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6285 & 6289 Main Street, City of Niagara Falls Transportation Impact Study and Parking Study

Paradigm Transportation Solutions Limited

December 2023
230015

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Project Summary

Project Number
230015

Date: December 2023
Version 1.0.0

6285 & 6289 Main Street, City of Niagara Falls Transportation Impact Study and Parking Study

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Executive Summary

Content

Zeljko Holdings Limited, Main-Murray retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study (TIS) and Parking Study (PS) for a proposed high-rise residential development located at 6289 & 6285 Main Street in the City of Niagara Falls.

This study determines the impacts of the development traffic on the surrounding road network and identifies the recommended improvements to accommodate the site generated traffic. The study also estimates the site's parking demand.

Development Concept

The site concept includes a 20-storey residential building with 193 residential units. The site's parking demand is proposed to be accommodated by 181 parking spaces (0.94 spaces per unit, inclusive of occupant and visitor). Vehicle access is proposed by a driveway to Main Street located approximated 75 m (CL to CL) north of Murray Street. Build-out of the site is anticipated to occur by Year 2028.

Conclusion

The main findings and conclusions of this study are as follows:

- **Base Year Traffic**: Multiple critical movements are noted at the Murray Street & Main Street/Allendale Avenue intersection and at the Murray Street & Stanley Avenue intersection.
- **AutoTURN**: No conflicts with the on-site geometry are noted. Passenger vehicle paths overlap along the parking ramp internal to the structure. Vehicle overlap is noted to be minimal. Convex mirrors are recommended to aid drivers in identifying potential conflicts (that is, other vehicles). Signage and pavement markings within the parking structure can be addressed at SPA.
- **Trip Generation**: The subject site is forecast to generate approximately 61, 73, and 88 vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **Parking**: The site's parking demand is forecast to be between 136 and 177 spaces. With 181 spaces proposed (inclusive of occupant and visitor), the site's parking demand is estimated to be in line with the proposed supply. Of the 181 total parking

spaces proposed, 18 parking spaces should be allocated for visitors (0.09 visitor spaces/unit).

- **Background Traffic**: Multiple critical movements are noted at the Murray Street & Main Street/Allendale Avenue intersection and at the Murray Street & Stanley Avenue intersection.

  Modifying the storage lengths of the identified back-to-back left-turn lanes will allow for the forecast queues to be accommodated. Similarly, removal of on-street parking will allow for the storage to be accommodate the forecast south-eastbound left-turn storage at the Murray Street & Main Street/Allendale Avenue intersection.

- **Total Traffic**: The study area intersections are forecast to operate with similar levels of service as the background traffic conditions.

  The site driveway to Main Street is forecast to operate in the LOS C range with 95th percentile queue lengths of less than 10 m. The inbound left-turn movements to the site driveways are forecast to operate at LOS A with 95th percentile queue lengths of approximately five metres.

  The south-eastbound approach left-turn queues at Murray Street and Main Street are forecast to block the site driveway during the weekday PM and Saturday peak hours.

- **Active Transportation Operations**: Pedestrian MMLOS throughout the study area is generally in the LOS D range. Improvements to the Pedestrian MMLOS could include adding enhanced pedestrian measures at the signalized intersections, such as LPIs, to provide additional protections for pedestrians.

  The base year Bike MMLOS in the study ranges between C and A. Bike lanes are proposed on Main Street from North Street to Stanley Avenue and unspecified future cycling facilities are identified on Stanley Avenue and on Main Street east of Stanley Avenue. These enhancements would help to improve the bike MMLOS in the future.

  The proposed development is not expected to impact the active transportation MMLOS.

- **Transit Operations**: Transit MMLOS in the study ranges between E and B. Low levels of service are expected as transit operates in the general vehicle lanes which experiences significant delays in the Base Year, particularly at the signalized intersection of Murray Street and Main Street/Allendale Avenue.

  Site traffic is not expected to impact the transit service in the area.

- **Remedial Measures**: The site driveway to Main Street will be blocked by the south-eastbound left-turn and through/right-turn queues during the peak hours. Wa-73 “Do Not Block Driveway” signage could be added to the Main Street approaches to discourage queued vehicles from temporarily blocking access to the site.

Recommendations

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

- The City add Wa-73 “Do Not Block Driveway” signage along Main Street;
- The City consider increasing the south-eastbound left-turn storage at the Murray Street & Main Street/Allendale Avenue intersection to provide 170 m of storage to accommodate background traffic growth. This can be achieved by removing the on-street parking;
- The City consider increasing the eastbound left-turn storage at the Murray Street & Stanley Avenue intersection by 10 m to accommodate background traffic growth. This can be achieved by shortening the storage for the westbound left-turn lane at the Murray Street & Main Street/Allendale Avenue intersection;
- The City review the feasibility of extending the southbound left-turn storage at the Murray Street & Stanley Avenue intersection to provide additional storage to accommodate background traffic growth; and
- The Applicant allocate 18 parking spaces for visitors (0.09 visitor spaces/unit).

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1 Introduction

1.1 Overview

Zeljko Holdings Limited, Main-Murray retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study (TIS) and Parking Study (PS) for a proposed mixed-use development located at 6285 & 6289 Main Street in the City of Niagara Falls.

Figure 1.1 illustrates the site location.

The scope of the study includes:

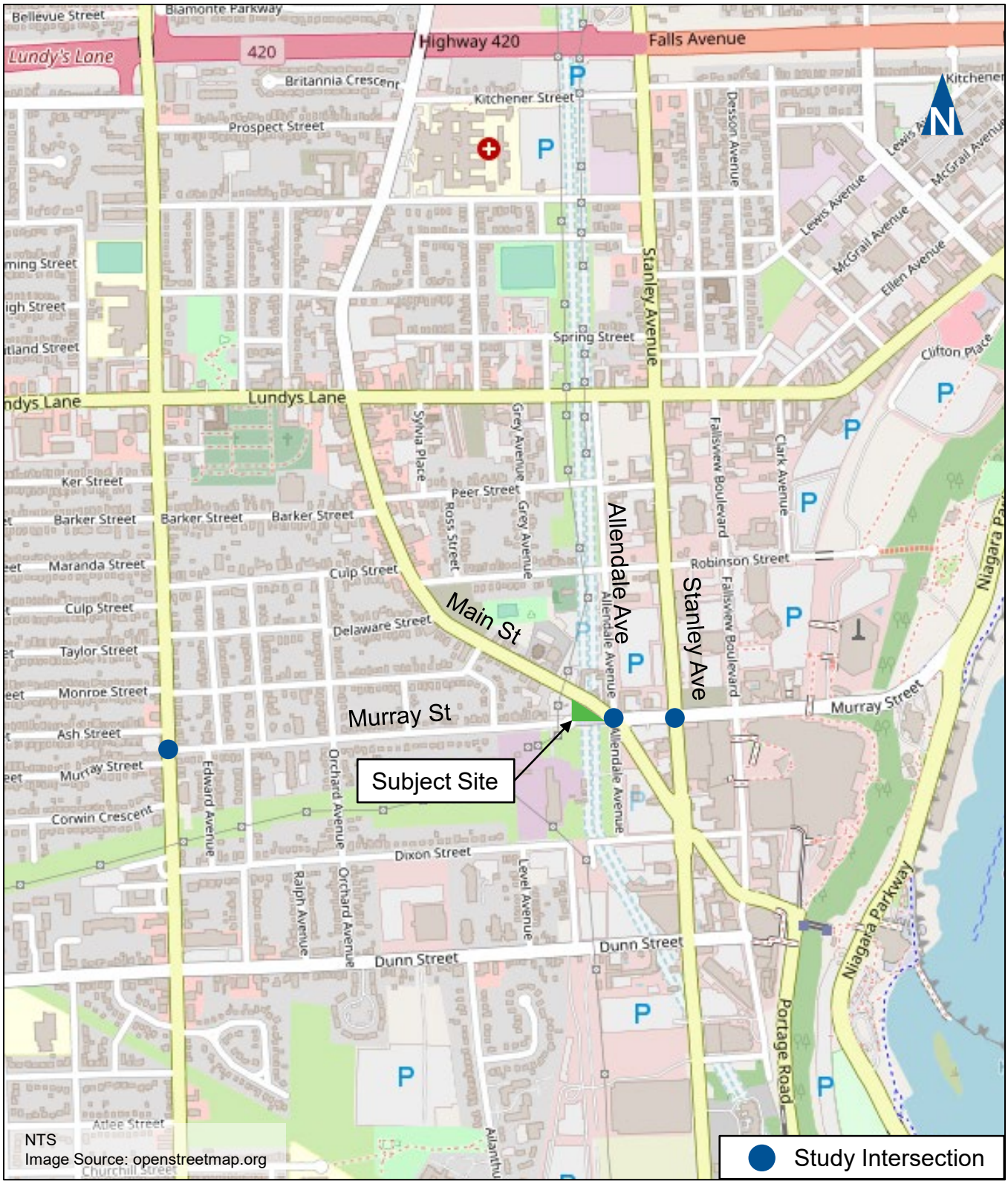
- Determine and assess the current study area traffic conditions;
- Forecast the additional traffic generated by the proposed development;
- Analyze the impacts of this additional traffic on the study area intersections;
- Recommend any necessary remedial measures required to mitigate these impacts;
- AutoTURN analysis; and
- Forecast the site's parking demand.

Appendix A contains the pre-study consultation material and responses from the Niagara Region and the City of Niagara Falls. The study generally follows the Niagara Region[1] and City of Niagara Falls[2] TIS guidelines.

The study area intersections assessed in this study include:

- Murray Street at Stanley Avenue (signalized);
- Murray Street at Main Street/Allendale Avenue (signalized); and
- Murray Street at Drummond Road (unsignalized).

[1] *Transportation Impact Assessment Guidelines,* Niagara Region, July 2023.
[2] *Guidelines for the Preparation of Transportation Impact Studies and Site Plan Review*, City of Niagara Falls, November 2011.



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Site Location

6285 & 6289 Main Street
230015

Figure 1.1

2 Existing Conditions

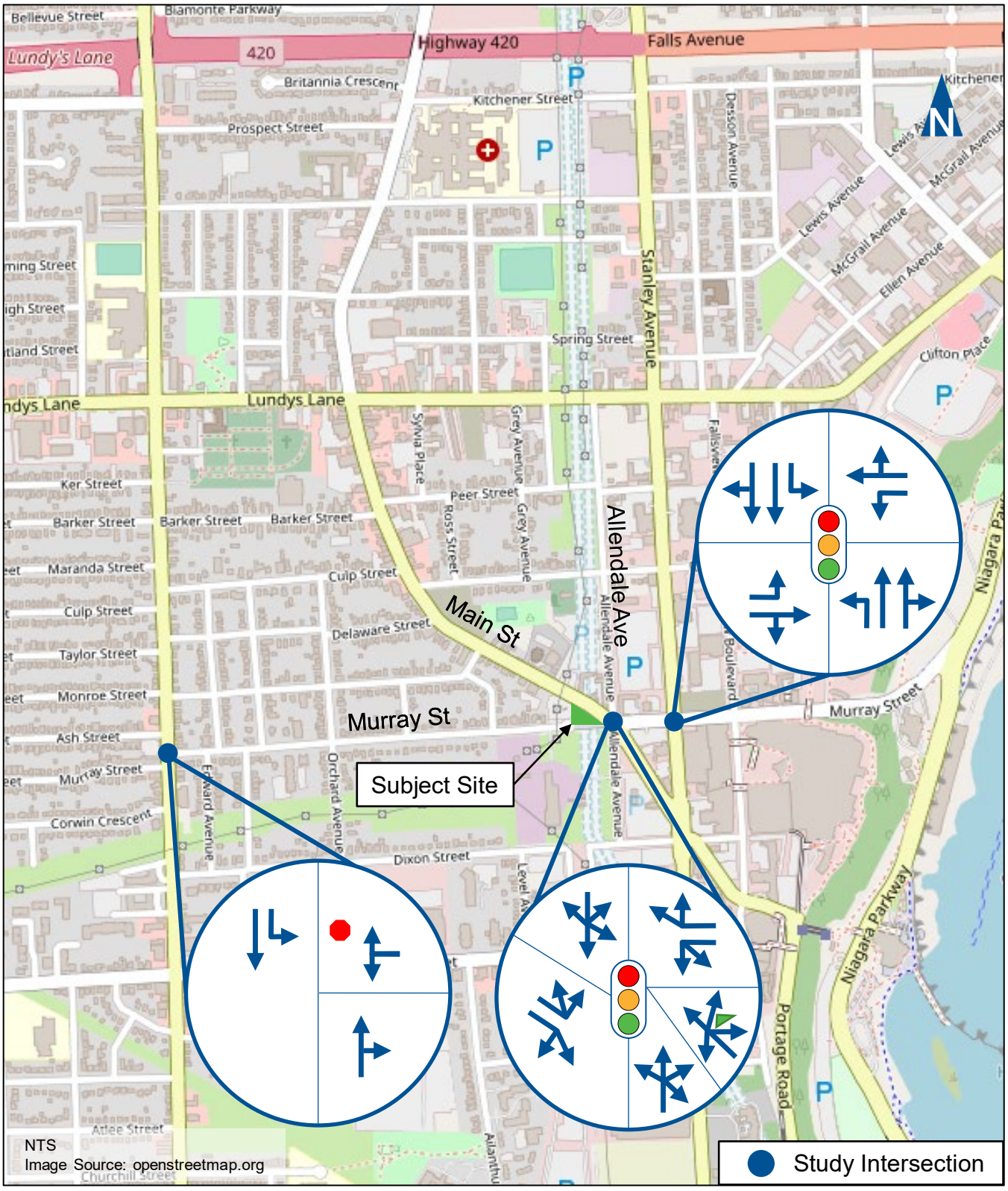
2.1 Road Network

The roadways of interest within the study area include:

- **Stanley Avenue** (Regional Road 102) is a north/south regional road[3]. The road has a four-lane urban cross-section with a posted speed limit of 50 km/h in the study area. Sidewalks are provided on both sides of the road and the intersection with Murray Street is signalized;
- **Main Street** is a north/south arterial road under the jurisdiction of the City of Niagara Falls. The road has a two-lane urban cross-section with a statutory speed limit of 50 km/h. Sidewalks are provided on both sides of the road south of the Murray Street/Allendale Avenue intersection and on the east side of the road north of the intersection. The intersection with Murray Street/Allendale Avenue is signalized with five legs;
- **Murray Street** is an east/west local road. The road terminates as a cul-de-sac approximately 850 m east of Drummond Road. There is no through access provided to Main Street. The statutory speed limit is 50 km/h. Sidewalks are provided on at least one side of the road;
- **Drummond Road** is a north/south local road. The road has a two-lane urban cross-section with a statutory speed limit is 50 km/h. Sidewalks and on-street bicycle lanes are provided on both sides of the road; and
- **Allendale Avenue** is a north/south local road. The road has a two-lane urban cross-section with a statutory speed limit of 50 km/h. North of the Main Street/Murray Street intersection, no sidewalks are provided, and the road has curbs. A sidewalk is present on the west side of the road south of Main Street.

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

[3] *https://www.niagararegion.ca/exploring/pdf/regional-niagara.pdf*, Printed 2020-03-17.



Existing Lane Configuration & Traffic Control

6285 & 6289 Main Street
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Figure 2.1

2.2 Cycling Network

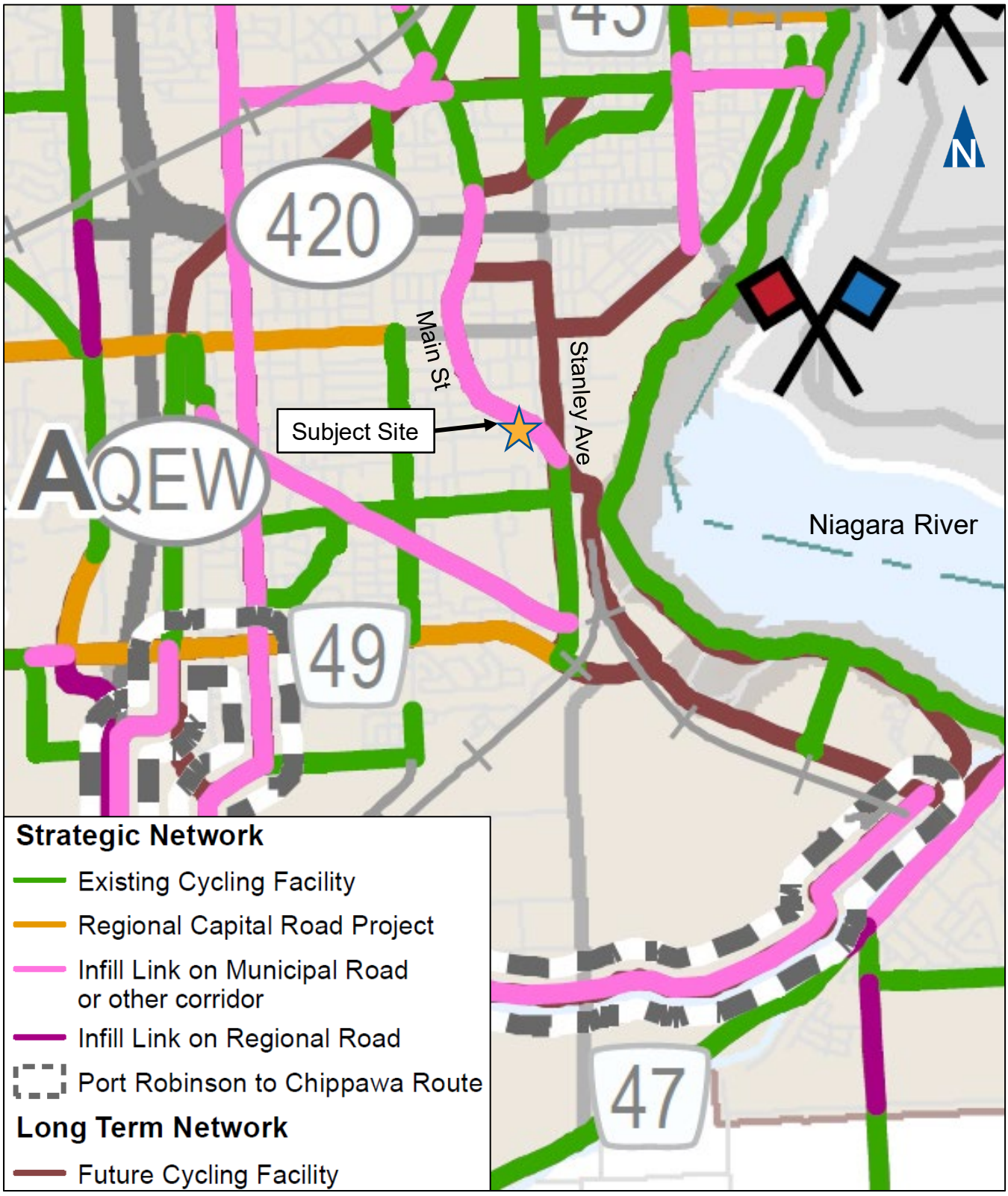
The City's cycling infrastructure consists of on-street and off-street facilities. On-street facilities comprise of cycling lanes, signed cycling routes, and paved shoulders. Off-street facilities are in the form of multi-use or informal trails.

Currently, cycling lanes are provided on Drummond Road.

The Region's Strategic Cycling Network Technical Paper[4] identifies proposed bike lanes on Main Street from North Street to Stanley Avenue. Unspecified future cycling facilities are identified on Stanley Avenue and on Main Street east of Stanley Avenue.

Figure 2.2 illustrates the existing and future cycling network.

[4] *Strategic Cycling Network Development Technical Paper*, Nagara Region, June 2017.



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Cycling Network

6285 & 6289 Main Street
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Figure 2.2

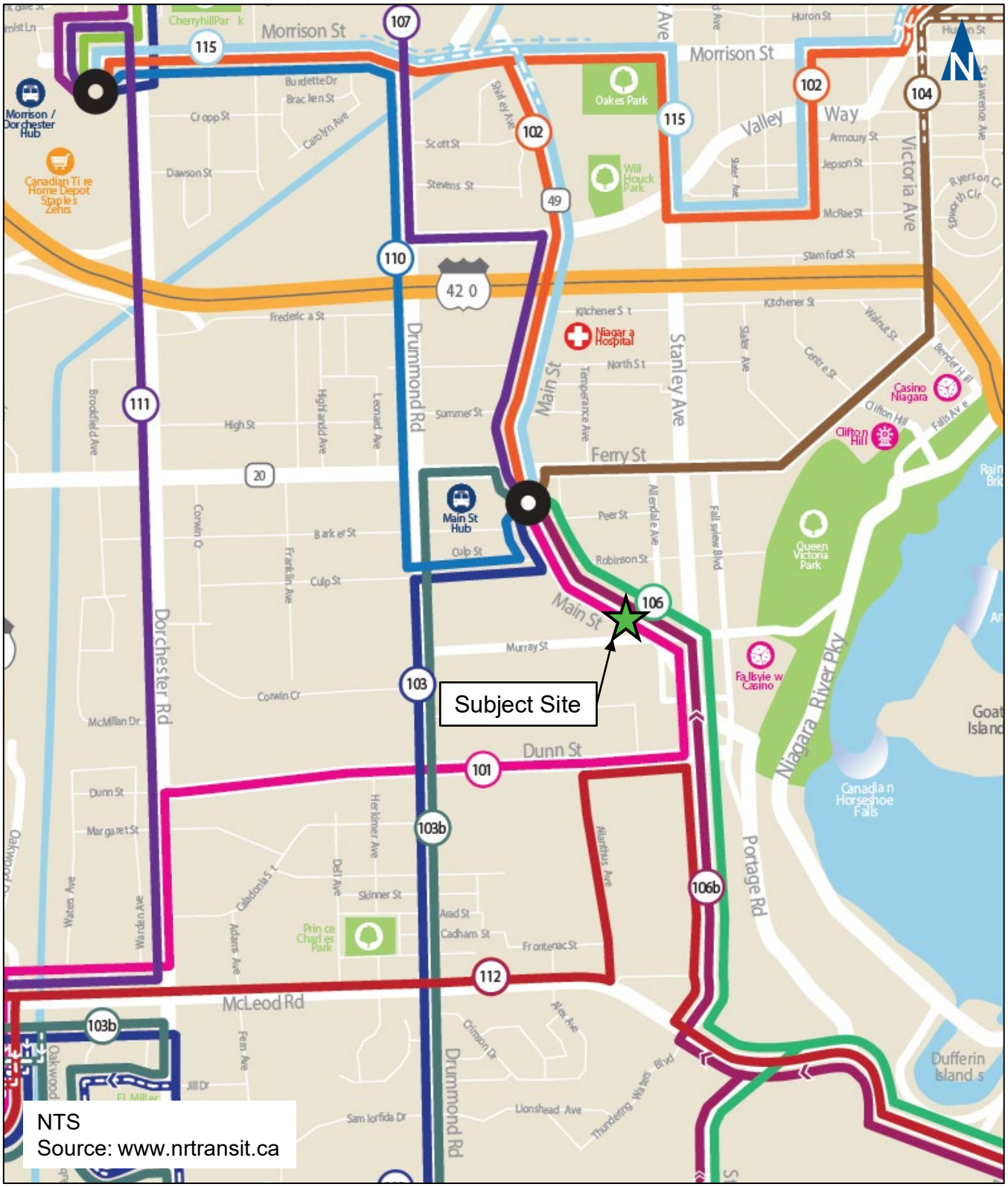
2.3 Transit Service

Niagara Region Transit (NRT) and WEGO operate the public transit system in the City of Niagara Falls. Bus stops for the following routes are located within 500 m of the subject site[5]:

- **Route 101** generally runs east/west from the Main Street Hub to Niagara Square. This route runs from Monday to Saturday from approximately 6:30 AM to 6:30 PM. Headways are in the order of 30 to 60 minutes, depending on the time of day.
- **Route 106** generally runs north/south from the Main Street Hub to Main Street & Willoughby Drive and Stanley Avenue & Progress Street. This route runs from Monday to Saturday from approximately 6:00 AM to 6:30 PM. Headways are in the order of 30 to 60 minutes, depending on the time of day.
- **Route 206** generally runs north/south from the Main Street Hub to Main Street & Willoughby Drive and Stanley Avenue & Progress Street. This route runs seven days per week from approximately 6:00 PM to 11:30 PM on weekday and Saturday evenings and from 7:00 AM to 8:30 PM on Sundays and holidays. Headways are in the order of 30 minutes on weekdays, weekends, and holidays.
- **WEGO Blue** generally runs from the convention centre to the Table Rock Centre in the tourist area. The route runs from Sunday to Thursday from approximately 9:30 AM to 9:00 PM with headways in the order of 40 minutes. The route runs Friday and Saturday from 9:30 AM to 1:00 AM with headways in the order of 20 to 40 minutes.
- **WEGO Red** generally runs from Campark to the Table Rock Centre in the tourist area. The route runs from Sunday to Thursday from approximately 6:00 AM to 10:30 PM and Friday to Saturday from 6:30 AM to 1:00 AM. Headways are in the order of 30 to 60 minutes.

Figure 2.3A and **Figure 2.3B** illustrate the existing NRT and WEGO transit networks.

[5] https://niagarafalls.ca/living/transit/bus-routes.aspx



NTS
Source: www.nrtransit.ca

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Existing Transit Network
Niagara Region Transit

6285 & 6289 Main Street
230015

Figure 2.3A

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Existing Transit Network WEGO

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Figure 2.3B

2.4 Traffic Volumes

Existing traffic volumes have been forecast using data provided by the Niagara Region, City of Niagara Falls and data collected by Paradigm (October 2021). City of Niagara Falls provided traffic studies from nearby development applications that included turning movement count data.

Historical count data (Year 2015, and Year 2019) was increased to a year 2023 condition using a generalized growth rate of 2% per annum.

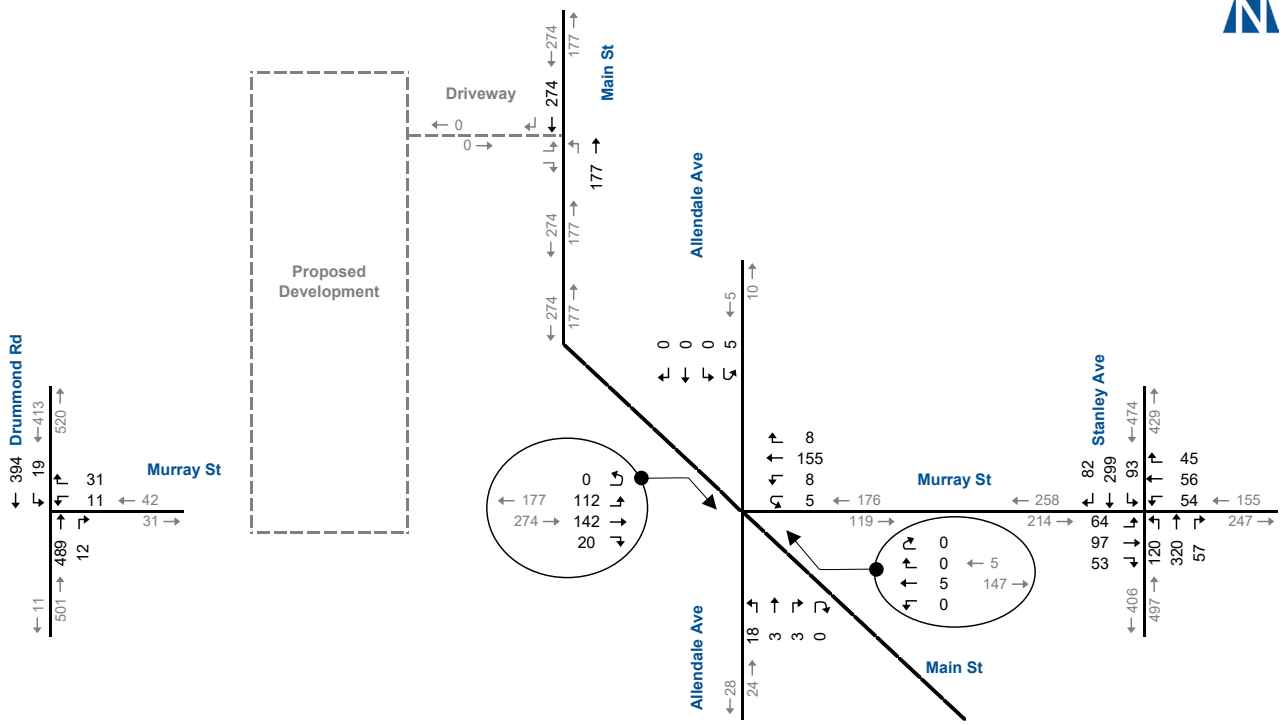
Existing traffic volumes not collected during the summer months were factored to a summer condition to reflect the higher traffic volumes expected in the area during tourist season. A summer adjustment factor of 1.30 was determined by comparing historical traffic counts at the intersection of Murray Street & Main Street/Allendale Avenue provided by the Niagara Region and City of Niagara Falls.

An adjustment factor was applied to October 2021 data to account for the impacts on travel patterns related to the COVID-19 pandemic. The factor was determined by comparing the October 2021 TMC data to the available historical data.

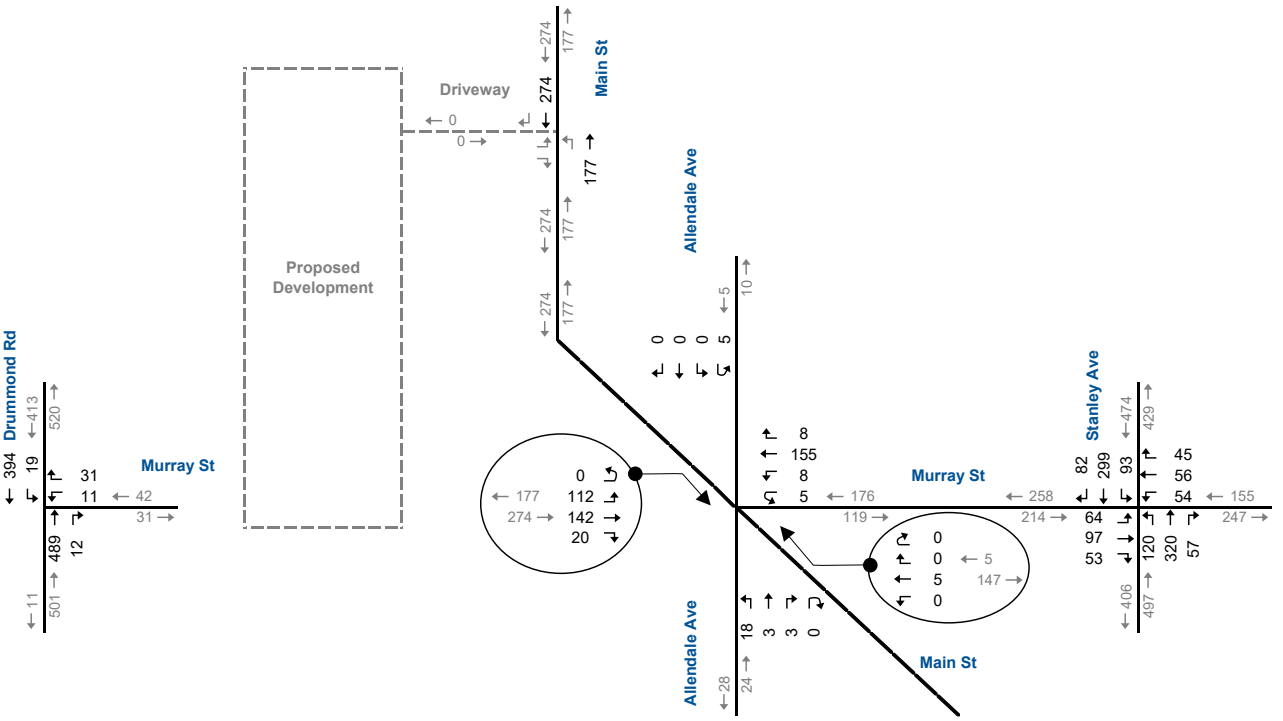
Figure 2.4 and **Figure 2.5** illustrate the forecast base year weekday AM, weekday PM, and Saturday peak hour turning movement count volumes, respectively.

Appendix B contains the turning movement count and signal timing data.

Weekday AM Peak Hour



Weekday PM Peak Hour



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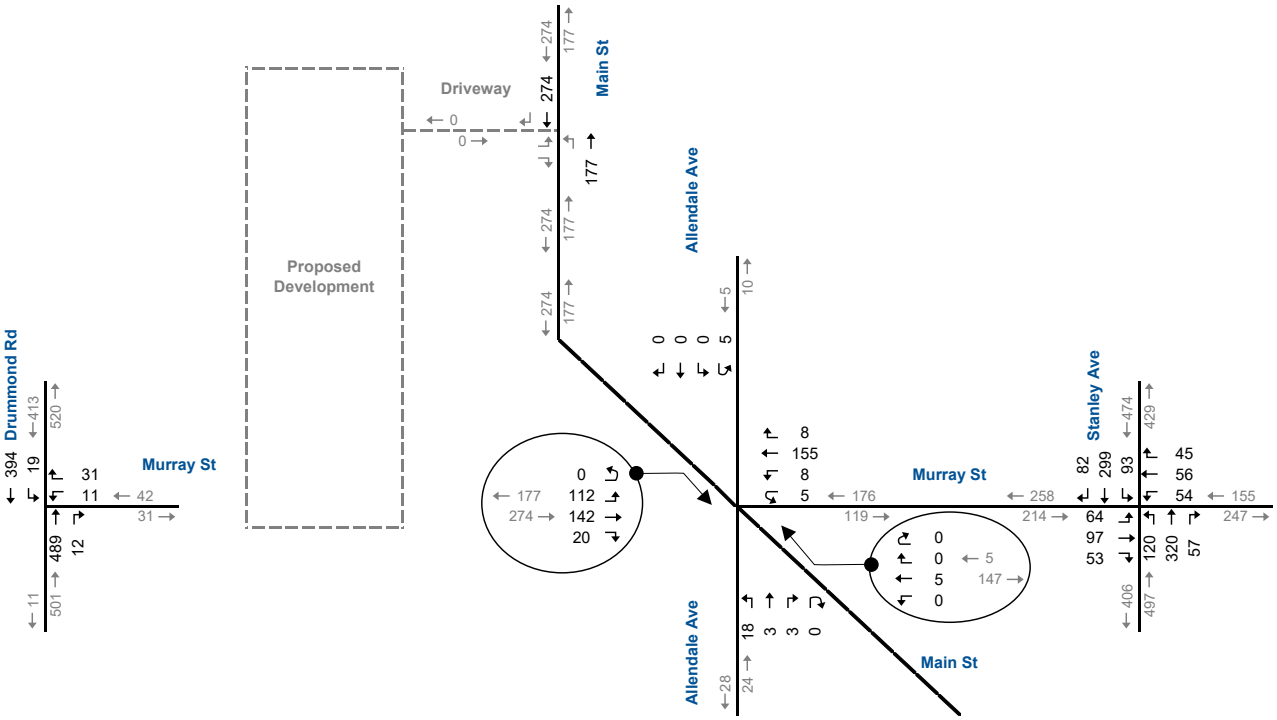
Base Year Traffic Volumes AM and PM Peak Hour

6285 & 6289 Main Street
230015

Figure 2.4

Saturday Peak Hour



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Base Year Traffic Volumes
Saturday Peak Hour

6285 & 6289 Main Street
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Figure 2.5

2.5 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the efficiency of traffic flow at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles wanting to make a movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows. 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 at signalized intersections (50 seconds at unsignalized), the movement is considered to have a LOS F and remedial measures are usually implemented if they are feasible.

The operations of the intersections in the study area were evaluated under existing conditions using Synchro 11 and HCM 2000 procedures. The intersection analysis considered three separate measures of performance:

- The LOS for each turning movement;
- The volume to capacity ratio (v/c) for each movement; and
- The 95th percentile queue lengths using Synchro 11.

Intersections containing at least one roadway under the jurisdiction of Niagara Region were evaluated using the Region's TIS guidelines, otherwise the City's TIS guidelines were applied.

Under the Region's TIS Guidelines, the operational analysis must include identification of signalized and unsignalized intersections where:

- Volume to Capacity ratios (v/c) for movements that exceed 0.85 at a signalized intersection;
- The 95th percentile queues for an individual movement are projected to exceed available turning lane storage; and
- LOS, based on average delay per vehicle on individual movements, operates at LOS D or worse for unsignalized intersections.

The City's TIS guidelines are similar to the Region's TIS guidelines, except that a v/c ratio that exceeds 0.95 for an exclusive turning movement at a signalized intersection must be identified.

Table 2.1 to **Table 2.3** summarizes the level of service conditions. The operations of the study area intersections were evaluated with the base year traffic volumes and existing signal timings. The following critical movements are noted:

Murray Street & Main Street/Allendale Avenue

- Westbound right-turn:
  - The v/c is estimated to exceed 1.00 during the PM peak hour and 1.00 during the Saturday peak hour.
- South-eastbound left-turn:
  - The v/c is estimated to exceed 0.85 during the PM peak hour and 1.00 during the Saturday peak hour.
  - The 95th percentile queue length is estimated exceed the current available storage length by 20 m during the AM peak hour, 50 m during the PM peak hour, and 125 m during the Saturday peak hour.
- South-eastbound through/right-turn:
  - The v/c is estimated to exceed 1.00 during the Saturday peak hour.

Murray Street & Stanley Avenue

- Westbound left-turn:
  - The 95th percentile queue length is estimated to exceed the current available storage length by 30 m during the Saturday peak hour.
- Northbound left-turn:
  - The v/c is estimated to exceed 0.90 during Saturday peak hour.
- Southbound left-turn:
  - The v/c is estimated to exceed 1.00 during the Saturday peak hour.
  - The 95th percentile queue length is estimated to exceed the current available storage length by 105 m during the Saturday peak hour.

Appendix C contains the detailed Synchro reports.

TABLE 2.1: BASE YEAR OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
AM Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	26	0.07	7	45	38	D	46	D	40	0.48
			WB BR / WBR	D	47	0.78	71	-	-					
			NB	D	41	0.31	12	-	-	D	41			
			SB	D	38	0.07	4	-	-	D	38			
			SEB HL / BL	D	38	0.63	40	20	-20	D	37			
			SEB T / BR	D	36	0.64	52	-	-					
			NWB	C	26	0.02	4	-	-	C	26			
	Murray St & Stanley Ave	TCS	EB L	C	35	0.41	23	30	7	D	37	B	15	0.36
			EB T / R	D	38	0.58	41	-	-					
			WB L	D	35	0.43	21	30	9	C	34			
			WB T / R	C	34	0.32	24	-	-					
			NB L	A	10	0.29	29	70	41	A	9			
			NB T / R	A	9	0.29	34	-	-					
			SB L	A	6	0.21	13	60	47	A	5			
			SB T / R	A	5	0.24	21	-	-					
	Murray St & Drummond Rd	TWSC	WB	B	15	0.11	3	-	-	B	15	A	1	-
			NB	A	0	0.32	0	-	-	A	0			
			SB L	A	9	0.02	1	30	30	A	0			
			SB T	A	0	0.25	0	-	-					

TWSC - Two-Way Stop Control
TCS - Traffic Control Signal
LOS - Level of Service
V/C - Volume to Capacity Ratio
HL - Hard Left
BL - Bear Left

TABLE 2.2: BASE YEAR OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
PM Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	31	0.10	7	45	38	F	212	F	110	0.76
			WB BR / WBR	F	221	1.35	116	-	-					
			NB	D	44	0.52	23	-	-	D	44			
			SB	D	38	0.01	0	-	-	D	38			
			SEB HL / BL	E	67	0.88	66	20	-46	E	56			
			SEB T / BR	D	49	0.82	77	-	-					
			NWB	C	27	0.06	8	-	-	C	27			
	Murray St & Stanley Ave	TCS	EB L	C	33	0.50	22	30	8	C	32	C	20	0.73
			EB T / R	C	31	0.39	32	-	-					
			WB L	C	31	0.37	22	30	8	D	40			
			WB T / R	D	42	0.73	57	-	-					
			NB L	B	19	0.41	38	70	32	B	19			
			NB T / R	B	19	0.59	81	-	-					
			SB L	B	17	0.74	50	60	10	B	10			
			SB T / R	A	7	0.33	38	-	-					
	Murray St & Drummond Rd	TWSC	WB	C	17	0.11	3	-	-	C	17	A	1	-
			NB	A	0	0.36	0	-	-	A	0			
			SB L	A	9	0.04	1	30	29	A	0			
			SB T	A	0	0.38	0	-	-					

TWSC - Two-Way Stop Control
TCS - Traffic Control Signal
LOS - Level of Service
V/C - Volume to Capacity Ratio
HL - Hard Left
BL - Bear Left

TABLE 2.3: BASE YEAR OPERATIONS – SATURDAY PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
Saturday Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	D	38	0.26	14	45	31	F	441	F	322	1.22
			WB BR / WBR	F	480	1.93	147	-	-					
			NB	D	49	0.69	43	-	-	D	49			
			SB	D	40	0.46	26	-	-	D	40			
			SEB HL / BL	F	447	1.86	143	20	-123	F	356			
			SEB T / BR	F	294	1.53	182	-	-					
			NWB	C	32	0.14	11	-	-	C	32			
	Murray St & Stanley Ave	TCS	EB L	C	28	0.49	25	30	5	C	29	E	66	1.24
			EB T / R	C	29	0.59	61	-	-					
			WB L	D	43	0.75	57	30	-27	E	61			
			WB T / R	E	69	0.95	118	-	-					
			NB L	F	81	0.91	61	70	9	D	44			
			NB T / R	D	37	0.84	90	-	-					
			SB L	F	238	1.45	164	60	-104	F	91			
			SB T / R	B	16	0.70	84	-	-					
	Murray St & Drummond Rd	TWSC	WB	C	19	0.14	4	-	-	C	19	A	1	-
			NB	A	0	0.36	0	-	-	A	0			
			SB L	A	9	0.03	1	30	29	A	0			
			SB T	A	0	0.38	0	-	-					

TWSC - Two-Way Stop Control
TCS - Traffic Control Signal
LOS - Level of Service
V/C - Volume to Capacity Ratio
HL - Hard Left
BL - Bear Left

3 Development Concept

3.1 Description

The subject site is located at 6285 & 6289 Main Street in the City of Niagara Falls.

The site concept includes a 20-storey residential building with 193 residential units.

The site's parking demand is proposed to be accommodated by 181 parking spaces (0.94 spaces per unit, inclusive of occupant and visitor). A total of 97 long-term bicycle parking spaces (0.5 spaces per unit) and 6 short-term bicycle parking spaces (6 spaces per apartment building) are proposed.

Vehicle access is proposed by a driveway to Main Street located approximated 75 m (CL to CL) north of Murray Street. A pick-up/drop-off layby is proposed on Main Street between the proposed site driveway Murray Street.

Build-out of the site is anticipated to occur by Year 2028.

Figure 3.1 illustrates the site concept plan.

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Site Concept Plan

6285 & 6289 Main Street
230015

Figure 3.1

3.2 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation[6] methods are used to estimate the site trip generation. Land Use Code (LUC) 222 (Multifamily Housing (High Rise)) for a location "Not Close to Rail" and a "General Urban/Suburban" setting is used to estimate the site trip generation.

To remain conservative, no modal split adjustment has been applied to the trip generation estimate to account for active transportation or transit-oriented trips.

Table 3.1 summarizes the estimated trip generation. The subject site is forecast to generate approximately 61, 73, and 88 vehicle trips during the AM, PM, and Saturday peak hours, respectively.

TABLE 3.1: ESTIMATED TRIP GENERATION

ITE Land Use Code / Number of Units	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Sum	In	Out	Sum	In	Out	Sum
222 - Multifamily Housing (High-Rise) - 193 units	16	45	**61**	45	28	**73**	50	38	**88**
Total	**16**	**45**	**61**	**45**	**28**	**73**	**50**	**38**	**88**

Equations

LUC 222 Eqn. per Unit AM: T = 0.22(X) + 18.85 | PM: T = 0.26(X) + 23.12 | Sat: T = 0.30(X) + 30.34

Table 3.2 summarizes the estimated trip distribution. The distribution was developed using the Transportation Tomorrow Survey[7] (TTS) data for the zone containing the subject site. The Saturday distribution is assumed to follow the weekday PM peak hour travel patterns. **Appendix D** contains the TTS survey data. **Figure 3.2** and **Figure 3.3** illustrates the site-generated traffic volumes.

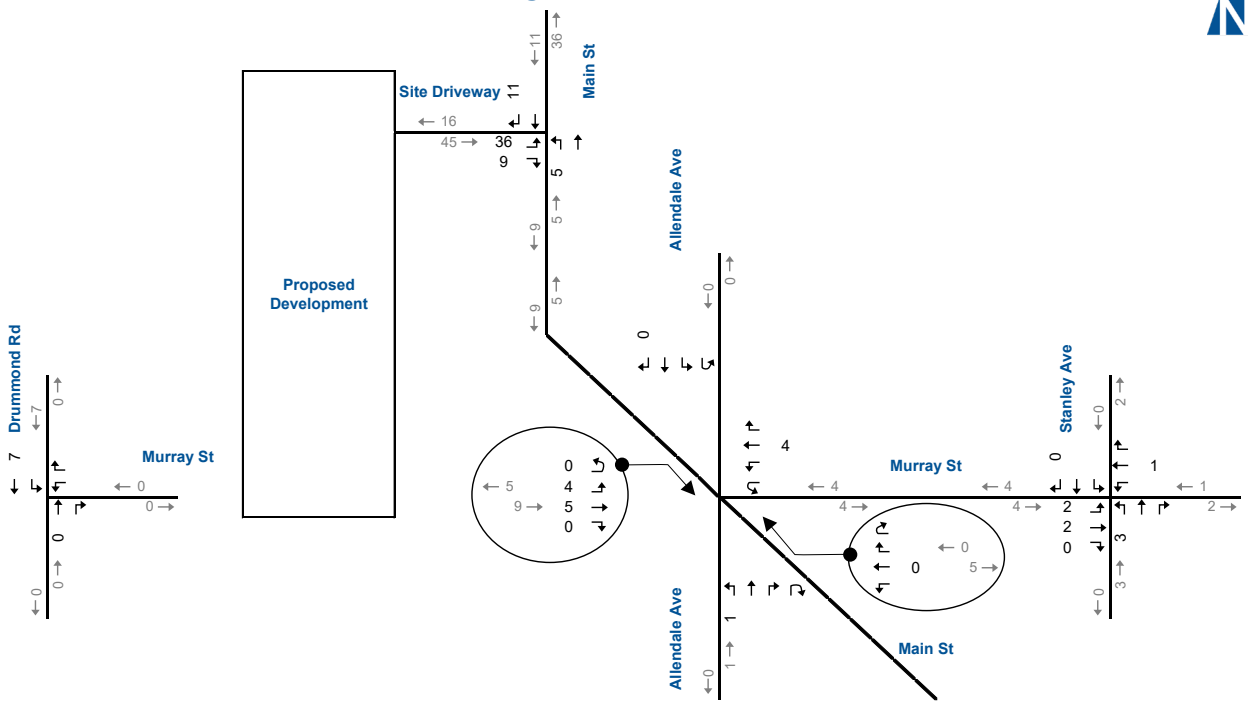
Vehicles travelling to/from the south via Drummond Road were assumed to travel north on Main Street and across to Drummond Road. The Drummond Road intersection with Murray Street is part of the study area as an early version of the site concept plan contemplated a vehicle connection to the Murry Street cul-de-sac. This connection is no longer considered.

[6] *Trip Generation Tenth Edition*, Institute of Transportation Engineers, Washington D.C., 2017
[7] *Transportation Tomorrow Survey 2016*, University of Toronto Data Management Group. Zone 6213

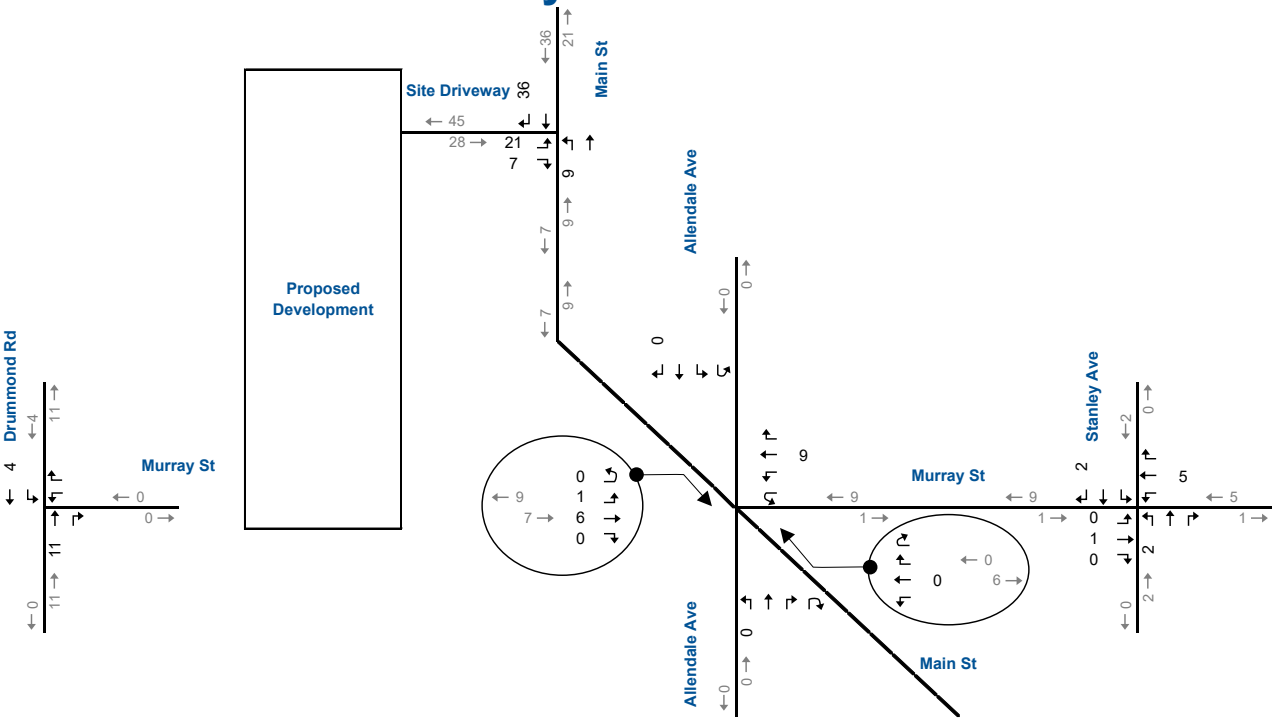
TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

Origin/Destination	AM		PM/Saturday	
	In	Out	In	Out
North via Drummond Road/Main Street	70%	65%	55%	60%
South via Drummond Road	5%	15%	25%	15%
South via Main Street	0%	10%	0%	20%
North via Allendale Avenue	0%	0%	0%	0%
South via Allendale Avenue	5%	0%	0%	0%
North via Stanley Avenue	0%	5%	5%	0%
South via Stanley Avenue	15%	0%	5%	0%
East via Murray Street	5%	5%	10%	5%
Total	**100%**	**100%**	**100%**	**100%**

Weekday AM Peak Hour



Weekday PM Peak Hour



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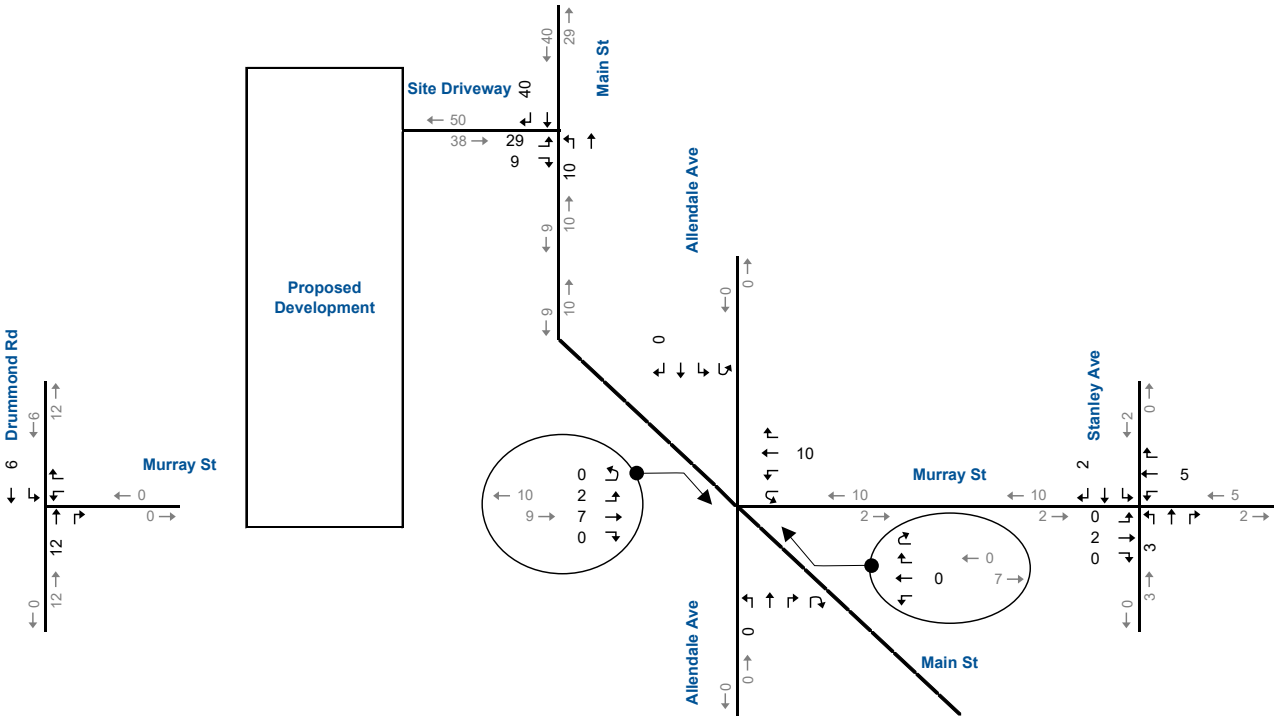
Forecast Site Traffic AM and PM Peak Hour

6285 & 6289 Main Street
230015

Figure 3.2

Saturday Peak Hour



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Forecast Site Traffic
Saturday Peak Hour

6285 & 6289 Main Street
230015

Figure 3.3

3.3 AutoTURN Analysis

The on-site circulation has been assessed using the following design vehicles:

- A Transportation Association of Canada (TAC)[8] Passenger Car (P);
- TAC Medium Single Unit (MSU);
- TAC Heavy Single Unit (HSU); and
- Niagara Falls Garbage Truck.

Appendix E contains the AutoTURN analysis. No conflicts with the site's geometry are noted. The site's loading zone and the courtyard area will enable trucks to turn around on site, as well enter and exit the site in a forward motion.

The swept path analysis illustrates the two-way passenger vehicle movements accessing and circulating within the parking structure.

Where vehicle overlap occurs is its noted to be minimal. Convex mirrors are recommended to aid drivers in identifying potential conflicts (that is, other vehicles). The circulatory movements within the parking structure are typical for a constrained environment.

Vehicles travelling within the parking structure are expected to be traveling at a low speed. Driver attention is required to navigate and circulate within the structure as well while undertaking parking manoeuvres adjacent to structural columns or walls. Typical of residential parking structures, building residents will become accustomed and learn the necessary driving behaviours required.

[8] Transportation Association of Canada, *Geometric Design Guide for Canadian Roads,* (Ottawa: TAC, 2017).

4 Future Traffic Conditions

The assessment of future conditions in this section includes the following components:

- Future background traffic estimates;
- Level of service analysis for background traffic (pre-development);
- Future total traffic estimates; and
- Level of service analysis for total traffic (post-development).

4.1 Forecast Traffic

A ten-year horizon (Year 2033) following the date of TIS commission has been assessed. The likely future traffic volumes near the subject site are estimated to consist of:

- Increased non-site traffic (generalized background traffic growth);
- Traffic generated by the following nearby in-stream developments:
  - 5566 Robinson Street – a high-rise mixed-use development containing 962 residential units and ground floor retail space[9].
  - 6609 Stanley Street – a mixed-use development consisting of hotel and residential units[10].
  - 6663 Stanley Street - a mixed-use development containing a hotel and residential units[11]; and
  - 5383 Robinson Street - a hotel[12].
- Traffic generated by the proposed development.

A background growth rate of 2% per annum was applied to base year traffic volumes to forecast future conditions, as confirmed by City and Region staff.

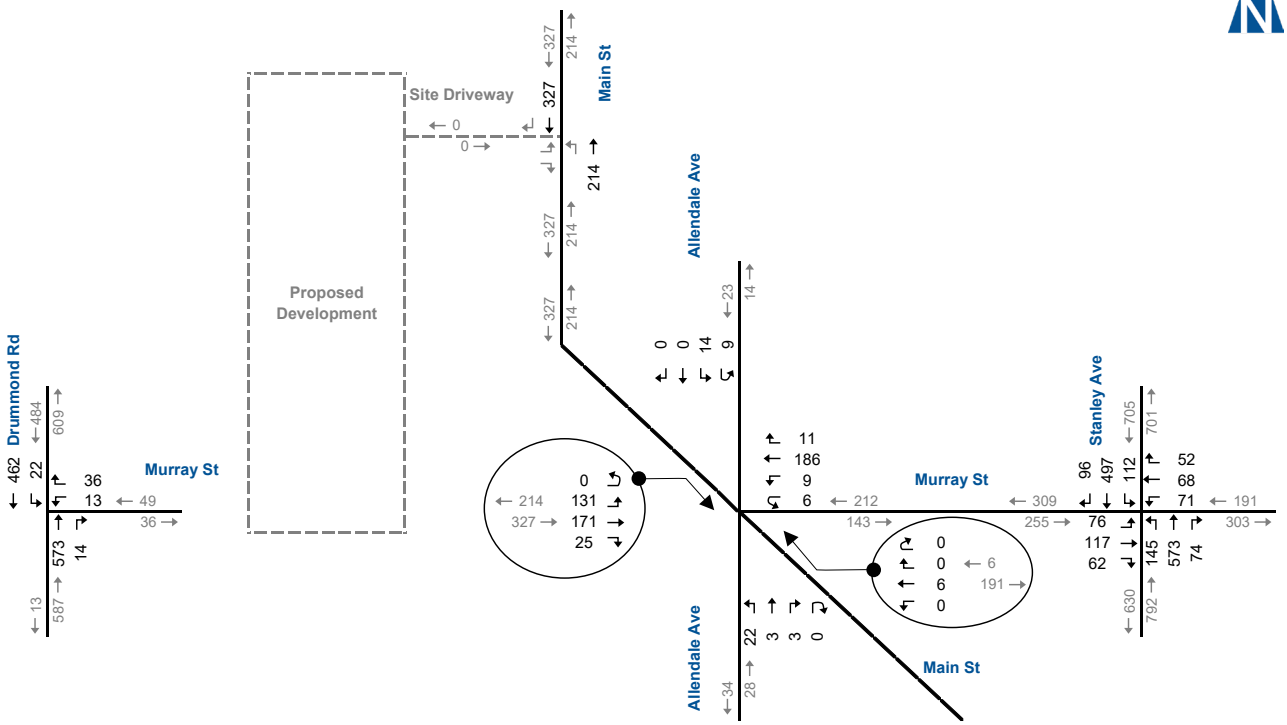
The following is noted for the background development site traffic:

[9] Paradigm Transportation Solutions Ltd, *5566 Robinson Street, Niagara Falls Traffic Impact & Parking Study*, February 2023
[10] EXP, *Niagara Falls Hotel TIS*, June 2019.
[11] GHD, *Proposed Residential and Hotel Development TIS*, May 2020.
[12] LEA, *5383-5385 Robinson Street Proposed Niagara Escarpment Hotel Development*, July 2017.

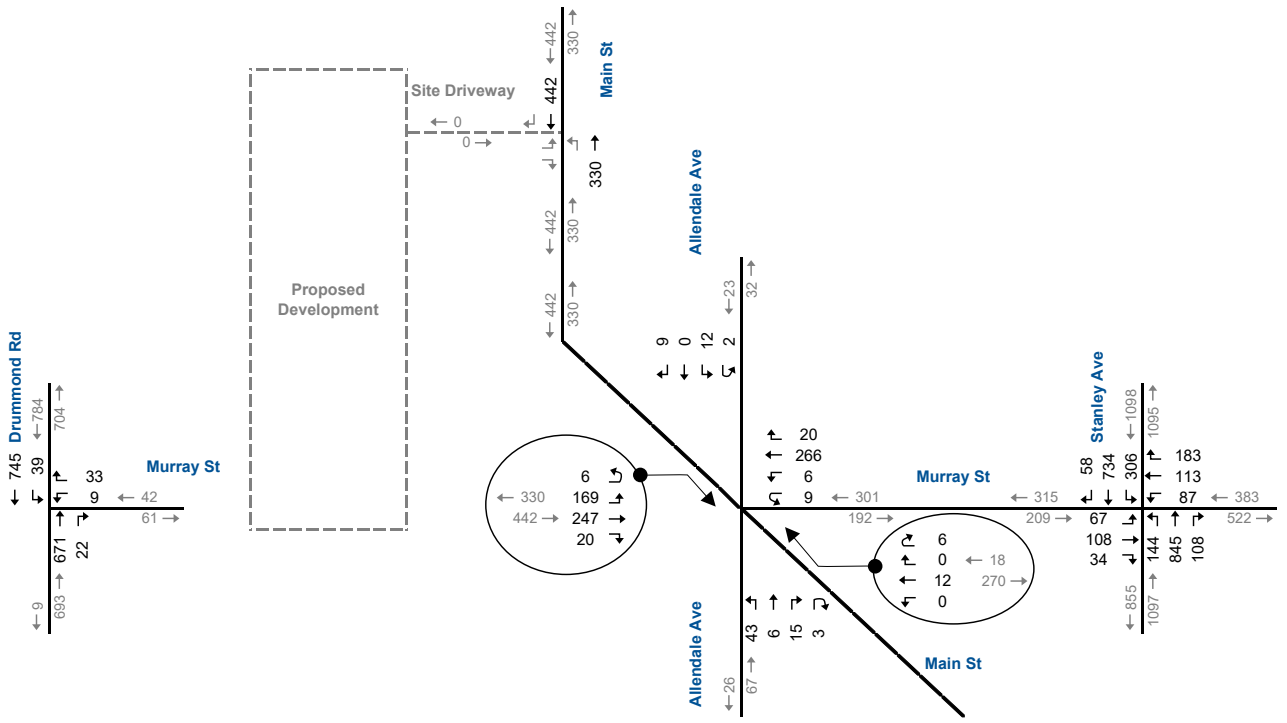
- The AM peak hour was not assessed in the 5383 Robinson Street study. Paradigm estimated the AM peak hour trip generation using the methodology outlined in the supportive study.
- The Saturday peak hour was not assessed in the 5566 Robinson Street study. For a conservative estimate, the PM peak hours were used for Saturday peak hour estimates.

Figure 4.1 and **Figure 4.2** illustrate the forecast background traffic volumes for the AM, PM, and Saturday peak hours, respectively. **Figure 4.3** and **Figure 4.4** illustrate the forecast total traffic volumes for the AM, PM, and Saturday peak hours, respectively.

Weekday AM Peak Hour



Weekday PM Peak Hour



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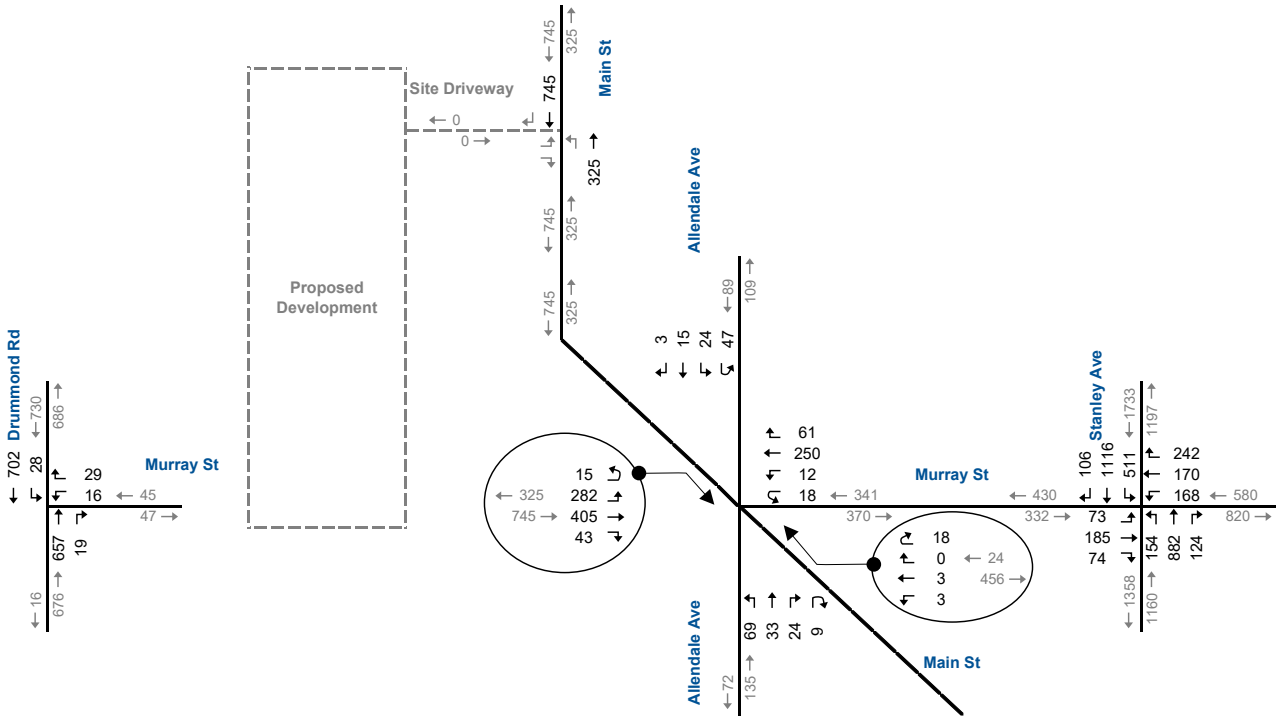
Forecast Background Traffic AM and PM Peak Hour

6285 & 6289 Main Street
230015

Figure 4.1

Saturday Peak Hour



Forecast Background Traffic
Saturday Peak Hour

6285 & 6289 Main Street
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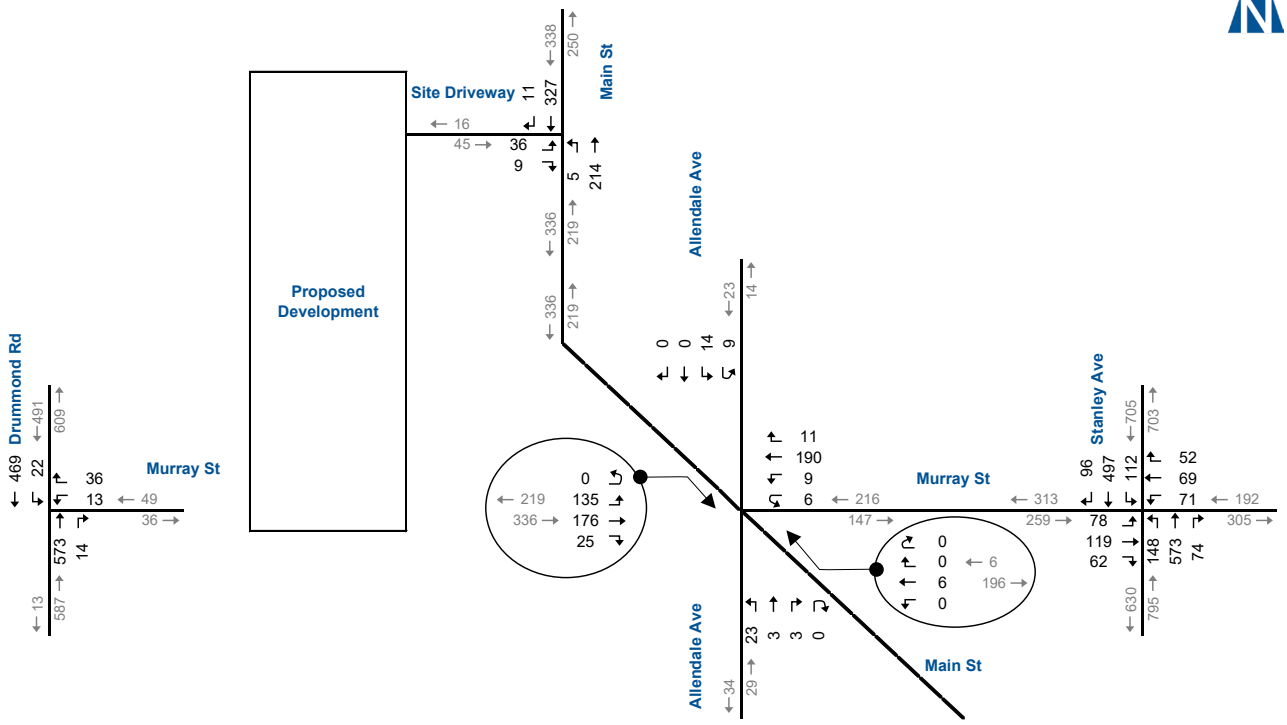
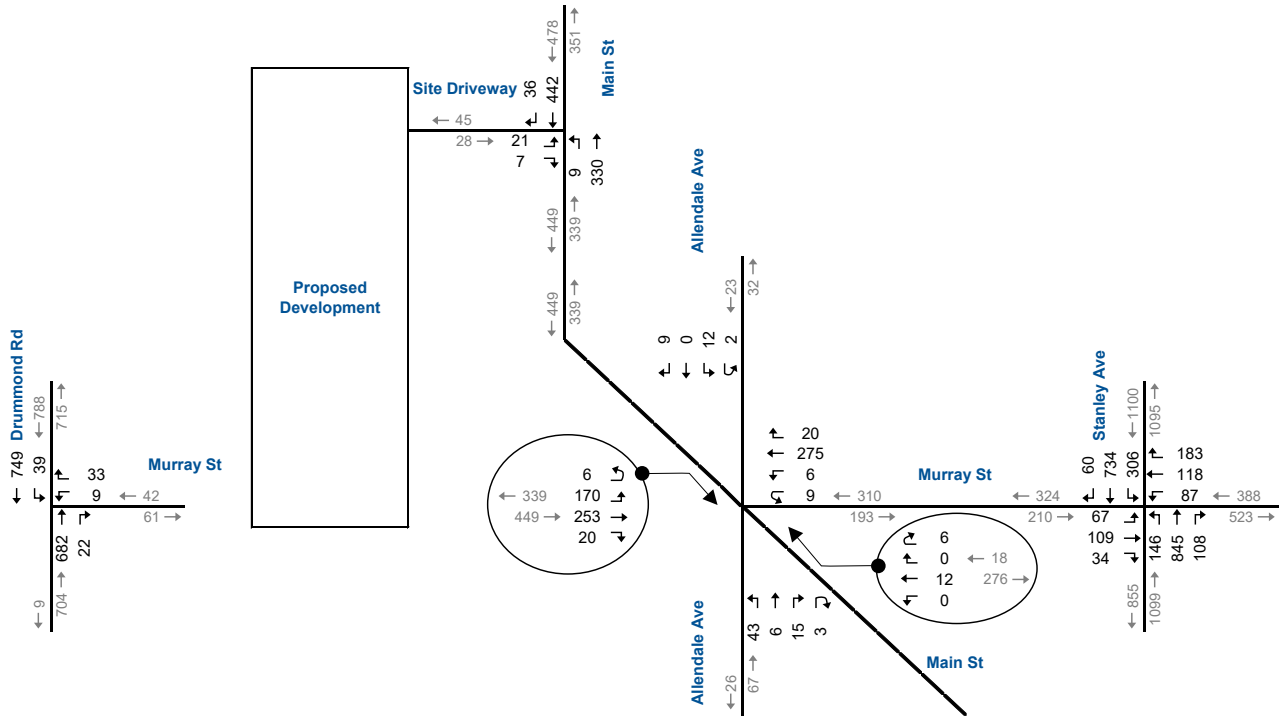
Figure 4.2

Weekday AM Peak Hour



Weekday PM Peak Hour



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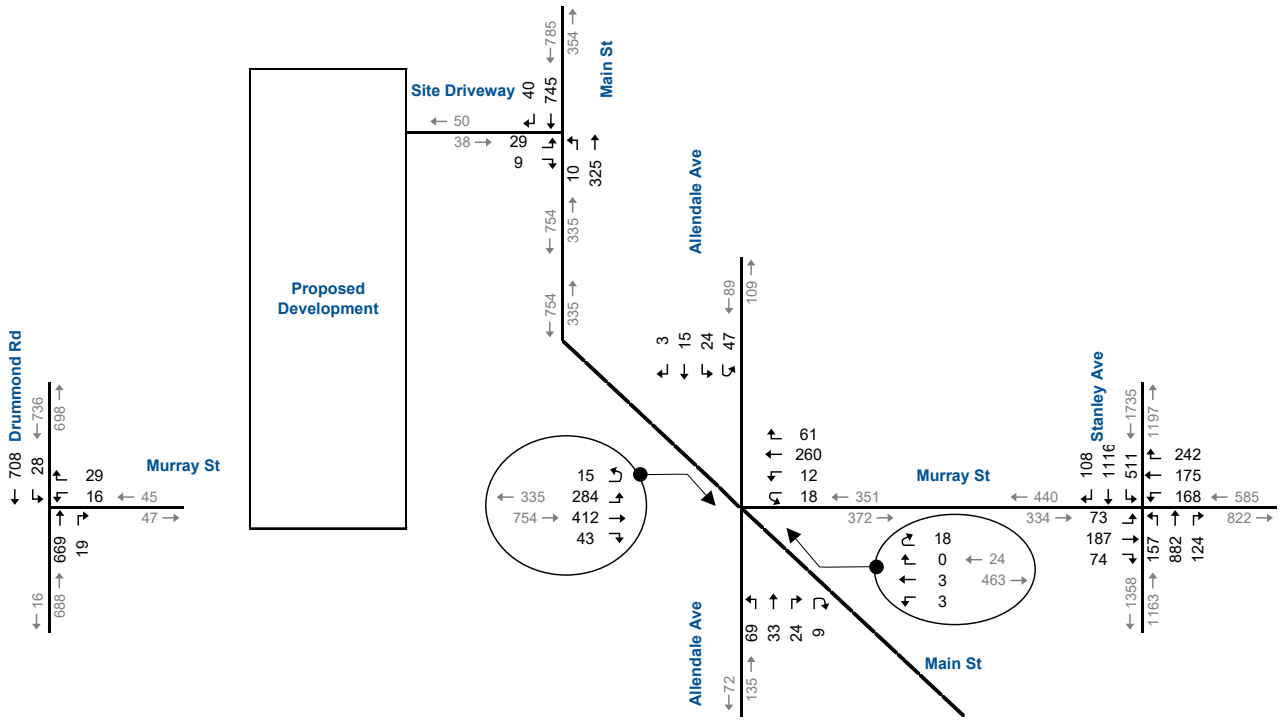
Forecast Total Traffic AM and PM Peak Hour

6285 & 6289 Main Street
230015

Figure 4.3

Saturday Peak Hour



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Forecast Total Traffic
Saturday Peak Hour

6285 & 6289 Main Street
230015

Figure 4.4

4.2 Forecast Traffic Operations

4.2.1 Background Traffic Operations

The study area intersection operations analyses followed the same methodology used for base year conditions. Signal timing splits have been optimized but no changes to the existing lane configurations are assumed.

