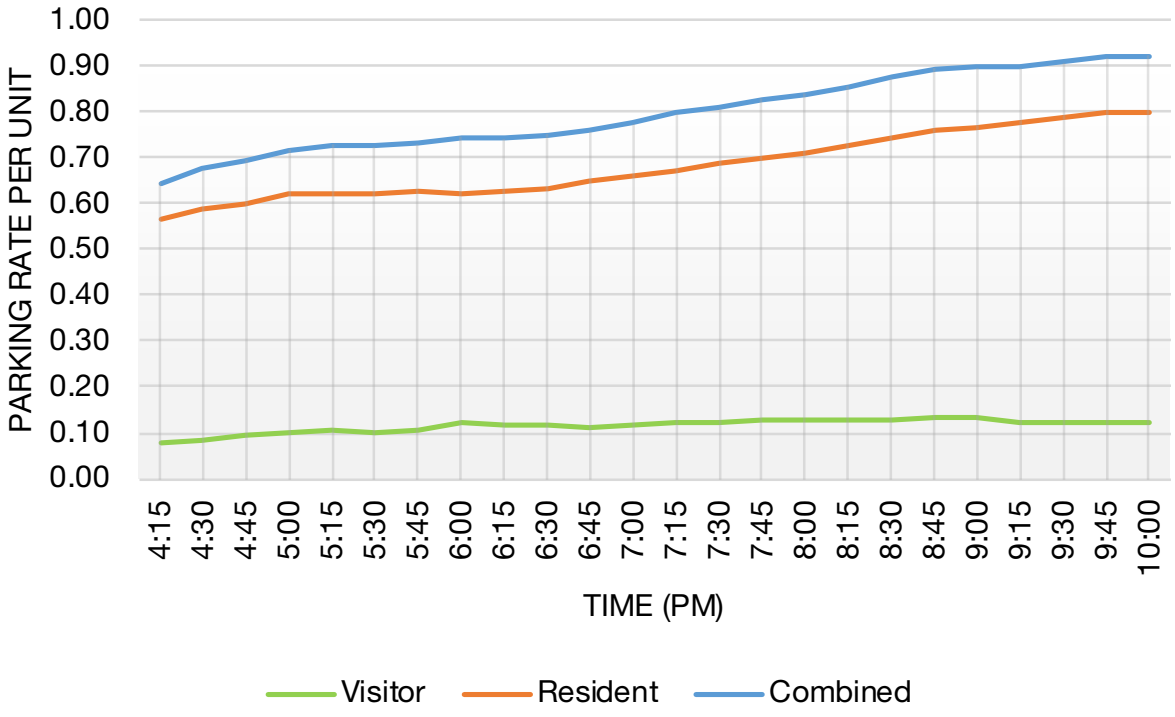


CHART 6.5: 100 MILLSIDE DRIVE DEMAND TREND



6.2.2 Retail Demand

The majority of Zoning By-law "retail" standards typically reflect demand that may be seen at larger format retail outlies and standalone centres rather than smaller retail located within a mixed-use development.

The Institute of Transportation Engineers (ITE) produces a periodic report titled Parking Generation[17], which is the prevailing national standard in determining parking demand for a development. ITE standards are based on parking demand studies submitted to ITE by a variety of parties, including public agencies, developers and consulting firms. The most recent parking generation manual available is the 4th edition and is a comparative starting point to determine baseline assumptions.

This study includes ITE peak period parking demand rates as guidelines to benchmark how the Town of Milton's Zoning requirements compares to small retail land uses. The average peak period parking demand rate calculation is meant to represent the number of parked cars at the peak period divided by the quantity of the independent variable, such as building area or employees.

According to industry parking standard calculations from ITE, retail requirements range from 1 parking space per 22 to 141 square metres. The higher end of the parking ratio (22) is comparable to a discount supermarket whereas the lower end (141) is comparable to a pet supply store.

Peak parking demand levels from ITE have also been reviewed for smaller format retail which range from 1 parking space per 48 to 104 square metres[18].

The ITE parking standards are often based on peak hour demands of suburban sites with isolated, single land uses which have free parking. Projections using standard ITE parking rates tend to overestimate demand for mixed-use developments that offer the opportunity to share parking supply between various uses. This reduces the total number of spaces which would be required by the same land-uses in stand-alone developments.

The parking requirement as stipulated within Zoning By-law 016-2014 for retail uses of 1 space per 20 square metres is considered to be reflective of peak demands at larger format retail outlets and centres rather than smaller format retailers.

[17] Institute of Transportation Engineers. Parking Generation Manual (4th Edition), Washington DC, 2010.
[18] ITE Land Use Codes; 812 Building and Material and Lumber Store, 816 Paint Store, 892 Carpet Store, 890 Furniture Store, 860 Book Store,.

To further validate this with local market demand, results of previous parking surveys conducted for small format retail development from other studies conducted by Paradigm were compiled. Available information about each site, such as the number of units, walking distance to the nearest GO Station, peak parking demand, parking supply and demand rates, is outlined in **Table 6.6**.

TABLE 6.6: SMALL FORMAT RETAIL PARKING SURVEY RESULTS

Municipality	Address	Type	Distance to Rail Station	GFA	Demand	
				Square Metres	Peak Parking Demand	1 parking space per
Burlington	5327 Upper Middle Road	Mixed-Use Building (Resident and Commercial)	4.5 km (Appleby GO)	900	25	36 square metres
Waterdown	35 Main Street South	Mixed-Use Building (Commercial and Office)	4.0 km (Aldershot GO)	1,100	21	53 square metres

Parking supply rates ranged from 1 parking space per 36-53 square metres, indicating that demand is significantly lower than the Town of Milton's requirements. The highest parking demand rate is from a building that is situated in subdivision environment as opposed to an urban environment which provides for improved access to adjacent residential, employment and retail opportunities through active travel modes.

The surveyed results at 5327 Upper Middle Road are considered to be the most appropriate and applicable for the retail component of the development as demand at this site is representative of parking demand for ground floor commercial with residential units above. Albeit, even though the site is in Burlington, it is located in the northern portion of the City which has traits similar to the study area in that there is a large reliance on automobile usage.

6.2.3 Projected Parking Demand

A summary of the established peak parking demands for each of the component uses contemplated within the development is provided in **Table 6.7**. The following summarizes the parking demand rates utilized:

- Residential demand is reflective by a peak parking demand of 0.86 spaces per unit, consistent with the parking demand information collected at comparable site within the Milton Market.
- Visitor demand is reflective by a peak parking demand of 0.21 spaces per unit, consistent with the parking demand information collected at comparable site within the Milton Market.
- Retail demand is reflective by a peak parking demand of 1 space per 36 square metres, consistent with the parking demand information collected at comparable site within the Burlington Market.

TABLE 6.7: PROJECTED BASELINE PARKING DEMAND

Use	Units	GFA	Baseline Parking Demand	
		m^2	Parking Rate	Parking Spaces Required
Apartment - Residents	435		0.86 spaces per dwelling unit	374.1
Apartment - Visitors	435		0.21 spaces per dwelling unit	91.4
Retail		1,195	1.0 spaces per 36 m^2 GFA	33.2
			Total Parking Required	**498.6**

The parking requirements for the development based on actual demand surveys is projected at 499 spaces.

6.2.4 Shared Parking Demand

Consideration of shared parking opportunities is common within mixed-use facilities. The concept of shared and/or managed parking reflects the variations in usage levels of different land uses by time of day, day of week and seasonal factors to derive efficiencies in overall parking supply requirements through a permissive sharing of a common pool of parking that support the range of planned uses at different times.

Each land use does not need its own dedicated supply of parking, yet that is exactly what standard analysis and zoning indicate is needed. In reality, throughout the day, different uses have different peak demand: for example, an office may have a high demand until 5PM, and a restaurant open for dinner may have a high demand only after 5PM.

To model this type of activity, Paradigm used and adapted a shared parking model using inputs from the Urban Land Institute[19] (ULI). If each land used were to build enough parking to accommodate its peak demand, then the supply of spaces would be grossly underutilized. Shared parking allows for accommodation of peak parking demand but shares a supply among different uses.

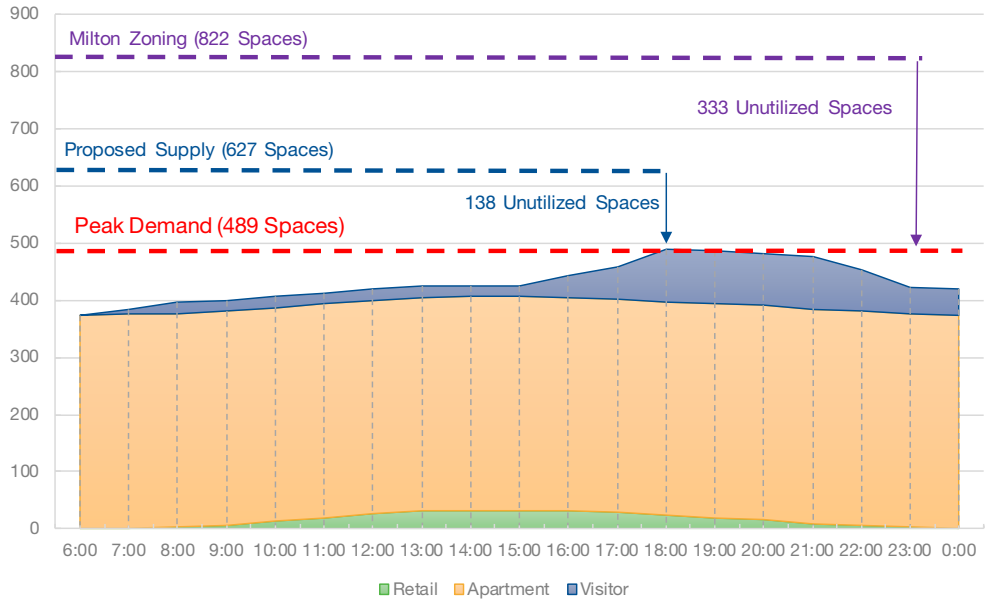
The model started with a baseline demand of 499 spaces as calculated in **Sub-Section 6.2.3.** After adjusting for shared parking, peak demand is estimated to be 489 spaces. If each land used were to build enough parking to accommodate its peak demand, then the supply of spaces would be grossly underutilized. With the Town of Milton's zoning requirements of 822 spaces, at peak, there are nearly 333 unutilized spaces. Furthermore, with the proposed supply of 627 spaces, 138 unutilized spaces are projected.

One important point to note is that the residential spaces have not been included in the analyses as it is assumed that these spaces would be "reserved" at all times to residents.

Chart 6.8 demonstrates the output of the shared parking model which demonstrates the number of parking spaces need for the proposed development after factoring in the shared parking reductions.

[19] Shared Parking 2nd Edition, Urban Land Institute, 2005

CHART 6.8: PROJECTED SHARED PARKING DEMAND



This analysis is important in that it reflects the notion that certain user groups can share the same parking spaces without requiring additional parking. In the case of the proposed development, it is apparent that visitor and commercial parking are excellent candidates for sharing parking as they peak at different times of the day. When the projected demands are overlapped temporally, the following is noted:

- There is no hour in the day, when all user groups peak at the same time (contrary to the assumption of superposition);
- When retail demands peak in mid-afternoon visitor demands are at their lowest levels; and
- As visitor parking demands rise in the late evening, retail parking demands fall.

7 Transportation Demand Management

The goal of a Transportation Demand Management (TDM) plan is to reduce the development's overall traffic and parking impacts through the implementation of strategies that are aimed at affecting the demand side of the transportation equation, rather than the supply side. By there very nature, TDM programs attempt to change people's behavior, and to be successful, they must rely on incentives or disincentives to makeshifts in behavior attractive to the commuter.

TDM strategies include financial incentives, time incentives, the provision of new or enhanced commuter services, dissemination of information, and marketing alternative services. TDM strategies include all the incentives and disincentives that increase the likelihood for people to change their existing travel behavior.

The TDM plan has been formulated to extent reasonable and practical strategies that encourage residents and visitors to take alternative modes of transportation. The strategies identified are expected to improve transportation access and connectivity within the development, as well as to the reset of the study area. For each strategy, an explanation of the is provided, as well as a description of what the applicant is proposing to provide.

7.1 Through Design

Supporting land-use/infrastructure that encourage people to choose travel modes other than driving alone are a number of factors that influence peoples' travel mode choices. These strategies are already accounted for through the developments overall design and include the following.

7.1.1 Housing Density

Designing the plan with increased densities reduces Greenhouse Gas (GHG) emissions associated with traffic in several ways. Density is usually measured in terms of persons, jobs, or dwellings per unit area. Increased densities generally shorten the distance people travel and provide greater options for the mode of travel they choose. This strategy also provides a foundation for implementation of many other strategies which would benefit from increased densities.

7.1.2 Land Use-Density Mix

Having different types of land uses in close proximity can decrease vehicle mode share since trips between land use types are shorter and may be accommodated by non-automotive transportation. The mix of medium and high-density housing and commercial uses provides land use diversity that should reduce the number of automobile trips that residents or employees make.

7.1.3 Pedestrian Facilities

Accessibility to and from a development is essential in helping to ensure that those that can walk, do. Proper pedestrian connections from the surrounding community to the development should be constructed to ensure safety and to enhance the overall pedestrian experience.

Walking is encouraged by the provision of a pedestrian-friendly site layout that features an extensive network of sidewalks and entrances at key points both within the site and connecting to the existing pedestrian network. The majority of the site is provided with direct public access for pedestrians via two street level entrances from Bronte Street and a public plaza located at the corner of Bronte Street and Main Street. This is intended to provide a comprehensive network of pedestrian connections to allow for an enhanced pedestrian experience for all users of the site and to provide for a community gathering place by way of the public plaza space.

By taking advantage of the future public sidewalk network to attract and serve pedestrians, combined with multiple pedestrian connections within the site, the development offers walkability as one of the key design features.

7.1.4 Bicycle Facilities

Increasing bicycling to, from and within Milton is a key strategy to reducing vehicle trips. The number of people bicycling is directly related to the quality of the bicycling network and presence of bicycling facilities.

As outlined in **Section 2.3**, the Town's Cycling Master Plan identifies opportunities for the site to be adequately served by bicycle infrastructure. Bicycle facilities are planned for Bronte Street and Main Street, as a result, the site has the potential to be well served by bicycle infrastructure.

7.1.5 Bicycle Parking Supply

The Town of Milton By-law includes rates for bicycle parking for Apartment building not within the Central Business District (CBD) that require a bicycle parking rate of 0.20 spaces per unit. As the development is located within the Central Business District, bicycle parking is not a requirement of the zoning requirements. However, to provide residents and visitors of the development with additional commuting options, bicycle parking should be considered.

Applying the zoning criteria for areas outside of the CBD to the proposed development, a total of 87 bicycles spaces would be ideal for the development. However, the number of spaces will ultimately need to be dictated by the feasibility of providing these spaces within the current site plan.

7.1.6 Transit

The use of transit places less reliance on the use of personal automobiles for trips that can be completed by convenient and desirable transit options. The provision of convenient and desirable transit can be made by providing well-lit transit stops with seating, and weather protective shelters. Additional amenities including bicycle parking, schedule information, real time bus status, and maps can increase the convenience of the transit network.

The subject site is currently served by Milton Transit Route 2 and Route 6. These routes operate primarily on Main Street connecting residential neighbourhoods with the Milton GO Station, or Milton Crossroads shopping centre (via Route 2). Headways are on the order of 30 minutes during most service hours, with shorter headways provided during peak hour services.

Bus stops adjacent to the existing sidewalk network are provided on the north and south sides of Main Street, east of Bronte Street. These stops are located approximately 100 metres from the centre of the subject site and feature schedule information for riders.

The improvement of these stops, including the installation of bus shelters with seating, would enhance the transit services on Route 2 and Route 6. Through these modifications, the transit network would be a viable and convenient option for residents, visitors and employees of the development.

At the development level, direct links connecting residents and visitor to nearby bus stops are planned to be provided as part of the overall design scheme making the development area more navigable towards local bus stops.

7.2 Proposed Strategies

The proposed strategies identified herein should be implemented to reduce the number of auto-trips made to/from the development:

7.2.1 Transportation Information

The applicant should consider developing marketing/informational materials as part of their initial scope of work. Information on transportation options and/or links to the appropriate website should be conveyed to all prospective residents as a component of a resident welcome packet.

Available information should include schedules for local and regional transit services, bicycle and trail networks and the location of retail and recreational establishments.

7.2.2 Parking

Sufficient automobile parking is necessary for the development to be successful. However, too much parking can encourage traffic congestion, limit the ability to meet trip reduction goals, increase project costs, and impact site design and aesthetics. Finding the right balance needed to support the Towns' goals is critical, particularly, given that parking is an expensive resource.

The role of parking management is also a key element to helping Milton meet its trip reduction goals. If free and unregulated parking is provided, there is little incentive for many residents and visitors to use alternative modes of transportation.

Free and abundant parking encourages people to drive alone rather than car or van pool, be dropped off or picked up, walk, cycle or take transit. When too much parking is provided, and is provided free of cost to the user, the use of alternative sustainable modes is put at a substantial disadvantage.

At the same time however, the uses proposed on the site require a certain amount of base parking supply in order to be successful. Per the current development plan, 627 parking spaces are provided for the 435 residential units and 1,195 square metres of retail space. Based on the Zoning requirements, 822 parking spaces are required.

Based on the imperial data collected as part of this study, it is evident that parking demand at typical apartments and smaller retail developments are significantly lower than the rates stipulated in the Town's Zoning By-law and suggest a parking supply of 627 spaces is sufficient for the development.

As the development promotes the use of other modes of transportation through limited on-site parking that will meet the projected demand, the development plays a significant role in setting an example for residents and visitors to consider non-automotive travel.

The parking management strategy is designed to help ensure there are enough parking spaces to support the site, while avoiding an over abundance of parking supply. Balancing these factors should help achieve trip reduction goals, reduce development costs, and support the success of a pedestrian friendly development.

7.3 Optional Strategies

In addition to the strategies above, the applicant may wish to implement more strategies. The following strategies are strictly optional, and the applicant should weigh each carefully before implementing to both ensure it is cost-effective and does not adversely impact the overall community (such as parking spillover).

7.3.1 Secure Bicycle Parking

The Town of Milton By-law includes rates for bicycle parking for Apartment building not within the Central Business District (CBD) that require a bicycle parking rate of 0.20 spaces per unit. As the development is located within the Central Business District, bicycle parking is not a requirement of the zoning requirements.

However, to provide residents and visitors of the development with additional commuting options, bicycle parking should be considered. Applying the zoning criteria for areas outside of the CBD to the proposed development, a total of 87 bicycles spaces should be provided by the development, if feasible.

7.3.2 On-Site Bicycle Repair Facilities

Providing basic tools for keeping bicycles in good working order can encourage residents and commuters to try biking and keep them riding. Bicycle repair facilities, such as hand tools and an air compressor for tires, are a small investment that can keep bicycles in circulation and maximize bicycle trips.

Do-it-yourself bicycle repair stands could be provided, including tire gauges, air pumps, wrenches and other tools for minor repairs. At a minimum, a repair facility should be located within the underground parking garage for use by residents and a secondary facility be located adjacent the retail component for use by employees.

7.3.3 Unbundled Parking

Implementing a paid-parking operation is one of the most effective TDM strategies for encouraging alternative travel habits. To further encourage residents of the apartment building to utilize sustainable travel modes, the development is proposing to lease parking spaces separately from the cost to rent a unit. This is more equitable and efficient, since occupants are not forced to pay for parking they do not need and allows consumers to adjust their parking supply to reflect their needs.

This is an important factor as residents are notified at the onset of the project that parking is proposed to be provided as an additional cost in lieu of the price to rent a unit. If residents are significantly considering changing their travel behaviour, the cost of renting a parking space could be a contributing factor to this change.

7.3.4 Bus Pass

To create a climate in which sustainable transportation is considered “the norm”, an incentive could be included for residents. Given the desire to create an environment where sustainable transportation options are the norm, the development could consider providing all residents with a one-

year transit pass. This would help create and establish a culture of transit use amongst the development.

As typically only one transit pass is issued to each unit, and valid for one year, residents could be encouraged to consider purchasing transit passes for other members of the household and upon expiration of the issued pass.

7.3.5 Live Transit Information

Live transit information, such as next scheduled departure for transit vehicles and applicable GO Transit routes at Milton GO Station, can be permanently displayed in a central location such as the lobby of the apartment building. Displaying this information in this location allows passengers to time their trips appropriately and stay in a climate-controlled area during times of severe weather.

7.4 TDM Plan

The TDM plan is focused on specific strategies which are intended to reduce single occupancy auto travel to and from the development. **Table 7.1** summarizes the TDM Plan for the development.

In general, the implementation timeline should remain flexible to ensure that strategies are implemented in response to project conditions. Most strategies would be in place during the planning stages, while others would have limited deployment.

TABLE 7.1: TDM PLAN

Strategy	Timeline	Implemenation
Housing Density	Planning Stage - Applicant	✓ YES
Land Use-Density Mix	Planning Stage - Applicant	✓ YES
Pedestrian Amenities	Planning Stage - Applicant	✓ YES
Bicycle Facilities	After Opening Day - Town of Milton	✓ YES
Transit	Potential service expansion as demand grows (TBD - Milton Transit)	✓ YES
Transportation Information	Planning Stage - Applicant	✓ YES
Parking	Planning Stage - Applicant	✓ YES
Secure Bicycle Parking	Planning Stage - Applicant	OPTIONAL
On-Site Bicycle Repair Facilites	TBD - Applicant	OPTIONAL
Unbundled Parking	TBD - Applicant	OPTIONAL
Bus Pass	TBD - Applicant	OPTIONAL
Live Transit Information	TBD - Applicant	OPTIONAL

8 Conclusions and Recommendations

8.1 Conclusions

This study evaluated the impacts associated within the construction of two building pads totaling 435 residential units and 1,195 square metres (12,862 square feet) of ground floor retail with a completion target date of 2021.

Access to the site is proposed via an all-movements connection to Bronte Street located opposite Victoria Street and a right-in/right-out driveway connection to Main Street.

Transportation Impact Study

The proposed development is projected to generate approximately 147 new vehicle trips during the weekday AM peak hour and 187 new vehicle trips during the weekday PM peak hour.

Detailed traffic analysis was conducted for each of the study area intersections under 2018 Base traffic conditions an 2026 Background and Total traffic conditions.

The capacity analysis showed that the study area intersections are not expected to experience significant impacts to operations as a result of the proposed development. It is acknowledged however that deficiencies currently exist and projected to occur at certain locations within the study area with anticipated growth in traffic, independent of the development. The following capacity constraints at the study area intersections are identified:

- **Bronte Street at Main Street** presently operates at LOS F for the eastbound shared through/right turn movement and westbound left turn movement. Increased delays are projected for these movements as well as the northbound left turn movement and southbound shared through/right turn movement under both Background and Total traffic conditions. The Town is aware of this and an Environmental Assessment is being undertaken.
- **Bronte Street at Mill Street** presently operates at LOS E for the westbound approach. With general background growth, the westbound approach is expected to degrade to LOS F during the PM peak hour with a volume to capacity ratio exceeding 1.0 under both Background and Total traffic conditions. The most feasible improvement option to the intersection would be to restrict westbound left turns during the weekday PM peak hour from Monday to Friday.
- **Bronte Street and Whitmer Street** presently operates at level of service C or better for all approaches. With general background growth, the northbound approach is expected to degrade to LOS E during the weekday AM peak hour under Background traffic

conditions. Similar levels of operation are expected under the Total traffic conditions with only minor increase in delay resulting from site-generated traffic volumes. As northbound left turning traffic is currently and projected to be low, drivers are likely to seek an alternative route via Kendall Drive and Scott Boulevard. Northbound right turn-turn volumes are higher, and these drivers are not as likely to use alternative routes, however their delay can be reduced If capacity improvements occur at the intersection of Main Street and Bronte Street[20].

- **Bronte Street at Victoria Street/Driveway A** warrants installation of a 25-metre northbound left turn lane. However, as the Environmental Assessment identified roadway improvement along Bronte Street between Main Street and Steeles Avenue will include a centre turn lane, the implementation of a turn lane prior to this work being completed would be considered temporary and will involve considerable throw away costs. A left-turn lane is not recommended for implementation at this time. As the Bronte Street corridor from Main Street to Steeles Avenue was identified under the Town's Development Charges Study as requiring improvements, the funding for the centre turn lane can be derived from development charges.

A review of the existing traffic volumes suggests Mill Street is experiencing higher than expected volumes at the intersection with Bronte Street. With the construction of the new interchange at Highway 401 and Tremaine Road, it is anticipated that a portion of the traffic currently utilizing Mill Street as a by-pass route will be attracted to the new interchange. However, additional measures should be considered for implementation by the Town of Milton.

The development plan proposes aligning a driveway connection to Bronte Street directly opposite Victoria Street. However, as Victoria Street does not directly connect to the arterial roadway network, this would discourage traffic from the development to utilize this route. In terms of the development utilizing Mill Street, this route is also unlikely to be favoured by the proposed development as travel time benefits are not realized through these routes.

Overall, the study finds that site generated traffic will not have a significant impact effect on traffic operations within the study area and the existing transportation infrastructure in the area, in conjunction with the proposed improvements as planned within the Environmental Assessment, can adequately accommodate the traffic volumes projected to be generated by the proposed development.

[20] TIS Sherwood Community Centre and Library, Prepared for Town of Milton by CIMA+, March 2017

Parking Study

The proposed site provides for a total of 627 parking spaces; equating to a parking rate of 1.25 parking spaces per unit (resident and visitor) plus 60 spaces for the retail component. The parking requirement for the development under the Town of Milton's Zoning By-Law 016-2014 is 822 spaces; equating to a parking rate of 1.75 spaces per unit (resident and visitor) plus 60 spaces for the retail component.

The parking requirements outlined in Zoning By-Law 016-2014 is based on an approach the caters to auto oriented travel rather than transition to promote residential and visitor travel through sustainable modes. Parking ratios need to recognize empirical evidence that parking demand has many factors and varies according to household size, income, auto ownership, and locational factors such as proximity to other uses and availability of multiple transportation mobility options.

A review of actual parking demand that is likely to be generated by the proposed development has been considered to assess, independent and separate from a review of Zoning By-Law requirements. The actual demands established are based upon parking demand technical resources and information collected by Paradigm and others at comparable land uses. The actual parking demand for the proposed development based on this data is projected to be 499 vehicles. It should be noted that the parking demand value of 499 vehicles utilizes a simplistic approach. In actuality, the rates are expected to be marginally less, around 489 spaces with time of day shared parking demand incorporated.

The mode split characteristics of apartment units within the study area have also been reviewed from the 2016 Transportation Tomorrow Survey. This data stipulates that 20% of all travel is completed through sustainable mode choice and is consistent with the demand forecasts.

The transition from an automobile-dependent environment to one that is transit-supportive will require strategies to assist in shifting modal split and enabling the emergence of a more pedestrian-friendly transit-supportive environment. The over provision of free or low-cost parking creates areas that are dominated by parking infrastructure can have a negative impact on ridership and the pedestrian environment as well as providing an incentive for single-occupant vehicle use.

As the development promotes the use of other modes of transportation through limited on-site parking that will meet the projected demand, the development plays a significant role in setting an example for residents and visitors to consider non-automotive travel. This points to the importance of ongoing parking management and demand reduction strategies for these areas to ensure that an oversupply of parking is not provided that could hinder the ability to attract a significant portion of the population to transit mode choice.

Based on the imperial data collected as part of this study, it is evident that parking demand at typical apartments and smaller retail developments are significantly lower than the rates stipulated in the Town's Zoning By-law. The data collected at a local level and through industry standard data is reflected of real-world conditions and supports a lower level of parking demand than what current and proposed Zoning By-law requires.

The projected demand provides a statistically valid justification that the proposed parking supply of 627 spaces is sufficient for the intended use.

Transportation Demand Management

Implementation of the TDM plan as outlined herein may help to reduce personal automobile use and alleviate some need for parking which will assist in ensuring adequate parking is available for the proposed development.

8.2 Recommendations

Based on the findings of this study, it is recommended that:

- Modifications to the curb radius at Driveway A to Bronte Street North is recommended to accommodate large design vehicles entering from a right turn movement.
- The Town of Milton monitor traffic volumes within the study area, especially as infrastructure improvements (new Tremaine Road interchange) and Bronte Street improvements occur to ensure reasonable levels of service are provided;
- The Town of Milton review potential measures to reduce cut-through traffic that is presently occurring along Mill Street.

Appendix A

Turning Movement Count Data

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Weekday
Site Code:
Start Date: 11/07/2017

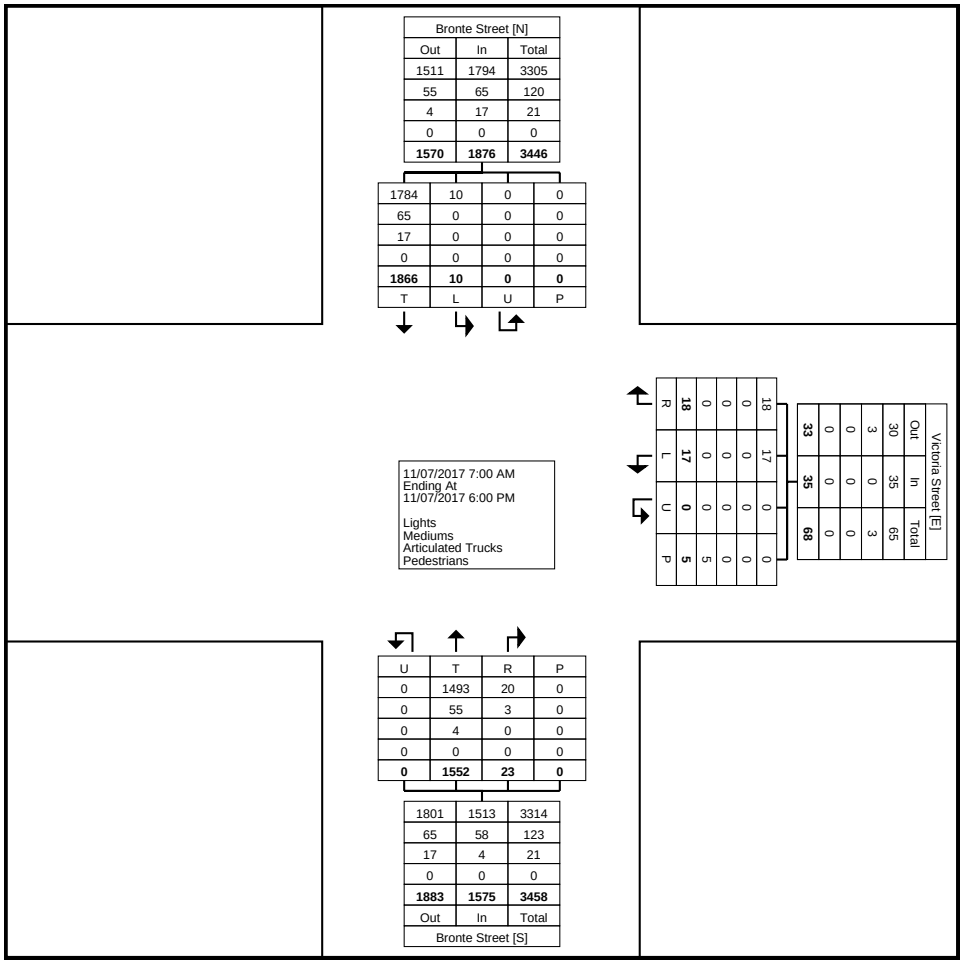
Turning Movement Data

Start Time	Victoria Street Westbound					Bronte Street Northbound					Bronte Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:00 AM	2	0	0	0	2	75	1	0	0	76	0	51	0	0	51	129
7:15 AM	0	2	0	0	2	92	0	0	0	92	0	64	0	0	64	158
7:30 AM	1	1	0	0	2	85	0	0	0	85	0	57	0	0	57	144
7:45 AM	0	3	0	1	3	94	1	0	0	95	1	89	0	0	90	188
Hourly Total	3	6	0	1	9	346	2	0	0	348	1	261	0	0	262	619
8:00 AM	1	0	0	0	1	85	3	0	0	88	0	67	0	0	67	156
8:15 AM	1	0	0	0	1	82	1	0	0	83	1	68	0	0	69	153
8:30 AM	0	0	0	0	0	94	1	0	0	95	1	76	0	0	77	172
8:45 AM	1	0	0	0	1	74	0	0	0	74	1	74	0	0	75	150
Hourly Total	3	0	0	0	3	335	5	0	0	340	3	285	0	0	288	631
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	0	0	0	1	65	0	0	0	65	0	145	0	0	145	211
3:15 PM	1	2	0	0	3	64	2	0	0	66	0	138	0	0	138	207
3:30 PM	1	1	0	0	2	61	2	0	0	63	1	97	0	0	98	163
3:45 PM	1	2	0	0	3	68	1	0	0	69	0	71	0	0	71	143
Hourly Total	4	5	0	0	9	258	5	0	0	263	1	451	0	0	452	724
4:00 PM	1	2	0	2	3	76	2	0	0	78	0	97	0	0	97	178
4:15 PM	0	0	0	0	0	73	2	0	0	75	3	91	0	0	94	169
4:30 PM	0	2	0	0	2	86	3	0	0	89	0	76	0	0	76	167
4:45 PM	1	0	0	0	1	79	1	0	0	80	0	87	0	0	87	168
Hourly Total	2	4	0	2	6	314	8	0	0	322	3	351	0	0	354	682
5:00 PM	2	1	0	2	3	88	0	0	0	88	1	107	0	0	108	199
5:15 PM	3	2	0	0	5	79	1	0	0	80	0	118	0	0	118	203
5:30 PM	0	0	0	0	0	77	1	0	0	78	0	149	0	0	149	227
5:45 PM	0	0	0	0	0	55	1	0	0	56	1	144	0	0	145	201
Hourly Total	5	3	0	2	8	299	3	0	0	302	2	518	0	0	520	830
Grand Total	17	18	0	5	35	1552	23	0	0	1575	10	1866	0	0	1876	3486
Approach %	48.6	51.4	0.0	-	-	98.5	1.5	0.0	-	-	0.5	99.5	0.0	-	-	-
Total %	0.5	0.5	0.0	-	1.0	44.5	0.7	0.0	-	45.2	0.3	53.5	0.0	-	53.8	-
Lights	17	18	0	-	35	1493	20	0	-	1513	10	1784	0	-	1794	3342
% Lights	100.0	100.0	-	-	100.0	96.2	87.0	-	-	96.1	100.0	95.6	-	-	95.6	95.9
Mediums	0	0	0	-	0	55	3	0	-	58	0	65	0	-	65	123
% Mediums	0.0	0.0	-	-	0.0	3.5	13.0	-	-	3.7	0.0	3.5	-	-	3.5	3.5
Articulated Trucks	0	0	0	-	0	4	0	0	-	4	0	17	0	-	17	21
% Articulated Trucks	0.0	0.0	-	-	0.0	0.3	0.0	-	-	0.3	0.0	0.9	-	-	0.9	0.6
Pedestrians	-	-	-	5	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Weekday
Site Code:
Start Date: 11/07/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Weekday
Site Code:
Start Date: 11/07/2017

