2076 Old Lakeshore Road City of Burlington Traffic Impact Study

Paradigm Transportation Solutions Limited

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Project Summary

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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study (TIS) for a proposed mixed-use development at 2076 Old Lakeshore Road in the City of Burlington.

This study examines the impact of development traffic on the surrounding road network and identifies recommended improvements, if necessary, to accommodate the site-generated traffic.

Development Concept

The subject site is located at 2076 Old Lakeshore Road, currently operating as the Marquis Lakeside Inn in the City of Burlington. The applicant proposes to redevelop the existing land into a 23-storey mixed-use development comprising 154 hotel rooms, shared amenity space, and 50 residential units. Vehicle access to the site is proposed via a single driveway connection from Old Lakeshore Road, providing entry to both the automated underground parking system and the waste collection/loading area. Short-term parking for the proposed valet service can be accommodated by a lay-by area west of the driveway, as well as parking spaces within the loading area located on the ground floor when not in use. The site plan includes four levels of automated underground parking, offering a total of 82 parking spaces.

The build-out is anticipated to occur by 2028, with timing subject to change and market conditions.

Conclusions

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

- **Study Area**: The intersections assessed in this study include:
  - Lakeshore Road and Old Lakeshore Road (unsignalized);
  - Lakeshore Road and Martha Street (unsignalized);
  - Lakeshore Road and Pearl Street/Old Lakeshore Road (signalized);
  - Lakeshore Road and Elizabeth Street (signalized); and
  - One proposed driveway connection to Old Lakeshore Road.
- **Existing Traffic Conditions:** The study area intersections operate at acceptable service levels and within capacity during

the weekday peak hours. However, at the intersection of Elizabeth Street and Lakeshore Road, the 95th percentile queue length in the northbound left-turn lane exceeds the available storage during the weekday peak hour. The southbound left-turn lane at Pearl Street and Lakeshore Road also exhibits queues exceeding storage capacity at the 95th percentile during the weekday PM peak hour.

- **Trip Generation:** The site's vehicular trip generation is estimated to be approximately 62-85 weekday AM/PM peak-hour trips.
- **Vehicle Circulation:** No conflicts with the proposed on-site geometry are noted.
- **Background Traffic Conditions:** Under background traffic conditions, the critical movements identified in the base year traffic analysis are forecast to remain critical. Under the opening-year horizon, the northbound left-turn lane at Pearl Street and Lakeshore Road is forecast to exhibit 95th percentile queues that exceed the available storage during weekday peak hours.
- **Total Traffic Conditions:** Under total traffic conditions, operations at the study area intersections are similar to the base year and background conditions. Critical movement is forecast in the northbound approach at the intersection of Old Lakeshore Road and Lakeshore Road, degrading to LOS D during the weekday AM peak hour. However, this is common for minor roadways approaching a major road and is still expected to operate with acceptable delays, as indicated by a v/c ratio of 0.50.

  The driveway approach to Old Lakeshore Road is forecast to operate within capacity with a v/c ratio of less than 0.10 and delays of LOS B or better. The 95th percentile queue length is forecast to be one vehicle or less.
- **Remedial Measures:** Based upon the warrant assessment, traffic control signals are not warranted at the unsignalized intersections of Lakeshore Road at Martha Street and Lakeshore Road at Old Lakeshore Road.

  The site's driveway connection to Old Lakeshore Road should operate under stop control.

  The left-turn warrant analysis indicates that the westbound left-turn lanes are not warranted on Old Lakeshore Road at the Site Driveway. No changes to the existing lane configuration are recommended along Old Lakeshore Road.

- **Transportation Demand Management:** The proposed development includes TDM measures such as bicycle parking to encourage cycling and pedestrian facilities to provide accessibility to and from the development.

  The applicant will consider developing marketing or informational materials outlining available transportation options, which could be shared with future residents and hotel guests as part of a welcome package. These materials may include transit schedules for local and regional services, maps of bicycle routes and trail networks, as well as the locations of nearby retail and recreational destinations.

  By limiting on-site parking to match projected demand, the development encourages the use of alternative transportation modes. In doing so, it sets a positive example for residents and visitors to reduce reliance on single-occupant vehicles (SOV) and consider more sustainable travel options.

- **MMLOS Assessment:** The existing study area segments and intersections along Lakeshore Road meet or exceed the level of service targets for pedestrians, transit, trucks, and cars. To further improve these modes, the City of Burlington should explore enhanced transit facilities, wider sidewalks, improved pedestrian measures, and protected cycling facilities.

Recommendations

Based on the findings of this study, the following is recommended:

- The City of Burlington recognizes the conclusions drawn above.
- The City may explore reallocating street space along Lakeshore Road to enhance pedestrian and cycling facilities, including wider sidewalks, increased pedestrian buffers, additional transit facilities, and protected cycling lanes, to improve MMLOS targets further.
- The site's TDM program should be implemented and monitored over time to help manage its transportation and parking impacts.

"Plain Language" Summary

The proposed redevelopment at 2076 Old Lakeshore Road will replace the existing Marquis Lakeside Inn with a 23-storey mixed-use building that includes 154 hotel rooms, 50 residential units, and 82 underground parking spaces with valet service.

A Transportation Impact Study determined that the project will generate approximately 62 vehicle trips during the AM peak hour and 85 during the PM peak hour. The current road network can manage these without requiring new signals or turn lanes. Intersection performance will remain within acceptable standards, and on-site vehicle staging, along with at least six valet attendants, will help keep queues to a minimum.

The plan includes Transportation Demand Management measures, such as bicycle parking, improved pedestrian access, and transit information, to promote alternatives to driving. The City may consider future improvements along Lakeshore Road, such as wider sidewalks, protected cycling lanes, and upgraded transit facilities, to further encourage sustainable travel.

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1 Introduction

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study (TIS) for a proposed mixed-use development at 2076 Old Lakeshore Road in the City of Burlington. **Figure 1.1** illustrates the site location.