Table 4.1 to **Table 4.3** summarize the level of service conditions. The following critical movements are noted:

Murray Street & Main Street/Allendale Avenue

- Westbound right-turn:
  - The v/c is forecast to exceed 1.00 during the PM peak hour and 1.00 during the Saturday peak hour.
- Northbound movement:
  - The v/c is forecast to exceed 1.00 during the Saturday peak hour.
- Southbound movement:
  - The v/c is forecast to exceed 1.00 during the Saturday peak hour.
- South-eastbound left-turn:
  - The v/c is forecast to exceed 1.00 during the Saturday peak hour.
  - The 95th percentile queue length is forecast exceed the current available storage length by 40 m during the AM peak hour, 75 m during the PM peak hour, and 145 m during the Saturday peak hour.
- South-eastbound through/right-turn:
  - The v/c is forecast to exceed 1.00 during the PM peak hour and 1.00 during the Saturday peak hour.

Murray Street & Stanley Avenue

- Eastbound left-turn:
  - The 95th percentile queue length is forecast to exceed the current available storage length by 15 m during the Saturday peak hour.
- Westbound left-turn:

- The v/c is forecast to exceed 1.00 during the Saturday peak hour.
- The 95th percentile queue length is forecast to exceed the current available storage length by 55 m during the Saturday peak hour.

- Westbound through/right-turn:
  - The v/c is forecast to exceed 1.00 during the Saturday peak hour.
- Northbound left-turn:
  - The v/c is forecast to exceed 0.85 during the PM peak hour and 1.00 during the Saturday peak hour.
  - The 95th percentile queue length is forecast to exceed the current available storage length by 5 m during the Saturday peak hour.
- Northbound through/right-turn:
  - The v/c is forecast to exceed 1.00 during the PM peak hour and 1.00 during the Saturday peak hour.
- Southbound left-turn:
  - The v/c is forecast to exceed 0.95 during the PM peak hour and 1.00 during the Saturday peak hour.
  - The 95th percentile queue length is forecast to exceed the current available storage length by 60 m during the PM peak hour and 170 m during the Saturday peak hour.

To address the background traffic operational issues, the road authorities could consider the following changes:

- Increasing the south-eastbound left-turn storage at the Murray Street & Main Street/Allendale Avenue intersection by 145 m to accommodate 165 m of storage. This would require the removal of on-street parking along Main Street.
- Increasing the eastbound left-turn storage at the Murray Street & Stanley Avenue intersection by 15 m to provide a total of 45 m of storage. This can be achieved by shortening the westbound left-turn storage at the Murray Street & Main Street/Allendale Avenue intersection.
- Increasing the westbound left-turn storage at the Murray Street & Stanley Avenue intersection. However, due to constraints with the eastbound left-turn lane at Murray Street and Fallsview Boulevard, this may not be possible.

Appendix F contains the detailed Synchro reports.

TABLE 4.1: BACKGROUND OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
AM Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	26	0.07	7	45	38	D	49	D	50	0.57
			WB BR / WBR	D	50	0.81	79	-	-					
			NB	D	46	0.34	15	-	-	D	46			
			SB	D	45	0.27	13	-	-	D	45			
			SEB HL / BL	D	53	0.75	60	20	-40	D	52			
			SEB T / BR	D	52	0.79	80	-	-					
			NWB	C	30	0.02	4	-	-	C	30			
	Murray St & Stanley Ave	TCS	EB L	C	33	0.44	25	30	5	D	36	B	16	0.55
			EB T / R	D	37	0.63	46	-	-					
			WB L	D	36	0.54	25	30	5	C	33			
			WB T / R	C	32	0.37	28	-	-					
			NB L	B	17	0.48	47	70	23	B	14			
			NB T / R	B	14	0.53	73	-	-					
			SB L	A	7	0.35	18	60	42	A	7			
			SB T / R	A	7	0.39	44	-	-					
	Murray St & Drummond Rd	TWSC	WB	C	17	0.15	4	-	-	C	17	A	1	-
			NB	A	0	0.37	0	-	-	A	0			
			SB L	A	9	0.03	1	30	29	A	0			
			SB T	A	0	0.29	0	-	-					

TWSC - Two-Way Stop Control *LOS - Level of Service* *HL - Hard Left*

TCS - Traffic Control Signal *V/C - Volume to Capacity Ratio* *BL - Bear Left*

TABLE 4.2: BACKGROUND OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
PM Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	26	0.08	7	45	38	F	130	F	139	0.89
			WB BR / WBR	F	135	1.15	127	-	-					
			NB	E	67	0.72	30	-	-	E	67			
			SB	D	44	0.03	0	-	-	D	44			
			SEB HL / BL	F	184	1.23	91	20	-71	F	164			
			SEB T / BR	F	152	1.18	121	-	-					
			NWB	C	34	0.07	9	-	-	C	34			
	Murray St & Stanley Ave	TCS	EB L	C	33	0.56	27	30	3	C	30	E	59	0.99
			EB T / R	C	28	0.40	37	-	-					
			WB L	C	29	0.43	29	30	1	D	43			
			WB T / R	D	47	0.82	84	-	-					
			NB L	E	70	0.88	67	70	3	F	103			
			NB T / R	F	108	1.14	165	-	-					
			SB L	E	62	0.95	117	60	-57	C	26			
			SB T / R	B	11	0.55	69	-	-					
	Murray St & Drummond Rd	TWSC	WB	C	20	0.15	4	-	-	C	20	A	1	-
			NB	A	0	0.42	0	-	-	A	0			
			SB L	A	9	0.04	1	30	29	A	1			
			SB T	A	0	0.45	0	-	-					

TWSC - Two-Way Stop Control
TCS - Traffic Control Signal
LOS - Level of Service
V/C - Volume to Capacity Ratio
HL - Hard Left
BL - Bear Left

TABLE 4.3: BACKGROUND OPERATIONS – SATURDAY PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
Saturday Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	35	0.24	14	45	31	F	411	F	371	1.45
			WB BR / WBR	F	445	1.86	165	-	-					
			NB	F	176	1.17	72	-	-	F	176			
			SB	F	137	1.01	50	-	-	F	137			
			SEB HL / BL	F	522	2.03	164	20	-144	F	424			
			SEB T / BR	F	358	1.68	214	-	-					
			NWB	C	32	0.14	11	-	-	C	32			
	Murray St & Stanley Ave	TCS	EB L	E	61	0.79	41	30	-11	D	39	F	168	1.86
			EB T / R	C	33	0.69	78	-	-					
			WB L	F	111	1.04	81	30	-51	F	126			
			WB T / R	F	132	1.16	152	-	-					
			NB L	F	369	1.67	71	70	-1	F	150			
			NB T / R	F	116	1.17	174	-	-					
			SB L	F	647	2.35	230	60	-170	F	220			
			SB T / R	D	41	0.99	182	-	-					
	Murray St & Drummond Rd	TWSC	WB	C	25	0.21	6	-	-	C	25	A	1	-
			NB	A	0	0.43	0	-	-	A	0			
			SB L	A	9	0.03	1	30	29	A	0			
			SB T	A	0	0.44	0	-	-					

TWSC - Two-Way Stop Control
TCS - Traffic Control Signal
LOS - Level of Service
V/C - Volume to Capacity Ratio
HL - Hard Left
BL - Bear Left

4.2.2 Total Traffic Operations

The study area intersection operations analyses followed the same methodology used for base year conditions. Signal timing splits have been optimized but no changes to the existing lane configurations are assumed.

Table 4.4 to **Table 4.6** summarize the level of service conditions.

The total traffic conditions are forecast to operate like background traffic conditions with minor increases in delays and queue lengths.

The site traffic is forecast to add less than 15 seconds of delay to the surrounding intersections, with the exceptions of certain movements operations above v/c 1.00 during the peak hours. During the Saturday peak hour, delays at the westbound right turn at Murray Street and Main Street are expected to increase up to 40 seconds.

The site driveway is forecast to operate in the LOS C or better with 95th percentile queue lengths of less than 10 m. The inbound left-turn movements to the site driveway is forecast to operate at LOS A with 95th percentile queue lengths of less than five metres.

The south-eastbound approach queues at Murray Street and Main Street are forecast to block the site driveway during the weekday PM and Saturday peak hours.

Appendix G contains the detailed Synchro reports.

TABLE 4.4: TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness											
				Direction						Approach		Overall			
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
AM Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	26	0.07	7	45	38	D	50	D	52	0.58
			WB BR / WBR	D	52	0.82	82	-	-					
			NB	D	47	0.35	15	-	-	D	47			
			SB	D	45	0.24	13	-	-	D	45			
			SEB HL / BL	E	56	0.77	62	20	-42	D	54			
			SEB T / BR	D	54	0.81	84	-	-					
			NWB	C	30	0.02	4	-	-	C	30			
	Murray St & Stanley Ave	TCS	EB L	C	33	0.45	26	30	4	D	36	B	16	0.55
			EB T / R	D	38	0.63	47	-	-					
			WB L	D	36	0.53	25	30	5	C	33			
			WB T / R	C	32	0.37	28	-	-					
			NB L	B	17	0.49	48	70	22	B	14			
			NB T / R	B	14	0.53	73	-	-					
			SB L	A	8	0.36	18	60	42	A	7			
			SB T / R	A	7	0.39	44	-	-					
	Murray St & Drummond Rd	TWSC	WB	C	17	0.15	4	-	-	C	17	A	1	-
			NB	A	0	0.37	0	-	-	A	0			
			SB L	A	9	0.03	1	30	29	A	0			
			SB T	A	0	0.30	0	-	-					
	Main St & Site Driveway	TWSC	EB	B	13	0.10	3	-	-	B	13	A	1	-
			NB	A	0	0.00	0	-	-	A	0			
			SB	A	0	0.22	0	30	30	A	0			

TWSC - Two-Way Stop Control
TCS - Traffic Control Signal
LOS - Level of Service
V/C - Volume to Capacity Ratio
HL - Hard Left
BL - Bear Left

TABLE 4.5: TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
PM Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	26	0.08	7	45	38	F	144	F	148	0.91
			WB BR / WBR	F	150	1.19	132	-	-					
			NB	E	67	0.72	30	-	-	E	67			
			SB	D	44	0.03	0	-	-	D	44			
			SEB HL / BL	F	188	1.24	92	20	-72	F	172			
			SEB T / BR	F	161	1.20	126	-	-					
			NWB	C	34	0.07	9	-	-	C	34			
	Murray St & Stanley Ave	TCS	EB L	C	32	0.55	27	30	3	C	29	E	60	1.00
			EB T / R	C	28	0.40	38	-	-					
			WB L	C	29	0.42	29	30	1	D	43			
			WB T / R	D	47	0.82	87	-	-					
			NB L	E	74	0.90	68	70	2	F	103			
			NB T / R	F	108	1.14	165	-	-					
			SB L	E	68	0.97	117	60	-57	C	27			
			SB T / R	B	12	0.56	70	-	-					
	Murray St & Drummond Rd	TWSC	WB	C	21	0.15	4	-	-	C	21	A	1	-
			NB	A	0	0.42	0	-	-	A	0			
			SB L	A	9	0.04	1	30	29	A	1			
			SB T	A	0	0.45	0	-	-					
	Main St & Site Driveway	TWSC	EB	C	16	0.09	2	-	-	C	16	A	1	-
			NB	A	0	0.01	0	-	-	A	0			
			SB	A	0	0.30	0	30	30	A	0			

TWSC - Two-Way Stop Control
TCS - Traffic Control Signal
LOS - Level of Service
V/C - Volume to Capacity Ratio
HL - Hard Left
BL - Bear Left

TABLE 4.6: TOTAL TRAFFIC OPERATIONS – SATURDAY PEAK HOUR

Analysis Period	Intersection	Control Type	Movement	Measure of Effectiveness										
				Direction						Approach		Overall		
				LOS	Delay (s)	V/C	95th	Storage	Available	LOS	Delay	LOS	Delay	V/C
Saturday Peak Hour	Murray St & Main St / Allendale Ave	TCS	WB HL / L	C	35	0.24	14	45	31	F	437	F	384	1.47
			WB BR / WBR	F	472	1.92	172	-	-					
			NB	F	176	1.17	72	-	-	F	176			
			SB	F	137	1.01	50	-	-	F	137			
			SEB HL / BL	F	529	2.05	166	20	-146	F	433			
			SEB T / BR	F	371	1.71	218	-	-					
			NWB	C	32	0.14	11	-	-	C	32			
	Murray St & Stanley Ave	TCS	EB L	E	67	0.81	41	30	-11	D	40	F	170	1.87
			EB T / R	C	33	0.70	78	-	-					
			WB L	F	113	1.05	81	30	-51	F	130			
			WB T / R	F	137	1.17	154	-	-					
			NB L	F	386	1.71	73	70	-3	F	153			
			NB T / R	F	116	1.17	174	-	-					
			SB L	F	647	2.35	230	60	-170	F	220			
			SB T / R	D	42	0.99	183	-	-					
	Murray St & Drummond Rd	TWSC	WB	D	26	0.22	6	-	-	D	26	A	1	-
			NB	A	0	0.43	0	-	-	A	0			
			SB L	A	9	0.03	1	30	29	A	0			
			SB T	A	0	0.45	0	-	-					
	Main St & Site Driveway	TWSC	EB	C	25	0.19	5	-	-	C	25	A	1	-
			NB	A	1	0.01	0	-	-	A	1			
			SB	A	0	0.50	0	30	30	A	0			

TWSC - Two-Way Stop Control *LOS - Level of Service* *HL - Hard Left*

TCS - Traffic Control Signal *V/C - Volume to Capacity Ratio* *BL - Bear Left*

4.3 Multi-Modal Level of Service

Intersection Level of Service (LOS) is a recognized metric for categorizing the delay experienced by drivers at intersections. The term “Level of Service” denotes how well a traffic movement operates under given traffic demands, lane arrangements, and traffic controls. It converts average delay at intersections into a scale from A to F, where A indicates the least delay and F indicates the greatest delay. The metric is extensively used in transportation planning, but it is limited to the experience of drivers.

Multi-modal Level of Service (MMLOS) extends this concept to incorporate the experience of modes beyond car drivers. It converts a variety of factors into a scale from A to F for each mode, A indicates the best experience for users of that mode and F indicates the worst experience. As the output is a set of indicators, it reveals where changes have different (or opposite) effects on each mode.

This study uses MMLOS guidelines created by the Ontario Traffic Council (OTC).[13] These were developed following a review of national and international best practices in MMLOS analysis. The metrics used in evaluating signalized and unsignalized intersections are shown in **Table 4.7**.

The MMLOS analysis for the base year are summarized in **Table 4.8** to **4.10**. **Appendix H** contains the detailed MMLOS inputs.

[13] Dillion Consulting. *Multi-Modal Level of Service Guidelines*. (Toronto: Ontario Traffic Council, 2022)

TABLE 4.7: MULTI-MODAL LEVEL OF SERVICE METRICS

Mode	Metric	Signalized intersection	Unsignalized intersection
Pedestrian	Enhanced pedestrian measures	✓	
	Signal cycle length	✓	
	Number of uncontrolled conflicts	✓	
	Average effective turning radius	✓	✓
	Average crossing distance		✓
	Marked controlled crossings		✓
Bicycle	Enhanced bicycle measures	✓	
	Signal cycle length	✓	
	Number of uncontrolled conflicts	✓	
	Average effective turning radius	✓	✓
	Presence of bicycle facilities		✓
	Requirement to stop		✓
Bus	Transit priority measures	✓	
	Transit movement delay	✓	✓
	Pedestrian level of service	✓	✓
Truck	Average effective turning radius	✓	✓
	Car level of service	✓	✓
Car	Proportion of turning movements with dedicated lanes	✓	
	Intersection delay	✓	✓

TABLE 4.8: MULTI-MODAL LEVEL OF SERVICE – AM PEAK HOUR

Intersection	Type	Pedestrians	Bikes	Buses	Cars
Allendale Avenue & Main Street/Murray Street	S	D	C	D	D
Stanley Avenue & Murray Street	S	D	C	D	B
Drummond Road & Murray Street	U	D	B	B	A

S- Signalized U - Unsignalized

TABLE 4.9: MULTI-MODAL LEVEL OF SERVICE – PM PEAK HOUR

Intersection	Type	Pedestrians	Bikes	Buses	Cars
Allendale Avenue & Main Street/Murray Street	S	D	C	E	E
Stanley Avenue & Murray Street	S	D	C	D	B
Drummond Road & Murray Street	U	D	B	B	A

S- Signalized U - Unsignalized

TABLE 4.10: MULTI-MODAL LEVEL OF SERVICE – SATURDAY PEAK HOUR

Intersection	Type	Pedestrians	Bikes	Buses	Cars
Allendale Avenue & Main Street/Murray Street	S	D	C	E	E
Stanley Avenue & Murray Street	S	D	C	E	D
Drummond Road & Murray Street	U	D	A	B	A

S- Signalized U - Unsignalized

4.3.1 Active Transportation Operations

Pedestrian measures and facilities in the study area generally include sidewalks on at least one side of the road. At signalized intersections, marked crosswalks are present but not include any enhanced pedestrian measures such as refuge islands, pedestrian storage space, raised intersections, leading pedestrian intervals (LPIs) and protected phases.

At the unsignalized intersection of Drummond Road and Murray Street the crosswalks are unmarked.

Pedestrian MMLOS throughout the study area is generally in the LOS D range. Improvements to the Pedestrian MMLOS could include adding enhanced pedestrian measures at the signalized intersections, such as LPIs, to provide additional protections for pedestrian traffic.

While the development will provide pedestrian connections from the site to the existing pedestrian infrastructure, the proposed development is not expected to impact the pedestrian MMLOS.

Bike MMLOS in the study ranges between C and A. Currently, cycling lanes are provided on Drummond Road. In addition, there are no enhanced bike facilities at the signalized intersections. Enhanced bike facilities can include crossrides, green conflict markings, dedicated intersection features, protected intersection features, bicycle signal heads, leading bike intervals (LBIs) and protected phases.

However, given the low cyclist volumes, (totaling less than 30 cyclist total across the AM and PM peak hours), the lack of bike facilities and mitigation measures is reasonable.

Bike lanes are proposed in the Region's Strategic Cycling Network Technical Paper on Main Street from North Street to Stanley Avenue and unspecified future cycling facilities are identified on Stanley Avenue and on Main Street east of Stanley Avenue. These enhancements would help to promote cycling and improve the bike MMLOS.

The proposed development is not expected to impact the bike MMLOS.

4.3.2 Transit Operations

NRT and WEGO operate several transit routes near the subject site along Main Street and Stanley Avenue. Transit MMLOS in the study ranges between E and B. The transit MMLOS considers the presence of transit priority measures, transit delay, and the pedestrian LOS. At the study area intersection, there are no transit priority measures implemented.

Transit operates in the general vehicle lanes which experiences significant delays in the Base Year, particularly at the signalized intersection of Murray Street and Main Street/Allendale Avenue.

Site traffic is not expected to impact the transit service in the area. A bus stop is located on the north side of the site along Main Street. Relocation or improvements to the bus stop are not anticipated because of the development, however, it is expected that NRT will continue to monitor operations of the stop and provide improvements if required.

5 Remedial Measures

5.1 Site Driveway

As noted under total traffic conditions, the site driveway to Main Street is forecast to be blocked by the 95th percentile queue length for the south-eastbound approach of Main Street to Murray Street.

It is noted that the 95th percentile queue is an estimate of the longest queue that could occur during the peak hour; however, this level of queuing only has a five percent probability of occurring during the analysis period. It is not typical of what a motorist would experience on average.

Drivers using the site driveway may encounter increased delays during peak hours. To help manage the operation of the site driveway, Wa-73 “Do Not Block Driveway” signage could be added to the Main Street approaches to discourage queued vehicles from temporarily blocking access to the site.

6 Parking Justification

6.1 Proposed Parking Supply

The site's parking supply consists of 181 parking spaces (0.94 spaces per unit, inclusive of occupant and visitor) and 292 long-term bicycle parking spaces. Parking is contained at grade (20 spaces) and in a below grade parking structure (161 spaces).

6.2 Zoning By-Law Requirements

The City of Niagara Falls Zoning By-law 79-200[14] outlines the minimum parking space requirements based on the residential land use is 1.40 spaces per unit inclusive of occupant and visitor.

The minimum parking supply for the subject site based on Zoning By-law 79-200 is 271 spaces.

In addition, the By-law outlines long-term bicycle parking should be provided at a rate of 0.5 spaces/dwelling unit and 6 short-term bicycle parking spaces per apartment dwelling having more than 20 units. The required bicycle parking for the site based on Zoning By-law 79-200 is 97 long-term bicycle spaces and 6 short-term bicycle spaces.

6.3 Parking Demand

6.3.1 ITE Parking Demand Estimate

An accepted industry standard for the determination of potential parking demand is ITE's Parking Generation Manual[15]. ITE provides data on surveys across the USA and Canada of peak parking demand for different land uses. ITE Parking Generation is generally regarded as the best source for measured parking demands other than local data collected at similar land uses.

The same land use codes used for trip generation are used to estimate the site's parking generation[16]. The parking demand of the residential land uses was estimated using the number of units, instead of the number of bedrooms, to remain conservative. It is noted that the ITE parking demand is inclusive of residents and visitors.

[14] *Table 1 – 4.19.1 – By-law No. 79-200*, City of Niagara Falls.
[15] *Parking Generation – Fifth Edition*, Institute of Transportation Engineers, Washington D.C.
[16] LUC 222 Fitted Curve Equation: Weekday = 1.25(X) – 105.47 | LUC 820 Average Rate: Weekday = 1.95 spaces/1,000 sq.ft., Saturday = 2.91 spaces/1,000 sq.ft.

Table 6.1 summarizes the estimated peak parking generation for the subject site.

The parking demand for the site is estimated to be 136 spaces. No Saturday data is unavailable, it was assumed the weekday and weekend parking demand would be the same.

TABLE 6.1: ITE PARKING GENERATION

Land Use	Weekday Parking Demand
222: Multifamily Housing (High-Rise)	136 spaces
Proposed Supply	**181 spaces**
Surplus Supply	**+45 spaces**

6.3.2 Parking Utilization Surveys

Another proven method of estimating parking demands is to survey existing sites with similar situational characteristics. Local surveys are perceived to be the best predictor of demands. A residential development was surveyed within Niagara Region to observe parking behaviour and determine an expected parking demand for the proposed site.

230 Denistoun Street, Welland

A parking utilization survey was conducted by Paradigm for an eight-storey, 100-unit residential apartment building at 230 Denistoun Street in Welland. The survey was conducted on various days between Saturday September 9 to Thursday September 14, 2023, capturing weekday and weekend parking behaviour. The survey identified a peak parking demand inclusive of resident and visitor parking of 0.92 spaces per unit. **Table 6.2** summarizes the survey results.

TABLE 6.2: PARKING UTILIZATION SURVEY

Statistic	230 Denistoun Street, Welland
Units	100
Existing Parking Supply	150
Max. Spaces used	92
Max. Spaces Used/Unit	0.92

The results indicate that a parking demand of 0.92 spaces per unit can be expected of a high-rise residential development. If this ratio is applied to the development concept, the parking demand is estimated to be 177 spaces, in line with the proposed parking supply (181 spaces). **Appendix I** contains the survey data.

6.3.3 Vehicle Ownership

Vehicle ownership data from the TTS in the City of Niagara Falls suggests that approximately 35% of residents living in apartments do not own a vehicle.

Table 6.3 summarizes the vehicle ownership characteristics for apartment units within the City of Niagara Falls.

The survey data suggests that vehicle ownership for apartment units is approximately 0.74 vehicles per unit. The parking demand for occupants of the subject site is calculated to be 143 spaces. With 181 spaces provided, the site's current parking supply exceeds the existing vehicle ownership trends for apartment units. The balance of the site's parking supply (40 spaces) can be assigned to visitors.

Appendix D contains the TTS data.

TABLE 6.3: VEHICLE OWNERSHIP

Vehicles Per Household (Apartment Units)	Number of Households	Number of Vehicles
0	2,599	0
1	4,124	4,124
2	631	1,262
3	25	75
Total:	7,379	5,461
Average Vehicle Ownership/Household		**0.74**

6.3.4 Visitor Parking Demand

Niagara Falls by-law, ITE parking demand data, and the 230 Denison Street parking utilization surveys provide information on blended parking rates of occupants and visitors.

To provide an estimate of visitor parking for the site, parking data in the City of Burlington was reviewed. Paradigm and City of Burlington Staff previously collected parking data for apartment buildings within Burlington. The parking utilization surveys were undertaken at seven different sites. The sites include:

- 1284 Guelph Line – 78 units – 4 observations by Paradigm;
- 551 Maple Avenue – 186 units – 4 observations by Paradigm;
- 360 Pearl Street – 75 units – 4 observations by Paradigm and 6 observations by the City.
- 442 Maple Avenue – 135 units – 6 observations by the City;
- 505 Locust Street – 117 units – 6 observations by the City;
- 2121 Lakeshore Road – 39 units – 4 observations by the City; and
- 1477 Lakeshore Road – 60 units – 6 observations by the City.

Parking demand data collected by Paradigm was collected in 15-minute intervals from 16:00 to 22:00 on weekdays (Tuesday-Thursday) between April and November 2016. The City of Burlington collected spot observations between 20:00 and 23:00 on weekdays (Tuesday or Thursdays). The parking data can be found in **Appendix I**.

The collected parking utilization data is in line with industry standard data collection methods and is representative of parking demand at multi-family buildings.

The following visitor parking demands were observed:

- Paradigm
  - Visitor demands range from 0.08 to 0.24 spaces per unit.
- City of Burlington
  - Visitor demands range from 0.00 to 0.06 spaces per unit.

The average visitor demand across was 0.09 visitor spaces per unit. Applying this visitor rate to the proposed site, the visitor parking demand can be estimated to be 18 visitor spaces. As such, of the 181 total parking spaces proposed, the site should allocate 18 parking spaces (0.09 visitor spaces/unit) for visitors.

6.3.5 Parking Demand Summary

Table 6.4 summarizes the estimated parking demand for the subject site. The parking demand is estimated to be in the order of 136 to 177 spaces. With 181 spaces proposed, the site's parking demand is estimated to align with the proposed supply.

TABLE 6.4: PARKING DEMAND SUMMARY

Parking Methodology	Estimated Peak Parking Demand/Requirements
ITE Parking Demand	136
Parking Utilization Survey – 230 Denistoun Street	177
Vehicle Ownership	143
Proposed Supply	**177**

7 Transportation Demand Management

A Transportation Demand Management (TDM) plan aims to reduce the development's overall traffic and parking impacts by implementing strategies to affect the demand side of the transportation equation. TDM strategies include incentives and deterrents that can influence travel behaviour. Strategies include financial incentives, time incentives, new or enhanced commuter services, dissemination of information, and marketing alternative services.

The TDM plan has been formulated to extend 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 and rest of the study area.

7.1 Through Design

Several factors influencing peoples' travel mode choices support land use/infrastructure that encourages people to choose modes other than driving alone. These strategies are accounted for through the development's 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 persons, jobs, or dwellings per unit area. Increased densities generally shorten the distance people travel and provide greater options for the mode of travel. This strategy also provides a foundation for the implementation of other strategies which would benefit from increased densities.

7.1.2 Land Use-Density Mix

Having different land uses nearby can decrease vehicle mode share since trips between land-use types are shorter and may be accommodated by non-automotive transportation. The mix of high-density housing near the adjacent commercial and recreational uses provides land use diversity, reducing the number of automobile trips residents or employees make.

7.1.3 Pedestrian Facilities

Accessibility to and from 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 enhance the overall pedestrian experience.

Walking is encouraged by providing a pedestrian-friendly site layout with a network of sidewalks and entrances at critical points within the site and connecting to the existing pedestrian network. Most of the Site provides direct public access for pedestrians via street-level entrances to Main Street and Murray Street. This is intended to provide a comprehensive network of pedestrian connections for an enhanced pedestrian experience for all Site users.

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 critical design features.

7.1.4 Bicycle Facilities

Increasing cycling to and within Niagara Falls is crucial for reducing vehicle trips. The number of people cycling is related to the quality of the bicycling network, the presence of cycling infrastructure, and the ability to leverage use of the infrastructure.

Bike lanes are on Drummond Road and Main Street and future cycling facilities are proposed on Main Street and on Stanley Avenue as outlined in Section 2.2.

7.1.5 Transit

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

NRT and WEGO operate several transit routes near the subject site along Main Street and Stanley Avenue. A bus stop is located on the north side of the site along Main Street. The bus stop consists of only a bus stop sign and does not include any amenities such as a shelter or bench.

7.2 Proposed Strategies

This section outlines the proposed strategies for the development. The TDM program can be better defined at the site plan approval stage.

The development will implement the proposed strategies identified herein to reduce the number of auto-trips made to/from the Development:

7.2.1 Transportation Information

The applicant will develop marketing/informational materials as part of their initial scope of work. Information on transportation options and links to the appropriate websites 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 Supply

Finding the right balance needed to support the City's goals is critical, mainly since parking is an expensive resource. 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.

If free and unregulated parking is provided, there is little incentive for future occupants and visitors to use alternative modes of transportation. Free and abundant parking encourages people to drive alone rather than car or vanpool, drop off or pick up, walk, cycle, or take transit. Alternative sustainable modes are substantially disadvantaged when too much free parking is provided.

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

7.2.3 Unbundled Parking

Implementing a paid-parking operation is one of the most effective TDM strategies for encouraging alternative travel habits. Occupants are not forced to pay for parking they do not need and allow consumers to adjust their parking supply to reflect their needs. To further encourage residents of the apartment building to utilize sustainable travel modes, the development will enable residents to opt out of purchasing their parking space, providing a discount on the purchase price.

The development will consider the use of unbundled parking. This is an essential factor as residents are notified at the project's onset 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.

In addition to unbundling parking, limiting the sales of parking to 1.00 spaces per unit can further alter travel behaviour for future occupants.

7.2.4 Bicycle Parking

Cycling will be supported by providing 97 long-term bike parking spaces (0.5 long-term bike spaces per unit) and 6 short-term bicycle spaces (6 spaces per apartment building), which aligns with the City's by-law requirements. Within the long-term bike parking area, a repair station will be provided for occupant use.

8 Conclusions and Recommendations

8.1 Conclusions

The main findings and conclusions of this study are as follows:

- **Base Year Traffic**: Multiple critical movements are noted at the Murray Street & Main Street/Allendale Avenue intersection and at the Murray Street & Stanley Avenue intersection.
- **AutoTURN**: No conflicts with the on-site geometry are noted. Passenger vehicle paths overlap along the parking ramp internal to the structure. Vehicle overlap is noted to be minimal. Convex mirrors are recommended to aid drivers in identifying potential conflicts (that is, other vehicles). Signage and pavement markings within the parking structure can be addressed at SPA.
- **Trip Generation**: The subject site is forecast to generate approximately 61, 73, and 88 vehicle trips during the AM, PM, and Saturday peak hours, respectively.
- **Parking**: The site's parking demand is forecast to be between 136 and 177 spaces. With 181 spaces proposed (inclusive of occupant and visitor), the site's parking demand is estimated to be in line with the proposed supply. Of the 181 total parking spaces proposed, 18 parking spaces should be allocated for visitors (0.09 visitor spaces/unit).
- **Background Traffic**: Multiple critical movements are noted at the Murray Street & Main Street/Allendale Avenue intersection and at the Murray Street & Stanley Avenue intersection.

  Modifying the storage lengths of the identified back-to-back left-turn lanes will allow for the forecast queues to be accommodated. Similarly, removal of on-street parking will allow for the storage to be accommodate the forecast south-eastbound left-turn storage at the Murray Street & Main Street/Allendale Avenue intersection.
- **Total Traffic**: The study area intersections are forecast to operate with similar levels of service as the background traffic conditions.

  The site driveway to Main Street is forecast to operate in the LOS C range with 95th percentile queue lengths of less than 10 m. The inbound left-turn movements to the site driveways are forecast to operate at LOS A with 95th percentile queue lengths of approximately five metres.

The south-eastbound approach left-turn queues at Murray Street and Main Street are forecast to block the site driveway during the weekday PM and Saturday peak hours.

- **Active Transportation Operations**: Pedestrian MMLOS throughout the study area is generally in the LOS D range. Improvements to the Pedestrian MMLOS could include adding enhanced pedestrian measures at the signalized intersections, such as LPIs, to provide additional protections for pedestrians.

  The base year Bike MMLOS in the study ranges between C and A. Bike lanes are proposed on Main Street from North Street to Stanley Avenue and unspecified future cycling facilities are identified on Stanley Avenue and on Main Street east of Stanley Avenue. These enhancements would help to improve the bike MMLOS in the future.

  The proposed development is not expected to impact the active transportation MMLOS.

- **Transit Operations**: Transit MMLOS in the study ranges between E and B. Low levels of service are expected as transit operates in the general vehicle lanes which experiences significant delays in the Base Year, particularly at the signalized intersection of Murray Street and Main Street/Allendale Avenue.

  Site traffic is not expected to impact the transit service in the area.

- **Remedial Measures**: The site driveway to Main Street will be blocked by the south-eastbound left-turn and through/right-turn queues during the peak hours. Wa-73 “Do Not Block Driveway” signage could be added to the Main Street approaches to discourage queued vehicles from temporarily blocking access to the site.

8.2 Recommendations

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

- The City add Wa-73 “Do Not Block Driveway” signage along Main Street;
- The City consider increasing the south-eastbound left-turn storage at the Murray Street & Main Street/Allendale Avenue intersection to provide 170 m of storage to accommodate background traffic growth. This can be achieved by removing the on-street parking;

- The City consider increasing the eastbound left-turn storage at the Murray Street & Stanley Avenue intersection by 10 m to accommodate background traffic growth. This can be achieved by shortening the storage for the westbound left-turn lane at the Murray Street & Main Street/Allendale Avenue intersection;
- The City review the feasibility of extending the southbound left-turn storage at the Murray Street & Stanley Avenue intersection to provide additional storage to accommodate background traffic growth; and
- The Applicant allocate 18 parking spaces for visitors (0.09 visitor spaces/unit).

Appendix A

Pre-Study Consultation

Stefan Hajgato

From: John Grubich <jgrubich@niagarafalls.ca>
Sent: Thursday, April 8, 2021 1:34 PM
To: Scott Catton
Cc: Dunsmore, Susan; Stefan Hajgato; Marko Juricic; Elmadhoon, Maged; Marcie Juricic; Andrew Bryce; Mathew Bilodeau
Subject: RE: (200646: Main & Murray St TIS) Terms of Reference for Mixed Use Development

Scott;

City Staff has the opportunity to review the parking-related information you provided below in support of your client's applications. We believe the centre city core setting and parking statistics from ITE does not reflect the subject area. The ITE would define a centre city core as a downtown area for a major metropolitan region at the focal point of a regional light to heavy rail transit system, such as the downtown area close to Union Station. Staff would deem the area more of a general urban / suburban area, without nearby rail. Applying the ITE average rate for dwelling units, the parking demand would be 213 parking spaces, or approximately 1 parking space per unit for the 217 unit apartment. We would think that each unit would have their own reserved parking space; if the unit owner leaves, it does not become a space for anyone else to park. The 0.4 parking space per unit rate in the City's 1.4 parking space per unit By-law rate would generally be used for visitor parking. Staff has accepted a 1.25 parking space per unit rate elsewhere, so Staff would not have any concerns if you can achieve 1.25 parking spaces per unit for this site.

With respect to travel demand management reductions, specifically with reference to Kitchener and Waterloo worksheets, this has come up recently with another development. The Kitchener / Waterloo area has several post-secondary institutions. Students may not be able to afford an automobile and may rely on walking or cycling for transportation. There has not been any studies done in the City to validate that the same reductions are suitable in Niagara Falls, which does not have any post-secondary institutions.

Please feel free to contact me if you have any questions.

John Grubich, C.E.T. | Traffic Planning Supervisor | Municipal Works - Transportation Services | City of Niagara Falls
8208 Heartland Forest Road | Niagara Falls, ON L2H 0L7 | (905) 356-7521 ext 5214 | Fax 905-356-5576 | jgrubich@niagarafalls.ca

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From: Scott Catton <scatton@ptsl.com>
Sent: Monday, March 29, 2021 10:08 AM
To: John Grubich <jgrubich@niagarafalls.ca>; Mathew Bilodeau <mbilodeau@niagarafalls.ca>
Cc: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>; Stefan Hajgato <shajgato@ptsl.com>; Marko Juricic <marko@brooklyncontract.com>; Elmadhoon, Maged <Maged.Elmadhoon@niagararegion.ca>; Marcie Juricic <marcie@brooklyncontract.com>
Subject: RE: (200646: Main & Murray St TIS) Terms of Reference for Mixed Use Development

Hi John/Matt,
Following up on our call from last week.

Trip Generation Estimate

The preliminary trip generation estimate is summarized below. The weekday AM trip gen is ±78 trips, PM is ±100 and Saturday is ±112.

Land Use Code	Independent Variable		Formula or Rate	AM Peak Hour			PM Peak Hour			Saturday Peak		
				In	Out	Total	In	Out	Total	In	Out	
222: Multifamily Housing (High Rise)	217	Units	Formula	18	56	74	50	32	82	50	41	
820: Shopping Center	4.750	GFA	Rate	3	2	4	9	9	18	11	10	
			Total Net Trips	21	58	78	59	41	100	61	51	

Parking Study
The ITE Parking Generation Manual 5th Edition – parking generation estimate is summarised below. Data plots attached. The site's parking generation is estimated to be ±149 spaces. Supply is currently noted as 185 spaces.

Land Use	Units/GFA	Setting/Location	ITE 5th Edition Parking Generation	
			Weekday	Saturday
Multifamily Housing (High Rise) (222)	Bedroom - 374	Center City Core	135	N/A Assumed to match Weekday
Shopping Center - Non-December (820)	GLA (4.75 KSF)	General Urban/Suburban	9	
		Total Parking Generation	144	
		Proposed Parking Supply (assumed)	185	
		Parking Supply Surplus/Deficit	41	

217 units (36 BACH, 42 BR, 36 1 BR+DEN, 103 2BR)

In addition to the ITE parking generation data the parking study will also examine,

- TTS vehicle ownership,
- Shared parking between land uses
- Urban Land Institute parking data
- TDM reductions (City of Kitchener & Region of Waterloo worksheets).

Summer Saturday Data
Please advise on what, if any, Summer Saturday data is available in the area for use in this study. Looking at the EXP study completed for 6609 Stanley Avenue, it appears Saturday data was forecast using a Summer adjustment factor. Matt, you mentioned that turning patterns in the area are different on Saturdays vs. weekdays. We may need to rely on this approach if there is no representative Saturday data in the area.

Other Item
Regarding the 0.3 m reserve across the rear of the site at Murray Street. Marko is investigating this with the planner.

I would be happy to set up another call to discuss. Thanks.

Scott Catton, C.E.T.
Senior Project Manager

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From: John Grubich <jgrubich@niagarafalls.ca>
Sent: 4-Mar-21 11:26

To: Stefan Hajgato <shajgato@ptsl.com>
Cc: Scott Catton <scatton@ptsl.com>; Mathew Bilodeau <mbilodeau@niagarafalls.ca>; Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Subject: RE: (200646: Main & Murray St TIS) Terms of Reference for Mixed Use Development

Stefan;

Thank you for providing your terms of reference for your traffic/parking analysis in support of the proposed mixed-use development at the intersection of Main Street, Murray Street and Allendale Avenue.

Since this proposal is in the tourist district, I would like the Saturday summer peak hour in addition to weekday AM/PM evaluated as well.

There is an approved development to the south that has some traffic distributed to the intersection of Main Street, Murray Street and Allendale Avenue. It is a 72-storey building at the corner of Stanley Avenue and Dunn Street. Attached are the trip numbers from that TIS.

At the pre-consultation meeting, Staff identified that the rear access onto Murray Street would not be supported. It could be gated if a secondary emergency access is required.

A 217-unit residential development requires 303 parking spaces at a rate of 1.4 parking spaces per unit. Additional parking would be required for the retail unit and coffee shop. The site is proposing 185 parking spaces. A parking demand study is required to justify the proposed parking rate.

Please identify 2 comparable sites in Niagara Falls that you believe are good representations of the proposed development to study the parking demand, for City approval. Identify how the proxy sites compare with the subject development proposal (number of units, size of retail space, number of parking spaces provided, surrounding area, etc.). Parking data would need to be collected over a four-day period, Thursday to Sunday, from 6am to midnight each day. Since visitor parking demand is a component of the parking rate, I have concerns with a parking study being done at this time. The study may not capture normal visitor parking demand, with the current social distancing rules. City Staff believes any results could be underestimated. The City may not accept the results if the study is completed when some form of provincial and/or local order/guidance is in place. Currently, Niagara Public Health is identifying that we should continue to limit our close contacts to those within our household to curb the spread of covid-19.

Accessible parking will be required for the current bylaw the minimum number of accessible parking spaces is based on the parking lot capacity a development that has 185 parking spaces requires a minimum of seven accessible parking spaces and this is determined through the following formula for parking lots between 101 in 200 parking spaces 1 + 3% of the total number of parking spaces rounding up to the nearest whole number thus 1 + .03 * 185 equals 6.55 rounded up to 7 accessible parking spaces. There are no accessible parking spaces shown.

Traffic signals at the intersection of Main Street, Murray St and Allendale Ave are scheduled to be re-built within the next couple of years. The pedestrian only phase will likely remain. No additional lanes are proposed. You can purchase the signal timing plan from the Niagara Region via the following link:
https://www.niagararegion.ca/living/roads/permits/traffic-data-requests.aspx

The City has a 2019 weekday traffic count for the intersection that you can purchase for the analysis. We charge $265+HST per TMC.

I trust this information is satisfactory. Please feel free to contact me if you have any questions.

John Grubich, C.E.T. | Traffic Planning Supervisor | Municipal Works - Transportation Services | City of Niagara Falls
8208 Heartland Forest Road | Niagara Falls, ON L2H 0L7 | (905) 356-7521 ext 5214 | Fax 905-356-5576 | jgrubich@niagarafalls.ca

From: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Sent: March 4, 2021 9:29 AM
To: Stefan Hajgato <shajgato@ptsl.com>
Cc: Scott Catton <scatton@ptsl.com>; John Grubich <jgrubich@niagarafalls.ca>
Subject: RE: (200646: Main & Murray St TIS) Terms of Reference for Mixed Use Development

Hello Stefan,

Our transportation staff has reviewed the terms of reference provide and would like the intersection of Murray and Stanley to be included in the analysis. There are no Regional projects scheduled in this area that should be included in your TIS.

For regional traffic data request please follow the attached link to the Region's website.

https://www.niagararegion.ca/living/roads/permits/traffic-data-requests.aspx

If you require anything further please contact me at your convenience.

Thank you,

From: Stefan Hajgato <shajgato@ptsl.com>
Sent: Monday, March 01, 2021 3:47 PM
To: John Grubich <jgrubich@niagarafalls.ca>; Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Scott Catton <scatton@ptsl.com>
Subject: (200646: Main & Murray St TIS) Terms of Reference for Mixed Use Development

Hi John and Susan,

Paradigm has been retained to prepare a Transportation Impact Study (TIS) and a Parking Study (PS) for a proposed mixed-use development located at 5616 & 5643 Murray Street and 6385 & 6289 Main Street in Niagara Falls. The development plan includes 217 high-rise residential units, approximately 438 m^2 (4,717 sq.ft.) of ground floor commercial space, and 185 vehicle parking spaces (site plan attached). Access will be provided via an all-moves access to Main Street and an access at the eastern terminus of Murray Street. We are proposing the following scope:

Study Area Intersections:

- Murray Street at Main Street / Allendale Avenue (signalized);
- Murray Street at Drummond Road (unsignalized);
- One proposed driveway to Main Street located approximately 30 m from the signalized intersection; and
- One proposed driveway on the eastern terminus of Murray Street (unsignalized).

Development:

- 217 high-rise residential units.
- 438 m^2 (4,717 sq.ft.) of ground floor commercial space.

- 185 parking spaces (0.85 spaces per unit). This includes underground, at grade, and above grade spaces.
- Opening date: Year 2024.

Horizon Year:

- Existing (Year 2021).
- 10 years from date of TIS commission (Year 2031).

Growth Rate: 2.0% per annum.
Analysis Periods: Weekday AM and PM peak hours.
Trip Generation: ITE Trip Generation Manual 10th Edition.
Trip Distribution: Existing travel patterns or TTS.

It is noted that due to reduced traffic volumes, existing traffic counts will be based on historical data where available.

Could you please provide:

- Traffic studies for any approved or pending developments in the area that should be included in the traffic forecast.
- Information on any planned geometric improvements for the study area that we should consider in the analysis.

Feel free to contact me if you have any questions or comments.

Thanks,

Stefan Hajgato, P.Eng.
Transportation Engineer

Paradigm Transportation Solutions Limited
150 Pinebush Road, Unit 5A, Cambridge ON N1R 8J8
p: 519.896.3163 x209
e: shajgato@ptsl.com
w: www.ptsl.com

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check this e-mail and any attachments for the presence of viruses. Paradigm Transportation Solutions Limited accepts no liability for any damage caused by any virus transmitted by this e-mail.

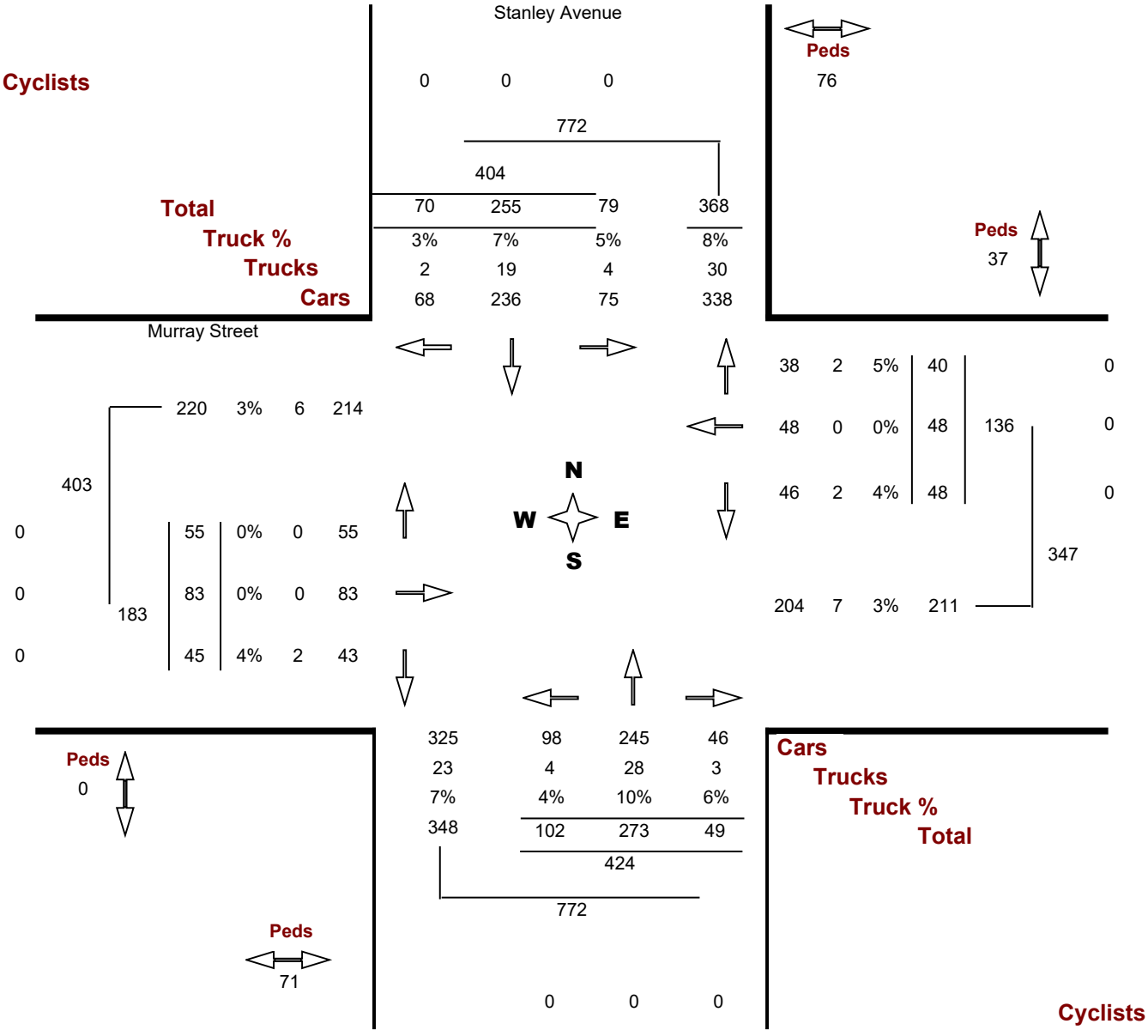
Appendix B

Existing Data

Turning Movements Report - AM Period

Location..... Murray Street @ Stanley Avenue
Municipality. NIAGARA FALLS
Traffic Cont.
Major Dir..... North south

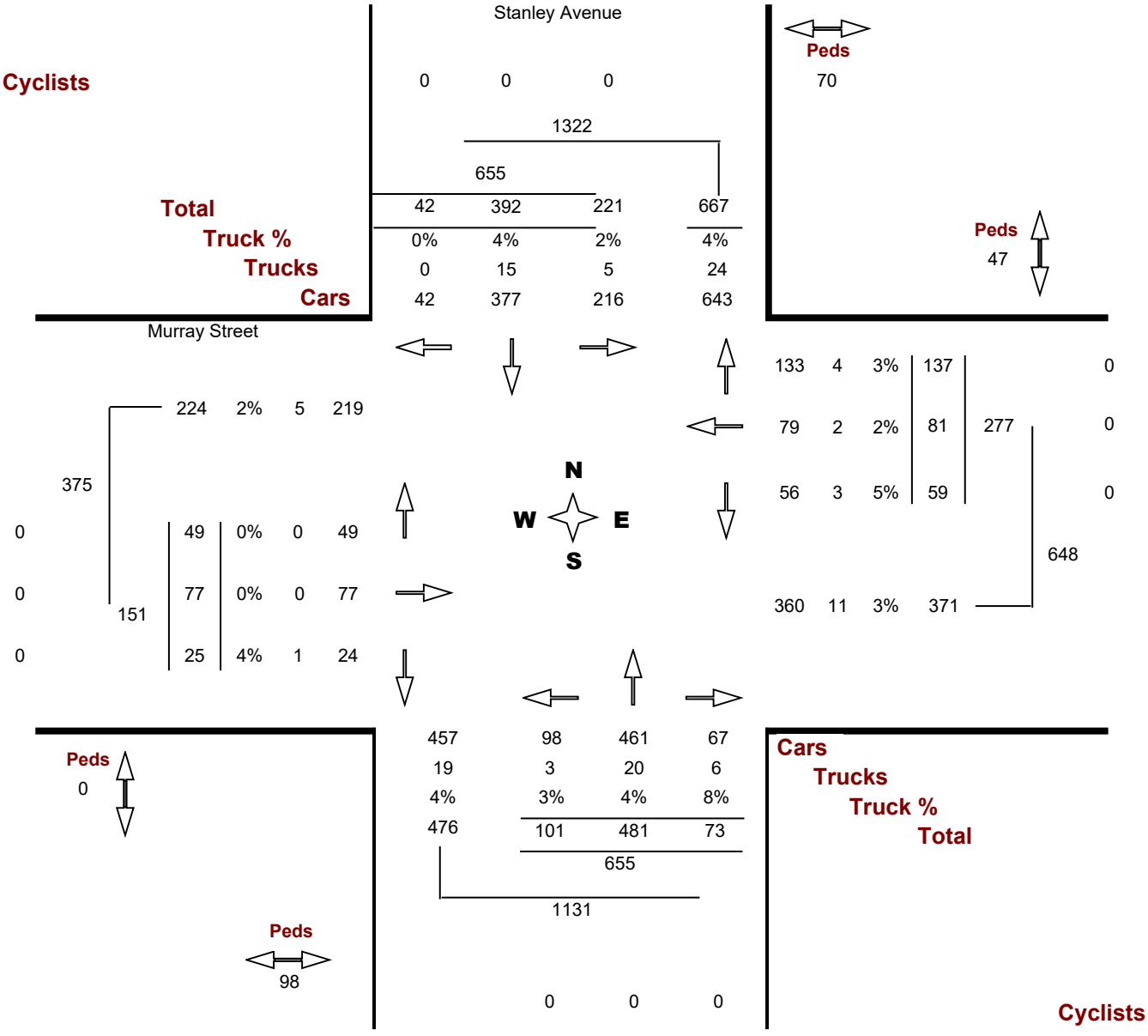
GeoID..... 01587
Count Date. Monday, 17 August, 2015
Count Time. 07:00 AM — 09:00 AM
Peak Hour.. 08:00 AM — 09:00 AM



Turning Movements Report - PM Period

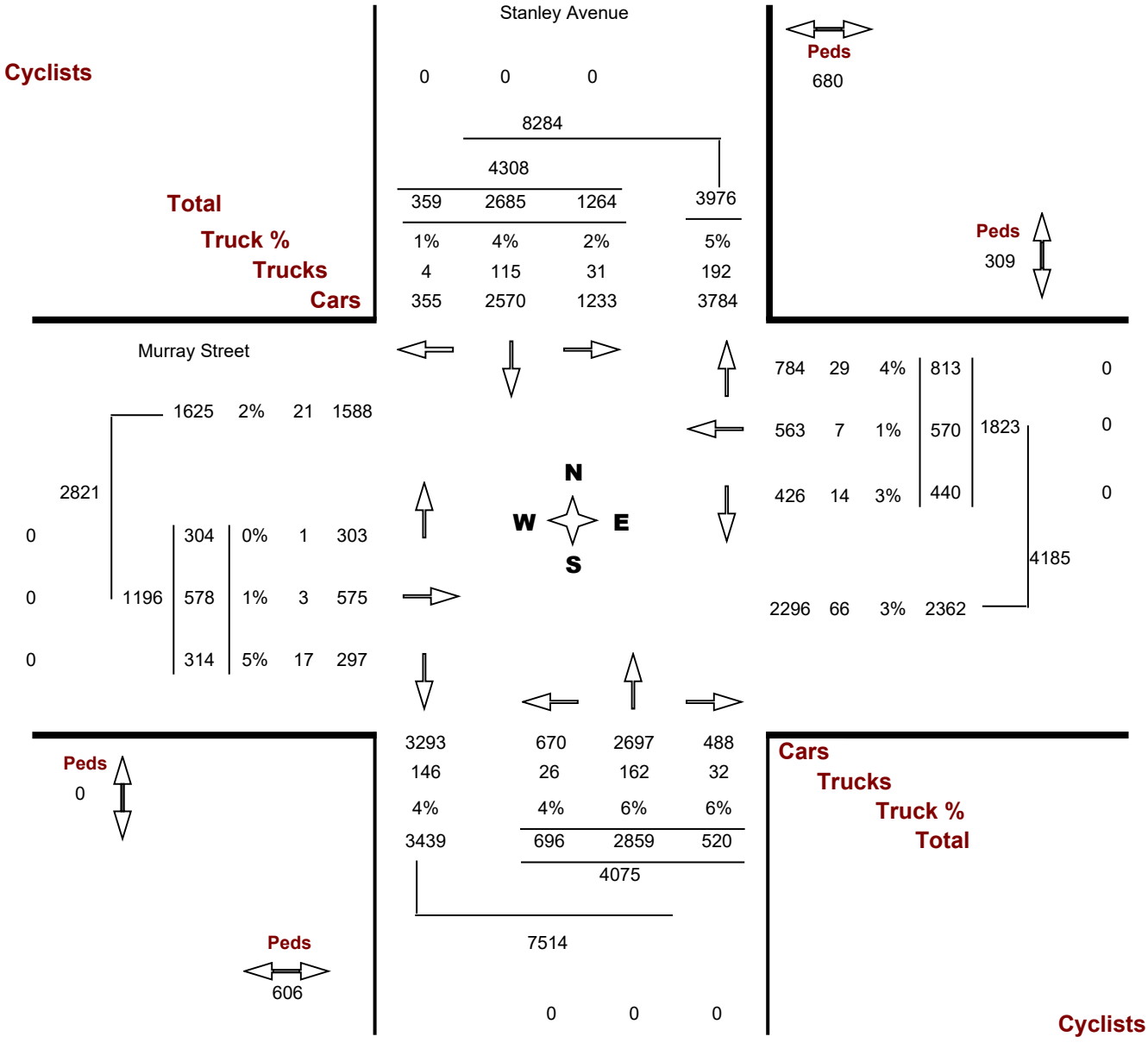
Location..... Murray Street @ Stanley Avenue
Municipality. NIAGARA FALLS
Traffic Cont.
Major Dir..... North south

GeoID..... 01587
Count Date. Monday, 17 August, 2015
Count Time. 03:00 PM — 06:00 PM
Peak Hour.. 03:00 PM — 04:00 PM



Turning Movement Count Report
Full Study

Location..... Murray Street @ Stanley Avenue
Municipality..... NIAGARA FALLS
GeoID..... 01587
Count Date..... Monday, 17 August, 2015



Turning Movement Count - Details Report (15 min)

Location..... Murray Street @ Stanley Avenue

Municipality..... NIAGARA FALLS

Count Date..... Monday, August 17, 2015

		Stanley Avenue										Murray Street									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	5	38	14	0	57	12	32	3	0	47	3	13	8	0	24	6	8	15	0	29
07:15	07:30	12	45	14	0	71	15	42	6	0	63	9	12	9	0	30	5	10	12	0	27
07:30	07:45	16	67	24	0	107	16	50	10	0	76	13	12	7	0	32	5	12	18	0	35
07:45	08:00	11	67	21	0	99	20	49	11	0	80	6	20	5	0	31	12	21	19	0	52
Hourly Total		44	217	73	0	334	63	173	30	0	266	31	57	29	0	117	28	51	64	0	143
08:00	08:15	18	54	14	0	86	24	48	7	0	79	9	12	7	0	28	14	26	13	0	53
08:15	08:30	18	51	17	0	86	25	63	12	0	100	9	10	14	0	33	11	16	7	0	34
08:30	08:45	24	74	16	0	114	31	79	14	0	124	13	15	5	0	33	14	20	17	0	51
08:45	09:00	19	76	23	0	118	22	83	16	0	121	17	11	14	0	42	16	21	8	0	45
Hourly Total		79	255	70	0	404	102	273	49	0	424	48	48	40	0	136	55	83	45	0	183
11:00	11:15	37	82	14	0	133	21	105	18	0	144	10	23	22	0	55	7	17	12	0	36
11:15	11:30	62	114	13	0	189	10	67	14	0	91	10	13	23	0	46	9	17	6	0	32
11:30	11:45	45	90	6	0	141	12	91	19	0	122	22	14	23	0	59	15	32	9	0	56
11:45	12:00	53	106	11	0	170	21	95	24	0	140	10	19	32	0	61	11	14	8	0	33
Hourly Total		197	392	44	0	633	64	358	75	0	497	52	69	100	0	221	42	80	35	0	157
12:00	12:15	45	85	6	0	136	14	100	17	0	131	14	18	21	0	53	8	15	9	0	32
12:15	12:30	46	85	7	0	138	33	78	14	0	125	4	13	29	0	46	9	12	8	0	29
12:30	12:45	53	85	7	0	145	25	81	15	0	121	14	21	16	0	51	6	21	8	0	35
12:45	13:00	46	87	9	0	142	19	81	22	0	122	10	13	23	0	46	9	19	7	0	35
Hourly Total		190	342	29	0	561	91	340	68	0	499	42	65	89	0	196	32	67	32	0	131
13:00	13:15	44	103	11	0	158	16	72	18	0	106	7	19	22	0	48	12	13	12	0	37
13:15	13:30	65	72	11	0	148	20	79	20	0	119	7	10	28	0	45	0	22	6	0	28
13:30	13:45	43	86	9	0	138	20	89	18	0	127	16	17	24	0	57	15	23	9	0	47
13:45	14:00	59	94	6	0	159	18	74	20	0	112	12	18	37	0	67	8	20	4	0	32
Hourly Total		211	355	37	0	603	74	314	76	0	464	42	64	111	0	217	35	78	31	0	144
15:00	15:15	60	108	8	0	176	21	116	19	0	156	13	13	38	0	64	3	14	3	0	20
15:15	15:30	48	93	14	0	155	23	113	13	0	149	17	22	36	0	75	20	20	6	0	46
15:30	15:45	57	105	10	0	172	28	117	21	0	166	13	21	30	0	64	9	21	13	0	43
15:45	16:00	56	86	10	0	152	29	135	20	0	184	16	25	33	0	74	17	22	3	0	42
Hourly Total		221	392	42	0	655	101	481	73	0	655	59	81	137	0	277	49	77	25	0	151
16:00	16:15	30	88	11	0	129	20	122	17	0	159	32	21	41	0	94	1	16	11	0	28

		Stanley Avenue										Murray Street									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
16:15	16:30	42	98	3	0	143	18	112	15	0	145	18	25	39	0	82	4	14	9	0	27
16:30	16:45	45	100	8	0	153	26	118	22	0	166	25	27	41	0	93	12	14	18	0	44
16:45	17:00	34	82	12	0	128	34	126	18	0	178	20	27	40	0	87	11	23	9	0	43
Hourly Total		151	368	34	0	553	98	478	72	0	648	95	100	161	0	356	28	67	47	0	142
17:00	17:15	51	96	6	0	153	27	106	14	0	147	21	25	31	0	77	8	14	10	0	32
17:15	17:30	45	95	4	0	144	23	119	24	0	166	21	18	26	0	65	8	19	8	0	35
17:30	17:45	36	86	10	0	132	24	96	19	0	139	16	24	50	0	90	8	20	9	0	37
17:45	18:00	39	87	10	0	136	29	121	20	0	170	13	19	39	0	71	11	22	8	0	41
Hourly Total		171	364	30	0	565	103	442	77	0	622	71	86	146	0	303	35	75	35	0	145
Grand Total		1264	2685	359	0	4308	696	2859	520	0	4075	440	570	813	0	1823	304	578	314	0	1196
Truck %		2%	4%	1%	0%	3%	4%	6%	6%	0%	5%	3%	1%	4%	0%	3%	0%	1%	5%	0%	2%

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

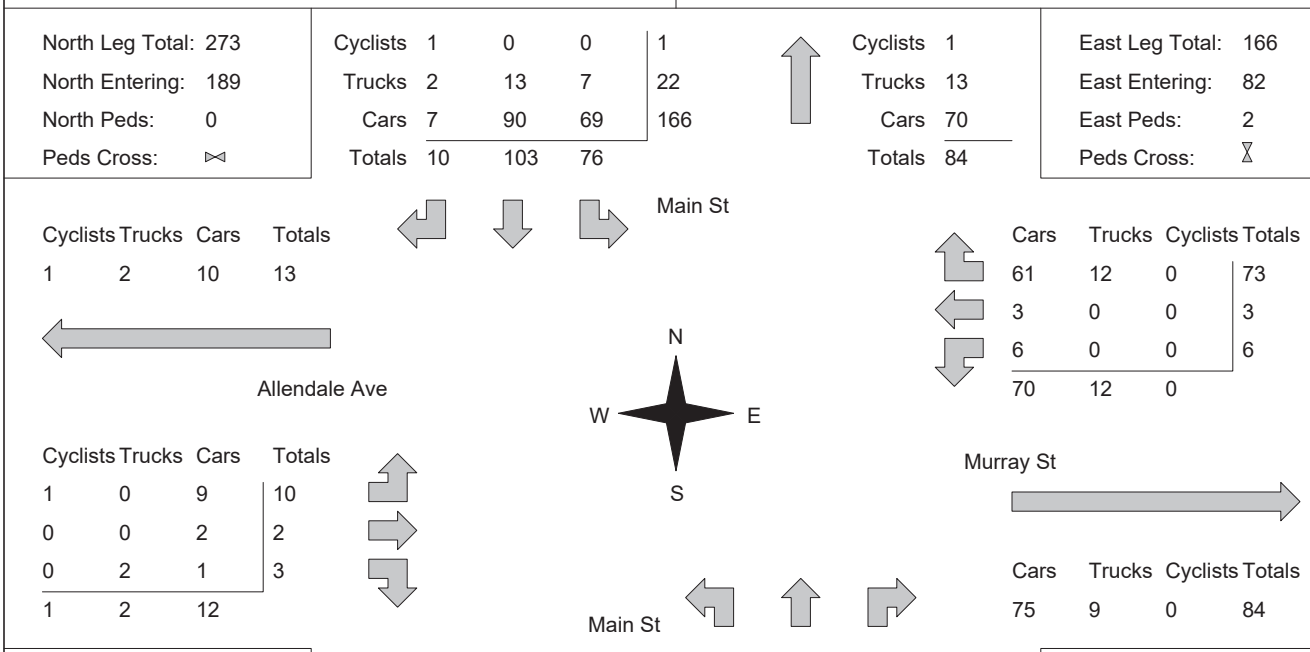
Municipality: Niagara Falls
Site #: 1906800008
Intersection: Main St & Murray St - Allendale Ave
TFR File #: 1
Count date: 26-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

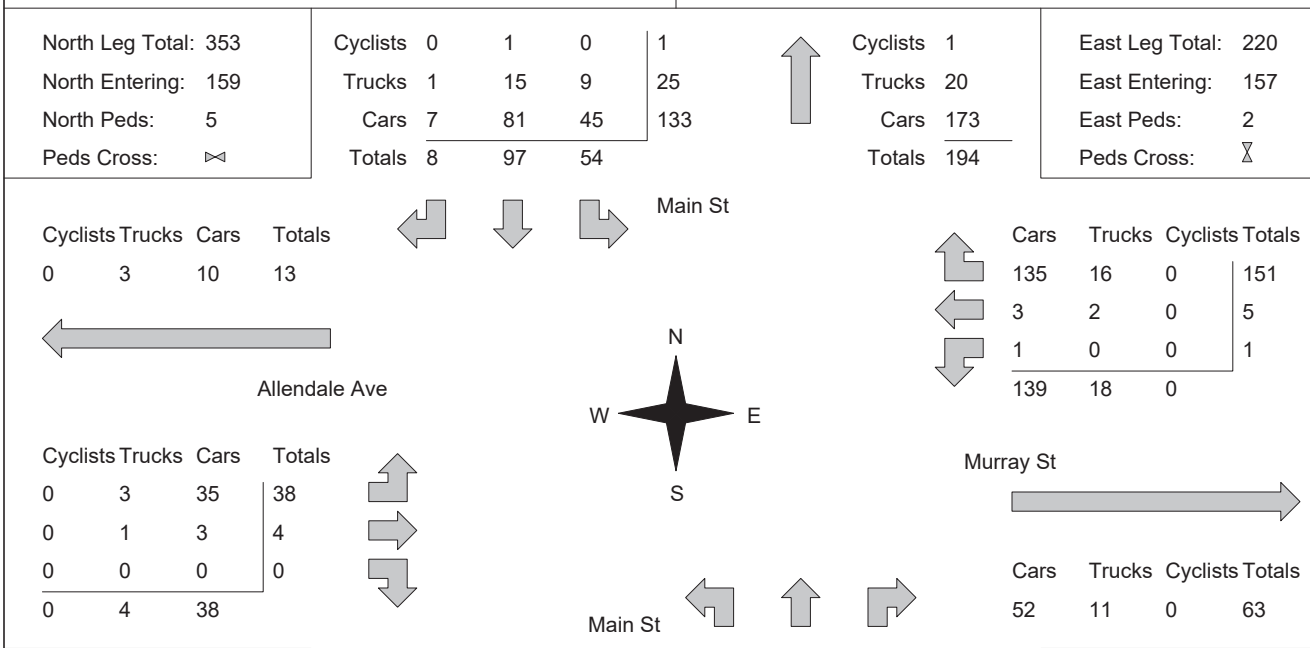
Municipality: Niagara Falls
Site #: 1906800008
Intersection: Main St & Murray St - Allendale Ave
TFR File #: 1
Count date: 26-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs N/S



Comments

Ontario Traffic Inc.