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Victoria Street Westbound					Bronte Street Northbound					Bronte Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
7:45 AM	0	3	0	1	3	94	1	0	0	95	1	89	0	0	90	188
8:00 AM	1	0	0	0	1	85	3	0	0	88	0	67	0	0	67	156
8:15 AM	1	0	0	0	1	82	1	0	0	83	1	68	0	0	69	153
8:30 AM	0	0	0	0	0	94	1	0	0	95	1	76	0	0	77	172
Total	2	3	0	1	5	355	6	0	0	361	3	300	0	0	303	669
Approach %	40.0	60.0	0.0	-	-	98.3	1.7	0.0	-	-	1.0	99.0	0.0	-	-	-
Total %	0.3	0.4	0.0	-	0.7	53.1	0.9	0.0	-	54.0	0.4	44.8	0.0	-	45.3	-
PHF	0.500	0.250	0.000	-	0.417	0.944	0.500	0.000	-	0.950	0.750	0.843	0.000	-	0.842	0.890
Lights	2	3	0	-	5	341	4	0	-	345	3	274	0	-	277	627
% Lights	100.0	100.0	-	-	100.0	96.1	66.7	-	-	95.6	100.0	91.3	-	-	91.4	93.7
Mediums	0	0	0	-	0	13	2	0	-	15	0	21	0	-	21	36
% Mediums	0.0	0.0	-	-	0.0	3.7	33.3	-	-	4.2	0.0	7.0	-	-	6.9	5.4
Articulated Trucks	0	0	0	-	0	1	0	0	-	1	0	5	0	-	5	6
% Articulated Trucks	0.0	0.0	-	-	0.0	0.3	0.0	-	-	0.3	0.0	1.7	-	-	1.7	0.9
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

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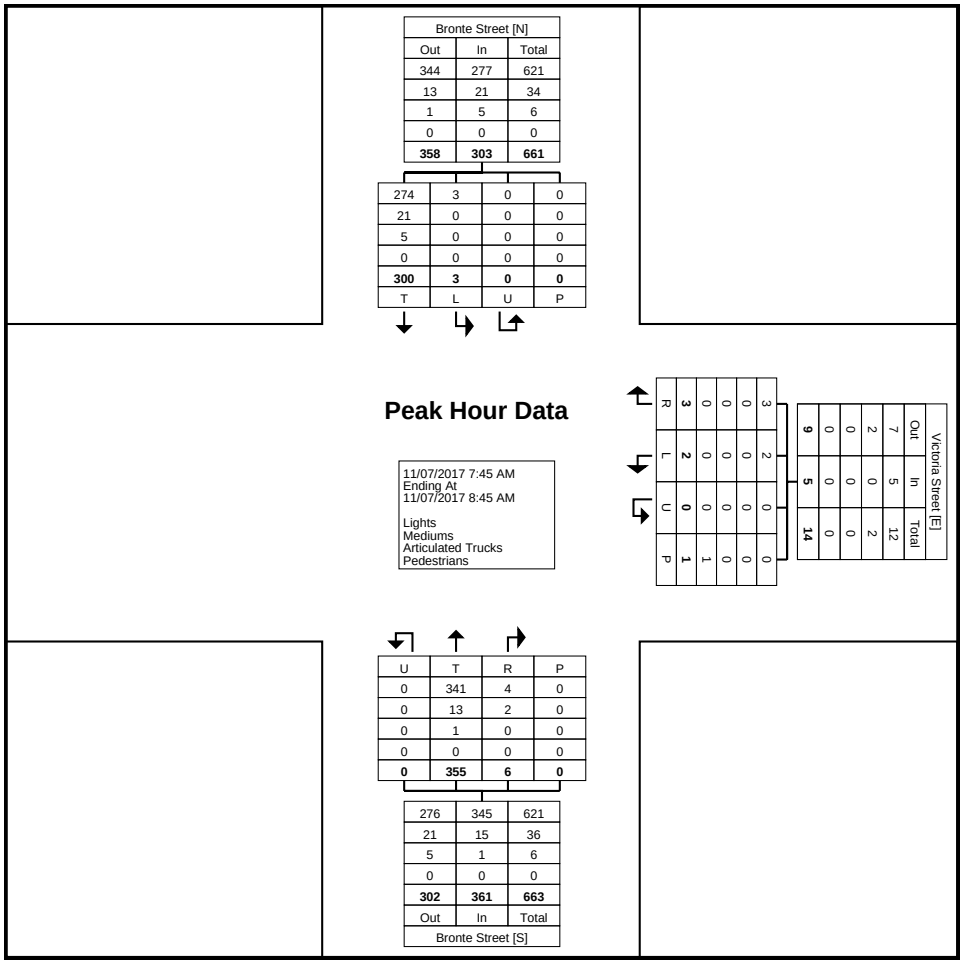
Count Name: Bronte Street & Victoria Street - Weekday
Site Code:
Start Date: 11/07/2017



Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Weekday
Site Code:
Start Date: 11/07/2017

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Victoria Street Westbound					Bronte Street Northbound					Bronte Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
5:00 PM	2	1	0	2	3	88	0	0	0	88	1	107	0	0	108	199
5:15 PM	3	2	0	0	5	79	1	0	0	80	0	118	0	0	118	203
5:30 PM	0	0	0	0	0	77	1	0	0	78	0	149	0	0	149	227
5:45 PM	0	0	0	0	0	55	1	0	0	56	1	144	0	0	145	201
Total	5	3	0	2	8	299	3	0	0	302	2	518	0	0	520	830
Approach %	62.5	37.5	0.0	-	-	99.0	1.0	0.0	-	-	0.4	99.6	0.0	-	-	-
Total %	0.6	0.4	0.0	-	1.0	36.0	0.4	0.0	-	36.4	0.2	62.4	0.0	-	62.7	-
PHF	0.417	0.375	0.000	-	0.400	0.849	0.750	0.000	-	0.858	0.500	0.869	0.000	-	0.872	0.914
Lights	5	3	0	-	8	293	3	0	-	296	2	514	0	-	516	820
% Lights	100.0	100.0	-	-	100.0	98.0	100.0	-	-	98.0	100.0	99.2	-	-	99.2	98.8
Mediums	0	0	0	-	0	6	0	0	-	6	0	2	0	-	2	8
% Mediums	0.0	0.0	-	-	0.0	2.0	0.0	-	-	2.0	0.0	0.4	-	-	0.4	1.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	2	0	-	2	2
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.4	-	-	0.4	0.2
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

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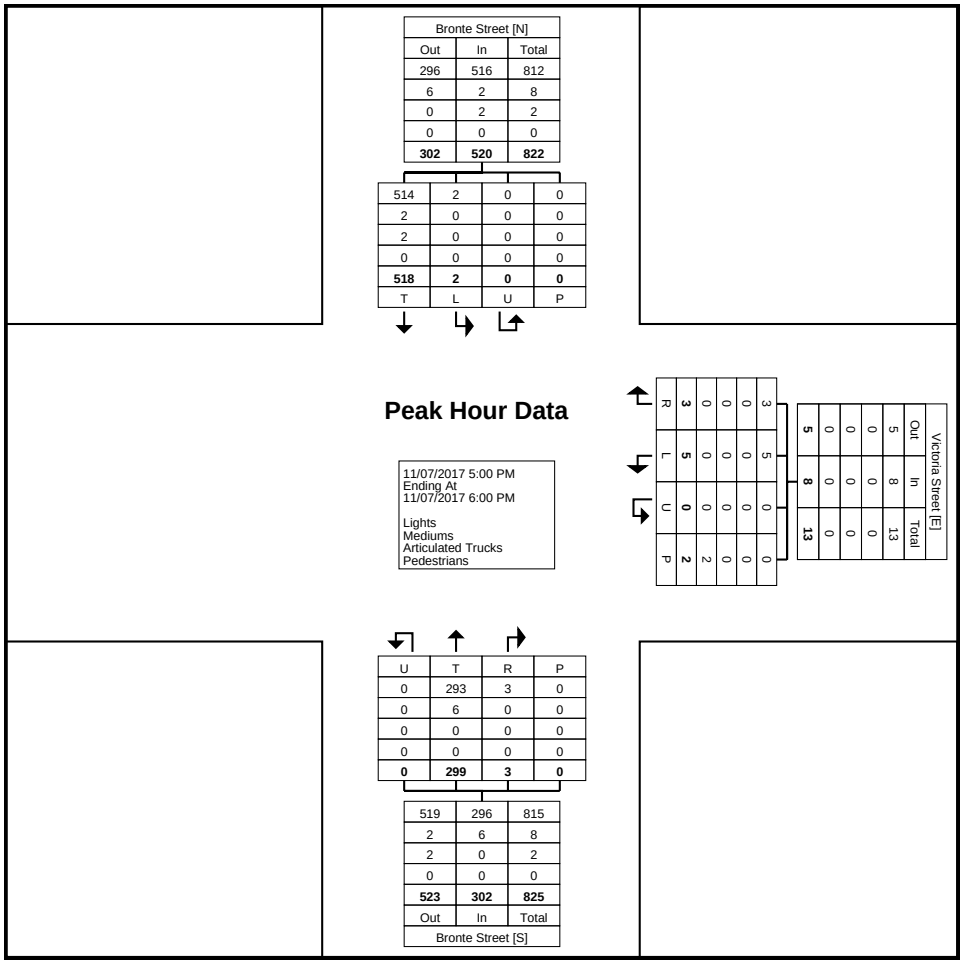
Site Code:
Start Date: 11/07/2017



Turning Movement Peak Hour Data Plot (5:00 PM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

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519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Weekday
Site Code:
Start Date: 11/07/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Weekday
Site Code:
Start Date: 11/07/2017

Turning Movement Data

Start Time	Driveway Eastbound						Mill Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	7	0	0	0	0	7	0	71	13	0	0	84	1	53	0	0	0	54	145
7:15 AM	0	0	0	0	0	0	7	0	1	0	0	8	0	93	7	0	0	100	1	62	0	0	0	63	171
7:30 AM	0	0	0	0	0	0	9	1	0	0	0	10	1	87	15	0	0	103	1	58	0	0	0	59	172
7:45 AM	0	0	0	0	0	0	14	0	0	0	1	14	1	95	30	0	0	126	1	88	0	0	0	89	229
Hourly Total	0	0	0	0	0	0	37	1	1	0	1	39	2	346	65	0	0	413	4	261	0	0	0	265	717
8:00 AM	1	0	0	0	0	1	15	1	1	0	0	17	0	84	24	0	0	108	0	68	0	0	0	68	194
8:15 AM	0	0	1	0	0	1	7	0	0	0	0	7	1	84	12	0	0	97	2	66	1	0	0	69	174
8:30 AM	2	0	0	0	0	2	8	0	0	0	0	8	1	103	12	0	0	116	3	74	0	0	0	77	203
8:45 AM	1	0	1	0	0	2	10	0	0	0	0	10	2	74	21	0	0	97	4	69	1	0	0	74	183
Hourly Total	4	0	2	0	0	6	40	1	1	0	0	42	4	345	69	0	0	418	9	277	2	0	0	288	754
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	2	1	0	0	4	18	1	2	0	1	21	2	62	10	0	0	74	3	138	2	0	0	143	242
3:15 PM	1	1	2	0	0	4	22	2	2	0	1	26	3	63	9	0	0	75	3	134	1	0	0	138	243
3:30 PM	0	2	3	0	0	5	30	1	2	0	0	33	2	64	20	0	0	86	3	92	0	0	0	95	219
3:45 PM	0	1	3	0	0	4	24	2	2	0	0	28	5	66	12	1	0	84	1	68	0	0	0	69	185
Hourly Total	2	6	9	0	0	17	94	6	8	0	2	108	12	255	51	1	0	319	10	432	3	0	0	445	889
4:00 PM	3	1	2	0	0	6	19	1	4	0	2	24	0	70	18	0	0	88	3	94	2	0	0	99	217
4:15 PM	0	0	2	0	0	2	28	2	4	0	0	34	2	68	8	0	0	78	2	89	0	0	0	91	205
4:30 PM	0	0	2	0	0	2	18	0	1	0	0	19	0	88	11	0	0	99	0	77	0	0	0	77	197
4:45 PM	1	0	0	0	0	1	30	0	0	0	1	30	4	84	16	0	0	104	0	92	0	0	0	92	227
Hourly Total	4	1	6	0	0	11	95	3	9	0	3	107	6	310	53	0	0	369	5	352	2	0	0	359	846
5:00 PM	4	0	1	0	0	5	27	1	1	0	2	29	0	86	24	0	0	110	0	108	3	0	0	111	255
5:15 PM	1	0	0	0	1	1	46	0	2	0	0	48	3	75	9	0	0	87	3	117	1	0	0	121	257
5:30 PM	1	1	3	0	0	5	32	2	1	0	0	35	2	74	11	0	0	87	0	151	1	0	0	152	279
5:45 PM	1	0	0	0	0	1	20	0	1	0	0	21	0	44	5	0	0	49	2	94	1	0	0	97	168
Hourly Total	7	1	4	0	1	12	125	3	5	0	2	133	5	279	49	0	0	333	5	470	6	0	0	481	959
Grand Total	17	8	21	0	1	46	391	14	24	0	8	429	29	1535	287	1	0	1852	33	1792	13	0	0	1838	4165
Approach %	37.0	17.4	45.7	0.0	-	-	91.1	3.3	5.6	0.0	-	-	1.6	82.9	15.5	0.1	-	-	1.8	97.5	0.7	0.0	-	-	-
Total %	0.4	0.2	0.5	0.0	-	1.1	9.4	0.3	0.6	0.0	-	10.3	0.7	36.9	6.9	0.0	-	44.5	0.8	43.0	0.3	0.0	-	44.1	-
Lights	16	8	20	0	-	44	387	14	23	0	-	424	29	1476	286	1	-	1792	32	1719	11	0	-	1762	4022
% Lights	94.1	100.0	95.2	-	-	95.7	99.0	100.0	95.8	-	-	98.8	100.0	96.2	99.7	100.0	-	96.8	97.0	95.9	84.6	-	-	95.9	96.6
Mediums	1	0	1	0	-	2	4	0	1	0	-	5	0	49	1	0	-	50	1	59	1	0	-	61	118
% Mediums	5.9	0.0	4.8	-	-	4.3	1.0	0.0	4.2	-	-	1.2	0.0	3.2	0.3	0.0	-	2.7	3.0	3.3	7.7	-	-	3.3	2.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	10	0	0	-	10	0	14	1	0	-	15	25
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	0.0	-	0.5	0.0	0.8	7.7	-	-	0.8	0.6
Pedestrians	-	-	-	-	1	-	-	-	-	-	8	-	-	-	-	-	0	-	-	-	-	-	0	-	-

% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-

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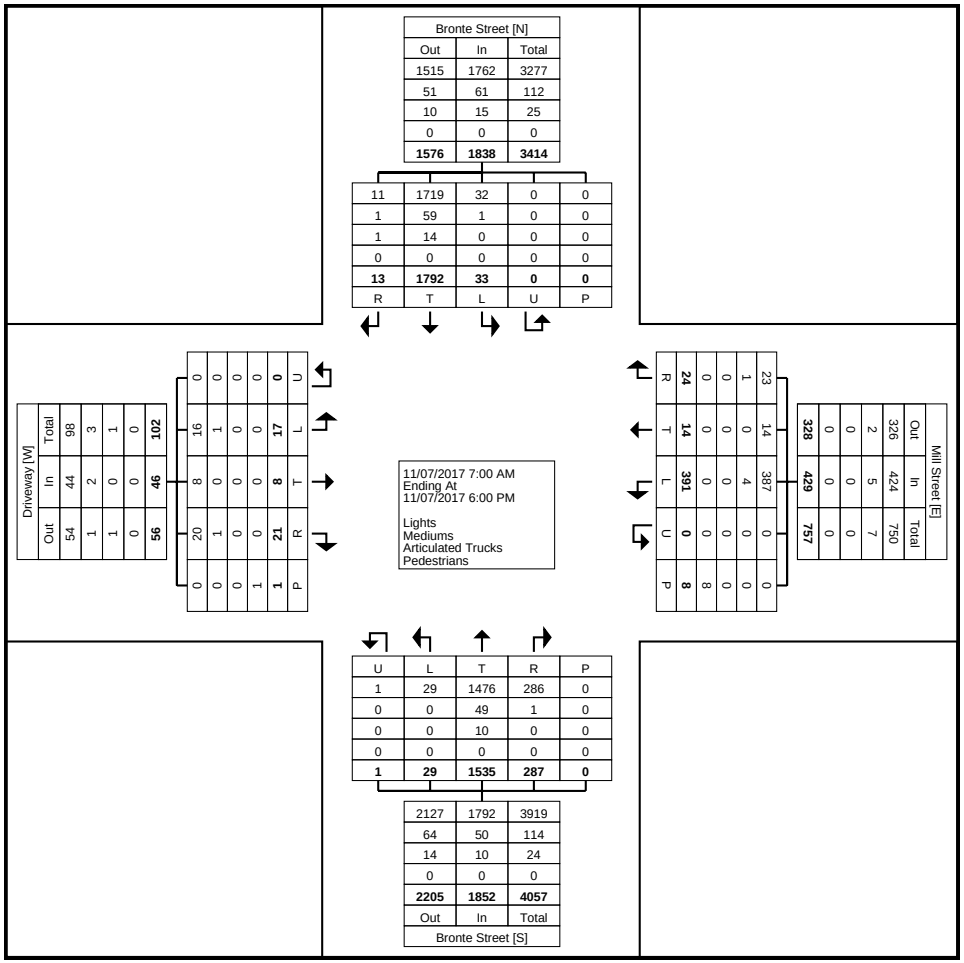
Start Date: 11/07/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Weekday
Site Code:
Start Date: 11/07/2017

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Driveway Eastbound						Mill Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	0	0	0	0	0	0	14	0	0	0	1	14	1	95	30	0	0	126	1	88	0	0	0	89	229
8:00 AM	1	0	0	0	0	1	15	1	1	0	0	17	0	84	24	0	0	108	0	68	0	0	0	68	194
8:15 AM	0	0	1	0	0	1	7	0	0	0	0	7	1	84	12	0	0	97	2	66	1	0	0	69	174
8:30 AM	2	0	0	0	0	2	8	0	0	0	0	8	1	103	12	0	0	116	3	74	0	0	0	77	203
Total	3	0	1	0	0	4	44	1	1	0	1	46	3	366	78	0	0	447	6	296	1	0	0	303	800
Approach %	75.0	0.0	25.0	0.0	-	-	95.7	2.2	2.2	0.0	-	-	0.7	81.9	17.4	0.0	-	-	2.0	97.7	0.3	0.0	-	-	-
Total %	0.4	0.0	0.1	0.0	-	0.5	5.5	0.1	0.1	0.0	-	5.8	0.4	45.8	9.8	0.0	-	55.9	0.8	37.0	0.1	0.0	-	37.9	-
PHF	0.375	0.000	0.250	0.000	-	0.500	0.733	0.250	0.250	0.000	-	0.676	0.750	0.888	0.650	0.000	-	0.887	0.500	0.841	0.250	0.000	-	0.851	0.873
Lights	2	0	1	0	-	3	44	1	1	0	-	46	3	349	78	0	-	430	5	273	1	0	-	279	758
% Lights	66.7	-	100.0	-	-	75.0	100.0	100.0	100.0	-	-	100.0	100.0	95.4	100.0	-	-	96.2	83.3	92.2	100.0	-	-	92.1	94.8
Mediums	1	0	0	0	-	1	0	0	0	0	-	0	0	15	0	0	-	15	1	18	0	0	-	19	35
% Mediums	33.3	-	0.0	-	-	25.0	0.0	0.0	0.0	-	-	0.0	0.0	4.1	0.0	-	-	3.4	16.7	6.1	0.0	-	-	6.3	4.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	5	0	0	-	5	7
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	0.4	0.0	1.7	0.0	-	-	1.7	0.9
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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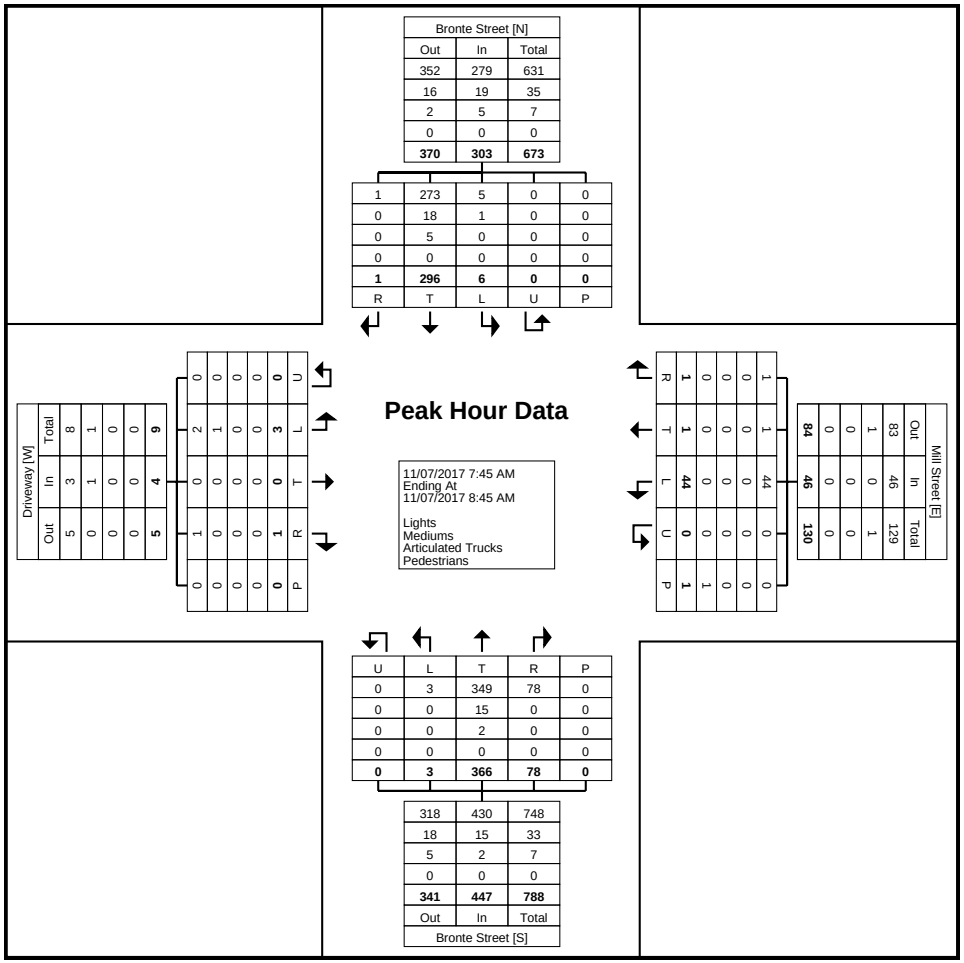

Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
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Count Name: Bronte Street & Mill Street - Weekday
Site Code:
Start Date: 11/07/2017

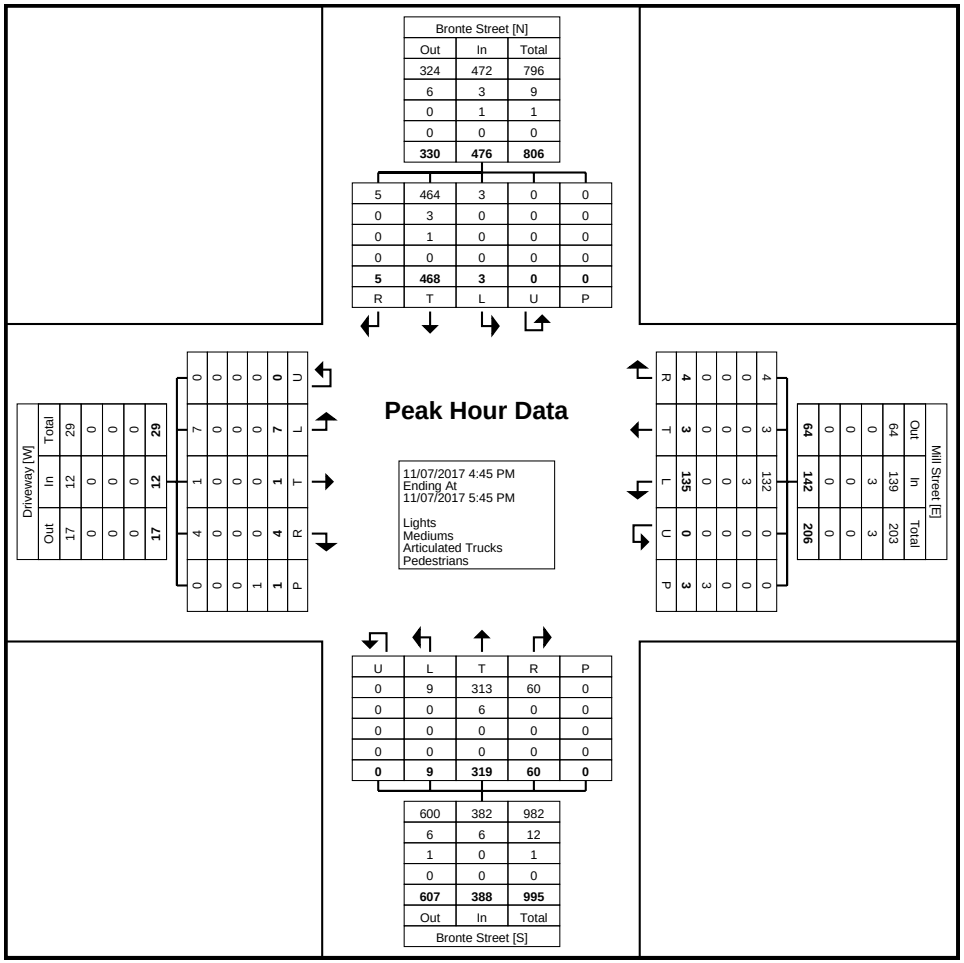
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Driveway Eastbound						Mill Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	1	0	0	0	0	1	30	0	0	0	1	30	4	84	16	0	0	104	0	92	0	0	0	92	227
5:00 PM	4	0	1	0	0	5	27	1	1	0	2	29	0	86	24	0	0	110	0	108	3	0	0	111	255
5:15 PM	1	0	0	0	1	1	46	0	2	0	0	48	3	75	9	0	0	87	3	117	1	0	0	121	257
5:30 PM	1	1	3	0	0	5	32	2	1	0	0	35	2	74	11	0	0	87	0	151	1	0	0	152	279
Total	7	1	4	0	1	12	135	3	4	0	3	142	9	319	60	0	0	388	3	468	5	0	0	476	1018
Approach %	58.3	8.3	33.3	0.0	-	-	95.1	2.1	2.8	0.0	-	-	2.3	82.2	15.5	0.0	-	-	0.6	98.3	1.1	0.0	-	-	-
Total %	0.7	0.1	0.4	0.0	-	1.2	13.3	0.3	0.4	0.0	-	13.9	0.9	31.3	5.9	0.0	-	38.1	0.3	46.0	0.5	0.0	-	46.8	-
PHF	0.438	0.250	0.333	0.000	-	0.600	0.734	0.375	0.500	0.000	-	0.740	0.563	0.927	0.625	0.000	-	0.882	0.250	0.775	0.417	0.000	-	0.783	0.912
Lights	7	1	4	0	-	12	132	3	4	0	-	139	9	313	60	0	-	382	3	464	5	0	-	472	1005
% Lights	100.0	100.0	100.0	-	-	100.0	97.8	100.0	100.0	-	-	97.9	100.0	98.1	100.0	-	-	98.5	100.0	99.1	100.0	-	-	99.2	98.7
Mediums	0	0	0	0	-	0	3	0	0	0	-	3	0	6	0	0	-	6	0	3	0	0	-	3	12
% Mediums	0.0	0.0	0.0	-	-	0.0	2.2	0.0	0.0	-	-	2.1	0.0	1.9	0.0	-	-	1.5	0.0	0.6	0.0	-	-	0.6	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.1
Pedestrians	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Weekday
Site Code:
Start Date: 11/07/2017



Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Weekday
Site Code:
Start Date: 11/07/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Main Street
Site Code:
Start Date: 12/07/2017

Turning Movement Data

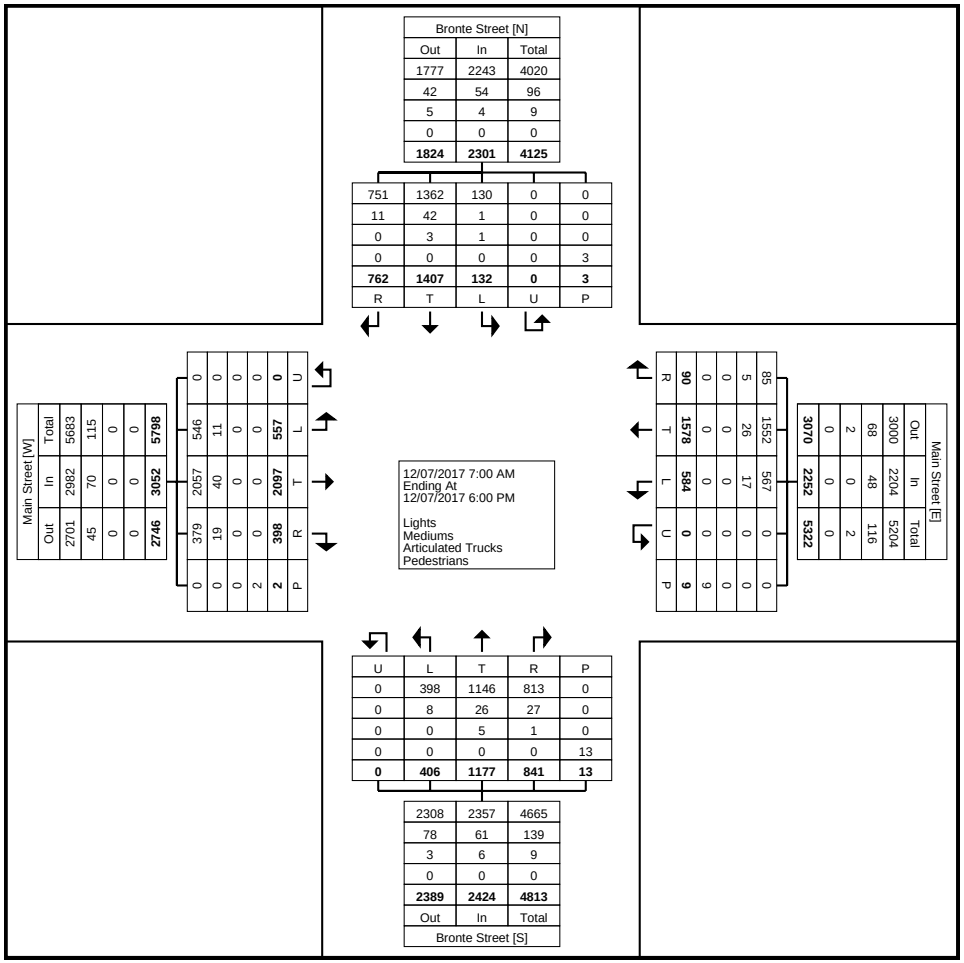
Start Time	Main Street Eastbound						Main Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	44	102	13	0	0	159	16	20	2	0	0	38	5	46	28	0	0	79	1	41	13	0	0	55	331
7:15 AM	36	138	23	0	0	197	19	42	5	0	1	66	2	65	24	0	1	91	4	49	16	0	1	69	423
7:30 AM	34	157	18	0	0	209	20	42	1	0	1	63	9	45	41	0	0	95	3	50	23	0	1	76	443
7:45 AM	40	139	29	0	1	208	21	50	1	0	0	72	2	63	42	0	1	107	3	66	9	0	0	78	465
Hourly Total	154	536	83	0	1	773	76	154	9	0	2	239	18	219	135	0	2	372	11	206	61	0	2	278	1662
8:00 AM	44	139	33	0	0	216	15	52	5	0	0	72	17	42	36	0	0	95	3	54	17	0	0	74	457
8:15 AM	29	150	24	0	0	203	20	66	4	0	0	90	10	53	40	0	1	103	4	57	17	0	0	78	474
8:30 AM	55	123	35	0	0	213	19	43	5	0	0	67	9	54	29	0	0	92	5	47	16	0	0	68	440
8:45 AM	45	112	27	0	0	184	27	41	4	0	0	72	10	52	29	0	0	91	6	64	19	0	0	89	436
Hourly Total	173	524	119	0	0	816	81	202	18	0	0	301	46	201	134	0	1	381	18	222	69	0	0	309	1807
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	16	73	12	0	0	101	40	81	11	0	1	132	20	53	42	0	0	115	9	70	39	0	0	118	466
3:15 PM	23	76	24	0	0	123	41	89	6	0	1	136	17	56	44	0	0	117	7	64	35	0	0	106	482
3:30 PM	17	77	6	0	0	100	30	82	5	0	0	117	24	67	45	0	0	136	10	71	33	0	0	114	467
3:45 PM	10	64	14	0	0	88	43	85	0	0	1	128	37	57	43	0	1	137	10	82	43	0	0	135	488
Hourly Total	66	290	56	0	0	412	154	337	22	0	3	513	98	233	174	0	1	505	36	287	150	0	0	473	1903
4:00 PM	19	91	21	0	1	131	42	90	4	0	0	136	36	66	53	0	0	155	10	82	44	0	1	136	558
4:15 PM	15	92	23	0	0	130	37	100	5	0	0	142	30	52	49	0	1	131	7	82	44	0	0	133	536
4:30 PM	23	99	9	0	0	131	33	95	2	0	1	130	38	72	52	0	1	162	12	80	50	0	0	142	565
4:45 PM	26	87	17	0	0	130	35	127	5	0	0	167	32	70	61	0	0	163	7	100	59	0	0	166	626
Hourly Total	83	369	70	0	1	522	147	412	16	0	1	575	136	260	215	0	2	611	36	344	197	0	1	577	2285
5:00 PM	19	76	18	0	0	113	39	108	8	0	2	155	31	84	63	0	1	178	10	91	72	0	0	173	619
5:15 PM	17	91	15	0	0	123	36	133	4	0	1	173	18	64	39	0	4	121	11	82	80	0	0	173	590
5:30 PM	26	108	24	0	0	158	26	121	7	0	0	154	27	70	42	0	1	139	3	96	59	0	0	158	609
5:45 PM	19	103	13	0	0	135	25	111	6	0	0	142	32	46	39	0	1	117	7	79	74	0	0	160	554
Hourly Total	81	378	70	0	0	529	126	473	25	0	3	624	108	264	183	0	7	555	31	348	285	0	0	664	2372
Grand Total	557	2097	398	0	2	3052	584	1578	90	0	9	2252	406	1177	841	0	13	2424	132	1407	762	0	3	2301	10029
Approach %	18.3	68.7	13.0	0.0	-	-	25.9	70.1	4.0	0.0	-	-	16.7	48.6	34.7	0.0	-	-	5.7	61.1	33.1	0.0	-	-	-
Total %	5.6	20.9	4.0	0.0	-	30.4	5.8	15.7	0.9	0.0	-	22.5	4.0	11.7	8.4	0.0	-	24.2	1.3	14.0	7.6	0.0	-	22.9	-
Lights	546	2057	379	0	-	2982	567	1552	85	0	-	2204	398	1146	813	0	-	2357	130	1362	751	0	-	2243	9786
% Lights	98.0	98.1	95.2	-	-	97.7	97.1	98.4	94.4	-	-	97.9	98.0	97.4	96.7	-	-	97.2	98.5	96.8	98.6	-	-	97.5	97.6
Mediums	11	40	19	0	-	70	17	26	5	0	-	48	8	26	27	0	-	61	1	42	11	0	-	54	233
% Mediums	2.0	1.9	4.8	-	-	2.3	2.9	1.6	5.6	-	-	2.1	2.0	2.2	3.2	-	-	2.5	0.8	3.0	1.4	-	-	2.3	2.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	5	1	0	-	6	1	3	0	0	-	4	10
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.1	-	-	0.2	0.8	0.2	0.0	-	-	0.2	0.1
Pedestrians	-	-	-	-	2	-	-	-	-	-	9	-	-	-	-	-	13	-	-	-	-	-	3	-	-

% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Main Street
Site Code:
Start Date: 12/07/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Main Street
Site Code:
Start Date: 12/07/2017

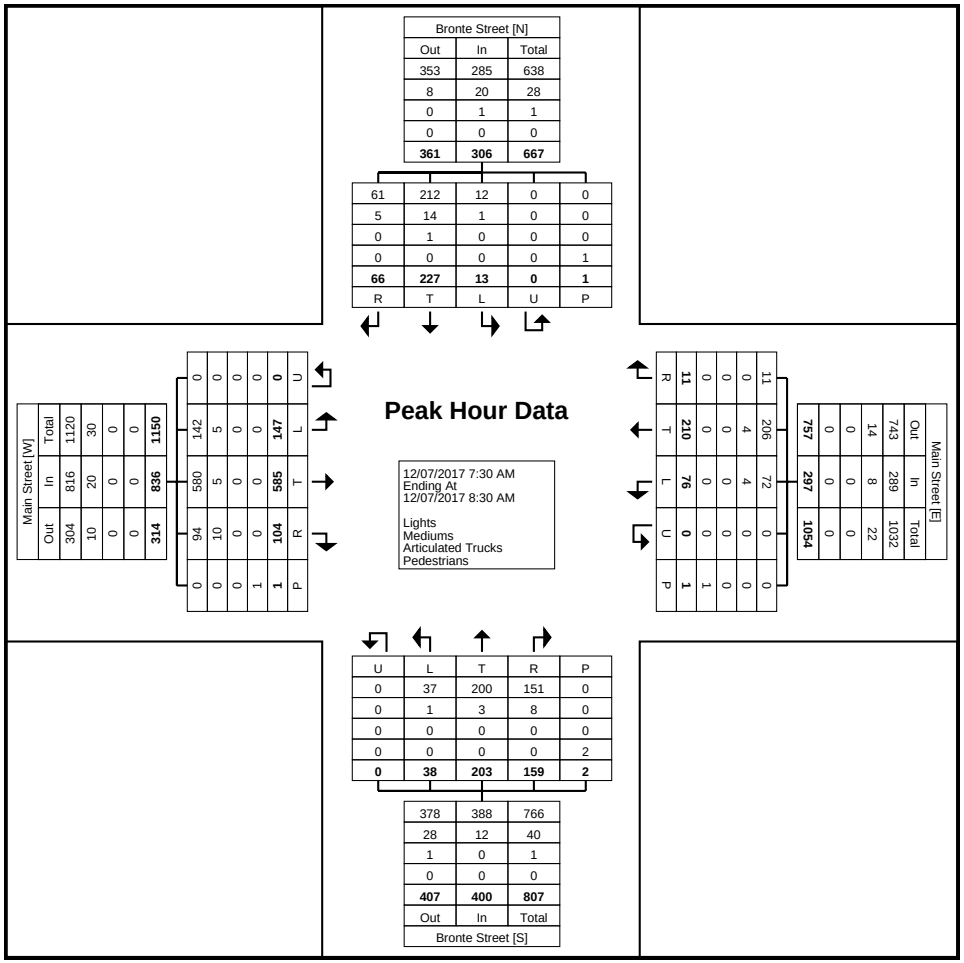
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Main Street Eastbound						Main Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	34	157	18	0	0	209	20	42	1	0	1	63	9	45	41	0	0	95	3	50	23	0	1	76	443
7:45 AM	40	139	29	0	1	208	21	50	1	0	0	72	2	63	42	0	1	107	3	66	9	0	0	78	465
8:00 AM	44	139	33	0	0	216	15	52	5	0	0	72	17	42	36	0	0	95	3	54	17	0	0	74	457
8:15 AM	29	150	24	0	0	203	20	66	4	0	0	90	10	53	40	0	1	103	4	57	17	0	0	78	474
Total	147	585	104	0	1	836	76	210	11	0	1	297	38	203	159	0	2	400	13	227	66	0	1	306	1839
Approach %	17.6	70.0	12.4	0.0	-	-	25.6	70.7	3.7	0.0	-	-	9.5	50.8	39.8	0.0	-	-	4.2	74.2	21.6	0.0	-	-	-
Total %	8.0	31.8	5.7	0.0	-	45.5	4.1	11.4	0.6	0.0	-	16.2	2.1	11.0	8.6	0.0	-	21.8	0.7	12.3	3.6	0.0	-	16.6	-
PHF	0.835	0.932	0.788	0.000	-	0.968	0.905	0.795	0.550	0.000	-	0.825	0.559	0.806	0.946	0.000	-	0.935	0.813	0.860	0.717	0.000	-	0.981	0.970
Lights	142	580	94	0	-	816	72	206	11	0	-	289	37	200	151	0	-	388	12	212	61	0	-	285	1778
% Lights	96.6	99.1	90.4	-	-	97.6	94.7	98.1	100.0	-	-	97.3	97.4	98.5	95.0	-	-	97.0	92.3	93.4	92.4	-	-	93.1	96.7
Mediums	5	5	10	0	-	20	4	4	0	0	-	8	1	3	8	0	-	12	1	14	5	0	-	20	60
% Mediums	3.4	0.9	9.6	-	-	2.4	5.3	1.9	0.0	-	-	2.7	2.6	1.5	5.0	-	-	3.0	7.7	6.2	7.6	-	-	6.5	3.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.3	0.1
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Main Street
Site Code:
Start Date: 12/07/2017



Turning Movement Peak Hour Data Plot (7:30 AM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Main Street
Site Code:
Start Date: 12/07/2017

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Main Street Eastbound						Main Street Westbound						Bronte Street Northbound						Bronte Street Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
4:45 PM	26	87	17	0	0	130	35	127	5	0	0	167	32	70	61	0	0	163	7	100	59	0	0	166	626
5:00 PM	19	76	18	0	0	113	39	108	8	0	2	155	31	84	63	0	1	178	10	91	72	0	0	173	619
5:15 PM	17	91	15	0	0	123	36	133	4	0	1	173	18	64	39	0	4	121	11	82	80	0	0	173	590
5:30 PM	26	108	24	0	0	158	26	121	7	0	0	154	27	70	42	0	1	139	3	96	59	0	0	158	609
Total	88	362	74	0	0	524	136	489	24	0	3	649	108	288	205	0	6	601	31	369	270	0	0	670	2444
Approach %	16.8	69.1	14.1	0.0	-	-	21.0	75.3	3.7	0.0	-	-	18.0	47.9	34.1	0.0	-	-	4.6	55.1	40.3	0.0	-	-	-
Total %	3.6	14.8	3.0	0.0	-	21.4	5.6	20.0	1.0	0.0	-	26.6	4.4	11.8	8.4	0.0	-	24.6	1.3	15.1	11.0	0.0	-	27.4	-
PHF	0.846	0.838	0.771	0.000	-	0.829	0.872	0.919	0.750	0.000	-	0.938	0.844	0.857	0.813	0.000	-	0.844	0.705	0.923	0.844	0.000	-	0.968	0.976
Lights	86	358	74	0	-	518	134	486	23	0	-	643	108	281	202	0	-	591	30	366	270	0	-	666	2418
% Lights	97.7	98.9	100.0	-	-	98.9	98.5	99.4	95.8	-	-	99.1	100.0	97.6	98.5	-	-	98.3	96.8	99.2	100.0	-	-	99.4	98.9
Mediums	2	4	0	0	-	6	2	3	1	0	-	6	0	7	3	0	-	10	0	3	0	0	-	3	25
% Mediums	2.3	1.1	0.0	-	-	1.1	1.5	0.6	4.2	-	-	0.9	0.0	2.4	1.5	-	-	1.7	0.0	0.8	0.0	-	-	0.4	1.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	3.2	0.0	0.0	-	-	0.1	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	6	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
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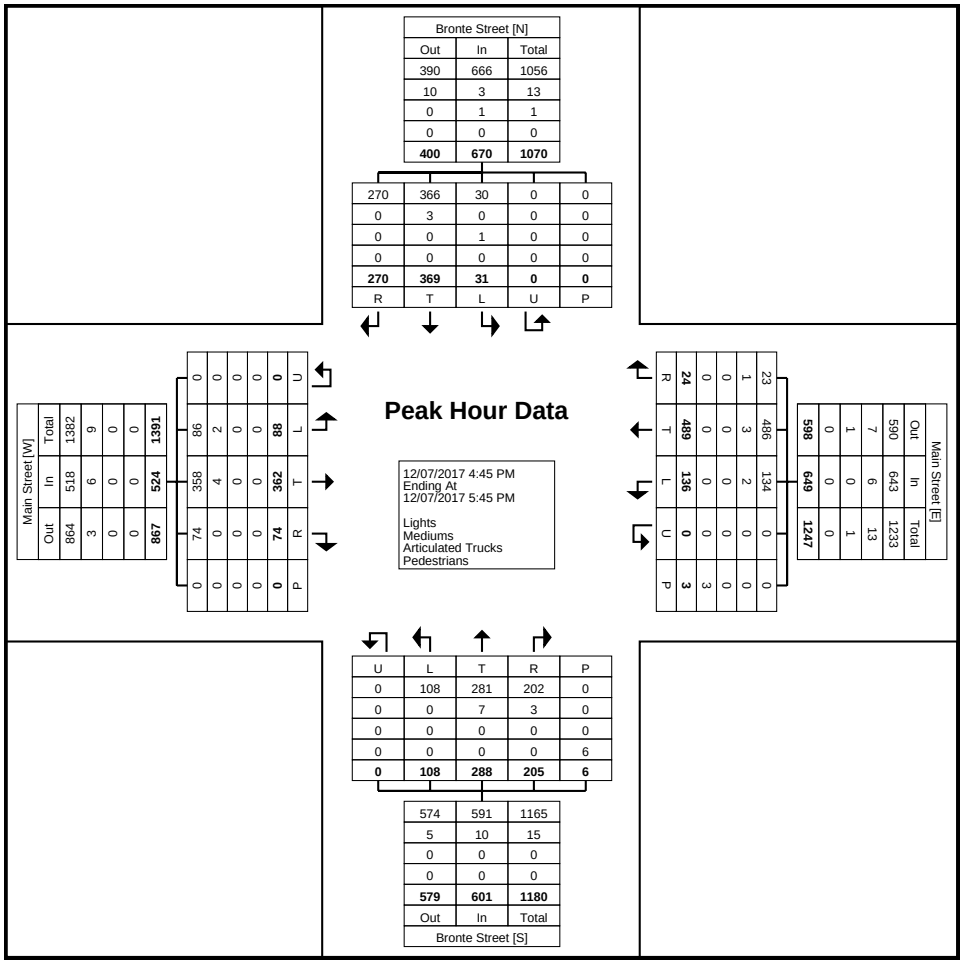
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Main Street
Site Code:
Start Date: 12/07/2017



Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Main Street
Site Code:
Start Date: 12/07/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Weekday
Site Code:
Start Date: 11/07/2017

Turning Movement Data

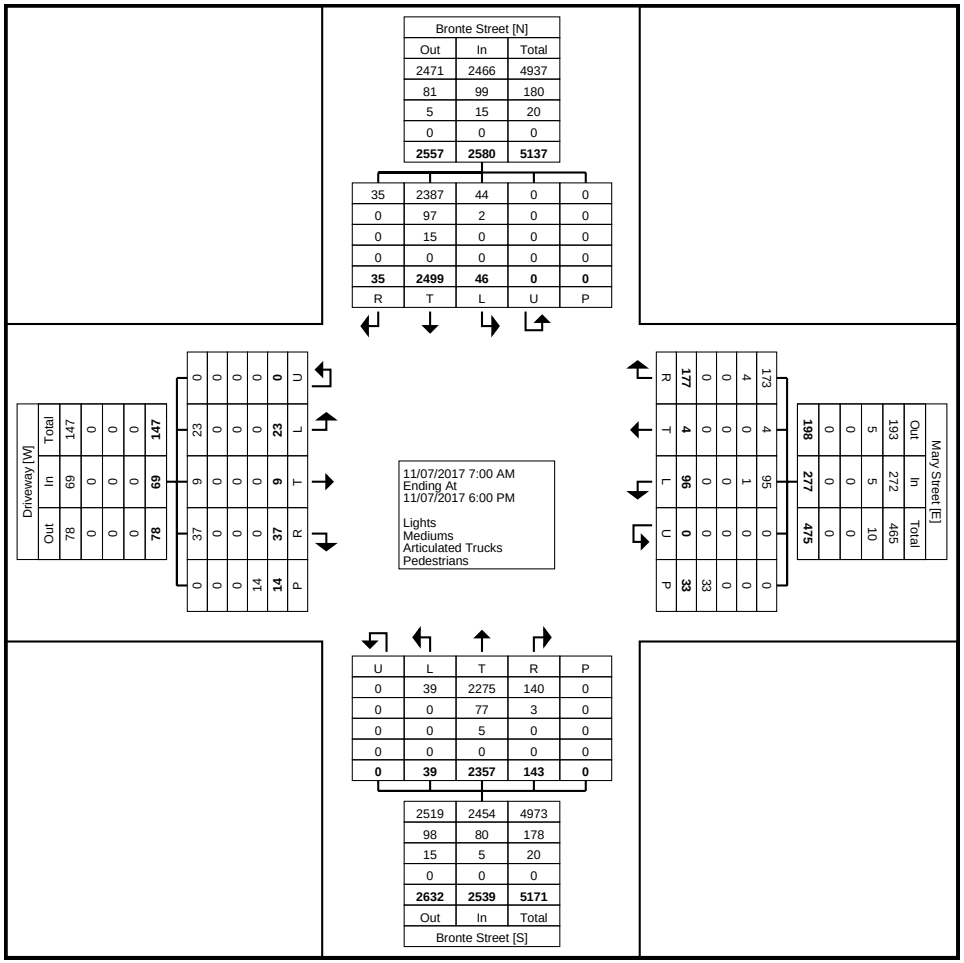
Start Time	Driveway Eastbound						Mary Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	3	0	1	0	1	4	0	78	2	0	0	80	1	67	1	0	0	69	153
7:15 AM	2	1	1	0	0	4	1	0	1	0	0	2	2	106	4	0	0	112	0	84	0	0	0	84	202
7:30 AM	0	0	0	0	0	0	2	0	1	0	0	3	1	102	8	0	0	111	2	87	0	0	0	89	203
7:45 AM	1	0	0	0	0	1	2	0	2	0	0	4	0	112	10	0	0	122	5	131	0	0	0	136	263
Hourly Total	3	1	1	0	0	5	8	0	5	0	1	13	3	398	24	0	0	425	8	369	1	0	0	378	821
8:00 AM	0	0	0	0	0	0	4	0	2	0	2	6	1	110	8	0	0	119	3	110	2	0	0	115	240
8:15 AM	0	0	1	0	0	1	2	0	4	0	2	6	1	93	10	0	0	104	5	107	0	0	0	112	223
8:30 AM	1	0	1	0	2	2	1	0	4	0	2	5	0	105	13	0	0	118	6	120	1	0	0	127	252
8:45 AM	2	0	2	0	0	4	1	0	6	0	5	7	1	108	14	0	0	123	1	128	0	0	0	129	263
Hourly Total	3	0	4	0	2	7	8	0	16	0	11	24	3	416	45	0	0	464	15	465	3	0	0	483	978
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	1	0	0	1	2	1	9	0	4	12	1	106	8	0	0	115	2	142	0	0	0	144	272
3:15 PM	0	2	0	0	0	2	6	1	10	0	3	17	1	133	12	0	0	146	2	144	3	0	0	149	314
3:30 PM	2	0	2	0	0	4	7	0	10	0	2	17	2	118	6	0	0	126	2	129	5	0	0	136	283
3:45 PM	0	1	1	0	1	2	9	0	12	0	2	21	1	125	7	0	0	133	2	139	2	0	0	143	299
Hourly Total	2	3	4	0	1	9	24	2	41	0	11	67	5	482	33	0	0	520	8	554	10	0	0	572	1168
4:00 PM	3	0	2	0	1	5	6	0	17	0	0	23	4	142	6	0	0	152	1	129	0	0	0	130	310
4:15 PM	2	0	4	0	0	6	7	0	12	0	2	19	1	133	7	0	0	141	3	140	6	0	0	149	315
4:30 PM	0	1	2	0	2	3	9	0	25	0	1	34	4	136	6	0	0	146	1	120	0	0	0	121	304
4:45 PM	2	3	1	0	8	6	9	0	14	0	4	23	6	137	8	0	0	151	3	139	6	0	0	148	328
Hourly Total	7	4	9	0	11	20	31	0	68	0	7	99	15	548	27	0	0	590	8	528	12	0	0	548	1257
5:00 PM	5	0	6	0	0	11	3	1	20	0	2	24	5	170	4	0	0	179	0	136	4	0	0	140	354
5:15 PM	1	0	4	0	0	5	9	0	7	0	0	16	2	119	5	0	0	126	3	143	2	0	0	148	295
5:30 PM	2	0	4	0	0	6	8	0	12	0	0	20	4	122	0	0	0	126	2	157	0	0	0	159	311
5:45 PM	0	1	5	0	0	6	5	1	8	0	1	14	2	102	5	0	0	109	2	147	3	0	0	152	281
Hourly Total	8	1	19	0	0	28	25	2	47	0	3	74	13	513	14	0	0	540	7	583	9	0	0	599	1241
Grand Total	23	9	37	0	14	69	96	4	177	0	33	277	39	2357	143	0	0	2539	46	2499	35	0	0	2580	5465
Approach %	33.3	13.0	53.6	0.0	-	-	34.7	1.4	63.9	0.0	-	-	1.5	92.8	5.6	0.0	-	-	1.8	96.9	1.4	0.0	-	-	-
Total %	0.4	0.2	0.7	0.0	-	1.3	1.8	0.1	3.2	0.0	-	5.1	0.7	43.1	2.6	0.0	-	46.5	0.8	45.7	0.6	0.0	-	47.2	-
Lights	23	9	37	0	-	69	95	4	173	0	-	272	39	2275	140	0	-	2454	44	2387	35	0	-	2466	5261
% Lights	100.0	100.0	100.0	-	-	100.0	99.0	100.0	97.7	-	-	98.2	100.0	96.5	97.9	-	-	96.7	95.7	95.5	100.0	-	-	95.6	96.3
Mediums	0	0	0	0	-	0	1	0	4	0	-	5	0	77	3	0	-	80	2	97	0	0	-	99	184
% Mediums	0.0	0.0	0.0	-	-	0.0	1.0	0.0	2.3	-	-	1.8	0.0	3.3	2.1	-	-	3.2	4.3	3.9	0.0	-	-	3.8	3.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	0	15	0	0	-	15	20
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.6	0.0	-	-	0.6	0.4
Pedestrians	-	-	-	-	14	-	-	-	-	-	33	-	-	-	-	-	0	-	-	-	-	-	0	-	-

% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Weekday
Site Code:
Start Date: 11/07/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Weekday
Site Code:
Start Date: 11/07/2017

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Driveway Eastbound						Mary Street Westbound						Bronte Street Northbound						Bronte Street Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:45 AM	1	0	0	0	0	1	2	0	2	0	0	4	0	112	10	0	0	122	5	131	0	0	0	136	263
8:00 AM	0	0	0	0	0	0	4	0	2	0	2	6	1	110	8	0	0	119	3	110	2	0	0	115	240
8:15 AM	0	0	1	0	0	1	2	0	4	0	2	6	1	93	10	0	0	104	5	107	0	0	0	112	223
8:30 AM	1	0	1	0	2	2	1	0	4	0	2	5	0	105	13	0	0	118	6	120	1	0	0	127	252
Total	2	0	2	0	2	4	9	0	12	0	6	21	2	420	41	0	0	463	19	468	3	0	0	490	978
Approach %	50.0	0.0	50.0	0.0	-	-	42.9	0.0	57.1	0.0	-	-	0.4	90.7	8.9	0.0	-	-	3.9	95.5	0.6	0.0	-	-	-
Total %	0.2	0.0	0.2	0.0	-	0.4	0.9	0.0	1.2	0.0	-	2.1	0.2	42.9	4.2	0.0	-	47.3	1.9	47.9	0.3	0.0	-	50.1	-
PHF	0.500	0.000	0.500	0.000	-	0.500	0.563	0.000	0.750	0.000	-	0.875	0.500	0.938	0.788	0.000	-	0.949	0.792	0.893	0.375	0.000	-	0.901	0.930
Lights	2	0	2	0	-	4	9	0	12	0	-	21	2	400	40	0	-	442	19	432	3	0	-	454	921
% Lights	100.0	-	100.0	-	-	100.0	100.0	-	100.0	-	-	100.0	100.0	95.2	97.6	-	-	95.5	100.0	92.3	100.0	-	-	92.7	94.2
Mediums	0	0	0	0	-	0	0	0	0	0	-	0	0	19	1	0	-	20	0	32	0	0	-	32	52
% Mediums	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	4.5	2.4	-	-	4.3	0.0	6.8	0.0	-	-	6.5	5.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	4	0	0	-	4	5
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.9	0.0	-	-	0.8	0.5
Pedestrians	-	-	-	-	2	-	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
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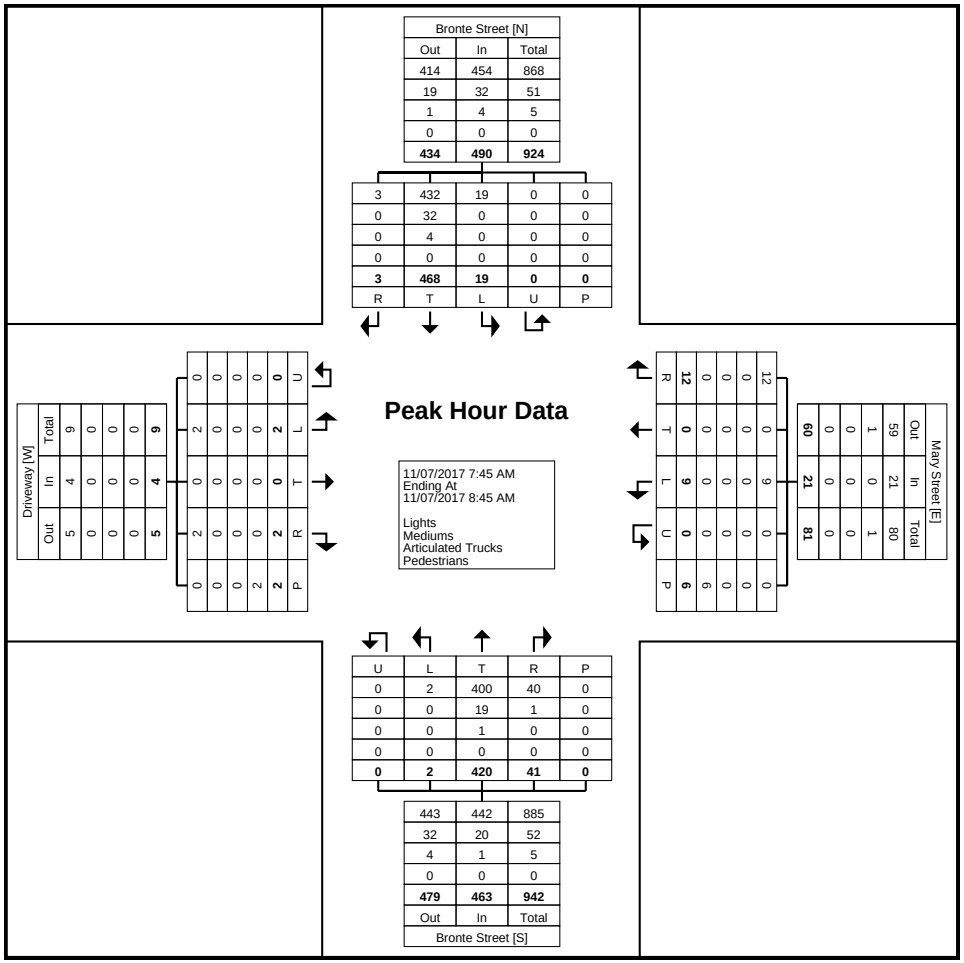
Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Weekday
Site Code:
Start Date: 11/07/2017



Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Weekday
Site Code:
Start Date: 11/07/2017

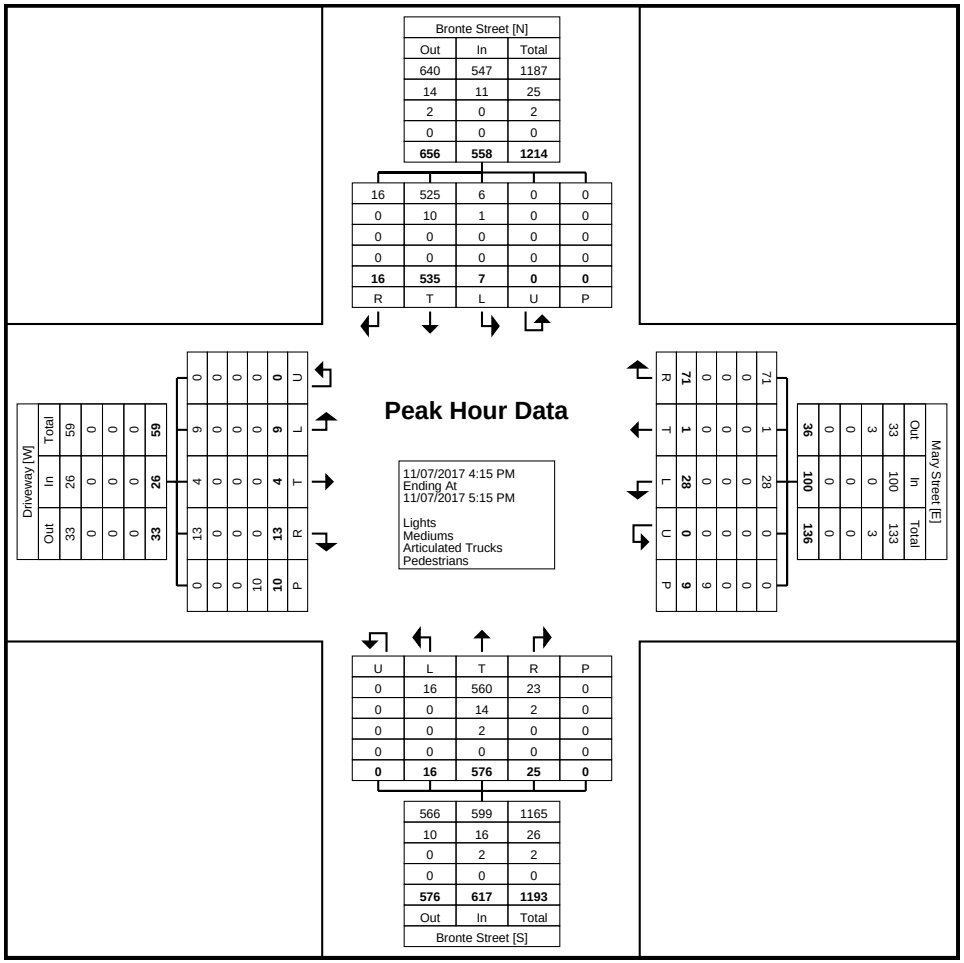
Turning Movement Peak Hour Data (4:15 PM)

Start Time	Driveway Eastbound						Mary Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:15 PM	2	0	4	0	0	6	7	0	12	0	2	19	1	133	7	0	0	141	3	140	6	0	0	149	315
4:30 PM	0	1	2	0	2	3	9	0	25	0	1	34	4	136	6	0	0	146	1	120	0	0	0	121	304
4:45 PM	2	3	1	0	8	6	9	0	14	0	4	23	6	137	8	0	0	151	3	139	6	0	0	148	328
5:00 PM	5	0	6	0	0	11	3	1	20	0	2	24	5	170	4	0	0	179	0	136	4	0	0	140	354
Total	9	4	13	0	10	26	28	1	71	0	9	100	16	576	25	0	0	617	7	535	16	0	0	558	1301
Approach %	34.6	15.4	50.0	0.0	-	-	28.0	1.0	71.0	0.0	-	-	2.6	93.4	4.1	0.0	-	-	1.3	95.9	2.9	0.0	-	-	-
Total %	0.7	0.3	1.0	0.0	-	2.0	2.2	0.1	5.5	0.0	-	7.7	1.2	44.3	1.9	0.0	-	47.4	0.5	41.1	1.2	0.0	-	42.9	-
PHF	0.450	0.333	0.542	0.000	-	0.591	0.778	0.250	0.710	0.000	-	0.735	0.667	0.847	0.781	0.000	-	0.862	0.583	0.955	0.667	0.000	-	0.936	0.919
Lights	9	4	13	0	-	26	28	1	71	0	-	100	16	560	23	0	-	599	6	525	16	0	-	547	1272
% Lights	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	97.2	92.0	-	-	97.1	85.7	98.1	100.0	-	-	98.0	97.8
Mediums	0	0	0	0	-	0	0	0	0	0	-	0	0	14	2	0	-	16	1	10	0	0	-	11	27
% Mediums	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	2.4	8.0	-	-	2.6	14.3	1.9	0.0	-	-	2.0	2.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.2
Pedestrians	-	-	-	-	10	-	-	-	-	-	9	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Weekday
Site Code:
Start Date: 11/07/2017



Turning Movement Peak Hour Data Plot (4:15 PM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Weekday
Site Code:
Start Date: 11/07/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Whitmer Street
Site Code:
Start Date: 12/07/2017