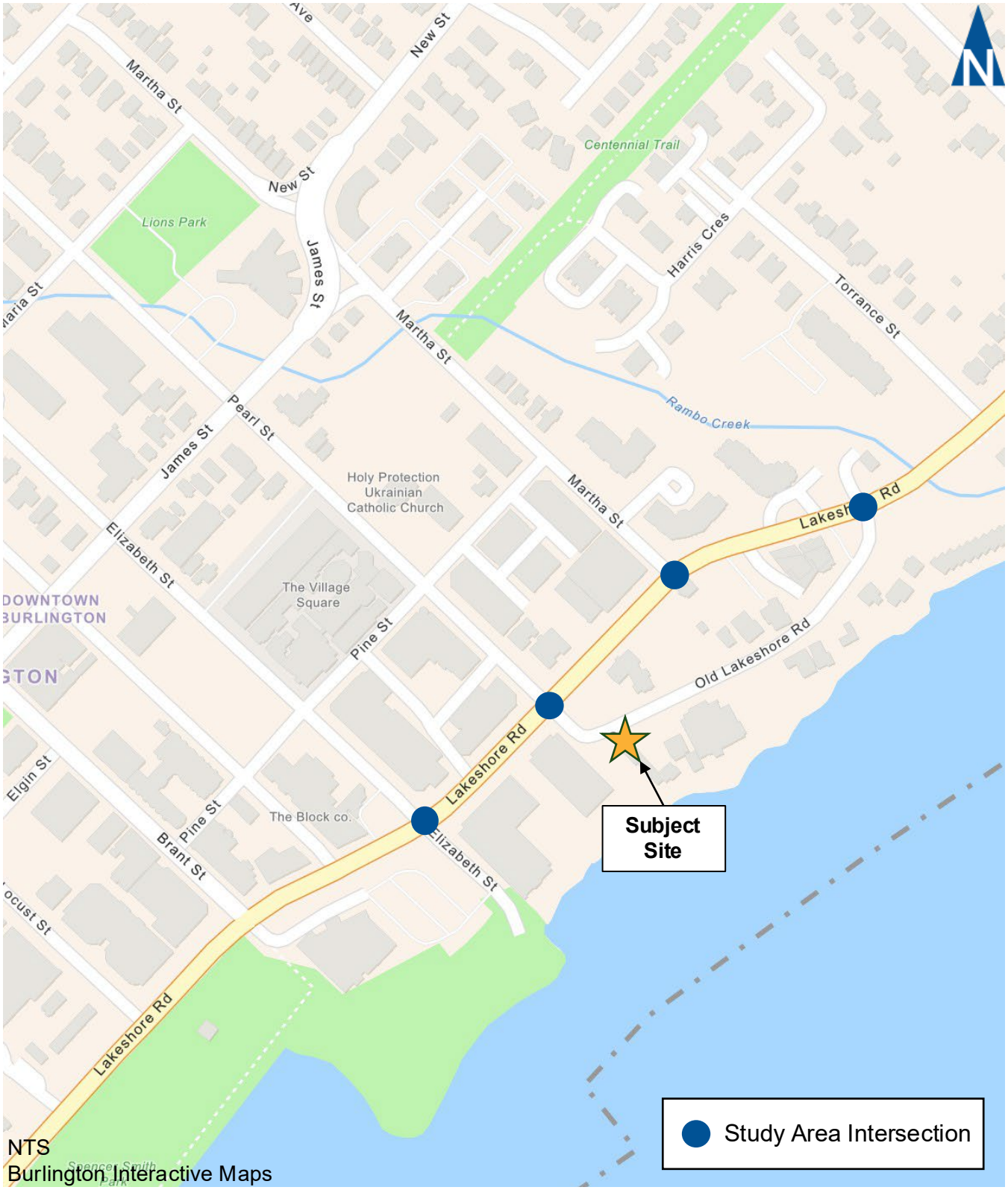
The scope of the study includes:

- Assessment of the current traffic conditions within the study area;
- Estimates of background traffic growth;
- A queue analysis for the proposed automated underground parking system;
- Estimates of additional traffic generated by the subject site;
- Analyses of the impact of future traffic on the surrounding road network;
- Recommendations are necessary to mitigate this future traffic satisfactorily;
- A multimodal level of service (MMLOS) assessment; and
- A transportation demand management (TDM) assessment.

A pre-study consultation was conducted with the City of Burlington in April 2025. The material for this consultation is contained in **Appendix A**.

The intersections assessed in this study include:

- Lakeshore Road and Old Lakeshore Road (unsignalized);
- Lakeshore Road and Martha Street (unsignalized);
- Lakeshore Road and Pearl Street/Old Lakeshore Road (signalized);
- Lakeshore Road and Elizabeth Street (signalized); and
- A single-site driveway connection to Old Lakeshore Road.



Subject Site Location

2076 Old Lakeshore Road, Burlington
250220

Figure 1.1

2 Existing Conditions

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

2.1 Road Network

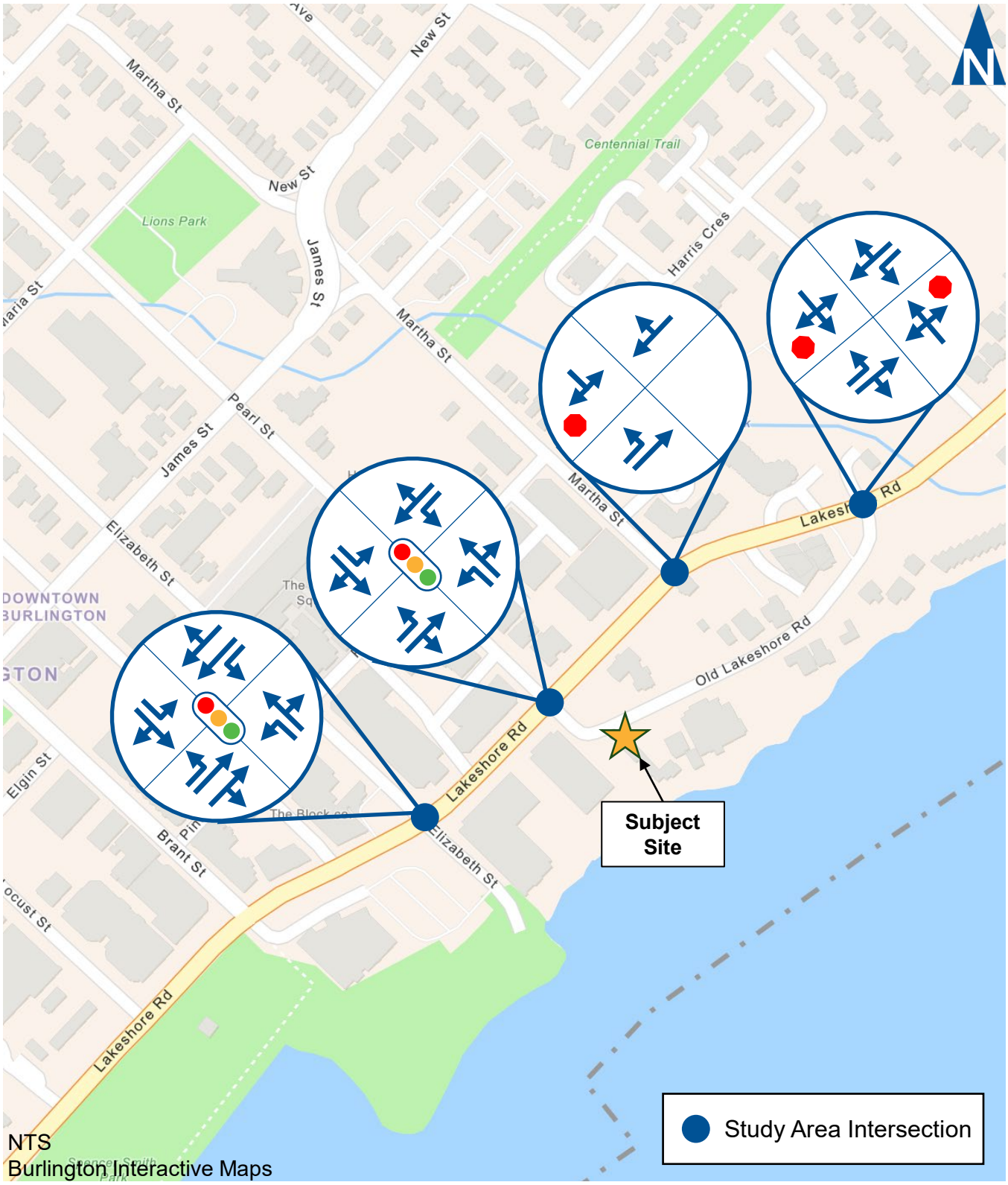
The roadways of interest within the study area include:

- **Old Lakeshore Road** is an east-west local roadway [1] with a two-lane urban cross-section and an assumed statutory speed limit of 50 km/h. Sidewalks are present on both sides of the roadway; however, there are no dedicated cycling facilities along this roadway within the study area. The intersection with Lakeshore Road is signalized. Within the study area, on-street parking is permitted along the south side of the road.
- **Lakeshore Road** is an east-west main roadway with a two-lane urban cross-section and a posted speed limit of 50 km/h. The intersections with Elizabeth Street and Pearl Street/Old Lakeshore Road are signalized, whereas the intersection with Martha Street is unsignalized. Within the study area, sidewalks are present on both sides of the roadway. On-street parking provisions are provided along the south side of the roadway, between Elizabeth Street and Pearl Street; however, no stopping restrictions are provided along the north side of the roadway. There are no dedicated cycling facilities along this roadway within the study area.
- **Elizabeth Street** is a north-south neighbourhood connector with a two-lane urban cross-section and an assumed statutory speed limit of 50 km/h. Sidewalks are present on both sides of the roadway, along with on-street parking. There are no dedicated cycling facilities along this roadway within the study area.
- **Pearl Street** is a north-south neighbourhood connector with a two-lane urban cross-section and an assumed statutory speed limit of 50 km/h. Sidewalks are present on both sides of the roadway, along with on-street parking. The roadway is designated as a shared-use lane through the use of sharrow pavement markings.
- **Martha Street** is a north-south neighbourhood connector with a two-lane urban cross-section and an assumed statutory speed

[1] The City of Burlington Official Plan, Schedule O-1: Classification of Transportation Facilities Urban Area, November 2020

limit of 50 km/h. Sidewalks are present on both sides of the roadway, along with on-street parking. The roadway is designated as a shared-use lane through the use of sharrow pavement markings.

Figure 2.1 illustrates the existing lane configurations and traffic control at the study area intersections. With respect to the intersection of Lakeshore Road and Pearl Street, the City of Burlington identified that the eastbound approach should be coded as a single shared through/right turn lane, as the lane ends 30 metres after the intersection. Regarding the westbound lane, construction of an adjacent development has temporarily closed the second travel lane; as a result, only a single travel lane is incorporated to reflect current operations. This has been modelled in the Synchro analysis and is reflected in the lane configuration figure.



Existing Lane Configuration & Traffic Control

2076 Old Lakeshore Road, Burlington
250220

Figure 2.1

2.2 Pedestrian Network

Pedestrian sidewalks are provided along both sides of roadways through the majority of the study area. There is one gap in the sidewalk network, on Lakeshore Road between Martha Street and Old Lakeshore. This gap is expected to be filled in by adjacent development applications.

At the signalized intersections, crosswalks, pedestrian pushbuttons, pedestrian signal heads and indicators are provided on all approaches.

The site is within walking distance of numerous and significant employment, retail, cultural, and recreational opportunities, providing a range of destinations for prospective residents of the proposed building that can be readily accessed without a car. The proximity of the site to a range of amenities and destinations within walking distance helps reduce the need for residents of the building to travel by car regularly.

Walk Score is an online tool that assigns a numerical walkability score ranging from 0 to 100 for addresses in Australia, Canada, the United States, and New Zealand. Walk Score ranks communities nationwide based on how many businesses, parks, theatres, schools and other common destinations are within walking distance of any given address. The subject site has a Walk Score of 93 and is considered a "Very Walkable" location, meaning most daily errands can be accomplished on foot without a personal vehicle.

It is noted that Walk Score tends to categorize amenities broadly, and it is acknowledged that it can misclassify certain retail types, such as LCBO or Beer Store, as “grocery.”

Figure 2.2 illustrates the existing pedestrian infrastructure.

2.3 Cycling Network

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

The City of Burlington's bicycle network provides a variety of cycling facilities within the study area. **Figures 2.3 and 2.4** illustrate the existing and future cycling networks**,** respectively.

Pearl Street currently operates with shared-use shoulders (sharrows). The City of Burlington's draft Cycling Plan [2] Identifies that Pearl Street will be designated as a local street bikeway, consisting of a shared roadway similar to what is currently provided. Additional painted bikeways are proposed along Lakeshore Road as a Bicycle Priority Street with short-term project priority.