Total Count Diagram

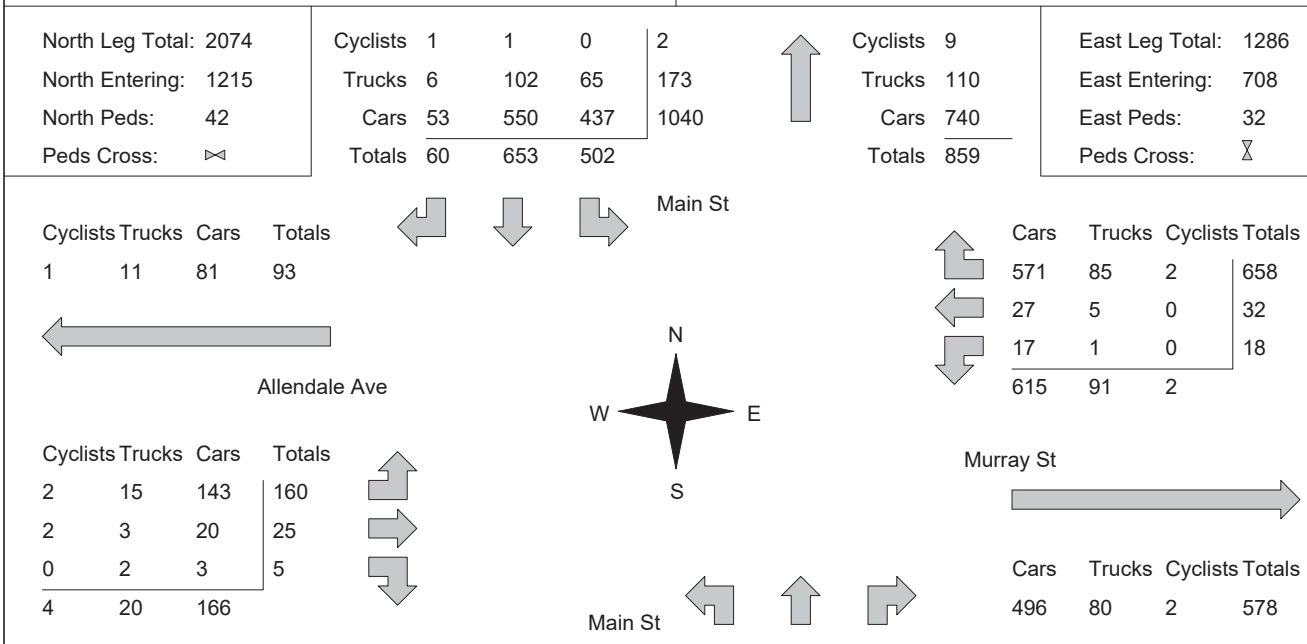
Municipality: Niagara Falls
Site #: 1906800008
Intersection: Main St & Murray St - Allendale Ave
TFR File #: 1
Count date: 26-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs N/S



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Main St & Murray St - Allendale Av | **Count Date:** 26-Mar-19 | **Municipality:** Niagara Falls

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	52	44	4	100	4	105
12:00:00	68	68	6	142	8	145
13:00:00	53	78	8	139	2	152
14:00:00	78	99	8	185	0	192
15:00:00	82	82	6	170	12	175
16:00:00	70	117	12	199	7	238
17:00:00	61	86	7	154	6	164
18:00:00	38	79	9	126	3	137
Totals:	502	653	60	1215	42	1308

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	1	1	3	5	1
12:00:00	0	0	3	3	1
13:00:00	0	7	6	13	3
14:00:00	0	3	4	7	8
15:00:00	0	4	1	5	5
16:00:00	0	18	21	39	59
17:00:00	0	4	6	10	40
18:00:00	0	4	7	11	8
Totals:	1	41	51	93	125

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	4	2	39	45	8	56
12:00:00	2	5	62	69	5	94
13:00:00	3	7	80	90	3	108
14:00:00	4	2	69	75	0	92
15:00:00	1	5	93	99	3	116
16:00:00	1	2	93	96	8	132
17:00:00	1	6	136	143	2	174
18:00:00	2	3	86	91	3	126
Totals:	18	32	658	708	32	898

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	6	5	0	11	8
12:00:00	22	2	1	25	4
13:00:00	13	5	0	18	15
14:00:00	11	3	3	17	6
15:00:00	17	0	0	17	12
16:00:00	31	5	0	36	57
17:00:00	26	5	0	31	23
18:00:00	34	0	1	35	12
Totals:	160	25	5	190	137

Calculated Values for Traffic Crossing Major Street

Hours Ending:	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Crossing Values:	20	38	28	26	40	103	79	50

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800008

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	15	15	9	9	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0
10:30:00	20	5	19	10	2	0	2	1	2	1	0	0	0	0	0	0	0	0	0	0
10:45:00	28	8	32	13	4	2	3	1	2	0	0	0	0	0	0	0	0	0	1	1
11:00:00	48	20	42	10	4	0	4	1	2	0	0	0	0	0	0	0	0	0	4	3
11:15:00	60	12	53	11	6	2	6	2	5	3	0	0	0	0	0	0	0	0	8	4
11:30:00	73	13	66	13	7	1	8	2	8	3	0	0	0	0	0	0	0	0	8	0
11:45:00	87	14	82	16	7	0	10	2	9	1	1	1	0	0	0	0	0	0	9	1
12:00:00	109	22	102	20	9	2	11	1	10	1	1	0	0	0	0	0	0	0	12	3
12:15:00	122	13	117	15	11	2	14	3	15	5	2	1	0	0	0	0	0	0	13	1
12:30:00	131	9	132	15	12	1	15	1	20	5	2	0	0	0	0	0	0	0	14	1
12:45:00	143	12	146	14	12	0	18	3	23	3	2	0	0	0	0	0	0	0	14	0
13:00:00	154	11	165	19	14	2	19	1	25	2	3	1	0	0	0	0	1	1	14	0
13:15:00	169	15	187	22	14	0	24	5	29	4	3	0	0	0	0	0	1	0	14	0
13:30:00	195	26	210	23	18	4	24	0	31	2	4	1	0	0	0	0	1	0	14	0
13:45:00	212	17	236	26	19	1	25	1	36	5	4	0	0	0	0	0	1	0	14	0
14:00:00	226	14	249	13	21	2	25	0	40	4	4	0	0	0	0	0	1	0	14	0
14:15:00	237	11	260	11	23	2	28	3	44	4	4	0	0	0	0	0	1	0	16	2
14:30:00	256	19	284	24	23	0	29	1	48	4	4	0	0	0	0	0	1	0	21	5
14:45:00	281	25	299	15	25	2	30	1	50	2	4	0	0	0	0	0	1	0	22	1
15:00:00	302	21	320	21	26	1	31	1	51	1	5	1	0	0	0	0	1	0	26	4
15:15:00	311	9	348	28	27	1	36	5	56	5	5	0	0	0	0	0	1	0	26	0
15:30:00	328	17	375	27	30	3	40	4	62	6	5	0	0	0	0	0	1	0	31	5
15:45:00	342	14	392	17	35	5	43	3	72	10	5	0	0	0	0	0	1	0	31	0
16:00:00	357	15	412	20	38	3	46	3	76	4	5	0	0	0	0	0	1	0	33	2
16:15:00	370	13	424	12	40	2	49	3	81	5	5	0	0	0	0	0	1	0	35	2
16:30:00	382	12	441	17	41	1	52	3	85	4	5	0	0	0	1	1	1	0	35	0
16:45:00	394	12	462	21	43	2	55	3	87	2	5	0	0	0	1	0	1	0	39	4
17:00:00	408	14	482	20	44	1	56	1	91	4	6	1	0	0	1	0	1	0	39	0
17:15:00	415	7	505	23	47	3	58	2	96	5	6	0	0	0	1	0	1	0	40	1
17:30:00	420	5	518	13	49	2	61	3	97	1	6	0	0	0	1	0	1	0	40	0
17:45:00	430	10	536	18	52	3	64	3	100	3	6	0	0	0	1	0	1	0	42	2
18:00:00	437	7	550	14	53	1	65	1	102	2	6	0	0	0	1	0	1	0	42	0
18:15:00	437	0	550	0	53	0	65	0	102	0	6	0	0	0	1	0	1	0	42	0
18:17:21	437	0	550	0	53	0	65	0	102	0	6	0	0	0	1	0	1	0	42	0

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800008

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	1	1	1	1	11	11	1	1	0	0	1	1	0	0	0	0	0	0	3	3
10:30:00	1	0	1	0	19	8	1	0	0	0	6	5	0	0	0	0	0	0	4	1
10:45:00	3	2	1	0	26	7	1	0	1	1	6	0	0	0	0	0	0	0	6	2
11:00:00	3	0	1	0	31	5	1	0	1	0	8	2	0	0	0	0	0	0	8	2
11:15:00	4	1	1	0	50	19	1	0	1	0	11	3	0	0	0	0	0	0	10	2
11:30:00	5	1	2	1	60	10	1	0	1	0	13	2	0	0	0	0	0	0	11	1
11:45:00	5	0	4	2	73	13	1	0	1	0	13	0	0	0	0	0	0	0	13	2
12:00:00	5	0	5	1	86	13	1	0	2	1	15	2	0	0	0	0	0	0	13	0
12:15:00	6	1	8	3	109	23	1	0	2	0	17	2	0	0	0	0	1	1	13	0
12:30:00	6	0	9	1	129	20	1	0	2	0	20	3	0	0	0	0	1	0	13	0
12:45:00	6	0	10	1	144	15	1	0	2	0	21	1	0	0	0	0	1	0	14	1
13:00:00	8	2	12	2	157	13	1	0	2	0	23	2	0	0	0	0	1	0	16	2
13:15:00	8	0	12	0	170	13	1	0	2	0	29	6	0	0	0	0	1	0	16	0
13:30:00	11	3	13	1	186	16	1	0	2	0	31	2	0	0	0	0	1	0	16	0
13:45:00	12	1	13	0	205	19	1	0	2	0	33	2	0	0	0	0	1	0	16	0
14:00:00	12	0	14	1	214	9	1	0	2	0	35	2	0	0	0	0	1	0	16	0
14:15:00	12	0	14	0	235	21	1	0	2	0	39	4	0	0	0	0	1	0	17	1
14:30:00	12	0	15	1	256	21	1	0	2	0	40	1	0	0	0	0	1	0	18	1
14:45:00	12	0	17	2	273	17	1	0	2	0	42	2	0	0	0	0	1	0	19	1
15:00:00	13	1	19	2	299	26	1	0	2	0	43	1	0	0	0	0	1	0	19	0
15:15:00	13	0	19	0	322	23	1	0	2	0	44	1	0	0	0	0	2	1	21	2
15:30:00	13	0	19	0	337	15	1	0	2	0	49	5	0	0	0	0	2	0	26	5
15:45:00	13	0	20	1	356	19	1	0	3	1	53	4	0	0	0	0	2	0	27	1
16:00:00	14	1	20	0	376	20	1	0	3	0	58	5	0	0	0	0	2	0	27	0
16:15:00	15	1	21	1	395	19	1	0	3	0	61	3	0	0	0	0	2	0	29	2
16:30:00	15	0	22	1	416	21	1	0	3	0	69	8	0	0	0	0	2	0	29	0
16:45:00	15	0	24	2	459	43	1	0	4	1	73	4	0	0	0	0	2	0	29	0
17:00:00	15	0	24	0	495	36	1	0	5	1	75	2	0	0	0	0	2	0	29	0
17:15:00	16	1	24	0	530	35	1	0	5	0	77	2	0	0	0	0	2	0	31	2
17:30:00	16	0	26	2	549	19	1	0	5	0	82	5	0	0	0	0	2	0	31	0
17:45:00	16	0	26	0	562	13	1	0	5	0	85	3	0	0	0	0	2	0	32	1
18:00:00	17	1	27	1	571	9	1	0	5	0	85	0	0	0	0	0	2	0	32	0
18:15:00	17	0	27	0	571	0	1	0	5	0	85	0	0	0	0	0	2	0	32	0
18:17:21	17	0	27	0	571	0	1	0	5	0	85	0	0	0	0	0	2	0	32	0

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800008

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10:30:00	1	0	0	0	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0
10:45:00	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
11:00:00	1	0	0	0	3	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0
11:15:00	1	0	0	0	4	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0
11:30:00	1	0	0	0	6	2	0	0	1	0	0	0	0	0	0	0	0	0	2	1
11:45:00	1	0	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
12:00:00	1	0	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
12:15:00	1	0	3	3	8	2	0	0	3	2	0	0	0	0	0	0	0	0	4	2
12:30:00	1	0	3	0	9	1	0	0	3	0	0	0	0	0	0	0	0	0	4	0
12:45:00	1	0	5	2	9	0	0	0	3	0	0	0	0	0	0	0	0	0	5	1
13:00:00	1	0	5	0	12	3	0	0	3	0	0	0	0	0	0	0	0	0	5	0
13:15:00	1	0	5	0	13	1	0	0	3	0	0	0	0	0	0	0	0	0	7	2
13:30:00	1	0	5	0	13	0	0	0	4	1	0	0	0	0	0	0	0	0	7	0
13:45:00	1	0	5	0	13	0	0	0	4	0	2	2	0	0	0	0	0	0	8	1
14:00:00	1	0	7	2	14	1	0	0	4	0	2	0	0	0	0	0	0	0	13	5
14:15:00	1	0	7	0	14	0	0	0	4	0	2	0	0	0	0	0	0	0	14	1
14:30:00	1	0	8	1	14	0	0	0	4	0	2	0	0	0	1	1	0	0	14	0
14:45:00	1	0	8	0	14	0	0	0	4	0	2	0	0	0	1	0	0	0	17	3
15:00:00	1	0	10	2	15	1	0	0	4	0	2	0	0	0	1	0	0	0	18	1
15:15:00	1	0	13	3	17	2	0	0	4	0	3	1	0	0	2	1	0	0	38	20
15:30:00	1	0	17	4	22	5	0	0	4	0	5	2	0	0	2	0	0	0	64	26
15:45:00	1	0	21	4	24	2	0	0	7	3	8	3	0	0	3	1	0	0	75	11
16:00:00	1	0	21	0	28	4	0	0	9	2	10	2	0	0	3	0	0	0	77	2
16:15:00	1	0	21	0	30	2	0	0	9	0	11	1	0	0	3	0	0	0	90	13
16:30:00	1	0	22	1	32	2	0	0	10	1	11	0	0	0	3	0	0	0	105	15
16:45:00	1	0	22	0	32	0	0	0	10	0	12	1	0	0	4	1	0	0	107	2
17:00:00	1	0	23	1	32	0	0	0	10	0	12	0	0	0	4	0	0	0	117	10
17:15:00	1	0	24	1	34	2	0	0	10	0	12	0	0	0	4	0	0	0	120	3
17:30:00	1	0	25	1	34	0	0	0	10	0	12	0	0	0	4	0	0	0	120	0
17:45:00	1	0	26	1	38	4	0	0	10	0	12	0	0	0	5	1	0	0	122	2
18:00:00	1	0	26	0	39	1	0	0	10	0	12	0	0	0	5	0	0	0	125	3
18:15:00	1	0	26	0	39	0	0	0	10	0	12	0	0	0	5	0	0	0	125	0
18:17:21	1	0	26	0	39	0	0	0	10	0	12	0	0	0	5	0	0	0	125	0

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800008

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
10:30:00	3	2	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	2
10:45:00	4	1	2	0	0	0	2	1	1	1	0	0	0	0	0	0	0	0	5	2
11:00:00	4	0	4	2	0	0	2	0	1	0	0	0	0	0	0	0	0	0	8	3
11:15:00	8	4	4	0	1	1	2	0	1	0	0	0	0	0	0	0	0	0	8	0
11:30:00	8	0	4	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	9	1
11:45:00	21	13	4	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	9	0
12:00:00	26	5	6	2	1	0	2	0	1	0	0	0	0	0	0	0	0	0	12	3
12:15:00	31	5	9	3	1	0	2	0	1	0	0	0	0	0	1	1	0	0	14	2
12:30:00	33	2	10	1	1	0	2	0	1	0	0	0	1	1	1	0	0	0	15	1
12:45:00	36	3	10	0	1	0	3	1	1	0	0	0	1	0	1	0	0	0	25	10
13:00:00	37	1	10	0	1	0	3	0	1	0	0	0	1	0	1	0	0	0	27	2
13:15:00	41	4	11	1	1	0	3	0	1	0	0	0	2	1	1	0	0	0	28	1
13:30:00	43	2	12	1	1	0	3	0	1	0	1	1	2	0	1	0	0	0	28	0
13:45:00	45	2	12	0	2	1	3	0	1	0	2	1	2	0	1	0	0	0	30	2
14:00:00	47	2	13	1	2	0	3	0	1	0	2	0	2	0	1	0	0	0	33	3
14:15:00	52	5	13	0	2	0	3	0	1	0	2	0	2	0	1	0	0	0	34	1
14:30:00	53	1	13	0	2	0	3	0	1	0	2	0	2	0	1	0	0	0	35	1
14:45:00	56	3	13	0	2	0	3	0	1	0	2	0	2	0	1	0	0	0	41	6
15:00:00	62	6	13	0	2	0	5	2	1	0	2	0	2	0	1	0	0	0	45	4
15:15:00	72	10	14	1	2	0	6	1	1	0	2	0	2	0	1	0	0	0	65	20
15:30:00	75	3	15	1	2	0	6	0	1	0	2	0	2	0	2	1	0	0	92	27
15:45:00	85	10	16	1	2	0	11	5	2	1	2	0	2	0	2	0	0	0	100	8
16:00:00	87	2	16	0	2	0	11	0	2	0	2	0	2	0	2	0	0	0	102	2
16:15:00	95	8	17	1	2	0	11	0	2	0	2	0	2	0	2	0	0	0	114	12
16:30:00	101	6	17	0	2	0	11	0	2	0	2	0	2	0	2	0	0	0	118	4
16:45:00	107	6	19	2	2	0	12	1	3	1	2	0	2	0	2	0	0	0	123	5
17:00:00	111	4	20	1	2	0	13	1	3	0	2	0	2	0	2	0	0	0	125	2
17:15:00	130	19	20	0	2	0	14	1	3	0	2	0	2	0	2	0	0	0	130	5
17:30:00	136	6	20	0	2	0	14	0	3	0	2	0	2	0	2	0	0	0	130	0
17:45:00	142	6	20	0	3	1	15	1	3	0	2	0	2	0	2	0	0	0	132	2
18:00:00	143	1	20	0	3	0	15	0	3	0	2	0	2	0	2	0	0	0	137	5
18:15:00	143	0	20	0	3	0	15	0	3	0	2	0	2	0	2	0	0	0	137	0
18:17:21	143	0	20	0	3	0	15	0	3	0	2	0	2	0	2	0	0	0	137	0

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 14:00:00
To: 15:00:00

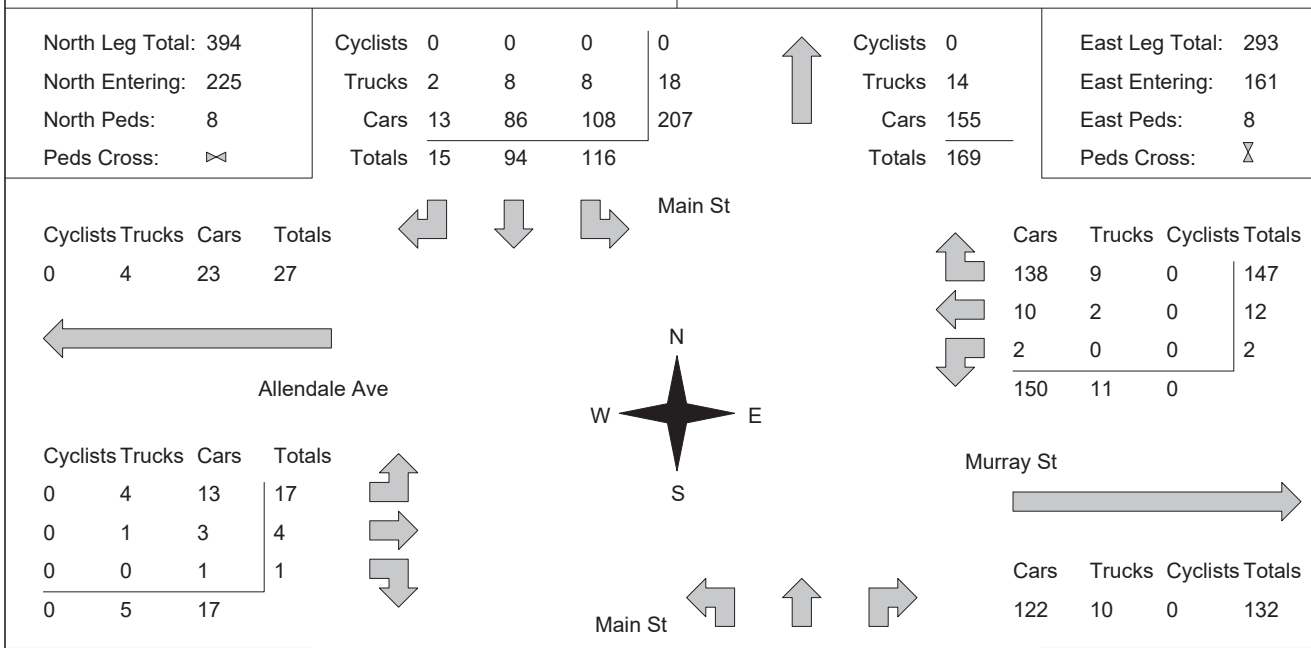
Municipality: Niagara Falls
Site #: 1906800016
Intersection: Main St & Murray St - Allendale Ave
TFR File #: 1
Count date: 23-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

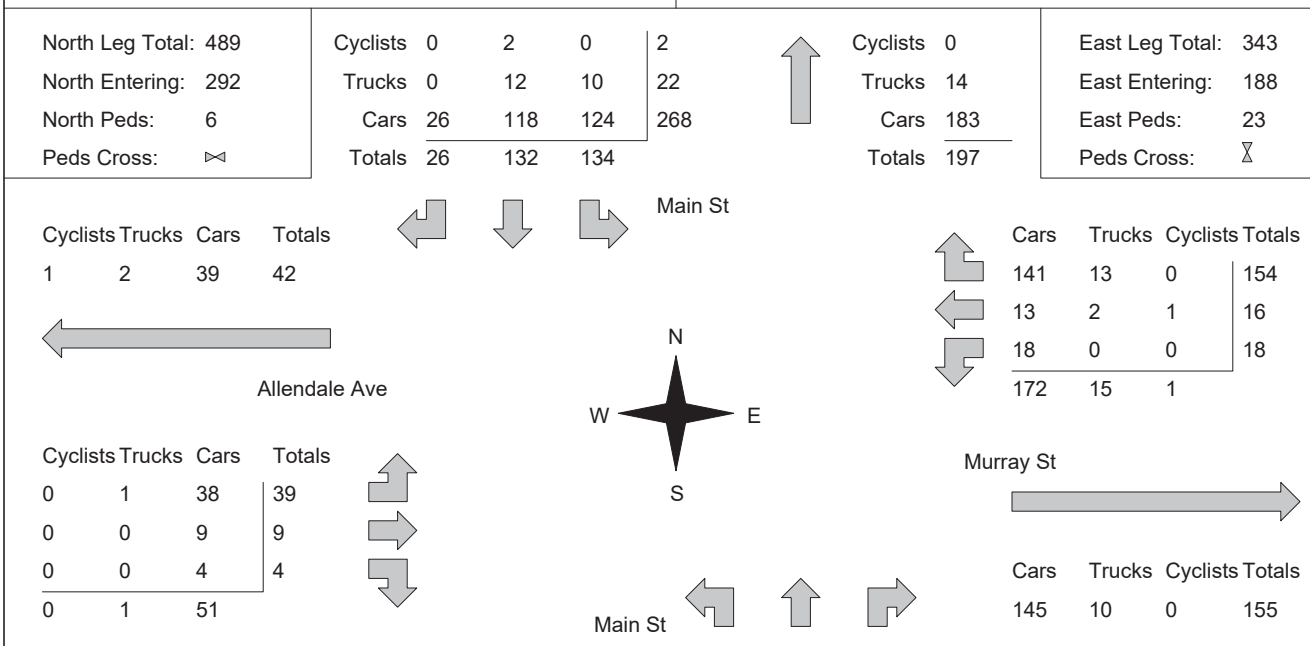
Municipality: Niagara Falls
Site #: 1906800016
Intersection: Main St & Murray St - Allendale Ave
TFR File #: 1
Count date: 23-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs N/S



Comments

Ontario Traffic Inc.

Total Count Diagram

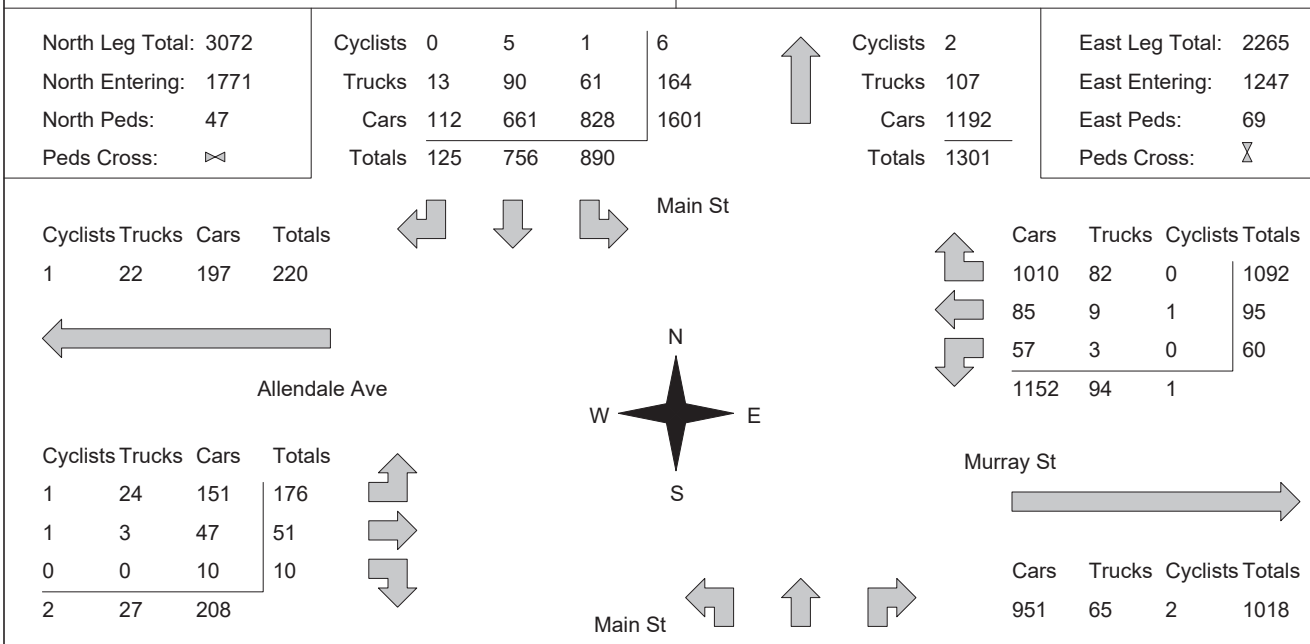
Municipality: Niagara Falls
Site #: 1906800016
Intersection: Main St & Murray St - Allendale Ave
TFR File #: 1
Count date: 23-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Main St runs N/S



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Main St & Murray St - Allendale Av | **Count Date:** 23-Mar-19 | **Municipality:** Niagara Falls

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	72	57	9	138	3	155
12:00:00	106	61	7	174	5	186
13:00:00	123	87	6	216	6	228
14:00:00	112	111	12	235	6	245
15:00:00	116	94	15	225	8	242
16:00:00	98	123	28	249	6	267
17:00:00	134	132	26	292	6	308
18:00:00	129	91	22	242	7	250
Totals:	890	756	125	1771	47	1881

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	0	1	16	17	3
12:00:00	0	6	6	12	2
13:00:00	0	10	2	12	1
14:00:00	0	3	7	10	7
15:00:00	0	5	12	17	0
16:00:00	0	2	16	18	6
17:00:00	0	4	12	16	7
18:00:00	0	2	6	8	3
Totals:	0	33	77	110	29

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	8	11	121	140	4	156
12:00:00	12	6	118	136	4	168
13:00:00	4	5	135	144	8	172
14:00:00	3	20	119	142	9	163
15:00:00	2	12	147	161	8	183
16:00:00	7	17	158	182	11	220
17:00:00	18	16	154	188	23	240
18:00:00	6	8	140	154	2	182
Totals:	60	95	1092	1247	69	1484

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	9	7	0	16	1
12:00:00	18	11	3	32	6
13:00:00	22	6	0	28	7
14:00:00	14	6	1	21	6
15:00:00	17	4	1	22	7
16:00:00	33	5	0	38	11
17:00:00	39	9	4	52	5
18:00:00	24	3	1	28	8
Totals:	176	51	10	237	51

Calculated Values for Traffic Crossing Major Street

Hours Ending:	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Crossing Values:	34	48	39	50	39	69	86	48

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800016

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	13	13	9	9	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
10:30:00	31	18	16	7	3	0	4	1	6	3	0	0	0	0	0	0	0	0	2	2
10:45:00	52	21	33	17	6	3	5	1	8	2	0	0	0	0	1	1	0	0	3	1
11:00:00	67	15	41	8	9	3	5	0	15	7	0	0	0	0	1	0	0	0	3	0
11:15:00	95	28	57	16	9	0	6	1	16	1	0	0	0	0	1	0	0	0	4	1
11:30:00	116	21	68	11	11	2	7	1	18	2	0	0	0	0	1	0	0	0	4	0
11:45:00	141	25	79	11	13	2	10	3	20	2	0	0	0	0	1	0	0	0	7	3
12:00:00	168	27	96	17	16	3	10	0	21	1	0	0	0	0	1	0	0	0	8	1
12:15:00	192	24	114	18	16	0	14	4	23	2	0	0	0	0	1	0	0	0	9	1
12:30:00	221	29	134	20	18	2	14	0	28	5	0	0	0	0	1	0	0	0	9	0
12:45:00	253	32	147	13	20	2	16	2	31	3	0	0	0	0	1	0	0	0	12	3
13:00:00	281	28	170	23	22	2	20	4	33	2	0	0	0	0	2	1	0	0	14	2
13:15:00	308	27	194	24	26	4	21	1	35	2	1	1	0	0	2	0	0	0	14	0
13:30:00	337	29	222	28	28	2	21	0	38	3	1	0	0	0	2	0	0	0	17	3
13:45:00	365	28	247	25	29	1	23	2	42	4	1	0	0	0	2	0	0	0	18	1
14:00:00	390	25	268	21	31	2	23	0	46	4	3	2	0	0	2	0	0	0	20	2
14:15:00	409	19	284	16	32	1	24	1	46	0	3	0	0	0	2	0	0	0	21	1
14:30:00	439	30	303	19	32	0	25	1	50	4	3	0	0	0	2	0	0	0	25	4
14:45:00	471	32	331	28	41	9	28	3	51	1	4	1	0	0	2	0	0	0	28	3
15:00:00	498	27	354	23	44	3	31	3	54	3	5	1	0	0	2	0	0	0	28	0
15:15:00	517	19	375	21	45	1	34	3	59	5	5	0	0	0	2	0	0	0	28	0
15:30:00	539	22	399	24	52	7	34	0	63	4	8	3	0	0	2	0	0	0	30	2
15:45:00	562	23	424	25	58	6	38	4	68	5	10	2	1	1	2	0	0	0	32	2
16:00:00	588	26	459	35	66	8	38	0	71	3	11	1	1	0	3	1	0	0	34	2
16:15:00	622	34	488	29	73	7	42	4	75	4	11	0	1	0	3	0	0	0	35	1
16:30:00	649	27	513	25	74	1	43	1	77	2	11	0	1	0	3	0	0	0	36	1
16:45:00	677	28	547	34	82	8	45	2	80	3	11	0	1	0	4	1	0	0	37	1
17:00:00	712	35	577	30	92	10	48	3	83	3	11	0	1	0	5	1	0	0	40	3
17:15:00	742	30	599	22	99	7	50	2	85	2	12	1	1	0	5	0	0	0	41	1
17:30:00	761	19	619	20	104	5	53	3	86	1	13	1	1	0	5	0	0	0	41	0
17:45:00	791	30	638	19	110	6	57	4	89	3	13	0	1	0	5	0	0	0	47	6
18:00:00	828	37	661	23	112	2	61	4	90	1	13	0	1	0	5	0	0	0	47	0
18:15:00	828	0	661	0	112	0	61	0	90	0	13	0	1	0	5	0	0	0	47	0
18:15:51	828	0	661	0	112	0	61	0	90	0	13	0	1	0	5	0	0	0	47	0

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800016

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	3	3	25	25	0	0	0	0	2	2	0	0	0	0	0	0	0	0
10:30:00	4	4	3	0	44	19	0	0	0	0	4	2	0	0	0	0	0	0	3	3
10:45:00	6	2	5	2	73	29	0	0	0	0	8	4	0	0	0	0	0	0	4	1
11:00:00	7	1	11	6	109	36	1	1	0	0	12	4	0	0	0	0	0	0	4	0
11:15:00	9	2	16	5	131	22	1	0	1	1	17	5	0	0	0	0	0	0	4	0
11:30:00	13	4	16	0	158	27	1	0	1	0	18	1	0	0	0	0	0	0	6	2
11:45:00	15	2	16	0	191	33	1	0	1	0	19	1	0	0	0	0	0	0	7	1
12:00:00	18	3	16	0	216	25	2	1	1	0	23	4	0	0	0	0	0	0	8	1
12:15:00	18	0	16	0	248	32	2	0	1	0	24	1	0	0	0	0	0	0	12	4
12:30:00	19	1	19	3	279	31	2	0	1	0	26	2	0	0	0	0	0	0	14	2
12:45:00	21	2	19	0	310	31	2	0	1	0	27	1	0	0	0	0	0	0	14	0
13:00:00	22	1	21	2	342	32	2	0	1	0	32	5	0	0	0	0	0	0	16	2
13:15:00	22	0	24	3	369	27	2	0	1	0	34	2	0	0	0	0	0	0	19	3
13:30:00	23	1	33	9	400	31	2	0	1	0	35	1	0	0	0	0	0	0	22	3
13:45:00	25	2	36	3	429	29	2	0	2	1	36	1	0	0	0	0	0	0	23	1
14:00:00	25	0	39	3	454	25	2	0	3	1	39	3	0	0	0	0	0	0	25	2
14:15:00	26	1	41	2	489	35	2	0	4	1	42	3	0	0	0	0	0	0	29	4
14:30:00	27	1	45	4	523	34	2	0	4	0	45	3	0	0	0	0	0	0	32	3
14:45:00	27	0	45	0	561	38	2	0	5	1	46	1	0	0	0	0	0	0	32	0
15:00:00	27	0	49	4	592	31	2	0	5	0	48	2	0	0	0	0	0	0	33	1
15:15:00	30	3	53	4	622	30	2	0	6	1	51	3	0	0	0	0	0	0	34	1
15:30:00	31	1	61	8	662	40	2	0	7	1	56	5	0	0	0	0	0	0	39	5
15:45:00	34	3	63	2	702	40	2	0	7	0	57	1	0	0	0	0	0	0	41	2
16:00:00	34	0	64	1	737	35	2	0	7	0	61	4	0	0	0	0	0	0	44	3
16:15:00	39	5	69	5	761	24	2	0	9	2	62	1	0	0	0	0	0	0	51	7
16:30:00	44	5	70	1	811	50	2	0	9	0	66	4	0	0	0	0	0	0	52	1
16:45:00	51	7	73	3	850	39	2	0	9	0	70	4	0	0	1	1	0	0	55	3
17:00:00	52	1	77	4	878	28	2	0	9	0	74	4	0	0	1	0	0	0	67	12
17:15:00	54	2	78	1	913	35	3	1	9	0	75	1	0	0	1	0	0	0	67	0
17:30:00	54	0	82	4	943	30	3	0	9	0	77	2	0	0	1	0	0	0	68	1
17:45:00	55	1	84	2	983	40	3	0	9	0	80	3	0	0	1	0	0	0	69	1
18:00:00	57	2	85	1	1010	27	3	0	9	0	82	2	0	0	1	0	0	0	69	0
18:15:00	57	0	85	0	1010	0	3	0	9	0	82	0	0	0	1	0	0	0	69	0
18:15:51	57	0	85	0	1010	0	3	0	9	0	82	0	0	0	1	0	0	0	69	0

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800016

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	1	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1
10:30:00	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
10:45:00	0	0	1	0	6	3	0	0	0	0	0	0	0	0	0	0	0	0	3	1
11:00:00	0	0	1	0	16	10	0	0	0	0	0	0	0	0	0	0	0	0	3	0
11:15:00	0	0	4	3	16	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
11:30:00	0	0	4	0	20	4	0	0	0	0	0	0	0	0	0	0	0	0	4	1
11:45:00	0	0	5	1	20	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
12:00:00	0	0	7	2	22	2	0	0	0	0	0	0	0	0	0	0	0	0	5	1
12:15:00	0	0	12	5	22	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
12:30:00	0	0	16	4	22	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
12:45:00	0	0	16	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1
13:00:00	0	0	17	1	24	2	0	0	0	0	0	0	0	0	0	0	0	0	6	0
13:15:00	0	0	17	0	25	1	0	0	0	0	0	0	0	0	0	0	0	0	7	1
13:30:00	0	0	18	1	25	0	0	0	0	0	0	0	0	0	0	0	0	0	10	3
13:45:00	0	0	19	1	27	2	0	0	0	0	0	0	0	0	0	0	0	0	10	0
14:00:00	0	0	20	1	31	4	0	0	0	0	0	0	0	0	0	0	0	0	13	3
14:15:00	0	0	20	0	33	2	0	0	1	1	1	1	0	0	0	0	0	0	13	0
14:30:00	0	0	21	1	33	0	0	0	1	0	1	0	0	0	0	0	0	0	13	0
14:45:00	0	0	21	0	37	4	0	0	1	0	1	0	0	0	0	0	0	0	13	0
15:00:00	0	0	24	3	42	5	0	0	1	0	1	0	0	0	0	0	0	0	13	0
15:15:00	0	0	24	0	49	7	0	0	1	0	1	0	0	0	0	0	0	0	16	3
15:30:00	0	0	24	0	49	0	0	0	1	0	1	0	0	0	0	0	0	0	17	1
15:45:00	0	0	25	1	56	7	0	0	1	0	1	0	0	0	1	1	0	0	18	1
16:00:00	0	0	25	0	58	2	0	0	1	0	1	0	0	0	1	0	0	0	19	1
16:15:00	0	0	27	2	61	3	0	0	1	0	1	0	0	0	1	0	0	0	20	1
16:30:00	0	0	29	2	64	3	0	0	1	0	1	0	0	0	1	0	0	0	21	1
16:45:00	0	0	29	0	68	4	0	0	1	0	1	0	0	0	1	0	0	0	23	2
17:00:00	0	0	29	0	70	2	0	0	1	0	1	0	0	0	1	0	0	0	26	3
17:15:00	0	0	29	0	70	0	0	0	1	0	1	0	0	0	1	0	0	0	27	1
17:30:00	0	0	29	0	73	3	0	0	1	0	1	0	0	0	1	0	0	0	27	0
17:45:00	0	0	31	2	74	1	0	0	1	0	1	0	0	0	1	0	0	0	27	0
18:00:00	0	0	31	0	76	2	0	0	1	0	1	0	0	0	1	0	0	0	29	2
18:15:00	0	0	31	0	76	0	0	0	1	0	1	0	0	0	1	0	0	0	29	0
18:15:51	0	0	31	0	76	0	0	0	1	0	1	0	0	0	1	0	0	0	29	0

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800016

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30:00	1	1	3	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
10:45:00	3	2	5	2	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
11:00:00	7	4	7	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1
11:15:00	9	2	10	3	0	0	3	1	0	0	0	0	0	0	0	0	0	0	3	2
11:30:00	11	2	12	2	1	1	3	0	1	1	0	0	0	0	0	0	0	0	4	1
11:45:00	14	3	15	3	3	2	3	0	1	0	0	0	0	0	0	0	0	0	6	2
12:00:00	22	8	17	2	3	0	5	2	1	0	0	0	0	0	0	0	0	0	7	1
12:15:00	28	6	17	0	3	0	7	2	1	0	0	0	0	0	0	0	0	0	10	3
12:30:00	33	5	17	0	3	0	7	0	1	0	0	0	0	0	0	0	0	0	10	0
12:45:00	36	3	23	6	3	0	8	1	1	0	0	0	0	0	0	0	0	0	13	3
13:00:00	40	4	23	0	3	0	9	1	1	0	0	0	0	0	0	0	0	0	14	1
13:15:00	40	0	25	2	4	1	11	2	1	0	0	0	1	1	0	0	0	0	17	3
13:30:00	45	5	27	2	4	0	12	1	1	0	0	0	1	0	0	0	0	0	18	1
13:45:00	46	1	27	0	4	0	14	2	2	1	0	0	1	0	0	0	0	0	19	1
14:00:00	48	2	28	1	4	0	14	0	2	0	0	0	1	0	0	0	0	0	20	1
14:15:00	51	3	28	0	4	0	14	0	2	0	0	0	1	0	0	0	0	0	20	0
14:30:00	53	2	30	2	4	0	16	2	3	1	0	0	1	0	0	0	0	0	24	4
14:45:00	57	4	30	0	5	1	17	1	3	0	0	0	1	0	0	0	0	0	26	2
15:00:00	61	4	31	1	5	0	18	1	3	0	0	0	1	0	0	0	0	0	27	1
15:15:00	71	10	34	3	5	0	19	1	3	0	0	0	1	0	0	0	0	0	30	3
15:30:00	78	7	34	0	5	0	20	1	3	0	0	0	1	0	0	0	0	0	30	0
15:45:00	83	5	34	0	5	0	22	2	3	0	0	0	1	0	0	0	0	0	34	4
16:00:00	90	7	35	1	5	0	22	0	3	0	0	0	1	0	1	1	0	0	38	4
16:15:00	103	13	35	0	5	0	22	0	3	0	0	0	1	0	1	0	0	0	38	0
16:30:00	106	3	39	4	5	0	22	0	3	0	0	0	1	0	1	0	0	0	39	1
16:45:00	114	8	41	2	8	3	23	1	3	0	0	0	1	0	1	0	0	0	42	3
17:00:00	128	14	44	3	9	1	23	0	3	0	0	0	1	0	1	0	0	0	43	1
17:15:00	132	4	47	3	10	1	23	0	3	0	0	0	1	0	1	0	0	0	47	4
17:30:00	135	3	47	0	10	0	23	0	3	0	0	0	1	0	1	0	0	0	48	1
17:45:00	146	11	47	0	10	0	23	0	3	0	0	0	1	0	1	0	0	0	51	3
18:00:00	151	5	47	0	10	0	24	1	3	0	0	0	1	0	1	0	0	0	51	0
18:15:00	151	0	47	0	10	0	24	0	3	0	0	0	1	0	1	0	0	0	51	0
18:15:51	151	0	47	0	10	0	24	0	3	0	0	0	1	0	1	0	0	0	51	0

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

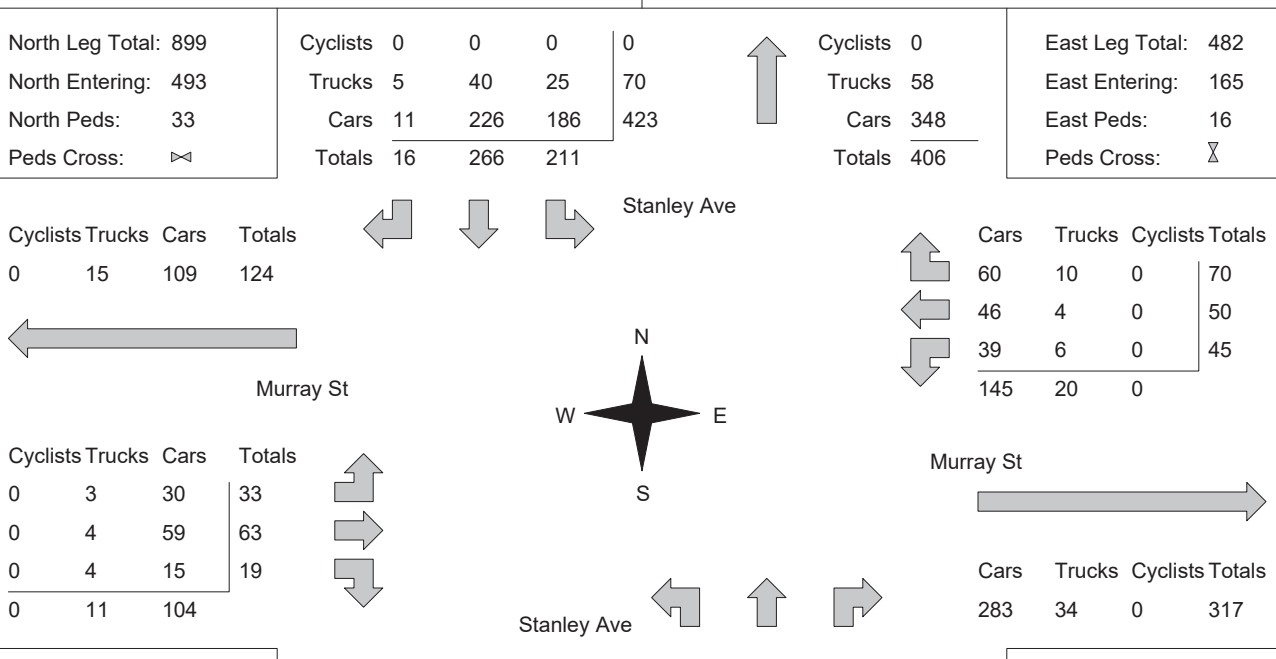
Municipality: Naigara Falls
Site #: 1906800001
Intersection: Stanley Ave & Murray St
TFR File #: 1
Count date: 26-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Naigara Falls
Site #: 1906800001
Intersection: Stanley Ave & Murray St
TFR File #: 1
Count date: 26-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S

North Leg Total: 1010
North Entering: 465
North Peds: 37
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	1	44	7	52
Cars	21	289	103	413
Totals	22	333	110	

Cyclists	0
Trucks	80
Cars	465
Totals	545

East Leg Total: 429
East Entering: 248
East Peds: 9
Peds Cross: ⧖

Stanley Ave

Cyclists	Trucks	Cars	Totals
0	16	157	173

	Cars	Trucks	Cyclists	Totals
	117	12	0	129
	59	5	0	64
	50	5	0	55
	226	22	0	

Murray St

N
W E
S

Cyclists	Trucks	Cars	Totals
0	5	30	35
0	4	41	45
0	4	11	15
0	13	82	

Murray St

Cars	Trucks	Cyclists	Totals
170	11	0	181

Stanley Ave

Peds Cross: ⧖
West Peds: 29
West Entering: 95
West Leg Total: 268

Cars	350
Trucks	53
Cyclists	0
Totals	403

Cars	77	318	26	421
Trucks	10	63	0	73
Cyclists	0	0	0	0
Totals	87	381	26	

Peds Cross: ⋈
South Peds: 44
South Entering: 494
South Leg Total: 897

Comments

Ontario Traffic Inc.

Total Count Diagram

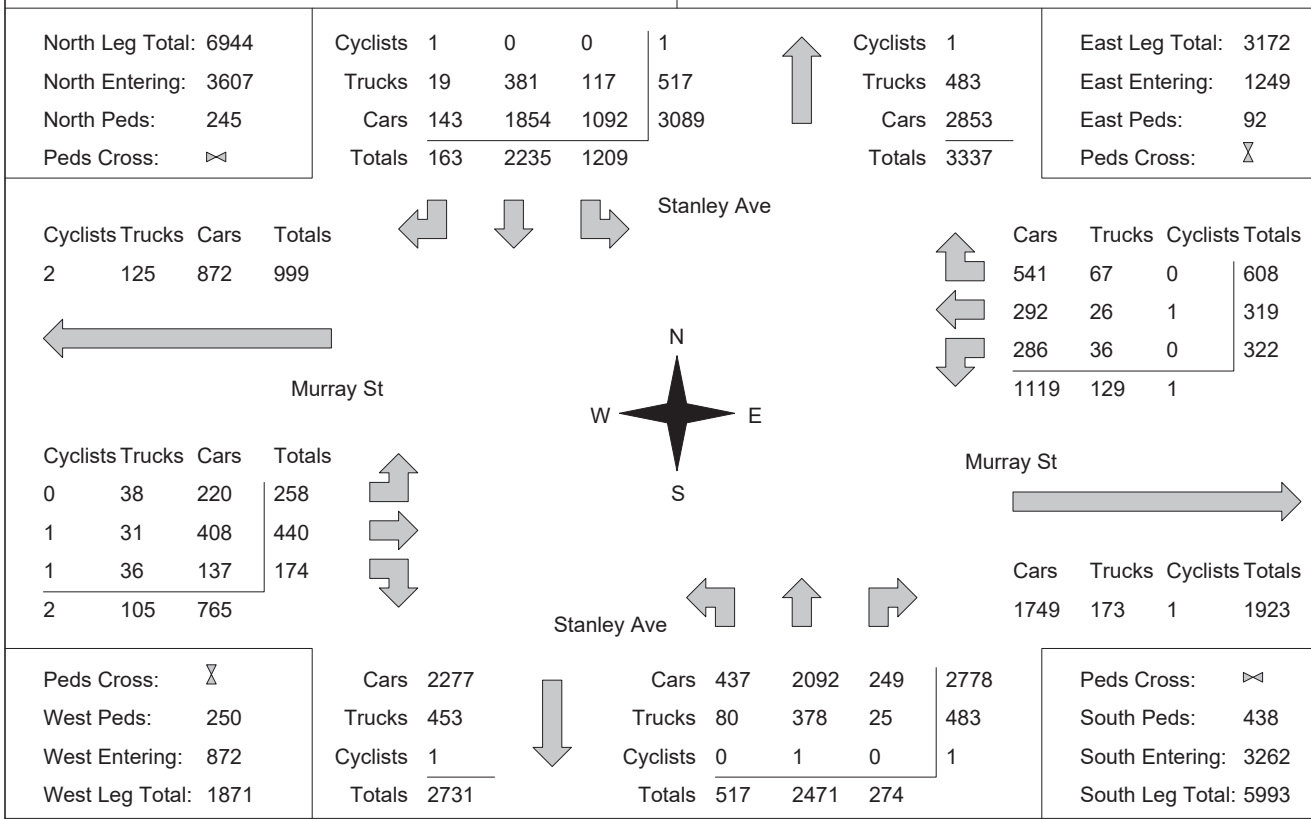
Municipality: Naigara Falls
Site #: 1906800001
Intersection: Stanley Ave & Murray St
TFR File #: 1
Count date: 26-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Stanley Ave & Murray St | **Count Date:** 26-Mar-19 | **Municipality:** Naigara Falls

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	156	215	15	386	27	746
12:00:00	193	251	23	467	21	873
13:00:00	205	271	21	497	32	876
14:00:00	174	289	17	480	21	871
15:00:00	152	289	20	461	31	850
16:00:00	120	316	25	461	40	925
17:00:00	106	314	25	445	37	922
18:00:00	103	290	17	410	36	806
Totals:	1209	2235	163	3607	245	6869

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	43	288	29	360	29
12:00:00	64	296	46	406	25
13:00:00	61	279	39	379	81
14:00:00	55	292	44	391	24
15:00:00	69	285	35	389	52
16:00:00	82	355	27	464	140
17:00:00	85	364	28	477	60
18:00:00	58	312	26	396	27
Totals:	517	2471	274	3262	438

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	32	30	46	108	10	206
12:00:00	34	33	74	141	7	261
13:00:00	39	46	72	157	17	266
14:00:00	41	30	67	138	4	252
15:00:00	33	44	68	145	14	264
16:00:00	45	42	83	170	21	305
17:00:00	55	57	118	230	12	339
18:00:00	43	37	80	160	7	228
Totals:	322	319	608	1249	92	2121

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	23	56	19	98	17
12:00:00	27	67	26	120	10
13:00:00	31	58	20	109	63
14:00:00	20	67	27	114	20
15:00:00	25	68	26	119	46
16:00:00	63	46	26	135	48
17:00:00	50	43	16	109	29
18:00:00	19	35	14	68	17
Totals:	258	440	174	872	250

Calculated Values for Traffic Crossing Major Street

Hours Ending:	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Crossing Values:	167	174	241	173	209	334	259	162

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	37	37	21	21	7	7	5	5	12	12	0	0	0	0	0	0	0	0	10	10
10:30:00	60	23	65	44	8	1	8	3	24	12	0	0	0	0	0	0	0	0	13	3
10:45:00	86	26	111	46	10	2	10	2	39	15	1	1	0	0	0	0	0	0	24	11
11:00:00	142	56	169	58	14	4	14	4	46	7	1	0	0	0	0	0	0	0	27	3
11:15:00	182	40	209	40	20	6	17	3	58	12	2	1	0	0	0	0	0	0	32	5
11:30:00	222	40	257	48	25	5	21	4	75	17	3	1	0	0	0	0	0	0	32	0
11:45:00	264	42	307	50	29	4	24	3	92	17	3	0	0	0	0	0	0	0	36	4
12:00:00	314	50	366	59	34	5	35	11	100	8	4	1	0	0	0	0	0	0	48	12
12:15:00	350	36	411	45	35	1	38	3	106	6	4	0	0	0	0	0	0	0	62	14
12:30:00	401	51	473	62	40	5	44	6	121	15	7	3	0	0	0	0	0	0	64	2
12:45:00	450	49	533	60	40	0	49	5	132	11	8	1	0	0	0	0	0	0	69	5
13:00:00	499	49	585	52	48	8	55	6	152	20	11	3	0	0	0	0	0	0	80	11
13:15:00	542	43	651	66	50	2	57	2	157	5	12	1	0	0	0	0	0	0	89	9
13:30:00	586	44	700	49	53	3	61	4	170	13	12	0	0	0	0	0	0	0	90	1
13:45:00	625	39	764	64	56	3	62	1	179	9	12	0	0	0	0	0	0	0	99	9
14:00:00	662	37	830	66	64	8	66	4	196	17	12	0	0	0	0	0	0	0	101	2
14:15:00	704	42	888	58	67	3	68	2	210	14	14	2	0	0	0	0	0	0	104	3
14:30:00	735	31	964	76	70	3	77	9	221	11	14	0	0	0	0	0	0	0	111	7
14:45:00	767	32	1005	41	76	6	79	2	244	23	14	0	0	0	0	0	0	0	122	11
15:00:00	795	28	1061	56	81	5	85	6	254	10	14	0	0	0	0	0	1	1	132	10
15:15:00	823	28	1120	59	86	5	88	3	263	9	14	0	0	0	0	0	1	0	139	7
15:30:00	857	34	1186	66	90	4	89	1	277	14	15	1	0	0	0	0	1	0	153	14
15:45:00	879	22	1255	69	95	5	94	5	290	13	16	1	0	0	0	0	1	0	163	10
16:00:00	903	24	1330	75	104	9	97	3	301	11	16	0	0	0	0	0	1	0	172	9
16:15:00	924	21	1398	68	109	5	98	1	306	5	17	1	0	0	0	0	1	0	184	12
16:30:00	949	25	1454	56	117	8	100	2	313	7	17	0	0	0	0	0	1	0	193	9
16:45:00	979	30	1531	77	121	4	103	3	327	14	18	1	0	0	0	0	1	0	207	14
17:00:00	1001	22	1606	75	127	6	105	2	339	12	18	0	0	0	0	0	1	0	209	2
17:15:00	1027	26	1687	81	130	3	105	0	350	11	18	0	0	0	0	0	1	0	221	12
17:30:00	1048	21	1746	59	134	4	107	2	361	11	18	0	0	0	0	0	1	0	230	9
17:45:00	1073	25	1805	59	135	1	110	3	369	8	18	0	0	0	0	0	1	0	237	7
18:00:00	1092	19	1854	49	143	8	117	7	381	12	19	1	0	0	0	0	1	0	245	8
18:15:00	1092	0	1854	0	143	0	117	0	381	0	19	0	0	0	0	0	1	0	245	0
18:17:08	1092	0	1854	0	143	0	117	0	381	0	19	0	0	0	0	0	1	0	245	0

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	3	3	3	3	7	7	3	3	1	1	3	3	0	0	0	0	0	0	3	3
10:30:00	9	6	8	5	14	7	4	1	4	3	7	4	0	0	0	0	0	0	6	3
10:45:00	18	9	18	10	28	14	6	2	5	1	8	1	0	0	0	0	0	0	10	4
11:00:00	23	5	25	7	38	10	9	3	5	0	8	0	0	0	0	0	0	0	10	0
11:15:00	34	11	33	8	58	20	10	1	5	0	9	1	0	0	1	1	0	0	10	0
11:30:00	39	5	43	10	69	11	10	0	5	0	11	2	0	0	1	0	0	0	12	2
11:45:00	45	6	47	4	92	23	10	0	5	0	13	2	0	0	1	0	0	0	15	3
12:00:00	54	9	57	10	106	14	12	2	5	0	14	1	0	0	1	0	0	0	17	2
12:15:00	62	8	69	12	118	12	13	1	7	2	16	2	0	0	1	0	0	0	23	6
12:30:00	74	12	82	13	138	20	15	2	8	1	18	2	0	0	1	0	0	0	24	1
12:45:00	84	10	93	11	152	14	16	1	9	1	23	5	0	0	1	0	0	0	31	7
13:00:00	89	5	99	6	168	16	16	0	9	0	24	1	0	0	1	0	0	0	34	3
13:15:00	98	9	108	9	182	14	20	4	10	1	27	3	0	0	1	0	0	0	38	4
13:30:00	107	9	115	7	195	13	21	1	10	0	28	1	0	0	1	0	0	0	38	0
13:45:00	115	8	121	6	209	14	22	1	10	0	31	3	0	0	1	0	0	0	38	0
14:00:00	122	7	128	7	227	18	24	2	10	0	32	1	0	0	1	0	0	0	38	0
14:15:00	129	7	139	11	240	13	25	1	11	1	34	2	0	0	1	0	0	0	45	7
14:30:00	134	5	148	9	252	12	26	1	12	1	34	0	0	0	1	0	0	0	48	3
14:45:00	145	11	159	11	271	19	27	1	12	0	37	3	0	0	1	0	0	0	49	1
15:00:00	152	7	169	10	289	18	27	0	13	1	38	1	0	0	1	0	0	0	52	3
15:15:00	162	10	181	12	304	15	28	1	14	1	41	3	0	0	1	0	0	0	58	6
15:30:00	175	13	191	10	322	18	30	2	15	1	41	0	0	0	1	0	0	0	67	9
15:45:00	184	9	199	8	343	21	31	1	18	3	45	4	0	0	1	0	0	0	70	3
16:00:00	193	9	205	6	362	19	31	0	19	1	48	3	0	0	1	0	0	0	73	3
16:15:00	204	11	213	8	379	17	31	0	19	0	49	1	0	0	1	0	0	0	78	5
16:30:00	214	10	226	13	400	21	32	1	20	1	53	4	0	0	1	0	0	0	81	3
16:45:00	234	20	246	20	439	39	33	1	21	1	56	3	0	0	1	0	0	0	84	3
17:00:00	245	11	258	12	471	32	34	1	23	2	57	1	0	0	1	0	0	0	85	1
17:15:00	254	9	272	14	496	25	36	2	24	1	61	4	0	0	1	0	0	0	87	2
17:30:00	265	11	281	9	513	17	36	0	25	1	61	0	0	0	1	0	0	0	87	0
17:45:00	275	10	288	7	528	15	36	0	25	0	64	3	0	0	1	0	0	0	90	3
18:00:00	286	11	292	4	541	13	36	0	26	1	67	3	0	0	1	0	0	0	92	2
18:15:00	286	0	292	0	541	0	36	0	26	0	67	0	0	0	1	0	0	0	92	0
18:17:08	286	0	292	0	541	0	36	0	26	0	67	0	0	0	1	0	0	0	92	0

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	9	9	50	50	8	8	2	2	11	11	0	0	0	0	0	0	0	0	9	9
10:30:00	20	11	115	65	16	8	4	2	30	19	1	1	0	0	0	0	0	0	17	8
10:45:00	30	10	174	59	19	3	4	0	40	10	3	2	0	0	0	0	0	0	22	5
11:00:00	36	6	234	60	25	6	7	3	54	14	4	1	0	0	0	0	0	0	29	7
11:15:00	52	16	307	73	31	6	12	5	65	11	6	2	0	0	0	0	0	0	44	15
11:30:00	64	12	363	56	41	10	14	2	72	7	8	2	0	0	0	0	0	0	47	3
11:45:00	82	18	415	52	50	9	14	0	87	15	8	0	0	0	0	0	0	0	51	4
12:00:00	91	9	482	67	65	15	16	2	102	15	10	2	0	0	0	0	0	0	54	3
12:15:00	111	20	553	71	76	11	18	2	116	14	11	1	0	0	0	0	0	0	81	27
12:30:00	128	17	616	63	81	5	20	2	124	8	12	1	0	0	0	0	0	0	110	29
12:45:00	134	6	673	57	88	7	20	0	132	8	13	1	0	0	0	0	0	0	126	16
13:00:00	146	12	720	47	101	13	22	2	143	11	13	0	0	0	0	0	0	0	135	9
13:15:00	152	6	772	52	112	11	27	5	155	12	14	1	0	0	0	0	0	0	142	7
13:30:00	164	12	833	61	126	14	29	2	172	17	14	0	0	0	0	0	0	0	145	3
13:45:00	178	14	904	71	136	10	32	3	183	11	14	0	0	0	0	0	0	0	151	6
14:00:00	187	9	962	58	144	8	36	4	193	10	14	0	0	0	0	0	0	0	159	8
14:15:00	207	20	1025	63	148	4	38	2	203	10	14	0	0	0	0	0	0	0	170	11
14:30:00	220	13	1091	66	156	8	39	1	209	6	14	0	0	0	0	0	0	0	184	14
14:45:00	234	14	1141	50	162	6	40	1	222	13	16	2	0	0	0	0	0	0	195	11
15:00:00	251	17	1211	70	175	13	41	1	229	7	18	2	0	0	0	0	0	0	211	16
15:15:00	268	17	1285	74	183	8	45	4	248	19	19	1	0	0	0	0	0	0	250	39
15:30:00	285	17	1357	72	190	7	50	5	256	8	21	2	0	0	0	0	0	0	307	57
15:45:00	298	13	1450	93	191	1	54	4	265	9	22	1	0	0	0	0	0	0	327	20
16:00:00	314	16	1514	64	197	6	60	6	281	16	23	1	0	0	0	0	0	0	351	24
16:15:00	330	16	1592	78	204	7	64	4	292	11	24	1	0	0	1	1	0	0	378	27
16:30:00	339	9	1650	58	208	4	67	3	306	14	24	0	0	0	1	0	0	0	391	13
16:45:00	365	26	1743	93	217	9	70	3	323	17	24	0	0	0	1	0	0	0	401	10
17:00:00	388	23	1822	79	224	7	71	1	336	13	24	0	0	0	1	0	0	0	411	10
17:15:00	407	19	1910	88	230	6	74	3	355	19	24	0	0	0	1	0	0	0	422	11
17:30:00	420	13	1987	77	237	7	78	4	362	7	25	1	0	0	1	0	0	0	428	6
17:45:00	430	10	2046	59	244	7	78	0	371	9	25	0	0	0	1	0	0	0	434	6
18:00:00	437	7	2092	46	249	5	80	2	378	7	25	0	0	0	1	0	0	0	438	4
18:15:00	437	0	2092	0	249	0	80	0	378	0	25	0	0	0	1	0	0	0	438	0
18:17:08	437	0	2092	0	249	0	80	0	378	0	25	0	0	0	1	0	0	0	438	0

Ontario Traffic Inc.

Count Date: 26-Mar-19 Site #: 1906800001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	6	6	12	12	4	4	0	0	1	1	1	1	0	0	0	0	0	0	3	3
10:30:00	12	6	18	6	9	5	1	1	2	1	1	0	0	0	0	0	0	0	11	8
10:45:00	15	3	28	10	11	2	1	0	4	2	2	1	0	0	0	0	0	0	11	0
11:00:00	22	7	50	22	17	6	1	0	6	2	2	0	0	0	0	0	0	0	17	6
11:15:00	30	8	62	12	22	5	1	0	7	1	3	1	0	0	0	0	0	0	19	2
11:30:00	38	8	81	19	28	6	2	1	9	2	3	0	0	0	0	0	0	0	20	1
11:45:00	41	3	93	12	36	8	3	1	9	0	4	1	0	0	0	0	0	0	24	4
12:00:00	47	6	113	20	40	4	3	0	10	1	5	1	0	0	0	0	0	0	27	3
12:15:00	56	9	127	14	45	5	4	1	12	2	6	1	0	0	0	0	0	0	51	24
12:30:00	65	9	137	10	47	2	6	2	12	0	6	0	0	0	0	0	0	0	74	23
12:45:00	71	6	152	15	51	4	6	0	13	1	8	2	0	0	0	0	0	0	87	13
13:00:00	75	4	166	14	56	5	6	0	15	2	9	1	0	0	0	0	0	0	90	3
13:15:00	79	4	180	14	61	5	7	1	18	3	11	2	0	0	0	0	0	0	94	4
13:30:00	88	9	201	21	68	7	7	0	18	0	11	0	0	0	0	0	0	0	96	2
13:45:00	90	2	215	14	73	5	8	1	18	0	14	3	0	0	0	0	0	0	103	7
14:00:00	92	2	230	15	78	5	9	1	18	0	14	0	0	0	0	0	0	0	110	7
14:15:00	96	4	239	9	88	10	11	2	20	2	16	2	0	0	0	0	0	0	126	16
14:30:00	100	4	258	19	93	5	12	1	20	0	16	0	0	0	0	0	0	0	134	8
14:45:00	105	5	278	20	96	3	12	0	20	0	17	1	0	0	1	1	1	1	144	10
15:00:00	113	8	295	17	100	4	13	1	20	0	17	0	0	0	1	0	1	0	156	12
15:15:00	122	9	301	6	105	5	15	2	22	2	20	3	0	0	1	0	1	0	171	15
15:30:00	140	18	313	12	109	4	18	3	24	2	20	0	0	0	1	0	1	0	185	14
15:45:00	149	9	323	10	113	4	24	6	25	1	22	2	0	0	1	0	1	0	196	11
16:00:00	161	12	336	13	119	6	28	4	25	0	24	2	0	0	1	0	1	0	204	8
16:15:00	175	14	345	9	119	0	33	5	25	0	27	3	0	0	1	0	1	0	212	8
16:30:00	183	8	356	11	128	9	36	3	27	2	27	0	0	0	1	0	1	0	220	8
16:45:00	191	8	362	6	130	2	37	1	28	1	29	2	0	0	1	0	1	0	226	6
17:00:00	201	10	375	13	130	0	38	1	29	1	29	0	0	0	1	0	1	0	233	7
17:15:00	205	4	386	11	130	0	38	0	29	0	31	2	0	0	1	0	1	0	241	8
17:30:00	210	5	391	5	131	1	38	0	29	0	31	0	0	0	1	0	1	0	245	4
17:45:00	215	5	402	11	133	2	38	0	30	1	35	4	0	0	1	0	1	0	247	2
18:00:00	220	5	408	6	137	4	38	0	31	1	36	1	0	0	1	0	1	0	250	3
18:15:00	220	0	408	0	137	0	38	0	31	0	36	0	0	0	1	0	1	0	250	0
18:17:08	220	0	408	0	137	0	38	0	31	0	36	0	0	0	1	0	1	0	250	0

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 14:00:00
To: 15:00:00

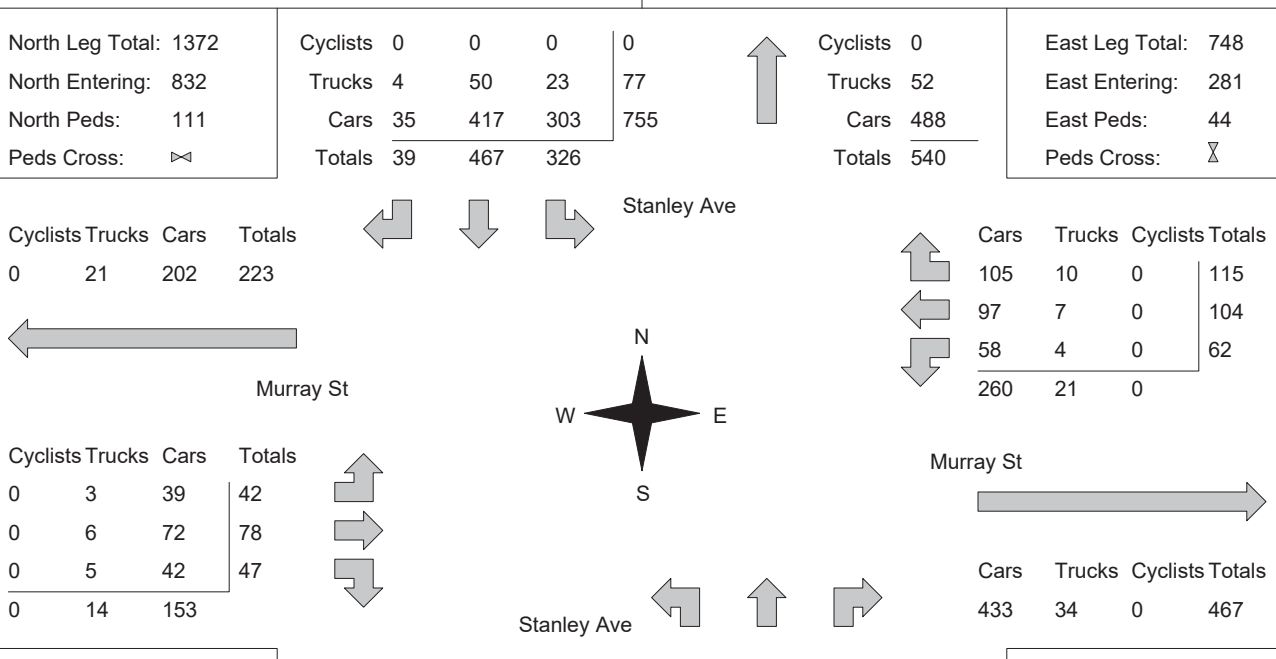
Municipality: Niagara Falls
Site #: 1906800009
Intersection: Stanley Ave & Murray St
TFR File #: 1
Count date: 23-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

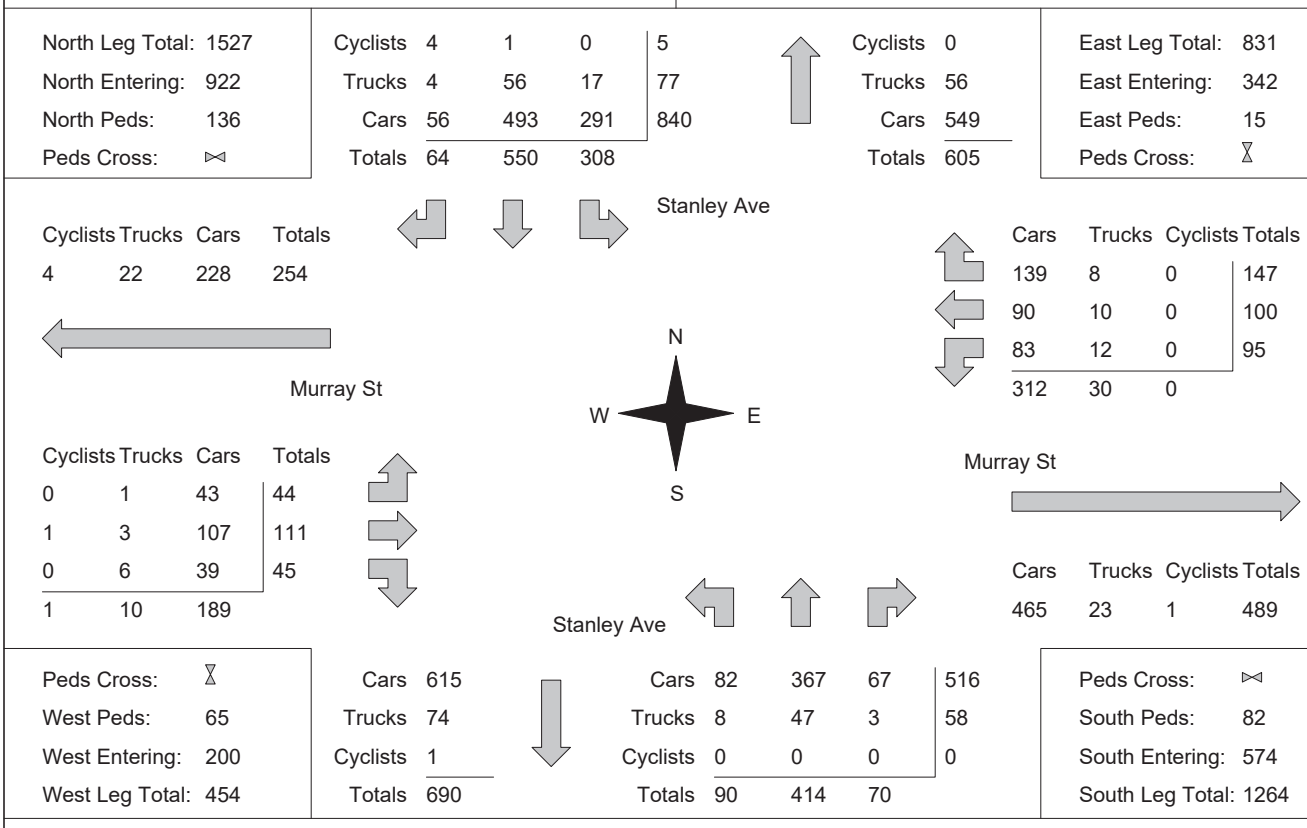
Municipality: Niagara Falls
Site #: 1906800009
Intersection: Stanley Ave & Murray St
TFR File #: 1
Count date: 23-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S



Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Niagara Falls
Site #: 1906800009
Intersection: Stanley Ave & Murray St
TFR File #: 1
Count date: 23-Mar-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Stanley Ave runs N/S

North Leg Total:	10517
North Entering:	5909
North Peds:	790
Peds Cross:	⋈

Cyclists	4	3	0	7
Trucks	22	351	145	518
Cars	307	3016	2061	5384
Totals	333	3370	2206	

Cyclists	1			
Trucks	481			
Cars	4126			
Totals	4608			

East Leg Total:	5540
East Entering:	2172
East Peds:	159
Peds Cross:	⋈

Stanley Ave

Cyclists	Trucks	Cars	Totals
4	154	1509	1667

Cars	Trucks	Cyclists	Totals
923	78	0	1001
655	64	0	719
415	37	0	452
1993	179	0	

Murray St

N
W E
S

Cyclists	Trucks	Cars	Totals
0	22	294	316
2	39	671	712
0	38	230	268
2	99	1195	

Murray St

Cars	Trucks	Cyclists	Totals
3149	217	2	3368

Stanley Ave

Peds Cross:	⋈
West Peds:	546
West Entering:	1296
West Leg Total:	2963

Cars	3661			
Trucks	426			
Cyclists	3			
Totals	4090			

Cars	547	2909	417	3873
Trucks	68	381	33	482
Cyclists	0	1	0	1
Totals	615	3291	450	

Peds Cross:	⋈
South Peds:	689
South Entering:	4356
South Leg Total:	8446

Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Stanley Ave & Murray St | **Count Date:** 23-Mar-19 | **Municipality:** Niagara Falls

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	150	258	40	448	61	975
12:00:00	229	308	42	579	87	1152
13:00:00	252	377	25	654	63	1201
14:00:00	285	366	40	691	104	1210
15:00:00	326	467	39	832	111	1358
16:00:00	337	549	43	929	126	1498
17:00:00	297	565	68	930	134	1486
18:00:00	330	480	36	846	104	1385
Totals:	2206	3370	333	5909	790	10265

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	93	386	48	527	89
12:00:00	72	453	48	573	77
13:00:00	73	428	46	547	58
14:00:00	62	408	49	519	71
15:00:00	80	383	63	526	78
16:00:00	81	421	67	569	133
17:00:00	85	405	66	556	74
18:00:00	69	407	63	539	109
Totals:	615	3291	450	4356	689

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
10:00:00	0	0	0	0	0	0
11:00:00	20	74	95	189	12	329
12:00:00	38	72	135	245	3	411
13:00:00	38	87	145	270	8	426
14:00:00	50	71	109	230	22	384
15:00:00	62	104	115	281	44	448
16:00:00	68	113	121	302	26	451
17:00:00	98	101	152	351	17	547
18:00:00	78	97	129	304	27	472
Totals:	452	719	1001	2172	159	3468

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
10:00:00	0	0	0	0	0
11:00:00	53	55	32	140	38
12:00:00	53	87	26	166	50
13:00:00	37	98	21	156	51
14:00:00	26	101	27	154	126
15:00:00	42	78	47	167	85
16:00:00	32	81	36	149	42
17:00:00	37	116	43	196	62
18:00:00	36	96	36	168	92
Totals:	316	712	268	1296	546

Calculated Values for Traffic Crossing Major Street

Hours Ending:	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Crossing Values:	297	342	294	352	397	472	459	424