Turning Movement Data

Start Time	Main Street Eastbound					Main Street Westbound					Whitmer Street Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	110	0	0	0	110	6	33	0	0	39	1	54	0	1	55	204
7:15 AM	160	2	0	0	162	6	47	0	0	53	2	47	0	0	49	264
7:30 AM	146	0	0	0	146	18	60	0	0	78	5	45	0	0	50	274
7:45 AM	156	0	0	0	156	8	45	0	0	53	2	52	0	0	54	263
Hourly Total	572	2	0	0	574	38	185	0	0	223	10	198	0	1	208	1005
8:00 AM	167	1	0	0	168	20	68	0	0	88	3	59	0	2	62	318
8:15 AM	162	4	0	0	166	14	81	0	0	95	4	41	0	1	45	306
8:30 AM	171	5	0	0	176	14	52	0	0	66	1	48	0	0	49	291
8:45 AM	119	0	0	0	119	20	51	0	0	71	1	45	0	0	46	236
Hourly Total	619	10	0	0	629	68	252	0	0	320	9	193	0	3	202	1151
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	82	6	0	0	88	32	108	0	0	140	1	16	0	0	17	245
3:15 PM	113	6	0	0	119	38	103	0	0	141	2	17	0	0	19	279
3:30 PM	79	3	0	0	82	26	107	0	0	133	2	17	0	3	19	234
3:45 PM	73	0	0	0	73	47	121	0	1	168	1	25	0	0	26	267
Hourly Total	347	15	0	0	362	143	439	0	1	582	6	75	0	3	81	1025
4:00 PM	99	2	0	0	101	36	137	0	0	173	0	27	0	1	27	301
4:15 PM	104	1	0	0	105	30	146	0	0	176	1	27	0	0	28	309
4:30 PM	109	5	0	0	114	37	142	0	0	179	0	32	0	1	32	325
4:45 PM	92	1	0	0	93	60	161	0	0	221	1	34	0	0	35	349
Hourly Total	404	9	0	0	413	163	586	0	0	749	2	120	0	2	122	1284
5:00 PM	95	4	0	0	99	49	164	0	0	213	0	23	0	1	23	335
5:15 PM	97	3	0	0	100	49	175	0	0	224	0	32	0	1	32	356
5:30 PM	109	0	0	0	109	56	152	0	0	208	0	33	0	0	33	350
5:45 PM	111	0	0	0	111	52	163	0	0	215	1	26	0	2	27	353
Hourly Total	412	7	0	0	419	206	654	0	0	860	1	114	0	4	115	1394
Grand Total	2354	43	0	0	2397	618	2116	0	1	2734	28	700	0	13	728	5859
Approach %	98.2	1.8	0.0	-	-	22.6	77.4	0.0	-	-	3.8	96.2	0.0	-	-	-
Total %	40.2	0.7	0.0	-	40.9	10.5	36.1	0.0	-	46.7	0.5	11.9	0.0	-	12.4	-
Lights	2297	41	0	-	2338	612	2072	0	-	2684	26	693	0	-	719	5741
% Lights	97.6	95.3	-	-	97.5	99.0	97.9	-	-	98.2	92.9	99.0	-	-	98.8	98.0
Mediums	57	2	0	-	59	6	44	0	-	50	2	7	0	-	9	118
% Mediums	2.4	4.7	-	-	2.5	1.0	2.1	-	-	1.8	7.1	1.0	-	-	1.2	2.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	13	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
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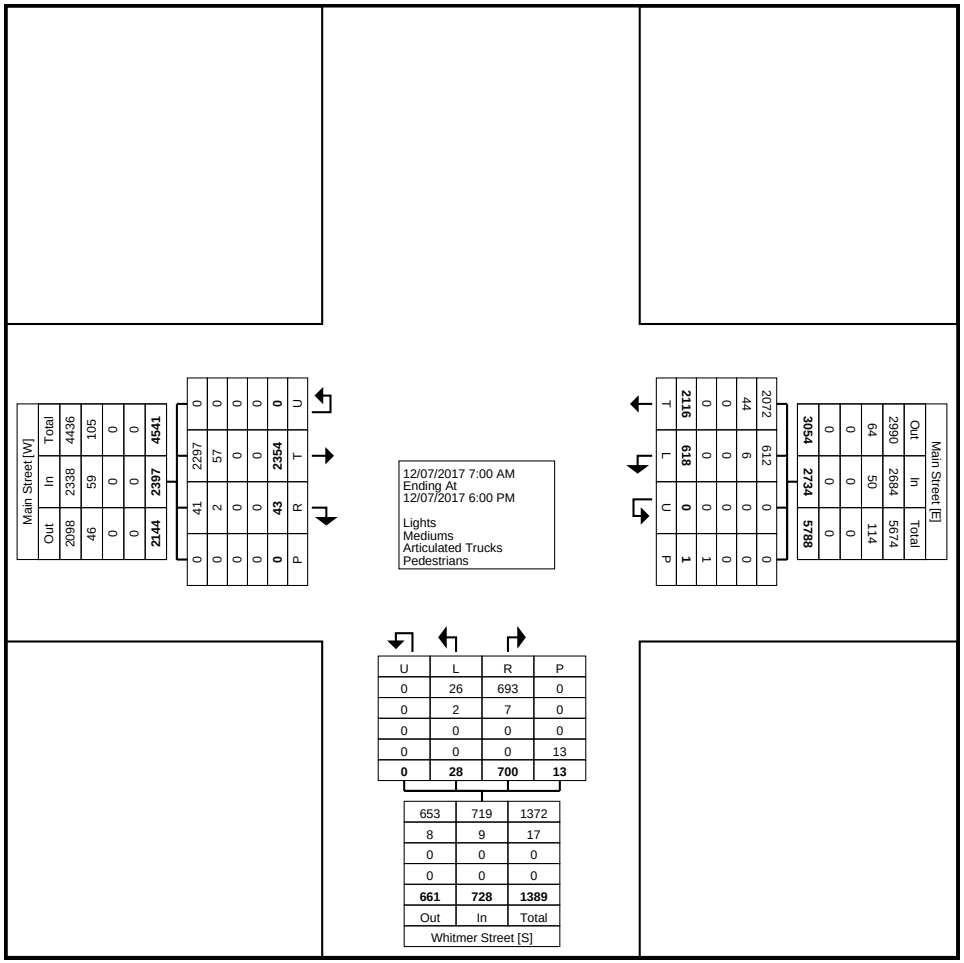
Count Name: Main Street & Whitmer Street
Site Code:
Start Date: 12/07/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Whitmer Street
Site Code:
Start Date: 12/07/2017

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Main Street Eastbound					Main Street Westbound					Whitmer Street Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
7:45 AM	156	0	0	0	156	8	45	0	0	53	2	52	0	0	54	263
8:00 AM	167	1	0	0	168	20	68	0	0	88	3	59	0	2	62	318
8:15 AM	162	4	0	0	166	14	81	0	0	95	4	41	0	1	45	306
8:30 AM	171	5	0	0	176	14	52	0	0	66	1	48	0	0	49	291
Total	656	10	0	0	666	56	246	0	0	302	10	200	0	3	210	1178
Approach %	98.5	1.5	0.0	-	-	18.5	81.5	0.0	-	-	4.8	95.2	0.0	-	-	-
Total %	55.7	0.8	0.0	-	56.5	4.8	20.9	0.0	-	25.6	0.8	17.0	0.0	-	17.8	-
PHF	0.959	0.500	0.000	-	0.946	0.700	0.759	0.000	-	0.795	0.625	0.847	0.000	-	0.847	0.926
Lights	639	9	0	-	648	53	238	0	-	291	10	196	0	-	206	1145
% Lights	97.4	90.0	-	-	97.3	94.6	96.7	-	-	96.4	100.0	98.0	-	-	98.1	97.2
Mediums	17	1	0	-	18	3	8	0	-	11	0	4	0	-	4	33
% Mediums	2.6	10.0	-	-	2.7	5.4	3.3	-	-	3.6	0.0	2.0	-	-	1.9	2.8
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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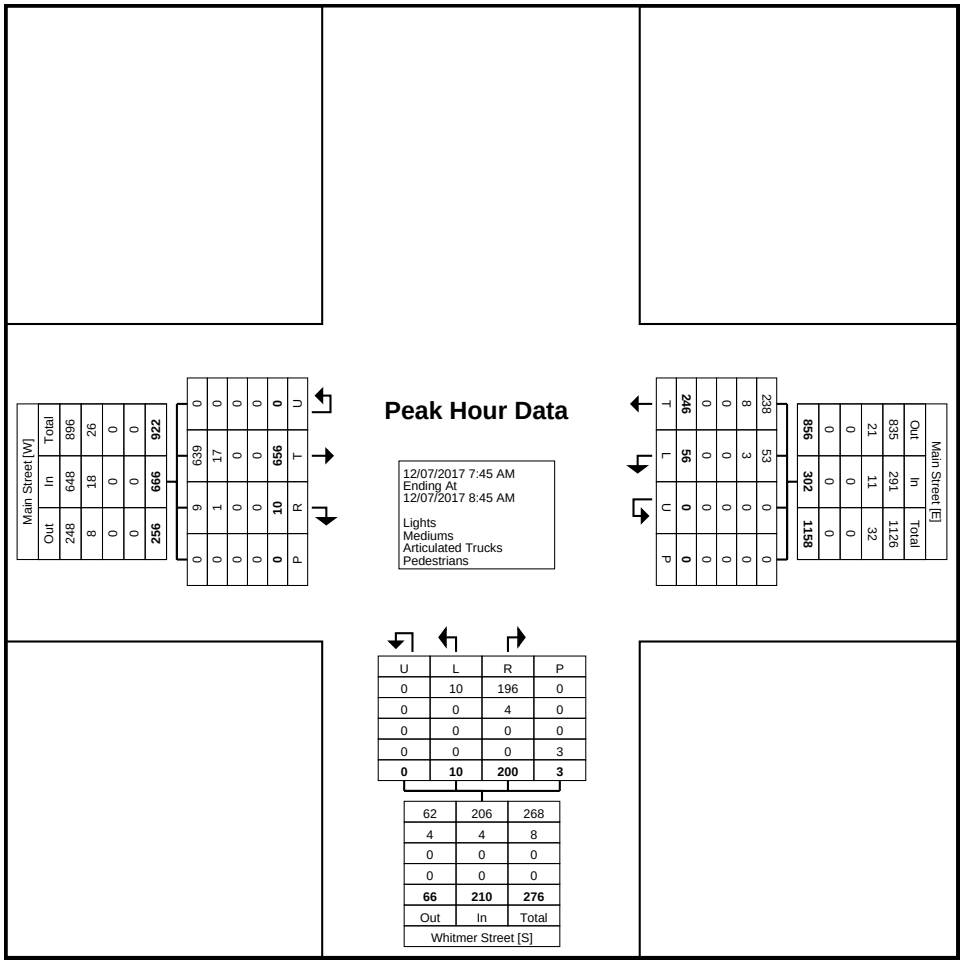
Count Name: Main Street & Whitmer Street
Site Code:
Start Date: 12/07/2017



Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
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Count Name: Main Street & Whitmer Street
Site Code:
Start Date: 12/07/2017

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Main Street Eastbound					Main Street Westbound					Whitmer Street Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
5:00 PM	95	4	0	0	99	49	164	0	0	213	0	23	0	1	23	335
5:15 PM	97	3	0	0	100	49	175	0	0	224	0	32	0	1	32	356
5:30 PM	109	0	0	0	109	56	152	0	0	208	0	33	0	0	33	350
5:45 PM	111	0	0	0	111	52	163	0	0	215	1	26	0	2	27	353
Total	412	7	0	0	419	206	654	0	0	860	1	114	0	4	115	1394
Approach %	98.3	1.7	0.0	-	-	24.0	76.0	0.0	-	-	0.9	99.1	0.0	-	-	-
Total %	29.6	0.5	0.0	-	30.1	14.8	46.9	0.0	-	61.7	0.1	8.2	0.0	-	8.2	-
PHF	0.928	0.438	0.000	-	0.944	0.920	0.934	0.000	-	0.960	0.250	0.864	0.000	-	0.871	0.979
Lights	407	7	0	-	414	206	650	0	-	856	1	113	0	-	114	1384
% Lights	98.8	100.0	-	-	98.8	100.0	99.4	-	-	99.5	100.0	99.1	-	-	99.1	99.3
Mediums	5	0	0	-	5	0	4	0	-	4	0	1	0	-	1	10
% Mediums	1.2	0.0	-	-	1.2	0.0	0.6	-	-	0.5	0.0	0.9	-	-	0.9	0.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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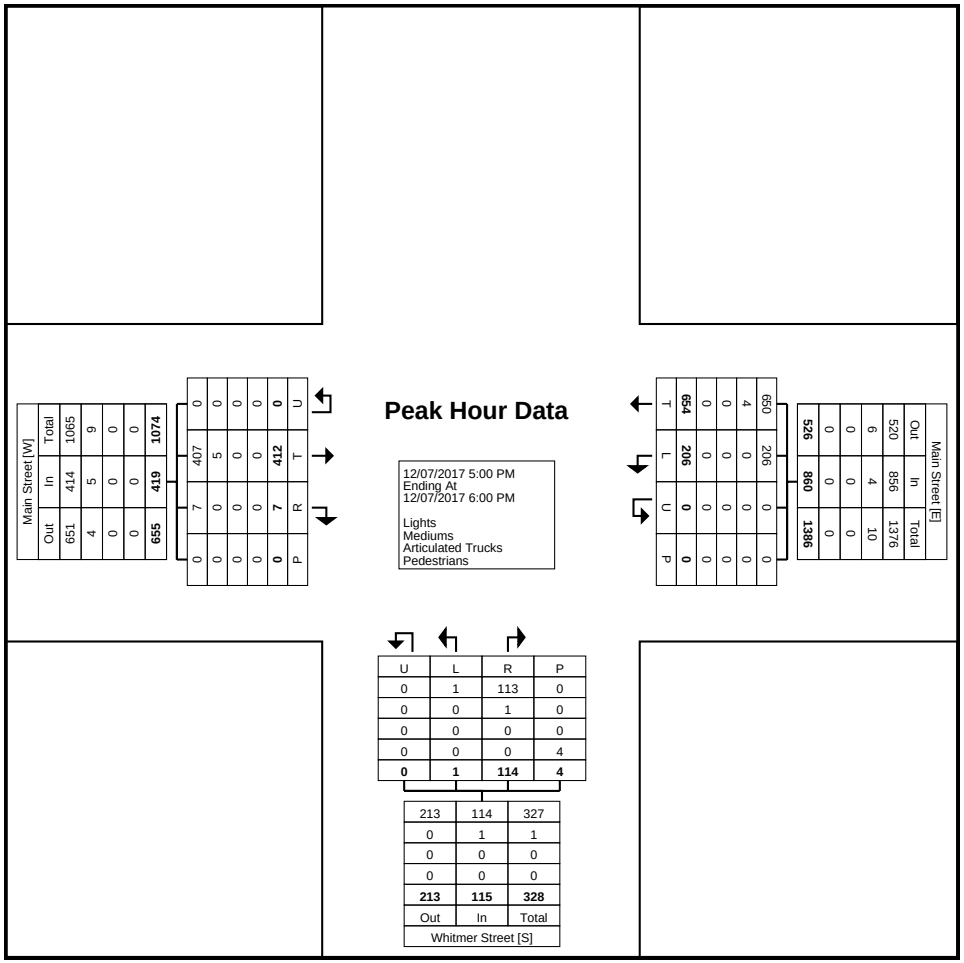
Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Whitmer Street
Site Code:
Start Date: 12/07/2017



Turning Movement Peak Hour Data Plot (5:00 PM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Whitmer Street
Site Code:
Start Date: 12/07/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Data

Start Time	Victoria Street Westbound					Bronte Street Northbound					Bronte Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
9:00 AM	0	1	0	0	1	80	1	0	0	81	0	64	0	0	64	146
9:15 AM	0	2	0	3	2	81	0	0	0	81	0	89	0	0	89	172
9:30 AM	0	0	0	0	0	86	2	0	0	88	0	84	0	0	84	172
9:45 AM	2	0	0	0	2	109	0	0	0	109	1	110	0	0	111	222
Hourly Total	2	3	0	3	5	356	3	0	0	359	1	347	0	0	348	712
10:00 AM	1	0	0	0	1	101	0	0	0	101	1	123	0	0	124	226
10:15 AM	0	1	0	0	1	108	1	0	0	109	0	88	0	0	88	198
10:30 AM	1	0	0	0	1	117	1	0	0	118	0	120	0	0	120	239
10:45 AM	0	1	0	0	1	109	2	0	0	111	0	135	0	0	135	247
Hourly Total	2	2	0	0	4	435	4	0	0	439	1	466	0	0	467	910
11:00 AM	0	0	0	0	0	101	2	0	0	103	2	97	0	0	99	202
11:15 AM	2	1	0	0	3	88	3	0	0	91	0	110	0	0	110	204
11:30 AM	1	0	0	0	1	91	1	0	0	92	0	113	0	0	113	206
11:45 AM	1	2	0	0	3	110	0	0	0	110	4	145	0	0	149	262
Hourly Total	4	3	0	0	7	390	6	0	0	396	6	465	0	0	471	874
12:00 PM	3	0	0	0	3	107	2	0	0	109	1	145	0	0	146	258
12:15 PM	1	1	0	0	2	140	0	0	0	140	0	129	0	0	129	271
12:30 PM	3	0	0	2	3	89	3	0	0	92	0	133	0	0	133	228
12:45 PM	1	0	0	0	1	106	0	0	0	106	0	134	0	0	134	241
Hourly Total	8	1	0	2	9	442	5	0	0	447	1	541	0	0	542	998
1:00 PM	0	0	0	2	0	115	0	0	0	115	0	142	0	0	142	257
1:15 PM	2	0	0	0	2	91	0	0	0	91	1	145	0	0	146	239
1:30 PM	1	1	0	0	2	92	0	0	0	92	0	132	0	0	132	226
1:45 PM	0	0	0	1	0	82	0	0	0	82	0	142	0	0	142	224
Hourly Total	3	1	0	3	4	380	0	0	0	380	1	561	0	0	562	946
2:00 PM	0	0	0	0	0	92	3	0	0	95	1	137	0	0	138	233
2:15 PM	0	0	0	2	0	97	0	0	0	97	0	146	0	0	146	243
2:30 PM	1	0	0	0	1	109	1	0	0	110	0	152	0	0	152	263
2:45 PM	0	0	0	1	0	73	2	0	0	75	0	145	0	0	145	220
Hourly Total	1	0	0	3	1	371	6	0	0	377	1	580	0	0	581	959
3:00 PM	0	0	0	0	0	90	0	0	0	90	0	139	0	0	139	229
3:15 PM	2	0	0	0	2	83	2	0	0	85	0	148	0	0	148	235
3:30 PM	1	0	0	0	1	80	3	0	0	83	0	171	0	0	171	255
3:45 PM	0	0	0	0	0	68	1	0	0	69	0	147	0	0	147	216
Hourly Total	3	0	0	0	3	321	6	0	0	327	0	605	0	0	605	935
4:00 PM	2	1	0	0	3	87	1	0	0	88	0	124	0	0	124	215
4:15 PM	0	0	0	0	0	94	0	0	0	94	0	134	0	0	134	228
4:30 PM	0	0	0	0	0	90	1	0	0	91	1	132	0	0	133	224

4:45 PM	1	1	0	2	2	90	0	0	0	90	0	137	0	0	137	229
Hourly Total	3	2	0	2	5	361	2	0	0	363	1	527	0	0	528	896
Grand Total	26	12	0	13	38	3056	32	0	0	3088	12	4092	0	0	4104	7230
Approach %	68.4	31.6	0.0	-	-	99.0	1.0	0.0	-	-	0.3	99.7	0.0	-	-	-
Total %	0.4	0.2	0.0	-	0.5	42.3	0.4	0.0	-	42.7	0.2	56.6	0.0	-	56.8	-
Lights	26	12	0	-	38	3018	32	0	-	3050	12	4040	0	-	4052	7140
% Lights	100.0	100.0	-	-	100.0	98.8	100.0	-	-	98.8	100.0	98.7	-	-	98.7	98.8
Mediums	0	0	0	-	0	37	0	0	-	37	0	42	0	-	42	79
% Mediums	0.0	0.0	-	-	0.0	1.2	0.0	-	-	1.2	0.0	1.0	-	-	1.0	1.1
Articulated Trucks	0	0	0	-	0	1	0	0	-	1	0	10	0	-	10	11
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.2	-	-	0.2	0.2
Pedestrians	-	-	-	13	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
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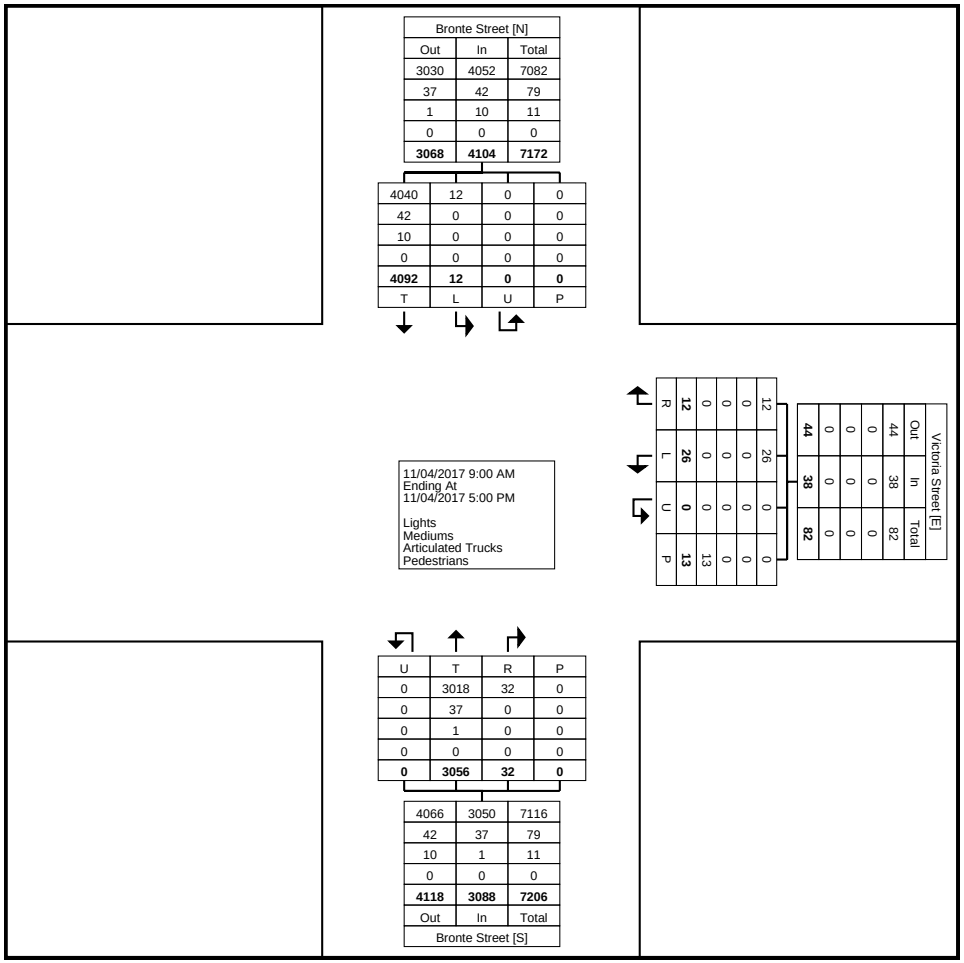
Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Saturday
Site Code:
Start Date: 11/04/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Victoria Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Peak Hour Data (11:45 AM)

Start Time	Victoria Street Westbound					Bronte Street Northbound					Bronte Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
11:45 AM	1	2	0	0	3	110	0	0	0	110	4	145	0	0	149	262
12:00 PM	3	0	0	0	3	107	2	0	0	109	1	145	0	0	146	258
12:15 PM	1	1	0	0	2	140	0	0	0	140	0	129	0	0	129	271
12:30 PM	3	0	0	2	3	89	3	0	0	92	0	133	0	0	133	228
Total	8	3	0	2	11	446	5	0	0	451	5	552	0	0	557	1019
Approach %	72.7	27.3	0.0	-	-	98.9	1.1	0.0	-	-	0.9	99.1	0.0	-	-	-
Total %	0.8	0.3	0.0	-	1.1	43.8	0.5	0.0	-	44.3	0.5	54.2	0.0	-	54.7	-
PHF	0.667	0.375	0.000	-	0.917	0.796	0.417	0.000	-	0.805	0.313	0.952	0.000	-	0.935	0.940
Lights	8	3	0	-	11	437	5	0	-	442	5	542	0	-	547	1000
% Lights	100.0	100.0	-	-	100.0	98.0	100.0	-	-	98.0	100.0	98.2	-	-	98.2	98.1
Mediums	0	0	0	-	0	9	0	0	-	9	0	8	0	-	8	17
% Mediums	0.0	0.0	-	-	0.0	2.0	0.0	-	-	2.0	0.0	1.4	-	-	1.4	1.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	2	0	-	2	2
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.4	-	-	0.4	0.2
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

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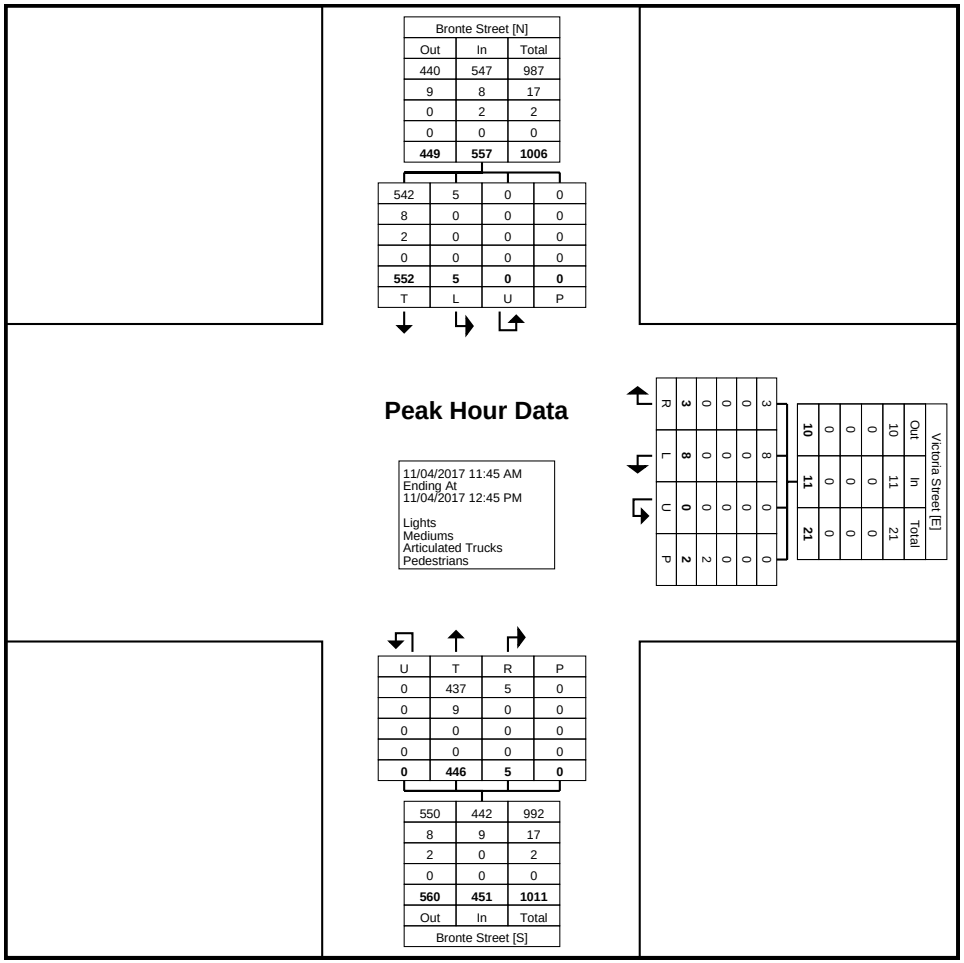

Turning Movement Peak Hour Data Plot (11:45 AM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

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Count Name: Bronte Street & Victoria Street - Saturday
Site Code:
Start Date: 11/04/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Data

Start Time	Driveway Eastbound						Mill Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	0	0	0	0	0	0	6	0	1	0	0	7	0	80	4	0	0	84	0	63	0	0	0	63	154
9:15 AM	0	0	0	0	0	0	4	0	0	0	1	4	0	81	7	0	0	88	0	87	1	0	0	88	180
9:30 AM	0	0	3	0	1	3	5	0	4	0	0	9	2	91	5	1	0	99	1	85	2	0	0	88	199
9:45 AM	2	0	1	0	0	3	8	0	1	0	0	9	4	109	15	0	0	128	1	113	2	0	0	116	256
Hourly Total	2	0	4	0	1	6	23	0	6	0	1	29	6	361	31	1	0	399	2	348	5	0	0	355	789
10:00 AM	3	1	3	0	0	7	8	2	5	0	0	15	4	93	9	0	0	106	1	122	2	0	0	125	253
10:15 AM	3	0	3	0	1	6	13	1	2	0	1	16	4	103	16	0	1	123	4	84	2	0	0	90	235
10:30 AM	3	0	2	0	0	5	6	0	1	0	0	7	2	113	11	0	0	126	0	116	2	0	0	118	256
10:45 AM	2	0	2	0	1	4	11	2	3	0	1	16	4	105	8	0	0	117	2	127	2	0	1	131	268
Hourly Total	11	1	10	0	2	22	38	5	11	0	2	54	14	414	44	0	1	472	7	449	8	0	1	464	1012
11:00 AM	2	1	2	0	0	5	12	1	1	0	0	14	2	99	15	0	0	116	0	98	2	0	0	100	235
11:15 AM	1	2	1	0	0	4	10	0	0	0	0	10	3	93	14	0	0	110	0	111	2	0	0	113	237
11:30 AM	4	1	4	0	0	9	4	0	0	0	0	4	2	85	19	0	0	106	0	111	4	0	0	115	234
11:45 AM	1	0	7	0	0	8	14	4	2	0	0	20	2	104	15	0	0	121	2	134	3	0	0	139	288
Hourly Total	8	4	14	0	0	26	40	5	3	0	0	48	9	381	63	0	0	453	2	454	11	0	0	467	994
12:00 PM	0	0	2	0	0	2	10	1	0	0	2	11	2	108	11	0	0	121	1	150	3	0	0	154	288
12:15 PM	1	0	5	0	0	6	17	1	0	0	0	18	1	138	10	0	0	149	1	132	3	0	0	136	309
12:30 PM	2	0	0	0	0	2	14	2	2	0	0	18	5	89	16	0	0	110	2	132	3	0	0	137	267
12:45 PM	4	0	7	0	0	11	12	2	3	0	2	17	3	96	17	0	0	116	0	132	1	0	0	133	277
Hourly Total	7	0	14	0	0	21	53	6	5	0	4	64	11	431	54	0	0	496	4	546	10	0	0	560	1141
1:00 PM	1	1	4	0	0	6	16	1	1	0	2	18	3	114	12	0	1	129	1	130	1	0	0	132	285
1:15 PM	2	1	4	0	0	7	11	1	1	0	0	13	5	89	10	0	0	104	0	144	1	0	0	145	269
1:30 PM	0	2	1	0	0	3	7	0	3	0	0	10	6	89	17	0	0	112	0	145	1	0	0	146	271
1:45 PM	2	1	0	0	0	3	11	0	2	0	2	13	1	78	10	0	0	89	0	140	2	0	0	142	247
Hourly Total	5	5	9	0	0	19	45	2	7	0	4	54	15	370	49	0	1	434	1	559	5	0	0	565	1072
2:00 PM	2	0	3	0	0	5	10	1	1	0	0	12	7	90	14	0	2	111	0	131	4	0	0	135	263
2:15 PM	1	3	3	0	0	7	17	0	3	0	3	20	3	95	7	0	0	105	0	149	0	0	0	149	281
2:30 PM	2	0	3	0	0	5	6	0	0	0	1	6	3	108	10	0	0	121	0	150	3	0	0	153	285
2:45 PM	1	2	0	0	0	3	15	1	0	0	3	16	3	74	9	0	0	86	0	144	1	0	0	145	250
Hourly Total	6	5	9	0	0	20	48	2	4	0	7	54	16	367	40	0	2	423	0	574	8	0	0	582	1079
3:00 PM	2	0	1	0	0	3	11	0	1	0	0	12	1	87	13	0	0	101	0	139	0	0	0	139	255
3:15 PM	3	1	3	0	0	7	11	2	1	0	0	14	3	81	11	0	0	95	0	154	1	0	0	155	271
3:30 PM	1	2	1	0	0	4	19	0	1	0	1	20	6	79	9	0	0	94	0	166	3	0	0	169	287
3:45 PM	1	0	3	0	0	4	10	0	0	0	1	10	1	67	15	0	0	83	1	142	2	1	0	146	243
Hourly Total	7	3	8	0	0	18	51	2	3	0	2	56	11	314	48	0	0	373	1	601	6	1	0	609	1056
4:00 PM	3	0	0	0	0	3	11	0	2	0	0	13	2	85	9	0	0	96	0	119	2	0	0	121	233
4:15 PM	1	1	2	0	0	4	9	1	0	0	0	10	0	92	9	0	0	101	0	134	3	0	0	137	252

4:30 PM	0	0	1	0	0	1	12	0	0	0	0	12	2	87	13	0	0	102	0	132	0	0	0	132	247
4:45 PM	1	0	4	0	0	5	13	0	0	0	3	13	4	91	6	0	1	101	1	137	1	0	1	139	258
Hourly Total	5	1	7	0	0	13	45	1	2	0	3	48	8	355	37	0	1	400	1	522	6	0	1	529	990
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	51	19	75	0	3	145	343	23	41	0	23	407	90	2993	366	1	5	3450	18	4053	59	1	2	4131	8133
Approach %	35.2	13.1	51.7	0.0	-	-	84.3	5.7	10.1	0.0	-	-	2.6	86.8	10.6	0.0	-	-	0.4	98.1	1.4	0.0	-	-	-
Total %	0.6	0.2	0.9	0.0	-	1.8	4.2	0.3	0.5	0.0	-	5.0	1.1	36.8	4.5	0.0	-	42.4	0.2	49.8	0.7	0.0	-	50.8	-
Lights	51	19	74	0	-	144	341	23	41	0	-	405	90	2953	366	1	-	3410	18	4008	59	1	-	4086	8045
% Lights	100.0	100.0	98.7	-	-	99.3	99.4	100.0	100.0	-	-	99.5	100.0	98.7	100.0	100.0	-	98.8	100.0	98.9	100.0	100.0	-	98.9	98.9
Mediums	0	0	1	0	-	1	2	0	0	0	-	2	0	38	0	0	-	38	0	41	0	0	-	41	82
% Mediums	0.0	0.0	1.3	-	-	0.7	0.6	0.0	0.0	-	-	0.5	0.0	1.3	0.0	0.0	-	1.1	0.0	1.0	0.0	0.0	-	1.0	1.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	4	0	0	-	4	6
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	0.0	-	0.1	0.0	0.1	0.0	0.0	-	0.1	0.1
Pedestrians	-	-	-	-	3	-	-	-	-	-	23	-	-	-	-	-	5	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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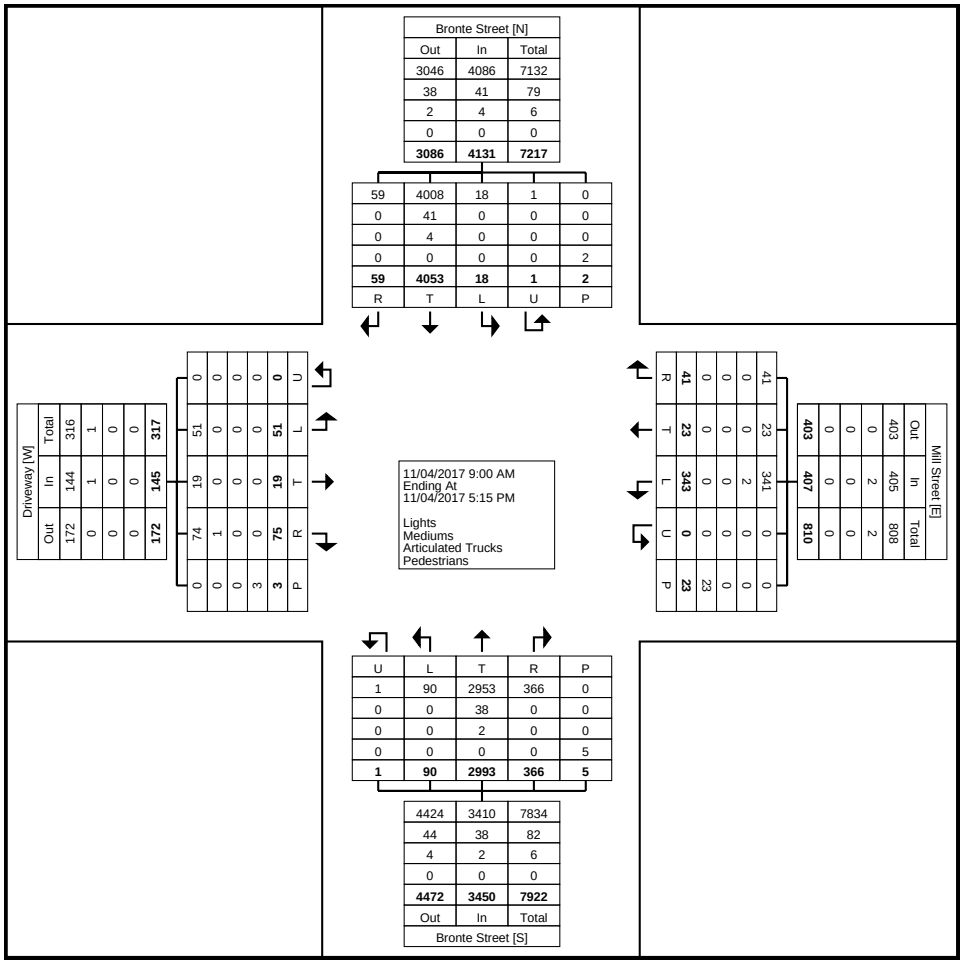