[2] City of Burlington Cycling Plan – Draft 08/01/2019. Map 5 – Proposed Network. Map 7 – Proposed Project Priority



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Existing Pedestrian Infrastructure

2076 Old Lakeshore Road, Burlington
250220

Figure 2.2

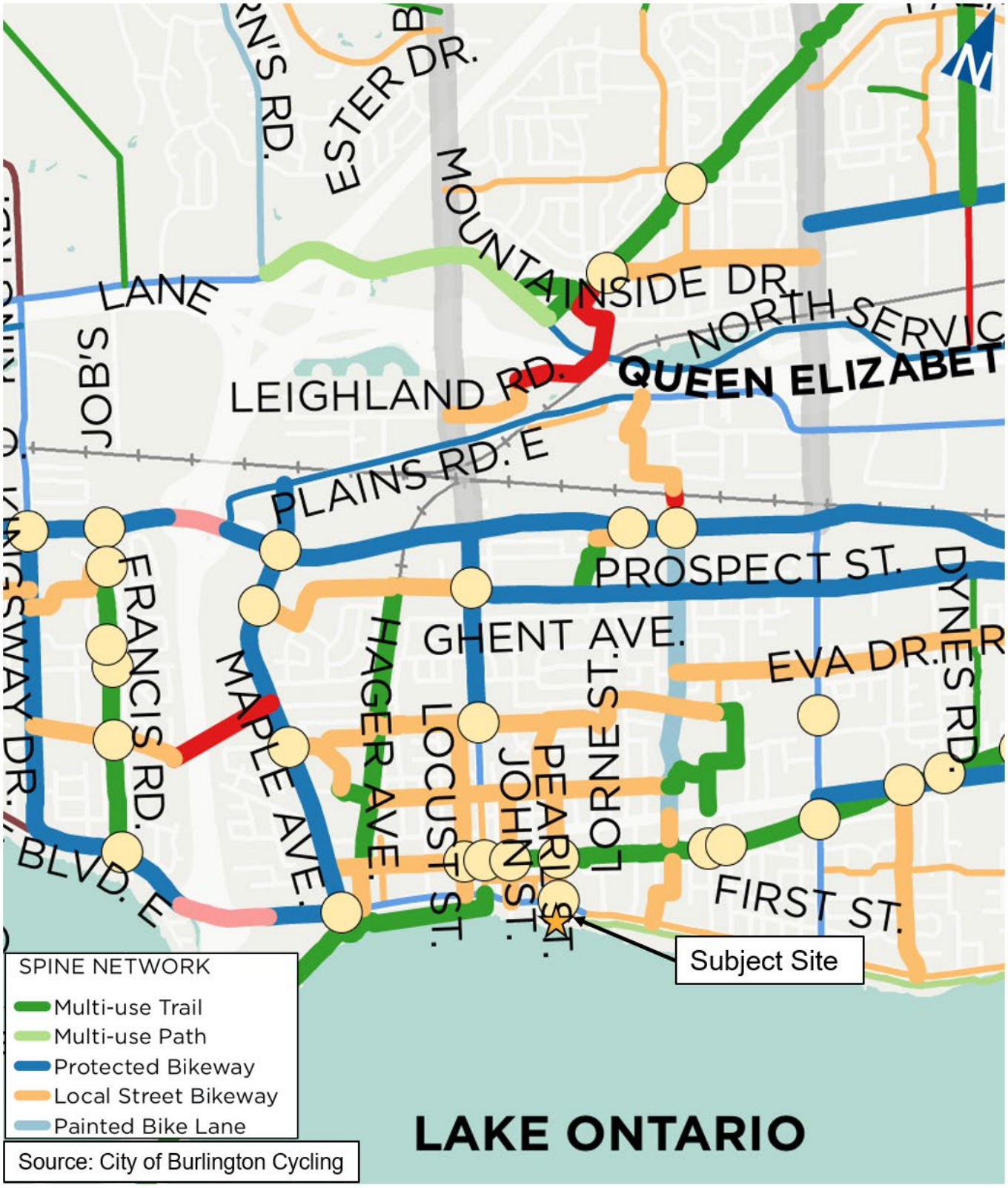


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Existing Cycling Network

2076 Old Lakeshore Road, Burlington
250220

Figure 2.3



Source: City of Burlington Cycling

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Future Cycling Network

2076 Old Lakeshore Road, Burlington
250220

Figure 2.4

2.4 Transit Service

2.4.1 Burlington Transit

Burlington Transit [3] is the public transit operator in the City of Burlington. **Figure 2.5** illustrates the existing transit network relative to the subject site's location. The following routes are provided within Downtown Burlington:

- **Route 2, 3 (Brant/Guelph)** provides service between John Street and the Highway 407 Carpool Lot. Weekday headways range from 15 to 30 minutes depending on the time of day. Weekend headways range from 30 to 60 minutes, depending on the time of day.
- **Route 4 (Central)** provides service between the Aldershot GO Station and the Appleby GO Station. Weekday headways range from 30 to 60 minutes, depending on the time of day. Weekend headways operate at intervals of approximately 60 minutes.
- **Route 10 (New-Maple)** provides service between the Burlington GO Station and Appleby GO Station. Weekday and weekend headways range from 15 to 30 minutes, depending on the time of day.
- **Route 50 (Burlington South)** provides late-night service around the southern portion of the City, with service beginning and terminating at the Burlington GO Station. Buses operate with approximately 60-minute headways and provide a connection at John Street.
- **Route 52 (Burlington Northwest)** provides late-night service around the northwest portion of the City with service beginning and terminating at the Burlington GO Station. Buses operate with approximately 60-minute headways and provide a connection at John Street.

The closest bus stop is located less than 150 metres (a two-minute walk) away at the intersection of Lakeshore Road and Pearl Street and provides access to Route 3.

Additionally, the development is a 400-metre walk to the adjacent routes located along John Street (between Pine Street and Lakeshore Road), which provide access to the additional local routes noted above.

[3] Burlington Transit Ride Guide | City of Burlington, Ontario, Canada

2.4.2 GO Transit

The Burlington GO station is located about 3.1 km north of the subject site, which is easily accessible via Burlington Transit. As this GO line provides bus and/or train service to major cities, including Downtown Toronto, it is a significant transportation link for residents and commuters in the region.

2.5 Traffic Data

Paradigm collected typical Turning Movement Counts (TMC) data at the study area intersections in April and May 2025. **Appendix B** contains the existing count data. **Figure 2.6** illustrates the existing peak-hour traffic volumes.

2.5.1 Typical Traffic

Typical traffic refers to the volume of traffic on a roadway during normal operating conditions and is used in a Transportation Impact Assessment (TIA). The goal of a traffic impact assessment at the development level is to ensure that traffic generated by the proposed development can be safely and efficiently integrated into the existing transportation infrastructure under normal operating conditions.

It is acknowledged that traffic volumes on municipal streets can vary significantly, particularly when major adjacent highways experience congestion. During delays at ramp terminals and along freeway mainlines, drivers often choose alternative routes. Research indicates that substantial traffic shifts can occur on parallel arterial roads during incidents or construction. In the City of Burlington, for example, when the Queen Elizabeth Way (QEW) experiences heavy congestion due to incidents, construction, or peak demand periods, some traffic will divert to municipal streets in search of alternative routes. This diversion can temporarily increase traffic volumes above typical baseline conditions.