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800009

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	27	27	47	47	10	10	3	3	6	6	0	0	0	0	0	0	0	0	21	21
10:30:00	62	35	96	49	15	5	8	5	12	6	2	2	0	0	0	0	0	0	29	8
10:45:00	100	38	161	65	28	13	9	1	27	15	4	2	0	0	0	0	0	0	51	22
11:00:00	137	37	220	59	36	8	13	4	38	11	4	0	0	0	0	0	0	0	61	10
11:15:00	192	55	293	73	42	6	19	6	46	8	4	0	0	0	0	0	0	0	90	29
11:30:00	239	47	352	59	54	12	21	2	54	8	4	0	0	0	0	0	0	0	113	23
11:45:00	288	49	424	72	65	11	24	3	61	7	5	1	0	0	0	0	0	0	131	18
12:00:00	351	63	498	74	76	11	28	4	68	7	6	1	0	0	0	0	0	0	148	17
12:15:00	429	78	583	85	81	5	32	4	79	11	6	0	0	0	0	0	0	0	169	21
12:30:00	482	53	657	74	87	6	35	3	94	15	6	0	0	0	0	0	0	0	182	13
12:45:00	531	49	737	80	94	7	37	2	108	14	6	0	0	0	0	0	0	0	200	18
13:00:00	589	58	830	93	101	7	42	5	113	5	6	0	0	0	0	0	0	0	211	11
13:15:00	659	70	920	90	111	10	43	1	124	11	7	1	0	0	0	0	0	0	230	19
13:30:00	732	73	1002	82	122	11	47	4	134	10	9	2	0	0	0	0	0	0	276	46
13:45:00	795	63	1082	80	130	8	50	3	141	7	9	0	0	0	0	0	0	0	288	12
14:00:00	862	67	1162	80	137	7	54	4	147	6	10	1	0	0	0	0	0	0	315	27
14:15:00	939	77	1269	107	149	12	57	3	162	15	11	1	0	0	0	0	0	0	332	17
14:30:00	1011	72	1389	120	160	11	62	5	172	10	11	0	0	0	0	0	0	0	347	15
14:45:00	1089	78	1487	98	162	2	71	9	183	11	14	3	0	0	0	0	0	0	390	43
15:00:00	1165	76	1579	92	172	10	77	6	197	14	14	0	0	0	0	0	0	0	426	36
15:15:00	1256	91	1699	120	184	12	83	6	206	9	15	1	0	0	0	0	0	0	454	28
15:30:00	1325	69	1813	114	193	9	93	10	219	13	16	1	0	0	2	2	0	0	485	31
15:45:00	1392	67	1955	142	203	10	102	9	232	13	18	2	0	0	2	0	0	0	513	28
16:00:00	1472	80	2075	120	211	8	107	5	248	16	18	0	0	0	2	0	0	0	552	39
16:15:00	1538	66	2204	129	222	11	109	2	258	10	18	0	0	0	2	0	0	0	570	18
16:30:00	1601	63	2326	122	241	19	111	2	274	16	19	1	0	0	2	0	3	3	600	30
16:45:00	1676	75	2455	129	255	14	117	6	291	17	20	1	0	0	3	1	4	1	640	40
17:00:00	1753	77	2582	127	271	16	123	6	305	14	22	2	0	0	3	0	4	0	686	46
17:15:00	1829	76	2697	115	278	7	126	3	314	9	22	0	0	0	3	0	4	0	706	20
17:30:00	1900	71	2798	101	289	11	131	5	324	10	22	0	0	0	3	0	4	0	722	16
17:45:00	1980	80	2911	113	301	12	140	9	343	19	22	0	0	0	3	0	4	0	758	36
18:00:00	2061	81	3016	105	307	6	145	5	351	8	22	0	0	0	3	0	4	0	790	32
18:15:00	2061	0	3016	0	307	0	145	0	351	0	22	0	0	0	3	0	4	0	790	0
18:17:05	2061	0	3016	0	307	0	145	0	351	0	22	0	0	0	3	0	4	0	790	0

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800009

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	3	3	12	12	16	16	1	1	3	3	3	3	0	0	0	0	0	0	2	2
10:30:00	7	4	28	16	36	20	1	0	4	1	5	2	0	0	0	0	0	0	3	1
10:45:00	9	2	44	16	62	26	1	0	6	2	9	4	0	0	0	0	0	0	10	7
11:00:00	19	10	66	22	83	21	1	0	8	2	12	3	0	0	0	0	0	0	12	2
11:15:00	28	9	81	15	116	33	1	0	9	1	15	3	0	0	0	0	0	0	14	2
11:30:00	37	9	98	17	148	32	1	0	13	4	16	1	0	0	0	0	0	0	14	0
11:45:00	43	6	119	21	180	32	1	0	14	1	17	1	0	0	0	0	0	0	15	1
12:00:00	56	13	132	13	213	33	2	1	14	0	17	0	0	0	0	0	0	0	15	0
12:15:00	62	6	150	18	243	30	2	0	17	3	22	5	0	0	0	0	0	0	16	1
12:30:00	74	12	173	23	272	29	2	0	18	1	24	2	0	0	0	0	0	0	21	5
12:45:00	80	6	195	22	307	35	3	1	19	1	27	3	0	0	0	0	0	0	21	0
13:00:00	92	12	211	16	346	39	4	1	22	3	29	2	0	0	0	0	0	0	23	2
13:15:00	105	13	228	17	372	26	6	2	23	1	34	5	0	0	0	0	0	0	33	10
13:30:00	113	8	247	19	395	23	8	2	24	1	34	0	0	0	0	0	0	0	44	11
13:45:00	124	11	261	14	417	22	8	0	25	1	35	1	0	0	0	0	0	0	44	0
14:00:00	138	14	278	17	445	28	8	0	26	1	39	4	0	0	0	0	0	0	45	1
14:15:00	149	11	300	22	473	28	9	1	27	1	42	3	0	0	0	0	0	0	62	17
14:30:00	163	14	322	22	493	20	10	1	29	2	45	3	0	0	0	0	0	0	72	10
14:45:00	183	20	353	31	520	27	11	1	31	2	45	0	0	0	0	0	0	0	80	8
15:00:00	196	13	375	22	550	30	12	1	33	2	49	4	0	0	0	0	0	0	89	9
15:15:00	210	14	403	28	584	34	13	1	36	3	51	2	0	0	0	0	0	0	95	6
15:30:00	224	14	429	26	609	25	14	1	40	4	54	3	0	0	0	0	0	0	101	6
15:45:00	244	20	448	19	629	20	14	0	41	1	58	4	0	0	0	0	0	0	107	6
16:00:00	258	14	477	29	660	31	18	4	44	3	60	2	0	0	0	0	0	0	115	8
16:15:00	281	23	501	24	694	34	19	1	46	2	61	1	0	0	0	0	0	0	119	4
16:30:00	298	17	526	25	726	32	24	5	47	1	63	2	0	0	0	0	0	0	123	4
16:45:00	324	26	547	21	775	49	26	2	49	2	66	3	0	0	0	0	0	0	126	3
17:00:00	347	23	569	22	804	29	27	1	53	4	68	2	0	0	0	0	0	0	132	6
17:15:00	364	17	591	22	833	29	31	4	56	3	69	1	0	0	0	0	0	0	134	2
17:30:00	384	20	610	19	855	22	33	2	58	2	69	0	0	0	0	0	0	0	141	7
17:45:00	395	11	635	25	891	36	35	2	61	3	73	4	0	0	0	0	0	0	154	13
18:00:00	415	20	655	20	923	32	37	2	64	3	78	5	0	0	0	0	0	0	159	5
18:15:00	415	0	655	0	923	0	37	0	64	0	78	0	0	0	0	0	0	0	159	0
18:17:05	415	0	655	0	923	0	37	0	64	0	78	0	0	0	0	0	0	0	159	0

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800009

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	14	14	78	78	7	7	2	2	10	10	4	4	0	0	0	0	0	0	20	20
10:30:00	29	15	156	78	17	10	4	2	26	16	4	0	0	0	0	0	0	0	32	12
10:45:00	51	22	234	78	29	12	6	2	40	14	4	0	0	0	0	0	0	0	52	20
11:00:00	82	31	335	101	41	12	11	5	51	11	7	3	0	0	0	0	0	0	89	37
11:15:00	97	15	432	97	49	8	12	1	67	16	9	2	0	0	0	0	0	0	102	13
11:30:00	116	19	535	103	55	6	14	2	84	17	10	1	0	0	0	0	0	0	126	24
11:45:00	131	15	631	96	71	16	16	2	99	15	10	0	0	0	0	0	0	0	144	18
12:00:00	146	15	733	102	84	13	19	3	106	7	12	2	0	0	0	0	0	0	166	22
12:15:00	163	17	825	92	93	9	19	0	120	14	13	1	0	0	0	0	0	0	174	8
12:30:00	178	15	930	105	102	9	21	2	130	10	14	1	0	0	0	0	0	0	183	9
12:45:00	197	19	1032	102	115	13	22	1	145	15	15	1	0	0	0	0	0	0	199	16
13:00:00	212	15	1108	76	126	11	26	4	159	14	16	1	0	0	0	0	0	0	224	25
13:15:00	222	10	1194	86	131	5	28	2	175	16	17	1	0	0	0	0	0	0	236	12
13:30:00	240	18	1292	98	143	12	30	2	182	7	17	0	0	0	0	0	0	0	263	27
13:45:00	255	15	1383	91	162	19	31	1	191	9	19	2	0	0	0	0	0	0	281	18
14:00:00	266	11	1471	88	171	9	34	3	204	13	20	1	0	0	0	0	0	0	295	14
14:15:00	285	19	1545	74	184	13	37	3	216	12	20	0	0	0	0	0	0	0	312	17
14:30:00	300	15	1637	92	197	13	39	2	225	9	23	3	0	0	0	0	0	0	331	19
14:45:00	323	23	1724	87	214	17	40	1	235	10	23	0	0	0	0	0	0	0	337	6
15:00:00	336	13	1815	91	229	15	44	4	243	8	25	2	0	0	0	0	0	0	373	36
15:15:00	343	7	1906	91	242	13	46	2	257	14	25	0	0	0	0	0	0	0	403	30
15:30:00	365	22	2001	95	260	18	49	3	265	8	25	0	0	0	0	0	0	0	430	27
15:45:00	390	25	2102	101	279	19	50	1	272	7	25	0	0	0	0	0	0	0	467	37
16:00:00	409	19	2196	94	295	16	52	2	283	11	26	1	0	0	0	0	0	0	506	39
16:15:00	421	12	2280	84	307	12	54	2	294	11	27	1	0	0	0	0	0	0	526	20
16:30:00	447	26	2362	82	324	17	57	3	303	9	28	1	0	0	0	0	0	0	545	19
16:45:00	472	25	2460	98	336	12	59	2	312	9	29	1	0	0	0	0	0	0	564	19
17:00:00	485	13	2558	98	358	22	61	2	326	14	29	0	0	0	0	0	0	0	580	16
17:15:00	503	18	2647	89	374	16	62	1	341	15	30	1	0	0	0	0	0	0	608	28
17:30:00	517	14	2750	103	382	8	65	3	357	16	31	1	0	0	0	0	0	0	623	15
17:45:00	537	20	2828	78	399	17	67	2	368	11	32	1	0	0	0	0	0	0	649	26
18:00:00	547	10	2909	81	417	18	68	1	381	13	33	1	0	0	1	1	0	0	689	40
18:15:00	547	0	2909	0	417	0	68	0	381	0	33	0	0	0	1	0	0	0	689	0
18:17:05	547	0	2909	0	417	0	68	0	381	0	33	0	0	0	1	0	0	0	689	0

Ontario Traffic Inc.

Count Date: 23-Mar-19 Site #: 1906800009

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	8	8	15	15	2	2	0	0	1	1	2	2	0	0	0	0	0	0	12	12
10:30:00	20	12	28	13	11	9	2	2	2	1	2	0	0	0	0	0	0	0	20	8
10:45:00	28	8	42	14	20	9	4	2	2	0	3	1	0	0	0	0	0	0	24	4
11:00:00	45	17	53	11	29	9	8	4	2	0	3	0	0	0	0	0	0	0	38	14
11:15:00	53	8	74	21	37	8	8	0	4	2	4	1	0	0	0	0	0	0	49	11
11:30:00	66	13	89	15	41	4	10	2	5	1	4	0	0	0	0	0	0	0	55	6
11:45:00	75	9	113	24	47	6	12	2	9	4	5	1	0	0	0	0	0	0	68	13
12:00:00	92	17	133	20	53	6	14	2	9	0	5	0	0	0	0	0	0	0	88	20
12:15:00	100	8	151	18	58	5	14	0	12	3	6	1	0	0	0	0	0	0	106	18
12:30:00	112	12	173	22	60	2	14	0	13	1	7	1	0	0	0	0	0	0	111	5
12:45:00	126	14	200	27	64	4	14	0	15	2	9	2	0	0	0	0	0	0	121	10
13:00:00	129	3	223	23	70	6	14	0	17	2	9	0	0	0	0	0	0	0	139	18
13:15:00	133	4	250	27	77	7	14	0	18	1	10	1	0	0	0	0	0	0	158	19
13:30:00	136	3	278	28	82	5	14	0	18	0	11	1	0	0	0	0	0	0	224	66
13:45:00	145	9	302	24	86	4	14	0	20	2	13	2	0	0	0	0	0	0	243	19
14:00:00	155	10	321	19	90	4	14	0	20	0	16	3	0	0	0	0	0	0	265	22
14:15:00	163	8	332	11	99	9	15	1	20	0	18	2	0	0	0	0	0	0	307	42
14:30:00	167	4	353	21	112	13	16	1	22	2	18	0	0	0	0	0	0	0	334	27
14:45:00	179	12	369	16	129	17	17	1	23	1	20	2	0	0	0	0	0	0	348	14
15:00:00	194	15	393	24	132	3	17	0	26	3	21	1	0	0	0	0	0	0	350	2
15:15:00	203	9	412	19	138	6	18	1	27	1	23	2	0	0	0	0	0	0	364	14
15:30:00	206	3	428	16	145	7	19	1	27	0	24	1	0	0	0	0	0	0	372	8
15:45:00	216	10	450	22	150	5	19	0	27	0	27	3	0	0	0	0	0	0	381	9
16:00:00	224	8	472	22	162	12	19	0	27	0	27	0	0	0	1	1	0	0	392	11
16:15:00	228	4	496	24	169	7	19	0	29	2	29	2	0	0	1	0	0	0	414	22
16:30:00	239	11	526	30	178	9	19	0	30	1	29	0	0	0	1	0	0	0	423	9
16:45:00	250	11	553	27	190	12	19	0	30	0	32	3	0	0	1	0	0	0	439	16
17:00:00	260	10	583	30	199	9	20	1	32	2	33	1	0	0	1	0	0	0	454	15
17:15:00	271	11	603	20	208	9	20	0	32	0	35	2	0	0	2	1	0	0	479	25
17:30:00	277	6	620	17	214	6	22	2	34	2	35	0	0	0	2	0	0	0	501	22
17:45:00	285	8	645	25	220	6	22	0	35	1	37	2	0	0	2	0	0	0	529	28
18:00:00	294	9	671	26	230	10	22	0	39	4	38	1	0	0	2	0	0	0	546	17
18:15:00	294	0	671	0	230	0	22	0	39	0	38	0	0	0	2	0	0	0	546	0
18:17:05	294	0	671	0	230	0	22	0	39	0	38	0	0	0	2	0	0	0	546	0

Main St @ Allendale @ Murray

Municipality: Niagara Falls
Major Road: Main
Minor Road: Allendale

Date: Thursday, July 11, 2019

Major Road Runs: Northwest/Southeast
Weather Conditions: Clear/Dry
Person No. 1 Cam

Main St @ Allendale @ Murray

Municipality: Niagara Falls
Major Road: Main
Minor Road: Allendale

Date: Thursday, July 11, 2019

	Main Northwest Approach									Allendale North Approach									Murray East Approach									Main Southeast Approach									Allendale South Approach										
	Cars				Trucks				Ped.	Cars				Trucks				Ped.	Cars				Trucks				Ped.	Cars				Trucks				Ped.	Cars				Trucks				Ped.		
	Left	Left	Thru	Right	Left	Left	Thru	Right	Cross.	Left	Left	Thru	Right	Left	Left	Thru	Right	Cross.	Left	Left	Right	Right	Left	Left	Right	Right	Cross.	Left	Thru	Right	Right	Left	Thru	Right	Right	Cross.	Left	Thru	Right	Right	Left	Thru	Right	Right	Cross.		
	Allendale	Murray	Main	Allendale	Allendale	Murray	Main	Allendale		Murray	Main	Allendale	Main	Murray	Main	Allendale	Main		Main	Allendale	Main	Allendale	Main	Allendale	Main	Allendale		Allendale	Main	Allendale	Murray	Allendale	Main	Allendale	Murray		Main	Allendale	Murray	Main	Main	Allendale	Murray	Main		**15 Min**	**60 Min**
10:15		16	16	1		2				1								6		1	18	8			1		5				1				3	2	2	2						3	71	
10:30		10	14	3			1		4	2	1	1						15	2		15	2			2		7								1	3	2			1				2	59	
10:45	1	12	19	7	1	2	1		1	1	1							3	2	4	10	1		1	2		4	1	2		1						4	5	1				1		4	80	
11:00		17	15	2							2							2	4	1	24	3			1		1		1						5	6	2							15	78	288
11:15	1	10	29			1				2								4	2	2	18	1			3		3		1			1		1	4	2	2	1	1			1		6	79	296
11:30		24	10	1		1			1	1				1				3	2	1	23	8			2		5				3					6	7	1							91	328
11:45		17	19	3		1	2		1	1	3		1					6	1	1	19	3		1	2		2		4		1						8	5		1			1		6	94	342
12:00		13	19	2						2	1		1					4	6	2	29	2	1		3				4		3				2	10	3	1		1				5	103	367
12:15		15	17	4		1			4	1	1		1	1				5	3	3	19								3		2				12	18	2	1						10	92	380
12:30		15	18	1		1	1		2	1		2						3	1	2	16	5			1		1		1	1	2				1	1	1	3			1			4	74	363
12:45		19	19			1			5	1	1		1					16	1		23	3			1		2		1				2	1	3	6	6	1						4	87	356
13:00		25	18	5					1	1	2	2						11		1	17	1	1		1						4				2	7	4	1		1				2	91	344
13:15		19	16	3		5			1	1								4		1	18	4			1		3		1							2	3					1		4	76	328
13:30		18	18	2				1					2					3		3	20	8							1		2			1		2	5			1		2		1	86	340
13:45	2	15	31	3		2			1	1								3	2	1	12	9							2		1				5	5	2	2			2		1	93	346
14:00	1	20	18	4			2		1									6		4	22	4			1		4		1		1				4	1	2	2		1		1		3	84	339
15:15		18	27	3		2	1				1	1						19		1	36	11		2	1		5		3	1	5				14	12	8	2	1					6	136	399
15:30	2	17	33				1		1									12	1	3	35	6	1		2		3		3	3	2				20	14	6	4	1	1				16	135	448
15:45		24	30	3		2			1			3						10	1		20	9			2		1		8		4		2		5	6	6			1	1	2		7	124	479
16:00		21	32	8					1	2	1		1	1		2		7	2	3	33	9			2		7		2	1	3				13	7	5			1				3	136	531
16:15	1	27	24	1		2				2	2	3	1			1		10	2	1	32	7			1		1		2	2	2				11	15	7	1						7	136	531
16:30		16	24	1			1		1		1	3						9	2	1	30	6			5		5		1	1	2				3	10	4	1	2	2				2	113	509
16:45		18	39	10		2			1			4						13	1		31	10		1	1		2		2	3	4		2		2	19	4	1		2				1	154	539
17:00		19	38	6			1		7					1				10	5		37	7			2		2		2	1	1					17	5	3	1	1				24	147	**550**
17:15	1	12	21	4		2			2		1	2						8	1	2	27	6			1		2		3							18	3	2	2		1			3	109	523
17:30		17	30								2	2						10	4	1	22	4		1	2		3		1		2					5	3	1	1	1	1			4	100	510
17:45	1	8	31	7		2	2		3	2								10		1	24	8		1	1				4		2		1		5	5	4		2					12	106	462
18:00	1	17	18	3				1	2	1		1	1					11	2	2	19	12			3		1		1						2	5	4	1		1				4	93	408
18:15		25	29	2		2			1	1	1							9	1		19	3			5				1						7	4	3				1			11	97	396
18:30	4	16	17	4						1			1					7		2	14	2					5		2		1				2	9		1		1				6	75	371
18:45		13	17	5		1			1	2	1	1						4	1	1	16	10			2		1		1		1				3	11	1							6	84	349
19:00		20	13	2			1		5			1						11	4	2	15	6			1		2	1	1				1		2	4	1		1	1				1	75	331

Allendale Road & Murray Street/Main Street -... - TMC

Tue Oct 5, 2021
Full Length (7 AM-10 AM, 11 AM-1 PM, 3 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON, N1R 8J8, CA

Leg	Murray Street							Allendale Road							Allendale Road							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-05 7:00AM	0	0	6	0	0	**6**	0	1	0	0	0	0	**1**	1	1	0	0	0	0	**1**	2	0	8	7	0	0	**15**	0	0	0	0	1	0	**1**	0	**24**
7:15AM	0	0	6	1	0	**7**	1	0	1	1	0	0	**2**	2	0	0	0	0	0	**0**	6	0	3	10	2	0	**15**	2	0	0	0	0	0	**0**	1	**24**
7:30AM	0	0	13	0	0	**13**	1	1	0	0	0	0	**1**	0	0	0	0	1	0	**1**	3	1	13	13	1	0	**28**	0	0	0	0	0	0	**0**	1	**43**
7:45AM	0	1	11	1	0	**13**	1	0	0	1	0	0	**1**	3	0	0	0	0	0	**0**	6	0	10	14	3	0	**27**	0	0	0	0	0	0	**0**	0	**41**
Hourly Total	0	1	36	2	0	**39**	3	2	1	2	0	0	**5**	6	1	0	0	1	0	**2**	17	1	34	44	6	0	**85**	2	0	0	0	1	0	**1**	2	**132**
8:00AM	2	0	3	0	0	**5**	2	0	0	0	0	0	**0**	0	0	0	0	0	0	**0**	5	0	13	7	1	0	**21**	0	0	0	0	0	0	**0**	0	**26**
8:15AM	0	1	13	0	0	**14**	0	0	0	0	0	0	**0**	1	0	2	1	0	0	**3**	5	0	2	17	0	0	**19**	3	0	0	0	0	0	**0**	0	**36**
8:30AM	0	1	20	1	0	**22**	1	0	1	0	0	0	**1**	1	1	0	0	0	0	**1**	5	0	13	19	3	0	**35**	2	0	0	0	0	0	**0**	0	**59**
8:45AM	1	0	15	1	0	**17**	2	2	0	0	0	0	**2**	0	1	0	0	0	0	**1**	3	0	6	14	3	0	**23**	2	0	0	0	0	0	**0**	2	**43**
Hourly Total	3	2	51	2	0	**58**	5	2	1	0	0	0	**3**	2	2	2	1	0	0	**5**	18	0	34	57	7	0	**98**	7	0	0	0	0	0	**0**	2	**164**
9:00AM	0	1	16	0	0	**17**	2	2	0	1	0	0	**3**	0	0	0	0	0	0	**0**	9	0	15	12	2	0	**29**	2	0	2	0	0	0	**2**	0	**51**
9:15AM	1	1	10	1	0	**13**	2	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**	4	0	10	11	0	0	**21**	0	0	0	0	0	0	**0**	1	**37**
9:30AM	0	0	10	0	0	**10**	1	2	0	0	0	0	**2**	5	0	0	0	0	1	**1**	0	0	7	18	0	0	**25**	2	0	0	0	0	0	**0**	2	**38**
9:45AM	0	2	13	0	0	**15**	1	2	1	0	0	0	**3**	1	1	0	0	0	0	**1**	1	0	5	11	0	0	**16**	1	0	1	0	1	0	**2**	2	**37**
Hourly Total	1	4	49	1	0	**55**	6	9	1	1	0	0	**11**	6	1	0	0	0	1	**2**	14	0	37	52	2	0	**91**	5	0	3	0	1	0	**4**	5	**163**
11:00AM	0	0	18	2	0	**20**	1	5	0	0	0	0	**5**	2	1	0	0	2	0	**3**	4	1	8	8	0	0	**17**	3	0	1	0	1	0	**2**	1	**47**
11:15AM	2	1	11	2	0	**16**	1	3	0	0	0	0	**3**	3	0	1	0	1	0	**2**	0	4	11	19	0	0	**34**	0	0	0	0	2	0	**2**	1	**57**
11:30AM	0	1	9	0	0	**10**	4	5	3	0	1	0	**9**	0	0	1	0	1	0	**2**	2	0	12	24	1	0	**37**	1	0	0	0	0	0	**0**	2	**58**
11:45AM	0	1	14	0	0	**15**	0	2	3	0	0	0	**5**	3	0	0	2	0	0	**2**	6	0	13	14	0	0	**27**	2	0	1	0	0	0	**1**	0	**50**
Hourly Total	2	3	52	4	0	**61**	6	15	6	0	1	0	**22**	8	1	2	2	4	0	**9**	12	5	44	65	1	0	**115**	6	0	2	0	3	0	**5**	4	**212**
12:00PM	0	0	12	0	0	**12**	0	4	0	0	0	0	**4**	1	0	0	1	1	0	**2**	2	0	10	19	0	0	**29**	2	0	0	0	0	0	**0**	0	**47**
12:15PM	0	1	22	1	0	**24**	0	4	0	0	0	0	**4**	0	1	0	0	1	0	**2**	4	0	10	12	0	0	**22**	3	0	0	0	0	0	**0**	0	**52**
12:30PM	0	1	7	1	0	**9**	0	1	2	0	0	0	**3**	3	0	0	1	0	0	**1**	3	0	9	12	2	0	**23**	2	0	0	0	0	0	**0**	2	**36**
12:45PM	0	1	9	1	1	**12**	1	1	0	1	0	0	**2**	0	0	0	0	0	0	**0**	6	0	10	16	1	0	**27**	1	0	0	0	0	0	**0**	0	**41**
Hourly Total	0	3	50	3	1	**57**	1	10	2	1	0	0	**13**	4	1	0	2	2	0	**5**	15	0	39	59	3	0	**101**	8	0	0	0	0	0	**0**	2	**176**
3:00PM	0	1	21	1	0	**23**	0	6	0	1	0	0	**7**	0	1	1	0	0	0	**2**	4	0	4	21	0	0	**25**	2	1	0	0	0	0	**1**	1	**58**
3:15PM	2	1	18	2	0	**23**	0	5	0	0	0	0	**5**	2	0	0	0	1	0	**1**	2	1	6	14	0	0	**21**	0	0	2	0	1	0	**3**	0	**53**
3:30PM	1	0	19	1	0	**21**	0	5	0	3	1	0	**9**	1	0	0	0	0	0	**0**	0	2	18	18	2	0	**40**	1	0	0	0	0	0	**0**	1	**70**
3:45PM	0	0	15	1	0	**16**	2	2	1	2	0	0	**5**	1	0	0	0	2	0	**2**	6	0	19	29	3	0	**51**	2	0	3	0	1	0	**4**	0	**78**
Hourly Total	3	2	73	5	0	**83**	2	18	1	6	1	0	**26**	4	1	1	0	3	0	**5**	12	3	47	82	5	0	**137**	5	1	5	0	2	0	**8**	2	**259**
4:00PM	0	1	21	2	0	**24**	2	4	0	0	0	0	**4**	1	0	1	0	1	0	**2**	7	0	11	15	0	0	**26**	0	0	0	0	0	0	**0**	1	**56**
4:15PM	2	1	33	1	0	**37**	0	3	1	0	0	0	**4**	0	0	0	0	0	0	**0**	4	0	9	19	1	0	**29**	1	0	1	0	1	0	**2**	0	**72**
4:30PM	0	1	26	1	0	**28**	8	4	1	1	0	0	**6**	7	0	0	0	0	0	**0**	6	2	8	19	3	0	**32**	3	0	2	0	0	0	**2**	1	**68**
4:45PM	1	0	20	0	0	**21**	2	2	1	0	2	0	**5**	1	0	2	0	0	0	**2**	5	1	9	26	1	0	**37**	3	0	1	0	0	0	**1**	1	**66**
Hourly Total	3	3	100	4	0	**110**	12	13	3	1	2	0	**19**	9	0	3	0	1	0	**4**	22	3	37	79	5	0	**124**	7	0	4	0	1	0	**5**	3	**262**
5:00PM	0	0	15	0	0	**15**	0	2	3	0	0	0	**5**	2	0	0	0	0	0	**0**	0	0	16	19	0	0	**35**	0	0	2	0	0	0	**2**	1	**57**
5:15PM	2	2	26	0	0	**30**	1	5	0	0	0	0	**5**	4	1	0	1	0	0	**2**	7	0	9	26	2	0	**37**	2	0	2	0	0	0	**2**	0	**76**
5:30PM	0	0	10	1	2	**13**	1	2	0	2	0	0	**4**	0	0	0	0	0	0	**0**	1	1	10	19	1	0	**31**	0	0	0	0	3	0	**3**	0	**51**
5:45PM	0	1	14	0	0	**15**	7	1	1	0	0	0	**2**	4	0	0	1	0	0	**1**	15	0	13	19	1	0	**33**	3	1	0	0	1	0	**2**	2	**53**
Hourly Total	2	3	65	1	2	**73**	9	10	4	2	0	0	**16**	10	1	0	2	0	0	**3**	23	1	48	83	4	0	**136**	5	1	4	0	4	0	**9**	3	**237**
Total	14	21	476	22	3	**536**	44	79	19	13	4	0	**115**	49	8	8	7	11	1	**35**	133	13	320	521	33	0	**887**	45	2	18	0	12	0	**32**	23	**1605**
% Approach	2.6%	3.9%	88.8%	4.1%	0.6%	**-**	-	68.7%	16.5%	11.3%	3.5%	0%	**-**	-	22.9%	22.9%	20.0%	31.4%	2.9%	**-**	-	1.5%	36.1%	58.7%	3.7%	0%	**-**	-	6.3%	56.3%	0%	37.5%	0%	**-**	-	-
% Total	0.9%	1.3%	29.7%	1.4%	0.2%	**33.4%**	-	4.9%	1.2%	0.8%	0.2%	0%	**7.2%**	-	0.5%	0.5%	0.4%	0.7%	0.1%	**2.2%**	-	0.8%	19.9%	32.5%	2.1%	0%	**55.3%**	-	0.1%	1.1%	0%	0.7%	0%	**2.0%**	-	-
Motorcycles	0	0	2	0	0	**2**	-	0	1	1	0	0	**2**	-	0	0	1	1	0	**2**	-	0	1	1	1	0	**3**	-	0	0	0	0	0	**0**	-	9
% Motorcycles	0%	0%	0.4%	0%	0%	**0.4%**	-	0%	5.3%	7.7%	0%	0%	**1.7%**	-	0%	0%	14.3%	9.1%	0%	**5.7%**	-	0%	0.3%	0.2%	3.0%	0%	**0.3%**	-	0%	0%	0%	0%	0%	**0%**	-	0.6%

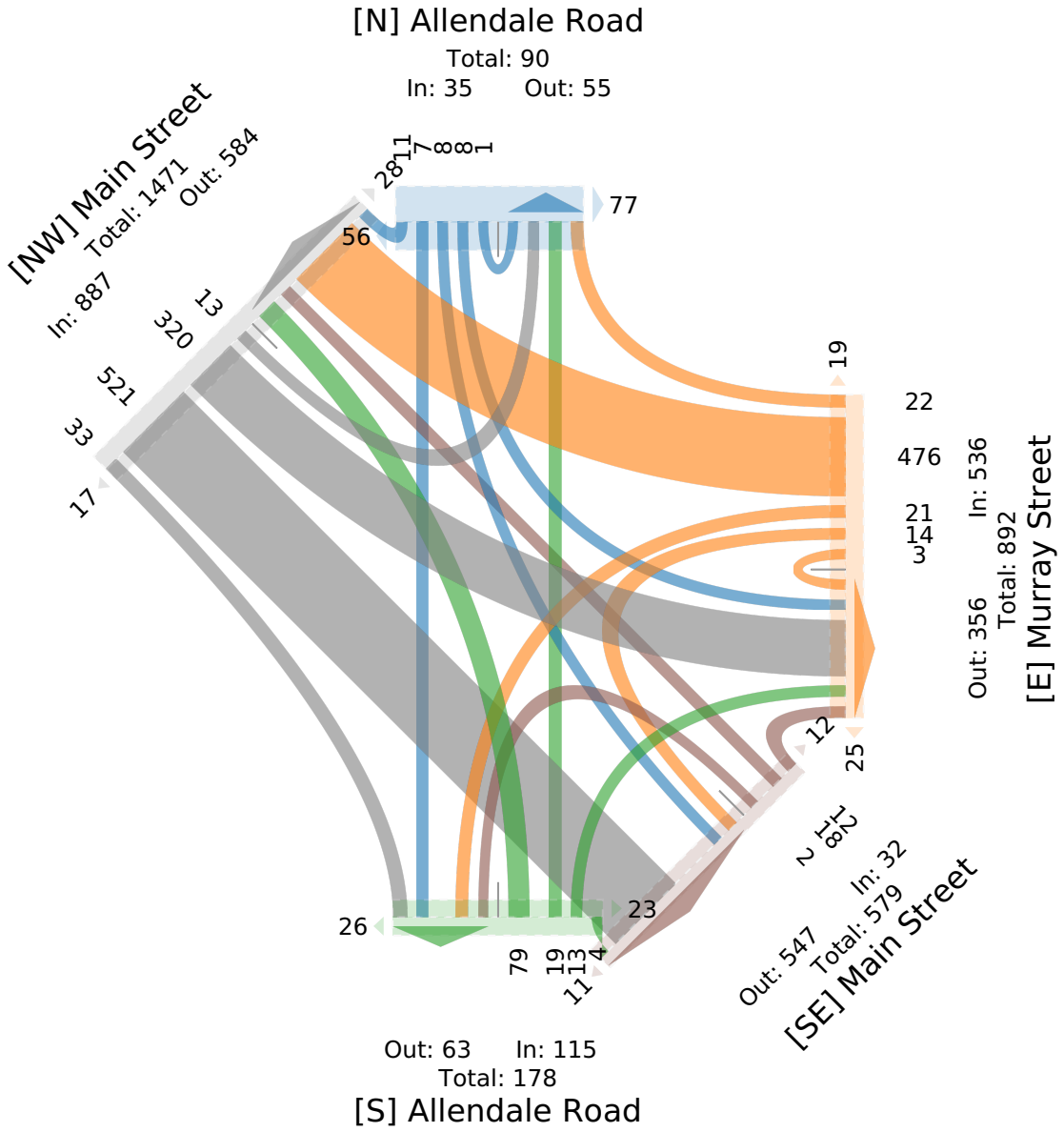
Leg	Murray Street							Allendale Road							Allendale Road							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
Lights	14	21	441	20	3	**499**	-	76	16	12	4	0	**108**	-	8	6	6	9	1	**30**	-	13	290	505	31	0	**839**	-	2	16	0	11	0	**29**	-	1505
% Lights	100%	100%	92.6%	90.9%	100%	**93.1%**	-	96.2%	84.2%	92.3%	100%	0%	**93.9%**	-	100%	75.0%	85.7%	81.8%	100%	**85.7%**	-	100%	90.6%	96.9%	93.9%	0%	**94.6%**	-	100%	88.9%	0%	91.7%	0%	**90.6%**	-	93.8%
Single-Unit Trucks	0	0	3	2	0	**5**	-	2	2	0	0	0	**4**	-	0	1	0	1	0	**2**	-	0	1	9	0	0	**10**	-	0	0	0	0	0	**0**	-	21
% Single-Unit Trucks	0%	0%	0.6%	9.1%	0%	**0.9%**	-	2.5%	10.5%	0%	0%	0%	**3.5%**	-	0%	12.5%	0%	9.1%	0%	**5.7%**	-	0%	0.3%	1.7%	0%	0%	**1.1%**	-	0%	0%	0%	0%	0%	**0%**	-	1.3%
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
% 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%
Buses	0	0	30	0	0	**30**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	26	2	1	0	**29**	-	0	0	0	0	0	**0**	-	59
% Buses	0%	0%	6.3%	0%	0%	**5.6%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	8.1%	0.4%	3.0%	0%	**3.3%**	-	0%	0%	0%	0%	0%	**0%**	-	3.7%
Bicycles on Road	0	0	0	0	0	**0**	-	1	0	0	0	0	**1**	-	0	1	0	0	0	**1**	-	0	2	4	0	0	**6**	-	0	2	0	1	0	**3**	-	11
% Bicycles on Road	0%	0%	0%	0%	0%	**0%**	-	1.3%	0%	0%	0%	0%	**0.9%**	-	0%	12.5%	0%	0%	0%	**2.9%**	-	0%	0.6%	0.8%	0%	0%	**0.7%**	-	0%	11.1%	0%	8.3%	0%	**9.4%**	-	0.7%
Pedestrians	-	-	-	-	-	-	42	-	-	-	-	-	-	47	-	-	-	-	-	-	129	-	-	-	-	-	-	43	-	-	-	-	-	-	22	
% Pedestrians	-	-	-	-	-	-	95.5%	-	-	-	-	-	-	95.9%	-	-	-	-	-	-	97.0%	-	-	-	-	-	-	95.6%	-	-	-	-	-	-	95.7%	-
Bicycles on Crosswalk	-	-	-	-	-	-	2	-	-	-	-	-	-	2	-	-	-	-	-	-	4	-	-	-	-	-	-	2	-	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	-	4.5%	-	-	-	-	-	-	4.1%	-	-	-	-	-	-	3.0%	-	-	-	-	-	-	4.4%	-	-	-	-	-	-	4.3%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC

Tue Oct 5, 2021
Full Length (7 AM-10 AM, 11 AM-1 PM, 3 PM-6 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
Cambridge, ON, N1R 8J8, CA



Allendale Road & Murray Street/Main Street -... - TMC

Tue Oct 5, 2021
AM Peak (8:30 AM - 9:30 AM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

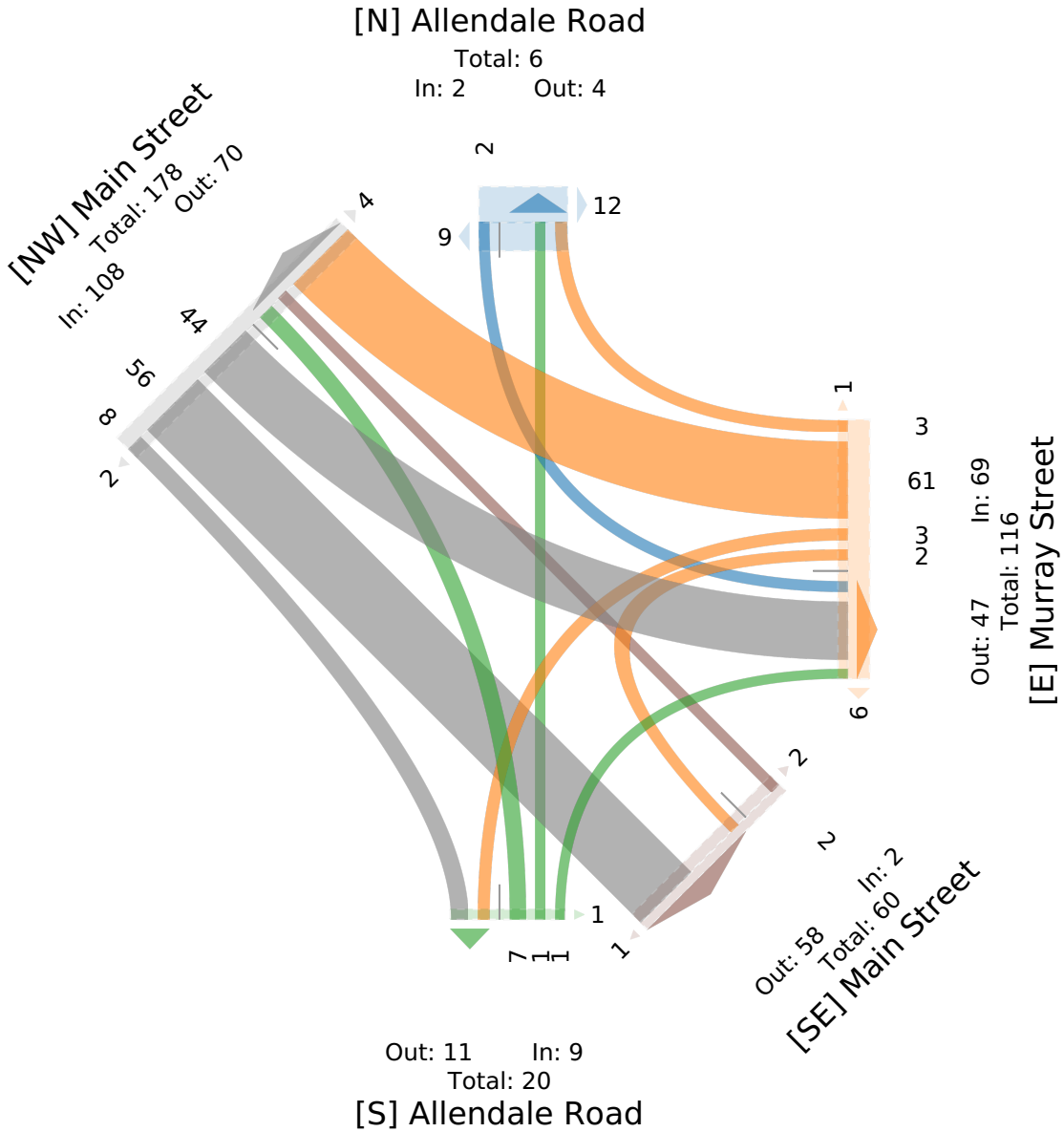
Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
Cambridge, ON, N1R 8J8, CA

Leg	Murray Street							Allendale Road							Allendale Road							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-05 8:30AM	0	1	20	1	0	**22**	1	0	1	0	0	0	**1**	1	1	0	0	0	0	**1**	5	0	13	19	3	0	**35**	2	0	0	0	0	0	**0**	0	**59**
8:45AM	1	0	15	1	0	**17**	2	2	0	0	0	0	**2**	0	1	0	0	0	0	**1**	3	0	6	14	3	0	**23**	2	0	0	0	0	0	**0**	2	**43**
9:00AM	0	1	16	0	0	**17**	2	2	0	1	0	0	**3**	0	0	0	0	0	0	**0**	9	0	15	12	2	0	**29**	2	0	2	0	0	0	**2**	0	**51**
9:15AM	1	1	10	1	0	**13**	2	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**	4	0	10	11	0	0	**21**	0	0	0	0	0	0	**0**	1	**37**
Total	2	3	61	3	0	**69**	7	7	1	1	0	0	**9**	1	2	0	0	0	0	**2**	21	0	44	56	8	0	**108**	6	0	2	0	0	0	**2**	3	**190**
% Approach	2.9%	4.3%	88.4%	4.3%	0%	**-**	-	77.8%	11.1%	11.1%	0%	0%	**-**	-	100%	0%	0%	0%	0%	**-**	-	0%	40.7%	51.9%	7.4%	0%	**-**	-	0%	100%	0%	0%	0%	**-**	-	-
% Total	1.1%	1.6%	32.1%	1.6%	0%	**36.3%**	-	3.7%	0.5%	0.5%	0%	0%	**4.7%**	-	1.1%	0%	0%	0%	0%	**1.1%**	-	0%	23.2%	29.5%	4.2%	0%	**56.8%**	-	0%	1.1%	0%	0%	0%	**1.1%**	-	-
PHF	0.500	0.750	0.763	0.750	-	**0.784**	-	0.583	0.250	0.250	-	-	**0.750**	-	0.500	-	-	-	-	**0.500**	-	-	0.733	0.737	0.667	-	**0.771**	-	-	0.250	-	-	-	**0.250**	-	0.805
Motorcycles	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
% Motorcycles	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%
Lights	2	3	54	3	0	**62**	-	6	1	1	0	0	**8**	-	2	0	0	0	0	**2**	-	0	40	53	8	0	**101**	-	0	2	0	0	0	**2**	-	175
% Lights	100%	100%	88.5%	100%	0%	**89.9%**	-	85.7%	100%	100%	0%	0%	**88.9%**	-	100%	0%	0%	0%	0%	**100%**	-	0%	90.9%	94.6%	100%	0%	**93.5%**	-	0%	100%	0%	0%	0%	**100%**	-	92.1%
Single-Unit Trucks	0	0	1	0	0	**1**	-	1	0	0	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	3	0	0	**3**	-	0	0	0	0	0	**0**	-	5
% Single-Unit Trucks	0%	0%	1.6%	0%	0%	**1.4%**	-	14.3%	0%	0%	0%	0%	**11.1%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	5.4%	0%	0%	**2.8%**	-	0%	0%	0%	0%	0%	**0%**	-	2.6%
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
% 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%
Buses	0	0	6	0	0	**6**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	4	0	0	0	**4**	-	0	0	0	0	0	**0**	-	10
% Buses	0%	0%	9.8%	0%	0%	**8.7%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	9.1%	0%	0%	0%	**3.7%**	-	0%	0%	0%	0%	0%	**0%**	-	5.3%
Bicycles on Road	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
% Bicycles on Road	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	-	-	-	-	-	-	6	-	-	-	-	-	-	1	-	-	-	-	-	-	20	-	-	-	-	-	-	6	-	-	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	-	85.7%	-	-	-	-	-	-	100%	-	-	-	-	-	-	95.2%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	14.3%	-	-	-	-	-	-	0%	-	-	-	-	-	-	4.8%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC
Tue Oct 5, 2021
AM Peak (8:30 AM - 9:30 AM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
Cambridge, ON, N1R 8J8, CA



Allendale Road & Murray Street/Main Street -... - TMC

Tue Oct 5, 2021
Midday Peak (11 AM - 12 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON, N1R 8J8, CA

Leg	Murray Street							Allendale Road							Allendale Road							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-05 11:00AM	0	0	18	2	0	**20**	1	5	0	0	0	0	**5**	2	1	0	0	2	0	**3**	4	1	8	8	0	0	**17**	3	0	1	0	1	0	**2**	1	**47**
11:15AM	2	1	11	2	0	**16**	1	3	0	0	0	0	**3**	3	0	1	0	1	0	**2**	0	4	11	19	0	0	**34**	0	0	0	0	2	0	**2**	1	**57**
11:30AM	0	1	9	0	0	**10**	4	5	3	0	1	0	**9**	0	0	1	0	1	0	**2**	2	0	12	24	1	0	**37**	1	0	0	0	0	0	**0**	2	**58**
11:45AM	0	1	14	0	0	**15**	0	2	3	0	0	0	**5**	3	0	0	2	0	0	**2**	6	0	13	14	0	0	**27**	2	0	1	0	0	0	**1**	0	**50**
Total	2	3	52	4	0	**61**	6	15	6	0	1	0	**22**	8	1	2	2	4	0	**9**	12	5	44	65	1	0	**115**	6	0	2	0	3	0	**5**	4	**212**
% Approach	3.3%	4.9%	85.2%	6.6%	0%	**-**	-	68.2%	27.3%	0%	4.5%	0%	**-**	-	11.1%	22.2%	22.2%	44.4%	0%	**-**	-	4.3%	38.3%	56.5%	0.9%	0%	**-**	-	0%	40.0%	0%	60.0%	0%	**-**	-	-
% Total	0.9%	1.4%	24.5%	1.9%	0%	**28.8%**	-	7.1%	2.8%	0%	0.5%	0%	**10.4%**	-	0.5%	0.9%	0.9%	1.9%	0%	**4.2%**	-	2.4%	20.8%	30.7%	0.5%	0%	**54.2%**	-	0%	0.9%	0%	1.4%	0%	**2.4%**	-	-
PHF	0.250	0.750	0.722	0.500	-	**0.763**	-	0.750	0.500	-	0.250	-	**0.611**	-	0.250	0.500	0.250	0.500	-	**0.750**	-	0.313	0.846	0.677	0.250	-	**0.777**	-	-	0.250	-	0.375	-	**0.500**	-	0.909
Motorcycles	0	0	1	0	0	**1**	-	0	1	0	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	2
% Motorcycles	0%	0%	1.9%	0%	0%	**1.6%**	-	0%	16.7%	0%	0%	0%	**4.5%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0.9%
Lights	2	3	48	3	0	**56**	-	15	5	0	1	0	**21**	-	1	2	2	3	0	**8**	-	5	41	64	1	0	**111**	-	0	1	0	3	0	**4**	-	200
% Lights	100%	100%	92.3%	75.0%	0%	**91.8%**	-	100%	83.3%	0%	100%	0%	**95.5%**	-	100%	100%	100%	75.0%	0%	**88.9%**	-	100%	93.2%	98.5%	100%	0%	**96.5%**	-	0%	50.0%	0%	100%	0%	**80.0%**	-	94.3%
Single-Unit Trucks	0	0	1	1	0	**2**	-	0	0	0	0	0	**0**	-	0	0	0	1	0	**1**	-	0	1	1	0	0	**2**	-	0	0	0	0	0	**0**	-	5
% Single-Unit Trucks	0%	0%	1.9%	25.0%	0%	**3.3%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	25.0%	0%	**11.1%**	-	0%	2.3%	1.5%	0%	0%	**1.7%**	-	0%	0%	0%	0%	0%	**0%**	-	2.4%
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
% 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%
Buses	0	0	2	0	0	**2**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	2	0	0	0	**2**	-	0	0	0	0	0	**0**	-	4
% Buses	0%	0%	3.8%	0%	0%	**3.3%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	4.5%	0%	0%	0%	**1.7%**	-	0%	0%	0%	0%	0%	**0%**	-	1.9%
Bicycles on Road	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	1	0	0	0	**1**	-	1
% Bicycles on Road	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%	50.0%	0%	0%	0%	**20.0%**	-	0.5%
Pedestrians	-	-	-	-	-	-	6	-	-	-	-	-	-	7	-	-	-	-	-	-	12	-	-	-	-	-	-	6	-	-	-	-	-	-	4	
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	87.5%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	12.5%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC
Tue Oct 5, 2021
Midday Peak (11 AM - 12 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
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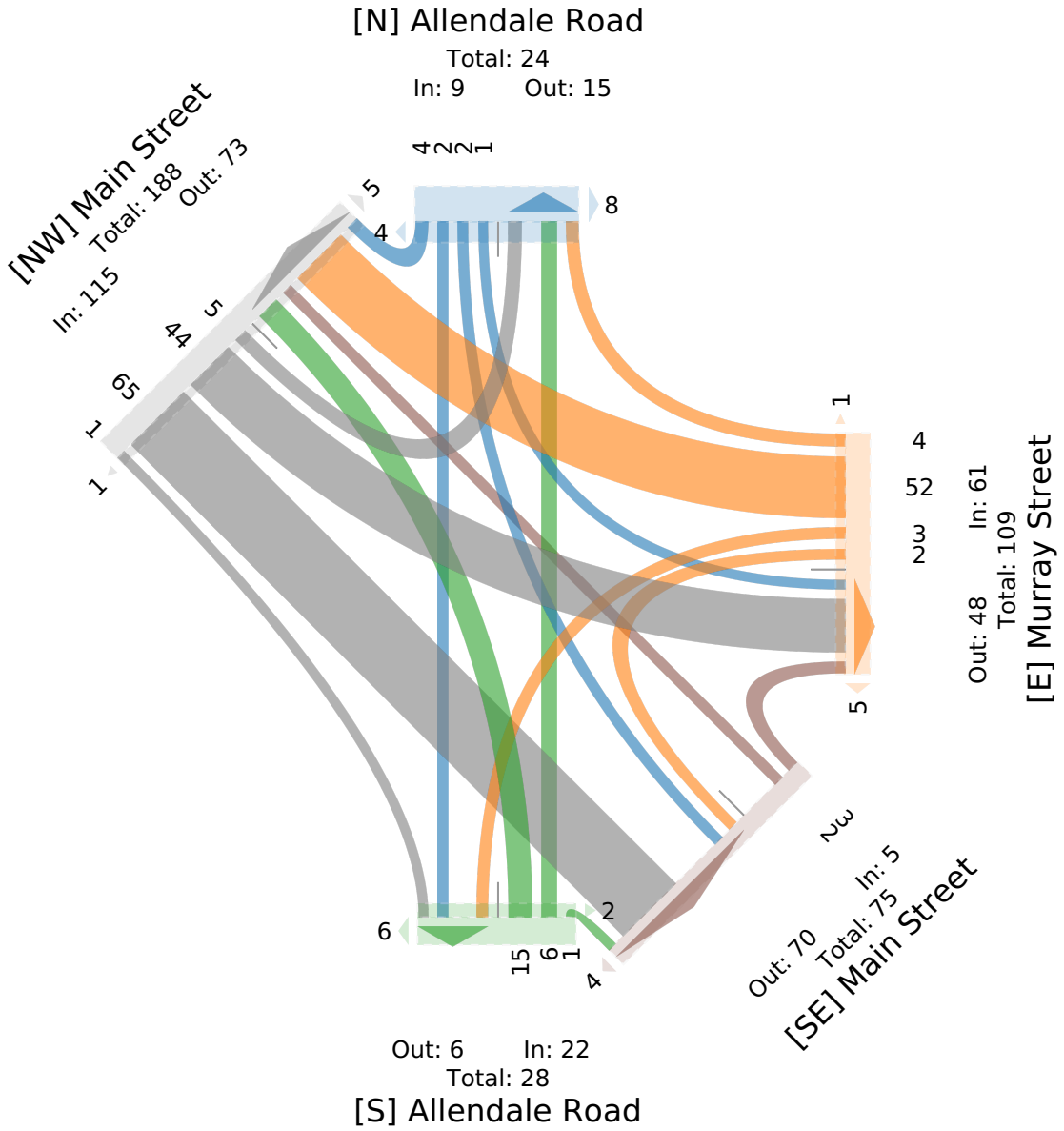


Allendale Road & Murray Street/Main Street -... - TMC

Tue Oct 5, 2021
PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON, N1R 8J8, CA

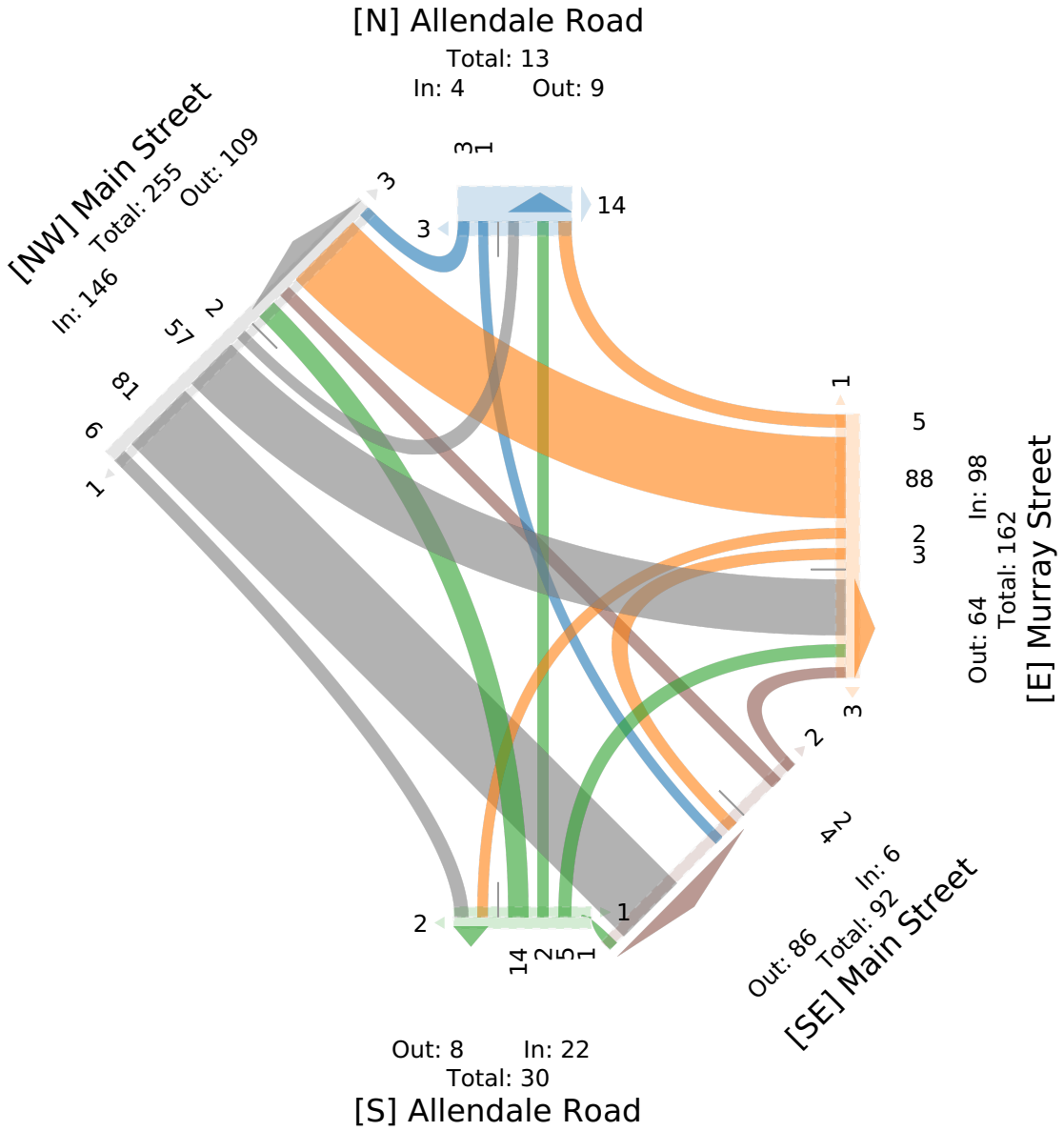
Leg	Murray Street							Allendale Road							Allendale Road							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-05 3:30PM	1	0	19	1	0	**21**	0	5	0	3	1	0	**9**	1	0	0	0	0	0	**0**	0	2	18	18	2	0	**40**	1	0	0	0	0	0	**0**	1	**70**
3:45PM	0	0	15	1	0	**16**	2	2	1	2	0	0	**5**	1	0	0	0	2	0	**2**	6	0	19	29	3	0	**51**	2	0	3	0	1	0	**4**	0	**78**
4:00PM	0	1	21	2	0	**24**	2	4	0	0	0	0	**4**	1	0	1	0	1	0	**2**	7	0	11	15	0	0	**26**	0	0	0	0	0	0	**0**	1	**56**
4:15PM	2	1	33	1	0	**37**	0	3	1	0	0	0	**4**	0	0	0	0	0	0	**0**	4	0	9	19	1	0	**29**	1	0	1	0	1	0	**2**	0	**72**
Total	3	2	88	5	0	**98**	4	14	2	5	1	0	**22**	3	0	1	0	3	0	**4**	17	2	57	81	6	0	**146**	4	0	4	0	2	0	**6**	2	**276**
% Approach	3.1%	2.0%	89.8%	5.1%	0%	**-**	-	63.6%	9.1%	22.7%	4.5%	0%	**-**	-	0%	25.0%	0%	75.0%	0%	**-**	-	1.4%	39.0%	55.5%	4.1%	0%	**-**	-	0%	66.7%	0%	33.3%	0%	**-**	-	-
% Total	1.1%	0.7%	31.9%	1.8%	0%	**35.5%**	-	5.1%	0.7%	1.8%	0.4%	0%	**8.0%**	-	0%	0.4%	0%	1.1%	0%	**1.4%**	-	0.7%	20.7%	29.3%	2.2%	0%	**52.9%**	-	0%	1.4%	0%	0.7%	0%	**2.2%**	-	-
PHF	0.375	0.500	0.667	0.625	-	**0.662**	-	0.700	0.500	0.417	0.250	-	**0.611**	-	-	0.250	-	0.375	-	**0.500**	-	0.250	0.750	0.714	0.500	-	**0.725**	-	-	0.333	-	0.500	-	**0.375**	-	0.893
Motorcycles	0	0	1	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	0	1	0	**1**	-	0	0	0	1	0	**1**	-	0	0	0	0	0	**0**	-	3
% Motorcycles	0%	0%	1.1%	0%	0%	**1.0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	33.3%	0%	**25.0%**	-	0%	0%	0%	16.7%	0%	**0.7%**	-	0%	0%	0%	0%	0%	**0%**	-	1.1%
Lights	3	2	82	5	0	**92**	-	14	2	5	1	0	**22**	-	0	1	0	2	0	**3**	-	2	53	78	5	0	**138**	-	0	4	0	2	0	**6**	-	261
% Lights	100%	100%	93.2%	100%	0%	**93.9%**	-	100%	100%	100%	100%	0%	**100%**	-	0%	100%	0%	66.7%	0%	**75.0%**	-	100%	93.0%	96.3%	83.3%	0%	**94.5%**	-	0%	100%	0%	100%	0%	**100%**	-	94.6%
Single-Unit Trucks	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	2	0	0	**2**	-	0	0	0	0	0	**0**	-	2
% Single-Unit Trucks	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	2.5%	0%	0%	**1.4%**	-	0%	0%	0%	0%	0%	**0%**	-	0.7%
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
% 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%
Buses	0	0	5	0	0	**5**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	4	0	0	0	**4**	-	0	0	0	0	0	**0**	-	9
% Buses	0%	0%	5.7%	0%	0%	**5.1%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	7.0%	0%	0%	0%	**2.7%**	-	0%	0%	0%	0%	0%	**0%**	-	3.3%
Bicycles on Road	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	1	0	0	**1**	-	0	0	0	0	0	**0**	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	1.2%	0%	0%	**0.7%**	-	0%	0%	0%	0%	0%	**0%**	-	0.4%
Pedestrians	-	-	-	-	-	-	4	-	-	-	-	-	-	3	-	-	-	-	-	-	17	-	-	-	-	-	-	4	-	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC

Tue Oct 5, 2021
PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882477, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
Cambridge, ON, N1R 8J8, CA



Allendale Road & Murray Street/Main Street -... - TMC

Sat Oct 2, 2021
Full Length (10 AM-4 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON, N1R 8J8, CA

Leg	Murray Street							Allendale Avenue							Allendale Avenue							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-02 10:00AM	1	1	12	3	0	**17**	1	5	2	0	1	0	**8**	1	8	1	0	0	0	**9**	3	0	8	17	2	0	**27**	2	0	1	0	1	0	**2**	0	**63**
10:15AM	1	0	17	4	0	**22**	0	1	3	5	1	0	**10**	0	4	0	1	0	0	**5**	16	1	9	22	2	0	**34**	1	0	0	0	1	0	**1**	2	**72**
10:30AM	3	1	21	11	0	**36**	1	3	0	5	1	0	**9**	1	16	0	0	1	0	**17**	10	0	10	19	0	0	**29**	1	0	0	0	0	0	**0**	2	**91**
10:45AM	1	0	22	9	0	**32**	4	4	1	3	1	0	**9**	2	9	5	0	3	0	**17**	21	1	14	12	0	0	**27**	8	0	0	0	0	0	**0**	2	**85**
Hourly Total	6	2	72	27	0	**107**	6	13	6	13	4	0	**36**	4	37	6	1	4	0	**48**	50	2	41	70	4	0	**117**	12	0	1	0	2	0	**3**	6	**311**
11:00AM	2	5	13	7	0	**27**	3	3	3	4	1	0	**11**	2	4	3	1	6	0	**14**	15	1	9	19	1	0	**30**	6	0	0	0	3	0	**3**	2	**85**
11:15AM	5	2	21	4	0	**32**	1	9	7	3	0	0	**19**	0	8	1	2	1	0	**12**	7	0	8	10	1	0	**19**	1	0	0	1	1	0	**2**	1	**84**
11:30AM	2	0	13	6	0	**21**	5	1	3	0	0	0	**4**	0	7	4	2	4	0	**17**	10	0	10	24	1	0	**35**	1	0	2	0	1	0	**3**	5	**80**
11:45AM	2	1	16	4	1	**24**	1	3	4	0	3	0	**10**	0	5	5	1	1	0	**12**	16	0	15	20	1	0	**36**	3	0	1	0	1	0	**2**	1	**84**
Hourly Total	11	8	63	21	1	**104**	10	16	17	7	4	0	**44**	2	24	13	6	12	0	**55**	48	1	42	73	4	0	**120**	11	0	3	1	6	0	**10**	9	**333**
12:00PM	0	0	26	2	0	**28**	0	7	4	2	0	0	**13**	1	3	1	1	1	0	**6**	15	0	14	19	1	0	**34**	7	1	0	0	0	0	**1**	0	**82**
12:15PM	1	0	26	3	0	**30**	2	3	4	2	2	0	**11**	3	4	4	0	0	0	**8**	3	3	10	25	1	0	**39**	0	0	2	1	3	0	**6**	3	**94**
12:30PM	1	0	22	1	0	**24**	2	3	0	2	0	0	**5**	0	5	2	3	2	0	**12**	3	0	16	26	1	0	**43**	0	0	0	0	1	0	**1**	0	**85**
12:45PM	0	1	19	8	0	**28**	0	2	0	0	0	0	**2**	1	6	1	2	1	0	**10**	10	0	15	34	2	0	**51**	0	0	0	0	0	0	**0**	1	**91**
Hourly Total	2	1	93	14	0	**110**	4	15	8	6	2	0	**31**	5	18	8	6	4	0	**36**	31	3	55	104	5	0	**167**	7	1	2	1	4	0	**8**	4	**352**
1:00PM	1	1	22	3	0	**27**	1	1	1	0	0	0	**2**	0	2	1	0	0	0	**3**	5	1	16	21	0	0	**38**	0	0	2	0	0	0	**2**	1	**72**
1:15PM	1	2	22	5	0	**30**	4	4	1	2	0	0	**7**	0	2	2	1	1	0	**6**	9	2	7	27	2	0	**38**	6	0	1	2	0	0	**3**	3	**84**
1:30PM	3	1	19	4	0	**27**	3	3	0	1	0	0	**4**	1	4	4	0	0	0	**8**	9	3	26	19	1	0	**49**	0	0	4	0	1	0	**5**	7	**93**
1:45PM	2	3	30	3	0	**38**	1	2	1	4	0	0	**7**	0	0	2	0	0	0	**2**	2	1	13	24	1	0	**39**	0	0	1	0	1	0	**2**	1	**88**
Hourly Total	7	7	93	15	0	**122**	9	10	3	7	0	0	**20**	1	8	9	1	1	0	**19**	25	7	62	91	4	0	**164**	6	0	8	2	2	0	**12**	12	**337**
2:00PM	2	2	13	10	0	**27**	1	5	3	3	0	0	**11**	0	4	3	2	1	1	**11**	10	0	19	33	1	0	**53**	1	0	4	0	0	0	**4**	0	**106**
2:15PM	0	0	24	7	0	**31**	0	7	4	3	1	0	**15**	0	4	6	2	0	1	**13**	5	0	16	23	5	0	**44**	0	0	0	2	0	0	**2**	4	**105**
2:30PM	0	1	21	3	0	**25**	2	3	0	2	1	0	**6**	1	5	3	3	1	0	**12**	5	0	28	29	5	0	**62**	3	0	0	0	3	0	**3**	1	**108**
2:45PM	0	2	19	8	0	**29**	8	0	7	3	0	0	**10**	0	2	1	1	1	0	**5**	15	1	21	34	6	0	**62**	7	0	1	0	2	0	**3**	4	**109**
Hourly Total	2	5	77	28	0	**112**	11	15	14	11	2	0	**42**	1	15	13	8	3	2	**41**	35	1	84	119	17	0	**221**	11	0	5	2	5	0	**12**	9	**428**
3:00PM	0	1	16	1	0	**18**	6	6	2	2	1	0	**11**	0	5	1	0	0	0	**6**	18	1	21	26	0	0	**48**	4	0	0	0	3	0	**3**	0	**86**
3:15PM	2	0	23	7	0	**32**	4	8	1	3	1	0	**13**	4	3	1	1	0	0	**5**	9	2	11	30	4	0	**47**	2	0	0	0	1	0	**1**	2	**98**
3:30PM	1	0	20	6	0	**27**	2	4	1	2	1	0	**8**	2	2	3	2	1	0	**8**	13	0	23	35	4	0	**62**	2	0	0	0	2	0	**2**	2	**107**
3:45PM	3	3	23	5	0	**34**	5	5	7	1	0	0	**13**	6	5	0	2	0	0	**7**	11	2	40	43	6	0	**91**	0	1	1	0	0	0	**2**	0	**147**
Hourly Total	6	4	82	19	0	**111**	17	23	11	8	3	0	**45**	12	15	5	5	1	0	**26**	51	5	95	134	14	0	**248**	8	1	1	0	6	0	**8**	4	**438**
Total	34	27	480	124	1	**666**	57	92	59	52	15	0	**218**	25	117	54	27	25	2	**225**	240	19	379	591	48	0	**1037**	55	2	20	6	25	0	**53**	44	**2199**
% Approach	5.1%	4.1%	72.1%	18.6%	0.2%	**-**	-	42.2%	27.1%	23.9%	6.9%	0%	**-**	-	52.0%	24.0%	12.0%	11.1%	0.9%	**-**	-	1.8%	36.5%	57.0%	4.6%	0%	**-**	-	3.8%	37.7%	11.3%	47.2%	0%	**-**	-	-
% Total	1.5%	1.2%	21.8%	5.6%	0%	**30.3%**	-	4.2%	2.7%	2.4%	0.7%	0%	**9.9%**	-	5.3%	2.5%	1.2%	1.1%	0.1%	**10.2%**	-	0.9%	17.2%	26.9%	2.2%	0%	**47.2%**	-	0.1%	0.9%	0.3%	1.1%	0%	**2.4%**	-	-
Motorcycles	0	2	8	0	0	**10**	-	0	1	0	0	0	**1**	-	0	1	0	0	0	**1**	-	0	2	14	0	0	**16**	-	0	0	0	1	0	**1**	-	29
% Motorcycles	0%	7.4%	1.7%	0%	0%	**1.5%**	-	0%	1.7%	0%	0%	0%	**0.5%**	-	0%	1.9%	0%	0%	0%	**0.4%**	-	0%	0.5%	2.4%	0%	0%	**1.5%**	-	0%	0%	0%	4.0%	0%	**1.9%**	-	1.3%
Lights	34	25	452	105	1	**617**	-	90	50	43	15	0	**198**	-	101	49	27	23	2	**202**	-	18	362	574	46	0	**1000**	-	2	19	5	24	0	**50**	-	2067
% Lights	100%	92.6%	94.2%	84.7%	100%	**92.6%**	-	97.8%	84.7%	82.7%	100%	0%	**90.8%**	-	86.3%	90.7%	100%	92.0%	100%	**89.8%**	-	94.7%	95.5%	97.1%	95.8%	0%	**96.4%**	-	100%	95.0%	83.3%	96.0%	0%	**94.3%**	-	94.0%
Single-Unit Trucks	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	1	1	1	1	0	**4**	-	0	0	0	0	0	**0**	-	4
% Single-Unit Trucks	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	5.3%	0.3%	0.2%	2.1%	0%	**0.4%**	-	0%	0%	0%	0%	0%	**0%**	-	0.2%
Articulated Trucks	0	0	0	0	0	**0**	-	1	0	0	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	1
% Articulated Trucks	0%	0%	0%	0%	0%	**0%**	-	1.1%	0%	0%	0%	0%	**0.5%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%
Buses	0	0	16	15	0	**31**	-	0	5	9	0	0	**14**	-	16	4	0	0	0	**20**	-	0	13	1	1	0	**15**	-	0	0	0	0	0	**0**	-	80
% Buses	0%	0%	3.3%	12.1%	0%	**4.7%**	-	0%	8.5%	17.3%	0%	0%	**6.4%**	-	13.7%	7.4%	0%	0%	0%	**8.9%**	-	0%	3.4%	0.2%	2.1%	0%	**1.4%**	-	0%	0%	0%	0%	0%	**0%**	-	3.6%
Bicycles on Road	0	0	4	4	0	**8**	-	1	3	0	0	0	**4**	-	0	0	0	2	0	**2**	-	0	1	1	0	0	**2**	-	0	1	1	0	0	**2**	-	18
% Bicycles on Road	0%	0%	0.8%	3.2%	0%	**1.2%**	-	1.1%	5.1%	0%	0%	0%	**1.8%**	-	0%	0%	0%	8.0%	0%	**0.9%**	-	0%	0.3%	0.2%	0%	0%	**0.2%**	-	0%	5.0%	16.7%	0%	0%	**3.8%**	-	0.8%
Pedestrians	-	-	-	-	-	-	54	-	-	-	-	-	-	24	-	-	-	-	-	-	230	-	-	-	-	-	-	49	-	-	-	-	-	-	42	