Turning Movement Data Plot

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22 King Street South, Suite 300

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519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Saturday
Site Code:
Start Date: 11/04/2017

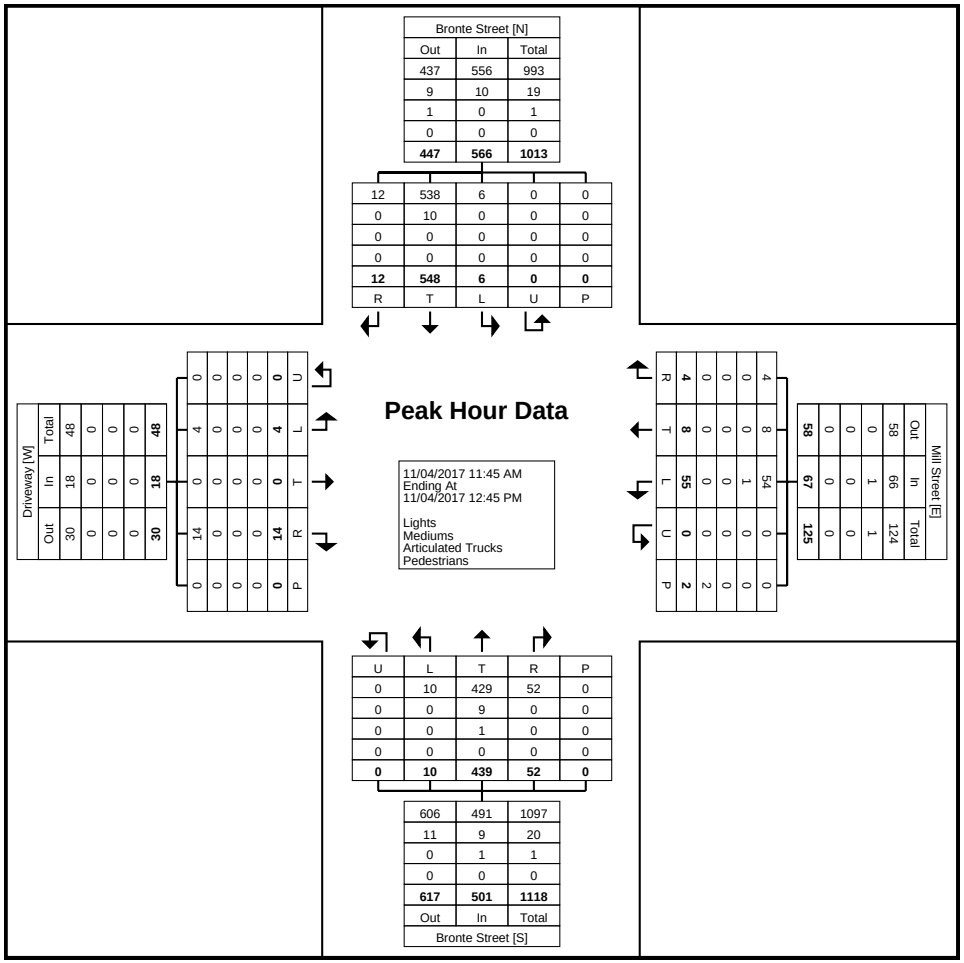
Turning Movement Peak Hour Data (11:45 AM)

Start Time	Driveway Eastbound						Mill Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	1	0	7	0	0	8	14	4	2	0	0	20	2	104	15	0	0	121	2	134	3	0	0	139	288
12:00 PM	0	0	2	0	0	2	10	1	0	0	2	11	2	108	11	0	0	121	1	150	3	0	0	154	288
12:15 PM	1	0	5	0	0	6	17	1	0	0	0	18	1	138	10	0	0	149	1	132	3	0	0	136	309
12:30 PM	2	0	0	0	0	2	14	2	2	0	0	18	5	89	16	0	0	110	2	132	3	0	0	137	267
Total	4	0	14	0	0	18	55	8	4	0	2	67	10	439	52	0	0	501	6	548	12	0	0	566	1152
Approach %	22.2	0.0	77.8	0.0	-	-	82.1	11.9	6.0	0.0	-	-	2.0	87.6	10.4	0.0	-	-	1.1	96.8	2.1	0.0	-	-	-
Total %	0.3	0.0	1.2	0.0	-	1.6	4.8	0.7	0.3	0.0	-	5.8	0.9	38.1	4.5	0.0	-	43.5	0.5	47.6	1.0	0.0	-	49.1	-
PHF	0.500	0.000	0.500	0.000	-	0.563	0.809	0.500	0.500	0.000	-	0.838	0.500	0.795	0.813	0.000	-	0.841	0.750	0.913	1.000	0.000	-	0.919	0.932
Lights	4	0	14	0	-	18	54	8	4	0	-	66	10	429	52	0	-	491	6	538	12	0	-	556	1131
% Lights	100.0	-	100.0	-	-	100.0	98.2	100.0	100.0	-	-	98.5	100.0	97.7	100.0	-	-	98.0	100.0	98.2	100.0	-	-	98.2	98.2
Mediums	0	0	0	0	-	0	1	0	0	0	-	1	0	9	0	0	-	9	0	10	0	0	-	10	20
% Mediums	0.0	-	0.0	-	-	0.0	1.8	0.0	0.0	-	-	1.5	0.0	2.1	0.0	-	-	1.8	0.0	1.8	0.0	-	-	1.8	1.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Saturday
Site Code:
Start Date: 11/04/2017



Turning Movement Peak Hour Data Plot (11:45 AM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mill Street - Saturday
Site Code:
Start Date: 11/04/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Bronte Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Data

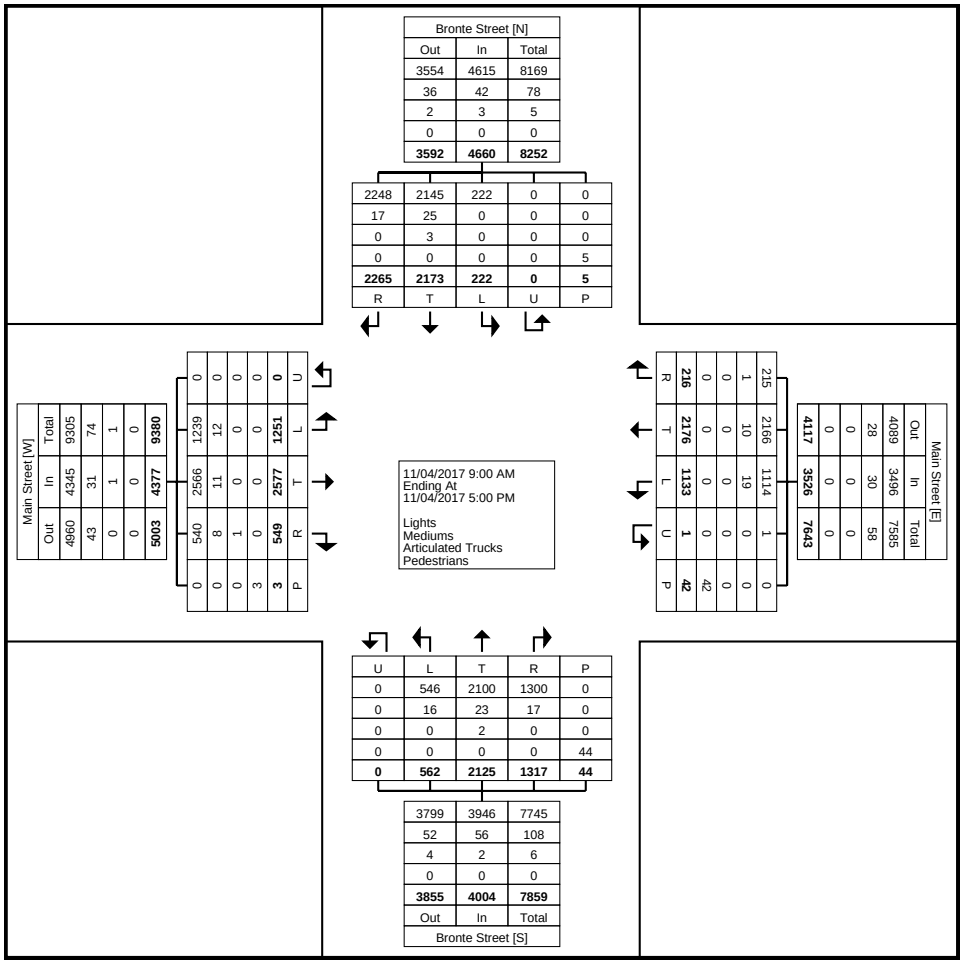
Start Time	Main Street Eastbound						Main Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	37	72	15	0	0	124	24	34	6	0	0	64	11	41	25	0	1	77	1	36	41	0	0	78	343
9:15 AM	35	59	15	0	0	109	20	43	2	0	0	65	10	55	20	0	1	85	3	37	44	0	0	84	343
9:30 AM	43	84	13	0	0	140	28	37	2	0	0	67	18	71	35	0	3	124	3	41	44	0	0	88	419
9:45 AM	38	103	29	0	0	170	32	41	5	0	0	78	10	78	57	0	1	145	3	53	65	0	1	121	514
Hourly Total	153	318	72	0	0	543	104	155	15	0	0	274	49	245	137	0	6	431	10	167	194	0	1	371	1619
10:00 AM	38	77	13	0	0	128	26	51	8	0	2	85	13	57	42	0	2	112	6	63	63	0	0	132	457
10:15 AM	45	70	21	0	1	136	34	44	13	0	0	91	10	75	40	0	1	125	8	49	45	0	1	102	454
10:30 AM	47	84	18	0	0	149	29	63	9	0	2	101	18	68	45	0	2	131	7	72	57	0	0	136	517
10:45 AM	54	94	23	0	1	171	34	62	3	0	3	99	19	75	60	0	1	154	5	74	66	0	0	145	569
Hourly Total	184	325	75	0	2	584	123	220	33	0	7	376	60	275	187	0	6	522	26	258	231	0	1	515	1997
11:00 AM	42	78	25	0	0	145	40	74	4	0	2	118	16	81	40	0	3	137	6	57	66	0	1	129	529
11:15 AM	43	83	31	0	0	157	36	87	7	0	3	130	20	62	49	0	4	131	8	60	66	0	1	134	552
11:30 AM	36	81	11	0	0	128	43	58	7	0	0	108	18	71	46	0	0	135	4	51	60	0	0	115	486
11:45 AM	34	80	15	0	0	129	30	95	13	0	1	138	27	71	44	0	1	142	11	75	79	0	0	165	574
Hourly Total	155	322	82	0	0	559	149	314	31	0	6	494	81	285	179	0	8	545	29	243	271	0	2	543	2141
12:00 PM	46	83	18	0	0	147	40	72	7	0	0	119	16	73	49	0	0	138	8	74	91	0	0	173	577
12:15 PM	48	81	17	0	0	146	34	76	7	0	0	117	19	82	52	0	1	153	12	70	73	0	0	155	571
12:30 PM	33	87	18	0	0	138	42	63	9	0	1	114	20	72	53	0	0	145	4	60	75	0	0	139	536
12:45 PM	34	93	16	0	0	143	37	75	5	0	1	117	19	75	43	0	0	137	10	81	68	0	0	159	556
Hourly Total	161	344	69	0	0	574	153	286	28	0	2	467	74	302	197	0	1	573	34	285	307	0	0	626	2240
1:00 PM	38	88	21	0	0	147	34	73	13	0	0	120	25	89	58	0	0	172	5	68	83	0	0	156	595
1:15 PM	39	84	14	0	0	137	46	94	9	0	5	149	18	58	54	0	3	130	13	70	86	0	0	169	585
1:30 PM	39	85	17	0	0	141	42	68	6	0	2	116	24	77	47	0	0	148	6	75	92	0	0	173	578
1:45 PM	37	82	19	0	0	138	34	65	5	0	2	104	11	52	31	0	1	94	10	78	70	0	0	158	494
Hourly Total	153	339	71	0	0	563	156	300	33	0	9	489	78	276	190	0	4	544	34	291	331	0	0	656	2252
2:00 PM	39	67	11	0	0	117	38	70	4	0	1	112	23	73	37	0	0	133	11	68	78	0	0	157	519
2:15 PM	33	67	7	0	0	107	45	67	8	0	0	120	14	70	32	0	4	116	5	92	91	0	0	188	531
2:30 PM	39	73	25	0	0	137	35	72	10	0	0	117	12	74	32	0	0	118	6	83	76	0	0	165	537
2:45 PM	34	79	18	0	0	131	38	76	8	0	4	122	15	60	33	0	6	108	7	87	69	0	0	163	524
Hourly Total	145	286	61	0	0	492	156	285	30	0	5	471	64	277	134	0	10	475	29	330	314	0	0	673	2111
3:00 PM	37	85	14	0	0	136	32	88	6	0	1	126	27	56	50	0	1	133	8	77	67	0	1	152	547
3:15 PM	34	85	13	0	1	132	37	81	5	0	3	123	20	60	35	0	2	115	8	80	80	0	0	168	538
3:30 PM	39	51	14	0	0	104	39	88	11	1	0	139	15	53	43	0	3	111	11	97	82	0	0	190	544
3:45 PM	31	90	18	0	0	139	36	81	3	0	0	120	16	54	26	0	0	96	9	82	76	0	0	167	522
Hourly Total	141	311	59	0	1	511	144	338	25	1	4	508	78	223	154	0	6	455	36	336	305	0	1	677	2151
4:00 PM	36	87	12	0	0	135	34	87	3	0	2	124	21	61	26	0	1	108	7	60	68	0	0	135	502
4:15 PM	35	68	19	0	0	122	41	70	4	0	3	115	20	66	42	0	0	128	9	77	69	0	0	155	520

4:30 PM	36	83	16	0	0	135	31	67	7	0	1	105	22	62	33	0	1	117	5	58	93	0	0	156	513
4:45 PM	52	94	13	0	0	159	42	54	7	0	3	103	15	53	38	0	1	106	3	68	82	0	0	153	521
Hourly Total	159	332	60	0	0	551	148	278	21	0	9	447	78	242	139	0	3	459	24	263	312	0	0	599	2056
Grand Total	1251	2577	549	0	3	4377	1133	2176	216	1	42	3526	562	2125	1317	0	44	4004	222	2173	2265	0	5	4660	16567
Approach %	28.6	58.9	12.5	0.0	-	-	32.1	61.7	6.1	0.0	-	-	14.0	53.1	32.9	0.0	-	-	4.8	46.6	48.6	0.0	-	-	-
Total %	7.6	15.6	3.3	0.0	-	26.4	6.8	13.1	1.3	0.0	-	21.3	3.4	12.8	7.9	0.0	-	24.2	1.3	13.1	13.7	0.0	-	28.1	-
Lights	1239	2566	540	0	-	4345	1114	2166	215	1	-	3496	546	2100	1300	0	-	3946	222	2145	2248	0	-	4615	16402
% Lights	99.0	99.6	98.4	-	-	99.3	98.3	99.5	99.5	100.0	-	99.1	97.2	98.8	98.7	-	-	98.6	100.0	98.7	99.2	-	-	99.0	99.0
Mediums	12	11	8	0	-	31	19	10	1	0	-	30	16	23	17	0	-	56	0	25	17	0	-	42	159
% Mediums	1.0	0.4	1.5	-	-	0.7	1.7	0.5	0.5	0.0	-	0.9	2.8	1.1	1.3	-	-	1.4	0.0	1.2	0.8	-	-	0.9	1.0
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	2	0	0	-	2	0	3	0	0	-	3	6
% Articulated Trucks	0.0	0.0	0.2	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0
Pedestrians	-	-	-	-	3	-	-	-	-	-	42	-	-	-	-	-	44	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Bronte Street - Saturday
Site Code:
Start Date: 11/04/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Bronte Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Peak Hour Data (12:45 PM)

Start Time	Main Street Eastbound						Main Street Westbound						Bronte Street Northbound						Bronte Street Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:45 PM	34	93	16	0	0	143	37	75	5	0	1	117	19	75	43	0	0	137	10	81	68	0	0	159	556
1:00 PM	38	88	21	0	0	147	34	73	13	0	0	120	25	89	58	0	0	172	5	68	83	0	0	156	595
1:15 PM	39	84	14	0	0	137	46	94	9	0	5	149	18	58	54	0	3	130	13	70	86	0	0	169	585
1:30 PM	39	85	17	0	0	141	42	68	6	0	2	116	24	77	47	0	0	148	6	75	92	0	0	173	578
Total	150	350	68	0	0	568	159	310	33	0	8	502	86	299	202	0	3	587	34	294	329	0	0	657	2314
Approach %	26.4	61.6	12.0	0.0	-	-	31.7	61.8	6.6	0.0	-	-	14.7	50.9	34.4	0.0	-	-	5.2	44.7	50.1	0.0	-	-	-
Total %	6.5	15.1	2.9	0.0	-	24.5	6.9	13.4	1.4	0.0	-	21.7	3.7	12.9	8.7	0.0	-	25.4	1.5	12.7	14.2	0.0	-	28.4	-
PHF	0.962	0.941	0.810	0.000	-	0.966	0.864	0.824	0.635	0.000	-	0.842	0.860	0.840	0.871	0.000	-	0.853	0.654	0.907	0.894	0.000	-	0.949	0.972
Lights	149	348	68	0	-	565	156	308	33	0	-	497	84	296	200	0	-	580	34	294	327	0	-	655	2297
% Lights	99.3	99.4	100.0	-	-	99.5	98.1	99.4	100.0	-	-	99.0	97.7	99.0	99.0	-	-	98.8	100.0	100.0	99.4	-	-	99.7	99.3
Mediums	1	2	0	0	-	3	3	2	0	0	-	5	2	2	2	0	-	6	0	0	2	0	-	2	16
% Mediums	0.7	0.6	0.0	-	-	0.5	1.9	0.6	0.0	-	-	1.0	2.3	0.7	1.0	-	-	1.0	0.0	0.0	0.6	-	-	0.3	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	8	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

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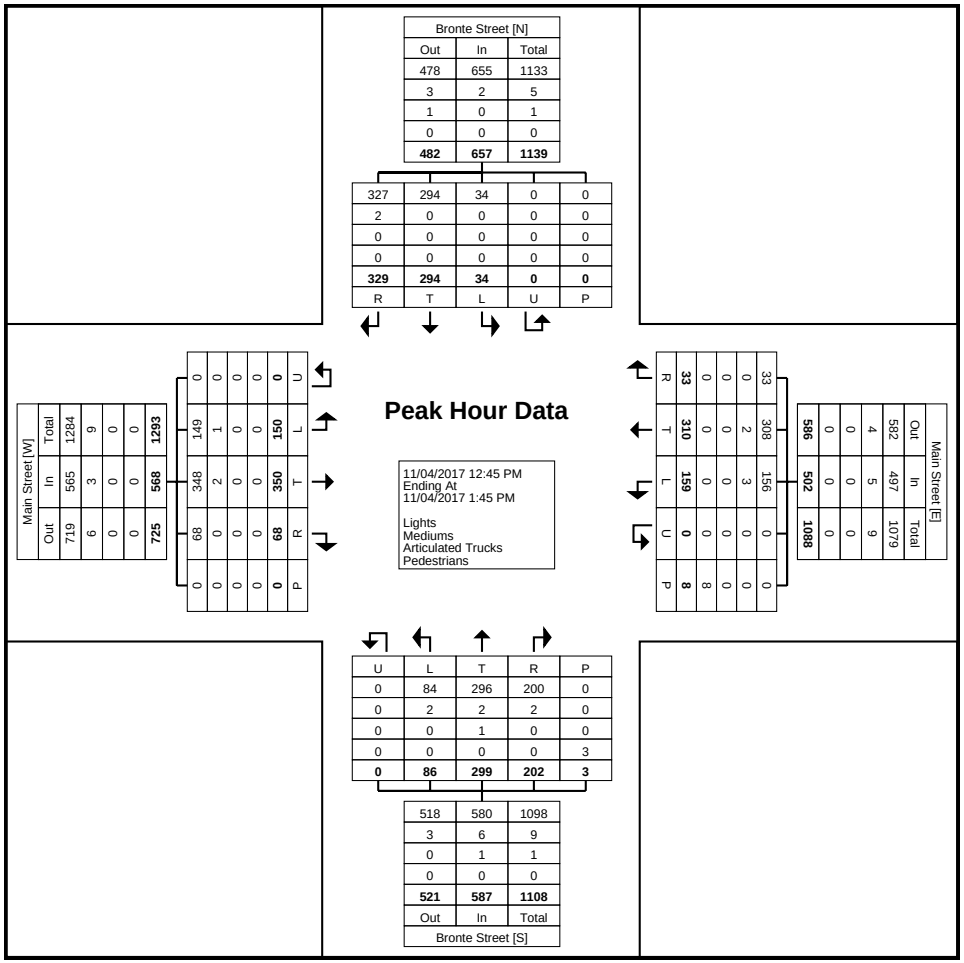
Count Name: Main Street & Bronte Street - Saturday
Site Code:
Start Date: 11/04/2017



Turning Movement Peak Hour Data Plot (12:45 PM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Bronte Street - Saturday
Site Code:
Start Date: 11/04/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Data

Start Time	Driveway Eastbound						Mary Street Westbound						Bronte Street Northbound						Bronte Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	0	0	1	0	0	1	2	0	2	0	0	4	0	75	9	0	0	84	1	70	0	0	0	71	160
9:15 AM	0	0	0	0	0	0	4	0	3	0	2	7	0	88	5	0	0	93	1	79	2	0	0	82	182
9:30 AM	2	0	1	0	0	3	2	0	4	0	8	6	0	111	7	0	0	118	1	80	1	0	0	82	209
9:45 AM	0	0	1	0	0	1	5	0	3	0	2	8	2	147	4	0	0	153	2	120	1	0	0	123	285
Hourly Total	2	0	3	0	0	5	13	0	12	0	12	25	2	421	25	0	0	448	5	349	4	0	0	358	836
10:00 AM	0	0	0	0	0	0	4	0	1	0	2	5	0	119	4	0	0	123	1	103	1	0	0	105	233
10:15 AM	1	0	0	0	0	1	2	0	2	0	2	4	3	124	5	0	0	132	4	106	0	0	0	110	247
10:30 AM	1	0	2	0	1	3	6	0	3	0	1	9	1	132	3	0	0	136	0	120	1	0	0	121	269
10:45 AM	3	0	0	0	1	3	4	0	3	0	4	7	1	147	7	0	1	155	2	131	2	0	0	135	300
Hourly Total	5	0	2	0	2	7	16	0	9	0	9	25	5	522	19	0	1	546	7	460	4	0	0	471	1049
11:00 AM	0	1	1	0	0	2	8	0	6	0	3	14	0	130	7	0	0	137	2	117	0	0	0	119	272
11:15 AM	1	0	1	0	0	2	2	0	9	0	2	11	0	129	4	0	0	133	2	122	2	0	0	126	272
11:30 AM	0	0	0	0	1	0	3	0	7	0	0	10	1	138	4	0	0	143	2	111	0	0	0	113	266
11:45 AM	0	0	0	0	0	0	7	0	10	0	0	17	0	130	9	0	0	139	3	130	1	0	0	134	290
Hourly Total	1	1	2	0	1	4	20	0	32	0	5	52	1	527	24	0	0	552	9	480	3	0	0	492	1100
12:00 PM	0	0	1	0	1	1	7	0	8	0	0	15	0	135	5	0	0	140	0	130	0	0	0	130	286
12:15 PM	0	0	0	0	0	0	4	0	8	0	1	12	1	162	4	0	1	167	0	128	0	0	0	128	307
12:30 PM	0	1	0	0	1	1	5	0	9	0	1	14	1	129	6	0	1	136	0	130	1	0	0	131	282
12:45 PM	0	1	1	0	0	2	5	0	8	0	3	13	1	137	10	0	0	148	1	135	2	0	0	138	301
Hourly Total	0	2	2	0	2	4	21	0	33	0	5	54	3	563	25	0	2	591	1	523	3	0	0	527	1176
1:00 PM	2	0	1	0	0	3	9	1	15	0	4	25	2	150	6	0	1	158	2	127	1	0	0	130	316
1:15 PM	1	0	1	0	0	2	3	0	4	0	1	7	0	126	2	0	0	128	3	128	0	0	0	131	268
1:30 PM	0	0	0	0	0	0	2	0	11	0	1	13	0	139	5	1	0	145	5	138	0	0	0	143	301
1:45 PM	1	1	1	0	0	3	2	0	7	0	1	9	1	96	3	0	0	100	0	142	1	0	0	143	255
Hourly Total	4	1	3	0	0	8	16	1	37	0	7	54	3	511	16	1	1	531	10	535	2	0	0	547	1140
2:00 PM	1	0	1	0	0	2	3	0	11	0	0	14	2	126	4	0	0	132	1	114	1	1	0	117	265
2:15 PM	0	1	0	0	0	1	6	0	10	0	1	16	0	105	4	0	0	109	1	143	2	0	0	146	272
2:30 PM	1	0	0	0	0	1	6	0	1	0	2	7	0	117	5	0	0	122	2	143	0	0	0	145	275
2:45 PM	1	0	1	0	1	2	3	0	7	0	5	10	0	104	6	0	0	110	0	149	2	0	0	151	273
Hourly Total	3	1	2	0	1	6	18	0	29	0	8	47	2	452	19	0	0	473	4	549	5	1	0	559	1085
3:00 PM	2	0	1	0	0	3	4	0	3	0	2	7	0	133	6	0	1	139	2	132	0	0	0	134	283
3:15 PM	0	0	0	0	0	0	7	0	6	0	4	13	1	112	4	0	0	117	0	135	0	0	0	135	265
3:30 PM	0	0	1	0	1	1	6	0	8	0	0	14	1	110	1	0	0	112	0	152	0	0	0	152	279
3:45 PM	0	0	0	0	0	0	2	0	4	0	2	6	0	92	3	0	0	95	2	141	2	0	0	145	246
Hourly Total	2	0	2	0	1	4	19	0	21	0	8	40	2	447	14	0	1	463	4	560	2	0	0	566	1073
4:00 PM	0	0	1	0	1	1	1	0	5	0	0	6	0	111	4	0	0	115	0	111	0	0	0	111	233
4:15 PM	1	0	0	0	0	1	1	0	11	0	2	12	1	127	9	0	0	137	4	146	0	0	0	150	300

4:30 PM	0	0	0	0	0	0	7	0	14	0	0	21	0	107	5	0	0	112	2	109	1	0	0	112	245
4:45 PM	1	0	1	0	1	2	3	0	8	0	0	11	0	100	10	0	0	110	1	125	1	0	0	127	250
Hourly Total	2	0	2	0	2	4	12	0	38	0	2	50	1	445	28	0	0	474	7	491	2	0	0	500	1028
Grand Total	19	5	18	0	9	42	135	1	211	0	56	347	19	3888	170	1	5	4078	47	3947	25	1	0	4020	8487
Approach %	45.2	11.9	42.9	0.0	-	-	38.9	0.3	60.8	0.0	-	-	0.5	95.3	4.2	0.0	-	-	1.2	98.2	0.6	0.0	-	-	-
Total %	0.2	0.1	0.2	0.0	-	0.5	1.6	0.0	2.5	0.0	-	4.1	0.2	45.8	2.0	0.0	-	48.0	0.6	46.5	0.3	0.0	-	47.4	-
Lights	19	5	18	0	-	42	135	1	211	0	-	347	19	3831	169	1	-	4020	47	3890	25	1	-	3963	8372
% Lights	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	98.5	99.4	100.0	-	98.6	100.0	98.6	100.0	100.0	-	98.6	98.6
Mediums	0	0	0	0	-	0	0	0	0	0	-	0	0	53	1	0	-	54	0	52	0	0	-	52	106
% Mediums	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.4	0.6	0.0	-	1.3	0.0	1.3	0.0	0.0	-	1.3	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	0	-	4	0	5	0	0	-	5	9
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	0.0	-	0.1	0.0	0.1	0.0	0.0	-	0.1	0.1
Pedestrians	-	-	-	-	9	-	-	-	-	-	56	-	-	-	-	-	5	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

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Count Name: Bronte Street & Mary Street - Saturday
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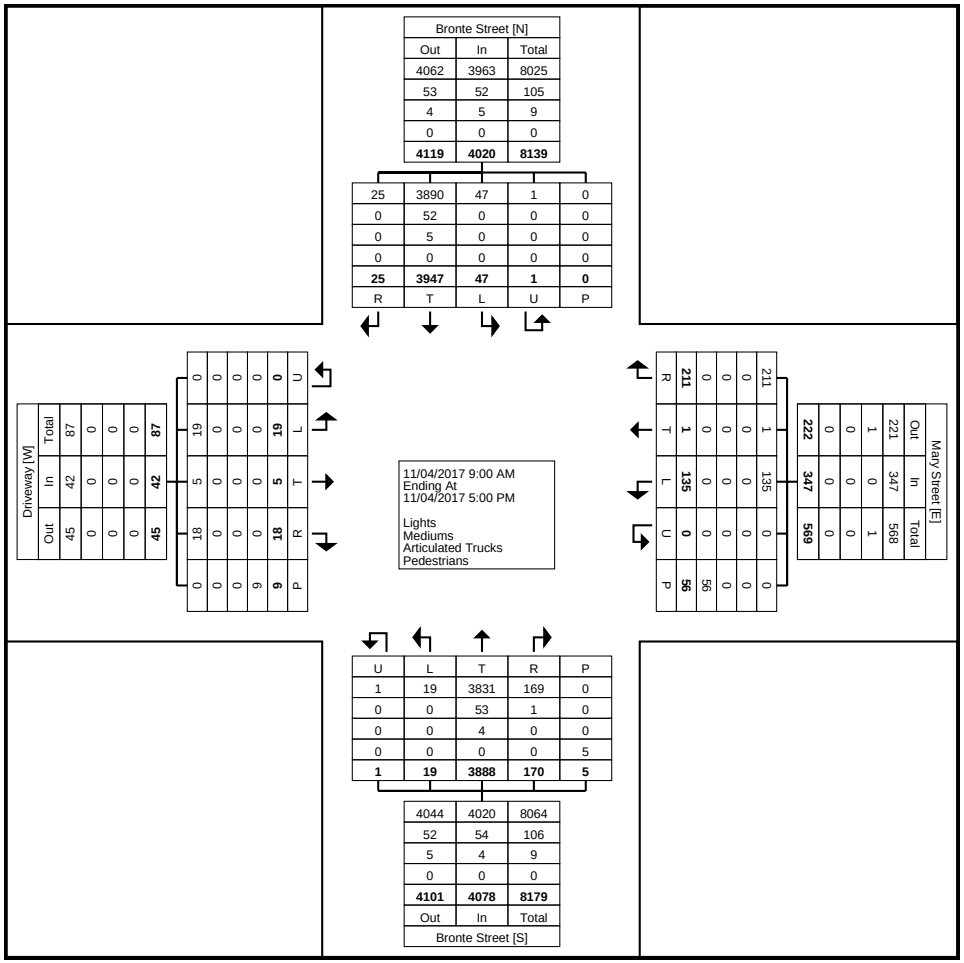
Start Date: 11/04/2017



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Bronte Street & Mary Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Peak Hour Data (12:15 PM)

Start Time	Driveway Eastbound						Mary Street Westbound						Bronte Street Northbound						Bronte Street Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:15 PM	0	0	0	0	0	0	4	0	8	0	1	12	1	162	4	0	1	167	0	128	0	0	0	128	307
12:30 PM	0	1	0	0	1	1	5	0	9	0	1	14	1	129	6	0	1	136	0	130	1	0	0	131	282
12:45 PM	0	1	1	0	0	2	5	0	8	0	3	13	1	137	10	0	0	148	1	135	2	0	0	138	301
1:00 PM	2	0	1	0	0	3	9	1	15	0	4	25	2	150	6	0	1	158	2	127	1	0	0	130	316
Total	2	2	2	0	1	6	23	1	40	0	9	64	5	578	26	0	3	609	3	520	4	0	0	527	1206
Approach %	33.3	33.3	33.3	0.0	-	-	35.9	1.6	62.5	0.0	-	-	0.8	94.9	4.3	0.0	-	-	0.6	98.7	0.8	0.0	-	-	-
Total %	0.2	0.2	0.2	0.0	-	0.5	1.9	0.1	3.3	0.0	-	5.3	0.4	47.9	2.2	0.0	-	50.5	0.2	43.1	0.3	0.0	-	43.7	-
PHF	0.250	0.500	0.500	0.000	-	0.500	0.639	0.250	0.667	0.000	-	0.640	0.625	0.892	0.650	0.000	-	0.912	0.375	0.963	0.500	0.000	-	0.955	0.954
Lights	2	2	2	0	-	6	23	1	40	0	-	64	5	571	26	0	-	602	3	517	4	0	-	524	1196
% Lights	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	98.8	100.0	-	-	98.9	100.0	99.4	100.0	-	-	99.4	99.2
Mediums	0	0	0	0	-	0	0	0	0	0	-	0	0	7	0	0	-	7	0	3	0	0	-	3	10
% Mediums	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	-	1.1	0.0	0.6	0.0	-	-	0.6	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	-	1	-	-	-	-	-	9	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