While it is recognized that diversion from major highways, such as the QEW, can temporarily increase traffic volumes on municipal roadways during congestion events, this situation reflects existing network dynamics rather than impacts specifically related to a new development.

Comprehensive, network-wide congestion issues are generally addressed through broader transportation planning studies, such as Transportation Master Plans, corridor studies, or regional traffic management studies. These strategic assessments examine system-wide traffic operations, evaluate alternative routing strategies, and develop coordinated solutions between municipal and provincial

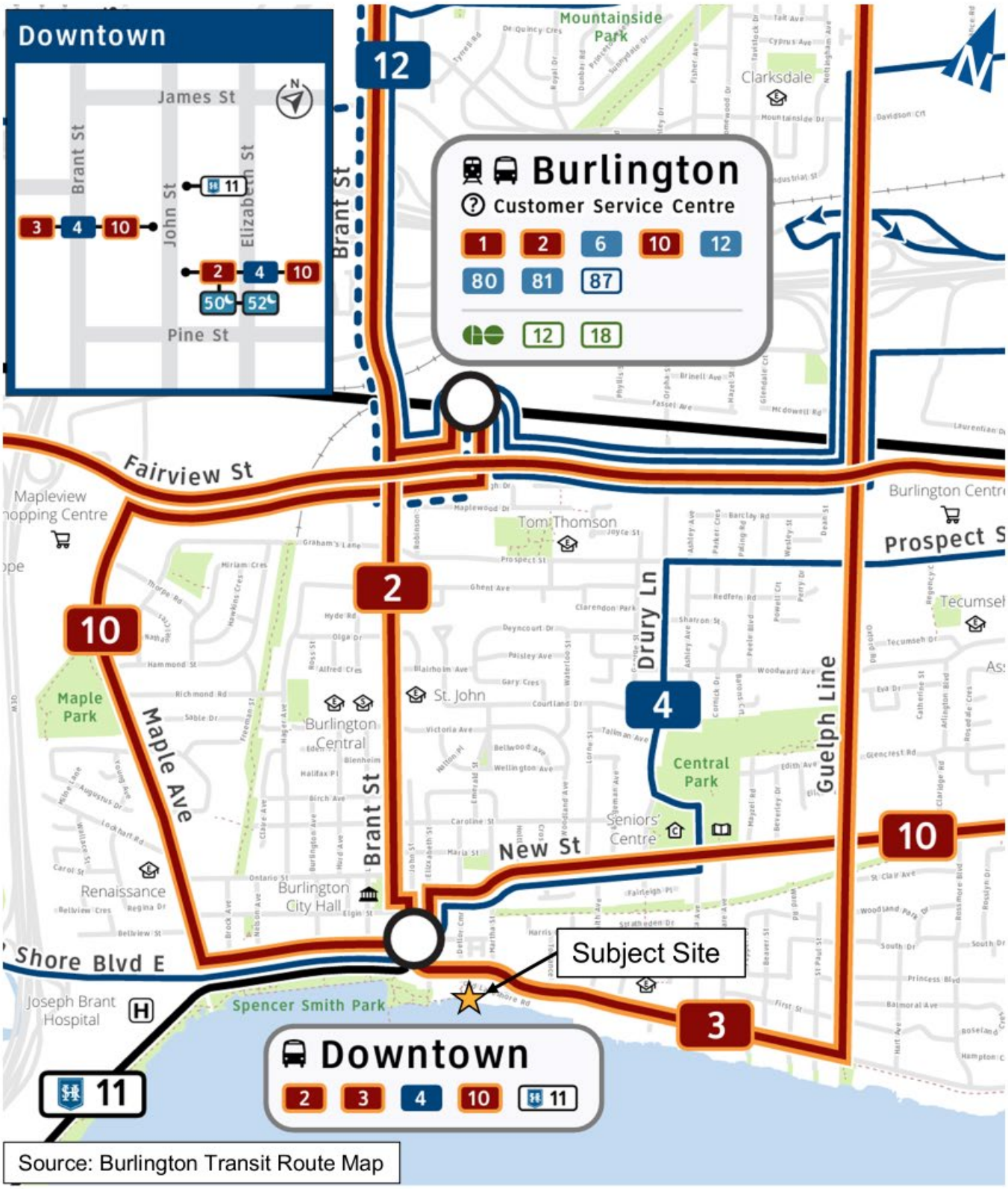
transportation networks to manage traffic diversion and overall network performance during both normal and congested conditions.

2.5.2 Peak Hour Factor

For the Synchro analysis, the Peak Hour Factor (PHF) was derived directly from the observed traffic conditions at each study intersection. The PHF was calculated from the turning-movement counts, ensuring that the analysis reflects actual fluctuation patterns rather than relying on generalized assumptions. The average PHF has been applied to the entire intersection, consistent with the methodology used in previous studies within the study area [4].

This approach provides a more accurate representation of intersection performance by capturing real-world variability in arrival patterns and short-duration demand surges.