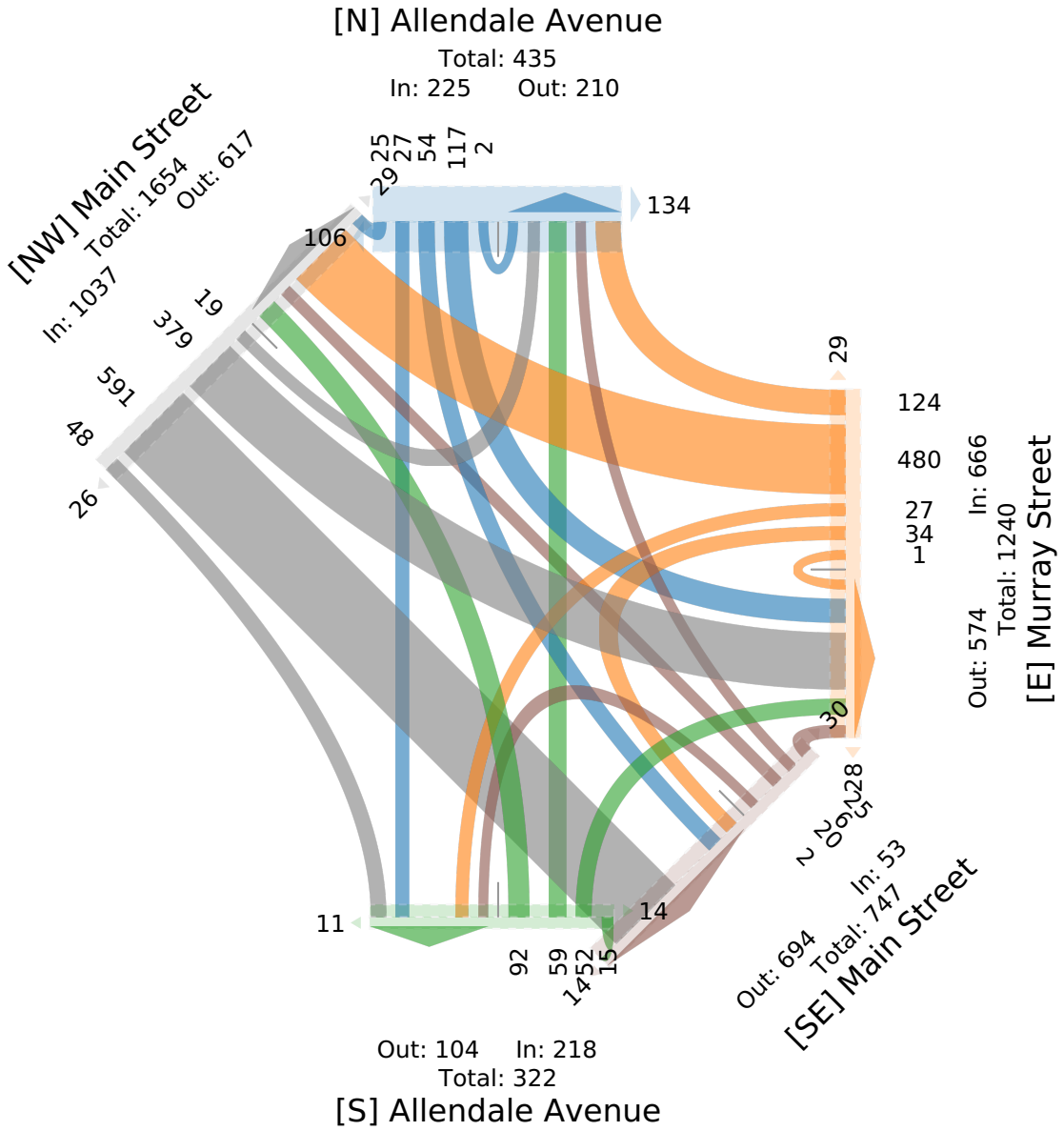
Leg	Murray Street							Allendale Avenue							Allendale Avenue							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	**App**	Ped*	BL	T	R	HR	U	**App**	Ped*	L	BL	T	HR	U	**App**	Ped*	HL	BL	T	BR	U	**App**	Ped*	HL	T	BR	HR	U	**App**	Ped*	**Int**
% Pedestrians	-	-	-	-	-	-	94.7%	-	-	-	-	-	-	96.0%	-	-	-	-	-	-	95.8%	-	-	-	-	-	-	89.1%	-	-	-	-	-	-	95.5%	-
Bicycles on Crosswalk	-	-	-	-	-	-	3	-	-	-	-	-	-	1	-	-	-	-	-	-	10	-	-	-	-	-	-	6	-	-	-	-	-	-	2	
% Bicycles on Crosswalk	-	-	-	-	-	-	5.3%	-	-	-	-	-	-	4.0%	-	-	-	-	-	-	4.2%	-	-	-	-	-	-	10.9%	-	-	-	-	-	-	4.5%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC

Sat Oct 2, 2021
Full Length (10 AM-4 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
Cambridge, ON, N1R 8J8, CA



Allendale Road & Murray Street/Main Street -... - TMC

Sat Oct 2, 2021
AM Peak (WKND) (10 AM - 11 AM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

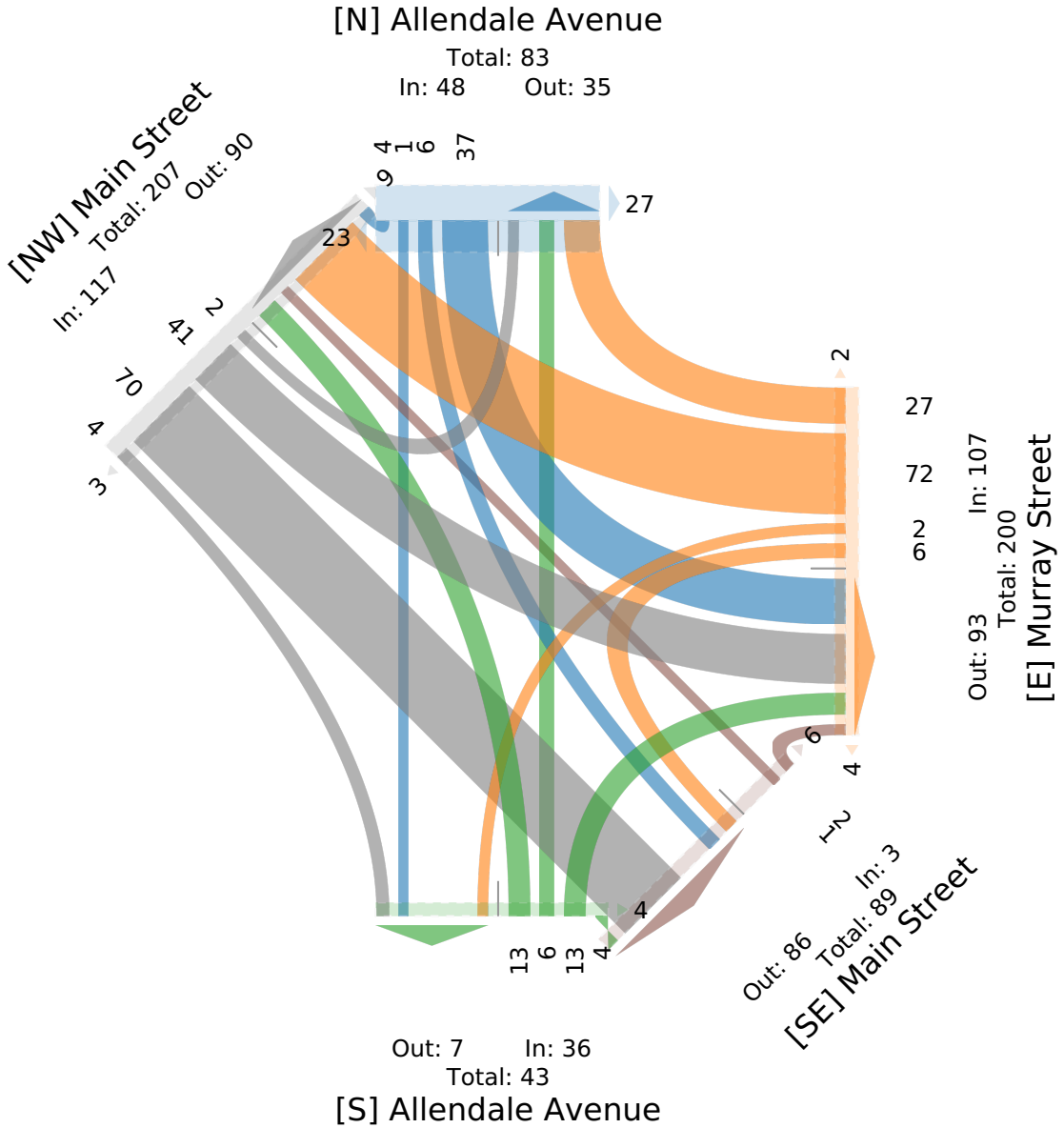
Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON, N1R 8J8, CA

Leg	Murray Street							Allendale Avenue							Allendale Avenue							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-02 10:00AM	1	1	12	3	0	**17**	1	5	2	0	1	0	**8**	1	8	1	0	0	0	**9**	3	0	8	17	2	0	**27**	2	0	1	0	1	0	**2**	0	**63**
10:15AM	1	0	17	4	0	**22**	0	1	3	5	1	0	**10**	0	4	0	1	0	0	**5**	16	1	9	22	2	0	**34**	1	0	0	0	1	0	**1**	2	**72**
10:30AM	3	1	21	11	0	**36**	1	3	0	5	1	0	**9**	1	16	0	0	1	0	**17**	10	0	10	19	0	0	**29**	1	0	0	0	0	0	**0**	2	**91**
10:45AM	1	0	22	9	0	**32**	4	4	1	3	1	0	**9**	2	9	5	0	3	0	**17**	21	1	14	12	0	0	**27**	8	0	0	0	0	0	**0**	2	**85**
Total	6	2	72	27	0	**107**	6	13	6	13	4	0	**36**	4	37	6	1	4	0	**48**	50	2	41	70	4	0	**117**	12	0	1	0	2	0	**3**	6	**311**
% Approach	5.6%	1.9%	67.3%	25.2%	0%	**-**	-	36.1%	16.7%	36.1%	11.1%	0%	**-**	-	77.1%	12.5%	2.1%	8.3%	0%	**-**	-	1.7%	35.0%	59.8%	3.4%	0%	**-**	-	0%	33.3%	0%	66.7%	0%	**-**	-	-
% Total	1.9%	0.6%	23.2%	8.7%	0%	**34.4%**	-	4.2%	1.9%	4.2%	1.3%	0%	**11.6%**	-	11.9%	1.9%	0.3%	1.3%	0%	**15.4%**	-	0.6%	13.2%	22.5%	1.3%	0%	**37.6%**	-	0%	0.3%	0%	0.6%	0%	**1.0%**	-	-
PHF	0.500	0.500	0.833	0.639	-	**0.789**	-	0.750	0.500	0.650	1.000	-	**0.875**	-	0.578	0.300	0.250	0.333	-	**0.706**	-	0.500	0.732	0.795	0.500	-	**0.860**	-	-	0.250	-	0.500	-	**0.375**	-	0.874
Motorcycles	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
% Motorcycles	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%
Lights	6	2	68	19	0	**95**	-	11	5	13	4	0	**33**	-	32	6	1	4	0	**43**	-	2	39	69	4	0	**114**	-	0	1	0	2	0	**3**	-	288
% Lights	100%	100%	94.4%	70.4%	0%	**88.8%**	-	84.6%	83.3%	100%	100%	0%	**91.7%**	-	86.5%	100%	100%	100%	0%	**89.6%**	-	100%	95.1%	98.6%	100%	0%	**97.4%**	-	0%	100%	0%	100%	0%	**100%**	-	92.6%
Single-Unit 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
% Single-Unit 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%
Articulated Trucks	0	0	0	0	0	**0**	-	1	0	0	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	1
% Articulated Trucks	0%	0%	0%	0%	0%	**0%**	-	7.7%	0%	0%	0%	0%	**2.8%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0.3%
Buses	0	0	2	4	0	**6**	-	0	1	0	0	0	**1**	-	5	0	0	0	0	**5**	-	0	2	1	0	0	**3**	-	0	0	0	0	0	**0**	-	15
% Buses	0%	0%	2.8%	14.8%	0%	**5.6%**	-	0%	16.7%	0%	0%	0%	**2.8%**	-	13.5%	0%	0%	0%	0%	**10.4%**	-	0%	4.9%	1.4%	0%	0%	**2.6%**	-	0%	0%	0%	0%	0%	**0%**	-	4.8%
Bicycles on Road	0	0	2	4	0	**6**	-	1	0	0	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	7
% Bicycles on Road	0%	0%	2.8%	14.8%	0%	**5.6%**	-	7.7%	0%	0%	0%	0%	**2.8%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	2.3%
Pedestrians	-	-	-	-	-	-	6	-	-	-	-	-	-	3	-	-	-	-	-	-	45	-	-	-	-	-	-	9	-	-	-	-	-	-	6	
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	75.0%	-	-	-	-	-	-	90.0%	-	-	-	-	-	-	75.0%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	5	-	-	-	-	-	-	3	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	25.0%	-	-	-	-	-	-	10.0%	-	-	-	-	-	-	25.0%	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC
Sat Oct 2, 2021
AM Peak (WKND) (10 AM - 11 AM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
Cambridge, ON, N1R 8J8, CA



Allendale Road & Murray Street/Main Street -... - TMC

Sat Oct 2, 2021

Midday Peak (WKND) (12 PM - 1 PM)

All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON, N1R 8J8, CA

Leg	Murray Street							Allendale Avenue							Allendale Avenue							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-02 12:00PM	0	0	26	2	0	**28**	0	7	4	2	0	0	**13**	1	3	1	1	1	0	**6**	15	0	14	19	1	0	**34**	7	1	0	0	0	0	**1**	0	**82**
12:15PM	1	0	26	3	0	**30**	2	3	4	2	2	0	**11**	3	4	4	0	0	0	**8**	3	3	10	25	1	0	**39**	0	0	2	1	3	0	**6**	3	**94**
12:30PM	1	0	22	1	0	**24**	2	3	0	2	0	0	**5**	0	5	2	3	2	0	**12**	3	0	16	26	1	0	**43**	0	0	0	0	1	0	**1**	0	**85**
12:45PM	0	1	19	8	0	**28**	0	2	0	0	0	0	**2**	1	6	1	2	1	0	**10**	10	0	15	34	2	0	**51**	0	0	0	0	0	0	**0**	1	**91**
Total	2	1	93	14	0	**110**	4	15	8	6	2	0	**31**	5	18	8	6	4	0	**36**	31	3	55	104	5	0	**167**	7	1	2	1	4	0	**8**	4	**352**
% Approach	1.8%	0.9%	84.5%	12.7%	0%	**-**	-	48.4%	25.8%	19.4%	6.5%	0%	**-**	-	50.0%	22.2%	16.7%	11.1%	0%	**-**	-	1.8%	32.9%	62.3%	3.0%	0%	**-**	-	12.5%	25.0%	12.5%	50.0%	0%	**-**	-	-
% Total	0.6%	0.3%	26.4%	4.0%	0%	**31.3%**	-	4.3%	2.3%	1.7%	0.6%	0%	**8.8%**	-	5.1%	2.3%	1.7%	1.1%	0%	**10.2%**	-	0.9%	15.6%	29.5%	1.4%	0%	**47.4%**	-	0.3%	0.6%	0.3%	1.1%	0%	**2.3%**	-	-
PHF	0.500	0.250	0.894	0.438	-	**0.917**	-	0.536	0.500	0.750	0.250	-	**0.596**	-	0.750	0.500	0.500	0.750	-	**0.795**	-	0.250	0.859	0.757	0.625	-	**0.814**	-	0.250	0.250	0.250	0.333	-	**0.333**	-	0.941
Motorcycles	0	0	1	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	3	0	0	**3**	-	0	0	0	1	0	**1**	-	5
% Motorcycles	0%	0%	1.1%	0%	0%	**0.9%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	2.9%	0%	0%	**1.8%**	-	0%	0%	0%	25.0%	0%	**12.5%**	-	1.4%
Lights	2	1	90	13	0	**106**	-	15	7	5	2	0	**29**	-	16	8	6	3	0	**33**	-	3	53	100	5	0	**161**	-	1	2	1	3	0	**7**	-	336
% Lights	100%	100%	96.8%	92.9%	0%	**96.4%**	-	100%	87.5%	83.3%	100%	0%	**93.5%**	-	88.9%	100%	100%	75.0%	0%	**91.7%**	-	100%	96.4%	96.2%	100%	0%	**96.4%**	-	100%	100%	100%	75.0%	0%	**87.5%**	-	95.5%
Single-Unit 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
% Single-Unit 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%
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
% 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%
Buses	0	0	2	1	0	**3**	-	0	1	1	0	0	**2**	-	2	0	0	0	0	**2**	-	0	2	0	0	0	**2**	-	0	0	0	0	0	**0**	-	9
% Buses	0%	0%	2.2%	7.1%	0%	**2.7%**	-	0%	12.5%	16.7%	0%	0%	**6.5%**	-	11.1%	0%	0%	0%	0%	**5.6%**	-	0%	3.6%	0%	0%	0%	**1.2%**	-	0%	0%	0%	0%	0%	**0%**	-	2.6%
Bicycles on Road	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	1	0	**1**	-	0	0	1	0	0	**1**	-	0	0	0	0	0	**0**	-	2
% Bicycles on Road	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	25.0%	0%	**2.8%**	-	0%	0%	1.0%	0%	0%	**0.6%**	-	0%	0%	0%	0%	0%	**0%**	-	0.6%
Pedestrians	-	-	-	-	-	-	4	-	-	-	-	-	-	5	-	-	-	-	-	-	31	-	-	-	-	-	-	7	-	-	-	-	-	-	4	
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC

Sat Oct 2, 2021
Midday Peak (WKND) (12 PM - 1 PM)
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
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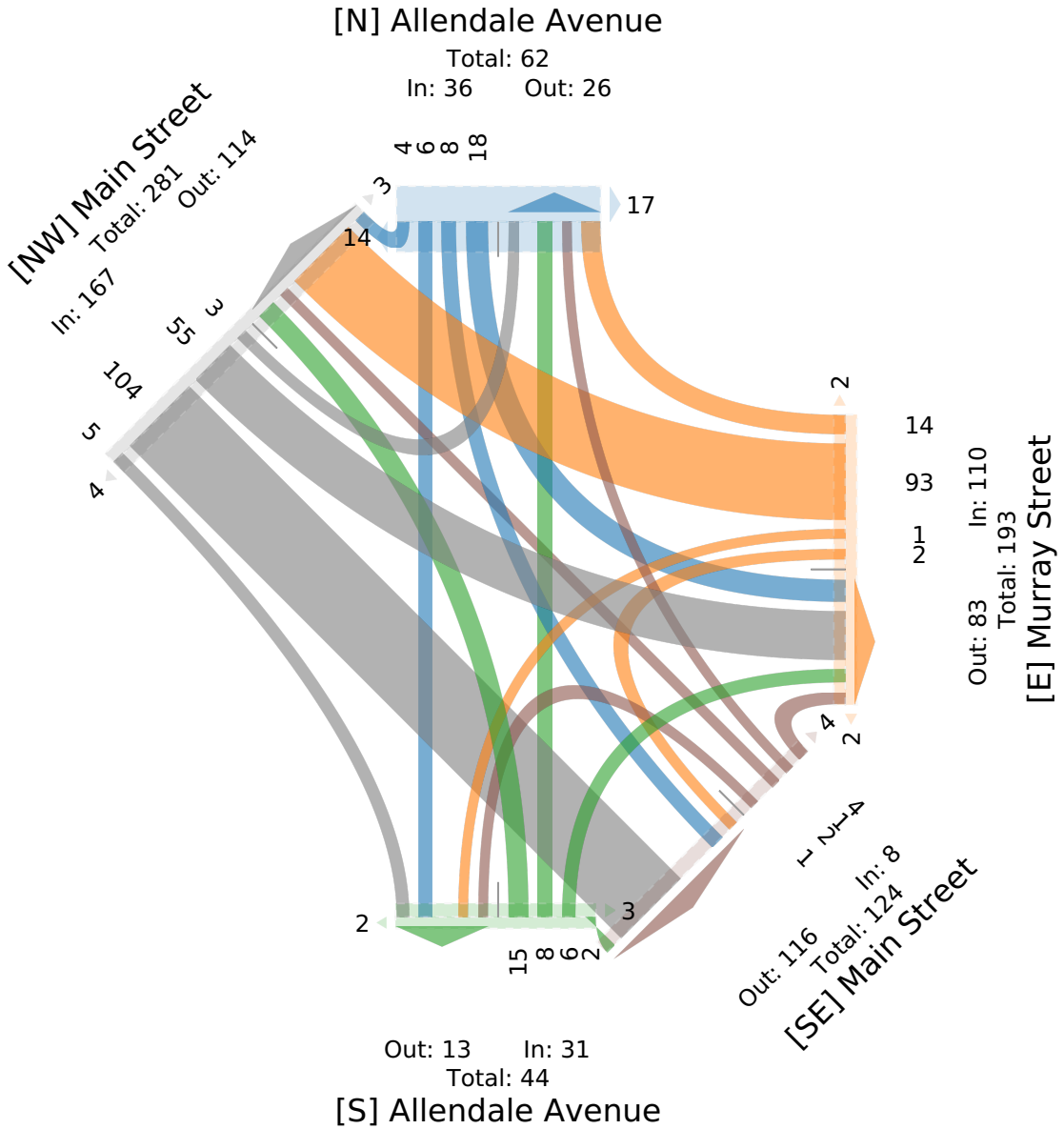


Allendale Road & Murray Street/Main Street -... - TMC

Sat Oct 2, 2021
PM Peak (WKND) (3 PM - 4 PM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

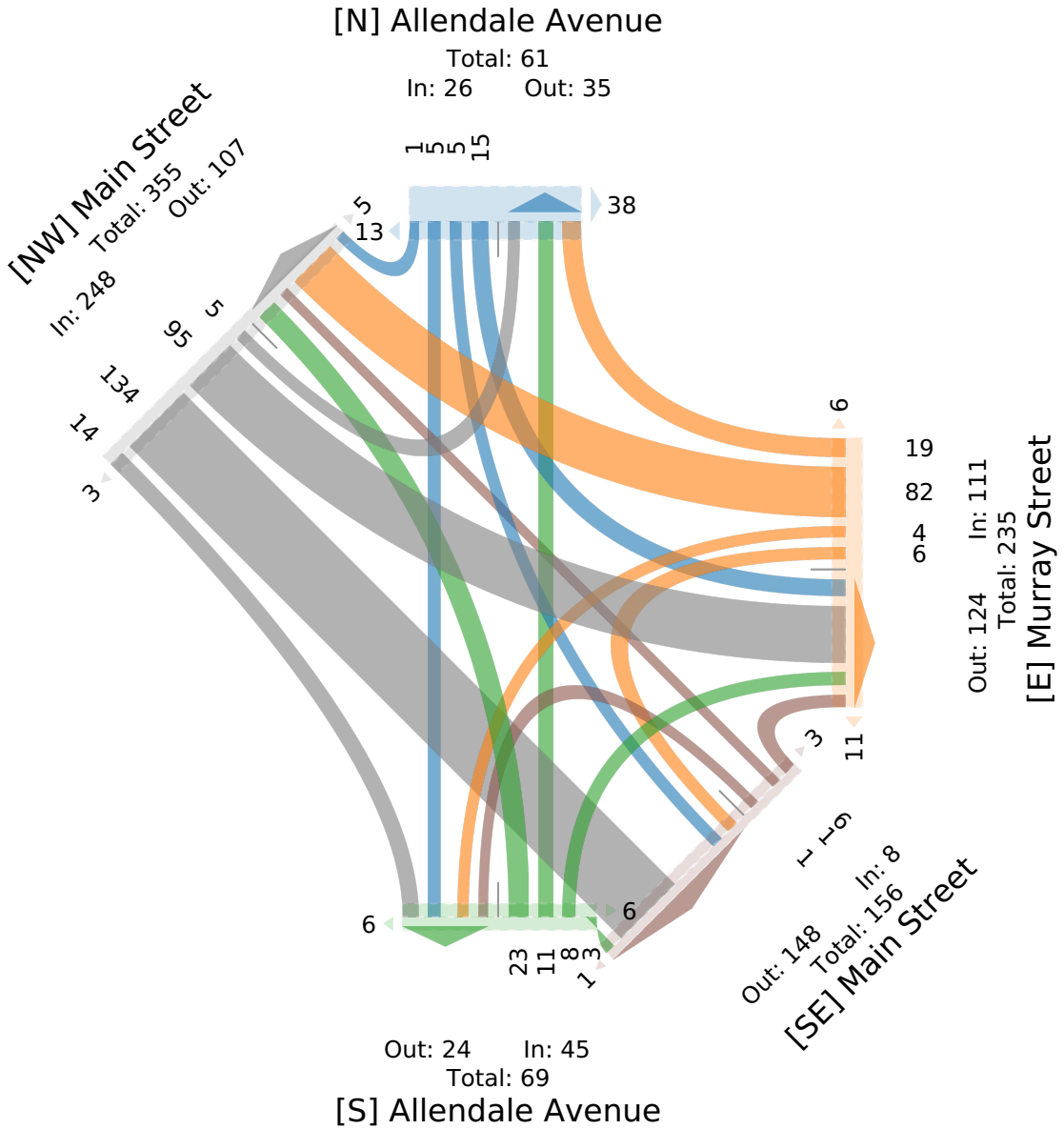
Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON, N1R 8J8, CA

Leg	Murray Street							Allendale Avenue							Allendale Avenue							Main Street							Main Street							
Direction	Westbound							Northbound							Southbound							Southeastbound							Northwestbound							
Time	HL	L	BR	R	U	App	Ped*	BL	T	R	HR	U	App	Ped*	L	BL	T	HR	U	App	Ped*	HL	BL	T	BR	U	App	Ped*	HL	T	BR	HR	U	App	Ped*	Int
2021-10-02 3:00PM	0	1	16	1	0	**18**	6	6	2	2	1	0	**11**	0	5	1	0	0	0	**6**	18	1	21	26	0	0	**48**	4	0	0	0	3	0	**3**	0	**86**
3:15PM	2	0	23	7	0	**32**	4	8	1	3	1	0	**13**	4	3	1	1	0	0	**5**	9	2	11	30	4	0	**47**	2	0	0	0	1	0	**1**	2	**98**
3:30PM	1	0	20	6	0	**27**	2	4	1	2	1	0	**8**	2	2	3	2	1	0	**8**	13	0	23	35	4	0	**62**	2	0	0	0	2	0	**2**	2	**107**
3:45PM	3	3	23	5	0	**34**	5	5	7	1	0	0	**13**	6	5	0	2	0	0	**7**	11	2	40	43	6	0	**91**	0	1	1	0	0	0	**2**	0	**147**
Total	6	4	82	19	0	**111**	17	23	11	8	3	0	**45**	12	15	5	5	1	0	**26**	51	5	95	134	14	0	**248**	8	1	1	0	6	0	**8**	4	**438**
% Approach	5.4%	3.6%	73.9%	17.1%	0%	**-**	-	51.1%	24.4%	17.8%	6.7%	0%	**-**	-	57.7%	19.2%	19.2%	3.8%	0%	**-**	-	2.0%	38.3%	54.0%	5.6%	0%	**-**	-	12.5%	12.5%	0%	75.0%	0%	**-**	-	-
% Total	1.4%	0.9%	18.7%	4.3%	0%	**25.3%**	-	5.3%	2.5%	1.8%	0.7%	0%	**10.3%**	-	3.4%	1.1%	1.1%	0.2%	0%	**5.9%**	-	1.1%	21.7%	30.6%	3.2%	0%	**56.6%**	-	0.2%	0.2%	0%	1.4%	0%	**1.8%**	-	-
PHF	0.500	0.333	0.891	0.679	-	**0.816**	-	0.719	0.357	0.667	0.750	-	**0.846**	-	0.750	0.417	0.625	0.250	-	**0.813**	-	0.625	0.594	0.779	0.583	-	**0.681**	-	0.250	0.250	-	0.500	-	**0.667**	-	0.743
Motorcycles	0	1	2	0	0	**3**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	3	0	0	**3**	-	0	0	0	0	0	**0**	-	6
% Motorcycles	0%	25.0%	2.4%	0%	0%	**2.7%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	2.2%	0%	0%	**1.2%**	-	0%	0%	0%	0%	0%	**0%**	-	1.4%
Lights	6	3	76	18	0	**103**	-	23	9	6	3	0	**41**	-	14	5	5	1	0	**25**	-	5	90	130	13	0	**238**	-	1	1	0	6	0	**8**	-	415
% Lights	100%	75.0%	92.7%	94.7%	0%	**92.8%**	-	100%	81.8%	75.0%	100%	0%	**91.1%**	-	93.3%	100%	100%	100%	0%	**96.2%**	-	100%	94.7%	97.0%	92.9%	0%	**96.0%**	-	100%	100%	0%	100%	0%	**100%**	-	94.7%
Single-Unit Trucks	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	1	1	1	0	**3**	-	0	0	0	0	0	**0**	-	3
% Single-Unit Trucks	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	1.1%	0.7%	7.1%	0%	**1.2%**	-	0%	0%	0%	0%	0%	**0%**	-	0.7%
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
% 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%
Buses	0	0	4	1	0	**5**	-	0	1	2	0	0	**3**	-	1	0	0	0	0	**1**	-	0	4	0	0	0	**4**	-	0	0	0	0	0	**0**	-	13
% Buses	0%	0%	4.9%	5.3%	0%	**4.5%**	-	0%	9.1%	25.0%	0%	0%	**6.7%**	-	6.7%	0%	0%	0%	0%	**3.8%**	-	0%	4.2%	0%	0%	0%	**1.6%**	-	0%	0%	0%	0%	0%	**0%**	-	3.0%
Bicycles on Road	0	0	0	0	0	**0**	-	0	1	0	0	0	**1**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	0	0	0	0	0	**0**	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	**0%**	-	0%	9.1%	0%	0%	0%	**2.2%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	0%	**0%**	-	0.2%
Pedestrians	-	-	-	-	-	-	15	-	-	-	-	-	-	12	-	-	-	-	-	-	50	-	-	-	-	-	-	8	-	-	-	-	-	-	4	
% Pedestrians	-	-	-	-	-	-	88.2%	-	-	-	-	-	-	100%	-	-	-	-	-	-	98.0%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	11.8%	-	-	-	-	-	-	0%	-	-	-	-	-	-	2.0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Allendale Road & Murray Street/Main Street -... - TMC
Sat Oct 2, 2021
PM Peak (WKND) (3 PM - 4 PM) - Overall Peak Hour
All Classes (Motorcycles, Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 882476, Location: 43.083393, -79.085977, Site Code: 200646

Provided by: Paradigm Transportation Solutions Limited
5A-150 Pinebush Road,
Cambridge, ON, N1R 8J8, CA



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021

Turning Movement Data

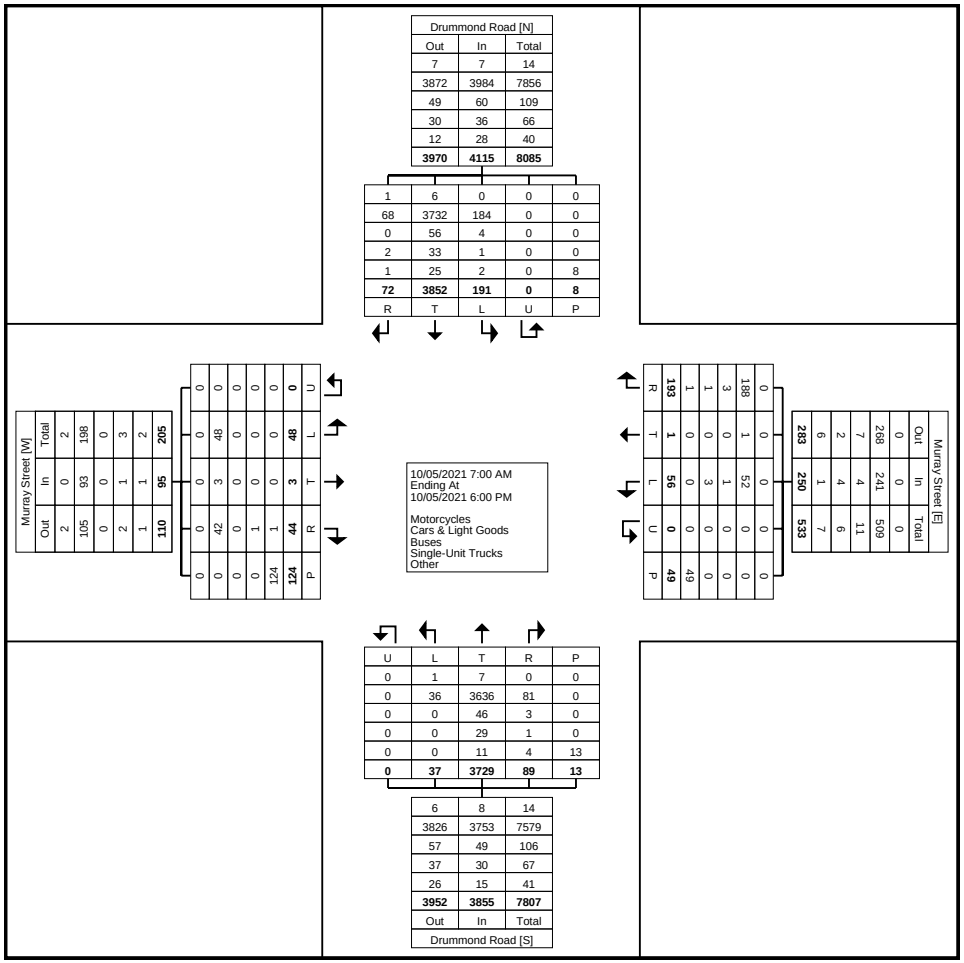
Start Time	Murray Street Eastbound						Murray Street Westbound						Drummond Road Northbound						Drummond Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	1	0	0	0	4	0	0	4	0	53	0	0	0	53	0	41	1	0	0	42	99
7:15 AM	1	0	0	0	4	1	1	0	2	0	1	3	0	50	1	0	1	51	2	36	0	0	0	38	93
7:30 AM	1	0	1	0	1	2	0	0	10	0	1	10	1	67	1	0	0	69	2	67	1	0	4	70	151
7:45 AM	1	0	0	0	9	1	0	0	2	0	0	2	0	95	3	0	0	98	3	63	2	0	0	68	169
Hourly Total	3	0	1	0	15	4	1	0	18	0	2	19	1	265	5	0	1	271	7	207	4	0	4	218	512
8:00 AM	0	0	0	0	8	0	1	0	6	0	4	7	1	91	3	0	0	95	1	80	1	0	0	82	184
8:15 AM	1	0	2	0	2	3	3	0	9	0	3	12	0	127	3	0	0	130	4	82	1	0	0	87	232
8:30 AM	2	0	1	0	2	3	5	0	10	0	1	15	2	118	3	0	1	123	2	111	0	0	0	113	254
8:45 AM	1	0	1	0	2	2	3	1	4	0	2	8	1	147	4	0	0	152	8	91	5	0	0	104	266
Hourly Total	4	0	4	0	14	8	12	1	29	0	10	42	4	483	13	0	1	500	15	364	7	0	0	386	936
9:00 AM	2	0	3	0	4	5	0	0	8	0	0	8	2	97	2	0	0	101	5	110	1	0	0	116	230
9:15 AM	4	0	0	0	3	4	1	0	8	0	3	9	2	96	2	0	0	100	6	71	4	0	1	81	194
9:30 AM	2	0	1	0	8	3	4	0	8	0	0	12	0	116	1	0	0	117	7	98	3	0	0	108	240
9:45 AM	2	0	2	0	2	4	2	0	5	0	0	7	2	113	0	0	0	115	2	99	0	0	0	101	227
Hourly Total	10	0	6	0	17	16	7	0	29	0	3	36	6	422	5	0	0	433	20	378	8	0	1	406	891
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	4	0	1	0	6	5	0	0	6	0	1	6	1	124	2	0	1	127	3	111	1	0	0	115	253
11:15 AM	0	0	1	0	4	1	4	0	2	0	1	6	2	96	1	0	2	99	8	114	0	0	0	122	228
11:30 AM	2	1	2	0	2	5	6	0	5	0	0	11	1	119	2	0	0	122	9	119	1	0	0	129	267
11:45 AM	1	0	1	0	5	2	4	0	1	0	1	5	1	130	1	0	0	132	2	133	4	0	0	139	278
Hourly Total	7	1	5	0	17	13	14	0	14	0	3	28	5	469	6	0	3	480	22	477	6	0	0	505	1026
12:00 PM	0	0	0	0	6	0	0	0	3	0	0	3	2	134	4	0	0	140	2	121	2	0	0	125	268
12:15 PM	0	1	0	0	2	1	1	0	6	0	1	7	2	132	3	0	4	137	9	139	1	0	0	149	294
12:30 PM	3	0	4	0	2	7	3	0	6	0	1	9	1	113	4	0	0	118	5	129	2	0	0	136	270
12:45 PM	1	0	1	0	2	2	2	0	4	0	2	6	1	139	2	0	0	142	6	123	1	0	0	130	280
Hourly Total	4	1	5	0	12	10	6	0	19	0	4	25	6	518	13	0	4	537	22	512	6	0	0	540	1112
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	0	1	0	4	2	2	0	6	0	7	8	0	140	1	0	1	141	4	161	4	0	0	169	320
3:15 PM	3	0	0	0	7	3	2	0	6	0	4	8	3	138	3	0	0	144	6	169	4	0	0	179	334
3:30 PM	1	0	2	0	3	3	3	0	6	0	0	9	0	143	10	0	0	153	14	157	3	0	2	174	339
3:45 PM	2	0	1	0	3	3	1	0	10	0	2	11	0	152	5	0	0	157	9	149	3	0	0	161	332
Hourly Total	7	0	4	0	17	11	8	0	28	0	13	36	3	573	19	0	1	595	33	636	14	0	2	683	1325
4:00 PM	2	0	5	0	4	7	1	0	5	0	3	6	1	117	4	0	0	122	11	163	2	0	0	176	311
4:15 PM	3	0	0	0	4	3	2	0	13	0	0	15	2	145	3	0	1	150	11	153	3	0	0	167	335
4:30 PM	1	0	4	0	6	5	1	0	3	0	0	4	0	139	1	0	0	140	10	167	4	0	1	181	330

4:45 PM	3	0	4	0	5	7	2	0	12	0	1	14	2	123	3	0	0	128	8	166	1	0	0	175	324
Hourly Total	9	0	13	0	19	22	6	0	33	0	4	39	5	524	11	0	1	540	40	649	10	0	1	699	1300
5:00 PM	2	1	2	0	3	5	0	0	8	0	0	8	1	120	2	0	0	123	10	152	4	0	0	166	302
5:15 PM	1	0	0	0	4	1	1	0	7	0	4	8	3	127	7	0	0	137	9	171	1	0	0	181	327
5:30 PM	0	0	2	0	4	2	0	0	5	0	1	5	2	117	5	0	2	124	8	157	2	0	0	167	298
5:45 PM	1	0	2	0	2	3	1	0	3	0	5	4	1	111	3	0	0	115	5	149	10	0	0	164	286
Hourly Total	4	1	6	0	13	11	2	0	23	0	10	25	7	475	17	0	2	499	32	629	17	0	0	678	1213
Grand Total	48	3	44	0	124	95	56	1	193	0	49	250	37	3729	89	0	13	3855	191	3852	72	0	8	4115	8315
Approach %	50.5	3.2	46.3	0.0	-	-	22.4	0.4	77.2	0.0	-	-	1.0	96.7	2.3	0.0	-	-	4.6	93.6	1.7	0.0	-	-	-
Total %	0.6	0.0	0.5	0.0	-	1.1	0.7	0.0	2.3	0.0	-	3.0	0.4	44.8	1.1	0.0	-	46.4	2.3	46.3	0.9	0.0	-	49.5	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	1	7	0	0	-	8	0	6	1	0	-	7	15
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	2.7	0.2	0.0	-	-	0.2	0.0	0.2	1.4	-	-	0.2	0.2
Cars & Light Goods	48	3	42	0	-	93	52	1	188	0	-	241	36	3636	81	0	-	3753	184	3732	68	0	-	3984	8071
% Cars & Light Goods	100.0	100.0	95.5	-	-	97.9	92.9	100.0	97.4	-	-	96.4	97.3	97.5	91.0	-	-	97.4	96.3	96.9	94.4	-	-	96.8	97.1
Buses	0	0	0	0	-	0	1	0	3	0	-	4	0	46	3	0	-	49	4	56	0	0	-	60	113
% Buses	0.0	0.0	0.0	-	-	0.0	1.8	0.0	1.6	-	-	1.6	0.0	1.2	3.4	-	-	1.3	2.1	1.5	0.0	-	-	1.5	1.4
Single-Unit Trucks	0	0	1	0	-	1	3	0	1	0	-	4	0	29	1	0	-	30	1	33	2	0	-	36	71
% Single-Unit Trucks	0.0	0.0	2.3	-	-	1.1	5.4	0.0	0.5	-	-	1.6	0.0	0.8	1.1	-	-	0.8	0.5	0.9	2.8	-	-	0.9	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	4	1	0	-	5	0	8	0	0	-	8	13
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	1.1	-	-	0.1	0.0	0.2	0.0	-	-	0.2	0.2
Bicycles on Road	0	0	1	0	-	1	0	0	1	0	-	1	0	7	3	0	-	10	2	17	1	0	-	20	32
% Bicycles on Road	0.0	0.0	2.3	-	-	1.1	0.0	0.0	0.5	-	-	0.4	0.0	0.2	3.4	-	-	0.3	1.0	0.4	1.4	-	-	0.5	0.4
Bicycles on Crosswalk	-	-	-	-	6	-	-	-	-	-	7	-	-	-	-	-	2	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	4.8	-	-	-	-	-	14.3	-	-	-	-	-	15.4	-	-	-	-	-	12.5	-	-
Pedestrians	-	-	-	-	118	-	-	-	-	-	42	-	-	-	-	-	11	-	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	95.2	-	-	-	-	-	85.7	-	-	-	-	-	84.6	-	-	-	-	-	87.5	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021

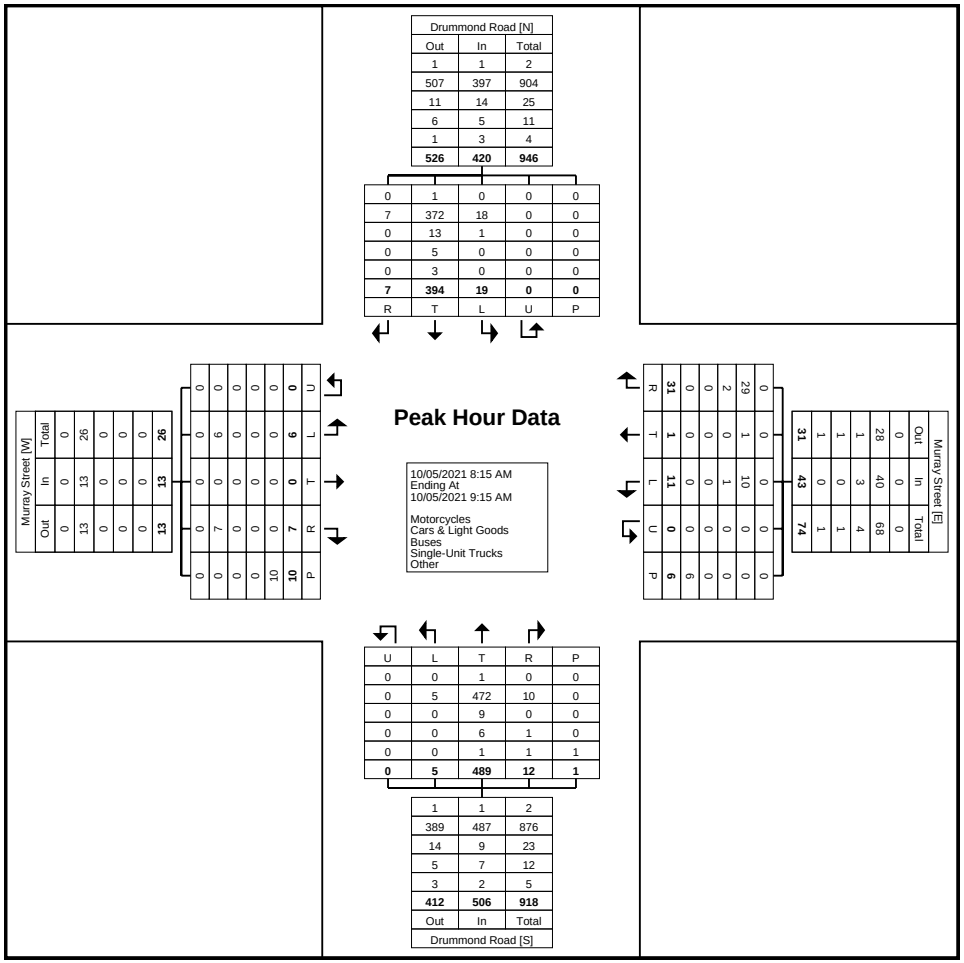
Turning Movement Peak Hour Data (8:15 AM)

Start Time	Murray Street Eastbound						Murray Street Westbound						Drummond Road Northbound						Drummond Road 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	
8:15 AM	1	0	2	0	2	3	3	0	9	0	3	12	0	127	3	0	0	130	4	82	1	0	0	87	232
8:30 AM	2	0	1	0	2	3	5	0	10	0	1	15	2	118	3	0	1	123	2	111	0	0	0	113	254
8:45 AM	1	0	1	0	2	2	3	1	4	0	2	8	1	147	4	0	0	152	8	91	5	0	0	104	266
9:00 AM	2	0	3	0	4	5	0	0	8	0	0	8	2	97	2	0	0	101	5	110	1	0	0	116	230
Total	6	0	7	0	10	13	11	1	31	0	6	43	5	489	12	0	1	506	19	394	7	0	0	420	982
Approach %	46.2	0.0	53.8	0.0	-	-	25.6	2.3	72.1	0.0	-	-	1.0	96.6	2.4	0.0	-	-	4.5	93.8	1.7	0.0	-	-	-
Total %	0.6	0.0	0.7	0.0	-	1.3	1.1	0.1	3.2	0.0	-	4.4	0.5	49.8	1.2	0.0	-	51.5	1.9	40.1	0.7	0.0	-	42.8	-
PHF	0.750	0.000	0.583	0.000	-	0.650	0.550	0.250	0.775	0.000	-	0.717	0.625	0.832	0.750	0.000	-	0.832	0.594	0.887	0.350	0.000	-	0.905	0.923
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	2
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.3	0.0	-	-	0.2	0.2
Cars & Light Goods	6	0	7	0	-	13	10	1	29	0	-	40	5	472	10	0	-	487	18	372	7	0	-	397	937
% Cars & Light Goods	100.0	-	100.0	-	-	100.0	90.9	100.0	93.5	-	-	93.0	100.0	96.5	83.3	-	-	96.2	94.7	94.4	100.0	-	-	94.5	95.4
Buses	0	0	0	0	-	0	1	0	2	0	-	3	0	9	0	0	-	9	1	13	0	0	-	14	26
% Buses	0.0	-	0.0	-	-	0.0	9.1	0.0	6.5	-	-	7.0	0.0	1.8	0.0	-	-	1.8	5.3	3.3	0.0	-	-	3.3	2.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	6	1	0	-	7	0	5	0	0	-	5	12
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.2	8.3	-	-	1.4	0.0	1.3	0.0	-	-	1.2	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	2	0	0	-	2	3
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	8.3	-	-	0.2	0.0	0.5	0.0	-	-	0.5	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	2
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.3	0.0	-	-	0.2	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	33.3	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	10	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	66.7	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021



Turning Movement Peak Hour Data Plot (8:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021

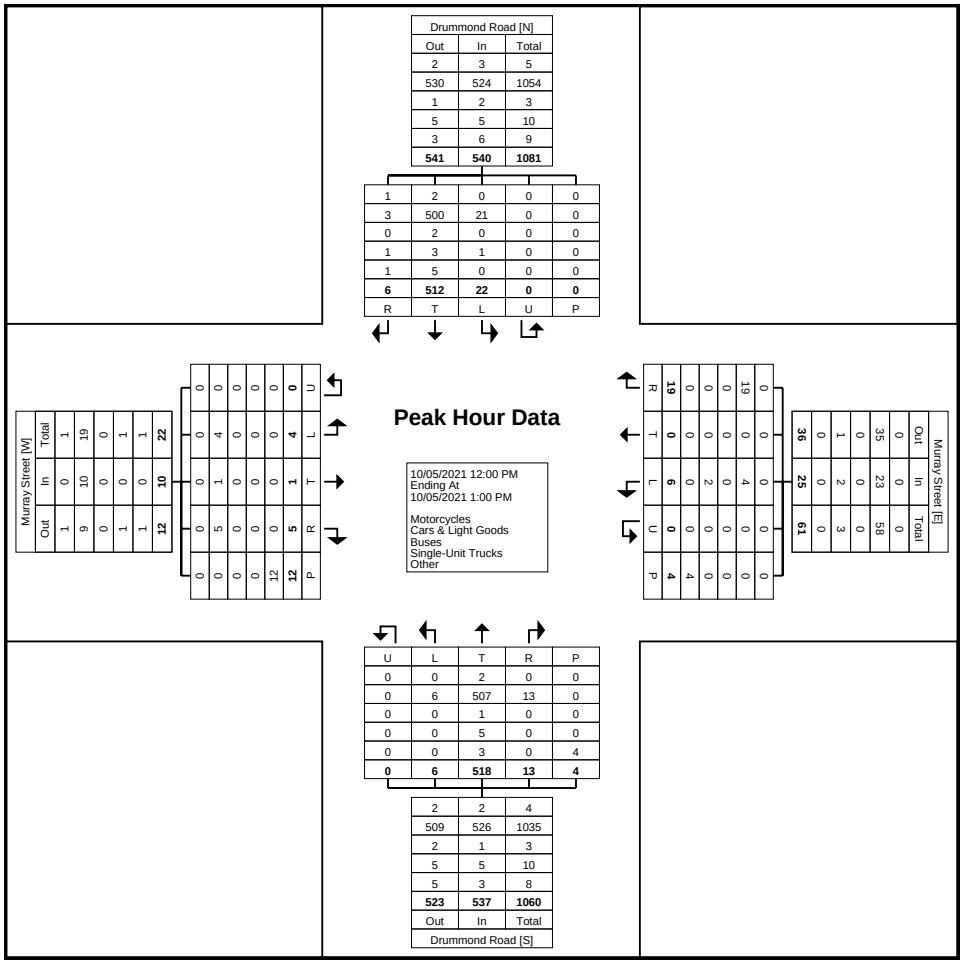
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Murray Street Eastbound						Murray Street Westbound						Drummond Road Northbound						Drummond Road 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
12:00 PM	0	0	0	0	6	0	0	0	3	0	0	3	2	134	4	0	0	140	2	121	2	0	0	125	268
12:15 PM	0	1	0	0	2	1	1	0	6	0	1	7	2	132	3	0	4	137	9	139	1	0	0	149	294
12:30 PM	3	0	4	0	2	7	3	0	6	0	1	9	1	113	4	0	0	118	5	129	2	0	0	136	270
12:45 PM	1	0	1	0	2	2	2	0	4	0	2	6	1	139	2	0	0	142	6	123	1	0	0	130	280
Total	4	1	5	0	12	10	6	0	19	0	4	25	6	518	13	0	4	537	22	512	6	0	0	540	1112
Approach %	40.0	10.0	50.0	0.0	-	-	24.0	0.0	76.0	0.0	-	-	1.1	96.5	2.4	0.0	-	-	4.1	94.8	1.1	0.0	-	-	-
Total %	0.4	0.1	0.4	0.0	-	0.9	0.5	0.0	1.7	0.0	-	2.2	0.5	46.6	1.2	0.0	-	48.3	2.0	46.0	0.5	0.0	-	48.6	-
PHF	0.333	0.250	0.313	0.000	-	0.357	0.500	0.000	0.792	0.000	-	0.694	0.750	0.932	0.813	0.000	-	0.945	0.611	0.921	0.750	0.000	-	0.906	0.946
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	2	1	0	-	3	5
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.4	0.0	0.4	16.7	-	-	0.6	0.4
Cars & Light Goods	4	1	5	0	-	10	4	0	19	0	-	23	6	507	13	0	-	526	21	500	3	0	-	524	1083
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	66.7	-	100.0	-	-	92.0	100.0	97.9	100.0	-	-	98.0	95.5	97.7	50.0	-	-	97.0	97.4
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	2	0	0	-	2	3
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.4	0.0	-	-	0.4	0.3
Single-Unit Trucks	0	0	0	0	-	0	2	0	0	0	-	2	0	5	0	0	-	5	1	3	1	0	-	5	12
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	33.3	-	0.0	-	-	8.0	0.0	1.0	0.0	-	-	0.9	4.5	0.6	16.7	-	-	0.9	1.1
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	0.4	0.0	-	-	0.4	0.0	0.8	0.0	-	-	0.7	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	1	1	0	-	2	3
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.2	16.7	-	-	0.4	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	12	-	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021



Turning Movement Peak Hour Data Plot (12:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021

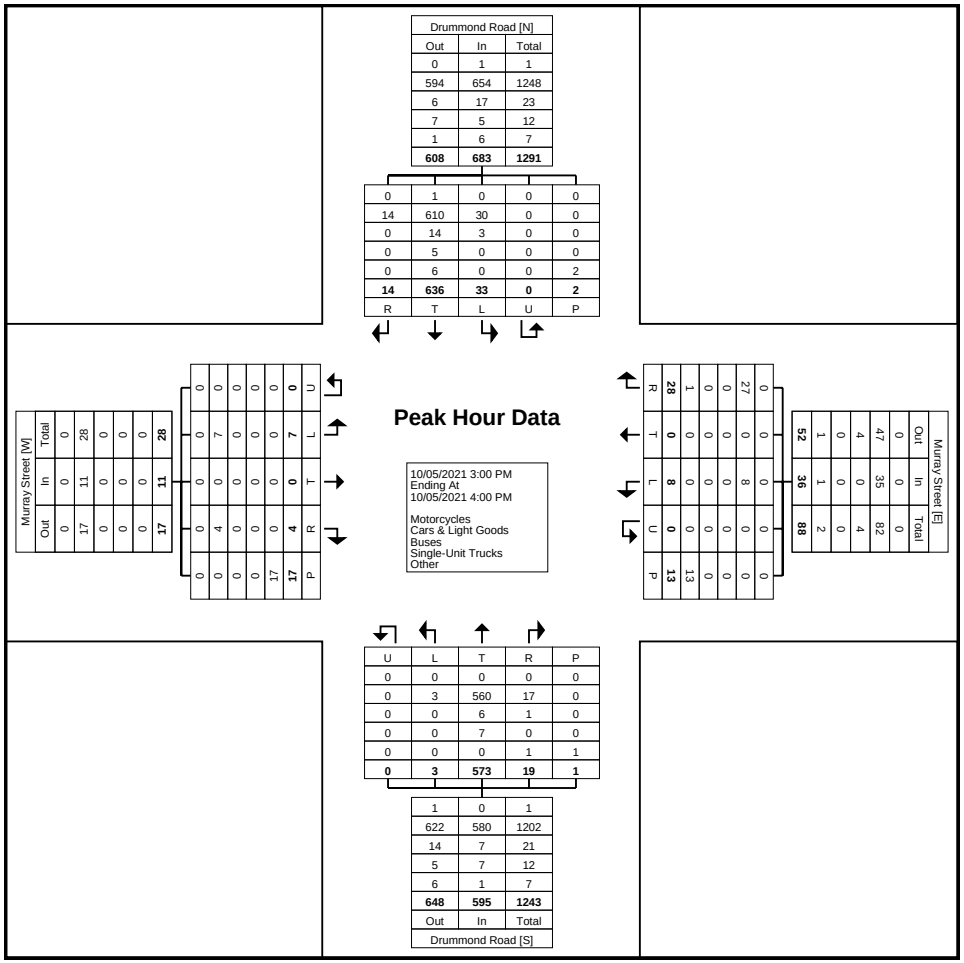
Turning Movement Peak Hour Data (3:00 PM)

Start Time	Murray Street Eastbound						Murray Street Westbound						Drummond Road Northbound						Drummond Road 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	
3:00 PM	1	0	1	0	4	2	2	0	6	0	7	8	0	140	1	0	1	141	4	161	4	0	0	169	320
3:15 PM	3	0	0	0	7	3	2	0	6	0	4	8	3	138	3	0	0	144	6	169	4	0	0	179	334
3:30 PM	1	0	2	0	3	3	3	0	6	0	0	9	0	143	10	0	0	153	14	157	3	0	2	174	339
3:45 PM	2	0	1	0	3	3	1	0	10	0	2	11	0	152	5	0	0	157	9	149	3	0	0	161	332
Total	7	0	4	0	17	11	8	0	28	0	13	36	3	573	19	0	1	595	33	636	14	0	2	683	1325
Approach %	63.6	0.0	36.4	0.0	-	-	22.2	0.0	77.8	0.0	-	-	0.5	96.3	3.2	0.0	-	-	4.8	93.1	2.0	0.0	-	-	-
Total %	0.5	0.0	0.3	0.0	-	0.8	0.6	0.0	2.1	0.0	-	2.7	0.2	43.2	1.4	0.0	-	44.9	2.5	48.0	1.1	0.0	-	51.5	-
PHF	0.583	0.000	0.500	0.000	-	0.917	0.667	0.000	0.700	0.000	-	0.818	0.250	0.942	0.475	0.000	-	0.947	0.589	0.941	0.875	0.000	-	0.954	0.977
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	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	-	-	0.1	0.1
Cars & Light Goods	7	0	4	0	-	11	8	0	27	0	-	35	3	560	17	0	-	580	30	610	14	0	-	654	1280
% Cars & Light Goods	100.0	-	100.0	-	-	100.0	100.0	-	96.4	-	-	97.2	100.0	97.7	89.5	-	-	97.5	90.9	95.9	100.0	-	-	95.8	96.6
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	6	1	0	-	7	3	14	0	0	-	17	24
% Buses	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	1.0	5.3	-	-	1.2	9.1	2.2	0.0	-	-	2.5	1.8
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	7	0	0	-	7	0	5	0	0	-	5	12
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	1.2	0.0	-	-	1.2	0.0	0.8	0.0	-	-	0.7	0.9
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
Bicycles on Road	0	0	0	0	-	0	0	0	1	0	-	1	0	0	1	0	-	1	0	6	0	0	-	6	8
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	-	3.6	-	-	2.8	0.0	0.0	5.3	-	-	0.2	0.0	0.9	0.0	-	-	0.9	0.6
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	11.8	-	-	-	-	-	7.7	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	15	-	-	-	-	-	12	-	-	-	-	-	1	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	88.2	-	-	-	-	-	92.3	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Weekday
Site Code: 200646
Start Date: 10/05/2021



Turning Movement Peak Hour Data Plot (3:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Saturday
Site Code: 200646
Start Date: 10/02/2021

Turning Movement Data

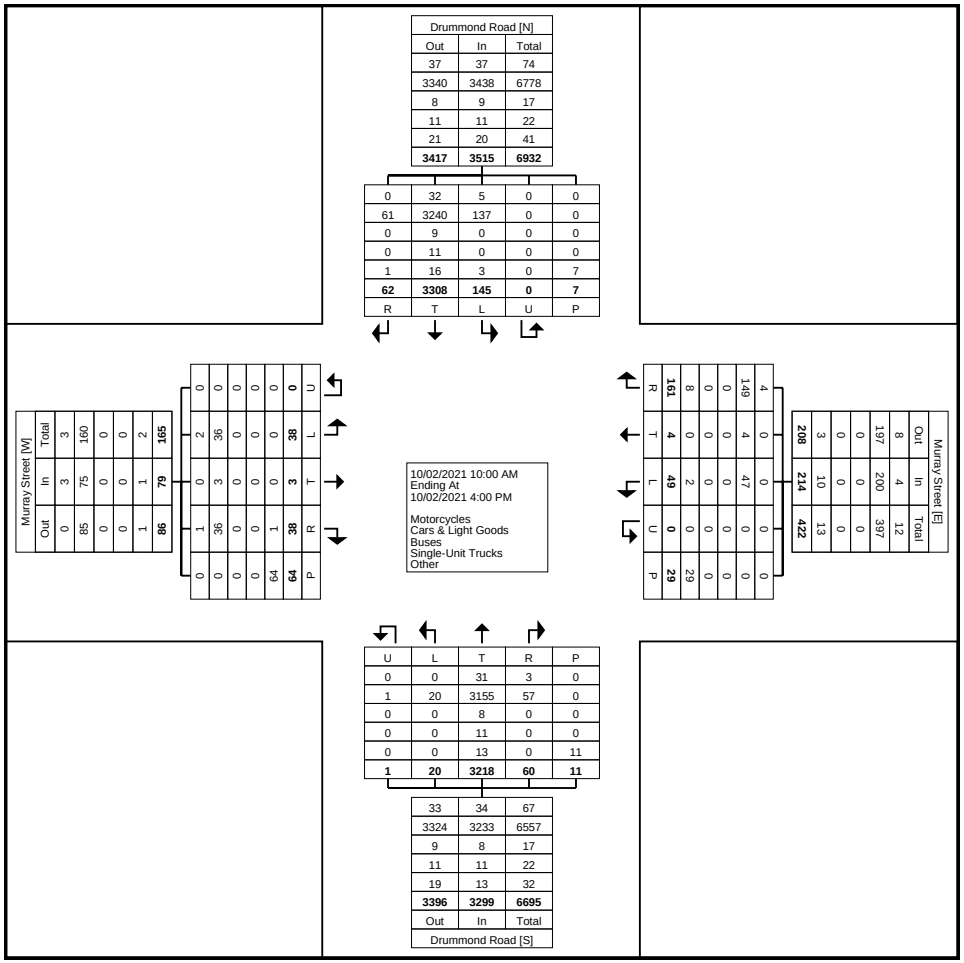
Start Time	Murray Street Eastbound						Murray Street Westbound						Drummond Road Northbound						Drummond Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	1	0	3	0	1	4	1	0	11	0	1	12	1	126	2	0	0	129	4	107	2	0	0	113	258
10:15 AM	2	0	0	0	1	2	2	0	9	0	1	11	2	124	0	0	0	126	4	123	2	0	0	129	268
10:30 AM	3	0	1	0	1	4	5	1	7	0	1	13	0	129	7	0	1	136	5	108	2	0	2	115	268
10:45 AM	2	0	1	0	5	3	1	0	7	0	2	8	1	131	0	0	1	132	10	102	4	0	0	116	259
Hourly Total	8	0	5	0	8	13	9	1	34	0	5	44	4	510	9	0	2	523	23	440	10	0	2	473	1053
11:00 AM	2	0	1	0	1	3	1	0	9	0	0	10	0	127	3	0	0	130	10	116	4	0	0	130	273
11:15 AM	3	0	2	0	2	5	1	0	7	0	1	8	1	115	1	0	2	117	5	132	2	0	0	139	269
11:30 AM	3	0	2	0	5	5	2	0	9	0	1	11	1	129	2	0	0	132	4	125	1	0	0	130	278
11:45 AM	1	0	1	0	6	2	1	1	8	0	2	10	3	134	7	0	0	144	7	133	3	0	2	143	299
Hourly Total	9	0	6	0	14	15	5	1	33	0	4	39	5	505	13	0	2	523	26	506	10	0	2	542	1119
12:00 PM	1	0	1	0	5	2	0	0	4	0	1	4	1	140	3	0	1	144	9	160	5	0	1	174	324
12:15 PM	1	0	3	0	1	4	2	0	7	0	0	9	0	128	1	0	0	129	7	138	2	0	0	147	289
12:30 PM	1	0	2	0	0	3	2	0	7	0	2	9	0	144	1	0	0	145	5	157	1	0	0	163	320
12:45 PM	2	0	2	0	1	4	3	0	5	0	2	8	1	140	3	0	2	144	6	148	3	0	0	157	313
Hourly Total	5	0	8	0	7	13	7	0	23	0	5	30	2	552	8	0	3	562	27	603	11	0	1	641	1246
1:00 PM	1	0	1	0	3	2	1	0	8	0	0	9	0	144	3	0	0	147	7	135	1	0	0	143	301
1:15 PM	0	0	2	0	2	2	3	0	7	0	1	10	3	142	2	0	0	147	7	140	0	0	0	147	306
1:30 PM	2	0	2	0	5	4	2	0	5	0	0	7	0	120	1	0	0	121	6	143	5	0	0	154	286
1:45 PM	3	0	2	0	5	5	3	0	4	0	0	7	2	139	2	0	0	143	5	140	4	0	0	149	304
Hourly Total	6	0	7	0	15	13	9	0	24	0	1	33	5	545	8	0	0	558	25	558	10	0	0	593	1197
2:00 PM	0	0	2	0	4	2	1	0	6	0	2	7	0	128	2	0	0	130	5	162	5	0	1	172	311
2:15 PM	2	1	2	0	1	5	1	1	5	0	1	7	1	129	1	1	0	132	7	161	2	0	0	170	314
2:30 PM	0	2	0	0	5	2	0	0	7	0	1	7	0	157	2	0	0	159	4	136	3	0	0	143	311
2:45 PM	2	0	1	0	5	3	7	0	6	0	3	13	0	135	3	0	1	138	6	145	2	0	1	153	307
Hourly Total	4	3	5	0	15	12	9	1	24	0	7	34	1	549	8	1	1	559	22	604	12	0	2	638	1243
3:00 PM	1	0	2	0	2	3	4	1	7	0	1	12	1	141	3	0	2	145	6	146	1	0	0	153	313
3:15 PM	2	0	0	0	2	2	0	0	7	0	0	7	1	131	6	0	1	138	9	146	3	0	0	158	305
3:30 PM	2	0	4	0	1	6	3	0	5	0	1	8	1	154	4	0	0	159	3	162	2	0	0	167	340
3:45 PM	1	0	1	0	0	2	3	0	4	0	5	7	0	131	1	0	0	132	4	143	3	0	0	150	291
Hourly Total	6	0	7	0	5	13	10	1	23	0	7	34	3	557	14	0	3	574	22	597	9	0	0	628	1249
Grand Total	38	3	38	0	64	79	49	4	161	0	29	214	20	3218	60	1	11	3299	145	3308	62	0	7	3515	7107
Approach %	48.1	3.8	48.1	0.0	-	-	22.9	1.9	75.2	0.0	-	-	0.6	97.5	1.8	0.0	-	-	4.1	94.1	1.8	0.0	-	-	-
Total %	0.5	0.0	0.5	0.0	-	1.1	0.7	0.1	2.3	0.0	-	3.0	0.3	45.3	0.8	0.0	-	46.4	2.0	46.5	0.9	0.0	-	49.5	-
Motorcycles	2	0	1	0	-	3	0	0	4	0	-	4	0	31	3	0	-	34	5	32	0	0	-	37	78
% Motorcycles	5.3	0.0	2.6	-	-	3.8	0.0	0.0	2.5	-	-	1.9	0.0	1.0	5.0	0.0	-	1.0	3.4	1.0	0.0	-	-	1.1	1.1

Cars & Light Goods	36	3	36	0	-	75	47	4	149	0	-	200	20	3155	57	1	-	3233	137	3240	61	0	-	3438	6946
% Cars & Light Goods	94.7	100.0	94.7	-	-	94.9	95.9	100.0	92.5	-	-	93.5	100.0	98.0	95.0	100.0	-	98.0	94.5	97.9	98.4	-	-	97.8	97.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	8	0	0	-	8	0	9	0	0	-	9	17
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	0.0	-	0.2	0.0	0.3	0.0	-	-	0.3	0.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	11	0	0	-	11	0	11	0	0	-	11	22
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	0.0	-	0.3	0.0	0.3	0.0	-	-	0.3	0.3
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	3
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.6	-	-	0.5	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	1	0	-	1	2	0	7	0	-	9	0	11	0	0	-	11	3	16	1	0	-	20	41
% Bicycles on Road	0.0	0.0	2.6	-	-	1.3	4.1	0.0	4.3	-	-	4.2	0.0	0.3	0.0	0.0	-	0.3	2.1	0.5	1.6	-	-	0.6	0.6
Bicycles on Crosswalk	-	-	-	-	7	-	-	-	-	-	5	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	10.9	-	-	-	-	-	17.2	-	-	-	-	-	9.1	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	57	-	-	-	-	-	24	-	-	-	-	-	10	-	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	89.1	-	-	-	-	-	82.8	-	-	-	-	-	90.9	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Saturday
Site Code: 200646
Start Date: 10/02/2021



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Saturday
Site Code: 200646
Start Date: 10/02/2021

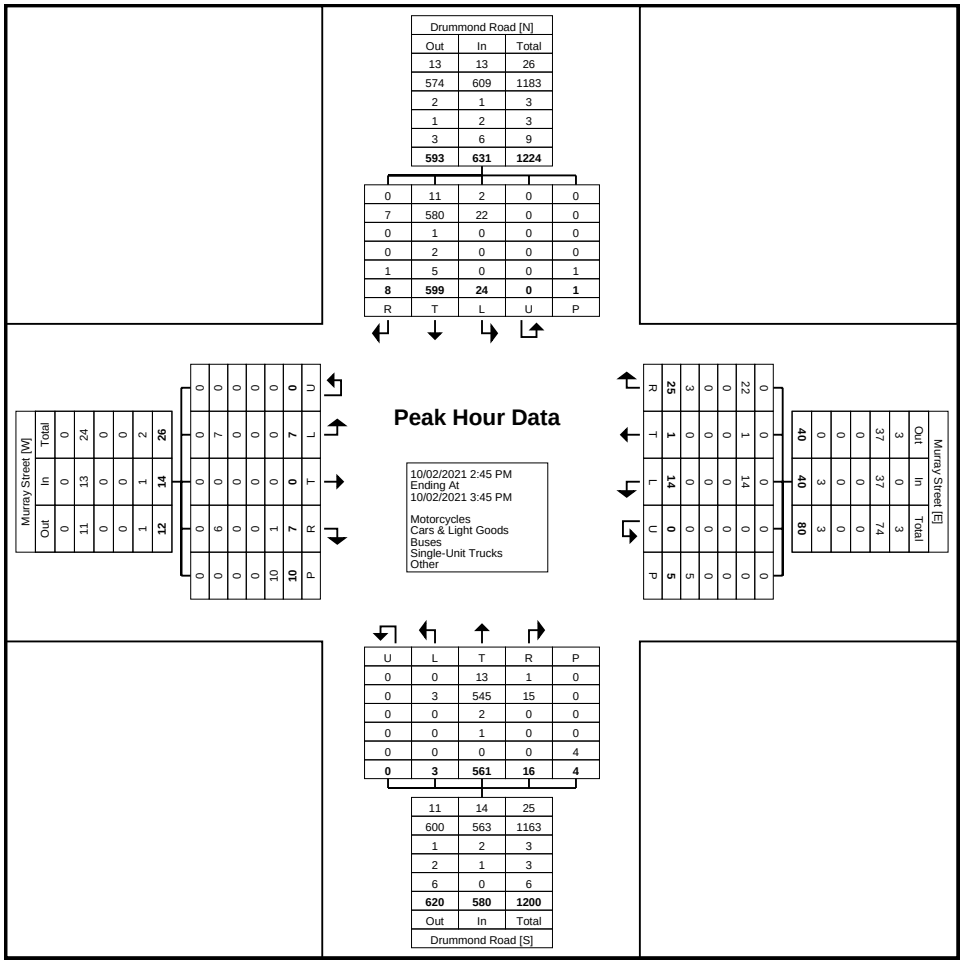
Turning Movement Peak Hour Data (2:45 PM)

Start Time	Murray Street Eastbound						Murray Street Westbound						Drummond Road Northbound						Drummond Road 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	
2:45 PM	2	0	1	0	5	3	7	0	6	0	3	13	0	135	3	0	1	138	6	145	2	0	1	153	307
3:00 PM	1	0	2	0	2	3	4	1	7	0	1	12	1	141	3	0	2	145	6	146	1	0	0	153	313
3:15 PM	2	0	0	0	2	2	0	0	7	0	0	7	1	131	6	0	1	138	9	146	3	0	0	158	305
3:30 PM	2	0	4	0	1	6	3	0	5	0	1	8	1	154	4	0	0	159	3	162	2	0	0	167	340
Total	7	0	7	0	10	14	14	1	25	0	5	40	3	561	16	0	4	580	24	599	8	0	1	631	1265
Approach %	50.0	0.0	50.0	0.0	-	-	35.0	2.5	62.5	0.0	-	-	0.5	96.7	2.8	0.0	-	-	3.8	94.9	1.3	0.0	-	-	-
Total %	0.6	0.0	0.6	0.0	-	1.1	1.1	0.1	2.0	0.0	-	3.2	0.2	44.3	1.3	0.0	-	45.8	1.9	47.4	0.6	0.0	-	49.9	-
PHF	0.875	0.000	0.438	0.000	-	0.583	0.500	0.250	0.893	0.000	-	0.769	0.750	0.911	0.667	0.000	-	0.912	0.667	0.924	0.667	0.000	-	0.945	0.930
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	13	1	0	-	14	2	11	0	0	-	13	27
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	2.3	6.3	-	-	2.4	8.3	1.8	0.0	-	-	2.1	2.1
Cars & Light Goods	7	0	6	0	-	13	14	1	22	0	-	37	3	545	15	0	-	563	22	580	7	0	-	609	1222
% Cars & Light Goods	100.0	-	85.7	-	-	92.9	100.0	100.0	88.0	-	-	92.5	100.0	97.1	93.8	-	-	97.1	91.7	96.8	87.5	-	-	96.5	96.6
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	1	0	0	-	1	3
% Buses	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.3	0.0	0.2	0.0	-	-	0.2	0.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	2	0	0	-	2	3
% Single-Unit 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	0.3	0.0	-	-	0.3	0.2
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
Bicycles on Road	0	0	1	0	-	1	0	0	3	0	-	3	0	0	0	0	-	0	0	5	1	0	-	6	10
% Bicycles on Road	0.0	-	14.3	-	-	7.1	0.0	0.0	12.0	-	-	7.5	0.0	0.0	0.0	-	-	0.0	0.0	0.8	12.5	-	-	1.0	0.8
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	10.0	-	-	-	-	-	40.0	-	-	-	-	-	25.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	9	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	90.0	-	-	-	-	-	60.0	-	-	-	-	-	75.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Drummond Road & Murray Street - Saturday
Site Code: 200646
Start Date: 10/02/2021



Turning Movement Peak Hour Data Plot (2:45 PM)