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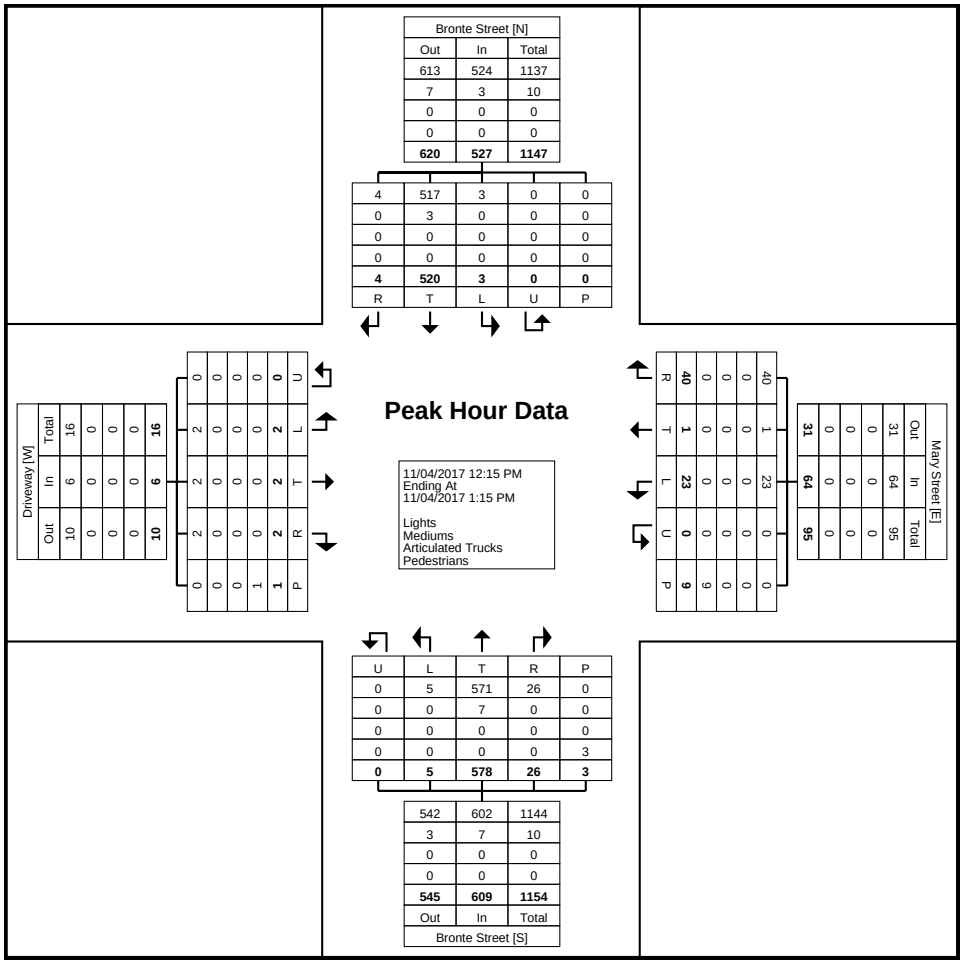

Turning Movement Peak Hour Data Plot (12:15 PM)

Paradigm Transportation Solutions Limited
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Count Name: Bronte Street & Mary Street - Saturday
Site Code:
Start Date: 11/04/2017

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Main Street & Whitmer Street - Saturday
Site Code:
Start Date: 11/04/2017

Turning Movement Data

Start Time	Main Street Eastbound					Main Street Westbound					Whitmer Street Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
9:00 AM	95	0	0	0	95	11	72	1	0	84	1	28	0	0	29	208
9:15 AM	80	2	0	0	82	16	89	0	0	105	0	31	0	2	31	218
9:30 AM	116	0	0	0	116	16	94	0	1	110	0	31	0	3	31	257
9:45 AM	139	1	0	0	140	23	96	0	0	119	0	44	0	2	44	303
Hourly Total	430	3	0	0	433	66	351	1	1	418	1	134	0	7	135	986
10:00 AM	87	0	0	0	87	24	103	0	0	127	1	30	0	1	31	245
10:15 AM	96	3	0	0	99	22	74	0	0	96	3	42	0	1	45	240
10:30 AM	105	1	0	0	106	25	113	0	0	138	0	35	0	2	35	279
10:45 AM	131	0	0	0	131	26	117	0	0	143	4	46	0	2	50	324
Hourly Total	419	4	0	0	423	97	407	0	0	504	8	153	0	6	161	1088
11:00 AM	103	1	0	0	104	31	128	0	0	159	1	39	0	2	40	303
11:15 AM	117	2	0	0	119	25	142	0	0	167	1	36	0	1	37	323
11:30 AM	97	1	0	0	98	26	110	0	0	136	1	22	0	1	23	257
11:45 AM	101	2	0	0	103	30	169	1	0	200	0	38	0	2	38	341
Hourly Total	418	6	0	0	424	112	549	1	0	662	3	135	0	6	138	1224
12:00 PM	117	4	0	0	121	31	163	1	0	195	0	42	0	1	42	358
12:15 PM	94	2	0	0	96	34	134	0	0	168	1	43	0	0	44	308
12:30 PM	107	2	1	0	110	28	134	0	0	162	1	37	0	0	38	310
12:45 PM	114	1	0	0	115	22	146	0	0	168	0	31	0	0	31	314
Hourly Total	432	9	1	0	442	115	577	1	0	693	2	153	0	1	155	1290
1:00 PM	115	3	0	0	118	33	139	1	0	173	1	34	0	0	35	326
1:15 PM	97	4	0	0	101	30	159	0	0	189	0	35	0	0	35	325
1:30 PM	85	6	0	0	91	35	143	0	0	178	4	32	0	2	36	305
1:45 PM	107	1	0	0	108	23	113	0	0	136	0	30	0	1	30	274
Hourly Total	404	14	0	0	418	121	554	1	0	676	5	131	0	3	136	1230
2:00 PM	88	2	0	0	90	36	131	0	0	167	3	28	0	0	31	288
2:15 PM	95	0	0	0	95	31	143	0	0	174	2	21	0	4	23	292
2:30 PM	96	1	0	0	97	25	133	0	0	158	0	37	0	0	37	292
2:45 PM	98	1	0	0	99	31	127	0	0	158	1	28	0	4	29	286
Hourly Total	377	4	0	0	381	123	534	0	0	657	6	114	0	8	120	1158
3:00 PM	97	1	0	0	98	41	142	0	0	183	4	33	0	0	37	318
3:15 PM	103	1	0	0	104	34	148	0	0	182	1	35	0	0	36	322
3:30 PM	84	2	0	0	86	42	141	0	0	183	0	29	0	0	29	298
3:45 PM	107	1	0	0	108	28	142	1	1	171	4	28	0	0	32	311
Hourly Total	391	5	0	0	396	145	573	1	1	719	9	125	0	0	134	1249
4:00 PM	105	1	0	0	106	33	148	0	0	181	4	25	0	1	29	316
4:15 PM	100	2	0	0	102	39	127	0	0	166	3	27	0	0	30	298
4:30 PM	103	0	0	0	103	46	142	0	0	188	1	47	0	0	48	339

4:45 PM	125	1	0	0	126	27	121	0	0	148	1	30	0	1	31	305
Hourly Total	433	4	0	0	437	145	538	0	0	683	9	129	0	2	138	1258
Grand Total	3304	49	1	0	3354	924	4083	5	2	5012	43	1074	0	33	1117	9483
Approach %	98.5	1.5	0.0	-	-	18.4	81.5	0.1	-	-	3.8	96.2	0.0	-	-	-
Total %	34.8	0.5	0.0	-	35.4	9.7	43.1	0.1	-	52.9	0.5	11.3	0.0	-	11.8	-
Lights	3280	48	1	-	3329	916	4041	5	-	4962	43	1066	0	-	1109	9400
% Lights	99.3	98.0	100.0	-	99.3	99.1	99.0	100.0	-	99.0	100.0	99.3	-	-	99.3	99.1
Mediums	23	1	0	-	24	8	40	0	-	48	0	7	0	-	7	79
% Mediums	0.7	2.0	0.0	-	0.7	0.9	1.0	0.0	-	1.0	0.0	0.7	-	-	0.6	0.8
Articulated Trucks	1	0	0	-	1	0	2	0	-	2	0	1	0	-	1	4
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	-	-	0.1	0.0
Pedestrians	-	-	-	0	-	-	-	-	2	-	-	-	-	33	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-

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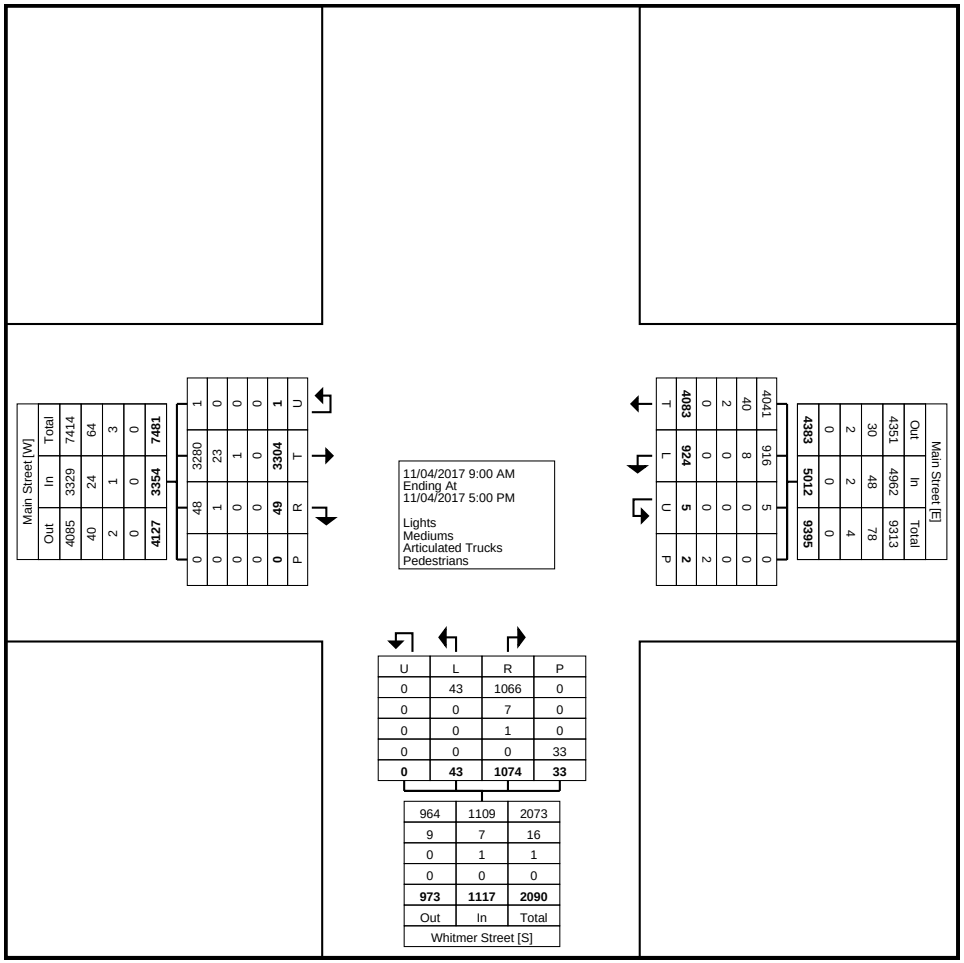
Start Date: 11/04/2017



Turning Movement Data Plot

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Count Name: Main Street & Whitmer Street - Saturday
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Turning Movement Peak Hour Data (11:45 AM)

Start Time	Main Street Eastbound					Main Street Westbound					Whitmer Street Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
11:45 AM	101	2	0	0	103	30	169	1	0	200	0	38	0	2	38	341
12:00 PM	117	4	0	0	121	31	163	1	0	195	0	42	0	1	42	358
12:15 PM	94	2	0	0	96	34	134	0	0	168	1	43	0	0	44	308
12:30 PM	107	2	1	0	110	28	134	0	0	162	1	37	0	0	38	310
Total	419	10	1	0	430	123	600	2	0	725	2	160	0	3	162	1317
Approach %	97.4	2.3	0.2	-	-	17.0	82.8	0.3	-	-	1.2	98.8	0.0	-	-	-
Total %	31.8	0.8	0.1	-	32.6	9.3	45.6	0.2	-	55.0	0.2	12.1	0.0	-	12.3	-
PHF	0.895	0.625	0.250	-	0.888	0.904	0.888	0.500	-	0.906	0.500	0.930	0.000	-	0.920	0.920
Lights	413	10	1	-	424	121	593	2	-	716	2	158	0	-	160	1300
% Lights	98.6	100.0	100.0	-	98.6	98.4	98.8	100.0	-	98.8	100.0	98.8	-	-	98.8	98.7
Mediums	6	0	0	-	6	2	7	0	-	9	0	2	0	-	2	17
% Mediums	1.4	0.0	0.0	-	1.4	1.6	1.2	0.0	-	1.2	0.0	1.3	-	-	1.2	1.3
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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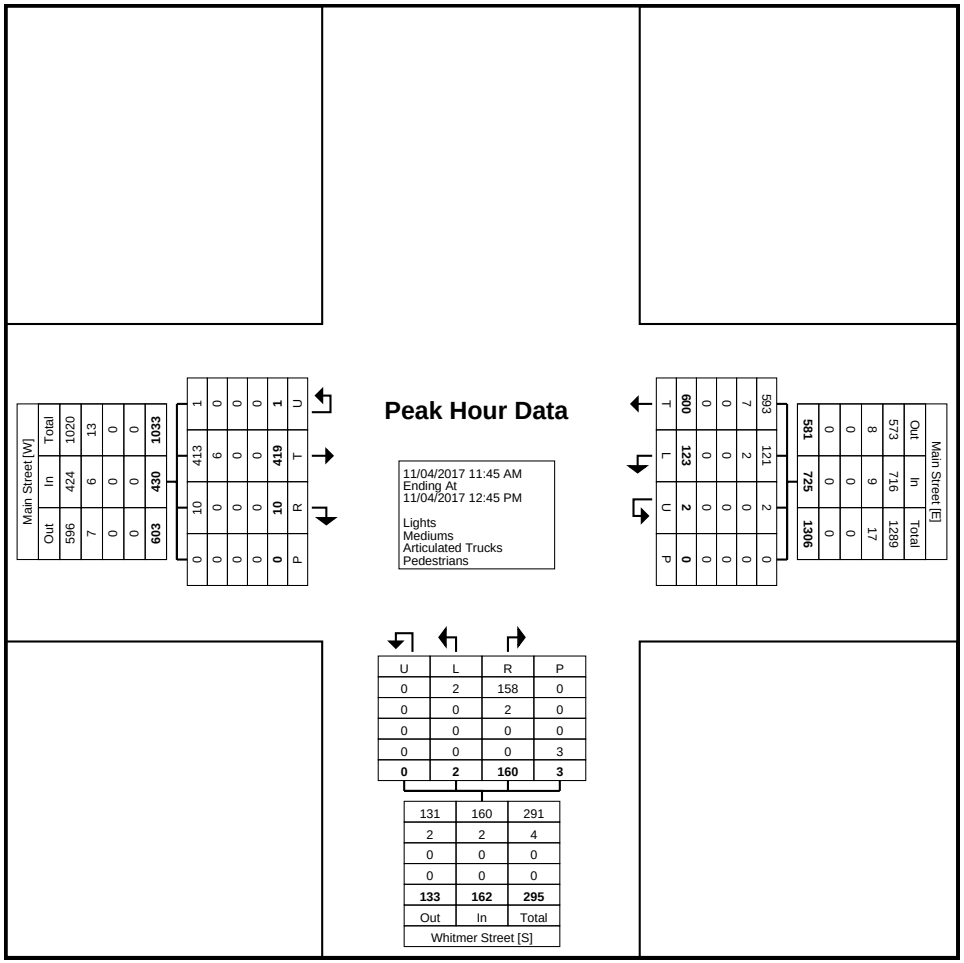

Turning Movement Peak Hour Data Plot (11:45 AM)

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Count Name: Main Street & Whitmer Street - Saturday
Site Code:
Start Date: 11/04/2017

Appendix B

Base Year Traffic Operations Reports

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	3	355	6	3	300
Future Volume (vph)	2	3	355	6	3	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.998			
Flt Protected	0.980					
Satd. Flow (prot)	1711	0	1815	0	0	1744
Flt Permitted	0.980					
Satd. Flow (perm)	1711	0	1815	0	0	1744
Link Speed (k/h)	50		50			50
Link Distance (m)	154.1		92.4			169.4
Travel Time (s)	11.1		6.7			12.2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	4%	33%	0%	9%
Adj. Flow (vph)	2	3	399	7	3	337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	406	0	0	340
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	3	355	6	3	300
Future Volume (Veh/h)	2	3	355	6	3	300
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	2	3	399	7	3	337
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			203			
pX, platoon unblocked						
vC, conflicting volume	746	402			406	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	746	402			406	
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)	383	652			1164	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	406	340
Volume Left	2	0	3
Volume Right	3	7	0
cSH	509	1700	1164
Volume to Capacity	0.01	0.24	0.00
Queue Length 95th (m)	0.2	0.0	0.1
Control Delay (s)	12.1	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	12.1	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	29.0%	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)	3	0	1	44	1	1	3	366	78	6	296	1
Future Volume (vph)	3	0	1	44	1	1	3	366	78	6	296	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.966			0.997			0.976				
Flt Protected		0.964			0.954						0.999	
Satd. Flow (prot)	0	1418	0	0	1807	0	0	1781	0	0	1755	0
Flt Permitted		0.964			0.954						0.999	
Satd. Flow (perm)	0	1418	0	0	1807	0	0	1781	0	0	1755	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		44.0			164.9			110.3			92.4	
Travel Time (s)		3.2			11.9			7.9			6.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	33%	0%	0%	0%	0%	0%	0%	5%	0%	17%	8%	0%
Adj. Flow (vph)	3	0	1	51	1	1	3	421	90	7	340	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	53	0	0	514	0	0	348	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	35.5%	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)	3	0	1	44	1	1	3	366	78	6	296	1
Future Volume (Veh/h)	3	0	1	44	1	1	3	366	78	6	296	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	3	0	1	51	1	1	3	421	90	7	340	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								110				
pX, platoon unblocked	0.95	0.95		0.95	0.95	0.95				0.95		
vC, conflicting volume	828	872	340	828	827	466	341			511		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	795	841	340	795	794	416	341			463		
tC, single (s)	7.4	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.3	3.5	4.0	3.3	2.2			2.4		
p0 queue free %	99	100	100	82	100	100	100			99		
cM capacity (veh/h)	256	287	707	291	305	611	1229			976		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	53	514	348
Volume Left	3	51	3	7
Volume Right	1	1	90	1
cSH	304	294	1229	976
Volume to Capacity	0.01	0.18	0.00	0.01
Queue Length 95th (m)	0.3	5.2	0.1	0.2
Control Delay (s)	17.0	19.9	0.1	0.3
Lane LOS	C	C	A	A
Approach Delay (s)	17.0	19.9	0.1	0.3
Approach LOS	C	C		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	35.5%	ICU Level of Service		A
Analysis Period (min)	15			

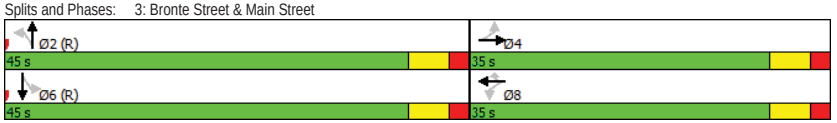
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	585	104	76	210	11	38	203	159	13	227	66
Future Volume (vph)	147	585	104	76	210	11	38	203	159	13	227	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		45.0	55.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Ped Bike Factor	1.00	1.00				0.98	1.00	0.99		1.00	1.00	
Frt		0.977				0.850		0.934			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1807	0	1719	1863	1615	1752	1701	0	1671	1703	0
Flt Permitted	0.603			0.138			0.543			0.474		
Satd. Flow (perm)	1111	1807	0	250	1863	1580	1001	1701	0	833	1703	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				41		69			26	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		335.7			334.7			99.8			110.3	
Travel Time (s)		24.2			24.1			7.2			7.9	
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	1%	10%	5%	2%	0%	3%	2%	5%	8%	7%	8%
Adj. Flow (vph)	152	603	107	78	216	11	39	209	164	13	234	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	710	0	78	216	11	39	373	0	13	302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes						Yes				
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0	35.0	45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%	43.8%	56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.36	0.36		0.36	0.36	0.36	0.49	0.49		0.49	0.49	
v/c Ratio	0.38	1.07		0.87	0.32	0.02	0.08	0.43		0.03	0.36	
Control Delay	22.3	82.5		95.0	20.1	0.1	11.6	12.5		11.1	13.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.3	82.5		95.0	20.1	0.1	11.6	12.5		11.1	13.0	
LOS	C	F		F	C	A	B	B		B	B	
Approach Delay		71.9			38.5			12.4			13.0	
Approach LOS		E			D			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Pretimed
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 43.8 — Intersection LOS: D
Intersection Capacity Utilization 96.2% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Bronte Street & Main Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	585	104	76	210	11	38	203	159	13	227	66
Future Volume (vph)	147	585	104	76	210	11	38	203	159	13	227	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1808		1719	1863	1580	1751	1701		1670	1704	
Flt Permitted	0.60	1.00		0.14	1.00	1.00	0.54	1.00		0.47	1.00	
Satd. Flow (perm)	1110	1808		250	1863	1580	1000	1701		834	1704	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	152	603	107	78	216	11	39	209	164	13	234	68
RTOR Reduction (vph)	0	8	0	0	0	7	0	35	0	0	13	0
Lane Group Flow (vph)	152	702	0	78	216	4	39	338	0	13	289	0
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Heavy Vehicles (%)	3%	1%	10%	5%	2%	0%	3%	2%	5%	8%	7%	8%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.36	0.36		0.36	0.36	0.36	0.49	0.49		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	402	655		90	675	572	487	829		406	830	
v/s Ratio Prot		c0.39			0.12			c0.20			0.17	
v/s Ratio Perm	0.14			0.31		0.00	0.04			0.02		
v/c Ratio	0.38	1.07		0.87	0.32	0.01	0.08	0.41		0.03	0.35	
Uniform Delay, d1	18.8	25.5		23.7	18.4	16.3	10.9	13.1		10.7	12.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	55.8		63.3	1.2	0.0	0.3	1.5		0.1	1.2	
Delay (s)	21.5	81.3		87.0	19.6	16.3	11.3	14.6		10.8	13.8	
Level of Service	C	F		F	B	B	B	B		B	B	
Approach Delay (s)		70.8			36.7			14.3			13.7	
Approach LOS		E			D			B			B	

Intersection Summary				
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	96.2%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	9	0	0	2	420	41	19	468	3
Future Volume (vph)	2	0	2	9	0	0	2	420	41	19	468	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.932						0.988			0.999	
Flt Protected		0.976			0.950						0.998	
Satd. Flow (prot)	0	1728	0	0	1805	0	0	1793	0	0	1760	0
Flt Permitted		0.976			0.950						0.998	
Satd. Flow (perm)	0	1728	0	0	1805	0	0	1793	0	0	1760	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.5			158.8			211.3			99.8	
Travel Time (s)		4.0			11.4			15.2			7.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	2%	0%	8%	0%
Adj. Flow (vph)	2	0	2	10	0	0	2	452	44	20	503	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	10	0	0	498	0	0	526	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

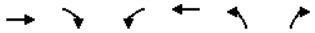
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	9	0	0	2	420	41	19	468	3
Future Volume (Veh/h)	2	0	2	9	0	0	2	420	41	19	468	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	0	2	10	0	0	2	452	44	20	503	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)											100	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	1022	1044	504	1024	1024	474	506			496		
vC1, stage 1 conf vol	544	544		478	478							
vC2, stage 2 conf vol	478	500		546	546							
vCu, unblocked vol	981	1005	417	983	982	474	419			496		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	100	100			98		
cM capacity (veh/h)	419	409	588	422	420	595	1058			1078		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	10	498	526
Volume Left	2	10	2	20
Volume Right	2	0	44	3
cSH	489	422	1058	1078
Volume to Capacity	0.01	0.02	0.00	0.02
Queue Length 95th (m)	0.2	0.6	0.0	0.5
Control Delay (s)	12.4	13.7	0.1	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	12.4	13.7	0.1	0.5
Approach LOS	B	B		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	656	10	56	246	10	200
Future Volume (vph)	656	10	56	246	10	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		0.0	45.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1845	1468	1719	1845	1805	1425
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1845	1468	1719	1845	1805	1425
Link Speed (k/h)	50			50	50	
Link Distance (m)	123.5			335.7	184.6	
Travel Time (s)	8.9			24.2	13.3	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	10%	5%	3%	0%	2%
Parking (#/hr)						0
Adj. Flow (vph)	705	11	60	265	11	215
Shared Lane Traffic (%)						
Lane Group Flow (vph)	705	11	60	265	11	215
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.14
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	656	10	56	246	10	200
Future Volume (Veh/h)	656	10	56	246	10	200
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	705	11	60	265	11	215
Pedestrians					3	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						6
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (m)				336		
pX, platoon unblocked						
vC, conflicting volume			719		1093	708
vC1, stage 1 conf vol					708	
vC2, stage 2 conf vol					385	
vCu, unblocked vol			719		1093	708
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			93		97	50
cM capacity (veh/h)			866		427	434

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	705	11	60	265	226
Volume Left	0	0	60	0	11
Volume Right	0	11	0	0	215
cSH	1700	1700	866	1700	456
Volume to Capacity	0.41	0.01	0.07	0.16	0.50
Queue Length 95th (m)	0.0	0.0	1.8	0.0	21.6
Control Delay (s)	0.0	0.0	9.5	0.0	20.8
Lane LOS			A		C
Approach Delay (s)	0.0		1.7		20.8
Approach LOS					C

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	53.6%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection: 1: Bronte Street North & Victoria Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	9.5	3.8
Average Queue (m)	1.5	0.2
95th Queue (m)	6.7	2.3
Link Distance (m)	144.8	161.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Bronte Street/Bronte Street North & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.5	17.1	10.3	17.1
Average Queue (m)	1.5	7.6	0.4	1.3
95th Queue (m)	7.9	14.9	4.4	10.3
Link Distance (m)	32.8	153.9	85.3	73.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Bronte Street & Main Street

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	97.4	318.1	47.4	338.2	52.1	32.0	68.3	21.6	70.5
Average Queue (m)	77.8	283.9	45.0	268.4	4.3	7.3	35.5	3.1	29.2
95th Queue (m)	133.6	387.9	52.0	430.5	26.7	20.3	59.3	12.7	54.4
Link Distance (m)		314.1		322.4			77.8		85.3
Upstream Blk Time (%)		12		59			0		0
Queuing Penalty (veh)		102		0			0		0
Storage Bay Dist (m)	90.0		40.0		45.0	55.0		30.0	
Storage Blk Time (%)	0	60	92	13	0		1		5
Queuing Penalty (veh)	0	87	203	11	0		0		1

Intersection: 4: Bronte Street South/Bronte Street & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.7	9.4	4.3	34.8
Average Queue (m)	1.1	2.3	0.2	3.2
95th Queue (m)	5.8	8.5	2.9	16.7
Link Distance (m)	44.1	147.0	201.5	77.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Whitmer Street & Main Street

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	L	L	R
Maximum Queue (m)	120.3	107.3	19.6	176.4	52.5
Average Queue (m)	47.0	12.6	5.6	95.2	39.6
95th Queue (m)	120.7	72.3	15.7	224.3	68.7
Link Distance (m)	112.3	112.3		169.6	
Upstream Blk Time (%)	8	4		38	
Queuing Penalty (veh)	0	0		0	
Storage Bay Dist (m)			100.0		45.0
Storage Blk Time (%)				1	61
Queuing Penalty (veh)				1	6

Network Summary

Network wide Queuing Penalty: 412

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	3	299	3	2	518
Future Volume (vph)	5	3	299	3	2	518
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.949		0.999			
Flt Protected	0.970					
Satd. Flow (prot)	1749	0	1861	0	0	1881
Flt Permitted	0.970					
Satd. Flow (perm)	1749	0	1861	0	0	1881
Link Speed (k/h)	50		50			50
Link Distance (m)	154.1		92.4			169.4
Travel Time (s)	11.1		6.7			12.2
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	5	3	329	3	2	569
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	332	0	0	571
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	3	299	3	2	518
Future Volume (Veh/h)	5	3	299	3	2	518
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	3	329	3	2	569
Pedestrians	2					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			203			
pX, platoon unblocked						
vC, conflicting volume	906	332			334	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	906	332			334	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	308	713			1235	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	332	571
Volume Left	5	0	2
Volume Right	3	3	0
cSH	392	1700	1235
Volume to Capacity	0.02	0.20	0.00
Queue Length 95th (m)	0.5	0.0	0.0
Control Delay (s)	14.4	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		38.9%	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)	7	1	4	135	3	4	9	319	60	3	468	5
Future Volume (vph)	7	1	4	135	3	4	9	319	60	3	468	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Ped Bike Factor												
Frt		0.958			0.997			0.979			0.999	
Flt Protected		0.970			0.954			0.999				
Satd. Flow (prot)	0	1766	0	0	1773	0	0	1828	0	0	1880	0
Flt Permitted		0.970			0.954			0.999				
Satd. Flow (perm)	0	1766	0	0	1773	0	0	1828	0	0	1880	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		44.0			164.9			110.3			92.4	
Travel Time (s)		3.2			11.9			7.9			6.7	
Confl. Peds. (#/hr)							1		3	3		1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	2%	0%	0%	1%	0%
Adj. Flow (vph)	8	1	4	148	3	4	10	351	66	3	514	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	155	0	0	427	0	0	522	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.2%		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)	7	1	4	135	3	4	9	319	60	3	468	5
Future Volume (Veh/h)	7	1	4	135	3	4	9	319	60	3	468	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	1	4	148	3	4	10	351	66	3	514	5
Pedestrians		1			3							
Lane Width (m)		3.6			3.6							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								110				
pX, platoon unblocked	0.93	0.93		0.93	0.93	0.93				0.93		
vC, conflicting volume	933	964	518	934	933	387	520			420		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	893	926	518	895	893	309	520			345		
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 %	97	100	99	38	99	99	99			100		
cM capacity (veh/h)	240	249	561	239	260	686	1056			1143		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	155	427	522
Volume Left	8	148	10	3
Volume Right	4	4	66	5
cSH	293	243	1056	1143
Volume to Capacity	0.04	0.64	0.01	0.00
Queue Length 95th (m)	1.1	31.2	0.2	0.1
Control Delay (s)	17.9	42.6	0.3	0.1
Lane LOS	C	E	A	A
Approach Delay (s)	17.9	42.6	0.3	0.1
Approach LOS	C	E		

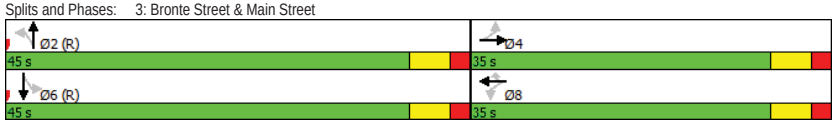
Intersection Summary					
Average Delay			6.3		
Intersection Capacity Utilization			45.2%	ICU Level of Service	A
Analysis Period (min)			15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	362	74	136	489	24	108	288	205	31	369	270
Future Volume (vph)	88	362	74	136	489	24	108	288	205	31	369	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		45.0	55.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Ped Bike Factor		0.99		1.00				0.99		1.00		
Frt		0.974				0.850		0.938			0.937	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1826	0	1770	1881	1553	1805	1729	0	1752	1770	0
Flt Permitted	0.256			0.318			0.231			0.357		
Satd. Flow (perm)	477	1826	0	590	1881	1553	439	1729	0	657	1770	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				41		62			64	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		335.7			334.7			99.8			110.3	
Travel Time (s)		24.2			24.1			7.2			7.9	
Confl. Peds. (#/hr)			6	6					3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	1%	0%	2%	1%	4%	0%	2%	2%	3%	1%	0%
Adj. Flow (vph)	90	369	76	139	499	24	110	294	209	32	377	276
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	445	0	139	499	24	110	503	0	32	653	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes						Yes				
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0	35.0	45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%	43.8%	56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.36	0.36		0.36	0.36	0.36	0.49	0.49		0.49	0.49	
v/c Ratio	0.52	0.66		0.65	0.73	0.04	0.51	0.58		0.10	0.73	
Control Delay	33.3	26.4		38.7	29.8	3.1	24.7	15.8		12.2	20.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	33.3	26.4		38.7	29.8	3.1	24.7	15.8		12.2	20.5	
LOS	C	C		D	C	A	C	B		B	C	
Approach Delay		27.5			30.7			17.4			20.1	
Approach LOS		C			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 23.8		Intersection LOS: C	
Intersection Capacity Utilization 106.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 3: Bronte Street & Main Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	362	74	136	489	24	108	288	205	31	369	270
Future Volume (vph)	88	362	74	136	489	24	108	288	205	31	369	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1827		1762	1881	1553	1805	1729		1749	1769	
Flt Permitted	0.26	1.00		0.32	1.00	1.00	0.23	1.00		0.36	1.00	
Satd. Flow (perm)	477	1827		590	1881	1553	440	1729		658	1769	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	90	369	76	139	499	24	110	294	209	32	377	276
RTOR Reduction (vph)	0	10	0	0	0	15	0	32	0	0	33	0
Lane Group Flow (vph)	90	435	0	139	499	9	110	471	0	32	620	0
Confl. Peds. (#/hr)			6	6					3	3		
Heavy Vehicles (%)	2%	1%	0%	2%	1%	4%	0%	2%	2%	3%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Effective Green, g (s)	29.0	29.0		29.0	29.0	29.0	39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.36	0.36		0.36	0.36	0.36	0.49	0.49		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	172	662		213	681	562	214	842		320	862	
v/s Ratio Prot		0.24			c0.27			0.27			c0.35	
v/s Ratio Perm	0.19			0.24		0.01	0.25			0.05		
v/c Ratio	0.52	0.66		0.65	0.73	0.02	0.51	0.56		0.10	0.72	
Uniform Delay, d1	20.1	21.3		21.3	22.1	16.3	14.0	14.4		11.0	16.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.9	5.1		14.5	6.9	0.1	8.6	2.7		0.6	5.1	
Delay (s)	31.0	26.4		35.8	29.0	16.4	22.6	17.1		11.7	21.3	
Level of Service	C	C		D	C	B	C	B		B	C	
Approach Delay (s)		27.2			30.0			18.1			20.9	
Approach LOS		C			C			B			C	

Intersection Summary					
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.72				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	106.6%	ICU Level of Service		G	
Analysis Period (min)	15				
c Critical Lane Group					