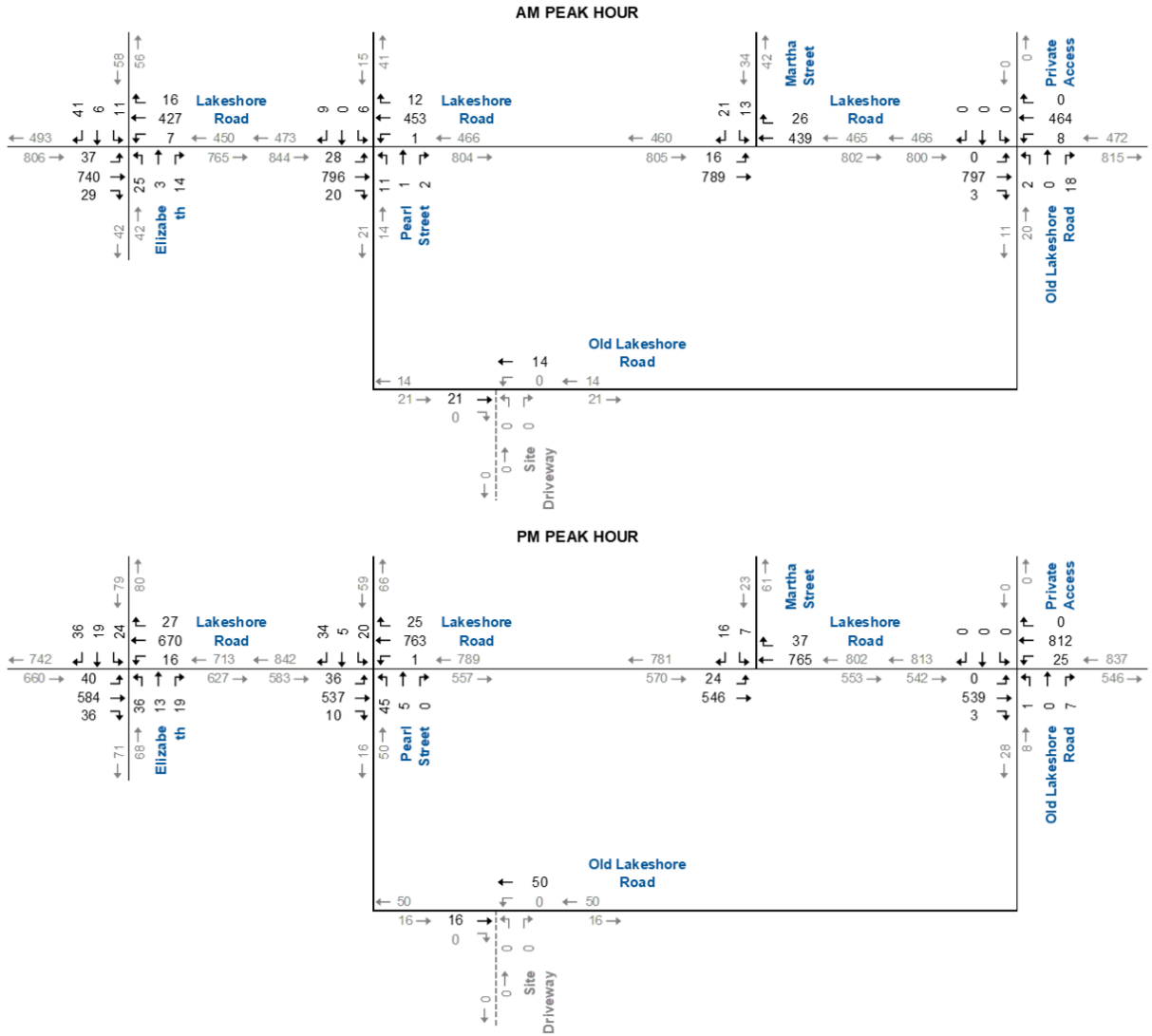
[4] 2083 Old Lakeshore Road, City of Burlington, Transportation Impact and Parking Study, Paradigm, 2024-12



Existing Transit Network

2076 Old Lakeshore Road, Burlington
250220

Figure 2.5



Base Year Traffic Volumes

2076 Old Lakeshore Road, Burlington
250220

Figure 2.6

2.6 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 as they execute the various movements. The delay is related to the number of vehicles desiring to move, 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 to or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds at signalized intersections (50 seconds at unsignalized intersections), the movement is considered to have a LOS F, and remedial measures are usually implemented if feasible.

The operations of the study area intersections were evaluated under existing traffic volumes using Synchro 12 and HCM 2000 procedures. The intersection analysis considered the following measures of performance:

- The LOS for each turning movement. LOS is based on the average control delay per vehicle;
- The volume to capacity ratio (v/c) for each intersection; and
- 95th percentile queue length (m) using Synchro.

Under The Halton Region's TIS Guidelines [5], the following criteria indicate critical conditions and signify that mitigation measures may need to be considered:

- At signalized intersections,
  - Movements increased to v/c 0.85 or above; and
  - Movements increased to v/c 0.95 or above for exclusive turning movements.
- At unsignalized intersections,
  - LOS, based on average delay per vehicle, on individual movements, is expected to operate at a LOS "D" or worse.
- At all intersections,
  - An exclusive turning movement in which the 95th percentile queue will exceed the available storage space.

[5] Halton Region, *Transportation Impact Study Guidelines,* January 2015

Table 2.1 summarizes the results of the analysis for the base year weekday AM and PM peak hour intersection operations. The following critical movements are noted:

AM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by approximately 1 m (less than one vehicle).

PM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 10 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 10 m.

Appendix C contains the supporting detailed Synchro 12 output.

TABLE 2.1: EXISTING INTERSECTION OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	A	B	>	B	A	A	>	A	C	C	>	C	C	C	>	C	B
			Delay	9	12	>	11	6	9	>	9	31	30	>	31	30	30	>	30	12
			V/C	0.08	0.38	>		0.02	0.22	>		0.08	0.02	>		0.05	0.05	>		0.29
			Q	8	55	>		1	28	>		11	6	>		7	10	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	32	-	>		29	-	>		-1	-	>		13	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	>	A	A	A	>	A	D	D	>	D	D	D	>	D	A
			Delay	1	6	>	6	1	2	>	2	53	53	>	53	53	52	>	52	6
			V/C	0.04	0.53	>		0.00	0.31	>		0.22	0.02	>		0.11	0.01	>		0.52
			Q	1	76	>		0	32	>		7	3	>		5	0	>		
			Stor.	45	-	>		15	-	>		20	-	>		5	-	>		
			Avail.	44	-	>		15	-	>		13	-	>		0	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	A	A		A		A	>	A					B		>	B	
			Delay	8	0		0		0	>	0					14		>	14	
			V/C	0.02	0.50				0.30	>						0.09		>		
			Q	0	0				0	>						2		>		
			Stor.	15	-				-	>						-		>		
			Avail.	15	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	C	>	C	<	A	>	A	
			Delay	0	0	>	0	10	0	>	0	<	16	>	16	<	0	>	0	
			V/C	0.00	0.51	>		0.01	0.30	>		<	0.06	>		<	0.00	>		
			Q	0	0	>		0	0	>		<	2	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		15	-	>		<	-	>		<	-	>		
PM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	A	A	>	A	A	A	>	A	D	D	>	D	D	D	>	D	A
			Delay	9	10	>	10	4	4	>	4	36	35	>	36	36	36	>	36	10
			V/C	0.11	0.29	>		0.04	0.33	>		0.12	0.05	>		0.09	0.08	>		0.28
			Q	9	43	>		1	16	>		16	11	>		12	15	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	31	-	>		29	-	>		-6	-	>		8	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	>	A	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	5	7	>	7	7	15	>	15	39	37	>	39	38	37	>	38	13
			V/C	0.13	0.46	>		0.00	0.67	>		0.16	0.01	>		0.07	0.04	>		0.54
			Q	3	26	>		1	149	>		20	4	>		11	10	>		
			Stor.	45	-	>		15	-	>		20	-	>		5	-	>		
			Avail.	42	-	>		14	-	>		0	-	>		-6	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	A	A		A		A	>	A					C		>	C	
			Delay	10	0		0		0	>	0					16		>	16	
			V/C	0.03	0.33				0.49	>						0.07		>		
			Q	1	0				0	>						2		>		
			Stor.	15	-				-	>						-		>		
			Avail.	14	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	B	>	B	<	A	>	A	
			Delay	0	0	>	0	9	0	>	0	<	12	>	12	<	0	>	0	
			V/C	0.00	0.33	>		0.03	0.49	>		<	0.02	>		<	0.00	>		
			Q	0	0	>		1	0	>		<	0	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		14	-	>		<	-	>		<	-	>		