Signal Code: MANMRR						
Intersection: MAIN ST./MURRAY ST. & ALLANDALE DR.						
Municipality: niagarafalls						
Owner: City						
Last Modified: 3/21/2019 4:00:25 PM						
Timing Parameters	**NBD & SBD MAIN**	**WBD MURRAY**	**NBD & SBD ALLANDALE**	**PED INT. MAIN**	**n/a**	**n/a**
Min Green	**8**	**8**	**8**	**0**	**0**	**0**
Walk	**7**	**7**	**6**	**7**	**0**	**0**
Ped Clearance	**14**	**7**	**7**	**14**	**0**	**0**
Vehicle Ext.	**5**	**5**	**3**	**0**	**0**	**0**
Max Green	**25**	**20**	**25**	**0**	**0**	**0**
Yellow	**4.1**	**4.1**	**4.1**	**3.3**	**0**	**0**
All Red	**2.7**	**2.7**	**2.7**	**0**	**0**	**0**

		Offset
Minimum Cycle	**44.4**	**0**
Pedestrian Cycle	**24.3**	
Maximum Cycle	**90.4**	**0**
Operation	**FA**	

Installed On:
12/16/2014
Count Date:
--/--/----

FA = Fully Actuated **SA = Semi Actuated** **FT = Fixed Time**

***Note: you need to change the paper orientation from Portriat to Landscape**

Signal Code: 102MRR						
Intersection: RR102(Stanley Ave.) & Murray St.						
Municipality: niagarafalls						
Owner: region						
Last Modified: 10/29/2020 10:54:49 AM						
Timing Parameters	**SBD ADVANCE STANLEY AVE.**	**NBD & SBD THRU STANLEY AVE.**	**EBD & WBD THRU MURRAY ST.**	**n/a**	**n/a**	**n/a**
Min Green	**6**	**8**	**8**	**0**	**0**	**0**
Walk	**0**	**10**	**10**	**0**	**0**	**0**
Ped Clearance	**0**	**16**	**18**	**0**	**0**	**0**
Vehicle Ext.	**2.3**	**2.5**	**2.3**	**0**	**0**	**0**
Max Green	**15**	**35**	**28**	**0**	**0**	**0**
Yellow	**3**	**4**	**4**	**0**	**0**	**0**
All Red	**0**	**3**	**3**	**0**	**0**	**0**

		Offset
Minimum Cycle	**30**	**0**
Pedestrian Cycle	**68**	
Maximum Cycle	**95**	**96**
Operation	**FA**	

Installed On:
7/29/2014
Count Date:
8/17/2015

FA = Fully Actuated **SA = Semi Actuated** **FT = Fixed Time**

***Note: you need to change the paper orientation from Portriat to Landscape**

Appendix C

Base Year Traffic Operations Reports

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT	SEL	SET	SER
Lane Configurations												
Traffic Volume (vph)	5	7	154	7	17	2	2	5	0	111	141	20
Future Volume (vph)	5	7	154	7	17	2	2	5	0	111	141	20
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1178	1338	1338
Storage Length (m)		45.0	0.0		0.0		0.0			20.0		0.0
Storage Lanes		1	1		0		0			1		0
Taper Length (m)		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	0.87			0.97			0.97	0.98	1.00	
Frt			0.850			0.989					0.981	
Flt Protected		0.950				0.960			0.950	0.950		
Satd. Flow (prot)	0	1119	1116	0	0	1212	0	0	1361	1119	1254	0
Flt Permitted		0.669				0.756			0.741	0.754		
Satd. Flow (perm)	0	781	973	0	0	934	0	0	1030	871	1254	0
Right Turn on Red				No								No
Satd. Flow (RTOR)												
Link Speed (k/h)		50				50			50		50	
Link Distance (m)		123.4				224.2			199.5		91.1	
Travel Time (s)		8.9				16.1			14.4		6.6	
Confl. Peds. (#/hr)	3	1	6	21	6		7	7		7		1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	2%	0%	14%	0%	0%	0%	0%	0%	5%	0%
Adj. Flow (vph)	6	9	190	9	21	2	2	6	0	137	174	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	199	0	0	25	0	0	6	137	199	0
Turn Type	Perm	Perm	Perm		Perm	NA		Perm	NA	Perm	NA	
Protected Phases						3			3		1	
Permitted Phases	2	2	2		3			3		1		
Detector Phase	2	2	2		3	3		3	3	1	1	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8		19.8	19.8	27.8	27.8	
Total Split (s)	26.8	26.8	26.8		31.8	31.8		31.8	31.8	31.8	31.8	
Total Split (%)	23.4%	23.4%	23.4%		27.7%	27.7%		27.7%	27.7%	27.7%	27.7%	
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1		4.1	4.1	4.1	4.1	
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7		2.7	2.7	2.7	2.7	
Lost Time Adjust (s)		-2.8	-2.8			-2.8			-2.8	-2.8	-2.8	
Total Lost Time (s)		4.0	4.0			4.0			4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lag		Lead	Lead		Lead	Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None		None	None	Min	Min	
Act Effct Green (s)		23.3	23.3			11.8			11.8	22.7	22.7	
Actuated g/C Ratio		0.27	0.27			0.13			0.13	0.26	0.26	
v/c Ratio		0.07	0.77			0.20			0.04	0.61	0.61	
Control Delay		31.3	55.6			42.5			38.8	43.0	39.1	
Queue Delay		0.0	0.0			0.0			0.0	0.0	0.0	
Total Delay		31.3	55.6			42.5			38.8	43.0	39.1	
LOS		C	E			D			D	D	D	
Approach Delay		53.9				42.5			38.8		40.7	

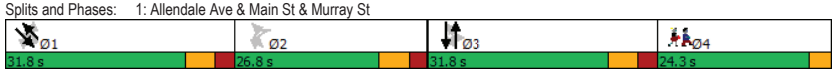
Lane Group	NWT	Ø4
Lane Configurations		
Traffic Volume (vph)	5	
Future Volume (vph)	5	
Ideal Flow (vphpl)	1433	
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor	1.00	
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)	1433	
Flt Permitted		
Satd. Flow (perm)	1433	
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)	50	
Link Distance (m)	190.2	
Travel Time (s)	13.7	
Confl. Peds. (#/hr)		
Peak Hour Factor	0.81	
Heavy Vehicles (%)	0%	
Adj. Flow (vph)	6	
Shared Lane Traffic (%)		
Lane Group Flow (vph)	6	
Turn Type	NA	
Protected Phases	1	4
Permitted Phases		
Detector Phase	1	
Switch Phase		
Minimum Initial (s)	8.0	1.0
Minimum Split (s)	27.8	24.3
Total Split (s)	31.8	24.3
Total Split (%)	27.7%	21%
Yellow Time (s)	4.1	3.3
All-Red Time (s)	2.7	0.0
Lost Time Adjust (s)	-2.8	
Total Lost Time (s)	4.0	
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Recall Mode	Min	Ped
Act Effct Green (s)	22.7	
Actuated g/C Ratio	0.26	
v/c Ratio	0.02	
Control Delay	26.6	
Queue Delay	0.0	
Total Delay	26.6	
LOS	C	
Approach Delay	26.6	

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT	SEL	SET	SER
Approach LOS		D				D			D		D	
Queue Length 50th (m)		2.2	36.6			4.4			1.1	23.1	33.6	
Queue Length 95th (m)		7.3	#70.8			11.5			4.4	39.8	52.4	
Internal Link Dist (m)		99.4				200.2			175.5		67.1	
Turn Bay Length (m)		45.0								20.0		
Base Capacity (vph)		207	258			302			333	281	406	
Starvation Cap Reductn		0	0			0			0	0	0	
Spillback Cap Reductn		0	0			0			0	0	0	
Storage Cap Reductn		0	0			0			0	0	0	
Reduced v/c Ratio		0.07	0.77			0.08			0.02	0.49	0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 87.8			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 45.4		Intersection LOS: D	
Intersection Capacity Utilization 48.9%		ICU Level of Service A	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St



Lane Group	NWT	Ø4
Approach LOS	C	
Queue Length 50th (m)	0.9	
Queue Length 95th (m)	3.7	
Internal Link Dist (m)	166.2	
Turn Bay Length (m)		
Base Capacity (vph)	464	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.01	

Intersection Summary

Queues
1: Allendale Ave & Main St & Murray St

Base Year
AM Peak Hour

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	15	199	25	6	137	199	6
v/c Ratio	0.07	0.77	0.20	0.04	0.61	0.61	0.02
Control Delay	31.3	55.6	42.5	38.8	43.0	39.1	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	55.6	42.5	38.8	43.0	39.1	26.6
Queue Length 50th (m)	2.2	36.6	4.4	1.1	23.1	33.6	0.9
Queue Length 95th (m)	7.3	#70.8	11.5	4.4	39.8	52.4	3.7
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	207	258	302	333	281	406	464
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.77	0.08	0.02	0.49	0.49	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Allendale Ave & Main St & Murray St

Base Year
AM Peak Hour

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBT	SEL	SET	SER
Lane Configurations												
Traffic Volume (vph)	5	7	154	7	17	2	2	5	0	111	141	20
Future Volume (vph)	5	7	154	7	17	2	2	5	0	111	141	20
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1178	1338	1338
Total Lost time (s)		4.0	4.0			4.0			4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00			1.00			1.00	1.00	1.00	
Frpb, ped/bikes		1.00	0.89			1.00			1.00	1.00	1.00	
Flpb, ped/bikes		0.99	1.00			0.98			0.98	0.99	1.00	
Frt		1.00	0.85			0.99			1.00	1.00	0.98	
Flt Protected		0.95	1.00			0.96			0.95	0.95	1.00	
Satd. Flow (prot)		1111	998			1192			1329	1102	1254	
Flt Permitted		0.67	1.00			0.76			0.74	0.75	1.00	
Satd. Flow (perm)		783	998			939			1037	875	1254	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	6	9	190	9	21	2	2	6	0	137	174	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	15	199	0	0	25	0	0	6	137	199	0
Confl. Peds. (#/hr)	3	1	6	21	6		7	7		7		1
Heavy Vehicles (%)	0%	0%	2%	0%	14%	0%	0%	0%	0%	0%	5%	0%
Turn Type	Perm	Perm	Perm		Perm	NA		Perm	NA	Perm	NA	
Protected Phases						3			3		1	
Permitted Phases	2	2	2		3			3		1		
Actuated Green, G (s)		20.5	20.5			5.1			5.1	19.8	19.8	
Effective Green, g (s)		23.3	23.3			7.9			7.9	22.6	22.6	
Actuated g/C Ratio		0.26	0.26			0.09			0.09	0.25	0.25	
Clearance Time (s)		6.8	6.8			6.8			6.8	6.8	6.8	
Vehicle Extension (s)		5.0	5.0			3.0			3.0	5.0	5.0	
Lane Grp Cap (vph)		201	256			81			90	218	312	
v/s Ratio Prot											c0.16	
v/s Ratio Perm		0.02	c0.20			c0.03			0.01	0.16		
v/c Ratio		0.07	0.78			0.31			0.07	0.63	0.64	
Uniform Delay, d1		25.5	31.2			38.8			38.0	30.3	30.3	
Progression Factor		1.00	1.00			1.00			1.00	1.00	1.00	
Incremental Delay, d2		0.3	15.9			2.2			0.3	7.8	5.8	
Delay (s)		25.8	47.1			41.0			38.3	38.1	36.2	
Level of Service		C	D			D			D	D	D	
Approach Delay (s)		45.6				41.0			38.3		37.0	
Approach LOS		D				D			D		D	

Intersection Summary

HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	18.1
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWT
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1433
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	1.00
Flt Protected	1.00
Satd. Flow (prot)	1433
Flt Permitted	1.00
Satd. Flow (perm)	1433
Peak-hour factor, PHF	0.81
Adj. Flow (vph)	6
RTOR Reduction (vph)	0
Lane Group Flow (vph)	6
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	0%
Turn Type	NA
Protected Phases	1
Permitted Phases	
Actuated Green, G (s)	19.8
Effective Green, g (s)	22.6
Actuated g/C Ratio	0.25
Clearance Time (s)	6.8
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	357
v/s Ratio Prot	0.00
v/s Ratio Perm	
v/c Ratio	0.02
Uniform Delay, d1	25.6
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	25.7
Level of Service	C
Approach Delay (s)	25.7
Approach LOS	C

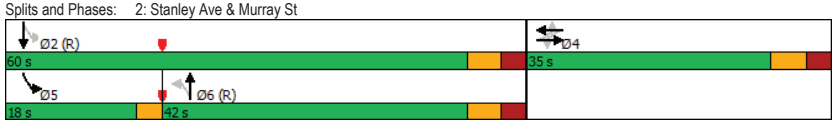
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	97	52	53	56	44	119	319	57	92	298	82
Future Volume (vph)	64	97	52	53	56	44	119	319	57	92	298	82
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.93	0.97		0.94	0.96			0.99		0.97		
Frt		0.947			0.934			0.977			0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1381	1213	0	1328	1175	0	1328	2241	0	1316	2319	0
Flt Permitted	0.652			0.528			0.510			0.470		
Satd. Flow (perm)	885	1213	0	697	1175	0	713	2241	0	630	2319	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			44			26			64	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	76		71	71		76			37	37		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	4%	4%	0%	5%	4%	10%	6%	5%	7%	3%
Adj. Flow (vph)	70	105	57	58	61	48	129	347	62	100	324	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	162	0	58	109	0	129	409	0	100	413	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0		35.0	35.0		42.0	42.0		18.0	60.0	
Total Split (%)	36.8%	36.8%		36.8%	36.8%		44.2%	44.2%		18.9%	63.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	18.5	18.5		18.5	18.5		59.9	59.9		68.5	68.5	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.63	0.63		0.72	0.72	
v/c Ratio	0.41	0.62		0.43	0.41		0.29	0.29		0.20	0.24	
Control Delay	38.7	37.6		41.5	23.9		13.0	9.8		6.1	4.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.7	37.6		41.5	23.9		13.0	9.8		6.1	4.8	
LOS	D	D		D	C		B	A		A	A	
Approach Delay		37.9			30.0			10.6			5.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			B			A	
Queue Length 50th (m)	11.9	23.3		9.9	10.8		10.6	16.3		4.9	9.8	
Queue Length 95th (m)	23.2	40.6		20.6	24.4		29.3	33.6		13.2	20.8	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	288	416		227	413		449	1422		555	1690	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.39		0.26	0.26		0.29	0.29		0.18	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 70.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Stanley Ave & Murray St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	162	58	109	129	409	100	413
v/c Ratio	0.41	0.62	0.43	0.41	0.29	0.29	0.20	0.24
Control Delay	38.7	37.6	41.5	23.9	13.0	9.8	6.1	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	37.6	41.5	23.9	13.0	9.8	6.1	4.8
Queue Length 50th (m)	11.9	23.3	9.9	10.8	10.6	16.3	4.9	9.8
Queue Length 95th (m)	23.2	40.6	20.6	24.4	29.3	33.6	13.2	20.8
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	288	416	227	413	449	1422	555	1690
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.39	0.26	0.26	0.29	0.29	0.18	0.24

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	97	52	53	56	44	119	319	57	92	298	82
Future Volume (vph)	64	97	52	53	56	44	119	319	57	92	298	82
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.93	1.00		0.95	1.00		1.00	1.00		0.98	1.00	
Frt	1.00	0.95		1.00	0.93		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1291	1213		1256	1175		1328	2241		1295	2318	
Flt Permitted	0.65	1.00		0.53	1.00		0.51	1.00		0.47	1.00	
Satd. Flow (perm)	886	1213		699	1175		713	2241		641	2318	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	105	57	58	61	48	129	347	62	100	324	89
RTOR Reduction (vph)	0	25	0	0	35	0	0	10	0	0	18	0
Lane Group Flow (vph)	70	137	0	58	74	0	129	399	0	100	395	0
Confl. Peds. (#/hr)	76		71	71		76			37	37		
Heavy Vehicles (%)	0%	0%	4%	4%	0%	5%	4%	10%	6%	5%	7%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	15.5	15.5		15.5	15.5		56.3	56.3		65.5	65.5	
Effective Green, g (s)	18.5	18.5		18.5	18.5		59.3	59.3		64.5	68.5	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62	0.62		0.68	0.72	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	172	236		136	228		445	1398		471	1671	
v/s Ratio Prot		c0.11			0.06			0.18		0.01	c0.17	
v/s Ratio Perm	0.08			0.08			c0.18			0.13		
v/c Ratio	0.41	0.58		0.43	0.32		0.29	0.29		0.21	0.24	
Uniform Delay, d1	33.5	34.7		33.6	32.9		8.2	8.2		5.5	4.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.0		1.6	0.6		1.6	0.5		0.1	0.3	
Delay (s)	34.6	37.7		35.2	33.5		9.8	8.7		5.6	4.8	
Level of Service	C	D		D	C		A	A		A	A	
Approach Delay (s)		36.8			34.1			9.0			4.9	
Approach LOS		D			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	70.7%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	31	489	12	19	394
Future Volume (vph)	11	31	489	12	19	394
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.900		0.997			
Flt Protected	0.987				0.950	
Satd. Flow (prot)	1273	0	1316	0	1381	1548
Flt Permitted	0.987				0.950	
Satd. Flow (perm)	1273	0	1316	0	1381	1548
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	1			6	6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	17%	0%	2%
Adj. Flow (vph)	12	34	532	13	21	428
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	545	0	21	428
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	31	489	12	19	394
Future Volume (Veh/h)	11	31	489	12	19	394
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	34	532	13	21	428
Pedestrians	6		1			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1016	544			551	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1016	544			551	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	94			98	
cM capacity (veh/h)	259	540			1024	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	46	545	21	428
Volume Left	12	0	21	0
Volume Right	34	13	0	0
cSH	421	1700	1024	1700
Volume to Capacity	0.11	0.32	0.02	0.25
Queue Length 95th (m)	2.9	0.0	0.5	0.0
Control Delay (s)	14.6	0.0	8.6	0.0
Lane LOS	B		A	
Approach Delay (s)	14.6	0.0	0.4	
Approach LOS	B			

Intersection Summary				
Average Delay			0.8	
Intersection Capacity Utilization			47.6%	ICU Level of Service
Analysis Period (min)			15	

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL	SBT	SBR	SEL2
Lane Configurations												
Traffic Volume (vph)	7	5	223	12	35	5	12	2	2	0	7	5
Future Volume (vph)	7	5	223	12	35	5	12	2	2	0	7	5
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1178
Storage Length (m)		45.0	0.0		0.0		0.0		0.0		0.0	
Storage Lanes		1	1		0		0		0		0	
Taper Length (m)		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	0.90			0.98				0.97		
Frt			0.850			0.965				0.899		
Flt Protected		0.950				0.969				0.988		
Satd. Flow (prot)	0	1119	1137	0	0	1324	0	0	0	1237	0	0
Flt Permitted		0.631				0.798				0.930		
Satd. Flow (perm)	0	736	1019	0	0	1078	0	0	0	1163	0	0
Right Turn on Red				No				No			Yes	
Satd. Flow (RTOR)										132		
Link Speed (k/h)		50				50				50		
Link Distance (m)		123.4				224.2				199.5		
Travel Time (s)		8.9				16.1				14.4		
Confl. Peds. (#/hr)	2	3	4	17	4		4	2	2		4	17
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	9	7	301	16	47	7	16	3	3	0	9	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	317	0	0	73	0	0	0	12	0	0
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	NA		Perm
Protected Phases						3				3		
Permitted Phases	2	2	2		3				3			1
Detector Phase	2	2	2		3	3			3	3		1
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0			8.0	8.0		8.0
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8			19.8	19.8		27.8
Total Split (s)	26.8	26.8	26.8		31.8	31.8			31.8	31.8		31.8
Total Split (%)	23.4%	23.4%	23.4%		27.7%	27.7%			27.7%	27.7%		27.7%
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1			4.1	4.1		4.1
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7			2.7	2.7		2.7
Lost Time Adjust (s)		-2.8	-2.8			-2.8				-2.8		
Total Lost Time (s)		4.0	4.0			4.0				4.0		
Lead/Lag	Lag	Lag	Lag		Lead	Lead			Lead	Lead		Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None			None	None		Min
Act Effct Green (s)		23.0	23.0			15.0				15.0		
Actuated g/C Ratio		0.23	0.23			0.15				0.15		
v/c Ratio		0.09	1.34			0.45				0.04		
Control Delay		35.0	214.0			48.6				0.2		
Queue Delay		0.0	0.0			0.0				0.0		
Total Delay		35.0	214.0			48.6				0.2		
LOS		C	F			D				A		
Approach Delay		205.4				48.6				0.2		

Lane Group	SEL	SET	SER	NWT	NWR2	Ø4
Lane Configurations						
Traffic Volume (vph)	144	205	15	10	5	
Future Volume (vph)	144	205	15	10	5	
Ideal Flow (vphpl)	1178	1338	1338	1433	1433	
Storage Length (m)	20.0		0.0			
Storage Lanes	1		0			
Taper Length (m)	7.5					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.94	1.00		0.99		
Frt		0.990		0.955		
Flt Protected	0.950					
Satd. Flow (prot)	1108	1304	0	1355	0	
Flt Permitted	0.744					
Satd. Flow (perm)	820	1304	0	1355	0	
Right Turn on Red			No		No	
Satd. Flow (RTOR)						
Link Speed (k/h)		50		50		
Link Distance (m)		91.1		190.2		
Travel Time (s)		6.6		13.7		
Confl. Peds. (#/hr)	4		3		4	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	1%	1%	7%	0%	0%	
Adj. Flow (vph)	195	277	20	14	7	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	202	297	0	21	0	
Turn Type	Perm	NA		NA		
Protected Phases		1		1		4
Permitted Phases	1					
Detector Phase	1	1		1		
Switch Phase						
Minimum Initial (s)	8.0	8.0		8.0		1.0
Minimum Split (s)	27.8	27.8		27.8		24.3
Total Split (s)	31.8	31.8		31.8		24.3
Total Split (%)	27.7%	27.7%		27.7%		21%
Yellow Time (s)	4.1	4.1		4.1		3.3
All-Red Time (s)	2.7	2.7		2.7		0.0
Lost Time Adjust (s)	-2.8	-2.8		-2.8		
Total Lost Time (s)	4.0	4.0		4.0		
Lead/Lag	Lead	Lead		Lead		Lag
Lead-Lag Optimize?						
Recall Mode	Min	Min		Min		Ped
Act Effct Green (s)	28.0	28.0		28.0		
Actuated g/C Ratio	0.28	0.28		0.28		
v/c Ratio	0.87	0.81		0.05		
Control Delay	71.9	53.3		29.5		
Queue Delay	0.0	0.0		0.0		
Total Delay	71.9	53.3		29.5		
LOS	E	D		C		
Approach Delay		60.8		29.5		

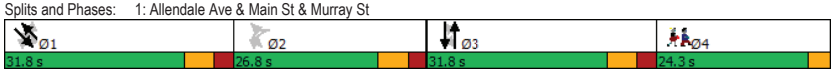
Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL	SBT	SBR	SEL2
Approach LOS		F				D				A		
Queue Length 50th (m)		2.7	~88.0			14.1				0.0		
Queue Length 95th (m)		7.4	#116.3			22.9				0.0		
Internal Link Dist (m)		99.4				200.2				175.5		
Turn Bay Length (m)		45.0										
Base Capacity (vph)		170	236			304				423		
Starvation Cap Reductn		0	0			0				0		
Spillback Cap Reductn		0	0			0				0		
Storage Cap Reductn		0	0			0				0		
Reduced v/c Ratio		0.09	1.34			0.24				0.03		

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 99.1			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.34			
Intersection Signal Delay: 109.7		Intersection LOS: F	
Intersection Capacity Utilization 61.2%		ICU Level of Service B	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St



Lane Group	SEL	SET	SER	NWT	NWR2	Ø4
Approach LOS		E		C		
Queue Length 50th (m)	40.4	57.9		3.2		
Queue Length 95th (m)	#66.0	#77.2		8.2		
Internal Link Dist (m)		67.1		166.2		
Turn Bay Length (m)	20.0					
Base Capacity (vph)	231	368		383		
Starvation Cap Reductn	0	0		0		
Spillback Cap Reductn	0	0		0		
Storage Cap Reductn	0	0		0		
Reduced v/c Ratio	0.87	0.81		0.05		

Intersection Summary

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	16	317	73	12	202	297	21
v/c Ratio	0.09	1.34	0.45	0.04	0.87	0.81	0.05
Control Delay	35.0	214.0	48.6	0.2	71.9	53.3	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	214.0	48.6	0.2	71.9	53.3	29.5
Queue Length 50th (m)	2.7	~88.0	14.1	0.0	40.4	57.9	3.2
Queue Length 95th (m)	7.4	#116.3	22.9	0.0	#66.0	#77.2	8.2
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	170	236	304	423	231	368	383
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	1.34	0.24	0.03	0.87	0.81	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL	SBT	SBR	SEL2
Lane Configurations												
Traffic Volume (vph)	7	5	223	12	35	5	12	2	2	0	7	5
Future Volume (vph)	7	5	223	12	35	5	12	2	2	0	7	5
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1178
Total Lost time (s)		4.0	4.0			4.0				4.0		
Lane Util. Factor		1.00	1.00			1.00				1.00		
Frpb, ped/bikes		1.00	0.91			0.99				0.97		
Flpb, ped/bikes		0.99	1.00			0.99				1.00		
Frt		1.00	0.85			0.96				0.90		
Flt Protected		0.95	1.00			0.97				0.99		
Satd. Flow (prot)		1109	1030			1312				1237		
Flt Permitted		0.63	1.00			0.80				0.93		
Satd. Flow (perm)		737	1030			1081				1164		
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	9	7	301	16	47	7	16	3	3	0	9	7
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	10	0	0
Lane Group Flow (vph)	0	16	317	0	0	73	0	0	0	2	0	0
Confl. Peds. (#/hr)	2	3	4	17	4		4	2	2		4	17
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	NA		Perm
Protected Phases						3				3		
Permitted Phases	2	2	2		3				3			1
Actuated Green, G (s)		20.2	20.2			10.3				10.3		
Effective Green, g (s)		23.0	23.0			13.1				13.1		
Actuated g/C Ratio		0.23	0.23			0.13				0.13		
Clearance Time (s)		6.8	6.8			6.8				6.8		
Vehicle Extension (s)		5.0	5.0			3.0				3.0		
Lane Grp Cap (vph)		168	235			140				151		
v/s Ratio Prot												
v/s Ratio Perm		0.02	c0.31			c0.07				0.00		
v/c Ratio		0.10	1.35			0.52				0.01		
Uniform Delay, d1		30.6	38.8			40.8				38.1		
Progression Factor		1.00	1.00			1.00				1.00		
Incremental Delay, d2		0.5	182.5			3.5				0.0		
Delay (s)		31.1	221.3			44.3				38.1		
Level of Service		C	F			D				D		
Approach Delay (s)		212.2				44.3				38.1		
Approach LOS		F				D				D		

Intersection Summary				
HCM 2000 Control Delay	109.9	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	18.1	
Intersection Capacity Utilization	61.2%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL	SET	SER	NWT	NWR2
Lane Configurations					
Traffic Volume (vph)	144	205	15	10	5
Future Volume (vph)	144	205	15	10	5
Ideal Flow (vphpl)	1178	1338	1338	1433	1433
Total Lost time (s)	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		0.99	
Flpb, ped/bikes	0.95	1.00		1.00	
Frt	1.00	0.99		0.95	
Flt Protected	0.95	1.00		1.00	
Satd. Flow (prot)	1054	1304		1355	
Flt Permitted	0.74	1.00		1.00	
Satd. Flow (perm)	825	1304		1355	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	195	277	20	14	7
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	202	297	0	21	0
Confl. Peds. (#/hr)	4		3		4
Heavy Vehicles (%)	1%	1%	7%	0%	0%
Turn Type	Perm	NA		NA	
Protected Phases		1		1	
Permitted Phases	1				
Actuated Green, G (s)	25.2	25.2		25.2	
Effective Green, g (s)	28.0	28.0		28.0	
Actuated g/C Ratio	0.28	0.28		0.28	
Clearance Time (s)	6.8	6.8		6.8	
Vehicle Extension (s)	5.0	5.0		5.0	
Lane Grp Cap (vph)	229	362		377	
v/s Ratio Prot		0.23		0.02	
v/s Ratio Perm	c0.24				
v/c Ratio	0.88	0.82		0.06	
Uniform Delay, d1	34.7	33.9		26.6	
Progression Factor	1.00	1.00		1.00	
Incremental Delay, d2	32.1	15.4		0.1	
Delay (s)	66.8	49.3		26.7	
Level of Service	E	D		C	
Approach Delay (s)		56.4		26.7	
Approach LOS		E		C	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	90	29	65	92	155	118	563	85	258	459	49
Future Volume (vph)	57	90	29	65	92	155	118	563	85	258	459	49
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.97		0.92	0.95			0.99		0.98		
Frt		0.963			0.906			0.980			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1381	1241	0	1316	1117	0	1341	2351	0	1354	2419	0
Flt Permitted	0.372			0.627			0.446			0.284		
Satd. Flow (perm)	518	1241	0	797	1117	0	630	2351	0	395	2419	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			94			21			21	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	70		98	98		70			47	47		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	4%	5%	3%	3%	3%	4%	8%	2%	4%	0%
Adj. Flow (vph)	62	98	32	71	100	168	128	612	92	280	499	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	130	0	71	268	0	128	704	0	280	552	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0		35.0	35.0		42.0	42.0		18.0	60.0	
Total Split (%)	36.8%	36.8%		36.8%	36.8%		44.2%	44.2%		18.9%	63.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	23.0	23.0		23.0	23.0		47.5	47.5		64.0	64.0	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.50	0.50		0.67	0.67	
v/c Ratio	0.50	0.42		0.37	0.79		0.41	0.59		0.71	0.34	
Control Delay	42.5	28.1		33.0	37.0		23.8	21.4		19.9	8.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.5	28.1		33.0	37.0		23.8	21.4		19.9	8.0	
LOS	D	C		C	D		C	C		B	A	
Approach Delay		32.7			36.2			21.7			12.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			D			C			B	
Queue Length 50th (m)	10.2	17.8		11.3	31.4		15.6	49.7		20.5	20.7	
Queue Length 95th (m)	22.0	31.6		21.9	57.0		38.0	81.1		#49.9	37.5	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	169	417		260	427		315	1186		412	1636	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.31		0.27	0.63		0.41	0.59		0.68	0.34	

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 95		
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green		
Natural Cycle: 80		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.79		
Intersection Signal Delay: 21.2	Intersection LOS: C	
Intersection Capacity Utilization 88.6%	ICU Level of Service E	
Analysis Period (min) 15		

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Stanley Ave & Murray St

Queues
2: Stanley Ave & Murray St

Base Year
PM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	62	130	71	268	128	704	280	552
v/c Ratio	0.50	0.42	0.37	0.79	0.41	0.59	0.71	0.34
Control Delay	42.5	28.1	33.0	37.0	23.8	21.4	19.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	28.1	33.0	37.0	23.8	21.4	19.9	8.0
Queue Length 50th (m)	10.2	17.8	11.3	31.4	15.6	49.7	20.5	20.7
Queue Length 95th (m)	22.0	31.6	21.9	57.0	38.0	81.1	#49.9	37.5
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	169	417	260	427	315	1186	412	1636
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.31	0.27	0.63	0.41	0.59	0.68	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: Stanley Ave & Murray St

Base Year
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	90	29	65	92	155	118	563	85	258	459	49
Future Volume (vph)	57	90	29	65	92	155	118	563	85	258	459	49
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.95		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.96	1.00		0.92	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.96		1.00	0.91		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1324	1242		1209	1117		1341	2352		1346	2418	
Flt Permitted	0.37	1.00		0.63	1.00		0.45	1.00		0.28	1.00	
Satd. Flow (perm)	519	1242		798	1117		629	2352		403	2418	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	98	32	71	100	168	128	612	92	280	499	53
RTOR Reduction (vph)	0	14	0	0	71	0	0	11	0	0	7	0
Lane Group Flow (vph)	62	116	0	71	197	0	128	694	0	280	545	0
Confl. Peds. (#/hr)	70		98	98		70			47	47		
Heavy Vehicles (%)	0%	0%	4%	5%	3%	3%	3%	4%	8%	2%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		44.5	44.5		61.0	61.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		47.5	47.5		60.0	64.0	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.50	0.50		0.63	0.67	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	125	300		193	270		314	1176		378	1628	
v/s Ratio Prot		0.09			c0.18			0.29		c0.10	0.23	
v/s Ratio Perm	0.12			0.09			0.20			c0.37		
v/c Ratio	0.50	0.39		0.37	0.73		0.41	0.59		0.74	0.33	
Uniform Delay, d1	31.0	30.1		30.0	33.1		14.9	16.8		9.8	6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.6		0.9	8.9		3.9	2.2		7.0	0.6	
Delay (s)	33.3	30.7		30.8	42.0		18.8	19.0		16.8	7.1	
Level of Service	C	C		C	D		B	B		B	A	
Approach Delay (s)		31.5			39.7			19.0			10.4	
Approach LOS		C			D			B			B	

Intersection Summary				
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	88.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	28	573	19	33	636
Future Volume (vph)	8	28	573	19	33	636
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.894		0.996			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1267	0	1320	0	1381	1563
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1267	0	1320	0	1381	1563
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	1	2		13	13	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	8	29	585	19	34	649
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	604	0	34	649
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	28	573	19	33	636
Future Volume (Veh/h)	8	28	573	19	33	636
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	8	29	585	19	34	649
Pedestrians	13		1			2
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1326	610			617	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1326	610			617	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	94			96	
cM capacity (veh/h)	165	492			962	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	37	604	34	649
Volume Left	8	0	34	0
Volume Right	29	19	0	0
cSH	345	1700	962	1700
Volume to Capacity	0.11	0.36	0.04	0.38
Queue Length 95th (m)	2.9	0.0	0.9	0.0
Control Delay (s)	16.7	0.0	8.9	0.0
Lane LOS	C		A	
Approach Delay (s)	16.7	0.0	0.4	
Approach LOS	C			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	207	48	58	27	20	7	38	12	12	2
Future Volume (vph)	15	10	207	48	58	27	20	7	38	12	12	2
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Storage Length (m)		45.0	0.0		0.0		0.0			0.0		0.0
Storage Lanes		1	1		0		0			0		0
Taper Length (m)		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		0.97	0.74			0.96					0.96	
Frt			0.850			0.968					0.995	
Flt Protected		0.950				0.975					0.963	
Satd. Flow (prot)	0	1119	1137	0	0	1317	0	0	0	0	1370	0
Flt Permitted		0.556				0.814					0.672	
Satd. Flow (perm)	0	637	845	0	0	1084	0	0	0	0	918	0
Right Turn on Red				No				No				Yes
Satd. Flow (RTOR)											1	
Link Speed (k/h)		50				50					50	
Link Distance (m)		123.4				224.2					199.5	
Travel Time (s)		8.9				16.1					14.4	
Confl. Peds. (#/hr)	4	12	8	51	8		17	4	17	4		8
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	14	280	65	78	36	27	9	51	16	16	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	345	0	0	150	0	0	0	0	86	0
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Detector Phase	2	2	2		3	3			3	3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0			8.0	8.0	8.0	
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8			19.8	19.8	19.8	
Total Split (s)	26.8	26.8	26.8		31.8	31.8			31.8	31.8	31.8	
Total Split (%)	23.4%	23.4%	23.4%		27.7%	27.7%			27.7%	27.7%	27.7%	
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1			4.1	4.1	4.1	
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7			2.7	2.7	2.7	
Lost Time Adjust (s)		-2.8	-2.8			-2.8					-2.8	
Total Lost Time (s)		4.0	4.0			4.0					4.0	
Lead/Lag	Lag	Lag	Lag		Lead	Lead			Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None			None	None	None	
Act Effct Green (s)		22.9	22.9			22.0					22.0	
Actuated g/C Ratio		0.21	0.21			0.20					0.20	
v/c Ratio		0.26	1.96			0.69					0.46	
Control Delay		44.0	476.2			56.9					46.1	
Queue Delay		0.0	0.0			0.0					0.0	
Total Delay		44.0	476.2			56.9					46.1	
LOS		D	F			E					D	
Approach Delay		437.5				56.9					46.1	

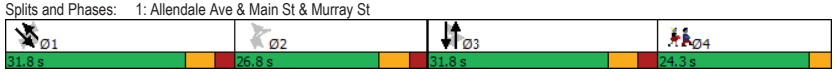
Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR2	Ø4
Lane Configurations								
Traffic Volume (vph)	12	240	339	35	2	2	15	
Future Volume (vph)	12	240	339	35	2	2	15	
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	
Storage Length (m)		20.0		0.0	0.0			
Storage Lanes		1		0	0			
Taper Length (m)		7.5			7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.82	1.00			0.95		
Frt			0.986			0.896		
Flt Protected		0.950				0.994		
Satd. Flow (prot)	0	1109	1293	0	0	1212	0	
Flt Permitted		0.740				0.608		
Satd. Flow (perm)	0	709	1293	0	0	741	0	
Right Turn on Red				No			No	
Satd. Flow (RTOR)								
Link Speed (k/h)			50			50		
Link Distance (m)			91.1			190.2		
Travel Time (s)			6.6			13.7		
Confl. Peds. (#/hr)	51	17		12	12		17	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	0%	
Adj. Flow (vph)	16	324	458	47	3	3	20	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	340	505	0	0	26	0	
Turn Type	Perm	Perm	NA		Perm	NA		
Protected Phases			1			1		4
Permitted Phases	1	1			1			
Detector Phase	1	1	1		1	1		
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	27.8	27.8	27.8		27.8	27.8		24.3
Total Split (s)	31.8	31.8	31.8		31.8	31.8		24.3
Total Split (%)	27.7%	27.7%	27.7%		27.7%	27.7%		21%
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1		3.3
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7		0.0
Lost Time Adjust (s)		-2.8	-2.8			-2.8		
Total Lost Time (s)		4.0	4.0			4.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min		Min	Min		Ped
Act Effct Green (s)		27.9	27.9			27.9		
Actuated g/C Ratio		0.26	0.26			0.26		
v/c Ratio		1.88	1.53			0.14		
Control Delay		443.7	284.7			35.8		
Queue Delay		0.0	0.0			0.0		
Total Delay		443.7	284.7			35.8		
LOS		F	F			D		
Approach Delay			348.7			35.8		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Approach LOS		F				E					D	
Queue Length 50th (m)		6.5	~121.2			31.3					16.8	
Queue Length 95th (m)		13.8	#146.7			42.8					26.3	
Internal Link Dist (m)		99.4				200.2					175.5	
Turn Bay Length (m)		45.0										
Base Capacity (vph)		133	176			276					235	
Starvation Cap Reductn		0	0			0					0	
Spillback Cap Reductn		0	0			0					0	
Storage Cap Reductn		0	0			0					0	
Reduced v/c Ratio		0.26	1.96			0.54					0.37	

Intersection Summary

Area Type: Other
Cycle Length: 114.7
Actuated Cycle Length: 109.1
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.96
Intersection Signal Delay: 318.9 Intersection LOS: F
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St



Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR2	Ø4
Approach LOS			F			D		
Queue Length 50th (m)		~117.9	~160.8			4.6		
Queue Length 95th (m)		#143.3	#182.3			10.5		
Internal Link Dist (m)			67.1			166.2		
Turn Bay Length (m)		20.0						
Base Capacity (vph)		181	330			189		
Starvation Cap Reductn		0	0			0		
Spillback Cap Reductn		0	0			0		
Storage Cap Reductn		0	0			0		
Reduced v/c Ratio		1.88	1.53			0.14		

Intersection Summary

Queues
1: Allendale Ave & Main St & Murray St

Base Year
Saturday Peak Hour

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	34	345	150	86	340	505	26
v/c Ratio	0.26	1.96	0.69	0.46	1.88	1.53	0.14
Control Delay	44.0	476.2	56.9	46.1	443.7	284.7	35.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	476.2	56.9	46.1	443.7	284.7	35.8
Queue Length 50th (m)	6.5	~121.2	31.3	16.8	~117.9	~160.8	4.6
Queue Length 95th (m)	13.8	#146.7	42.8	26.3	#143.3	#182.3	10.5
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	133	176	276	235	181	330	189
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	1.96	0.54	0.37	1.88	1.53	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Allendale Ave & Main St & Murray St

Base Year
Saturday Peak Hour

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	207	48	58	27	20	7	38	12	12	2
Future Volume (vph)	15	10	207	48	58	27	20	7	38	12	12	2
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0					4.0	
Lane Util. Factor		1.00	1.00			1.00					1.00	
Frpb, ped/bikes		1.00	0.75			0.97					1.00	
Flpb, ped/bikes		0.97	1.00			0.99					0.96	
Frt		1.00	0.85			0.97					1.00	
Flt Protected		0.95	1.00			0.97					0.96	
Satd. Flow (prot)		1090	858			1300					1318	
Flt Permitted		0.56	1.00			0.81					0.67	
Satd. Flow (perm)		638	858			1085					921	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	20	14	280	65	78	36	27	9	51	16	16	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	34	345	0	0	150	0	0	0	0	85	0
Confl. Peds. (#/hr)	4	12	8	51	8		17	4	17	4		8
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Actuated Green, G (s)		20.0	20.0			19.2					22.0	
Effective Green, g (s)		22.8	22.8			22.0					22.0	
Actuated g/C Ratio		0.21	0.21			0.20					0.20	
Clearance Time (s)		6.8	6.8			6.8					6.8	
Vehicle Extension (s)		5.0	5.0			3.0					3.0	
Lane Grp Cap (vph)		133	179			218					185	
v/s Ratio Prot												
v/s Ratio Perm		0.05	c0.40			c0.14					0.09	
v/c Ratio		0.26	1.93			0.69					0.46	
Uniform Delay, d1		36.1	43.1			40.4					38.3	
Progression Factor		1.00	1.00			1.00					1.00	
Incremental Delay, d2		2.1	437.3			8.7					1.8	
Delay (s)		38.2	480.4			49.1					40.1	
Level of Service		D	F			D					D	
Approach Delay (s)		440.7				49.1					40.1	
Approach LOS		F				D					D	

Intersection Summary

HCM 2000 Control Delay	322.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	109.1	Sum of lost time (s)	18.1
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL2	SEL	SET	SER	NWL	NWT	NWR2
Lane Configurations							
Traffic Volume (vph)	12	240	339	35	2	2	15
Future Volume (vph)	12	240	339	35	2	2	15
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00			1.00	
Frpb, ped/bikes		1.00	1.00			0.95	
Flpb, ped/bikes		0.83	1.00			1.00	
Frt		1.00	0.99			0.90	
Flt Protected		0.95	1.00			0.99	
Satd. Flow (prot)		920	1293			1215	
Flt Permitted		0.74	1.00			0.61	
Satd. Flow (perm)		717	1293			742	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	16	324	458	47	3	3	20
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	340	505	0	0	26	0
Confl. Peds. (#/hr)	51	17		12	12		17
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	0%
Turn Type	Perm	Perm	NA		Perm	NA	
Protected Phases			1			1	
Permitted Phases	1	1			1		
Actuated Green, G (s)		25.1	25.1			25.1	
Effective Green, g (s)		27.9	27.9			27.9	
Actuated g/C Ratio		0.26	0.26			0.26	
Clearance Time (s)		6.8	6.8			6.8	
Vehicle Extension (s)		5.0	5.0			5.0	
Lane Grp Cap (vph)		183	330			189	
v/s Ratio Prot			0.39				
v/s Ratio Perm		c0.47				0.04	
v/c Ratio		1.86	1.53			0.14	
Uniform Delay, d1		40.6	40.6			31.3	
Progression Factor		1.00	1.00			1.00	
Incremental Delay, d2		406.3	253.5			0.7	
Delay (s)		446.9	294.1			32.0	
Level of Service		F	F			C	
Approach Delay (s)			355.6			32.0	
Approach LOS			F			C	

Intersection Summary

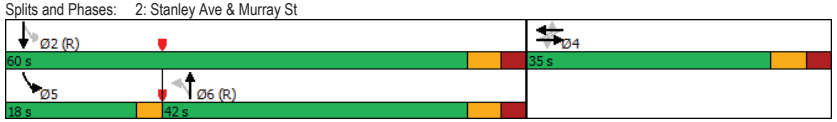
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	156	63	133	140	206	126	582	98	433	773	90
Future Volume (vph)	61	156	63	133	140	206	126	582	98	433	773	90
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.94	0.97		0.95	0.91		0.97	0.99		0.99	0.99	
Frt		0.957			0.911			0.978			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1354	1177	0	1222	1039	0	1267	2245	0	1303	2250	0
Flt Permitted	0.311			0.495			0.305			0.206		
Satd. Flow (perm)	415	1177	0	603	1039	0	394	2245	0	281	2250	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			83			24			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	136		82	82		136	65		15	15		65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	13%	13%	10%	5%	9%	11%	4%	6%	10%	6%
Adj. Flow (vph)	66	170	68	145	152	224	137	633	107	471	840	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	238	0	145	376	0	137	740	0	471	938	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0		35.0	35.0		42.0	42.0		18.0	60.0	
Total Split (%)	36.8%	36.8%		36.8%	36.8%		44.2%	44.2%		18.9%	63.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	30.7	30.7		30.7	30.7		36.4	36.4		56.3	56.3	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.38	0.38		0.59	0.59	
v/c Ratio	0.49	0.60		0.75	0.96		0.91	0.85		1.40	0.70	
Control Delay	40.6	31.8		54.1	63.3		83.9	36.1		216.9	16.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.6	31.8		54.1	63.3		83.9	36.1		216.9	16.7	
LOS	D	C		D	E		F	D		F	B	
Approach Delay		33.8			60.7			43.5			83.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			E			D			F	
Queue Length 50th (m)	10.1	34.6		24.6	57.4		23.8	63.5		~101.7	60.2	
Queue Length 95th (m)	25.2	61.1		#57.3	#117.7		#61.2	#89.6		#164.2	84.4	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	135	398		196	394		157	912		337	1342	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.49	0.60		0.74	0.95		0.87	0.81		1.40	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.40
Intersection Signal Delay: 63.6 Intersection LOS: E
Intersection Capacity Utilization 111.3% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Stanley Ave & Murray St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	238	145	376	137	740	471	938
v/c Ratio	0.49	0.60	0.75	0.96	0.91	0.85	1.40	0.70
Control Delay	40.6	31.8	54.1	63.3	83.9	36.1	216.9	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	31.8	54.1	63.3	83.9	36.1	216.9	16.7
Queue Length 50th (m)	10.1	34.6	24.6	57.4	23.8	63.5	~101.7	60.2
Queue Length 95th (m)	25.2	61.1	#57.3	#117.7	#61.2	#89.6	#164.2	84.4
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	135	398	196	394	157	912	337	1342
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.60	0.74	0.95	0.87	0.81	1.40	0.70

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: Stanley Ave & Murray St

Base Year
Saturday Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	156	63	133	140	206	126	582	98	433	773	90
Future Volume (vph)	61	156	63	133	140	206	126	582	98	433	773	90
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.91		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.97	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.91		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1269	1177		1157	1038		1226	2246		1302	2251	
Flt Permitted	0.31	1.00		0.50	1.00		0.30	1.00		0.21	1.00	
Satd. Flow (perm)	415	1177		603	1038		393	2246		282	2251	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	170	68	145	152	224	137	633	107	471	840	98
RTOR Reduction (vph)	0	15	0	0	56	0	0	15	0	0	9	0
Lane Group Flow (vph)	66	223	0	145	320	0	137	725	0	471	929	0
Confl. Peds. (#/hr)	136		82	82		136	65		15	15		65
Heavy Vehicles (%)	2%	3%	13%	13%	10%	5%	9%	11%	4%	6%	10%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	27.7	27.7		27.7	27.7		33.4	33.4		53.3	53.3	
Effective Green, g (s)	30.7	30.7		30.7	30.7		36.4	36.4		52.3	56.3	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.38	0.38		0.55	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	134	380		194	335		150	860		325	1334	
v/s Ratio Prot		0.19			c0.31			0.32		c0.24	0.41	
v/s Ratio Perm	0.16			0.24			0.35			c0.55		
v/c Ratio	0.49	0.59		0.75	0.95		0.91	0.84		1.45	0.70	
Uniform Delay, d1	25.9	26.9		28.7	31.5		27.8	26.7		19.3	13.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	1.9		13.8	37.0		53.4	9.9		218.7	3.0	
Delay (s)	27.9	28.8		42.5	68.5		81.2	36.6		238.0	16.4	
Level of Service	C	C		D	E		F	D		F	B	
Approach Delay (s)		28.6			61.2			43.5			90.5	
Approach LOS		C			E			D			F	

Intersection Summary				
HCM 2000 Control Delay	66.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	1.24			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	111.3%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Lanes, Volumes, Timings
3: Drummond Rd & Murray St

Base Year
Saturday Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	25	561	16	24	599
Future Volume (vph)	14	25	561	16	24	599
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.913		0.996			
Flt Protected	0.982				0.950	
Satd. Flow (prot)	1285	0	1333	0	1381	1579
Flt Permitted	0.982				0.950	
Satd. Flow (perm)	1285	0	1333	0	1381	1579
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	4	1		5	5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	15	27	603	17	26	644
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	620	0	26	644
Sign Control	Stop		Free			Free

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	25	561	16	24	599
Future Volume (Veh/h)	14	25	561	16	24	599
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	15	27	603	17	26	644
Pedestrians	5		4			1
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1316	618			625	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1316	618			625	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	94			97	
cM capacity (veh/h)	170	491			962	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	42	620	26	644
Volume Left	15	0	26	0
Volume Right	27	17	0	0
cSH	293	1700	962	1700
Volume to Capacity	0.14	0.36	0.03	0.38
Queue Length 95th (m)	4.0	0.0	0.7	0.0
Control Delay (s)	19.3	0.0	8.8	0.0
Lane LOS	C		A	
Approach Delay (s)	19.3	0.0	0.3	
Approach LOS	C			

Intersection Summary				
Average Delay			0.8	
Intersection Capacity Utilization			53.6%	ICU Level of Service
Analysis Period (min)			15	

Appendix D

TTS Survey Data

Wed Sep 29 2021 16:34:32 GMT-0400 (Eastern Daylight Time) - Run Time: 2476ms
Cross Tabulation Query Form - Trip - 2016 v1.1
Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig
Filters:
Start time of trip - start_time In 700-900
and
2006 GTA zone of destination - gta06_dest In 6213

Trip 2016
Table:

	4062	6092	6194	6199	6214	6216	6222	6235	6236	6267	6275	6307
6213	29	51	35	52	22	31	160	19	54	20	19	30

Wed Sep 29 2021 16:32:43 GMT-0400 (Eastern Daylight Time) - Run Time: 2670ms
Cross Tabulation Query Form - Trip - 2016 v1.1
Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest
Filters:
Start time of trip - start_time In 700-900
and
2006 GTA zone of origin - gta06_orig In 6213
Trip 2016
Table:

	69	116	6092	6184	6199	6200	6212	6214	6216	6218	6219	6230	6233	6235	6236	6241	6281	8923
6213	16	16	25	32	12	28	47	43	26	13	20	98	34	34	38	32	17	122

Wed Sep 29 2021 16:36:50 GMT-0400 (Eastern Daylight Time) - Run Time: 2570ms
Cross Tabulation Query Form - Trip - 2016 v1.1
Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig
Filters:
Start time of trip - start_time In 1500-1800
and
2006 GTA zone of destination - gta06_dest In 6213
Trip 2016
Table:

	69	6093	6126	6146	6190	6194	6198	6200	6212	6214	6216	6218	6219	6220	6226	6232	6233	6235	6236	6243	6245	6247	8646	9998
6213	16	11	11	12	18	12	26	28	50	43	49	13	20	44	16	17	66	30	21	18	20	22	36	25

Wed Sep 29 2021 16:37:28 GMT-0400 (Eastern Daylight Time) - Run Time: 2363ms
Cross Tabulation Query Form - Trip - 2016 v1.1
Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest
Filters:
Start time of trip - start_time In 1500-1800
and
2006 GTA zone of origin - gta06_orig In 6213
Trip 2016
Table:

	3649	6092	6093	6151	6198	6199	6212	6214	6216	6217	6219	6222	6226	6233	6235	6249	6267	6307	9998
6213	21	25	22	20	26	104	32	22	31	17	12	13	15	32	25	64	20	30	25

Fri Oct 08 2021 13:05:49 GMT-0400 (Eastern Daylight Time)

Frequency Distribution Query Form - Household - 2016 v1.1

Field: No. of vehicles in household - n_vehicle

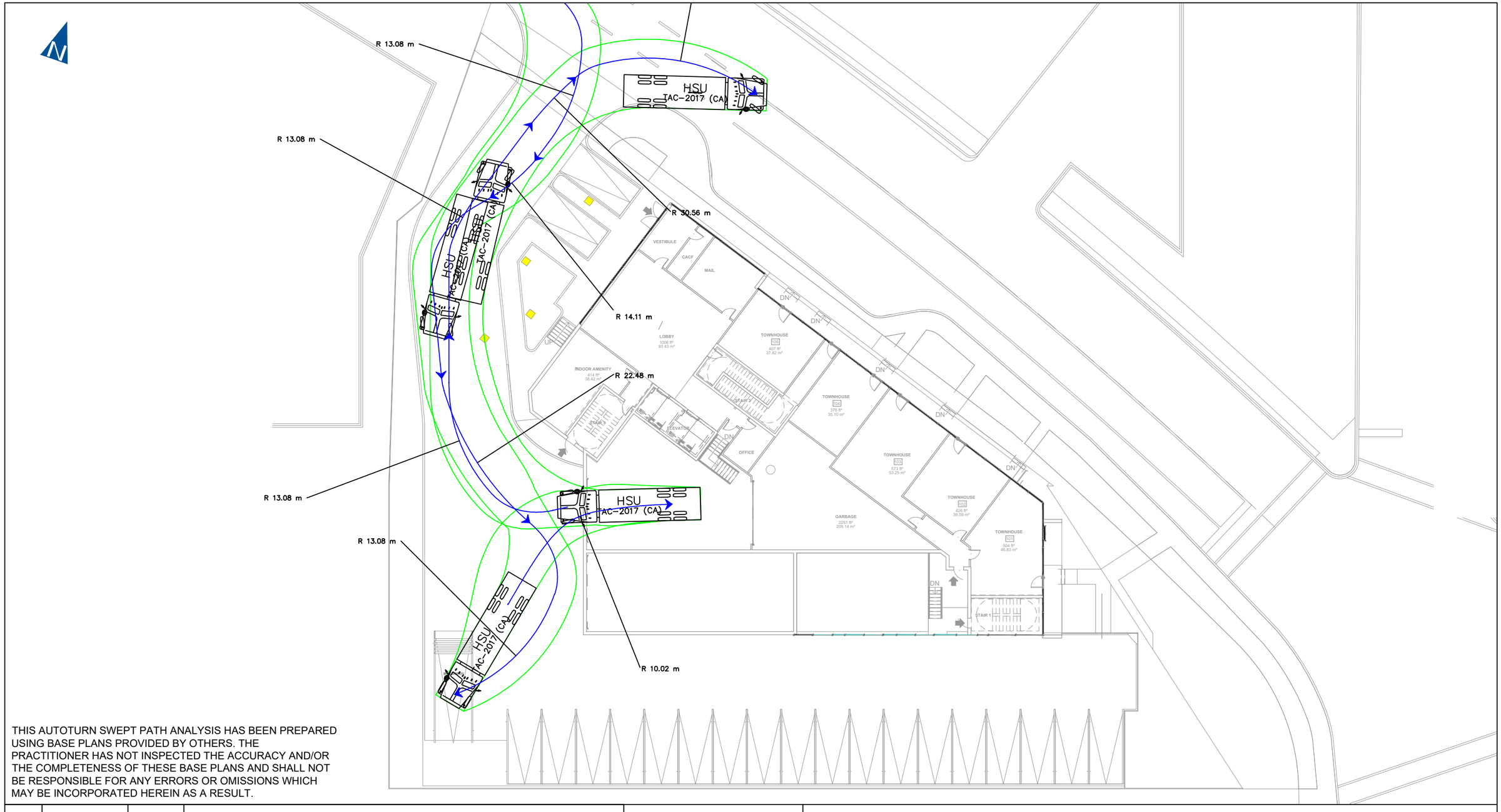
Filters:
Planning district of household - pd_hhld In 57,
and
Type of dwelling unit - dwell_type In 2

Table: Household 2016

Row:	Count:	Expanded:
0	109	2599
1	260	4124
2	33	631
3	2	25
Total:	404	7380

Appendix E

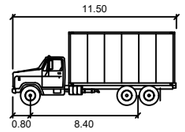
AutoTURN Analysis



THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL
1	2023-12	SC	UPDATED SITE PLAN

DESIGN VEHICLE:



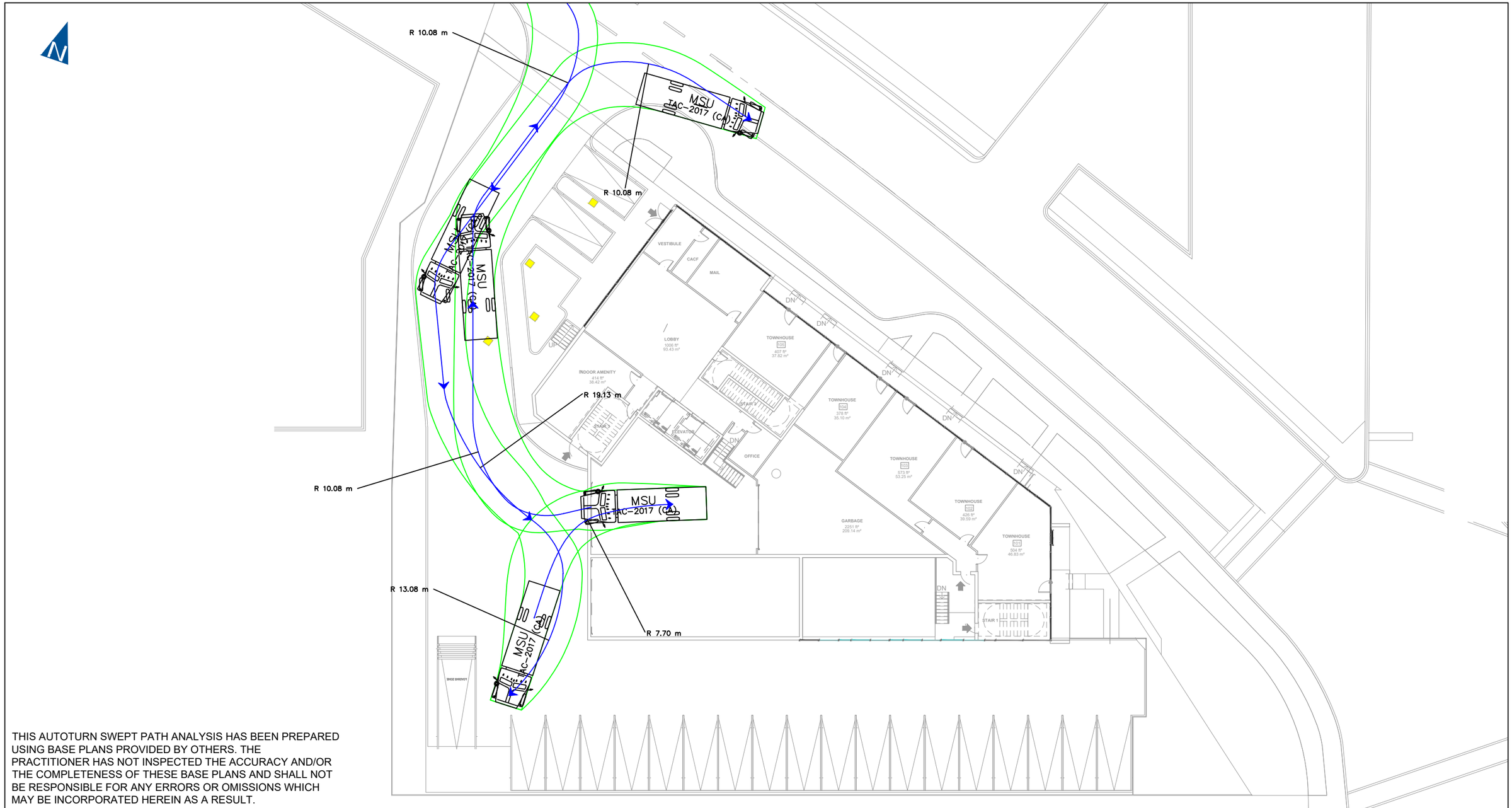
HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

AUTOTURN ASSESSMENT
6285 & 6289 MAIN ST.
NIAGARA FALLS, ON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 230015	DATE: SEPTEMBER 2023	SCALE: 1:300	DRAWING NO.:
DRAWN: LC	DESIGN: LC	CHECK: SC	01



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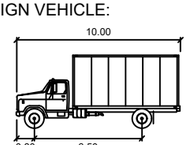
NO.	DATE	INITIAL	REVISION DETAIL
1	2023-12	SC	UPDATED SITE PLAN

DESIGN VEHICLE:



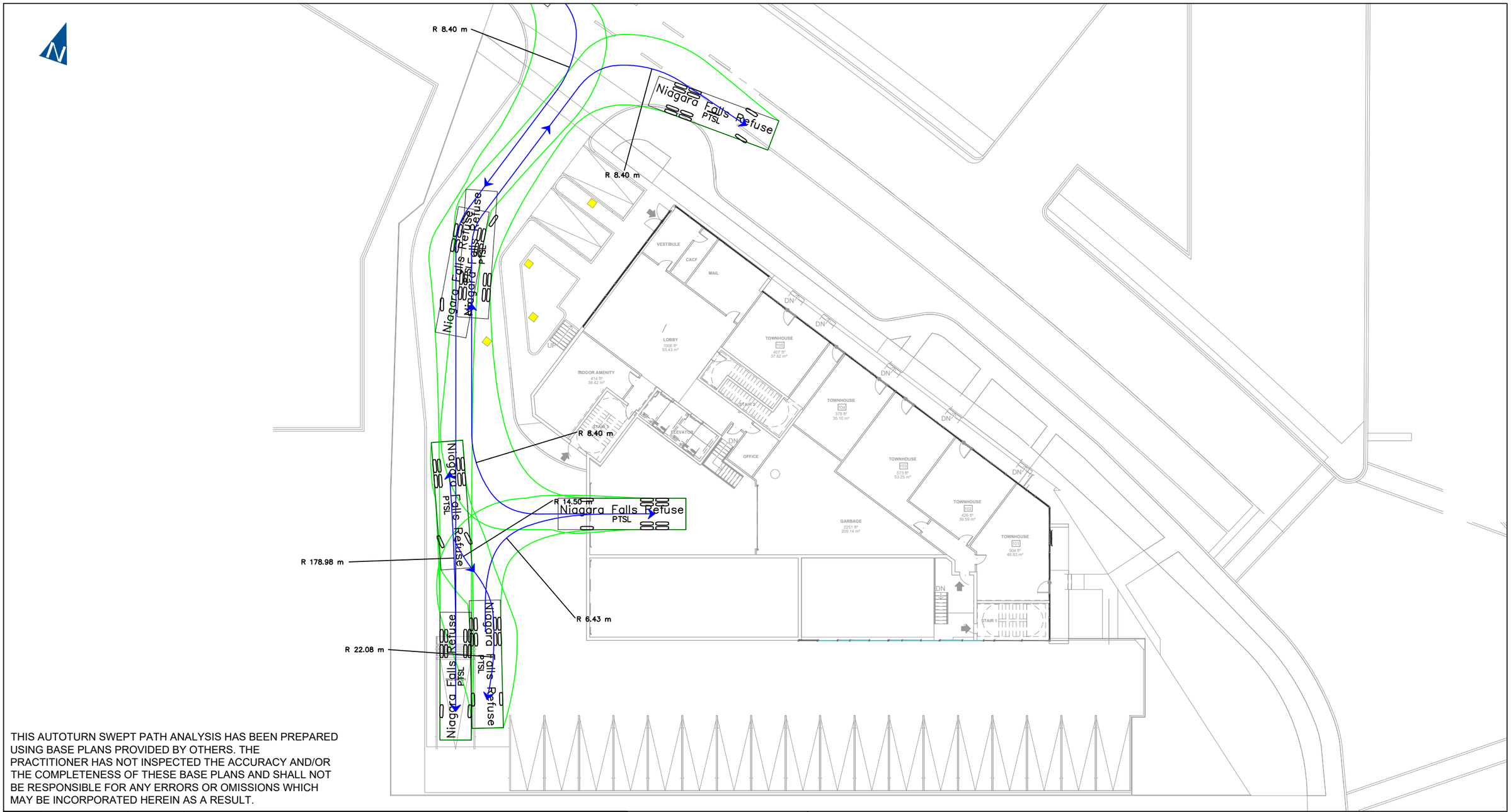
MSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.2

AUTOTURN ASSESSMENT
6285 & 6289 MAIN ST.
NIAGARA FALLS, ON

paradigm TRANSPORTATION SOLUTIONS LIMITED

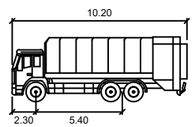
PROJECT NO.: 230015	DATE: SEPTEMBER 2023	SCALE: 1:300	DRAWING NO.: 02
DRAWN: LC	DESIGN: LC	CHECK: SC	



THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL
1	2023-12	SC	UPDATED SITE PLAN

DESIGN VEHICLE:



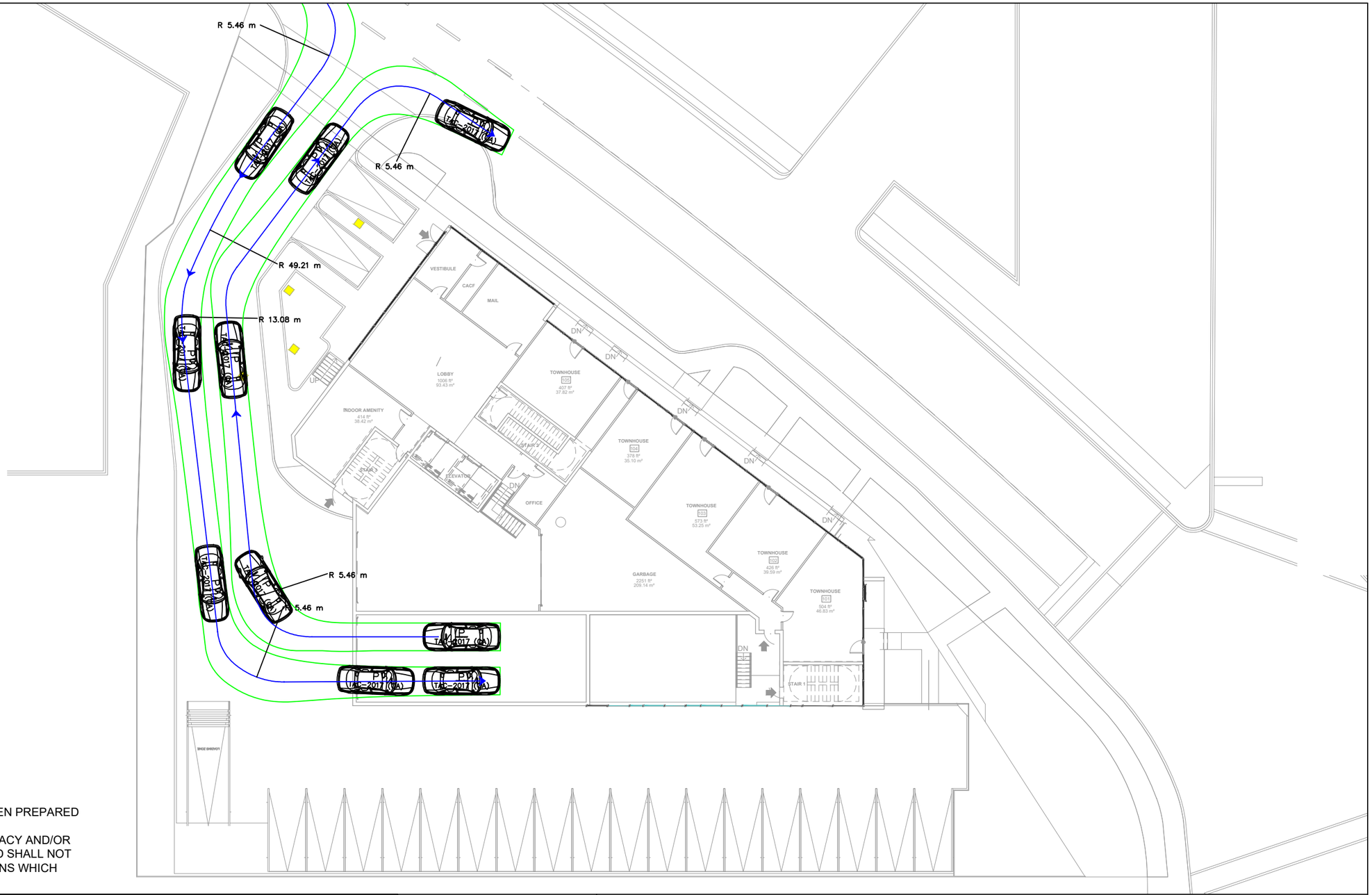
Niagara Falls Refuse

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

AUTOTURN ASSESSMENT
6285 & 6289 MAIN ST.
NIAGARA FALLS, ON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 230015	DATE: SEPTEMBER 2023	SCALE: 1:300	DRAWING NO.: 03
DRAWN: LC	DESIGN: LC	CHECK: SC	



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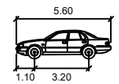
NO.	DATE	INITIAL	REVISION DETAIL
1	2023-12	SC	UPDATED SITE PLAN

DESIGN VEHICLE:



P

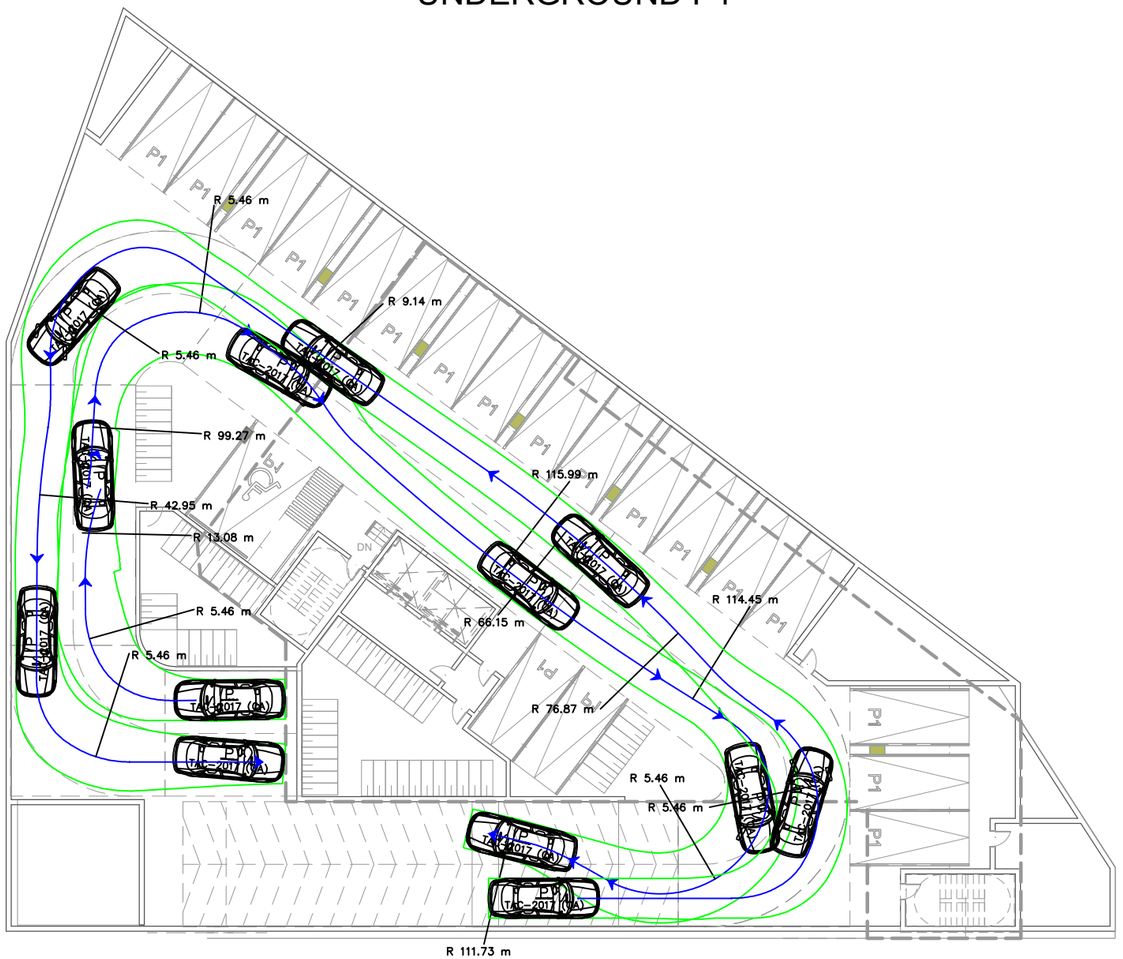
	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

AUTOTURN ASSESSMENT
6285 & 6289 MAIN ST.
NIAGARA FALLS, ON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 230015	DATE: SEPTEMBER 2023	SCALE: 1:300	DRAWING NO.: 04
DRAWN: LC	DESIGN: LC	CHECK: SC	

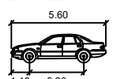
UNDERGROUND P1



THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL
1	2023-12	SC	UPDATED SITE PLAN

DESIGN VEHICLE:



P

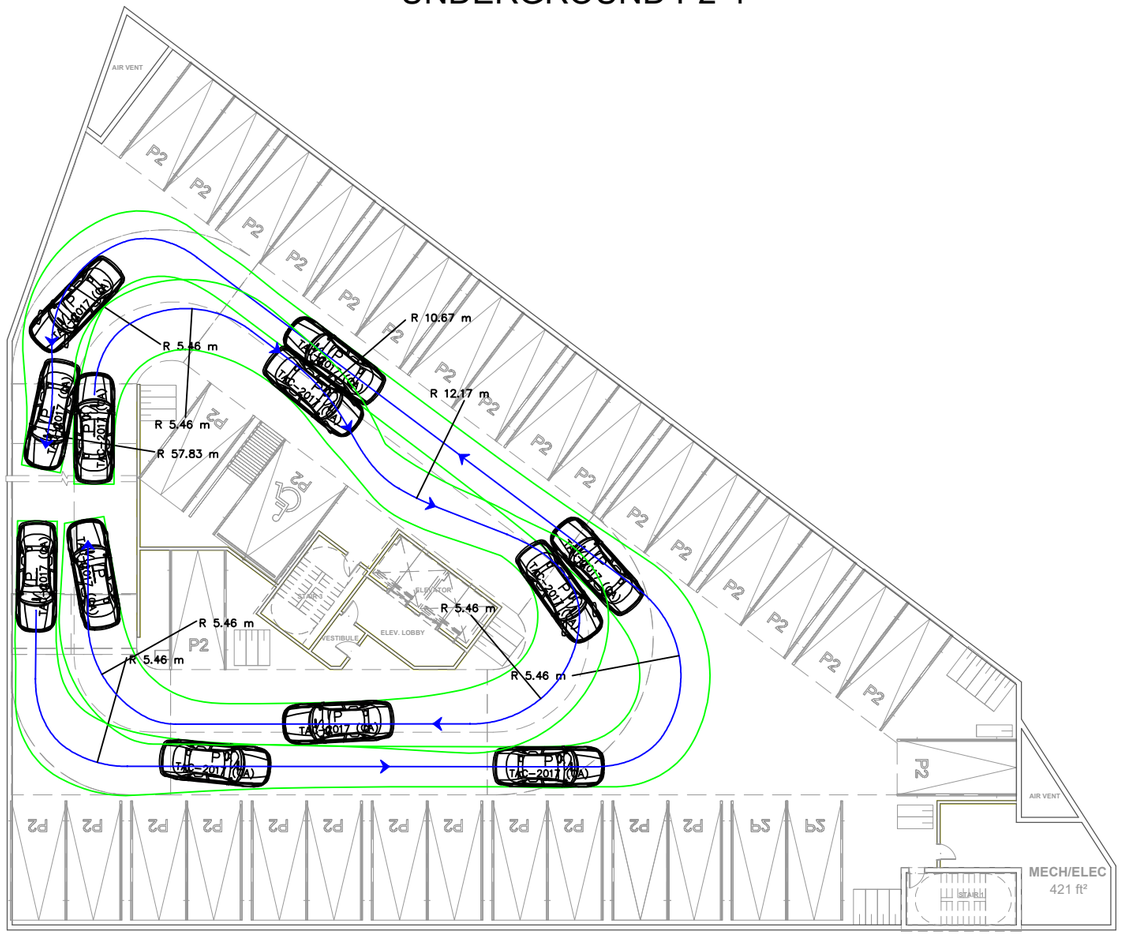
	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

AUTOTURN ASSESSMENT
6285 & 6289 MAIN ST.
NIAGARA FALLS, ON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 230015	DATE: SEPTEMBER 2023	SCALE: 1:300	DRAWING NO.:
DRAWN: LC	DESIGN: LC	CHECK: SC	05

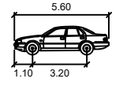
UNDERGROUND P2-4



THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL
1	2023-12	SC	UPDATED SITE PLAN

DESIGN VEHICLE:



P

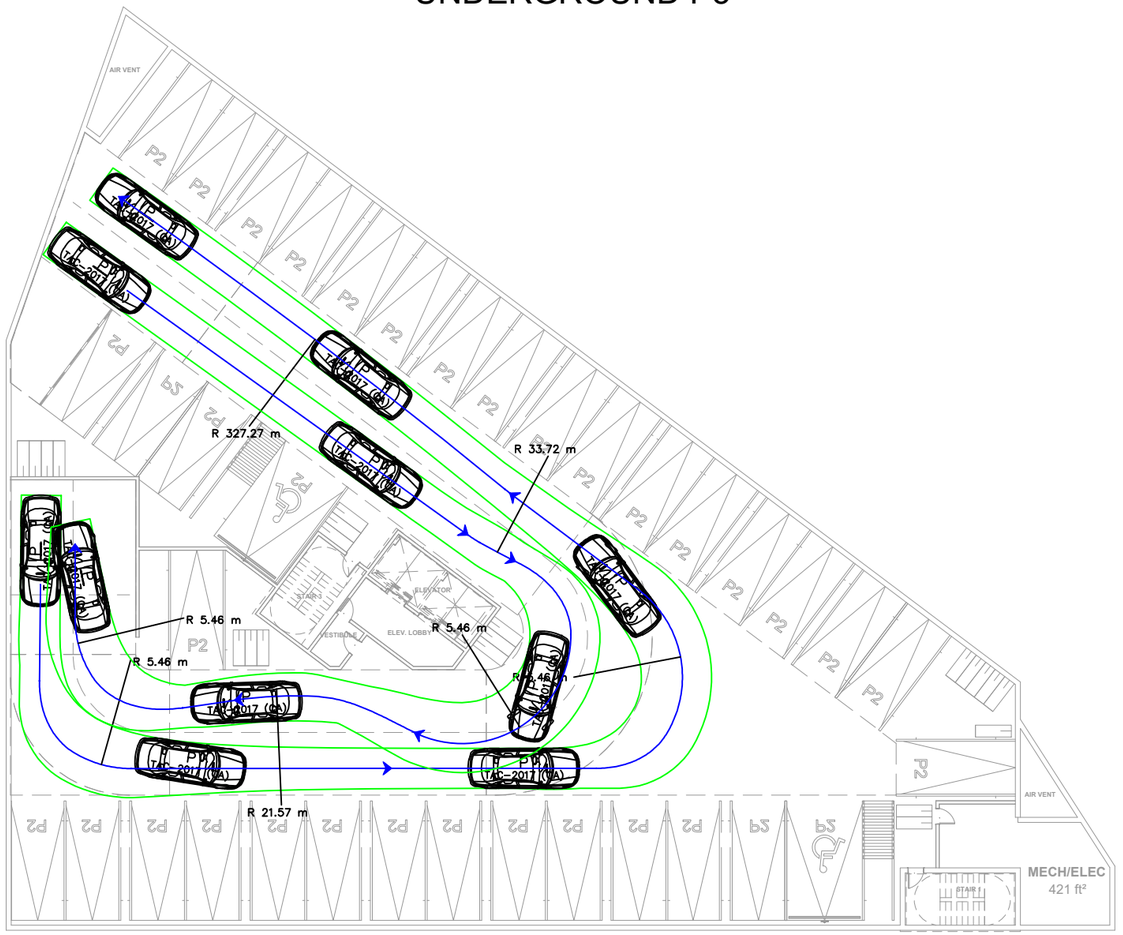
	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

AUTOTURN ASSESSMENT
6285 & 6289 MAIN ST.
NIAGARA FALLS, ON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 230015	DATE: SEPTEMBER 2023	SCALE: 1:300	DRAWING NO.: 06
DRAWN: LC	DESIGN: LC	CHECK: SC	

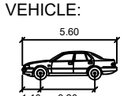
UNDERGROUND P5



THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR AN ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL
1	2023-12	SC	UPDATED SITE PLAN

DESIGN VEHICLE:



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

AUTOTURN ASSESSMENT
6285 & 6289 MAIN ST.
NIAGARA FALLS, ON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 230015	DATE: SEPTEMBER 2023	SCALE: 1:300	DRAWING NO.: 07
DRAWN: LC	DESIGN: LC	CHECK: SC	

Appendix F

Background Traffic Operations Reports

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	8	186	10	21	2	2	8	14	0	130	171
Future Volume (vph)	5	8	186	10	21	2	2	8	14	0	130	171
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1178	1338
Storage Length (m)		45.0	0.0		0.0		0.0		0.0		20.0	
Storage Lanes		1	1		0		0		0		1	
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	0.87			0.97				0.96	0.98	1.00
Frt			0.850			0.991						0.981
Flt Protected		0.950				0.958				0.950	0.950	
Satd. Flow (prot)	0	1119	1116	0	0	1209	0	0	0	1361	1119	1254
Flt Permitted		0.656				0.735				0.738	0.754	
Satd. Flow (perm)	0	766	973	0	0	907	0	0	0	1017	871	1254
Right Turn on Red				No								
Satd. Flow (RTOR)												
Link Speed (k/h)		50				50				50		50
Link Distance (m)		123.4				224.2				199.5		91.1
Travel Time (s)		8.9				16.1				14.4		6.6
Confl. Peds. (#/hr)	3	1	6	21	6		7	7	2		7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	2%	0%	14%	0%	0%	0%	0%	0%	0%	5%
Adj. Flow (vph)	6	10	230	12	26	2	2	10	17	0	160	211
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	242	0	0	30	0	0	0	27	160	241
Turn Type	Perm	Perm	Perm		Perm	NA		Perm	Perm	NA	Perm	NA
Protected Phases						3				3		1
Permitted Phases	2	2	2		3			3	3		1	
Detector Phase	2	2	2		3	3		3	3	3	1	1
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8		19.8	19.8	19.8	27.8	27.8
Total Split (s)	39.6	39.6	39.6		19.8	19.8		19.8	19.8	19.8	31.0	31.0
Total Split (%)	34.5%	34.5%	34.5%		17.3%	17.3%		17.3%	17.3%	17.3%	27.0%	27.0%
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1		4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7		2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		-2.8	-2.8			-2.8				-2.8	-2.8	-2.8
Total Lost Time (s)		4.0	4.0			4.0				4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag		Lead	Lead		Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None		None	None	None	Min	Min
Act Effct Green (s)		32.0	32.0			12.7				12.7	25.6	25.6
Actuated g/C Ratio		0.31	0.31			0.12				0.12	0.25	0.25
v/c Ratio		0.07	0.81			0.27				0.22	0.74	0.78
Control Delay		28.4	56.2			51.7				49.2	61.0	57.2
Queue Delay		0.0	0.0			0.0				0.0	0.0	0.0
Total Delay		28.4	56.2			51.7				49.2	61.0	57.2
LOS		C	E			D				D	E	E
Approach Delay		54.4				51.7				49.2		58.7

Lane Group	SER	NWT	Ø4
Lane Configurations			
Traffic Volume (vph)	24	5	
Future Volume (vph)	24	5	
Ideal Flow (vphpl)	1338	1433	
Storage Length (m)	0.0		
Storage Lanes	0		
Taper Length (m)			
Lane Util. Factor	1.00	1.00	
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)	0	1433	
Flt Permitted			
Satd. Flow (perm)	0	1433	
Right Turn on Red	No		
Satd. Flow (RTOR)			
Link Speed (k/h)		50	
Link Distance (m)		190.2	
Travel Time (s)		13.7	
Confl. Peds. (#/hr)	1		
Peak Hour Factor	0.81	0.81	
Heavy Vehicles (%)	0%	0%	
Adj. Flow (vph)	30	6	
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	6	
Turn Type		NA	
Protected Phases		1	4
Permitted Phases			
Detector Phase		1	
Switch Phase			
Minimum Initial (s)		8.0	1.0
Minimum Split (s)		27.8	24.3
Total Split (s)		31.0	24.3
Total Split (%)		27.0%	21%
Yellow Time (s)		4.1	3.3
All-Red Time (s)		2.7	0.0
Lost Time Adjust (s)		-2.8	
Total Lost Time (s)		4.0	
Lead/Lag		Lead	Lag
Lead-Lag Optimize?			
Recall Mode		Min	Ped
Act Effct Green (s)		25.6	
Actuated g/C Ratio		0.25	
v/c Ratio		0.02	
Control Delay		33.4	
Queue Delay		0.0	
Total Delay		33.4	
LOS		C	
Approach Delay		33.4	

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBL	SBT	SEL	SET
Approach LOS		D				D				D		E
Queue Length 50th (m)		2.5	49.4			6.4				5.7	33.8	51.4
Queue Length 95th (m)		7.4	#79.3			14.5				13.4	#59.8	#80.4
Internal Link Dist (m)		99.4				200.2				175.5		67.1
Turn Bay Length (m)		45.0									20.0	
Base Capacity (vph)		271	344			142				160	234	337
Starvation Cap Reductn		0	0			0				0	0	0
Spillback Cap Reductn		0	0			0				0	0	0
Storage Cap Reductn		0	0			0				0	0	0
Reduced v/c Ratio		0.06	0.70			0.21				0.17	0.68	0.72

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 103.4			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 56.3		Intersection LOS: E	
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St

Lane Group	SER	NWT	Ø4
Approach LOS		C	
Queue Length 50th (m)		1.0	
Queue Length 95th (m)		4.3	
Internal Link Dist (m)		166.2	
Turn Bay Length (m)			
Base Capacity (vph)		385	
Starvation Cap Reductn		0	
Spillback Cap Reductn		0	
Storage Cap Reductn		0	
Reduced v/c Ratio		0.02	

Intersection Summary

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	16	242	30	27	160	241	6
v/c Ratio	0.07	0.81	0.27	0.22	0.74	0.78	0.02
Control Delay	28.4	56.2	51.7	49.2	61.0	57.2	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	56.2	51.7	49.2	61.0	57.2	33.4
Queue Length 50th (m)	2.5	49.4	6.4	5.7	33.8	51.4	1.0
Queue Length 95th (m)	7.4	#79.3	14.5	13.4	#59.8	#80.4	4.3
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	271	344	142	160	234	337	385
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.70	0.21	0.17	0.68	0.72	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	8	186	10	21	2	2	8	14	0	130	171
Future Volume (vph)	5	8	186	10	21	2	2	8	14	0	130	171
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1178	1338
Total Lost time (s)		4.0	4.0			4.0				4.0	4.0	4.0
Lane Util. Factor		1.00	1.00			1.00				1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.88			1.00				1.00	1.00	1.00
Flpb, ped/bikes		0.99	1.00			0.98				0.97	0.98	1.00
Frt		1.00	0.85			0.99				1.00	1.00	0.98
Flt Protected		0.95	1.00			0.96				0.95	0.95	1.00
Satd. Flow (prot)		1110	983			1186				1314	1100	1254
Flt Permitted		0.66	1.00			0.74				0.74	0.75	1.00
Satd. Flow (perm)		766	983			909				1020	873	1254
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	6	10	230	12	26	2	2	10	17	0	160	211
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	16	242	0	0	30	0	0	0	27	160	241
Confl. Peds. (#/hr)	3	1	6	21	6		7	7	2		7	
Heavy Vehicles (%)	0%	0%	2%	0%	14%	0%	0%	0%	0%	0%	0%	5%
Turn Type	Perm	Perm	Perm		Perm	NA		Perm	Perm	NA	Perm	NA
Protected Phases						3				3		1
Permitted Phases	2	2	2		3			3	3		1	
Actuated Green, G (s)		29.1	29.1			7.5				7.5	22.7	22.7
Effective Green, g (s)		31.9	31.9			10.3				10.3	25.5	25.5
Actuated g/C Ratio		0.30	0.30			0.10				0.10	0.24	0.24
Clearance Time (s)		6.8	6.8			6.8				6.8	6.8	6.8
Vehicle Extension (s)		5.0	5.0			3.0				3.0	5.0	5.0
Lane Grp Cap (vph)		233	299			89				100	212	305
v/s Ratio Prot												c0.19
v/s Ratio Perm		0.02	c0.25			c0.03				0.03	0.18	
v/c Ratio		0.07	0.81			0.34				0.27	0.75	0.79
Uniform Delay, d1		25.8	33.5			44.0				43.7	36.7	37.0
Progression Factor		1.00	1.00			1.00				1.00	1.00	1.00
Incremental Delay, d2		0.3	16.7			2.2				1.5	16.6	14.8
Delay (s)		26.1	50.2			46.2				45.1	53.2	51.8
Level of Service		C	D			D				D	D	D
Approach Delay (s)		48.7				46.2				45.1		52.4
Approach LOS		D				D				D		D

Intersection Summary

HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	104.6	Sum of lost time (s)	18.1
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

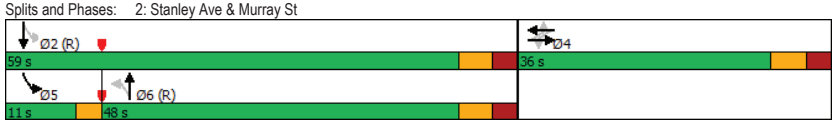
Movement	SER	NWT
Lane Configurations		
Traffic Volume (vph)	24	5
Future Volume (vph)	24	5
Ideal Flow (vphpl)	1338	1433
Total Lost time (s)		4.0
Lane Util. Factor		1.00
Frpb, ped/bikes		1.00
Flpb, ped/bikes		1.00
Frt		1.00
Flt Protected		1.00
Satd. Flow (prot)		1433
Flt Permitted		1.00
Satd. Flow (perm)		1433
Peak-hour factor, PHF	0.81	0.81
Adj. Flow (vph)	30	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	6
Confl. Peds. (#/hr)	1	
Heavy Vehicles (%)	0%	0%
Turn Type		NA
Protected Phases		1
Permitted Phases		
Actuated Green, G (s)		22.7
Effective Green, g (s)		25.5
Actuated g/C Ratio		0.24
Clearance Time (s)		6.8
Vehicle Extension (s)		5.0
Lane Grp Cap (vph)		349
v/s Ratio Prot		0.00
v/s Ratio Perm		
v/c Ratio		0.02
Uniform Delay, d1		30.0
Progression Factor		1.00
Incremental Delay, d2		0.0
Delay (s)		30.1
Level of Service		C
Approach Delay (s)		30.1
Approach LOS		C
Intersection Summary		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	116	61	71	67	52	145	572	74	112	496	96
Future Volume (vph)	75	116	61	71	67	52	145	572	74	112	496	96
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.94	0.97		0.95	0.96			0.99		0.98		
Frt		0.948			0.934			0.983			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1381	1216	0	1328	1176	0	1328	2259	0	1316	2333	0
Flt Permitted	0.617			0.490			0.408			0.313		
Satd. Flow (perm)	840	1216	0	650	1176	0	570	2259	0	425	2333	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			45			20			40	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	76		71	71		76			37	37		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	4%	4%	0%	5%	4%	10%	6%	5%	7%	3%
Adj. Flow (vph)	82	126	66	77	73	57	158	622	80	122	539	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	192	0	77	130	0	158	702	0	122	643	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	36.0	36.0		36.0	36.0		48.0	48.0		11.0	59.0	
Total Split (%)	37.9%	37.9%		37.9%	37.9%		50.5%	50.5%		11.6%	62.1%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	21.0	21.0		21.0	21.0		55.2	55.2		66.0	66.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.58	0.58		0.69	0.69	
v/c Ratio	0.44	0.66		0.54	0.44		0.48	0.53		0.34	0.39	
Control Delay	37.6	38.1		44.8	23.8		20.9	15.3		8.9	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.6	38.1		44.8	23.8		20.9	15.3		8.9	7.5	
LOS	D	D		D	C		C	B		A	A	
Approach Delay		38.0			31.6			16.4			7.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			B			A	
Queue Length 50th (m)	13.8	28.7		13.2	13.9		16.3	38.6		6.9	22.0	
Queue Length 95th (m)	25.3	46.2		25.3	27.6		46.8	73.0		18.0	43.8	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	282	429		218	425		331	1320		366	1633	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.29	0.45		0.35	0.31		0.48	0.53		0.33	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 76.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Stanley Ave & Murray St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	82	192	77	130	158	702	122	643
v/c Ratio	0.44	0.66	0.54	0.44	0.48	0.53	0.34	0.39
Control Delay	37.6	38.1	44.8	23.8	20.9	15.3	8.9	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	38.1	44.8	23.8	20.9	15.3	8.9	7.5
Queue Length 50th (m)	13.8	28.7	13.2	13.9	16.3	38.6	6.9	22.0
Queue Length 95th (m)	25.3	46.2	25.3	27.6	46.8	73.0	18.0	43.8
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	282	429	218	425	331	1320	366	1633
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.45	0.35	0.31	0.48	0.53	0.33	0.39

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	116	61	71	67	52	145	572	74	112	496	96
Future Volume (vph)	75	116	61	71	67	52	145	572	74	112	496	96
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.93		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1295	1216		1261	1176		1328	2259		1308	2332	
Flt Permitted	0.62	1.00		0.49	1.00		0.41	1.00		0.31	1.00	
Satd. Flow (perm)	841	1216		651	1176		570	2259		431	2332	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	126	66	77	73	57	158	622	80	122	539	104
RTOR Reduction (vph)	0	23	0	0	35	0	0	8	0	0	12	0
Lane Group Flow (vph)	82	169	0	77	95	0	158	694	0	122	631	0
Confl. Peds. (#/hr)	76		71	71		76			37	37		
Heavy Vehicles (%)	0%	0%	4%	4%	0%	5%	4%	10%	6%	5%	7%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		52.1	52.1		63.0	63.0	
Effective Green, g (s)	21.0	21.0		21.0	21.0		55.1	55.1		62.0	66.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.58	0.58		0.65	0.69	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	185	268		143	259		330	1310		344	1620	
v/s Ratio Prot		c0.14			0.08			c0.31		0.03	c0.27	
v/s Ratio Perm	0.10			0.12			0.28			0.21		
v/c Ratio	0.44	0.63		0.54	0.37		0.48	0.53		0.35	0.39	
Uniform Delay, d1	32.0	33.5		32.7	31.4		11.6	12.1		7.0	6.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	4.0		3.0	0.6		4.9	1.5		0.4	0.7	
Delay (s)	33.2	37.4		35.7	32.0		16.5	13.6		7.4	6.8	
Level of Service	C	D		D	C		B	B		A	A	
Approach Delay (s)		36.2			33.4			14.2			6.9	
Approach LOS		D			C			B			A	

Intersection Summary				
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	76.9%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	12	36	572	14	22	461
Future Volume (vph)	12	36	572	14	22	461
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.899		0.997			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1273	0	1316	0	1381	1548
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1273	0	1316	0	1381	1548
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	1			6	6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	17%	0%	2%
Adj. Flow (vph)	13	39	622	15	24	501
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	637	0	24	501
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	36	572	14	22	461
Future Volume (Veh/h)	12	36	572	14	22	461
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	39	622	15	24	501
Pedestrians	6		1			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1186	636			643	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1186	636			643	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	92			97	
cM capacity (veh/h)	204	479			947	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	52	637	24	501
Volume Left	13	0	24	0
Volume Right	39	15	0	0
cSH	358	1700	947	1700
Volume to Capacity	0.15	0.37	0.03	0.29
Queue Length 95th (m)	4.0	0.0	0.6	0.0
Control Delay (s)	16.7	0.0	8.9	0.0
Lane LOS	C		A	
Approach Delay (s)	16.7	0.0	0.4	
Approach LOS	C			

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	5	266	19	42	5	14	2	2	11	0	8
Future Volume (vph)	8	5	266	19	42	5	14	2	2	11	0	8
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Storage Length (m)		45.0	0.0		0.0		0.0			0.0		0.0
Storage Lanes		1	1		0		0			0		0
Taper Length (m)		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	0.90			0.98					0.97	
Frt			0.850			0.965					0.949	
Flt Protected		0.950				0.968					0.970	
Satd. Flow (prot)	0	1119	1137	0	0	1323	0	0	0	0	1300	0
Flt Permitted		0.612				0.787					0.809	
Satd. Flow (perm)	0	714	1019	0	0	1063	0	0	0	0	1072	0
Right Turn on Red				No				No				Yes
Satd. Flow (RTOR)											132	
Link Speed (k/h)		50				50					50	
Link Distance (m)		123.4				224.2					199.5	
Travel Time (s)		8.9				16.1					14.4	
Confl. Peds. (#/hr)	2	3	4	17	4		4	2	4	2		4
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	7	359	26	57	7	19	3	3	15	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	385	0	0	86	0	0	0	0	29	0
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Detector Phase	2	2	2		3	3			3	3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0			8.0	8.0	8.0	
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8			19.8	19.8	19.8	
Total Split (s)	40.5	40.5	40.5		19.8	19.8			19.8	19.8	19.8	
Total Split (%)	35.3%	35.3%	35.3%		17.3%	17.3%			17.3%	17.3%	17.3%	
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1			4.1	4.1	4.1	
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7			2.7	2.7	2.7	
Lost Time Adjust (s)		-2.8	-2.8			-2.8					-2.8	
Total Lost Time (s)		4.0	4.0			4.0					4.0	
Lead/Lag	Lag	Lag	Lag		Lead	Lead			Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None			None	None	None	
Act Effct Green (s)		36.7	36.7			14.5					14.5	
Actuated g/C Ratio		0.33	0.33			0.13					0.13	
v/c Ratio		0.08	1.14			0.62					0.11	
Control Delay		28.6	128.4			66.6					0.9	
Queue Delay		0.0	0.0			0.0					0.0	
Total Delay		28.6	128.4			66.6					0.9	
LOS		C	F			E					A	
Approach Delay		123.9				66.6					0.9	

Lane Group	SEL2	SEL	SET	SER	NWT	NWR2	Ø4
Lane Configurations							
Traffic Volume (vph)	5	169	246	19	11	5	
Future Volume (vph)	5	169	246	19	11	5	
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	
Storage Length (m)		20.0		0.0			
Storage Lanes		1		0			
Taper Length (m)		7.5					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.94	1.00		0.99		
Frt			0.989		0.957		
Flt Protected		0.950					
Satd. Flow (prot)	0	1108	1302	0	1358	0	
Flt Permitted		0.743					
Satd. Flow (perm)	0	819	1302	0	1358	0	
Right Turn on Red				No		No	
Satd. Flow (RTOR)							
Link Speed (k/h)			50		50		
Link Distance (m)			91.1		190.2		
Travel Time (s)			6.6		13.7		
Confl. Peds. (#/hr)	17	4		3		4	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	
Adj. Flow (vph)	7	228	332	26	15	7	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	235	358	0	22	0	
Turn Type	Perm	Perm	NA		NA		
Protected Phases			1		1		4
Permitted Phases	1	1					
Detector Phase	1	1	1		1		
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0		8.0		1.0
Minimum Split (s)	27.8	27.8	27.8		27.8		24.3
Total Split (s)	30.1	30.1	30.1		30.1		24.3
Total Split (%)	26.2%	26.2%	26.2%		26.2%		21%
Yellow Time (s)	4.1	4.1	4.1		4.1		3.3
All-Red Time (s)	2.7	2.7	2.7		2.7		0.0
Lost Time Adjust (s)		-2.8	-2.8		-2.8		
Total Lost Time (s)		4.0	4.0		4.0		
Lead/Lag	Lead	Lead	Lead		Lead		Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min		Min		Ped
Act Effct Green (s)		26.2	26.2		26.2		
Actuated g/C Ratio		0.24	0.24		0.24		
v/c Ratio		1.21	1.16		0.07		
Control Delay		171.3	140.9		35.6		
Queue Delay		0.0	0.0		0.0		
Total Delay		171.3	140.9		35.6		
LOS		F	F		D		
Approach Delay			152.9		35.6		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Approach LOS		F				E					A	
Queue Length 50th (m)		3.0	~109.7			19.3					0.0	
Queue Length 95th (m)		7.2	#126.5			29.8					0.0	
Internal Link Dist (m)		99.4				200.2					175.5	
Turn Bay Length (m)		45.0										
Base Capacity (vph)		237	338			152					267	
Starvation Cap Reductn		0	0			0					0	
Spillback Cap Reductn		0	0			0					0	
Storage Cap Reductn		0	0			0					0	
Reduced v/c Ratio		0.08	1.14			0.57					0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 110.5			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 129.9		Intersection LOS: F	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St

Lane Group	SEL2	SEL	SET	SER	NWT	NWR2	Ø4
Approach LOS			F		D		
Queue Length 50th (m)		~69.8	~103.3		4.1		
Queue Length 95th (m)		#91.0	#121.0		9.1		
Internal Link Dist (m)			67.1		166.2		
Turn Bay Length (m)		20.0					
Base Capacity (vph)		194	309		322		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		1.21	1.16		0.07		

Intersection Summary

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	18	385	86	29	235	358	22
v/c Ratio	0.08	1.14	0.62	0.11	1.21	1.16	0.07
Control Delay	28.6	128.4	66.6	0.9	171.3	140.9	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	128.4	66.6	0.9	171.3	140.9	35.6
Queue Length 50th (m)	3.0	~109.7	19.3	0.0	~69.8	~103.3	4.1
Queue Length 95th (m)	7.2	#126.5	29.8	0.0	#91.0	#121.0	9.1
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	237	338	152	267	194	309	322
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	1.14	0.57	0.11	1.21	1.16	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	5	266	19	42	5	14	2	2	11	0	8
Future Volume (vph)	8	5	266	19	42	5	14	2	2	11	0	8
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0					4.0	
Lane Util. Factor		1.00	1.00			1.00					1.00	
Frpb, ped/bikes		1.00	0.90			0.99					0.99	
Flpb, ped/bikes		0.99	1.00			0.99					0.99	
Frt		1.00	0.85			0.97					0.95	
Flt Protected		0.95	1.00			0.97					0.97	
Satd. Flow (prot)		1108	1021			1309					1285	
Flt Permitted		0.61	1.00			0.79					0.81	
Satd. Flow (perm)		714	1021			1064					1073	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	11	7	359	26	57	7	19	3	3	15	0	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	18	385	0	0	86	0	0	0	0	3	0
Confl. Peds. (#/hr)	2	3	4	17	4		4	2	4	2		4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Actuated Green, G (s)		33.9	33.9			9.8					9.8	
Effective Green, g (s)		36.7	36.7			12.6					12.6	
Actuated g/C Ratio		0.33	0.33			0.11					0.11	
Clearance Time (s)		6.8	6.8			6.8					6.8	
Vehicle Extension (s)		5.0	5.0			3.0					3.0	
Lane Grp Cap (vph)		234	334			119					120	
v/s Ratio Prot												
v/s Ratio Perm		0.03	c0.38			c0.08					0.00	
v/c Ratio		0.08	1.15			0.72					0.03	
Uniform Delay, d1		25.9	37.6			48.0					44.2	
Progression Factor		1.00	1.00			1.00					1.00	
Incremental Delay, d2		0.3	97.4			19.4					0.1	
Delay (s)		26.2	135.0			67.3					44.3	
Level of Service		C	F			E					D	
Approach Delay (s)		130.2				67.3					44.3	
Approach LOS		F				E					D	

Intersection Summary				
HCM 2000 Control Delay	139.2	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	111.9	Sum of lost time (s)	18.1	
Intersection Capacity Utilization	64.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL2	SEL	SET	SER	NWT	NWR2
Lane Configurations						
Traffic Volume (vph)	5	169	246	19	11	5
Future Volume (vph)	5	169	246	19	11	5
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99	
Flpb, ped/bikes		0.95	1.00		1.00	
Frt		1.00	0.99		0.96	
Flt Protected		0.95	1.00		1.00	
Satd. Flow (prot)		1048	1302		1358	
Flt Permitted		0.74	1.00		1.00	
Satd. Flow (perm)		820	1302		1358	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	7	228	332	26	15	7
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	235	358	0	22	0
Confl. Peds. (#/hr)	17	4		3		4
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%
Turn Type	Perm	Perm	NA		NA	
Protected Phases			1		1	
Permitted Phases	1	1				
Actuated Green, G (s)		23.4	23.4		23.4	
Effective Green, g (s)		26.2	26.2		26.2	
Actuated g/C Ratio		0.23	0.23		0.23	
Clearance Time (s)		6.8	6.8		6.8	
Vehicle Extension (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		191	304		317	
v/s Ratio Prot			0.27		0.02	
v/s Ratio Perm		c0.29				
v/c Ratio		1.23	1.18		0.07	
Uniform Delay, d1		42.9	42.9		33.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		140.7	108.8		0.2	
Delay (s)		183.6	151.6		33.6	
Level of Service		F	F		C	
Approach Delay (s)			164.3		33.6	
Approach LOS			F		C	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	107	34	86	113	182	143	845	108	306	734	57
Future Volume (vph)	67	107	34	86	113	182	143	845	108	306	734	57
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.97		0.92	0.95			0.99		0.99		
Frt		0.964			0.907			0.983			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1381	1244	0	1316	1119	0	1341	2364	0	1354	2424	0
Flt Permitted	0.335			0.601			0.329			0.111		
Satd. Flow (perm)	469	1244	0	767	1119	0	464	2364	0	157	2424	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			91			17			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	70		98	98		70			47	47		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	4%	5%	3%	3%	3%	4%	8%	2%	4%	0%
Adj. Flow (vph)	73	116	37	93	123	198	155	918	117	333	798	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	153	0	93	321	0	155	1035	0	333	860	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		20.0	60.0	
Total Split (%)	36.8%	36.8%		36.8%	36.8%		42.1%	42.1%		21.1%	63.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	26.6	26.6		26.6	26.6		36.0	36.0		60.4	60.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.38	0.38		0.64	0.64	
v/c Ratio	0.56	0.42		0.43	0.85		0.89	1.14		0.93	0.56	
Control Delay	44.8	27.0		33.3	43.3		74.8	106.3		61.5	12.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.8	27.0		33.3	43.3		74.8	106.3		61.5	12.2	
LOS	D	C		C	D		E	F		E	B	
Approach Delay		32.8			41.1			102.2			26.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			D			F			C	
Queue Length 50th (m)	11.4	20.1		14.0	40.9		27.4	~123.3		~57.4	48.2	
Queue Length 95th (m)	26.8	37.1		28.6	#83.9		#66.8	#164.6		#116.6	69.2	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	153	418		250	426		175	906		357	1546	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.48	0.37		0.37	0.75		0.89	1.14		0.93	0.56	

Intersection Summary		
Area Type:	Other	
Cycle Length: 95		
Actuated Cycle Length: 95		
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green		
Natural Cycle: 100		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.14		
Intersection Signal Delay: 58.6	Intersection LOS: E	
Intersection Capacity Utilization 108.0%	ICU Level of Service G	
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Stanley Ave & Murray St

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	73	153	93	321	155	1035	333	860
v/c Ratio	0.56	0.42	0.43	0.85	0.89	1.14	0.93	0.56
Control Delay	44.8	27.0	33.3	43.3	74.8	106.3	61.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	27.0	33.3	43.3	74.8	106.3	61.5	12.2
Queue Length 50th (m)	11.4	20.1	14.0	40.9	27.4	~123.3	~57.4	48.2
Queue Length 95th (m)	26.8	37.1	28.6	#83.9	#66.8	#164.6	#116.6	69.2
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	153	418	250	426	175	906	357	1546
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.37	0.37	0.75	0.89	1.14	0.93	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	107	34	86	113	182	143	845	108	306	734	57
Future Volume (vph)	67	107	34	86	113	182	143	845	108	306	734	57
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.95		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.96	1.00		0.92	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.91		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1330	1243		1214	1119		1341	2364		1353	2425	
Flt Permitted	0.34	1.00		0.60	1.00		0.33	1.00		0.11	1.00	
Satd. Flow (perm)	470	1243		768	1119		465	2364		158	2425	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	116	37	93	123	198	155	918	117	333	798	62
RTOR Reduction (vph)	0	13	0	0	66	0	0	11	0	0	5	0
Lane Group Flow (vph)	73	140	0	93	255	0	155	1024	0	333	855	0
Confl. Peds. (#/hr)	70		98	98		70			47	47		
Heavy Vehicles (%)	0%	0%	4%	5%	3%	3%	3%	4%	8%	2%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	23.6	23.6		23.6	23.6		33.0	33.0		57.4	57.4	
Effective Green, g (s)	26.6	26.6		26.6	26.6		36.0	36.0		56.4	60.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.38	0.38		0.59	0.64	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	131	348		215	313		176	895		350	1541	
v/s Ratio Prot		0.11			c0.23			c0.43		c0.20	0.35	
v/s Ratio Perm	0.16			0.12			0.33			0.36		
v/c Ratio	0.56	0.40		0.43	0.82		0.88	1.14		0.95	0.55	
Uniform Delay, d1	29.2	27.8		28.0	31.9		27.5	29.5		27.1	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	0.6		1.0	14.7		42.2	78.3		35.3	1.4	
Delay (s)	33.2	28.3		29.0	46.6		69.7	107.8		62.4	11.2	
Level of Service	C	C		C	D		E	F		E	B	
Approach Delay (s)		29.9			42.7			102.9			25.5	
Approach LOS		C			D			F			C	

Intersection Summary				
HCM 2000 Control Delay	58.6	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	108.0%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	32	671	22	38	745
Future Volume (vph)	9	32	671	22	38	745
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.894		0.996			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1267	0	1320	0	1381	1563
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1267	0	1320	0	1381	1563
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	1	2		13	13	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	9	33	685	22	39	760
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	707	0	39	760
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	32	671	22	38	745
Future Volume (Veh/h)	9	32	671	22	38	745
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	9	33	685	22	39	760
Pedestrians	13		1			2
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1548	711			720	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1548	711			720	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	92			96	
cM capacity (veh/h)	120	431			881	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	42	707	39	760
Volume Left	9	0	39	0
Volume Right	33	22	0	0
cSH	277	1700	881	1700
Volume to Capacity	0.15	0.42	0.04	0.45
Queue Length 95th (m)	4.2	0.0	1.1	0.0
Control Delay (s)	20.3	0.0	9.3	0.0
Lane LOS	C		A	
Approach Delay (s)	20.3	0.0	0.5	
Approach LOS	C			

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		62.8%	ICU Level of Service	B
Analysis Period (min)		15		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	11	249	61	69	32	23	8	46	23	14	2
Future Volume (vph)	17	11	249	61	69	32	23	8	46	23	14	2
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Storage Length (m)		45.0	0.0		0.0		0.0			0.0		0.0
Storage Lanes		1	1		0		0			0		0
Taper Length (m)		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		0.97	0.74			0.96					0.97	
Frt			0.850			0.968					0.996	
Flt Protected		0.950				0.975					0.961	
Satd. Flow (prot)	0	1119	1137	0	0	1317	0	0	0	0	1370	0
Flt Permitted		0.526				0.829					0.599	
Satd. Flow (perm)	0	604	845	0	0	1107	0	0	0	0	827	0
Right Turn on Red				No				No				Yes
Satd. Flow (RTOR)											1	
Link Speed (k/h)		50				50					50	
Link Distance (m)		123.4				224.2					199.5	
Travel Time (s)		8.9				16.1					14.4	
Confl. Peds. (#/hr)	4	12	8	51	8		17	4	17	4		8
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	23	15	336	82	93	43	31	11	62	31	19	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	418	0	0	178	0	0	0	0	115	0
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Detector Phase	2	2	2		3	3			3	3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0			8.0	8.0	8.0	
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8			19.8	19.8	19.8	
Total Split (s)	34.6	34.6	34.6		19.8	19.8			19.8	19.8	19.8	
Total Split (%)	30.2%	30.2%	30.2%		17.3%	17.3%			17.3%	17.3%	17.3%	
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1			4.1	4.1	4.1	
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7			2.7	2.7	2.7	
Lost Time Adjust (s)		-2.8	-2.8			-2.8					-2.8	
Total Lost Time (s)		4.0	4.0			4.0					4.0	
Lead/Lag	Lag	Lag	Lag		Lead	Lead			Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None			None	None	None	
Act Effct Green (s)		30.6	30.6			15.8					15.8	
Actuated g/C Ratio		0.27	0.27			0.14					0.14	
v/c Ratio		0.24	1.86			1.17					1.01	
Control Delay		37.7	429.7			170.4					136.6	
Queue Delay		0.0	0.0			0.0					0.0	
Total Delay		37.7	429.7			170.4					136.6	
LOS		D	F			F					F	
Approach Delay		397.0				170.4					136.6	

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR2	Ø4
Lane Configurations								
Traffic Volume (vph)	14	282	405	42	2	2	17	
Future Volume (vph)	14	282	405	42	2	2	17	
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	
Storage Length (m)		20.0		0.0	0.0			
Storage Lanes		1		0	0			
Taper Length (m)		7.5			7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.82	1.00			0.95		
Frt			0.986			0.893		
Flt Protected		0.950				0.995		
Satd. Flow (prot)	0	1109	1293	0	0	1207	0	
Flt Permitted		0.738				0.625		
Satd. Flow (perm)	0	708	1293	0	0	758	0	
Right Turn on Red				No			No	
Satd. Flow (RTOR)								
Link Speed (k/h)			50			50		
Link Distance (m)			91.1			190.2		
Travel Time (s)			6.6			13.7		
Confl. Peds. (#/hr)	51	17		12	12		17	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	0%	
Adj. Flow (vph)	19	381	547	57	3	3	23	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	400	604	0	0	29	0	
Turn Type	Perm	Perm	NA		Perm	NA		
Protected Phases			1			1		4
Permitted Phases	1	1			1			
Detector Phase	1	1	1		1	1		
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	27.8	27.8	27.8		27.8	27.8		24.3
Total Split (s)	36.0	36.0	36.0		36.0	36.0		24.3
Total Split (%)	31.4%	31.4%	31.4%		31.4%	31.4%		21%
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1		3.3
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7		0.0
Lost Time Adjust (s)		-2.8	-2.8			-2.8		
Total Lost Time (s)		4.0	4.0			4.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min		Min	Min		Ped
Act Effct Green (s)		32.0	32.0			32.0		
Actuated g/C Ratio		0.28	0.28			0.28		
v/c Ratio		2.03	1.68			0.14		
Control Delay		506.1	346.0			33.2		
Queue Delay		0.0	0.0			0.0		
Total Delay		506.1	346.0			33.2		
LOS		F	F			C		
Approach Delay			409.8			33.2		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Approach LOS		F				F					F	
Queue Length 50th (m)		7.0	~150.3			~50.1					~27.4	
Queue Length 95th (m)		13.7	#165.1			#72.3					#49.7	
Internal Link Dist (m)		99.4				200.2					175.5	
Turn Bay Length (m)		45.0										
Base Capacity (vph)		161	225			152					114	
Starvation Cap Reductn		0	0			0					0	
Spillback Cap Reductn		0	0			0					0	
Storage Cap Reductn		0	0			0					0	
Reduced v/c Ratio		0.24	1.86			1.17					1.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 114.7			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.03			
Intersection Signal Delay: 358.9		Intersection LOS: F	
Intersection Capacity Utilization 82.5%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR2	Ø4
Approach LOS			F			C		
Queue Length 50th (m)		~148.3	~208.5			5.2		
Queue Length 95th (m)		#164.0	#213.5			10.7		
Internal Link Dist (m)			67.1			166.2		
Turn Bay Length (m)		20.0						
Base Capacity (vph)		197	360			211		
Starvation Cap Reductn		0	0			0		
Spillback Cap Reductn		0	0			0		
Storage Cap Reductn		0	0			0		
Reduced v/c Ratio		2.03	1.68			0.14		

Intersection Summary

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	38	418	178	115	400	604	29
v/c Ratio	0.24	1.86	1.17	1.01	2.03	1.68	0.14
Control Delay	37.7	429.7	170.4	136.6	506.1	346.0	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	429.7	170.4	136.6	506.1	346.0	33.2
Queue Length 50th (m)	7.0	~150.3	~50.1	~27.4	~148.3	~208.5	5.2
Queue Length 95th (m)	13.7	#165.1	#72.3	#49.7	#164.0	#213.5	10.7
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	161	225	152	114	197	360	211
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	1.86	1.17	1.01	2.03	1.68	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	11	249	61	69	32	23	8	46	23	14	2
Future Volume (vph)	17	11	249	61	69	32	23	8	46	23	14	2
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0					4.0	
Lane Util. Factor		1.00	1.00			1.00					1.00	
Frpb, ped/bikes		1.00	0.74			0.97					1.00	
Flpb, ped/bikes		0.97	1.00			0.99					0.97	
Frt		1.00	0.85			0.97					1.00	
Flt Protected		0.95	1.00			0.97					0.96	
Satd. Flow (prot)		1091	845			1302					1327	
Flt Permitted		0.53	1.00			0.83					0.60	
Satd. Flow (perm)		605	845			1108					827	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	23	15	336	82	93	43	31	11	62	31	19	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	38	418	0	0	178	0	0	0	0	114	0
Confl. Peds. (#/hr)	4	12	8	51	8		17	4	17	4		8
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Actuated Green, G (s)		27.8	27.8			13.0					15.8	
Effective Green, g (s)		30.6	30.6			15.8					15.8	
Actuated g/C Ratio		0.27	0.27			0.14					0.14	
Clearance Time (s)		6.8	6.8			6.8					6.8	
Vehicle Extension (s)		5.0	5.0			3.0					3.0	
Lane Grp Cap (vph)		161	225			152					113	
v/s Ratio Prot												
v/s Ratio Perm		0.06	c0.49			c0.16					0.14	
v/c Ratio		0.24	1.86			1.17					1.01	
Uniform Delay, d1		32.9	42.0			49.5					49.5	
Progression Factor		1.00	1.00			1.00					1.00	
Incremental Delay, d2		1.6	402.6			126.4					87.4	
Delay (s)		34.5	444.7			175.8					136.8	
Level of Service		C	F			F					F	
Approach Delay (s)		410.5				175.8					136.8	
Approach LOS		F				F					F	

Intersection Summary					
HCM 2000 Control Delay	370.6	HCM 2000 Level of Service	F		
HCM 2000 Volume to Capacity ratio	1.45				
Actuated Cycle Length (s)	114.7	Sum of lost time (s)	18.1		
Intersection Capacity Utilization	82.5%	ICU Level of Service	E		
Analysis Period (min)	15				

c Critical Lane Group

Movement	SEL2	SEL	SET	SER	NWL	NWT	NWR2
Lane Configurations							
Traffic Volume (vph)	14	282	405	42	2	2	17
Future Volume (vph)	14	282	405	42	2	2	17
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00			1.00	
Frpb, ped/bikes		1.00	1.00			0.95	
Flpb, ped/bikes		0.82	1.00			1.00	
Frt		1.00	0.99			0.89	
Flt Protected		0.95	1.00			0.99	
Satd. Flow (prot)		911	1292			1207	
Flt Permitted		0.74	1.00			0.62	
Satd. Flow (perm)		708	1292			758	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	19	381	547	57	3	3	23
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	400	604	0	0	29	0
Confl. Peds. (#/hr)	51	17		12	12		17
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	0%
Turn Type	Perm	Perm	NA		Perm	NA	
Protected Phases			1			1	
Permitted Phases	1	1			1		
Actuated Green, G (s)		29.2	29.2			29.2	
Effective Green, g (s)		32.0	32.0			32.0	
Actuated g/C Ratio		0.28	0.28			0.28	
Clearance Time (s)		6.8	6.8			6.8	
Vehicle Extension (s)		5.0	5.0			5.0	
Lane Grp Cap (vph)		197	360			211	
v/s Ratio Prot			0.47				
v/s Ratio Perm		c0.57				0.04	
v/c Ratio		2.03	1.68			0.14	
Uniform Delay, d1		41.4	41.4			31.0	
Progression Factor		1.00	1.00			1.00	
Incremental Delay, d2		481.1	316.9			0.6	
Delay (s)		522.4	358.3			31.6	
Level of Service		F	F			C	
Approach Delay (s)			423.7			31.6	
Approach LOS			F			C	

Intersection Summary

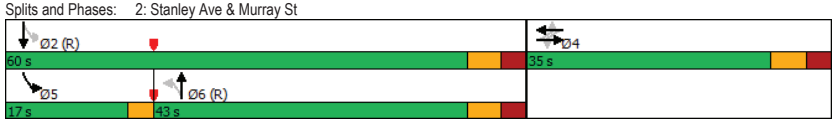
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	185	74	167	169	242	154	881	124	510	1115	105
Future Volume (vph)	72	185	74	167	169	242	154	881	124	510	1115	105
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.95	0.97		0.95	0.91		0.98	0.99			0.99	
Frt		0.957			0.912			0.981			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1354	1177	0	1222	1041	0	1267	2251	0	1303	2261	0
Flt Permitted	0.225			0.439			0.187			0.103		
Satd. Flow (perm)	304	1177	0	537	1041	0	245	2251	0	141	2261	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			80			20			18	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	136		82	82		136	65		15	15		65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	13%	13%	10%	5%	9%	11%	4%	6%	10%	6%
Adj. Flow (vph)	78	201	80	182	184	263	167	958	135	554	1212	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	281	0	182	447	0	167	1093	0	554	1326	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0		35.0	35.0		43.0	43.0		17.0	60.0	
Total Split (%)	36.8%	36.8%		36.8%	36.8%		45.3%	45.3%		17.9%	63.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		56.0	56.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.41	0.41		0.59	0.59	
v/c Ratio	0.79	0.71		1.04	1.14		1.67	1.17		2.29	0.99	
Control Delay	80.2	37.0		113.8	115.4		366.1	115.3		612.3	42.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	80.2	37.0		113.8	115.4		366.1	115.3		612.3	42.5	
LOS	F	D		F	F		F	F		F	D	
Approach Delay		46.4			114.9			148.6			210.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			F			F			F	
Queue Length 50th (m)	13.5	43.5		~38.2	~90.4		~47.2	~132.5		~164.5	121.9	
Queue Length 95th (m)	#40.6	#77.5		#80.7	#151.5		#70.5	#174.3		#230.2	#182.3	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	99	398		175	393		100	935		242	1340	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.79	0.71		1.04	1.14		1.67	1.17		2.29	0.99	

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.29
Intersection Signal Delay: 162.7 Intersection LOS: F
Intersection Capacity Utilization 135.0% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Stanley Ave & Murray St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	281	182	447	167	1093	554	1326
v/c Ratio	0.79	0.71	1.04	1.14	1.67	1.17	2.29	0.99
Control Delay	80.2	37.0	113.8	115.4	366.1	115.3	612.3	42.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.2	37.0	113.8	115.4	366.1	115.3	612.3	42.5
Queue Length 50th (m)	13.5	43.5	~38.2	~90.4	~47.2	~132.5	~164.5	121.9
Queue Length 95th (m)	#40.6	#77.5	#80.7	#151.5	#70.5	#174.3	#230.2	#182.3
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	99	398	175	393	100	935	242	1340
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.71	1.04	1.14	1.67	1.17	2.29	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	185	74	167	169	242	154	881	124	510	1115	105
Future Volume (vph)	72	185	74	167	169	242	154	881	124	510	1115	105
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.91		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.95	1.00		0.95	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.91		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1284	1178		1163	1040		1245	2252		1303	2262	
Flt Permitted	0.23	1.00		0.44	1.00		0.19	1.00		0.10	1.00	
Satd. Flow (perm)	305	1178		537	1040		245	2252		141	2262	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	201	80	182	184	263	167	958	135	554	1212	114
RTOR Reduction (vph)	0	15	0	0	54	0	0	12	0	0	7	0
Lane Group Flow (vph)	78	266	0	182	393	0	167	1081	0	554	1319	0
Confl. Peds. (#/hr)	136		82	82		136	65		15	15		65
Heavy Vehicles (%)	2%	3%	13%	13%	10%	5%	9%	11%	4%	6%	10%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	28.0	28.0		28.0	28.0		36.0	36.0		53.0	53.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		39.0	39.0		52.0	56.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.41	0.41		0.55	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	99	384		175	339		100	924		236	1333	
v/s Ratio Prot		0.23			c0.38			0.48		c0.32	0.58	
v/s Ratio Perm	0.26			0.34			0.68			c0.97		
v/c Ratio	0.79	0.69		1.04	1.16		1.67	1.17		2.35	0.99	
Uniform Delay, d1	29.0	27.9		32.0	32.0		28.0	28.0		27.3	19.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	31.8	4.9		79.0	99.6		341.2	88.2		619.4	22.2	
Delay (s)	60.8	32.8		111.0	131.6		369.2	116.2		646.7	41.4	
Level of Service	E	C		F	F		F	F		F	D	
Approach Delay (s)		38.9			125.7			149.7			219.8	
Approach LOS		D			F			F			F	

Intersection Summary				
HCM 2000 Control Delay	168.3	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	1.86			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	135.0%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	29	657	18	28	701
Future Volume (vph)	16	29	657	18	28	701
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.913		0.996			
Flt Protected	0.983				0.950	
Satd. Flow (prot)	1286	0	1333	0	1381	1579
Flt Permitted	0.983				0.950	
Satd. Flow (perm)	1286	0	1333	0	1381	1579
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	4	1		5	5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	17	31	706	19	30	754
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	725	0	30	754
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	29	657	18	28	701
Future Volume (Veh/h)	16	29	657	18	28	701
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	17	31	706	19	30	754
Pedestrians	5		4			1
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1538	722			730	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1538	722			730	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	93			97	
cM capacity (veh/h)	123	428			880	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	48	725	30	754
Volume Left	17	0	30	0
Volume Right	31	19	0	0
cSH	228	1700	880	1700
Volume to Capacity	0.21	0.43	0.03	0.44
Queue Length 95th (m)	6.2	0.0	0.8	0.0
Control Delay (s)	24.9	0.0	9.2	0.0
Lane LOS	C		A	
Approach Delay (s)	24.9	0.0	0.4	
Approach LOS	C			

Intersection Summary				
Average Delay			0.9	
Intersection Capacity Utilization			61.3%	ICU Level of Service
Analysis Period (min)			15	

Appendix G

Total Traffic Operations Reports

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	8	190	10	22	2	2	8	14	0	134	176
Future Volume (vph)	5	8	190	10	22	2	2	8	14	0	134	176
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1178	1338
Storage Length (m)		45.0	0.0		0.0		0.0		0.0		20.0	
Storage Lanes		1	1		0		0		0		1	
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	0.87			0.97				0.96	0.98	1.00
Frt			0.850			0.991						0.982
Flt Protected		0.950				0.958				0.950	0.950	
Satd. Flow (prot)	0	1119	1116	0	0	1209	0	0	0	1361	1119	1255
Flt Permitted		0.653				0.734				0.816	0.754	
Satd. Flow (perm)	0	763	973	0	0	905	0	0	0	1125	871	1255
Right Turn on Red				No								
Satd. Flow (RTOR)												
Link Speed (k/h)		50				50				50		50
Link Distance (m)		123.4				224.2				199.5		91.1
Travel Time (s)		8.9				16.1				14.4		6.6
Confl. Peds. (#/hr)	3	1	6	21	6		7	7	2		7	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	0%	2%	0%	14%	0%	0%	0%	0%	0%	0%	5%
Adj. Flow (vph)	6	10	235	12	27	2	2	10	17	0	165	217
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	247	0	0	31	0	0	0	27	165	247
Turn Type	Perm	Perm	Perm		Perm	NA		Perm	Perm	NA	Perm	NA
Protected Phases						3				3		1
Permitted Phases	2	2	2		3			3	3		1	
Detector Phase	2	2	2		3	3		3	3	3	1	1
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8		19.8	19.8	19.8	27.8	27.8
Total Split (s)	39.6	39.6	39.6		19.8	19.8		19.8	19.8	19.8	31.0	31.0
Total Split (%)	34.5%	34.5%	34.5%		17.3%	17.3%		17.3%	17.3%	17.3%	27.0%	27.0%
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1		4.1	4.1	4.1	4.1	4.1
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7		2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		-2.8	-2.8			-2.8				-2.8	-2.8	-2.8
Total Lost Time (s)		4.0	4.0			4.0				4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag		Lead	Lead		Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None		None	None	None	Min	Min
Act Effct Green (s)		32.4	32.4			12.7				12.7	25.8	25.8
Actuated g/C Ratio		0.31	0.31			0.12				0.12	0.25	0.25
v/c Ratio		0.07	0.82			0.28				0.20	0.77	0.80
Control Delay		28.4	57.2			52.1				48.3	63.4	58.9
Queue Delay		0.0	0.0			0.0				0.0	0.0	0.0
Total Delay		28.4	57.2			52.1				48.3	63.4	58.9
LOS		C	E			D				D	E	E
Approach Delay		55.4				52.1				48.3		60.7

Lane Group	SER	NWT	Ø4
Lane Configurations			
Traffic Volume (vph)	24	5	
Future Volume (vph)	24	5	
Ideal Flow (vphpl)	1338	1433	
Storage Length (m)	0.0		
Storage Lanes	0		
Taper Length (m)			
Lane Util. Factor	1.00	1.00	
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)	0	1433	
Flt Permitted			
Satd. Flow (perm)	0	1433	
Right Turn on Red	No		
Satd. Flow (RTOR)			
Link Speed (k/h)		50	
Link Distance (m)		190.2	
Travel Time (s)		13.7	
Confl. Peds. (#/hr)	1		
Peak Hour Factor	0.81	0.81	
Heavy Vehicles (%)	0%	0%	
Adj. Flow (vph)	30	6	
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	6	
Turn Type		NA	
Protected Phases		1	4
Permitted Phases			
Detector Phase		1	
Switch Phase			
Minimum Initial (s)		8.0	1.0
Minimum Split (s)		27.8	24.3
Total Split (s)		31.0	24.3
Total Split (%)		27.0%	21%
Yellow Time (s)		4.1	3.3
All-Red Time (s)		2.7	0.0
Lost Time Adjust (s)		-2.8	
Total Lost Time (s)		4.0	
Lead/Lag		Lead	Lag
Lead-Lag Optimize?			
Recall Mode		Min	Ped
Act Effct Green (s)		25.8	
Actuated g/C Ratio		0.25	
v/c Ratio		0.02	
Control Delay		33.4	
Queue Delay		0.0	
Total Delay		33.4	
LOS		C	
Approach Delay		33.4	

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBL	SBT	SEL	SET
Approach LOS		E				D				D		E
Queue Length 50th (m)		2.5	50.9			6.6				5.7	35.1	53.2
Queue Length 95th (m)		7.4	#82.2			14.7				13.3	#62.3	#83.8
Internal Link Dist (m)		99.4				200.2				175.5		67.1
Turn Bay Length (m)		45.0									20.0	
Base Capacity (vph)		268	341			141				175	232	334
Starvation Cap Reductn		0	0			0				0	0	0
Spillback Cap Reductn		0	0			0				0	0	0
Storage Cap Reductn		0	0			0				0	0	0
Reduced v/c Ratio		0.06	0.72			0.22				0.15	0.71	0.74

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 104			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 57.8		Intersection LOS: E	
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St

Lane Group	SER	NWT	Ø4
Approach LOS		C	
Queue Length 50th (m)		1.1	
Queue Length 95th (m)		4.3	
Internal Link Dist (m)		166.2	
Turn Bay Length (m)			
Base Capacity (vph)		381	
Starvation Cap Reductn		0	
Spillback Cap Reductn		0	
Storage Cap Reductn		0	
Reduced v/c Ratio		0.02	

Intersection Summary

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	16	247	31	27	165	247	6
v/c Ratio	0.07	0.82	0.28	0.20	0.77	0.80	0.02
Control Delay	28.4	57.2	52.1	48.3	63.4	58.9	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	57.2	52.1	48.3	63.4	58.9	33.4
Queue Length 50th (m)	2.5	50.9	6.6	5.7	35.1	53.2	1.1
Queue Length 95th (m)	7.4	#82.2	14.7	13.3	#62.3	#83.8	4.3
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	268	341	141	175	232	334	381
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.72	0.22	0.15	0.71	0.74	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	SBL2	SBL	SBT	SEL	SET
Lane Configurations												
Traffic Volume (vph)	5	8	190	10	22	2	2	8	14	0	134	176
Future Volume (vph)	5	8	190	10	22	2	2	8	14	0	134	176
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1178	1338
Total Lost time (s)		4.0	4.0			4.0				4.0	4.0	4.0
Lane Util. Factor		1.00	1.00			1.00				1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.88			1.00				1.00	1.00	1.00
Flpb, ped/bikes		0.99	1.00			0.98				0.97	0.98	1.00
Frt		1.00	0.85			0.99				1.00	1.00	0.98
Flt Protected		0.95	1.00			0.96				0.95	0.95	1.00
Satd. Flow (prot)		1110	983			1185				1314	1100	1255
Flt Permitted		0.65	1.00			0.73				0.82	0.75	1.00
Satd. Flow (perm)		763	983			908				1128	873	1255
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	6	10	235	12	27	2	2	10	17	0	165	217
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	16	247	0	0	31	0	0	0	27	165	247
Confl. Peds. (#/hr)	3	1	6	21	6		7	7	2		7	
Heavy Vehicles (%)	0%	0%	2%	0%	14%	0%	0%	0%	0%	0%	0%	5%
Turn Type	Perm	Perm	Perm		Perm	NA		Perm	Perm	NA	Perm	NA
Protected Phases						3				3		1
Permitted Phases	2	2	2		3			3	3		1	
Actuated Green, G (s)		29.5	29.5			7.6				7.6	22.9	22.9
Effective Green, g (s)		32.3	32.3			10.4				10.4	25.7	25.7
Actuated g/C Ratio		0.31	0.31			0.10				0.10	0.24	0.24
Clearance Time (s)		6.8	6.8			6.8				6.8	6.8	6.8
Vehicle Extension (s)		5.0	5.0			3.0				3.0	5.0	5.0
Lane Grp Cap (vph)		234	301			89				111	213	306
v/s Ratio Prot												c0.20
v/s Ratio Perm		0.02	c0.25			c0.03				0.02	0.19	
v/c Ratio		0.07	0.82			0.35				0.24	0.77	0.81
Uniform Delay, d1		25.8	33.8			44.3				43.8	37.1	37.5
Progression Factor		1.00	1.00			1.00				1.00	1.00	1.00
Incremental Delay, d2		0.3	18.0			2.4				1.1	18.4	16.2
Delay (s)		26.1	51.8			46.6				45.0	55.5	53.7
Level of Service		C	D			D				D	E	D
Approach Delay (s)		50.2				46.6				45.0		54.4
Approach LOS		D				D				D		D

Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	18.1
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

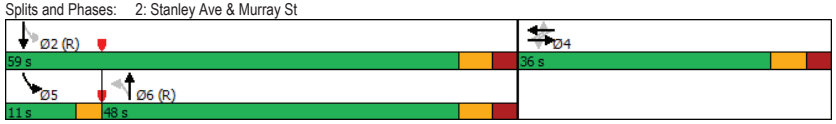
Movement	SER	NWT
Lane Configurations		
Traffic Volume (vph)	24	5
Future Volume (vph)	24	5
Ideal Flow (vphpl)	1338	1433
Total Lost time (s)		4.0
Lane Util. Factor		1.00
Frpb, ped/bikes		1.00
Flpb, ped/bikes		1.00
Frt		1.00
Flt Protected		1.00
Satd. Flow (prot)		1433
Flt Permitted		1.00
Satd. Flow (perm)		1433
Peak-hour factor, PHF	0.81	0.81
Adj. Flow (vph)	30	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	6
Confl. Peds. (#/hr)	1	
Heavy Vehicles (%)	0%	0%
Turn Type		NA
Protected Phases		1
Permitted Phases		
Actuated Green, G (s)		22.9
Effective Green, g (s)		25.7
Actuated g/C Ratio		0.24
Clearance Time (s)		6.8
Vehicle Extension (s)		5.0
Lane Grp Cap (vph)		349
v/s Ratio Prot		0.00
v/s Ratio Perm		
v/c Ratio		0.02
Uniform Delay, d1		30.2
Progression Factor		1.00
Incremental Delay, d2		0.0
Delay (s)		30.3
Level of Service		C
Approach Delay (s)		30.3
Approach LOS		C
Intersection Summary		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	118	61	71	68	52	148	572	74	112	496	96
Future Volume (vph)	77	118	61	71	68	52	148	572	74	112	496	96
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.94	0.97		0.95	0.96			0.99		0.98		
Frt		0.949			0.935			0.983			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1381	1217	0	1328	1178	0	1328	2259	0	1316	2333	0
Flt Permitted	0.616			0.488			0.408			0.312		
Satd. Flow (perm)	839	1217	0	647	1178	0	570	2259	0	424	2333	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			44			20			40	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	76		71	71		76			37	37		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	4%	4%	0%	5%	4%	10%	6%	5%	7%	3%
Adj. Flow (vph)	84	128	66	77	74	57	161	622	80	122	539	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	194	0	77	131	0	161	702	0	122	643	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	36.0	36.0		36.0	36.0		48.0	48.0		11.0	59.0	
Total Split (%)	37.9%	37.9%		37.9%	37.9%		50.5%	50.5%		11.6%	62.1%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	21.2	21.2		21.2	21.2		55.0	55.0		65.8	65.8	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.58	0.58		0.69	0.69	
v/c Ratio	0.45	0.66		0.53	0.44		0.49	0.53		0.34	0.39	
Control Delay	37.6	38.3		44.4	24.0		21.3	15.4		9.0	7.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.6	38.3		44.4	24.0		21.3	15.4		9.0	7.6	
LOS	D	D		D	C		C	B		A	A	
Approach Delay		38.1			31.5			16.5			7.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C			B			A	
Queue Length 50th (m)	14.1	29.2		13.2	14.2		16.9	38.9		6.9	22.1	
Queue Length 95th (m)	25.6	46.9		25.3	27.9		47.8	73.0		18.1	44.1	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	282	429		217	425		330	1316		364	1628	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.30	0.45		0.35	0.31		0.49	0.53		0.34	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Stanley Ave & Murray St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	84	194	77	131	161	702	122	643
v/c Ratio	0.45	0.66	0.53	0.44	0.49	0.53	0.34	0.39
Control Delay	37.6	38.3	44.4	24.0	21.3	15.4	9.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	38.3	44.4	24.0	21.3	15.4	9.0	7.6
Queue Length 50th (m)	14.1	29.2	13.2	14.2	16.9	38.9	6.9	22.1
Queue Length 95th (m)	25.6	46.9	25.3	27.9	47.8	73.0	18.1	44.1
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	282	429	217	425	330	1316	364	1628
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.45	0.35	0.31	0.49	0.53	0.34	0.39

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	118	61	71	68	52	148	572	74	112	496	96
Future Volume (vph)	77	118	61	71	68	52	148	572	74	112	496	96
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.93		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1295	1217		1261	1177		1328	2259		1308	2332	
Flt Permitted	0.62	1.00		0.49	1.00		0.41	1.00		0.31	1.00	
Satd. Flow (perm)	840	1217		648	1177		570	2259		430	2332	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	128	66	77	74	57	161	622	80	122	539	104
RTOR Reduction (vph)	0	23	0	0	34	0	0	8	0	0	12	0
Lane Group Flow (vph)	84	171	0	77	97	0	161	694	0	122	631	0
Confl. Peds. (#/hr)	76		71	71		76			37	37		
Heavy Vehicles (%)	0%	0%	4%	4%	0%	5%	4%	10%	6%	5%	7%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	18.2	18.2		18.2	18.2		52.0	52.0		62.8	62.8	
Effective Green, g (s)	21.2	21.2		21.2	21.2		55.0	55.0		61.8	65.8	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.58	0.58		0.65	0.69	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	187	271		144	262		330	1307		342	1615	
v/s Ratio Prot		c0.14			0.08			c0.31		0.03	c0.27	
v/s Ratio Perm	0.10			0.12			0.28			0.21		
v/c Ratio	0.45	0.63		0.53	0.37		0.49	0.53		0.36	0.39	
Uniform Delay, d1	31.9	33.4		32.5	31.2		11.7	12.2		7.1	6.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	4.2		2.9	0.6		5.1	1.5		0.4	0.7	
Delay (s)	33.1	37.6		35.5	31.9		16.8	13.7		7.5	6.9	
Level of Service	C	D		D	C		B	B		A	A	
Approach Delay (s)		36.2			33.2			14.3			7.0	
Approach LOS		D			C			B			A	

Intersection Summary				
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	77.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	12	36	572	14	22	468
Future Volume (vph)	12	36	572	14	22	468
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.899		0.997			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1273	0	1316	0	1381	1548
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1273	0	1316	0	1381	1548
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	1			6	6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	17%	0%	2%
Adj. Flow (vph)	13	39	622	15	24	509
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	637	0	24	509
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	36	572	14	22	468
Future Volume (Veh/h)	12	36	572	14	22	468
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	39	622	15	24	509
Pedestrians	6		1			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1194	636			643	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1194	636			643	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	92			97	
cM capacity (veh/h)	202	479			947	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	52	637	24	509
Volume Left	13	0	24	0
Volume Right	39	15	0	0
cSH	357	1700	947	1700
Volume to Capacity	0.15	0.37	0.03	0.30
Queue Length 95th (m)	4.0	0.0	0.6	0.0
Control Delay (s)	16.8	0.0	8.9	0.0
Lane LOS	C		A	
Approach Delay (s)	16.8	0.0	0.4	
Approach LOS	C			

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		54.5%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	9	5	213	326	11
Future Volume (vph)	36	9	5	213	326	11
Ideal Flow (vphpl)	1433	1433	1178	1178	1338	1338
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.972				0.996	
Flt Protected	0.962			0.999		
Satd. Flow (prot)	1314	0	0	1154	1307	0
Flt Permitted	0.962			0.999		
Satd. Flow (perm)	1314	0	0	1154	1307	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	33.9			91.1	107.1	
Travel Time (s)	2.4			6.6	7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	10	5	232	354	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	237	366	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.3%			ICU Level of Service A
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	9	5	213	326	11
Future Volume (Veh/h)	36	9	5	213	326	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	10	5	232	354	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				91		
pX, platoon unblocked						
vC, conflicting volume	602	360	366			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	602	360	366			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	99	100			
cM capacity (veh/h)	461	684	1193			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	49	237	366
Volume Left	39	5	0
Volume Right	10	0	12
cSH	494	1193	1700
Volume to Capacity	0.10	0.00	0.22
Queue Length 95th (m)	2.6	0.1	0.0
Control Delay (s)	13.1	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	13.1	0.2	0.0
Approach LOS	B		

Intersection Summary				
Average Delay			1.1	
Intersection Capacity Utilization			35.3%	ICU Level of Service A
Analysis Period (min)			15	

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	5	275	19	42	5	14	2	2	11	0	8
Future Volume (vph)	8	5	275	19	42	5	14	2	2	11	0	8
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Storage Length (m)		45.0	0.0		0.0		0.0			0.0		0.0
Storage Lanes		1	1		0		0			0		0
Taper Length (m)		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	0.90			0.98					0.97	
Frt			0.850			0.965					0.949	
Flt Protected		0.950				0.968					0.970	
Satd. Flow (prot)	0	1119	1137	0	0	1323	0	0	0	0	1300	0
Flt Permitted		0.611				0.787					0.809	
Satd. Flow (perm)	0	713	1019	0	0	1063	0	0	0	0	1072	0
Right Turn on Red				No				No				Yes
Satd. Flow (RTOR)											132	
Link Speed (k/h)		50				50					50	
Link Distance (m)		123.4				224.2					199.5	
Travel Time (s)		8.9				16.1					14.4	
Confl. Peds. (#/hr)	2	3	4	17	4		4	2	4	2		4
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	11	7	372	26	57	7	19	3	3	15	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	398	0	0	86	0	0	0	0	29	0
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Detector Phase	2	2	2		3	3			3	3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0			8.0	8.0	8.0	
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8			19.8	19.8	19.8	
Total Split (s)	40.5	40.5	40.5		19.8	19.8			19.8	19.8	19.8	
Total Split (%)	35.3%	35.3%	35.3%		17.3%	17.3%			17.3%	17.3%	17.3%	
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1			4.1	4.1	4.1	
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7			2.7	2.7	2.7	
Lost Time Adjust (s)		-2.8	-2.8			-2.8					-2.8	
Total Lost Time (s)		4.0	4.0			4.0					4.0	
Lead/Lag	Lag	Lag	Lag		Lead	Lead			Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None			None	None	None	
Act Effct Green (s)		36.7	36.7			14.5					14.5	
Actuated g/C Ratio		0.33	0.33			0.13					0.13	
v/c Ratio		0.08	1.18			0.62					0.11	
Control Delay		28.6	141.8			66.6					0.9	
Queue Delay		0.0	0.0			0.0					0.0	
Total Delay		28.6	141.8			66.6					0.9	
LOS		C	F			E					A	
Approach Delay		136.9				66.6					0.9	

Lane Group	SEL2	SEL	SET	SER	NWT	NWR2	Ø4
Lane Configurations							
Traffic Volume (vph)	5	170	252	19	11	5	
Future Volume (vph)	5	170	252	19	11	5	
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	
Storage Length (m)		20.0		0.0			
Storage Lanes		1		0			
Taper Length (m)		7.5					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.94	1.00		0.99		
Frt			0.989		0.957		
Flt Protected		0.950					
Satd. Flow (prot)	0	1108	1302	0	1358	0	
Flt Permitted		0.743					
Satd. Flow (perm)	0	819	1302	0	1358	0	
Right Turn on Red				No		No	
Satd. Flow (RTOR)							
Link Speed (k/h)			50		50		
Link Distance (m)			91.1		190.2		
Travel Time (s)			6.6		13.7		
Confl. Peds. (#/hr)	17	4		3		4	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	
Adj. Flow (vph)	7	230	341	26	15	7	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	237	367	0	22	0	
Turn Type	Perm	Perm	NA		NA		
Protected Phases			1		1		4
Permitted Phases	1	1					
Detector Phase	1	1	1		1		
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0		8.0		1.0
Minimum Split (s)	27.8	27.8	27.8		27.8		24.3
Total Split (s)	30.1	30.1	30.1		30.1		24.3
Total Split (%)	26.2%	26.2%	26.2%		26.2%		21%
Yellow Time (s)	4.1	4.1	4.1		4.1		3.3
All-Red Time (s)	2.7	2.7	2.7		2.7		0.0
Lost Time Adjust (s)		-2.8	-2.8		-2.8		
Total Lost Time (s)		4.0	4.0		4.0		
Lead/Lag	Lead	Lead	Lead		Lead		Lag
Lead-Lag Optimize?							
Recall Mode	Min	Min	Min		Min		Ped
Act Effct Green (s)		26.2	26.2		26.2		
Actuated g/C Ratio		0.24	0.24		0.24		
v/c Ratio		1.22	1.19		0.07		
Control Delay		174.9	151.0		35.6		
Queue Delay		0.0	0.0		0.0		
Total Delay		174.9	151.0		35.6		
LOS		F	F		D		
Approach Delay			160.4		35.6		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Approach LOS		F				E					A	
Queue Length 50th (m)		3.0	~116.1			19.3					0.0	
Queue Length 95th (m)		7.2	#132.3			29.8					0.0	
Internal Link Dist (m)		99.4				200.2					175.5	
Turn Bay Length (m)		45.0										
Base Capacity (vph)		236	338			152					267	
Starvation Cap Reductn		0	0			0					0	
Spillback Cap Reductn		0	0			0					0	
Storage Cap Reductn		0	0			0					0	
Reduced v/c Ratio		0.08	1.18			0.57					0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 110.5			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay: 138.6		Intersection LOS: F	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St