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	4	13	28	1	1	16	576	25	7	535	16
Future Volume (vph)	9	4	13	28	1	1	16	576	25	7	535	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Ped Bike Factor												
Frt		0.932			0.996			0.982			0.996	
Flt Protected		0.982			0.955			0.999			0.999	
Satd. Flow (prot)	0	1739	0	0	1807	0	0	1799	0	0	1852	0
Flt Permitted		0.982			0.955			0.999			0.999	
Satd. Flow (perm)	0	1739	0	0	1807	0	0	1799	0	0	1852	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.5			158.8			211.3			99.8	
Travel Time (s)		4.0			11.4			15.2			7.2	
Confl. Peds. (#/hr)							10		9	9		10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	8%	14%	2%	0%
Adj. Flow (vph)	10	4	14	30	1	1	17	626	100	8	582	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	32	0	0	743	0	0	607	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.9%	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)	9	4	13	28	1	1	16	576	25	7	535	16
Future Volume (Veh/h)	9	4	13	28	1	1	16	576	25	7	535	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92
Hourly flow rate (vph)	10	4	14	30	1	1	17	626	100	8	582	17
Pedestrians		10			9							
Lane Width (m)		3.6			3.6							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		1			1							
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)											100	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	1328	1386	600	1342	1344	685	609			735		
vC1, stage 1 conf vol	616	616		719	719							
vC2, stage 2 conf vol	712	769		622	625							
vCu, unblocked vol	1279	1353	346	1297	1300	685	356			735		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	97	99	97	91	100	100	98			99		
cM capacity (veh/h)	326	316	542	317	326	448	938			812		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	32	743	607
Volume Left	10	30	17	8
Volume Right	14	1	100	17
cSH	405	321	938	812
Volume to Capacity	0.07	0.10	0.02	0.01
Queue Length 95th (m)	1.8	2.6	0.4	0.2
Control Delay (s)	14.5	17.5	0.5	0.3
Lane LOS	B	C	A	A
Approach Delay (s)	14.5	17.5	0.5	0.3
Approach LOS	B	C		

Intersection Summary				
Average Delay		1.1		
Intersection Capacity Utilization		51.9%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	412	7	206	654	1	114
Future Volume (vph)	412	7	206	654	1	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		0.0	45.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1881	1615	1805	1881	1805	1439
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1881	1615	1805	1881	1805	1439
Link Speed (k/h)	50			50	50	
Link Distance (m)	123.5			335.7	184.6	
Travel Time (s)	8.9			24.2	13.3	
Confl. Peds. (#/hr)		4	4			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	0%	1%	0%	1%
Parking (#/hr)						0
Adj. Flow (vph)	420	7	210	667	1	116
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	7	210	667	1	116
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.14
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	412	7	206	654	1	114
Future Volume (Veh/h)	412	7	206	654	1	114
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	420	7	210	667	1	116
Pedestrians					4	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						6
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (m)				336		
pX, platoon unblocked					0.85	
vC, conflicting volume			431		1511	424
vC1, stage 1 conf vol					424	
vC2, stage 2 conf vol					1087	
vCu, unblocked vol			431		1513	424
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			82		100	82
cM capacity (veh/h)			1136		231	630

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	420	7	210	667	117
Volume Left	0	0	210	0	1
Volume Right	0	7	0	0	116
cSH	1700	1700	1136	1700	636
Volume to Capacity	0.25	0.00	0.18	0.39	0.18
Queue Length 95th (m)	0.0	0.0	5.4	0.0	5.4
Control Delay (s)	0.0	0.0	8.9	0.0	12.1
Lane LOS			A		B
Approach Delay (s)	0.0		2.1		12.1
Approach LOS					B

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	46.4%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection: 1: Bronte Street North & Victoria Street

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	10.0	6.8
Average Queue (m)	2.6	0.3
95th Queue (m)	9.1	3.5
Link Distance (m)	144.8	161.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Bronte Street/Bronte Street North & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.2	50.4	25.0	22.1
Average Queue (m)	3.0	20.8	2.0	2.5
95th Queue (m)	10.0	40.0	13.7	12.6
Link Distance (m)	32.8	153.9	85.3	73.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Bronte Street & Main Street

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	74.0	99.7	47.5	293.9	49.8	62.4	92.6	37.3	89.5
Average Queue (m)	24.7	55.7	39.1	147.8	8.4	49.2	66.5	10.5	67.1
95th Queue (m)	53.8	87.0	59.6	307.8	34.7	76.8	103.2	31.2	93.9
Link Distance (m)		314.1		322.4			77.8		85.3
Upstream Blk Time (%)				10			26		2
Queuing Penalty (veh)				0			150		11
Storage Bay Dist (m)	90.0		40.0		45.0	55.0		30.0	
Storage Blk Time (%)		1	31	35	0	38	12	1	32
Queuing Penalty (veh)		1	157	56	0	188	13	3	10

Intersection: 4: Bronte Street South/Bronte Street & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	32.1	21.1	197.5	25.3
Average Queue (m)	10.6	6.9	89.3	1.4
95th Queue (m)	28.6	17.6	243.8	11.8
Link Distance (m)	44.1	147.0	201.5	77.8
Upstream Blk Time (%)	2		24	0
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Whitmer Street & Main Street

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (m)	26.8	2.7	16.8
Average Queue (m)	12.6	0.1	6.9
95th Queue (m)	22.9	1.6	13.0
Link Distance (m)		169.6	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	100.0		45.0
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 590

Appendix C

2026 Background Traffic Operations Reports

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	4	446	7	4	384
Future Volume (vph)	2	4	446	7	4	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	30.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910		0.998			
Flt Protected	0.984				0.950	
Satd. Flow (prot)	1701	0	1815	0	1805	1743
Flt Permitted	0.984				0.950	
Satd. Flow (perm)	1701	0	1815	0	1805	1743
Link Speed (k/h)	50		50			50
Link Distance (m)	154.1		92.4			169.4
Travel Time (s)	11.1		6.7			12.2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	4%	33%	0%	9%
Adj. Flow (vph)	2	4	501	8	4	431
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	509	0	4	431
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	4	446	7	4	384
Future Volume (Veh/h)	2	4	446	7	4	384
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	2	4	501	8	4	431
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			203			
pX, platoon unblocked						
vC, conflicting volume	944	505			509	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	944	505			509	
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)	292	571			1066	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	6	509	4	431
Volume Left	2	0	4	0
Volume Right	4	8	0	0
cSH	433	1700	1066	1700
Volume to Capacity	0.01	0.30	0.00	0.25
Queue Length 95th (m)	0.3	0.0	0.1	0.0
Control Delay (s)	13.4	0.0	8.4	0.0
Lane LOS	B		A	
Approach Delay (s)	13.4	0.0	0.1	
Approach LOS	B			

Intersection Summary				
Average Delay		0.1		
Intersection Capacity Utilization		33.9%	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)	4	0	1	54	1	1	4	459	96	7	379	1
Future Volume (vph)	4	0	1	54	1	1	4	459	96	7	379	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.977			0.998			0.977				
Flt Protected		0.960			0.954					0.950		
Satd. Flow (prot)	0	1398	0	0	1809	0	0	1783	0	1543	1760	0
Flt Permitted		0.960			0.954					0.950		
Satd. Flow (perm)	0	1398	0	0	1809	0	0	1783	0	1543	1760	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		44.0			164.9			110.3			92.4	
Travel Time (s)		3.2			11.9			7.9			6.7	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	33%	0%	0%	0%	0%	0%	0%	5%	0%	17%	8%	0%
Adj. Flow (vph)	5	0	1	62	1	1	5	528	110	8	436	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	64	0	0	643	0	8	437	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.5%		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)	4	0	1	54	1	1	4	459	96	7	379	1
Future Volume (Veh/h)	4	0	1	54	1	1	4	459	96	7	379	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	5	0	1	62	1	1	5	528	110	8	436	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								110				
pX, platoon unblocked	0.96	0.96		0.96	0.96	0.96				0.96		
vC, conflicting volume	1047	1100	436	1046	1046	583	437			638		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1029	1084	436	1028	1028	546	437			603		
tC, single (s)	7.4	6.5	6.2	7.1	6.5	6.2	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.3	3.5	4.0	3.3	2.2			2.4		
p0 queue free %	97	100	100	70	100	100	100			99		
cM capacity (veh/h)	176	207	624	204	224	520	1134			870		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	6	64	643	8	437
Volume Left	5	62	5	8	0
Volume Right	1	1	110	0	1
cSH	200	206	1134	870	1700
Volume to Capacity	0.03	0.31	0.00	0.01	0.26
Queue Length 95th (m)	0.7	10.1	0.1	0.2	0.0
Control Delay (s)	23.6	30.2	0.1	9.2	0.0
Lane LOS	C	D	A	A	
Approach Delay (s)	23.6	30.2	0.1	0.2	
Approach LOS	C	D			

Intersection Summary					
Average Delay		1.9			
Intersection Capacity Utilization		43.5%	ICU Level of Service		A
Analysis Period (min)		15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	734	154	104	294	13	96	255	208	16	285	90
Future Volume (vph)	184	734	154	104	294	13	96	255	208	16	285	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		45.0	55.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Ped Bike Factor	1.00	1.00				0.98	1.00	0.99		1.00	0.99	
Frt		0.974				0.850		0.933			0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1797	0	1719	1863	1615	1752	1699	0	1671	1699	0
Flt Permitted	0.557			0.117			0.297			0.168		
Satd. Flow (perm)	1026	1797	0	212	1863	1580	547	1699	0	295	1699	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				36		46			18	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		335.7			334.7			99.8			110.3	
Travel Time (s)		24.2			24.1			7.2			7.9	
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	1%	10%	5%	2%	0%	3%	2%	5%	8%	7%	8%
Adj. Flow (vph)	190	757	159	107	303	13	99	263	214	16	294	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	190	916	0	107	303	13	99	477	0	16	387	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes						Yes				
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (s)	58.0	58.0		58.0	58.0	58.0	32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%	64.4%	35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	52.0	52.0		52.0	52.0	52.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	52.0	52.0		52.0	52.0	52.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.29	0.29		0.29	0.29	
v/c Ratio	0.32	0.88		0.88	0.28	0.01	0.63	0.91		0.19	0.77	
Control Delay	11.7	27.5		77.3	10.4	0.6	48.0	52.2		30.8	39.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	11.7	27.5		77.3	10.4	0.6	48.0	52.2		30.8	39.8	
LOS	B	C		E	B	A	D	D		C	D	
Approach Delay		24.8			27.1			51.5			39.4	
Approach LOS		C			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 33.6		Intersection LOS: C	
Intersection Capacity Utilization 119.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Bronte Street & Main Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	734	154	104	294	13	96	255	208	16	285	90
Future Volume (vph)	184	734	154	104	294	13	96	255	208	16	285	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1797		1719	1863	1580	1751	1698		1670	1699	
Flt Permitted	0.56	1.00		0.12	1.00	1.00	0.30	1.00		0.17	1.00	
Satd. Flow (perm)	1026	1797		211	1863	1580	547	1698		296	1699	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	190	757	159	107	303	13	99	263	214	16	294	93
RTOR Reduction (vph)	0	8	0	0	0	5	0	33	0	0	13	0
Lane Group Flow (vph)	190	908	0	107	303	8	99	444	0	16	374	0
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Heavy Vehicles (%)	3%	1%	10%	5%	2%	0%	3%	2%	5%	8%	7%	8%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	52.0	52.0		52.0	52.0	52.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	52.0	52.0		52.0	52.0	52.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.29	0.29		0.29	0.29	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	592	1038		121	1076	912	158	490		85	490	
v/s Ratio Prot		0.51			0.16			c0.26			0.22	
v/s Ratio Perm	0.19			c0.51		0.00	0.18			0.05		
v/c Ratio	0.32	0.87		0.88	0.28	0.01	0.63	0.91		0.19	0.76	
Uniform Delay, d1	9.8	16.2		16.4	9.6	8.1	27.8	30.8		24.1	29.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	10.2		55.2	0.7	0.0	17.3	23.0		4.8	10.8	
Delay (s)	11.3	26.4		71.6	10.2	8.1	45.1	53.9		28.9	40.0	
Level of Service	B	C		E	B	A	D	D		C	D	
Approach Delay (s)		23.8			25.7			52.4			39.5	
Approach LOS		C			C			D			D	

Intersection Summary				
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	119.2%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	11	0	14	2	582	50	23	616	4
Future Volume (vph)	2	0	2	11	0	14	2	582	50	23	616	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.932			0.925			0.989			0.999	
Flt Protected		0.976			0.978						0.998	
Satd. Flow (prot)	0	1728	0	0	1719	0	0	1794	0	0	1759	0
Flt Permitted		0.976			0.978						0.998	
Satd. Flow (perm)	0	1728	0	0	1719	0	0	1794	0	0	1759	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.5			158.8			211.3			99.8	
Travel Time (s)		4.0			11.4			15.2			7.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	2%	0%	8%	0%
Adj. Flow (vph)	2	0	2	12	0	15	2	626	54	25	662	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	27	0	0	682	0	0	691	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	59.7%	ICU Level of Service B	
Analysis Period (min)	15		

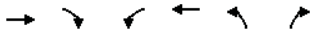
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	11	0	14	2	582	50	23	616	4
Future Volume (Veh/h)	2	0	2	11	0	14	2	582	50	23	616	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	0	2	12	0	15	2	626	54	25	662	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)											100	
pX, platoon unblocked	0.82	0.82	0.82	0.82	0.82		0.82					
vC, conflicting volume	1386	1398	664	1373	1373	653	666			680		
vC1, stage 1 conf vol	714	714		657	657							
vC2, stage 2 conf vol	672	684		716	716							
vCu, unblocked vol	1360	1375	476	1344	1344	653	478			680		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	96	100	97	100			97		
cM capacity (veh/h)	302	312	484	317	324	471	893			922		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	27	682	691
Volume Left	2	12	2	25
Volume Right	2	15	54	4
cSH	372	387	893	922
Volume to Capacity	0.01	0.07	0.00	0.03
Queue Length 95th (m)	0.3	1.8	0.1	0.7
Control Delay (s)	14.8	15.0	0.1	0.7
Lane LOS	B	B	A	A
Approach Delay (s)	14.8	15.0	0.1	0.7
Approach LOS	B	B		

Intersection Summary				
Average Delay			0.7	
Intersection Capacity Utilization			59.7%	ICU Level of Service
Analysis Period (min)			15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	853	12	68	397	18	244
Future Volume (vph)	853	12	68	397	18	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		0.0	45.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1845	1468	1719	1845	1805	1425
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1845	1468	1719	1845	1805	1425
Link Speed (k/h)	50			50	50	
Link Distance (m)	123.5			335.7	184.6	
Travel Time (s)	8.9			24.2	13.3	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	10%	5%	3%	0%	2%
Parking (#/hr)						0
Adj. Flow (vph)	917	13	73	427	19	262
Shared Lane Traffic (%)						
Lane Group Flow (vph)	917	13	73	427	19	262
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.14
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	853	12	68	397	18	244
Future Volume (Veh/h)	853	12	68	397	18	244
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	917	13	73	427	19	262
Pedestrians					3	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						6
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (m)				336		
pX, platoon unblocked					1.00	
vC, conflicting volume			933		1493	920
vC1, stage 1 conf vol					920	
vC2, stage 2 conf vol					573	
vCu, unblocked vol			933		1493	920
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			90		94	20
cM capacity (veh/h)			720		324	327

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	917	13	73	427	281
Volume Left	0	0	73	0	19
Volume Right	0	13	0	0	262
cSH	1700	1700	720	1700	351
Volume to Capacity	0.54	0.01	0.10	0.25	0.80
Queue Length 95th (m)	0.0	0.0	2.7	0.0	54.2
Control Delay (s)	0.0	0.0	10.6	0.0	46.2
Lane LOS			B		E
Approach Delay (s)	0.0		1.5		46.2
Approach LOS					E

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection: 1: Bronte Street North & Victoria Street

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (m)	8.7	5.8	4.8
Average Queue (m)	1.4	0.3	0.3
95th Queue (m)	6.6	3.0	6.9
Link Distance (m)	143.0		161.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		30.0	
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 2: Bronte Street/Bronte Street North & Private Driveway/Mill Street

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (m)	13.8	22.7	13.8	9.5	40.6
Average Queue (m)	1.4	9.8	0.7	0.9	3.7
95th Queue (m)	7.8	18.6	6.8	5.3	21.8
Link Distance (m)	28.7	153.7	85.4	73.1	73.1
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Bronte Street & Main Street

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	97.4	254.2	47.4	334.9	44.5	62.4	92.5	24.3	89.8
Average Queue (m)	58.9	152.3	43.4	247.4	4.0	52.2	79.0	5.8	60.7
95th Queue (m)	122.6	267.9	57.2	442.3	24.2	78.8	93.7	17.8	94.0
Link Distance (m)		314.2		322.4			77.8	85.4	85.4
Upstream Blk Time (%)		0		59			42		4
Queuing Penalty (veh)		1		0			254		8
Storage Bay Dist (m)	90.0		40.0		45.0	55.0			
Storage Blk Time (%)	0	24	85	7	0	29	44		
Queuing Penalty (veh)	0	44	261	8	0	136	42		

Intersection: 4: Bronte Street South/Bronte Street & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.3	33.2	211.8	75.0
Average Queue (m)	1.6	11.4	130.6	12.8
95th Queue (m)	7.1	30.0	274.0	48.8
Link Distance (m)	44.1	147.0	201.5	77.8
Upstream Blk Time (%)			39	0
Queuing Penalty (veh)			0	2
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Whitmer Street & Main Street

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	L	L	R
Maximum Queue (m)	25.6	10.6	23.6	99.1	52.2
Average Queue (m)	2.7	0.7	8.4	32.3	35.6
95th Queue (m)	29.3	15.7	19.2	118.7	60.9
Link Distance (m)	112.3	112.3		169.6	
Upstream Blk Time (%)	0	0		6	
Queuing Penalty (veh)	0	0		0	
Storage Bay Dist (m)			100.0		45.0
Storage Blk Time (%)				0	26
Queuing Penalty (veh)				0	5

Network Summary

Network wide Queuing Penalty: 760

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	4	389	4	2	653
Future Volume (vph)	6	4	389	4	2	653
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.951		0.999			
Flt Protected	0.969				0.950	
Satd. Flow (prot)	1751	0	1861	0	1805	1881
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1751	0	1861	0	1805	1881
Link Speed (k/h)	50		50			50
Link Distance (m)	154.1		92.4			169.4
Travel Time (s)	11.1		6.7			12.2
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	7	4	427	4	2	718
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	431	0	2	718
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	4	389	4	2	653
Future Volume (Veh/h)	6	4	389	4	2	653
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	4	427	4	2	718
Pedestrians	2					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			203			
pX, platoon unblocked						
vC, conflicting volume	1153	431			433	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1153	431			433	
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)	220	628			1135	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	11	431	2	718
Volume Left	7	0	2	0
Volume Right	4	4	0	0
cSH	287	1700	1135	1700
Volume to Capacity	0.04	0.25	0.00	0.42
Queue Length 95th (m)	1.0	0.0	0.0	0.0
Control Delay (s)	18.0	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	18.0	0.0	0.0	
Approach LOS	C			

Intersection Summary				
Average Delay			0.2	
Intersection Capacity Utilization			44.4%	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)	8	1	5	165	4	5	11	412	73	4	592	6
Future Volume (vph)	8	1	5	165	4	5	11	412	73	4	592	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Ped Bike Factor												
Frt		0.955			0.996			0.980			0.998	
Flt Protected		0.971			0.955			0.999		0.950		
Satd. Flow (prot)	0	1762	0	0	1773	0	0	1830	0	1805	1878	0
Flt Permitted		0.971			0.955			0.999		0.950		
Satd. Flow (perm)	0	1762	0	0	1773	0	0	1830	0	1805	1878	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		44.0			164.9			110.3			92.4	
Travel Time (s)		3.2			11.9			7.9			6.7	
Confl. Peds. (#/hr)							1		3	3		1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	2%	0%	0%	1%	0%
Adj. Flow (vph)	9	1	5	181	4	5	12	453	80	4	651	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	190	0	0	545	0	4	658	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	56.6%	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)	8	1	5	165	4	5	11	412	73	4	592	6
Future Volume (Veh/h)	8	1	5	165	4	5	11	412	73	4	592	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	9	1	5	181	4	5	12	453	80	4	651	7
Pedestrians		1			3							
Lane Width (m)		3.6			3.6							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								110				
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	1188	1224	656	1184	1187	496	659			536		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1184	1220	656	1181	1184	485	659			525		
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 %	94	99	99	0	98	99	99			100		
cM capacity (veh/h)	159	176	469	160	185	578	938			1038		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	15	190	545	4	658
Volume Left	9	181	12	4	0
Volume Right	5	5	80	0	7
cSH	206	163	938	1038	1700
Volume to Capacity	0.07	1.16	0.01	0.00	0.39
Queue Length 95th (m)	1.9	82.2	0.3	0.1	0.0
Control Delay (s)	23.9	177.4	0.4	8.5	0.0
Lane LOS	C	F	A	A	
Approach Delay (s)	23.9	177.4	0.4	0.1	
Approach LOS	C	F			

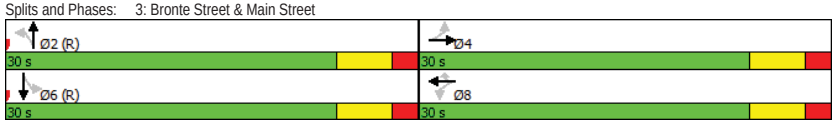
Intersection Summary					
Average Delay	24.3				
Intersection Capacity Utilization	56.6%	ICU Level of Service		B	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	485	148	180	638	29	187	364	269	38	460	340
Future Volume (vph)	119	485	148	180	638	29	187	364	269	38	460	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		45.0	55.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Ped Bike Factor		0.99		1.00				0.99		1.00		
Frt		0.965				0.850		0.936			0.936	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1808	0	1770	1881	1553	1805	1726	0	1752	1768	0
Flt Permitted	0.167			0.172			0.167			0.173		
Satd. Flow (perm)	311	1808	0	320	1881	1553	317	1726	0	319	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				55		74			74	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		335.7			334.7			99.8			110.3	
Travel Time (s)		24.2			24.1			7.2			7.9	
Confl. Peds. (#/hr)			6	6					3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	1%	0%	2%	1%	4%	0%	2%	2%	3%	1%	0%
Adj. Flow (vph)	121	495	151	184	651	30	191	371	274	39	469	347
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	646	0	184	651	30	191	645	0	39	816	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes						Yes				
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40	0.40	0.40	0.40		0.40	0.40	
v/c Ratio	0.98	0.87		1.44	0.87	0.05	1.52	0.88		0.31	1.09	
Control Delay	102.2	31.4		259.2	31.4	2.0	291.6	31.2		20.4	79.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	102.2	31.4		259.2	31.4	2.0	291.6	31.2		20.4	79.1	
LOS	F	C		F	C	A	F	C		C	E	
Approach Delay		42.6			78.9			90.7			76.4	
Approach LOS		D			E			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay: 72.8		Intersection LOS: E	
Intersection Capacity Utilization 124.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Bronte Street & Main Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	485	148	180	638	29	187	364	269	38	460	340
Future Volume (vph)	119	485	148	180	638	29	187	364	269	38	460	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1808		1766	1881	1553	1805	1727		1751	1769	
Flt Permitted	0.17	1.00		0.17	1.00	1.00	0.17	1.00		0.17	1.00	
Satd. Flow (perm)	311	1808		320	1881	1553	317	1727		319	1769	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	121	495	151	184	651	30	191	371	274	39	469	347
RTOR Reduction (vph)	0	19	0	0	0	18	0	44	0	0	44	0
Lane Group Flow (vph)	121	627	0	184	651	12	191	601	0	39	772	0
Confl. Peds. (#/hr)			6	6					3	3		
Heavy Vehicles (%)	2%	1%	0%	2%	1%	4%	0%	2%	2%	3%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Effective Green, g (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40	0.40	0.40	0.40		0.40	0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	124	723		128	752	621	126	690		127	707	
v/s Ratio Prot		0.35			0.35			0.35			0.44	
v/s Ratio Perm	0.39			c0.58		0.01	c0.60			0.12		
v/c Ratio	0.98	0.87		1.44	0.87	0.02	1.52	0.87		0.31	1.09	
Uniform Delay, d1	17.7	16.5		18.0	16.5	10.9	18.0	16.6		12.3	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	74.6	13.3		235.5	12.7	0.1	268.4	14.1		6.2	61.5	
Delay (s)	92.3	29.9		253.5	29.3	10.9	286.4	30.7		18.5	79.5	
Level of Service	F	C		F	C	B	F	C		B	E	
Approach Delay (s)		39.7			76.3			89.1			76.7	
Approach LOS		D			E			F			E	

Intersection Summary				
HCM 2000 Control Delay	71.2	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.47			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	124.6%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	5	16	35	1	86	19	791	31	8	736	19
Future Volume (vph)	11	5	16	35	1	86	19	791	31	8	736	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Ped Bike Factor												
Frt		0.932			0.905			0.983			0.997	
Flt Protected		0.983			0.986			0.999			0.999	
Satd. Flow (prot)	0	1741	0	0	1695	0	0	1802	0	0	1854	0
Flt Permitted		0.983			0.986			0.999			0.999	
Satd. Flow (perm)	0	1741	0	0	1695	0	0	1802	0	0	1854	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.5			158.8			211.3			99.8	
Travel Time (s)		4.0			11.4			15.2			7.2	
Confl. Peds. (#/hr)							10		9	9		10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	8%	14%	2%	0%
Adj. Flow (vph)	12	5	17	38	1	93	21	860	124	9	800	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	132	0	0	1005	0	0	830	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	5	16	35	1	86	19	791	31	8	736	19
Future Volume (Veh/h)	11	5	16	35	1	86	19	791	31	8	736	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92
Hourly flow rate (vph)	12	5	17	38	1	93	21	860	124	9	800	21
Pedestrians		10			9							
Lane Width (m)		3.6			3.6							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		1			1							
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)											100	
pX, platoon unblocked	0.62	0.62	0.62	0.62	0.62		0.62					
vC, conflicting volume	1896	1874	820	1821	1822	931	831			993		
vC1, stage 1 conf vol	838	838		973	973							
vC2, stage 2 conf vol	1058	1035		848	849							
vCu, unblocked vol	2137	2101	407	2017	2018	931	424			993		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	92	98	96	82	100	71	97			99		
cM capacity (veh/h)	155	217	400	208	222	324	707			646		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	34	132	1005	830
Volume Left	12	38	21	9
Volume Right	17	93	124	21
cSH	238	278	707	646
Volume to Capacity	0.14	0.47	0.03	0.01
Queue Length 95th (m)	3.9	19.2	0.7	0.3
Control Delay (s)	22.7	29.1	0.9	0.4
Lane LOS	C	D	A	A
Approach Delay (s)	22.7	29.1	0.9	0.4
Approach LOS	C	D		

Intersection Summary					
Average Delay		2.9			
Intersection Capacity Utilization		71.0%	ICU Level of Service		C
Analysis Period (min)		15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	615	8	251	906	9	139
Future Volume (vph)	615	8	251	906	9	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		0.0	45.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1881	1615	1805	1881	1805	1439
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1881	1615	1805	1881	1805	1439
Link Speed (k/h)	50			50	50	
Link Distance (m)	123.5			335.7	184.6	
Travel Time (s)	8.9			24.2	13.3	
Confl. Peds. (#/hr)		4	4			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	0%	1%	0%	1%
Parking (#/hr)						0
Adj. Flow (vph)	628	8	256	924	9	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	628	8	256	924	9	142
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.14
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	615	8	251	906	9	139
Future Volume (Veh/h)	615	8	251	906	9	139
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	628	8	256	924	9	142
Pedestrians					4	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						6
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (m)				336		
pX, platoon unblocked					0.76	
vC, conflicting volume			640		2068	632
vC1, stage 1 conf vol					632	
vC2, stage 2 conf vol					1436	
vCu, unblocked vol			640		2249	632
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			73		92	70
cM capacity (veh/h)			951		120	481

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	628	8	256	924	151
Volume Left	0	0	256	0	9
Volume Right	0	8	0	0	142
cSH	1700	1700	951	1700	511
Volume to Capacity	0.37	0.00	0.27	0.54	0.30
Queue Length 95th (m)	0.0	0.0	8.7	0.0	9.8
Control Delay (s)	0.0	0.0	10.2	0.0	16.9
Lane LOS			B		C
Approach Delay (s)	0.0		2.2		16.9
Approach LOS					C

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection: 1: Bronte Street North & Victoria Street

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (m)	10.6	16.0	53.0
Average Queue (m)	2.6	0.5	6.1
95th Queue (m)	9.3	15.6	42.2
Link Distance (m)	143.1	161.7	161.7
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Bronte Street/Bronte Street North & Private Driveway/Mill Street

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (m)	14.5	163.3	25.3	6.7	76.7
Average Queue (m)	4.0	143.6	1.4	0.2	38.4
95th Queue (m)	12.0	198.5	11.7	2.6	74.3
Link Distance (m)	28.7	153.7	85.4	73.1	73.1
Upstream Blk Time (%)		76			3
Queuing Penalty (veh)		0			8
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Bronte Street & Main Street

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	97.4	232.3	47.4	338.6	52.5	62.4	93.7	34.0	90.6
Average Queue (m)	47.9	114.7	46.4	324.4	8.8	61.2	86.1	7.5	87.9
95th Queue (m)	110.1	224.1	51.5	366.2	37.1	63.0	93.9	21.8	91.8
Link Distance (m)		314.2		322.4			77.8	85.4	85.4
Upstream Blk Time (%)		0		96			85		28
Queuing Penalty (veh)		1		0			758		106
Storage Bay Dist (m)	90.0		40.0		45.0	55.0			
Storage Blk Time (%)	1	24	84	20	0	99	2		
Queuing Penalty (veh)	7	29	560	43	0	629	4		

Intersection: 4: Bronte Street South/Bronte Street & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	48.1	151.4	214.6	27.5
Average Queue (m)	36.6	144.4	205.6	1.4
95th Queue (m)	56.1	164.5	213.3	17.5
Link Distance (m)	44.1	147.0	201.5	77.8
Upstream Blk Time (%)	68	90	97	0
Queuing Penalty (veh)	0	0	0	1
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Whitmer Street & Main Street

Movement	EB	WB	NB	NB
Directions Served	T	L	L	R
Maximum Queue (m)	6.5	28.0	10.2	24.1
Average Queue (m)	0.4	12.0	1.9	9.5
95th Queue (m)	5.9	22.4	7.2	19.6
Link Distance (m)	112.3		169.6	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		100.0		45.0
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Network Summary

Network wide Queuing Penalty: 2146

Appendix D

2026 Total Traffic Operations Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	0	84	2	0	4	27	446	7	4	384	4
Future Volume (vph)	16	0	84	2	0	4	27	446	7	4	384	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	30.0		0.0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Frt		0.850			0.910			0.998			0.999	
Flt Protected	0.950				0.984			0.997		0.950		
Satd. Flow (prot)	1770	1583	0	0	1701	0	0	1812	0	1805	1742	0
Flt Permitted	0.950				0.984			0.997		0.950		
Satd. Flow (perm)	1770	1583	0	0	1701	0	0	1812	0	1805	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		53.0			154.1			92.4			169.4	
Travel Time (s)		3.8			11.1			6.7			12.2	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.92	0.89	0.92	0.89	0.89	0.89	0.89	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	2%	0%	2%	4%	33%	0%	9%	2%
Adj. Flow (vph)	17	0	91	2	0	4	29	501	8	4	431	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	91	0	0	6	0	0	538	0	4	435	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		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)	16	0	84	2	0	4	27	446	7	4	384	4
Future Volume (Veh/h)	16	0	84	2	0	4	27	446	7	4	384	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.92	0.89	0.92	0.89	0.89	0.89	0.89	0.92
Hourly flow rate (vph)	17	0	91	2	0	4	29	501	8	4	431	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203				
pX, platoon unblocked												
vC, conflicting volume	1008	1008	433	1093	1006	505	435			509		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1008	1008	433	1093	1006	505	435			509		
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 %	92	100	85	99	100	99	97			100		
cM capacity (veh/h)	213	233	623	161	234	571	1125			1066		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	17	91	6	538	4	435
Volume Left	17	0	2	29	4	0
Volume Right	0	91	4	8	0	4
cSH	213	623	309	1125	1066	1700
Volume to Capacity	0.08	0.15	0.02	0.03	0.00	0.26
Queue Length 95th (m)	2.1	4.1	0.5	0.6	0.1	0.0
Control Delay (s)	23.4	11.8	16.9	0.7	8.4	0.0
Lane LOS	C	B	C	A	A	
Approach Delay (s)	13.6		16.9	0.7	0.1	
Approach LOS	B		C			

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	57.9%	ICU Level of Service		B
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	3	484	96	12	458
Future Volume (vph)	54	3	484	96	12	458
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994		0.978			
Flt Protected	0.954				0.950	
Satd. Flow (prot)	1802	0	1784	0	1543	1759
Flt Permitted	0.954				0.950	
Satd. Flow (perm)	1802	0	1784	0	1543	1759
Link Speed (k/h)	50		50			50
Link Distance (m)	164.9		110.3			92.4
Travel Time (s)	11.9		7.9			6.7
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	5%	0%	17%	8%
Adj. Flow (vph)	62	3	556	110	14	526
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	666	0	14	526
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
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	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	3	484	96	12	458
Future Volume (Veh/h)	54	3	484	96	12	458
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	62	3	556	110	14	526
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			110			
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	1165	611			666	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1147	564			622	
tC, single (s)	6.4	6.2			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.4	
p0 queue free %	70	99			98	
cM capacity (veh/h)	207	502			846	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	65	666	14	526
Volume Left	62	0	14	0
Volume Right	3	110	0	0
cSH	213	1700	846	1700
Volume to Capacity	0.30	0.39	0.02	0.31
Queue Length 95th (m)	9.9	0.0	0.4	0.0
Control Delay (s)	29.1	0.0	9.3	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.2	
Approach LOS	D			