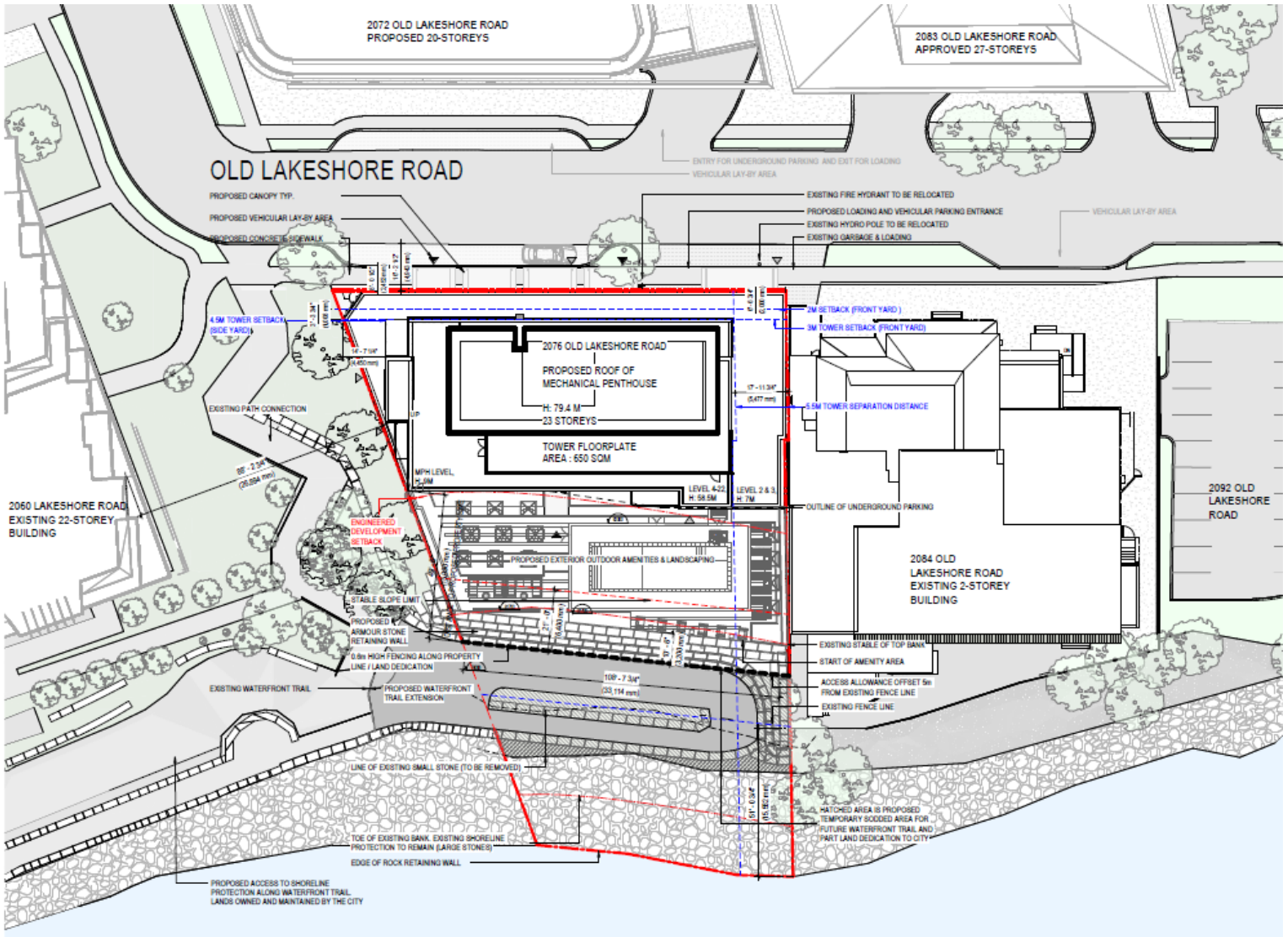
MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

3 Development Concept

3.1 Development Description

The subject site is located at 2076 Old Lakeshore Road, currently operating as the Marquis Lakeside Inn in the City of Burlington. The applicant proposes to redevelop the existing land into a 23-storey mixed-use development comprising 154 hotel rooms, shared amenity space, and 50 residential units. Vehicle access to the site is proposed via a single driveway connection from Old Lakeshore Road, providing entry to both the automated underground parking system and the waste collection/loading area. Short-term parking for the proposed valet service can be accommodated by a lay-by area west of the driveway, as well as parking spaces within the loading area located on the ground floor when not in use. The build-out is anticipated to occur by 2028, with timing subject to change and market conditions.

Figure 3.1 illustrates the site concept plan.



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Site Concept Plan

2076 Old Lakeshore Road, Burlington
250220

Figure 3.1

3.2 Parking Arrangement

The site plan features four levels of automated underground parking, totalling 82 parking spaces: 47 residential spaces (0.94 spaces per unit) and 35 visitor/hotel spaces. The residential allocation reflects the parking rate approved for 2083 Old Lakeshore Road, located across the street from the proposed development. The 35 spaces for hotel guests exceed the Zoning By-Law requirement, as hotel developments within Burlington's Downtown are exempt from providing on-site vehicle parking.

It is understood, however, that parking demand might still be driven by the hotel component and could exceed the on-site allocation of 35 spaces. Therefore, a parking analysis was conducted to assess the potential demand from the hotel and determine where the additional spaces would serve the demand.

The downtown Burlington parking plan [6] is currently being developed by the City of Burlington and its consultant, Stantec. The plan includes a calibrated, context-specific shared parking model that considers local walkability, mixed-use trip chaining, and mode share. It has been designed to project future parking demand for downtown Burlington and various land uses.