Lane Group	SEL2	SEL	SET	SER	NWT	NWR2	Ø4
Approach LOS			F		D		
Queue Length 50th (m)		~70.8	~107.7		4.1		
Queue Length 95th (m)		#92.0	#125.5		9.1		
Internal Link Dist (m)			67.1		166.2		
Turn Bay Length (m)		20.0					
Base Capacity (vph)		194	309		322		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		1.22	1.19		0.07		

Intersection Summary

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	18	398	86	29	237	367	22
v/c Ratio	0.08	1.18	0.62	0.11	1.22	1.19	0.07
Control Delay	28.6	141.8	66.6	0.9	174.9	151.0	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	141.8	66.6	0.9	174.9	151.0	35.6
Queue Length 50th (m)	3.0	~116.1	19.3	0.0	~70.8	~107.7	4.1
Queue Length 95th (m)	7.2	#132.3	29.8	0.0	#92.0	#125.5	9.1
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	236	338	152	267	194	309	322
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	1.18	0.57	0.11	1.22	1.19	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	5	275	19	42	5	14	2	2	11	0	8
Future Volume (vph)	8	5	275	19	42	5	14	2	2	11	0	8
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0					4.0	
Lane Util. Factor		1.00	1.00			1.00					1.00	
Frpb, ped/bikes		1.00	0.90			0.99					0.99	
Flpb, ped/bikes		0.99	1.00			0.99					0.99	
Frt		1.00	0.85			0.97					0.95	
Flt Protected		0.95	1.00			0.97					0.97	
Satd. Flow (prot)		1108	1021			1309					1285	
Flt Permitted		0.61	1.00			0.79					0.81	
Satd. Flow (perm)		713	1021			1064					1073	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	11	7	372	26	57	7	19	3	3	15	0	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	18	398	0	0	86	0	0	0	0	3	0
Confl. Peds. (#/hr)	2	3	4	17	4		4	2	4	2		4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Actuated Green, G (s)		33.9	33.9			9.8					9.8	
Effective Green, g (s)		36.7	36.7			12.6					12.6	
Actuated g/C Ratio		0.33	0.33			0.11					0.11	
Clearance Time (s)		6.8	6.8			6.8					6.8	
Vehicle Extension (s)		5.0	5.0			3.0					3.0	
Lane Grp Cap (vph)		233	334			119					120	
v/s Ratio Prot												
v/s Ratio Perm		0.03	c0.39			c0.08					0.00	
v/c Ratio		0.08	1.19			0.72					0.03	
Uniform Delay, d1		25.9	37.6			48.0					44.2	
Progression Factor		1.00	1.00			1.00					1.00	
Incremental Delay, d2		0.3	112.0			19.4					0.1	
Delay (s)		26.2	149.6			67.3					44.3	
Level of Service		C	F			E					D	
Approach Delay (s)		144.3				67.3					44.3	
Approach LOS		F				E					D	

Intersection Summary				
HCM 2000 Control Delay	148.2	HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	111.9	Sum of lost time (s)	18.1	
Intersection Capacity Utilization	65.8%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL2	SEL	SET	SER	NWT	NWR2
Lane Configurations						
Traffic Volume (vph)	5	170	252	19	11	5
Future Volume (vph)	5	170	252	19	11	5
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.99	
Flpb, ped/bikes		0.95	1.00		1.00	
Frt		1.00	0.99		0.96	
Flt Protected		0.95	1.00		1.00	
Satd. Flow (prot)		1048	1303		1358	
Flt Permitted		0.74	1.00		1.00	
Satd. Flow (perm)		820	1303		1358	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	7	230	341	26	15	7
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	237	367	0	22	0
Confl. Peds. (#/hr)	17	4		3		4
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%
Turn Type	Perm	Perm	NA		NA	
Protected Phases			1		1	
Permitted Phases	1	1				
Actuated Green, G (s)		23.4	23.4		23.4	
Effective Green, g (s)		26.2	26.2		26.2	
Actuated g/C Ratio		0.23	0.23		0.23	
Clearance Time (s)		6.8	6.8		6.8	
Vehicle Extension (s)		5.0	5.0		5.0	
Lane Grp Cap (vph)		191	305		317	
v/s Ratio Prot			0.28		0.02	
v/s Ratio Perm		c0.29				
v/c Ratio		1.24	1.20		0.07	
Uniform Delay, d1		42.9	42.9		33.4	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		144.7	118.5		0.2	
Delay (s)		187.6	161.3		33.6	
Level of Service		F	F		C	
Approach Delay (s)			171.6		33.6	
Approach LOS			F		C	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	108	34	86	118	182	145	845	108	306	734	59
Future Volume (vph)	67	108	34	86	118	182	145	845	108	306	734	59
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96	0.97		0.92	0.95			0.99		0.99		
Frt		0.964			0.909			0.983			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1381	1244	0	1316	1122	0	1341	2364	0	1354	2424	0
Flt Permitted	0.334			0.602			0.329			0.111		
Satd. Flow (perm)	468	1244	0	769	1122	0	464	2364	0	157	2424	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			87			17			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	70		98	98		70			47	47		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	4%	5%	3%	3%	3%	4%	8%	2%	4%	0%
Adj. Flow (vph)	73	117	37	93	128	198	158	918	117	333	798	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	154	0	93	326	0	158	1035	0	333	862	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		20.0	60.0	
Total Split (%)	36.8%	36.8%		36.8%	36.8%		42.1%	42.1%		21.1%	63.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	27.1	27.1		27.1	27.1		36.0	36.0		59.9	59.9	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.38	0.38		0.63	0.63	
v/c Ratio	0.55	0.42		0.42	0.85		0.90	1.14		0.95	0.56	
Control Delay	43.9	26.7		32.7	44.3		78.2	106.3		66.2	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.9	26.7		32.7	44.3		78.2	106.3		66.2	12.5	
LOS	D	C		C	D		E	F		E	B	
Approach Delay		32.3			41.7			102.6			27.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			D			F			C	
Queue Length 50th (m)	11.3	20.0		13.8	42.2		28.2	~123.3		~59.8	49.6	
Queue Length 95th (m)	26.8	37.5		28.6	#87.3		#68.4	#164.6		#116.6	69.5	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	152	418		250	424		175	906		349	1533	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.48	0.37		0.37	0.77		0.90	1.14		0.95	0.56	

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 59.3 Intersection LOS: E
Intersection Capacity Utilization 108.3% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Stanley Ave & Murray St

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	73	154	93	326	158	1035	333	862
v/c Ratio	0.55	0.42	0.42	0.85	0.90	1.14	0.95	0.56
Control Delay	43.9	26.7	32.7	44.3	78.2	106.3	66.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	26.7	32.7	44.3	78.2	106.3	66.2	12.5
Queue Length 50th (m)	11.3	20.0	13.8	42.2	28.2	~123.3	~59.8	49.6
Queue Length 95th (m)	26.8	37.5	28.6	#87.3	#68.4	#164.6	#116.6	69.5
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	152	418	250	424	175	906	349	1533
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.37	0.37	0.77	0.90	1.14	0.95	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	108	34	86	118	182	145	845	108	306	734	59
Future Volume (vph)	67	108	34	86	118	182	145	845	108	306	734	59
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.95		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.96	1.00		0.92	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.91		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1331	1244		1214	1122		1341	2364		1353	2424	
Flt Permitted	0.33	1.00		0.60	1.00		0.33	1.00		0.11	1.00	
Satd. Flow (perm)	469	1244		769	1122		464	2364		158	2424	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	117	37	93	128	198	158	918	117	333	798	64
RTOR Reduction (vph)	0	13	0	0	62	0	0	11	0	0	6	0
Lane Group Flow (vph)	73	141	0	93	264	0	158	1024	0	333	856	0
Confl. Peds. (#/hr)	70		98	98		70			47	47		
Heavy Vehicles (%)	0%	0%	4%	5%	3%	3%	3%	4%	8%	2%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	24.1	24.1		24.1	24.1		33.0	33.0		56.9	56.9	
Effective Green, g (s)	27.1	27.1		27.1	27.1		36.0	36.0		55.9	59.9	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.38	0.38		0.59	0.63	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	133	354		219	320		175	895		343	1528	
v/s Ratio Prot		0.11			c0.24			c0.43		c0.20	0.35	
v/s Ratio Perm	0.16			0.12			0.34			0.37		
v/c Ratio	0.55	0.40		0.42	0.82		0.90	1.14		0.97	0.56	
Uniform Delay, d1	28.8	27.4		27.6	31.7		27.8	29.5		27.5	10.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.5		1.0	15.4		46.4	78.3		40.6	1.5	
Delay (s)	32.4	27.9		28.6	47.1		74.2	107.8		68.0	11.5	
Level of Service	C	C		C	D		E	F		E	B	
Approach Delay (s)		29.4			43.0			103.4			27.3	
Approach LOS		C			D			F			C	

Intersection Summary					
HCM 2000 Control Delay	59.5	HCM 2000 Level of Service	E		
HCM 2000 Volume to Capacity ratio	1.00				
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0		
Intersection Capacity Utilization	108.3%	ICU Level of Service	G		
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	32	682	22	38	749
Future Volume (vph)	9	32	682	22	38	749
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.894		0.996			
Flt Protected	0.989				0.950	
Satd. Flow (prot)	1267	0	1320	0	1381	1563
Flt Permitted	0.989				0.950	
Satd. Flow (perm)	1267	0	1320	0	1381	1563
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	1	2		13	13	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%
Adj. Flow (vph)	9	33	696	22	39	764
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	718	0	39	764
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	32	682	22	38	749
Future Volume (Veh/h)	9	32	682	22	38	749
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	9	33	696	22	39	764
Pedestrians	13		1			2
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1563	722			731	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1563	722			731	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	92			96	
cM capacity (veh/h)	117	425			873	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	42	718	39	764
Volume Left	9	0	39	0
Volume Right	33	22	0	0
cSH	272	1700	873	1700
Volume to Capacity	0.15	0.42	0.04	0.45
Queue Length 95th (m)	4.3	0.0	1.1	0.0
Control Delay (s)	20.6	0.0	9.3	0.0
Lane LOS	C		A	
Approach Delay (s)	20.6	0.0	0.5	
Approach LOS	C			

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		63.7%	ICU Level of Service	B
Analysis Period (min)		15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	7	9	329	441	36
Future Volume (vph)	21	7	9	329	441	36
Ideal Flow (vphpl)	1433	1433	1178	1178	1338	1338
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.965				0.990	
Flt Protected	0.964			0.999		
Satd. Flow (prot)	1307	0	0	1154	1299	0
Flt Permitted	0.964			0.999		
Satd. Flow (perm)	1307	0	0	1154	1299	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	33.9			91.1	107.1	
Travel Time (s)	2.4			6.6	7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	8	10	358	479	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	0	0	368	518	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.6%	ICU Level of Service A	
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	7	9	329	441	36
Future Volume (Veh/h)	21	7	9	329	441	36
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	8	10	358	479	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				91		
pX, platoon unblocked						
vC, conflicting volume	876	498	518			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	876	498	518			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	99	99			
cM capacity (veh/h)	316	572	1048			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	31	368	518
Volume Left	23	10	0
Volume Right	8	0	39
cSH	357	1048	1700
Volume to Capacity	0.09	0.01	0.30
Queue Length 95th (m)	2.3	0.2	0.0
Control Delay (s)	16.0	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	16.0	0.3	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	11	259	61	69	32	23	8	46	23	14	2
Future Volume (vph)	17	11	259	61	69	32	23	8	46	23	14	2
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Storage Length (m)		45.0	0.0		0.0		0.0			0.0		0.0
Storage Lanes		1	1		0		0			0		0
Taper Length (m)		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		0.98	0.74			0.96					0.97	
Frt			0.850			0.968					0.996	
Flt Protected		0.950				0.975					0.961	
Satd. Flow (prot)	0	1119	1137	0	0	1317	0	0	0	0	1370	0
Flt Permitted		0.525				0.829					0.599	
Satd. Flow (perm)	0	603	845	0	0	1107	0	0	0	0	827	0
Right Turn on Red				No				No				Yes
Satd. Flow (RTOR)											1	
Link Speed (k/h)		50				50					50	
Link Distance (m)		123.4				224.2					199.5	
Travel Time (s)		8.9				16.1					14.4	
Confl. Peds. (#/hr)	4	12	8	51	8		17	4	17	4		8
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	23	15	350	82	93	43	31	11	62	31	19	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	432	0	0	178	0	0	0	0	115	0
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Detector Phase	2	2	2		3	3			3	3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0			8.0	8.0	8.0	
Minimum Split (s)	20.8	20.8	20.8		19.8	19.8			19.8	19.8	19.8	
Total Split (s)	34.6	34.6	34.6		19.8	19.8			19.8	19.8	19.8	
Total Split (%)	30.2%	30.2%	30.2%		17.3%	17.3%			17.3%	17.3%	17.3%	
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1			4.1	4.1	4.1	
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7			2.7	2.7	2.7	
Lost Time Adjust (s)		-2.8	-2.8			-2.8					-2.8	
Total Lost Time (s)		4.0	4.0			4.0					4.0	
Lead/Lag	Lag	Lag	Lag		Lead	Lead			Lead	Lead	Lead	
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min		None	None			None	None	None	
Act Effct Green (s)		30.6	30.6			15.8					15.8	
Actuated g/C Ratio		0.27	0.27			0.14					0.14	
v/c Ratio		0.24	1.92			1.17					1.01	
Control Delay		37.7	456.4			170.4					136.6	
Queue Delay		0.0	0.0			0.0					0.0	
Total Delay		37.7	456.4			170.4					136.6	
LOS		D	F			F					F	
Approach Delay		422.6				170.4					136.6	

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR2	Ø4
Lane Configurations								
Traffic Volume (vph)	14	284	412	42	2	2	17	
Future Volume (vph)	14	284	412	42	2	2	17	
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	
Storage Length (m)		20.0		0.0	0.0			
Storage Lanes		1		0	0			
Taper Length (m)		7.5			7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.82	1.00			0.95		
Frt			0.986			0.893		
Flt Protected		0.950				0.995		
Satd. Flow (prot)	0	1109	1293	0	0	1207	0	
Flt Permitted		0.738				0.625		
Satd. Flow (perm)	0	708	1293	0	0	758	0	
Right Turn on Red				No			No	
Satd. Flow (RTOR)								
Link Speed (k/h)			50			50		
Link Distance (m)			91.1			190.2		
Travel Time (s)			6.6			13.7		
Confl. Peds. (#/hr)	51	17		12	12		17	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	0%	
Adj. Flow (vph)	19	384	557	57	3	3	23	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	403	614	0	0	29	0	
Turn Type	Perm	Perm	NA		Perm	NA		
Protected Phases			1			1		4
Permitted Phases	1	1			1			
Detector Phase	1	1	1		1	1		
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0		1.0
Minimum Split (s)	27.8	27.8	27.8		27.8	27.8		24.3
Total Split (s)	36.0	36.0	36.0		36.0	36.0		24.3
Total Split (%)	31.4%	31.4%	31.4%		31.4%	31.4%		21%
Yellow Time (s)	4.1	4.1	4.1		4.1	4.1		3.3
All-Red Time (s)	2.7	2.7	2.7		2.7	2.7		0.0
Lost Time Adjust (s)		-2.8	-2.8			-2.8		
Total Lost Time (s)		4.0	4.0			4.0		
Lead/Lag	Lead	Lead	Lead		Lead	Lead		Lag
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min		Min	Min		Ped
Act Effct Green (s)		32.0	32.0			32.0		
Actuated g/C Ratio		0.28	0.28			0.28		
v/c Ratio		2.05	1.71			0.14		
Control Delay		512.7	357.9			33.2		
Queue Delay		0.0	0.0			0.0		
Total Delay		512.7	357.9			33.2		
LOS		F	F			C		
Approach Delay			419.2			33.2		

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Approach LOS		F				F					F	
Queue Length 50th (m)		7.0	~157.2			~50.1					~27.4	
Queue Length 95th (m)		13.7	#171.9			#72.3					#49.7	
Internal Link Dist (m)		99.4				200.2					175.5	
Turn Bay Length (m)		45.0										
Base Capacity (vph)		160	225			152					114	
Starvation Cap Reductn		0	0			0					0	
Spillback Cap Reductn		0	0			0					0	
Storage Cap Reductn		0	0			0					0	
Reduced v/c Ratio		0.24	1.92			1.17					1.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 114.7			
Actuated Cycle Length: 114.7			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.05			
Intersection Signal Delay: 371.5		Intersection LOS: F	
Intersection Capacity Utilization 83.9%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Allendale Ave & Main St & Murray St

Lane Group	SEL2	SEL	SET	SER	NWL	NWT	NWR2	Ø4
Approach LOS			F			C		
Queue Length 50th (m)		~149.8	~213.5			5.2		
Queue Length 95th (m)		#165.5	#217.9			10.7		
Internal Link Dist (m)			67.1			166.2		
Turn Bay Length (m)		20.0						
Base Capacity (vph)		197	360			211		
Starvation Cap Reductn		0	0			0		
Spillback Cap Reductn		0	0			0		
Storage Cap Reductn		0	0			0		
Reduced v/c Ratio		2.05	1.71			0.14		

Intersection Summary

Lane Group	WBL	WBR	NBT	SBT	SEL	SET	NWT
Lane Group Flow (vph)	38	432	178	115	403	614	29
v/c Ratio	0.24	1.92	1.17	1.01	2.05	1.71	0.14
Control Delay	37.7	456.4	170.4	136.6	512.7	357.9	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	456.4	170.4	136.6	512.7	357.9	33.2
Queue Length 50th (m)	7.0	~157.2	~50.1	~27.4	~149.8	~213.5	5.2
Queue Length 95th (m)	13.7	#171.9	#72.3	#49.7	#165.5	#217.9	10.7
Internal Link Dist (m)	99.4		200.2	175.5		67.1	166.2
Turn Bay Length (m)	45.0				20.0		
Base Capacity (vph)	160	225	152	114	197	360	211
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	1.92	1.17	1.01	2.05	1.71	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	11	259	61	69	32	23	8	46	23	14	2
Future Volume (vph)	17	11	259	61	69	32	23	8	46	23	14	2
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433	1433	1433	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0					4.0	
Lane Util. Factor		1.00	1.00			1.00					1.00	
Frpb, ped/bikes		1.00	0.74			0.97					1.00	
Flpb, ped/bikes		0.98	1.00			0.99					0.97	
Frt		1.00	0.85			0.97					1.00	
Flt Protected		0.95	1.00			0.97					0.96	
Satd. Flow (prot)		1091	845			1302					1327	
Flt Permitted		0.53	1.00			0.83					0.60	
Satd. Flow (perm)		603	845			1108					827	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	23	15	350	82	93	43	31	11	62	31	19	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	38	432	0	0	178	0	0	0	0	114	0
Confl. Peds. (#/hr)	4	12	8	51	8		17	4	17	4		8
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Perm	Perm		Perm	NA			Perm	Perm	NA	
Protected Phases						3					3	
Permitted Phases	2	2	2		3				3	3		
Actuated Green, G (s)		27.8	27.8			13.0					15.8	
Effective Green, g (s)		30.6	30.6			15.8					15.8	
Actuated g/C Ratio		0.27	0.27			0.14					0.14	
Clearance Time (s)		6.8	6.8			6.8					6.8	
Vehicle Extension (s)		5.0	5.0			3.0					3.0	
Lane Grp Cap (vph)		160	225			152					113	
v/s Ratio Prot												
v/s Ratio Perm		0.06	c0.51			c0.16					0.14	
v/c Ratio		0.24	1.92			1.17					1.01	
Uniform Delay, d1		32.9	42.0			49.5					49.5	
Progression Factor		1.00	1.00			1.00					1.00	
Incremental Delay, d2		1.6	430.1			126.4					87.4	
Delay (s)		34.5	472.1			175.8					136.8	
Level of Service		C	F			F					F	
Approach Delay (s)		436.7				175.8					136.8	
Approach LOS		F				F					F	

Intersection Summary

HCM 2000 Control Delay	383.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	114.7	Sum of lost time (s)	18.1
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL2	SEL	SET	SER	NWL	NWT	NWR2
Lane Configurations							
Traffic Volume (vph)	14	284	412	42	2	2	17
Future Volume (vph)	14	284	412	42	2	2	17
Ideal Flow (vphpl)	1178	1178	1338	1338	1433	1433	1433
Total Lost time (s)		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00			1.00	
Frpb, ped/bikes		1.00	1.00			0.95	
Flpb, ped/bikes		0.82	1.00			1.00	
Frt		1.00	0.99			0.89	
Flt Protected		0.95	1.00			0.99	
Satd. Flow (prot)		911	1293			1207	
Flt Permitted		0.74	1.00			0.62	
Satd. Flow (perm)		708	1293			758	
Peak-hour factor, PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Adj. Flow (vph)	19	384	557	57	3	3	23
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	403	614	0	0	29	0
Confl. Peds. (#/hr)	51	17		12	12		17
Heavy Vehicles (%)	0%	1%	1%	7%	0%	0%	0%
Turn Type	Perm	Perm	NA		Perm	NA	
Protected Phases			1			1	
Permitted Phases	1	1			1		
Actuated Green, G (s)		29.2	29.2			29.2	
Effective Green, g (s)		32.0	32.0			32.0	
Actuated g/C Ratio		0.28	0.28			0.28	
Clearance Time (s)		6.8	6.8			6.8	
Vehicle Extension (s)		5.0	5.0			5.0	
Lane Grp Cap (vph)		197	360			211	
v/s Ratio Prot			0.47				
v/s Ratio Perm		c0.57				0.04	
v/c Ratio		2.05	1.71			0.14	
Uniform Delay, d1		41.4	41.4			31.0	
Progression Factor		1.00	1.00			1.00	
Incremental Delay, d2		487.8	329.2			0.6	
Delay (s)		529.2	370.5			31.6	
Level of Service		F	F			C	
Approach Delay (s)			433.4			31.6	
Approach LOS			F			C	
Intersection Summary							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	187	74	167	174	242	157	881	124	510	1115	107
Future Volume (vph)	72	187	74	167	174	242	157	881	124	510	1115	107
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Storage Length (m)	30.0		0.0	30.0		0.0	70.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	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	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.95	0.97		0.95	0.91		0.98	0.99			0.99	
Frt		0.958			0.913			0.981			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1354	1179	0	1222	1043	0	1267	2251	0	1303	2261	0
Flt Permitted	0.219			0.436			0.186			0.103		
Satd. Flow (perm)	296	1179	0	534	1043	0	244	2251	0	141	2261	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			78			20			18	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			170.2			231.6			218.4	
Travel Time (s)		8.9			12.3			16.7			15.7	
Confl. Peds. (#/hr)	136		82	82		136	65		15	15		65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	13%	13%	10%	5%	9%	11%	4%	6%	10%	6%
Adj. Flow (vph)	78	203	80	182	189	263	171	958	135	554	1212	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	283	0	182	452	0	171	1093	0	554	1328	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Detector Phase	4	4		4	4		6	6		5	2	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		6.0	8.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		33.0	33.0		9.0	33.0	
Total Split (s)	35.0	35.0		35.0	35.0		43.0	43.0		17.0	60.0	
Total Split (%)	36.8%	36.8%		36.8%	36.8%		45.3%	45.3%		17.9%	63.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0		-3.0	-3.0		1.0	-3.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		C-Min	C-Min		None	C-Min	
Act Effct Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		56.0	56.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.41	0.41		0.59	0.59	
v/c Ratio	0.81	0.71		1.05	1.15		1.71	1.17		2.29	0.99	
Control Delay	85.7	37.2		115.6	121.2		382.8	115.3		612.3	42.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	85.7	37.2		115.6	121.2		382.8	115.3		612.3	42.9	
LOS	F	D		F	F		F	F		F	D	
Approach Delay		47.7			119.6			151.5			210.5	

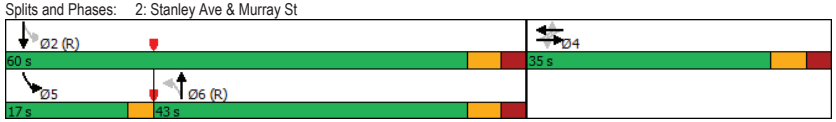
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			F			F			F	
Queue Length 50th (m)	13.7	43.9		~38.4	~92.9		~48.9	~132.5		~164.5	122.4	
Queue Length 95th (m)	#41.2	#78.4		#80.9	#154.0		#72.7	#174.3		#230.2	#182.5	
Internal Link Dist (m)		99.4			146.2			207.6			194.4	
Turn Bay Length (m)	30.0			30.0			70.0			60.0		
Base Capacity (vph)	96	399		174	392		100	935		242	1340	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.81	0.71		1.05	1.15		1.71	1.17		2.29	0.99	

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 95
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.29
Intersection Signal Delay: 164.4 Intersection LOS: F
Intersection Capacity Utilization 135.3% ICU Level of Service H
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Stanley Ave & Murray St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	283	182	452	171	1093	554	1328
v/c Ratio	0.81	0.71	1.05	1.15	1.71	1.17	2.29	0.99
Control Delay	85.7	37.2	115.6	121.2	382.8	115.3	612.3	42.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	37.2	115.6	121.2	382.8	115.3	612.3	42.9
Queue Length 50th (m)	13.7	43.9	~38.4	~92.9	~48.9	~132.5	~164.5	122.4
Queue Length 95th (m)	#41.2	#78.4	#80.9	#154.0	#72.7	#174.3	#230.2	#182.5
Internal Link Dist (m)		99.4		146.2		207.6		194.4
Turn Bay Length (m)	30.0		30.0		70.0		60.0	
Base Capacity (vph)	96	399	174	392	100	935	242	1340
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.71	1.05	1.15	1.71	1.17	2.29	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	187	74	167	174	242	157	881	124	510	1115	107
Future Volume (vph)	72	187	74	167	174	242	157	881	124	510	1115	107
Ideal Flow (vphpl)	1454	1338	1338	1454	1338	1338	1454	1338	1338	1454	1338	1338
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.91		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.95	1.00		0.95	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.91		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1285	1179		1163	1042		1245	2252		1303	2261	
Flt Permitted	0.22	1.00		0.44	1.00		0.19	1.00		0.10	1.00	
Satd. Flow (perm)	297	1179		534	1042		244	2252		141	2261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	203	80	182	189	263	171	958	135	554	1212	116
RTOR Reduction (vph)	0	15	0	0	53	0	0	12	0	0	7	0
Lane Group Flow (vph)	78	268	0	182	399	0	171	1081	0	554	1321	0
Confl. Peds. (#/hr)	136		82	82		136	65		15	15		65
Heavy Vehicles (%)	2%	3%	13%	13%	10%	5%	9%	11%	4%	6%	10%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			6		5	2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	28.0	28.0		28.0	28.0		36.0	36.0		53.0	53.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		39.0	39.0		52.0	56.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.41	0.41		0.55	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.3	2.5	
Lane Grp Cap (vph)	96	384		174	340		100	924		236	1332	
v/s Ratio Prot		0.23			c0.38			0.48		c0.32	0.58	
v/s Ratio Perm	0.26			0.34			0.70			c0.97		
v/c Ratio	0.81	0.70		1.05	1.17		1.71	1.17		2.35	0.99	
Uniform Delay, d1	29.3	27.9		32.0	32.0		28.0	28.0		27.3	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	38.0	5.0		80.9	105.3		358.2	88.2		619.4	22.7	
Delay (s)	67.3	33.0		112.9	137.3		386.2	116.2		646.7	42.0	
Level of Service	E	C		F	F		F	F		F	D	
Approach Delay (s)		40.4			130.3			152.7			220.0	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	170.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.87		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	135.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	29	669	18	28	707
Future Volume (vph)	16	29	669	18	28	707
Ideal Flow (vphpl)	1433	1433	1338	1338	1454	1579
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
Ped Bike Factor						
Frt	0.913		0.997			
Flt Protected	0.983				0.950	
Satd. Flow (prot)	1286	0	1334	0	1381	1579
Flt Permitted	0.983				0.950	
Satd. Flow (perm)	1286	0	1334	0	1381	1579
Link Speed (k/h)	50		50			50
Link Distance (m)	327.4		123.1			129.4
Travel Time (s)	23.6		8.9			9.3
Confl. Peds. (#/hr)	4	1		5	5	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	17	31	719	19	30	760
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	738	0	30	760
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	29	669	18	28	707
Future Volume (Veh/h)	16	29	669	18	28	707
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	17	31	719	19	30	760
Pedestrians	5		4			1
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1558	734			743	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1558	734			743	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	93			97	
cM capacity (veh/h)	120	421			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	48	738	30	760
Volume Left	17	0	30	0
Volume Right	31	19	0	0
cSH	223	1700	870	1700
Volume to Capacity	0.22	0.43	0.03	0.45
Queue Length 95th (m)	6.4	0.0	0.9	0.0
Control Delay (s)	25.5	0.0	9.3	0.0
Lane LOS	D		A	
Approach Delay (s)	25.5	0.0	0.4	
Approach LOS	D			

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		62.2%	ICU Level of Service B
Analysis Period (min)		15	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	9	10	324	744	40
Future Volume (vph)	29	9	10	324	744	40
Ideal Flow (vphpl)	1433	1433	1178	1178	1338	1338
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.968				0.993	
Flt Protected	0.963			0.998		
Satd. Flow (prot)	1310	0	0	1153	1303	0
Flt Permitted	0.963			0.998		
Satd. Flow (perm)	1310	0	0	1153	1303	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	33.9			91.1	107.1	
Travel Time (s)	2.4			6.6	7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	10	11	352	809	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	363	852	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.0%			ICU Level of Service C
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	9	10	324	744	40
Future Volume (Veh/h)	29	9	10	324	744	40
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	10	11	352	809	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				91		
pX, platoon unblocked						
vC, conflicting volume	1204	830	852			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1204	830	852			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	97	99			
cM capacity (veh/h)	200	370	787			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	42	363	852
Volume Left	32	11	0
Volume Right	10	0	43
cSH	225	787	1700
Volume to Capacity	0.19	0.01	0.50
Queue Length 95th (m)	5.4	0.3	0.0
Control Delay (s)	24.6	0.5	0.0
Lane LOS	C	A	
Approach Delay (s)	24.6	0.5	0.0
Approach LOS	C		

Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		69.0%	ICU Level of Service	C
Analysis Period (min)		15		

Appendix H

Multi-Modal Level of Service Report

Base Year AM Peak Hour

	SIGNALIZED INTERSECTION (5 legs)	SIGNALIZED INTERSECTION (4 legs)	UNSIGNALIZED INTERSECTION (any legs)
Name	**Value**	**Value**	**Value**
North leg / Leg A name:	Allendale Avenue	Stanley Avenue	Drummond Road
South leg / Leg B name:	Allendale Avenue	Stanley Avenue	Drummond Road
West leg / Leg C name:	Main Street	Murray Street	
East leg name:	Murray Street	Murray Street	Murray Street
Intersection name	**Allendale Avenue & Main Street/Murray Street**	**Stanley Avenue & Murray Street**	**Drummond Road & Murray Street**
Metrics that apply to the whole intersection	**Value**	**Value**	**Value**
Signal Cycle Length (seconds)	90.4	95	
Intersection delay (seconds)	40	15	1

Metrics that apply to each leg	North leg	South leg	Southeast Leg	East Leg	Northwest Leg	North leg	South leg	West leg	East leg	North leg	South leg	West leg	East leg
Leg present? (1 = yes, 0 = no)										1	1	0	1
Number of enhanced pedestrian measures	0	0	0	0	0	0	0	0	0				
Number of enhanced bike measures	0	0	0	0	0	0	0	0	0				
Approach Delay (seconds)	38	41	26	46	37	5	9	37	34				
Total lanes	1	1	2	2	2	3	3	2	2				
Rights turns allowed? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Right turn on red permitted? (1 = yes, 0 = no)	0	0	0	0	0	1	1	1	1				
Right on green across crosswalk in use? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Right turn has dedicated/channelized lane? (1 = yes, 0 = no)	0	0	0	0	1	0	0	0	0				
Number of dedicated (not shared) right-turn lanes	0	0	0	1	0	0	0	0	0				
Number of right-turn channel lanes	0	0	0	1	0	0	0	0	0				
Left turns allowed? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Left turn has dedicated lane? (1 = yes, 0 = no)	0	0	0	1	1	1	1	1	1				
Permitted (i.e. not protected) left turn? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Transit present? (1 = yes, 0 = no)	0	0	0	1	1	1	1	1	1	1	1	0	0
Transit priority measures present? (1 = yes, 0 = no)	0	0	0	0	0	0	0	0	0				
Marked pedestrian crossing? (1 = yes, 0 = no)										0	0	0	0
Pedestian crossing distance (meters)										15.0	15.0		13.0
Approach Delay (seconds)										0	0		15
Cycling facilites present on approach? (1 = yes, 0 = no)										1	1	0	0
Cyclists required to stop? (1 = yes, 0 = no)										0	0	1	1
Cyclist volume										2.0	1.0	0.0	2.0

Metrics that apply to turns	NW corner	NE corner	SW corner	SE corner	SSE corner	NW corner	NE corner	SW corner	SE corner	NW corner	NE corner	SW corner	SE corner
Effective Vehicle Turning Radius (meters) *(not curb radius)*	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0
Effective Bicycle Turning Radius (meters)	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0
Effective Truck Turning Radius (meters)	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0

MODE	MEASURE	VALUE	GRADE	LOS	A=1/F=5	VALUE	GRADE	LOS	A=1/F=5	VALUE	GRADE	LOS	A=1/F=5
PEDESTRIANS	Enhanced Pedestrian Measures (measures per approach)	0.0	F	D	6	0.0	F	D	6				
	Signal Cycle Length (s)	90.4	D		4	95	D		4				
	Number of Uncontrolled Conflicts (conflicts per approach)	2.2	D		4	3.0	E		5				
	Average Effective Turning Radius (m)	11.1	C		3	12.0	C		3	10.0	B	D	2
	Marked Controlled Crossings (%)									0%	F		6
	Average Crossing Distance (m)									14.3	F		6
BIKES	Enhanced Bicycle Measures (measures per approach)	0.0	F	C	6	0.0	F	C	6				
	Signal Cycle Length (s)	90.4	D		4	95	D		4				
	Number of Uncontrolled Conflicts (conflicts per approach)	1.2	B		2	1.5	B		2				
	Average Effective Turning Radius (m)	11.1	C		3	12.0	C		3	10.0	B	B	2
	Presence of Bicycle Facilities (% of legs)									67%	B		2
	Requirement to Stop (% of cyclists)									40%	C		3
BUSES	Transit Priority Measures (measures per approach)	0.0	F	D	6	0.0	F	D	6				
	Transit Movement Delay (s)	41.5	D		4	21.3	C		3	0.0	A	B	1
	Pedestrian Level of Service	D	D		4	D	D		4	D	D		4
TRUCKS	Average Effective Turning Radius (m)	11.1	F	E	6	12.0	F	D	6	10.0	F	C	6
	Car Level of Service	D	D		4	B	B		2	A	A		1
CARS	Percentage of Turning Movements with Dedicated Lanes	30%	D	D	4	50%	C	B	3				
	Intersection Delay (s)	40	D		4	15	B		2	1	A	A	1

Base Year PM Peak Hour

	SIGNALIZED INTERSECTION (5 legs)	SIGNALIZED INTERSECTION (4 legs)	UNSIGNALIZED INTERSECTION (any legs)
Name	**Value**	**Value**	**Value**
North leg / Leg A name:	Allendale Avenue	Stanley Avenue	Drummond Road
South leg / Leg B name:	Allendale Avenue	Stanley Avenue	Drummond Road
West leg / Leg C name:	Main Street	Murray Street	
East leg name:	Murray Street	Murray Street	Murray Street
Intersection name	**Allendale Avenue & Main Street/Murray Street**	**Stanley Avenue & Murray Street**	**Drummond Road & Murray Street**

Metrics that apply to the whole intersection	Value	Value	Value
Signal Cycle Length (seconds)	90.4	95	
Intersection delay (seconds)	110	20	1

Metrics that apply to each leg	North leg	South leg	Southeast Leg	East Leg	Northwest Leg	North leg	South leg	West leg	East leg	North leg	South leg	West leg	East leg
Leg present? (1 = yes, 0 = no)										1	1	0	1
Number of enhanced pedestrian measures	0	0	0	0	0	0	0	0	0				
Number of enhanced bike measures	0	0	0	0	0	0	0	0	0				
Approach Delay (seconds)	38	44	27	212	56	10	19	32	40				
Total lanes	1	1	2	2	2	3	3	2	2				
Rights turns allowed? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Right turn on red permitted? (1 = yes, 0 = no)	0	0	0	0	0	1	1	1	1				
Right on green across crosswalk in use? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Right turn has dedicated/channelized lane? (1 = yes, 0 = no)	0	0	0	0	1	0	0	0	0				
Number of dedicated (not shared) right-turn lanes	0	0	0	1	0	0	0	0	0				
Number of right-turn channel lanes	0	0	0	1	0	0	0	0	0				
Left turns allowed? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Left turn has dedicated lane? (1 = yes, 0 = no)	0	0	0	1	1	1	1	1	1				
Permitted (i.e. not protected) left turn? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Transit present? (1 = yes, 0 = no)	0	0	0	1	1	1	1	1	1	1	1	0	0
Transit priority measures present? (1 = yes, 0 = no)	0	0	0	0	0	0	0	0	0				
Marked pedestrian crossing? (1 = yes, 0 = no)										0	0	0	0
Pedestian crossing distance (meters)										15.0	15.0		13.0
Approach Delay (seconds)										0	0		17
Cycling facilites present on approach? (1 = yes, 0 = no)										1	1	0	0
Cyclists required to stop? (1 = yes, 0 = no)										0	0	1	1
Cyclist volume										6.0	1.0	0.0	4.0

Metrics that apply to turns	NW corner	NE corner	SW corner	SE corner	SSE corner	NW corner	NE corner	SW corner	SE corner	NW corner	NE corner	SW corner	SE corner
Effective Vehicle Turning Radius (meters) *(not curb radius)*	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0
Effective Bicycle Turning Radius (meters)	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0
Effective Truck Turning Radius (meters)	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0

MODE	MEASURE	VALUE	GRADE	LOS	A=1/F=5	VALUE	GRADE	LOS	A=1/F=5	VALUE	GRADE	LOS	A=1/F=5
PEDESTRIANS	Enhanced Pedestrian Measures (measures per approach)	0.0	F	D	6	0.0	F	D	6				
	Signal Cycle Length (s)	90.4	D		4	95	D		4				
	Number of Uncontrolled Conflicts (conflicts per approach)	2.2	D		4	3.0	E		5				
	Average Effective Turning Radius (m)	11.1	C		3	12.0	C		3	10.0	B	D	2
	Marked Controlled Crossings (%)									0%	F		6
	Average Crossing Distance (m)									14.3	F		6
BIKES	Enhanced Bicycle Measures (measures per approach)	0.0	F	C	6	0.0	F	C	6				
	Signal Cycle Length (s)	90.4	D		4	95	D		4				
	Number of Uncontrolled Conflicts (conflicts per approach)	1.2	B		2	1.5	B		2				
	Average Effective Turning Radius (m)	11.1	C		3	12.0	C		3	10.0	B	B	2
	Presence of Bicycle Facilities (% of legs)									67%	B		2
	Requirement to Stop (% of cyclists)									36%	C		3
BUSES	Transit Priority Measures (measures per approach)	0.0	F	E	6	0.0	F	D	6				
	Transit Movement Delay (s)	134.0	F		6	25.3	C		3	0.0	A	B	1
	Pedestrian Level of Service	D	D		4	D	D		4	D	D		4
TRUCKS	Average Effective Turning Radius (m)	11.1	F	E	6	12.0	F	D	6	10.0	F	C	6
	Car Level of Service	E	E		5	B	B		2	A	A		1
CARS	Percentage of Turning Movements with Dedicated Lanes	30%	D	E	4	50%	C	B	3				
	Intersection Delay (s)	110	F		6	20	B		2	1	A	A	1

Base Year Saturday Peak Hour

Name	SIGNALIZED INTERSECTION (5 legs)	SIGNALIZED INTERSECTION (4 legs)	UNSIGNALIZED INTERSECTION (any legs)
North leg / Leg A name:	Allendale Avenue	Stanley Avenue	Drummond Road
South leg / Leg B name:	Allendale Avenue	Stanley Avenue	Drummond Road
West leg / Leg C name:	Main Street	Murray Street	
East leg name:	Murray Street	Murray Street	Murray Street
Intersection name	**Allendale Avenue & Main Street/Murray Street**	**Stanley Avenue & Murray Street**	**Drummond Road & Murray Street**

Metrics that apply to the whole intersection	Value	Value	Value
Signal Cycle Length (seconds)	90.4	95	
Intersection delay (seconds)	322	66	1

Metrics that apply to each leg	North leg	South leg	Southeast Leg	East Leg	Northwest Leg	North leg	South leg	West leg	East leg	North leg	South leg	West leg	East leg
Leg present? (1 = yes, 0 = no)										1	1	0	1
Number of enhanced pedestrian measures	0	0	0	0	0	0	0	0	0				
Number of enhanced bike measures	0	0	0	0	0	0	0	0	0				
Approach Delay (seconds)	40	49	32	441	356	91	44	29	61				
Total lanes	1	1	2	2	2	3	3	2	2				
Rights turns allowed? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Right turn on red permitted? (1 = yes, 0 = no)	0	0	0	0	0	1	1	1	1				
Right on green across crosswalk in use? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Right turn has dedicated/channelized lane? (1 = yes, 0 = no)	0	0	0	0	1	0	0	0	0				
Number of dedicated (not shared) right-turn lanes	0	0	0	1	0	0	0	0	0				
Number of right-turn channel lanes	0	0	0	1	0	0	0	0	0				
Left turns allowed? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Left turn has dedicated lane? (1 = yes, 0 = no)	0	0	0	1	1	1	1	1	1				
Permitted (i.e. not protected) left turn? (1 = yes, 0 = no)	1	1	1	1	1	1	1	1	1				
Transit present? (1 = yes, 0 = no)	0	0	0	1	1	1	1	1	1	1	1	0	0
Transit priority measures present? (1 = yes, 0 = no)	0	0	0	0	0	0	0	0	0				
Marked pedestrian crossing? (1 = yes, 0 = no)										0	0	0	0
Pedestian crossing distance (meters)										15.0	15.0		13.0
Approach Delay (seconds)										0	0		19
Cycling facilites present on approach? (1 = yes, 0 = no)										1	1	0	0
Cyclists required to stop? (1 = yes, 0 = no)										0	0	1	1
Cyclist volume										9.0	1.0	0.0	1.0

Metrics that apply to turns	NW corner	NE corner	SW corner	SE corner	SSE corner	NW corner	NE corner	SW corner	SE corner	NW corner	NE corner	SW corner	SE corner
Effective Vehicle Turning Radius (meters) *(not curb radius)*	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0
Effective Bicycle Turning Radius (meters)	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0
Effective Truck Turning Radius (meters)	4.5	8.0	27.0	12.0	4.0	12.0	12.0	12.0	12.0		10.0		10.0

MODE	MEASURE	VALUE	GRADE	LOS	A=1/F=5	VALUE	GRADE	LOS	A=1/F=5	VALUE	GRADE	LOS	A=1/F=5
PEDESTRIANS	Enhanced Pedestrian Measures (measures per approach)	0.0	F	D	6	0.0	F	D	6				
	Signal Cycle Length (s)	90.4	D		4	95	D		4				
	Number of Uncontrolled Conflicts (conflicts per approach)	2.2	D		4	3.0	E		5				
	Average Effective Turning Radius (m)	11.1	C		3	12.0	C		3	10.0	B	D	2
	Marked Controlled Crossings (%)									0%	F		6
	Average Crossing Distance (m)									14.3	F		6
BIKES	Enhanced Bicycle Measures (measures per approach)	0.0	F	C	6	0.0	F	C	6				
	Signal Cycle Length (s)	90.4	D		4	95	D		4				
	Number of Uncontrolled Conflicts (conflicts per approach)	1.2	B		2	1.5	B		2				
	Average Effective Turning Radius (m)	11.1	C		3	12.0	C		3	10.0	B	A	2
	Presence of Bicycle Facilities (% of legs)									67%	B		2
	Requirement to Stop (% of cyclists)									9%	A		1
BUSES	Transit Priority Measures (measures per approach)	0.0	F	E	6	0.0	F	E	6				
	Transit Movement Delay (s)	398.5	F		6	56.3	E		5	0.0	A	B	1
	Pedestrian Level of Service	D	D		4	D	D		4	D	D		4
TRUCKS	Average Effective Turning Radius (m)	11.1	F	E	6	12.0	F	E	6	10.0	F	C	6
	Car Level of Service	E	E		5	D	D		4	A	A		1
CARS	Percentage of Turning Movements with Dedicated Lanes	30%	D	E	4	50%	C	D	3				
	Intersection Delay (s)	322	F		6	66	E		5	1	A	A	1

Appendix I

Parking Utilization Survey Data

230 Denistoun Street, Welland

Initial Counts			
# of Vehicles	Time	Day	DOW
88	6:30	September 9, 2023	Saturday
61	10:41	September 13, 2023	Wednesday
83	6:45	September 16, 2023	Saturday

Site Stats	
Storeys	8
Units	100

Start Date	09/09/2023

Time	OUT	IN	Lot Count	Rate	Max Rate
12:00 AM	0	1	89	0.89	**0.92**
12:15 AM	0	0	90	0.9	Avg Rate
12:30 AM	0	0	90	0.9	**0.79**
12:45 AM	0	0	90	0.9	85th Rate
1:00 AM	1	0	90	0.9	**0.90**
1:15 AM	0	0	89	0.89	
1:30 AM	0	0	89	0.89	
1:45 AM	0	1	89	0.89	
2:00 AM	0	1	90	0.9	
2:15 AM	0	0	91	0.91	
2:30 AM	0	1	91	0.91	
2:45 AM	0	0	92	0.92	
3:00 AM	2	1	92	0.92	
3:15 AM	0	0	91	0.91	
3:30 AM	1	1	91	0.91	
3:45 AM	0	0	91	0.91	
4:00 AM	0	0	91	0.91	
4:15 AM	0	0	91	0.91	
4:30 AM	0	0	91	0.91	
4:45 AM	0	0	91	0.91	
5:00 AM	0	0	91	0.91	
5:15 AM	1	0	91	0.91	
5:30 AM	1	0	90	0.9	
5:45 AM	1	1	89	0.89	
6:00 AM	1	0	89	0.89	
6:15 AM	2	2	88	0.88	
6:30 AM	2	0	88	0.88	
6:45 AM	0	0	88	0.88	
7:00 AM	3	2	87	0.87	
7:15 AM	4	0	83	0.83	
7:30 AM	2	2	83	0.83	
7:45 AM	2	4	85	0.85	
8:00 AM	2	1	84	0.84	
8:15 AM	6	1	79	0.79	

8:30 AM	1	2	80	0.8
8:45 AM	3	1	78	0.78
9:00 AM	5	3	76	0.76
9:15 AM	4	5	77	0.77
9:30 AM	3	2	76	0.76
9:45 AM	5	1	72	0.72
10:00 AM	6	5	71	0.71
10:15 AM	6	1	66	0.66
10:30 AM	4	6	68	0.68
10:45 AM	9	3	62	0.62
11:00 AM	2	6	66	0.66
11:15 AM	7	7	66	0.66
11:30 AM	4	1	63	0.63
11:45 AM	4	5	64	0.64
12:00 PM	6	4	62	0.62
12:15 PM	5	6	63	0.63
12:30 PM	5	1	59	0.59
12:45 PM	4	7	62	0.62
1:00 PM	9	6	59	0.59
1:15 PM	5	2	56	0.56
1:30 PM	2	6	60	0.6
1:45 PM	2	5	63	0.63
2:00 PM	1	1	63	0.63
2:15 PM	4	8	67	0.67
2:30 PM	6	2	63	0.63
2:45 PM	6	2	59	0.59
3:00 PM	0	2	61	0.61
3:15 PM	0	2	63	0.63
3:30 PM	0	3	66	0.66
3:45 PM	2	3	67	0.67
4:00 PM	1	3	69	0.69
4:15 PM	5	8	72	0.72
4:30 PM	4	5	73	0.73
4:45 PM	5	4	72	0.72
5:00 PM	2	4	74	0.74
5:15 PM	1	1	74	0.74
5:30 PM	6	5	73	0.73
5:45 PM	1	4	76	0.76
6:00 PM	3	2	75	0.75
6:15 PM	2	5	78	0.78
6:30 PM	3	2	77	0.77
6:45 PM	2	2	77	0.77
7:00 PM	1	2	78	0.78
7:15 PM	0	2	80	0.8
7:30 PM	1	4	83	0.83

7:45 PM	2	1	82	0.82
8:00 PM	0	2	84	0.84
8:15 PM	0	1	85	0.85
8:30 PM	0	0	85	0.85
8:45 PM	1	1	85	0.85
9:00 PM	2	2	85	0.85
9:15 PM	0	3	88	0.88
9:30 PM	2	1	87	0.87
9:45 PM	2	1	86	0.86
10:00 PM	0	0	86	0.86
10:15 PM	0	0	86	0.86
10:30 PM	1	1	86	0.86
10:45 PM	1	2	87	0.87
11:00 PM	0	0	87	0.87
11:15 PM	0	1	88	0.88
11:30 PM	0	0	88	0.88
11:45 PM	0	0	88	0.88

230 Denistoun Street, Welland

Initial Counts			
# of Vehicles	Time	Day	DOW
88	6:30	September 9, 2023	Saturday
61	10:41	September 13, 2023	Wednesday
83	6:45	September 16, 2023	Saturday

Site Stats	
Storeys	8
Units	100

Start Date	09/13/2023

Direction	OUT	IN	Lot Count	Rate	Max Rate
12:00 AM	0	1	82	0.82	**0.85**
12:15 AM	0	1	83	0.83	Avg Rate
12:30 AM	0	1	84	0.84	**0.74**
12:45 AM	0	0	85	0.85	85th Rate
1:00 AM	0	0	85	0.85	**0.84**
1:15 AM	0	0	85	0.85	
1:30 AM	1	0	85	0.85	
1:45 AM	0	0	84	0.84	
2:00 AM	0	0	84	0.84	
2:15 AM	0	1	84	0.84	
2:30 AM	0	0	85	0.85	
2:45 AM	0	0	85	0.85	
3:00 AM	1	1	85	0.85	
3:15 AM	0	0	85	0.85	
3:30 AM	0	0	85	0.85	
3:45 AM	0	0	85	0.85	
4:00 AM	0	0	85	0.85	
4:15 AM	1	0	85	0.85	
4:30 AM	0	0	84	0.84	
4:45 AM	0	0	84	0.84	
5:00 AM	1	0	84	0.84	
5:15 AM	2	2	83	0.83	
5:30 AM	0	0	83	0.83	
5:45 AM	0	0	83	0.83	
6:00 AM	1	0	83	0.83	
6:15 AM	1	2	82	0.82	
6:30 AM	3	0	83	0.83	
6:45 AM	3	2	80	0.8	
7:00 AM	1	3	79	0.79	
7:15 AM	6	0	81	0.81	
7:30 AM	0	2	75	0.75	
7:45 AM	4	2	77	0.77	
8:00 AM	0	1	75	0.75	
8:15 AM	1	2	76	0.76	

8:30 AM	1	3	77	0.77
8:45 AM	3	1	79	0.79
9:00 AM	3	1	77	0.77
9:15 AM	9	2	75	0.75
9:30 AM	1	2	68	0.68
9:45 AM	5	2	69	0.69
10:00 AM	3	1	66	0.66
10:15 AM	8	6	64	0.64
10:30 AM	2	1	62	0.62
10:45 AM	6	4	61	0.61
11:00 AM	3	4	62	0.62
11:15 AM	4	4	62	0.62
11:30 AM	4	5	63	0.63
11:45 AM	7	8	64	0.64
12:00 PM	6	4	62	0.62
12:15 PM	6	8	64	0.64
12:30 PM	4	4	64	0.64
12:45 PM	3	7	68	0.68
1:00 PM	3	0	65	0.65
1:15 PM	1	5	69	0.69
1:30 PM	5	5	69	0.69
1:45 PM	7	2	64	0.64
2:00 PM	5	2	61	0.61
2:15 PM	6	3	58	0.58
2:30 PM	1	2	59	0.59
2:45 PM	3	4	60	0.6
3:00 PM	7	6	59	0.59
3:15 PM	5	6	60	0.6
3:30 PM	1	5	64	0.64
3:45 PM	3	4	65	0.65
4:00 PM	2	1	64	0.64
4:15 PM	5	6	65	0.65
4:30 PM	1	0	64	0.64
4:45 PM	1	1	64	0.64
5:00 PM	7	6	63	0.63
5:15 PM	2	4	65	0.65
5:30 PM	1	3	67	0.67
5:45 PM	2	3	68	0.68
6:00 PM	6	3	65	0.65
6:15 PM	3	2	64	0.64
6:30 PM	0	2	66	0.66
6:45 PM	4	4	66	0.66
7:00 PM	1	3	68	0.68
7:15 PM	0	4	72	0.72
7:30 PM	1	0	71	0.71

7:45 PM	1	1	71	0.71
8:00 PM	1	3	73	0.73
8:15 PM	0	2	75	0.75
8:30 PM	0	1	76	0.76
8:45 PM	0	0	76	0.76
9:00 PM	1	1	76	0.76
9:15 PM	1	2	77	0.77
9:30 PM	3	3	77	0.77
9:45 PM	0	0	77	0.77
10:00 PM	0	1	78	0.78
10:15 PM	0	0	78	0.78
10:30 PM	1	2	79	0.79
10:45 PM	1	0	78	0.78
11:00 PM	0	1	79	0.79
11:15 PM	0	2	81	0.81
11:30 PM	0	0	81	0.81
11:45 PM	0	0	81	0.81

230 Denistoun Street, Welland

Initial Counts			
# of Vehicles	Time	Day	DOW
88	6:30	September 9, 2023	Saturday
61	10:41	September 13, 2023	Wednesday
83	6:45	September 16, 2023	Saturday

Site Stats	
Storeys	8
Units	100

Start Date	09/14/2023

Direction	OUT	IN	Lot Count	Rate	Max Rate
12:00 AM	0	0	81	0.81	**0.83**
12:15 AM	0	1	82	0.82	Avg Rate
12:30 AM	0	0	82	0.82	**0.64**
12:45 AM	0	0	82	0.82	85th Rate
1:00 AM	0	0	82	0.82	**0.82**
1:15 AM	0	0	82	0.82	
1:30 AM	0	1	83	0.83	
1:45 AM	0	0	83	0.83	
2:00 AM	0	0	83	0.83	
2:15 AM	0	0	83	0.83	
2:30 AM	0	0	83	0.83	
2:45 AM	1	1	83	0.83	
3:00 AM	0	0	83	0.83	
3:15 AM	0	0	83	0.83	
3:30 AM	0	0	83	0.83	
3:45 AM	0	0	83	0.83	
4:00 AM	1	0	82	0.82	
4:15 AM	0	0	82	0.82	
4:30 AM	0	0	82	0.82	
4:45 AM	0	0	82	0.82	
5:00 AM	0	0	82	0.82	
5:15 AM	0	0	82	0.82	
5:30 AM	0	0	82	0.82	
5:45 AM	1	0	81	0.81	
6:00 AM	2	0	79	0.79	
6:15 AM	3	1	77	0.77	
6:30 AM	3	1	75	0.75	
6:45 AM	2	2	75	0.75	
7:00 AM	5	1	71	0.71	
7:15 AM	7	1	65	0.65	
7:30 AM	3	1	63	0.63	
7:45 AM	4	3	62	0.62	
8:00 AM	2	0	60	0.6	
8:15 AM	1	0	59	0.59	

8:30 AM	6	3	56	0.56
8:45 AM	3	0	53	0.53
9:00 AM	5	2	50	0.5
9:15 AM	0	5	55	0.55
9:30 AM	4	4	55	0.55
9:45 AM	4	1	52	0.52
10:00 AM	7	3	48	0.48
10:15 AM	4	0	44	0.44
10:30 AM	3	4	45	0.45
10:45 AM	5	3	43	0.43
11:00 AM	3	6	46	0.46
11:15 AM	3	3	46	0.46
11:30 AM	3	1	44	0.44
11:45 AM	1	2	45	0.45
12:00 PM	2	3	46	0.46
12:15 PM	6	3	43	0.43
12:30 PM	4	4	43	0.43
12:45 PM	5	6	44	0.44
1:00 PM	2	5	47	0.47
1:15 PM	4	0	43	0.43
1:30 PM	3	4	44	0.44
1:45 PM	4	3	43	0.43
2:00 PM	6	6	43	0.43
2:15 PM	7	2	38	0.38
2:30 PM	2	4	40	0.4
2:45 PM	4	6	42	0.42
3:00 PM	3	2	41	0.41
3:15 PM	3	1	39	0.39
3:30 PM	2	3	40	0.4
3:45 PM	2	9	47	0.47
4:00 PM	1	4	50	0.5
4:15 PM	1	3	52	0.52
4:30 PM	2	4	54	0.54
4:45 PM	3	4	55	0.55
5:00 PM	2	6	59	0.59
5:15 PM	3	3	59	0.59
5:30 PM	3	5	61	0.61
5:45 PM	3	4	62	0.62
6:00 PM	5	6	63	0.63
6:15 PM	2	5	66	0.66
6:30 PM	7	5	64	0.64
6:45 PM	5	4	63	0.63
7:00 PM	3	3	63	0.63
7:15 PM	1	2	64	0.64
7:30 PM	3	4	65	0.65

7:45 PM	1	2	66	0.66
8:00 PM	2	2	66	0.66
8:15 PM	0	2	68	0.68
8:30 PM	0	1	69	0.69
8:45 PM	0	1	70	0.7
9:00 PM	1	1	70	0.7
9:15 PM	2	0	68	0.68
9:30 PM	0	2	70	0.7
9:45 PM	1	2	71	0.71
10:00 PM	0	1	72	0.72
10:15 PM	1	0	71	0.71
10:30 PM	0	2	73	0.73
10:45 PM	0	3	76	0.76
11:00 PM	1	0	75	0.75
11:15 PM	1	0	74	0.74
11:30 PM	0	1	75	0.75
11:45 PM	0	0	75	0.75

230 Denistoun Street, Welland

Initial Counts			
# of Vehicles	Time	Day	DOW
88	6:30	September 9, 2023	Saturday
61	10:41	September 13, 2023	Wednesday
83	6:45	September 16, 2023	Saturday

Site Stats	
Storeys	8
Units	100

Start Date	09/16/2023

Direction	OUT	IN	Lot Count	Rate	Max Rate
12:00 AM	0	1	85	0.85	**0.88**
12:15 AM	0	1	86	0.86	Avg Rate
12:30 AM	0	1	87	0.87	**0.76**
12:45 AM	0	0	88	0.88	85th Rate
1:00 AM	0	0	88	0.88	**0.87**
1:15 AM	0	0	88	0.88	
1:30 AM	1	0	88	0.88	
1:45 AM	0	0	87	0.87	
2:00 AM	0	0	87	0.87	
2:15 AM	0	1	87	0.87	
2:30 AM	0	0	88	0.88	
2:45 AM	0	0	88	0.88	
3:00 AM	1	1	88	0.88	
3:15 AM	0	0	88	0.88	
3:30 AM	0	0	88	0.88	
3:45 AM	0	0	88	0.88	
4:00 AM	0	0	88	0.88	
4:15 AM	1	0	88	0.88	
4:30 AM	0	0	87	0.87	
4:45 AM	0	0	87	0.87	
5:00 AM	1	0	87	0.87	
5:15 AM	2	2	86	0.86	
5:30 AM	0	0	86	0.86	
5:45 AM	0	0	86	0.86	
6:00 AM	1	0	86	0.86	
6:15 AM	1	2	85	0.85	
6:30 AM	3	0	86	0.86	
6:45 AM	3	2	83	0.83	
7:00 AM	1	3	85	0.85	
7:15 AM	6	0	79	0.79	
7:30 AM	0	2	81	0.81	
7:45 AM	4	2	79	0.79	
8:00 AM	0	1	80	0.8	
8:15 AM	1	2	81	0.81	

8:30 AM	1	3	83	0.83
8:45 AM	3	1	81	0.81
9:00 AM	3	1	79	0.79
9:15 AM	9	2	72	0.72
9:30 AM	1	2	73	0.73
9:45 AM	5	2	70	0.7
10:00 AM	3	1	68	0.68
10:15 AM	8	6	66	0.66
10:30 AM	2	1	65	0.65
10:45 AM	6	4	63	0.63
11:00 AM	3	4	64	0.64
11:15 AM	4	4	64	0.64
11:30 AM	4	5	65	0.65
11:45 AM	7	8	66	0.66
12:00 PM	6	4	64	0.64
12:15 PM	6	8	66	0.66
12:30 PM	4	4	66	0.66
12:45 PM	3	7	70	0.7
1:00 PM	3	0	67	0.67
1:15 PM	1	5	71	0.71
1:30 PM	5	5	71	0.71
1:45 PM	7	2	66	0.66
2:00 PM	5	2	63	0.63
2:15 PM	6	3	60	0.6
2:30 PM	1	2	61	0.61
2:45 PM	3	4	62	0.62
3:00 PM	7	6	61	0.61
3:15 PM	5	6	62	0.62
3:30 PM	1	5	66	0.66
3:45 PM	3	4	67	0.67
4:00 PM	2	1	66	0.66
4:15 PM	5	6	67	0.67
4:30 PM	1	0	66	0.66
4:45 PM	1	1	66	0.66
5:00 PM	7	6	65	0.65
5:15 PM	2	4	67	0.67
5:30 PM	1	3	69	0.69
5:45 PM	2	3	70	0.7
6:00 PM	6	3	67	0.67
6:15 PM	3	2	66	0.66
6:30 PM	0	2	68	0.68
6:45 PM	4	4	68	0.68
7:00 PM	1	3	70	0.7
7:15 PM	0	4	74	0.74
7:30 PM	1	0	73	0.73

7:45 PM	1	1	73	0.73
8:00 PM	1	3	75	0.75
8:15 PM	0	2	77	0.77
8:30 PM	0	1	78	0.78
8:45 PM	0	0	78	0.78
9:00 PM	1	1	78	0.78
9:15 PM	1	2	79	0.79
9:30 PM	3	3	79	0.79
9:45 PM	0	0	79	0.79
10:00 PM	0	1	80	0.8
10:15 PM	0	0	80	0.8
10:30 PM	1	2	81	0.81
10:45 PM	1	0	80	0.8
11:00 PM	0	1	81	0.81
11:15 PM	0	2	83	0.83
11:30 PM	0	0	83	0.83
11:45 PM	0	0	83	0.83

Appendix C - Survey Data

City of Burlington Downtown Survey Data (April 6th - May 8th, 2021)

					Surveyed				
Address	Intensification Zone	LandUse	Date	Time (24 Hr)	Occupant (Observed)	Visitor (Observed)	Number of Units	Calculated Occupant Rate	Calculated Visitor Rate
442 Maple Ave	Primary	Apartment Building	Tues, April 6	8:00	146	5	135	1.08	0.04
442 Maple Ave	Primary	Apartment Building	Tues, April 6	9:00	148	5	135	1.10	0.04
442 Maple Ave	Primary	Apartment Building	Tues, April 6	10:00	148	6	135	1.10	0.04
505 Locust St	Primary	Apartment Building	Tues, April 6	8:30	101	0	117	0.86	
505 Locust St	Primary	Apartment Building	Tues, April 6	9:30	103	0	117	0.88	
505 Locust St	Primary	Apartment Building	Tues, April 6	10:30	103	0	117	0.88	
442 Maple Ave	Primary	Apartment Building	Thurs, April 8	8:00	143	8	135	1.06	0.06
442 Maple Ave	Primary	Apartment Building	Thurs, April 8	9:00	146	5	135	1.08	0.04
442 Maple Ave	Primary	Apartment Building	Thurs, April 8	10:00	145	5	135	1.07	0.04
505 Locust St	Primary	Apartment Building	Thurs, April 8	8:30	116	0	117	0.99	
505 Locust St	Primary	Apartment Building	Thurs, April 8	9:30	120	0	117	1.03	
505 Locust St	Primary	Apartment Building	Thurs, April 8	10:30	121	0	117	1.03	
505 Locust St	Primary	Apartment Building	Sat, April 17	8:30	100	0	117	0.85	
505 Locust St	Primary	Apartment Building	Sat, April 17	9:30	104	0	117	0.89	
505 Locust St	Primary	Apartment Building	Sat, April 17	10:30	107	0	117	0.91	
442 Maple Ave	Primary	Apartment Building	Sat, April 17	8:00	137	9	135	1.01	0.07
442 Maple Ave	Primary	Apartment Building	Sat, April 17	9:00	139	4	135	1.03	0.03
442 Maple Ave	Primary	Apartment Building	Sat, April 17	10:00	138	4	135	1.02	0.03
360 Pearl St	Primary	Apartment Building	Tues, April 27	8:00	87	0	75	1.16	
360 Pearl St	Primary	Apartment Building	Tues, April 27	9:00	93	0	75	1.24	
360 Pearl St	Primary	Apartment Building	Tues, April 27	10:00	94	0	75	1.25	
360 Pearl St	Primary	Apartment Building	Thurs, April 29	8:00	75	0	75	1.00	
360 Pearl St	Primary	Apartment Building	Thurs, April 29	9:00	78	0	75	1.04	
360 Pearl St	Primary	Apartment Building	Thurs, April 29	10:00	84	0	75	1.12	
2121 Lakeshore Rd	Primary	Apartment Building	Sat, May 1	8:15	36	2	39	0.92	0.05
2121 Lakeshore Rd	Primary	Apartment Building	Sat, May 1	9:15	39	1	39	1.00	0.03
2121 Lakeshore Rd	Primary	Apartment Building	Sat, May 1	10:00	40	1	39	1.03	0.03
1477 Lakeshore Rd	Primary	Apartment Building	Sat, May 1	9:00	61	0	60	1.02	
1477 Lakeshore Rd	Primary	Apartment Building	Sat, May 1	9:45	63	0	60	1.05	
1477 Lakeshore Rd	Primary	Apartment Building	Sat, May 1	10:30	63	0	60	1.05	
2121 Lakeshore Rd	Primary	Apartment Building	Tues, May 4	8:00	42	1	39	1.08	0.03
2121 Lakeshore Rd	Primary	Apartment Building	Tues, May 4	9:00	42	1	39	1.08	0.03

2121 Lakeshore Rd	Primary	Apartment Building	Tues, May 4	10:00	45	0	39	1.15	0.00
1477 Lakeshore Rd	Primary	Apartment Building	Tues, May 4	8:30	65	0	60	1.08	
1477 Lakeshore Rd	Primary	Apartment Building	Tues, May 4	9:30	66	0	60	1.10	
1477 Lakeshore Rd	Primary	Apartment Building	Tues, May 4	10:30	65	0	60	1.08	
2121 Lakeshore Rd	Primary	Apartment Building	Thurs, May 6	8:00	39	1	39	1.00	0.03
2121 Lakeshore Rd	Primary	Apartment Building	Thurs, May 6	9:00	41	0	39	1.05	0
2121 Lakeshore Rd	Primary	Apartment Building	Thurs, May 6	10:00	41	0	39	1.05	0
1477 Lakeshore Rd	Primary	Apartment Building	Thurs, May 6	8:30	64	0	60	1.07	
1477 Lakeshore Rd	Primary	Apartment Building	Thurs, May 6	9:30	63	0	60	1.05	
1477 Lakeshore Rd	Primary	Apartment Building	Thurs, May 6	10:30	64	0	60	1.07	
360 Pearl St	Primary	Apartment Building	Sat, May 8	8:00	69	0	75	0.92	
360 Pearl St	Primary	Apartment Building	Sat, May 8	9:00	77	0	75	1.03	
360 Pearl St	Primary	Apartment Building	Sat, May 8	10:00	78	0	75	1.04	

Paradigm - City of Burlington Apartment Parking Surveys

Parking Demand																								
Site #	Site 1								Site 2								Site 3							
Address	551 Maple Avenue								360 Pearl Street								1284 Guelph Line							
Units	186								75								75		78		75		78	
User Group	Occupant				Visitor				Occupant				Visitor				Occupant				Visitor			
Observation	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Time	01 Nov 2016	02 Nov 2016	08 Nov 2016	09 Nov 2016	01 Nov 2016	02 Nov 2016	08 Nov 2016	09 Nov 2016	01 Nov 2016	02 Nov 2016	08 Nov 2016	09 Nov 2016	01 Nov 2016	02 Nov 2016	08 Nov 2016	09 Nov 2016	13 Apr 2016	14 Apr 2016	17 Aug 2016	18 Aug 2016	13 Apr 2016	14 Apr 2016	17 Aug 2016	18 Aug 2016
16:15	60	43	52	58	12	9	15	12	13	21	18	18	7	7	9	5	14	15	26	30	11	7	2	4
16:30	56	39	53	60	8	7	15	9	12	20	17	18	6	7	10	5	18	20	27	29	9	7	4	4
16:45	57	47	60	60	12	11	15	13	15	20	19	21	6	7	8	4	16	20	30	31	11	5	5	4
17:00	60	52	61	63	13	13	12	13	17	21	20	22	7	6	8	6	18	20	28	34	13	5	3	4
17:15	68	56	60	65	13	13	15	13	19	24	22	21	7	7	8	6	20	19	29	36	12	4	2	6
17:30	80	60	76	68	15	13	11	12	20	29	26	28	8	6	8	6	21	21	33	40	10	4	1	7
17:45	82	78	84	69	12	15	12	12	28	30	30	31	6	8	8	6	26	24	34	40	7	5	1	6
18:00	84	89	84	72	19	13	11	13	32	31	31	31	5	7	8	6	30	24	34	39	9	7	1	5
18:15	93	90	88	88	17	15	15	16	33	35	33	32	6	6	8	6	33	26	46	42	9	8	1	3
18:30	96	101	93	95	15	15	12	15	37	36	36	35	7	7	7	5	36	29	46	43	10	8	2	3
18:45	93	102	96	103	13	16	13	15	38	36	37	36	7	7	7	6	39	32	46	43	9	9	2	2
19:00	103	110	98	108	15	20	15	16	41	40	39	37	7	7	8	6	40	35	46	45	13	9	2	2
19:15	112	118	104	111	15	21	19	19	44	42	42	39	5	8	8	6	43	37	47	46	12	9	4	2
19:30	110	130	110	115	15	22	22	19	49	41	44	41	5	8	7	5	46	36	48	47	10	8	4	2
19:45	120	129	118	122	15	24	17	19	48	45	46	45	5	7	6	5	46	37	43	47	12	10	2	2
20:00	132	133	125	128	15	25	15	19	50	50	50	47	6	8	6	4	45	40	44	46	10	10	2	2
20:15	134	131	132	130	16	23	17	19	53	51	52	50	6	7	5	4	44	42	47	49	13	10	2	2
20:30	133	146	138	138	16	20	15	17	55	51	53	53	6	7	5	4	43	43	49	50	13	11	3	2
20:45	134	149	142	135	15	23	13	16	56	51	54	54	5	6	4	3	45	43	50	52	12	12	6	1
21:00	140	155	147	132	15	23	13	17	56	53	56	56	5	5	4	3	47	45	55	56	12	15	6	2
21:15	141	154	145	132	16	20	15	17	58	54	56	55	5	5	3	2	48	48	56	58	13	14	6	3
21:30	143	154	150	145	16	16	13	15	58	55	57	55	4	5	3	3	50	49	56	59	12	16	7	6
21:45	146	153	151	148	16	16	16	16	58	56	57	55	4	5	3	4	51	51	57	60	11	17	7	5
22:00	146	153	154	148	15	16	16	16	58	58	57	55	4	2	3	4	52	51	58	62	11	18	7	6
22:15																	51	51	60	61	12	18	6	8
22:30																				62				8
22:45																				63				9
23:00																				63				9
23:15																				64				9
23:30																				63				10
23:45																				63				10
0:00																				64				10
Peak	146	155	154	148	19	25	22	19	58	58	57	56	8	8	10	6	52	51	60	64	13	18	7	10

Site #	Site 1								Site 2								Site 3							
Address	551 Maple Avenue								360 Pearl Street								1284 Guelph Line							
Units	186	186	186	186	186	186	186	186	75	75	75	75	75	75	75	75	75	75	78	78	75	75	78	78
User Group	Occupant				Visitor				Occupant				Visitor				Occupant				Visitor			
Observation	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Peak	146	155	154	148	19	25	22	19	58	58	57	56	8	8	10	6	52	51	60	64	13	18	7	10
Rate per Unit	0.78	0.83	0.83	0.80	0.10	0.13	0.12	0.10	0.77	0.77	0.76	0.75	0.11	0.11	0.13	0.08	0.69	0.68	0.77	0.82	0.17	0.24	0.09	0.13