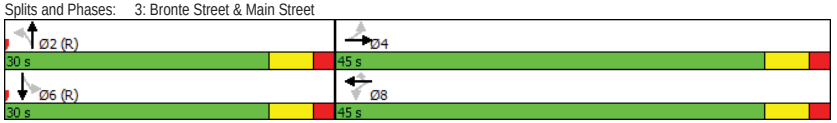
Intersection Summary				
Average Delay		1.6		
Intersection Capacity Utilization		41.3%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	734	154	104	297	16	101	260	208	59	312	99
Future Volume (vph)	201	734	154	104	297	16	101	260	208	59	312	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	40.0		45.0	55.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Ped Bike Factor	1.00	1.00				0.98	1.00	0.99		1.00	0.99	
Frt		0.974				0.850		0.933			0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1797	0	1719	1863	1615	1752	1699	0	1671	1699	0
Flt Permitted	0.554			0.103			0.307			0.231		
Satd. Flow (perm)	1021	1797	0	186	1863	1580	566	1699	0	406	1699	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				44		56			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		58.7			334.7			99.8			110.3	
Travel Time (s)		4.2			24.1			7.2			7.9	
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	1%	10%	5%	2%	0%	3%	2%	5%	8%	7%	8%
Adj. Flow (vph)	207	757	159	107	306	16	104	268	214	61	322	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	916	0	107	306	16	104	482	0	61	424	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes						Yes				
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	39.0	39.0		39.0	39.0	39.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	39.0	39.0		39.0	39.0	39.0	24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52	0.52	0.32	0.32		0.32	0.32	
v/c Ratio	0.39	0.97		1.11	0.32	0.02	0.57	0.83		0.47	0.76	
Control Delay	13.6	42.3		153.0	11.5	0.8	36.6	35.3		34.8	32.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.6	42.3		153.0	11.5	0.8	36.6	35.3		34.8	32.4	
LOS	B	D		F	B	A	D	D		C	C	
Approach Delay		37.0			46.4			35.5			32.7	
Approach LOS		D			D			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 37.4		Intersection LOS: D	
Intersection Capacity Utilization 119.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Bronte Street & Main Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	734	154	104	297	16	101	260	208	59	312	99
Future Volume (vph)	201	734	154	104	297	16	101	260	208	59	312	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1751	1797		1719	1863	1580	1751	1700		1670	1699	
Flt Permitted	0.55	1.00		0.10	1.00	1.00	0.31	1.00		0.23	1.00	
Satd. Flow (perm)	1020	1797		186	1863	1580	565	1700		406	1699	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	207	757	159	107	306	16	104	268	214	61	322	102
RTOR Reduction (vph)	0	10	0	0	0	8	0	38	0	0	15	0
Lane Group Flow (vph)	207	906	0	107	306	8	104	444	0	61	409	0
Confl. Peds. (#/hr)	1		2	2		1	1		1	1		1
Heavy Vehicles (%)	3%	1%	10%	5%	2%	0%	3%	2%	5%	8%	7%	8%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	39.0	39.0		39.0	39.0	39.0	24.0	24.0		24.0	24.0	
Effective Green, g (s)	39.0	39.0		39.0	39.0	39.0	24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52	0.52	0.32	0.32		0.32	0.32	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	530	934		96	968	821	180	544		129	543	
v/s Ratio Prot		0.50			0.16			c0.26			0.24	
v/s Ratio Perm	0.20			c0.58		0.01	0.18			0.15		
v/c Ratio	0.39	0.97		1.11	0.32	0.01	0.58	0.82		0.47	0.75	
Uniform Delay, d1	10.8	17.4		18.0	10.3	8.7	21.3	23.5		20.4	22.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	23.0		126.1	0.9	0.0	12.8	12.7		11.9	9.3	
Delay (s)	13.0	40.4		144.1	11.2	8.7	34.1	36.2		32.3	32.2	
Level of Service	B	D		F	B	A	C	D		C	C	
Approach Delay (s)		35.4			44.3			35.8			32.2	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio	1.00			
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	119.5%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	2	11	0	14	2	592	50	23	643	4
Future Volume (vph)	2	0	2	11	0	14	2	592	50	23	643	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.932			0.925			0.989			0.999	
Flt Protected		0.976			0.978						0.998	
Satd. Flow (prot)	0	1728	0	0	1719	0	0	1794	0	0	1759	0
Flt Permitted		0.976			0.978						0.998	
Satd. Flow (perm)	0	1728	0	0	1719	0	0	1794	0	0	1759	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.5			158.8			211.3			99.8	
Travel Time (s)		4.0			11.4			15.2			7.2	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	2%	0%	8%	0%
Adj. Flow (vph)	2	0	2	12	0	15	2	637	54	25	691	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	4	0	0	27	0	0	693	0	0	720	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

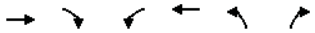
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	2	11	0	14	2	592	50	23	643	4
Future Volume (Veh/h)	2	0	2	11	0	14	2	592	50	23	643	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2	0	2	12	0	15	2	637	54	25	691	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)											100	
pX, platoon unblocked	0.81	0.81	0.81	0.81	0.81		0.81					
vC, conflicting volume	1426	1438	693	1413	1413	664	695			691		
vC1, stage 1 conf vol	743	743		668	668							
vC2, stage 2 conf vol	683	695		745	745							
vCu, unblocked vol	1408	1423	501	1392	1392	664	503			691		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	96	100	97	100			97		
cM capacity (veh/h)	292	303	464	305	313	464	865			913		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	4	27	693	720
Volume Left	2	12	2	25
Volume Right	2	15	54	4
cSH	358	377	865	913
Volume to Capacity	0.01	0.07	0.00	0.03
Queue Length 95th (m)	0.3	1.8	0.1	0.7
Control Delay (s)	15.2	15.3	0.1	0.7
Lane LOS	C	C	A	A
Approach Delay (s)	15.2	15.3	0.1	0.7
Approach LOS	C	C		

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	61.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	870	12	62	386	18	244
Future Volume (vph)	870	12	62	386	18	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		0.0	45.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1845	1468	1719	1845	1805	1425
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1845	1468	1719	1845	1805	1425
Link Speed (k/h)	50			50	50	
Link Distance (m)	123.5			277.0	184.6	
Travel Time (s)	8.9			19.9	13.3	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	10%	5%	3%	0%	2%
Parking (#/hr)						0
Adj. Flow (vph)	935	13	67	415	19	262
Shared Lane Traffic (%)						
Lane Group Flow (vph)	935	13	67	415	19	262
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.14
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

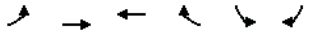
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.6%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	870	12	62	386	18	244
Future Volume (Veh/h)	870	12	62	386	18	244
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	935	13	67	415	19	262
Pedestrians					3	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						6
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (m)				336		
pX, platoon unblocked						
vC, conflicting volume			951		1487	938
vC1, stage 1 conf vol					938	
vC2, stage 2 conf vol					549	
vCu, unblocked vol			951		1487	938
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			91		94	18
cM capacity (veh/h)			708		323	320

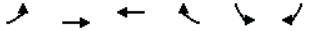
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	935	13	67	415	281
Volume Left	0	0	67	0	19
Volume Right	0	13	0	0	262
cSH	1700	1700	708	1700	343
Volume to Capacity	0.55	0.01	0.09	0.24	0.82
Queue Length 95th (m)	0.0	0.0	2.5	0.0	56.8
Control Delay (s)	0.0	0.0	10.6	0.0	49.4
Lane LOS			B		E
Approach Delay (s)	0.0		1.5		49.4
Approach LOS					E

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1089	488	8	0	8
Future Volume (vph)	0	1089	488	8	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.998			0.865
Flt Protected						
Satd. Flow (prot)	0	3539	1859	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	1859	0	0	1611
Link Speed (k/h)		50	50		50	
Link Distance (m)		277.0	58.7		63.5	
Travel Time (s)		19.9	4.2		4.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1184	530	9	0	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1184	539	0	0	9
Enter Blocked Intersection	No	Yes	No	No	No	No
Lane Alignment	L NA	L NA	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1089	488	8	0	8
Future Volume (Veh/h)	0	1089	488	8	0	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1184	530	9	0	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)			59			
pX, platoon unblocked	0.87				0.87	0.87
vC, conflicting volume	539				1126	534
vC1, stage 1 conf vol					534	
vC2, stage 2 conf vol					592	
vCu, unblocked vol	395				1071	390
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1009				412	529

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	592	592	539	9
Volume Left	0	0	0	0
Volume Right	0	0	9	9
cSH	1700	1700	1700	529
Volume to Capacity	0.35	0.35	0.32	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	11.9
Lane LOS				B
Approach Delay (s)	0.0		0.0	11.9
Approach LOS				B

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		36.2%	ICU Level of Service
Analysis Period (min)		15	

Intersection: 1: Bronte Street North & Driveway 'A'/Victoria Street

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	LTR	L	TR
Maximum Queue (m)	9.0	23.1	9.5	22.8	8.6	24.8
Average Queue (m)	2.7	11.2	1.6	3.4	0.5	8.9
95th Queue (m)	8.4	23.2	7.0	15.1	5.0	67.4
Link Distance (m)	38.3	38.3	142.9	73.6		158.2
Upstream Blk Time (%)		5				4
Queuing Penalty (veh)		0				0
Storage Bay Dist (m)					30.0	
Storage Blk Time (%)						4
Queuing Penalty (veh)						0

Intersection: 2: Bronte Street/Bronte Street North & Mill Street

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (m)	22.3	2.2	20.4	39.1
Average Queue (m)	9.5	0.1	1.8	8.6
95th Queue (m)	18.0	1.5	11.2	42.7
Link Distance (m)	153.8	85.3	73.6	73.6
Upstream Blk Time (%)				4
Queuing Penalty (veh)				9
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Bronte Street & Main Street

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	58.6	68.3	47.4	336.9	44.9	62.4	89.4	70.7	86.6
Average Queue (m)	27.1	60.5	46.0	303.2	4.5	47.0	73.8	32.5	55.2
95th Queue (m)	48.1	65.9	49.8	409.5	26.1	79.3	97.9	74.0	89.9
Link Distance (m)	37.5	37.5		322.4			77.8	85.3	85.3
Upstream Blk Time (%)	4	49		80			29	6	3
Queuing Penalty (veh)	21	269		0			178	15	7
Storage Bay Dist (m)			40.0		45.0	55.0			
Storage Blk Time (%)			98	6	0	23	32		
Queuing Penalty (veh)			305	7	0	110	32		

Intersection: 4: Bronte Street South/Bronte Street & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.9	36.9	178.0	68.5
Average Queue (m)	2.2	13.5	86.1	10.3
95th Queue (m)	9.6	42.5	224.0	41.9
Link Distance (m)	44.1	147.0	201.5	77.8
Upstream Blk Time (%)			20	0
Queuing Penalty (veh)			0	1
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Whitmer Street & Main Street

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	L	L	R
Maximum Queue (m)	82.9	59.3	25.1	178.2	52.5
Average Queue (m)	14.8	5.9	7.3	80.0	41.7
95th Queue (m)	71.5	48.1	19.1	204.0	65.9
Link Distance (m)	112.3	112.3		169.6	
Upstream Blk Time (%)	4	2		23	
Queuing Penalty (veh)	0	0		0	
Storage Bay Dist (m)			100.0		45.0
Storage Blk Time (%)				0	54
Queuing Penalty (veh)				0	10

Intersection: 6: Main Street & Driveway 'B'

Movement	EB	EB	SB
Directions Served	T	T	R
Maximum Queue (m)	42.4	258.2	8.1
Average Queue (m)	32.2	179.0	2.0
95th Queue (m)	61.6	296.8	7.8
Link Distance (m)		259.2	54.0
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		6	
Storage Bay Dist (m)	35.0		
Storage Blk Time (%)	0	40	
Queuing Penalty (veh)	0	220	

Network Summary

Network wide Queuing Penalty: 1190

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	0	58	6	0	4	70	383	4	2	652	17
Future Volume (vph)	14	0	58	6	0	4	70	383	4	2	652	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	30.0		0.0
Storage Lanes	1		0	0		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Ped Bike Factor												
Frt		0.850			0.951			0.999			0.996	
Flt Protected	0.950				0.969			0.992		0.950		
Satd. Flow (prot)	1770	1583	0	0	1751	0	0	1846	0	1805	1873	0
Flt Permitted	0.950				0.969			0.992		0.950		
Satd. Flow (perm)	1770	1583	0	0	1751	0	0	1846	0	1805	1873	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.7			154.1			92.4			169.4	
Travel Time (s)		4.3			11.1			6.7			12.2	
Confl. Peds. (#/hr)									2	2		
Peak Hour Factor	0.92	0.92	0.92	0.91	0.92	0.91	0.92	0.91	0.91	0.91	0.91	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	2%	0%	2%	2%	0%	0%	1%	2%
Adj. Flow (vph)	15	0	63	7	0	4	76	421	4	2	716	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	63	0	0	11	0	0	501	0	2	734	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.5%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	0	58	6	0	4	70	383	4	2	652	17
Future Volume (Veh/h)	14	0	58	6	0	4	70	383	4	2	652	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.92	0.91	0.92	0.91	0.91	0.91	0.91	0.92
Hourly flow rate (vph)	15	0	63	7	0	4	76	421	4	2	716	18
Pedestrians					2							
Lane Width (m)					3.6							
Walking Speed (m/s)					1.2							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203				
pX, platoon unblocked												
vC, conflicting volume	1308	1308	725	1360	1315	425	734			427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1308	1308	725	1360	1315	425	734			427		
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 %	88	100	85	93	100	99	91			100		
cM capacity (veh/h)	126	145	425	100	144	632	871			1141		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	15	63	11	501	2	734
Volume Left	15	0	7	76	2	0
Volume Right	0	63	4	4	0	18
cSH	126	425	145	871	1141	1700
Volume to Capacity	0.12	0.15	0.08	0.09	0.00	0.43
Queue Length 95th (m)	3.1	4.1	1.9	2.3	0.0	0.0
Control Delay (s)	37.3	14.9	31.9	2.4	8.2	0.0
Lane LOS	E	B	D	A	A	
Approach Delay (s)	19.2		31.9	2.4	0.0	
Approach LOS	C		D			

Intersection Summary					
Average Delay	2.3				
Intersection Capacity Utilization	75.5%	ICU Level of Service		D	
Analysis Period (min)	15				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	165	10	471	73	8	645
Future Volume (vph)	165	10	471	73	8	645
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992		0.982			
Flt Protected	0.955				0.950	
Satd. Flow (prot)	1767	0	1834	0	1805	1881
Flt Permitted	0.955				0.950	
Satd. Flow (perm)	1767	0	1834	0	1805	1881
Link Speed (k/h)	50		50			50
Link Distance (m)	164.9		110.3			92.4
Travel Time (s)	11.9		7.9			6.7
Confl. Peds. (#/hr)				3	3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	0%	2%	0%	0%	1%
Adj. Flow (vph)	181	11	518	80	9	709
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	0	598	0	9	709
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	50.4%	ICU Level of Service A	
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	165	10	471	73	8	645
Future Volume (Veh/h)	165	10	471	73	8	645
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	181	11	518	80	9	709
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			110			
pX, platoon unblocked	0.80	0.80			0.80	
vC, conflicting volume	1288	561			601	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1236	329			379	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	98			99	
cM capacity (veh/h)	154	574			952	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	192	598	9	709
Volume Left	181	0	9	0
Volume Right	11	80	0	0
cSH	161	1700	952	1700
Volume to Capacity	1.19	0.35	0.01	0.42
Queue Length 95th (m)	85.2	0.0	0.2	0.0
Control Delay (s)	188.7	0.0	8.8	0.0
Lane LOS	F		A	
Approach Delay (s)	188.7	0.0	0.1	
Approach LOS	F			

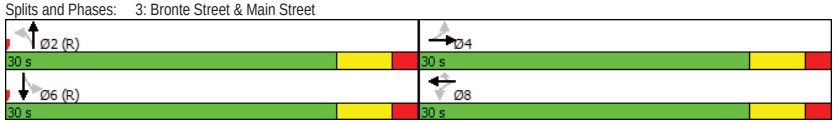
Intersection Summary			
Average Delay	24.1		
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	485	148	180	654	46	200	378	269	57	480	354
Future Volume (vph)	147	485	148	180	654	46	200	378	269	57	480	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	40.0		45.0	55.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. 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
Ped Bike Factor		0.99		1.00				0.99		1.00		
Frt		0.965				0.850		0.938			0.936	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1808	0	1770	1881	1553	1805	1730	0	1752	1768	0
Flt Permitted	0.167			0.172			0.167			0.167		
Satd. Flow (perm)	311	1808	0	320	1881	1553	317	1730	0	308	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				55		71			74	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.1			334.7			99.8			110.3	
Travel Time (s)		4.0			24.1			7.2			7.9	
Confl. Peds. (#/hr)			6	6					3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	1%	0%	2%	1%	4%	0%	2%	2%	3%	1%	0%
Adj. Flow (vph)	150	495	151	184	667	47	204	386	274	58	490	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	646	0	184	667	47	204	660	0	58	851	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes						Yes				
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	30.0	30.0		30.0	30.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%	50.0%	50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40	0.40	0.40	0.40		0.40	0.40	
v/c Ratio	1.21	0.87		1.44	0.89	0.07	1.62	0.90		0.47	1.13	
Control Delay	173.8	31.4		259.2	33.8	3.7	334.4	33.8		29.6	96.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	173.8	31.4		259.2	33.8	3.7	334.4	33.8		29.6	96.3	
LOS	F	C		F	C	A	F	C		C	F	
Approach Delay		58.3			78.4			104.8			92.1	
Approach LOS		E			E			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 1.62			
Intersection Signal Delay: 83.9		Intersection LOS: F	
Intersection Capacity Utilization 126.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 3: Bronte Street & Main Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	485	148	180	654	46	200	378	269	57	480	354
Future Volume (vph)	147	485	148	180	654	46	200	378	269	57	480	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1808		1766	1881	1553	1805	1730		1751	1769	
Flt Permitted	0.17	1.00		0.17	1.00	1.00	0.17	1.00		0.17	1.00	
Satd. Flow (perm)	310	1808		320	1881	1553	317	1730		307	1769	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	150	495	151	184	667	47	204	386	274	58	490	361
RTOR Reduction (vph)	0	19	0	0	0	28	0	43	0	0	44	0
Lane Group Flow (vph)	150	627	0	184	667	19	204	617	0	58	807	0
Confl. Peds. (#/hr)			6	6					3	3		
Heavy Vehicles (%)	2%	1%	0%	2%	1%	4%	0%	2%	2%	3%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Effective Green, g (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40	0.40	0.40	0.40		0.40	0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	124	723		128	752	621	126	692		122	707	
v/s Ratio Prot		0.35			0.35			0.36			0.46	
v/s Ratio Perm	0.48			c0.58		0.01	c0.64			0.19		
v/c Ratio	1.21	0.87		1.44	0.89	0.03	1.62	0.89		0.48	1.14	
Uniform Delay, d1	18.0	16.5		18.0	16.7	10.9	18.0	16.8		13.3	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	147.8	13.3		235.5	14.6	0.1	311.9	16.2		12.7	79.8	
Delay (s)	165.8	29.9		253.5	31.3	11.0	329.9	32.9		26.0	97.8	
Level of Service	F	C		F	C	B	F	C		C	F	
Approach Delay (s)		55.5			75.8			103.1			93.2	
Approach LOS		E			E			F			F	

Intersection Summary				
HCM 2000 Control Delay	82.5	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.52			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	126.6%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	5	16	35	1	86	19	818	31	8	758	19
Future Volume (vph)	11	5	16	35	1	86	19	818	31	8	758	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Ped Bike Factor												
Frt		0.932			0.905			0.984			0.997	
Flt Protected		0.983			0.986			0.999			0.999	
Satd. Flow (prot)	0	1741	0	0	1695	0	0	1804	0	0	1854	0
Flt Permitted		0.983			0.986			0.999			0.999	
Satd. Flow (perm)	0	1741	0	0	1695	0	0	1804	0	0	1854	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		55.5			158.8			211.3			99.8	
Travel Time (s)		4.0			11.4			15.2			7.2	
Confl. Peds. (#/hr)							10		9	9		10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	8%	14%	2%	0%
Adj. Flow (vph)	12	5	17	38	1	93	21	889	124	9	824	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	132	0	0	1034	0	0	854	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	5	16	35	1	86	19	818	31	8	758	19
Future Volume (Veh/h)	11	5	16	35	1	86	19	818	31	8	758	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92
Hourly flow rate (vph)	12	5	17	38	1	93	21	889	124	9	824	21
Pedestrians		10			9							
Lane Width (m)		3.6			3.6							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		1			1							
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)											100	
pX, platoon unblocked	0.61	0.61	0.61	0.61	0.61		0.61					
vC, conflicting volume	1949	1926	844	1874	1875	960	855			1022		
vC1, stage 1 conf vol	862	862		1002	1002							
vC2, stage 2 conf vol	1086	1064		872	873							
vCu, unblocked vol	2236	2199	426	2113	2114	960	443			1022		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	92	98	96	81	100	70	97			99		
cM capacity (veh/h)	146	208	383	198	213	312	682			630		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	34	132	1034	854
Volume Left	12	38	21	9
Volume Right	17	93	124	21
cSH	226	267	682	630
Volume to Capacity	0.15	0.50	0.03	0.01
Queue Length 95th (m)	4.2	20.4	0.8	0.3
Control Delay (s)	23.7	31.0	1.0	0.4
Lane LOS	C	D	A	A
Approach Delay (s)	23.7	31.0	1.0	0.4
Approach LOS	C	D		

Intersection Summary					
Average Delay		3.1			
Intersection Capacity Utilization		72.4%	ICU Level of Service		C
Analysis Period (min)		15			

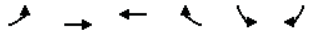
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	596	8	251	933	9	139
Future Volume (vph)	596	8	251	933	9	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		0.0	45.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1881	1615	1805	1881	1805	1439
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1881	1615	1805	1881	1805	1439
Link Speed (k/h)	50			50	50	
Link Distance (m)	123.5			279.6	184.6	
Travel Time (s)	8.9			20.1	13.3	
Confl. Peds. (#/hr)		4	4			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	0%	0%	1%	0%	1%
Parking (#/hr)						0
Adj. Flow (vph)	608	8	256	952	9	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	608	8	256	952	9	142
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.14
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	596	8	251	933	9	139
Future Volume (Veh/h)	596	8	251	933	9	139
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	608	8	256	952	9	142
Pedestrians					4	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						6
Median type	None			TWLTL		
Median storage veh)				2		
Upstream signal (m)				336		
pX, platoon unblocked					0.79	
vC, conflicting volume			620		2076	612
vC1, stage 1 conf vol					612	
vC2, stage 2 conf vol					1464	
vCu, unblocked vol			620		2231	612
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			74		92	71
cM capacity (veh/h)			967		120	493

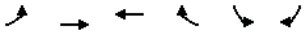
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	608	8	256	952	151
Volume Left	0	0	256	0	9
Volume Right	0	8	0	0	142
cSH	1700	1700	967	1700	525
Volume to Capacity	0.36	0.00	0.26	0.56	0.29
Queue Length 95th (m)	0.0	0.0	8.5	0.0	9.5
Control Delay (s)	0.0	0.0	10.1	0.0	16.5
Lane LOS			B		C
Approach Delay (s)	0.0		2.1		16.5
Approach LOS					C

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	59.1%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	719	1177	31	0	15
Future Volume (vph)	0	719	1177	31	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	3539	1857	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	1857	0	0	1611
Link Speed (k/h)		50	50		50	
Link Distance (m)		279.6	56.1		48.9	
Travel Time (s)		20.1	4.0		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	782	1279	34	0	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	782	1313	0	0	16
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	L NA	L NA	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	719	1177	31	0	15
Future Volume (Veh/h)	0	719	1177	31	0	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	782	1279	34	0	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)			56			
pX, platoon unblocked	0.58				0.58	0.58
vC, conflicting volume	1313				1687	1296
vC1, stage 1 conf vol					1296	
vC2, stage 2 conf vol					391	
vCu, unblocked vol	1180				1820	1151
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	86
cM capacity (veh/h)	343				147	112

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	391	391	1313	16
Volume Left	0	0	0	0
Volume Right	0	0	34	16
cSH	1700	1700	1700	112
Volume to Capacity	0.23	0.23	0.77	0.14
Queue Length 95th (m)	0.0	0.0	0.0	3.9
Control Delay (s)	0.0	0.0	0.0	42.5
Lane LOS				E
Approach Delay (s)	0.0		0.0	42.5
Approach LOS				E

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection: 1: Bronte Street North & Driveway 'A'/Victoria Street

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	LTR	L	TR
Maximum Queue (m)	21.7	40.3	11.5	27.1	3.7	93.9
Average Queue (m)	4.2	15.8	2.7	5.6	0.1	18.1
95th Queue (m)	19.6	39.3	9.8	18.1	3.7	70.0
Link Distance (m)	45.1	45.1	142.9	73.7		158.2
Upstream Blk Time (%)	3	10				
Queuing Penalty (veh)	0	0				
Storage Bay Dist (m)					30.0	
Storage Blk Time (%)						8
Queuing Penalty (veh)						0

Intersection: 2: Bronte Street/Bronte Street North & Mill Street

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (m)	161.9	7.3	77.8
Average Queue (m)	153.4	0.5	52.4
95th Queue (m)	174.5	4.0	88.9
Link Distance (m)	153.8	73.7	73.7
Upstream Blk Time (%)	91		8
Queuing Penalty (veh)	0		28
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Bronte Street & Main Street

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	TR
Maximum Queue (m)	54.9	64.6	47.5	338.1	52.5	62.4	95.2	33.7	90.1
Average Queue (m)	28.0	53.3	46.4	328.3	13.5	61.1	84.9	9.4	87.4
95th Queue (m)	52.7	65.6	52.2	334.4	47.5	62.9	93.6	23.4	90.2
Link Distance (m)	33.3	33.3		322.4			77.4	85.3	85.3
Upstream Blk Time (%)	18	42		98			88		32
Queuing Penalty (veh)	66	152		0			805		128
Storage Bay Dist (m)			40.0		45.0	55.0			
Storage Blk Time (%)			86	23	0	100	2		
Queuing Penalty (veh)			600	52	0	644	3		

Intersection: 4: Bronte Street South/Bronte Street & Private Driveway/Mill Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	48.3	151.5	218.3	10.0
Average Queue (m)	38.8	144.3	205.4	0.4
95th Queue (m)	57.2	157.9	213.0	8.2
Link Distance (m)	44.1	147.0	201.5	77.4
Upstream Blk Time (%)	76	94	98	0
Queuing Penalty (veh)	0	0	0	1
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Whitmer Street & Main Street

Movement	EB	EB	WB	NB	NB
Directions Served	T	R	L	L	R
Maximum Queue (m)	1.6	2.7	28.2	8.2	24.8
Average Queue (m)	0.1	0.1	12.1	1.6	9.4
95th Queue (m)	1.1	1.4	23.1	6.4	18.7
Link Distance (m)	112.3	112.3		169.6	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)			100.0		45.0
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: Main Street & Driveway 'B'

Movement	EB	EB	SB
Directions Served	T	T	R
Maximum Queue (m)	42.4	145.3	10.6
Average Queue (m)	11.1	37.1	2.7
95th Queue (m)	40.8	120.8	8.6
Link Distance (m)		262.1	37.9
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)	35.0		
Storage Blk Time (%)	2	12	
Queuing Penalty (veh)	7	43	

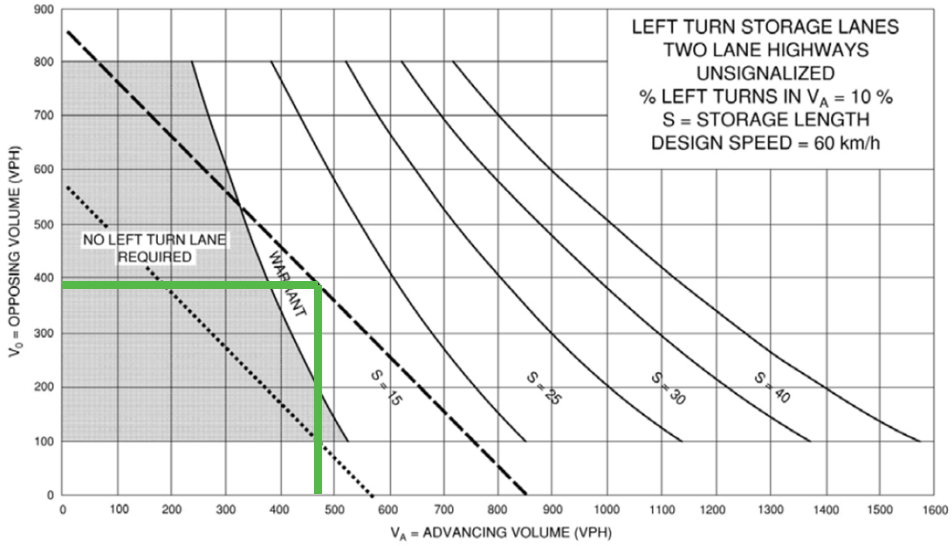
Network Summary

Network wide Queuing Penalty: 2530

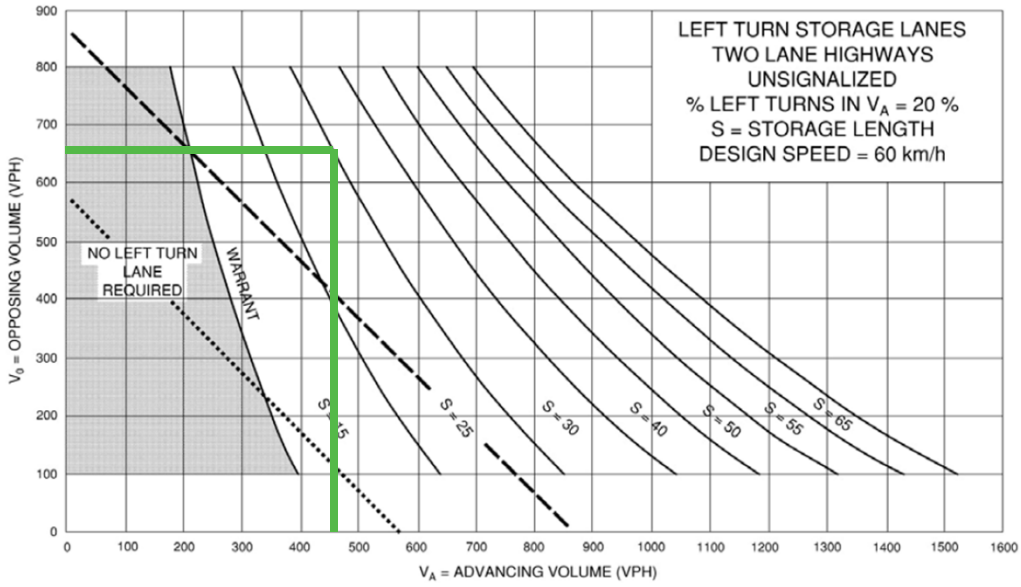
Appendix E

Left-Turn Lane Warrants

AM Peak Hour



PM Peak Hour



Appendix F

Swept Path Analyses

AutoTURN
Swept Path Analyses

Appendix G

Parking Survey Data

33 Whitmer Street - 148 Residential Units										Overall	1.04
										Visitor - Max Observed	0.19
										Resident - Max Observe	0.84
TIME ENDING	Saturday November 4 2017			Tuesday October 31 2017			Wednesday November 1 2017			Average		
	Visitor	Residential	Total	Visitor	Residential	Total	Visitor	Residential	Total	Visitor	Residential	Total
16:15	2	96	98	1	90	91	3	80	83	2	89	91
16:30	2	98	100	2	91	93	3	85	88	2	91	94
16:45	2	100	102	2	95	97	3	83	86	2	93	95
17:00	2	103	105	2	97	99	3	86	89	2	95	98
17:15	2	102	104	2	99	101	3	91	94	2	97	100
17:30	2	105	107	2	99	101	3	93	96	2	99	101
17:45	2	107	109	2	105	107	3	96	99	2	103	105
18:00	4	104	108	5	104	109	6	95	101	5	101	106
18:15	4	105	109	5	111	116	6	103	109	5	106	111
18:30	6	110	116	5	115	120	7	106	113	6	110	116
18:45	7	114	121	5	113	118	7	106	113	6	111	117
19:00	8	117	125	7	116	123	9	110	119	8	114	122
19:15	8	120	128	8	116	124	9	110	119	8	115	124
19:30	8	119	127	9	118	127	10	112	122	9	116	125
19:45	11	117	128	11	122	133	12	116	128	11	118	130
20:00	13	114	127	14	122	136	15	115	130	14	117	131
20:15	18	117	135	15	120	135	18	112	130	17	116	133
20:30	20	120	140	18	118	136	20	111	131	19	116	136
20:45	21	117	138	19	117	136	21	114	135	20	116	136
21:00	23	120	143	20	114	134	23	113	136	22	116	138
21:15	25	121	146	21	118	139	24	118	142	23	119	142
21:30	27	121	148	24	120	144	27	119	146	26	120	146
21:45	29	123	152	24	122	146	28	121	149	27	122	149
22:00	31	127	158	26	125	151	30	124	154	29	125	154

33 Whitmer Street is that are located within the southeast corner of Main Street West and Whitmer Street in Milton, Ontario. This development is made up of a six-storey buildings with a total of 148 residential units varying from 1 bedroom to 2 bedrooms. There is 149 residential parking spaces and 38 visitor parking spaces.

100 Millside Drive - 154 Residential Units										Overall	0.97
										Visitor - Max Observed	0.13
										Resident - Max Observe	0.83
TIME ENDING	Saturday November 4 2017			Tuesday October 31 2017			Wednesday November 1 2017			Average		
	Visitor	Residential	Total	Visitor	Residential	Total	Visitor	Residential	Total	Visitor	Residential	Total
16:15	16	92	108	11	85	96	10	84	94	12	87	99
16:30	15	95	110	14	91	105	10	87	97	13	91	104
16:45	16	96	112	16	91	107	12	90	102	15	92	107
17:00	16	96	112	17	95	112	12	95	107	15	95	110
17:15	18	97	115	18	93	111	13	97	110	16	96	112
17:30	17	100	117	16	93	109	14	95	109	16	96	112
17:45	17	99	116	16	92	108	16	98	114	16	96	113
18:00	20	100	120	16	89	105	21	98	119	19	96	115
18:15	18	102	120	16	90	106	20	97	117	18	96	114
18:30	17	104	121	17	91	108	20	98	118	18	98	116
18:45	16	105	121	17	94	111	18	101	119	17	100	117
19:00	17	109	126	18	94	112	19	101	120	18	101	119
19:15	18	112	130	18	97	115	21	102	123	19	104	123
19:30	21	113	134	18	98	116	18	106	124	19	106	125
19:45	20	113	133	18	103	121	22	106	128	20	107	127
20:00	21	116	137	18	104	122	20	109	129	20	110	129
20:15	21	116	137	19	108	127	19	112	131	20	112	132
20:30	21	118	139	21	112	133	18	114	132	20	115	135
20:45	20	121	141	22	116	138	19	115	134	20	117	138
21:00	22	122	144	21	116	137	18	115	133	20	118	138
21:15	20	121	141	19	117	136	17	120	137	19	119	138
21:30	20	122	142	19	119	138	18	122	140	19	121	140
21:45	21	123	144	19	122	141	17	123	140	19	123	142
22:00	21	123	144	19	125	144	16	122	138	19	123	142

100 Millside Drive is located within the northeast corner of Martin Street and Millside Drive in Milton, Ontario. This development is made up of a sixteen-storey buildings with a total of 154 residential units .