Based on information provided by the City's consultant (Stantec), the proposed 154-room hotel is estimated to require 121 parking spaces, according to the Institute of Transportation Engineers (ITE) Parking Generation Manual, using an uncalibrated peak parking demand. After calibration under the fourth scenario, described as a highly aggressive hypothetical approach, the model indicates that parking demand would be 107 spaces.

As the site offers only 35 parking spaces for hotel guests, the remaining 72 spaces will be accommodated in nearby municipal lots, either via self-parking or by extending the valet service. It is understood that the core parking facilities within a 400-metre walking distance of the proposed development currently have limited capacity to handle additional demand. As a result, the remaining demand of 72 spaces will need to use municipal parking lots that offer reserve capacity, which are generally located outside the core area, such as the Waterfront Garage and the John Street North Lot.

[6] Downtown Burlington, Parking Plan – Existing Conditions and Needs Assessment, Prepared by Stantec, January 2025

Utilization charts, as contained in the downtown Burlington parking plan, show that between Friday and Saturday, there is a consistent supply of parking spaces at the Waterfront Garage and the John Street North Lot that can accommodate potential additional demand from the hotel. **Table 3.1** summarizes the available capacity at these two municipal lots. **Figure 3.2** illustrates the location of the municipal lots in relation to the proposed development.

TABLE 3.1: PARKING AVAILABILITY

Day	Hour	Waterfront Garage			John Street North Lot			Available Total
		Utilization[A]	Capacity[B]	Available	Utilization[A]	Capacity[B]	Available	
Friday	9AM - 11AM	30%	349	244.3	60%	164	65.6	**309.9**
Friday	11AM - 1PM	60%	349	139.6	60%	164	65.6	**205.2**
Friday	1PM - 3PM	60%	349	139.6	60%	164	65.6	**205.2**
Friday	3PM - 5PM	30%	349	244.3	60%	164	65.6	**309.9**
Friday	5PM - 7PM	30%	349	244.3	60%	164	65.6	**309.9**
Friday	7PM - 9PM	60%	349	139.6	30%	164	114.8	**254.4**
Saturday	9AM - 11AM	30%	349	244.3	30%	164	114.8	**359.1**
Saturday	11AM - 1PM	30%	349	244.3	30%	164	114.8	**359.1**
Saturday	1PM - 3PM	30%	349	244.3	30%	164	114.8	**359.1**
Saturday	3PM - 5PM	30%	349	244.3	60%	164	65.6	**309.9**
Saturday	5PM-7PM	60%	349	139.6	30%	164	114.8	**254.4**
Saturday	7PM-9PM	80%	349	69.8	30%	164	114.8	**184.6**

A - Downtown Burlington Parking Plan - Existing Conditions and Needs Assessment (Figures 24-35)

B - Downtown Burlington Parking Plan - Existing Conditions and Needs Assessment (Figure 3)



Source: City of Burlington, Downtown Burlington Parking Plan

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Municipal Lot Location

2076 Old Lakeshore Road, Burlington
250220

Figure 3.2

3.3 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation manual [7] provides rates and equations to estimate the peak-hour traffic volumes generated by the proposed development. The following land-use codes were used to estimate the weekday AM and PM peak-hour traffic volumes that the development will generate:

- Multifamily Housing (High-Rise) (LUC 222); and
- Hotel (LUC 310).

Table 3.2 summarizes the forecast site-generated trips. The site's trip generation is estimated to be approximately 62 weekday AM peak hour trips and 85 weekday PM peak hour trips.

These estimates were based on the standardized ITE rates listed above and used the average rates, given that the fitted curve rates did not meet the criteria for use (i.e., not available or low R^2 values). To remain conservative, no reductions accounting for alternative modes of transportation (i.e., transit and active transportation) have been applied.

TABLE 3.2: TRIP GENERATION

ITE Land Use Code / Number of Units/Rooms	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
222 - Multifamily Housing (High-Rise) - 50 units	3	7	**10**	8	5	**13**
310 - Hotel – 154 rooms	27	25	**52**	37	35	**72**
Total Generation	**30**	**32**	**62**	**45**	**40**	**85**

Equations
LUC 221 Avg Rate Per Unit AM = 0.20, PM = 0.26
LUC 310 Avg Rate Per Unit AM = 0.34 | PM = 0.47

The site's trip distribution follows existing travel patterns observed from the collected traffic data, as the surrounding area is primarily residential and reflects commuter travel.

Table 3.3 summarizes the estimated trip distribution.

[7] Institute of Transportation Engineers, *Trip Generation Manual,* 12th ed., (Washington DC: ITE, 2025).

TABLE 3.3: TRIP DISTRIBUTION

Origin/Destination	AM		PM	
	In	Out	In	Out
East via Lakeshore Road	30%	55%	50%	40%
West via Lakeshore Road	60%	35%	40%	50%
North via Elizabeth Street	5%	5%	5%	5%
North via Pearl Street	5%	5%	5%	5%
Total	**100%**	**100%**	**100%**	**100%**

3.4 Hotel Trip Assignment

The hotel generates 52 AM and 72 PM peak-hour vehicle trips based on ITE rates. However, since only 35 parking spaces are available on-site, some hotel guests and visitors are expected to divert to adjacent municipal lots. As noted under sub-section 3.2, the peak parking demand on adjacent lots could be 72 parking spaces.

3.4.1 Adjacent Lot Demand Estimates

To estimate the demand these off-site parking spaces could generate during the weekday AM and PM peak hours, a trip generation rate per off-site parking spaces has been assumed to estimate the number of trips that could be diverted to the adjacent municipal lots. For simplicity, it is assumed that trip demand in the adjacent lots could generate 0.34 trips during the weekday AM peak hour and 0.47 trips during the weekday PM peak hour, consistent with ITE Land Use Code 310 (Hotel) regarding average trip demand per hotel unit.

3.4.2 Proxy Demand Review

For further reference on whether this assumption is plausible, Paradigm has reviewed trip generation data collected at the 124 on Queen Hotel in Niagara-on-the-Lake in November 2024. The hotel has 76 hotel units, restaurants, and a spa, and provides private on-site parking. All on-site parking is reserved for the hotel and amenities, with no on-site public parking available.

The benefits of reviewing this data are that surveys captured continuous trip generation activity using a Miovision Scout Unit from Thursday at midnight till Sunday at midnight, for a total of 72 continuous hours, providing a robust profile of trip generation that can be tied to parking spaces. Data was recorded in 15-minute intervals and subsequently summarized into 60-minute totals to establish hourly arrivals, departures, and peak trip-generation rates over the course of the observation period. The surveys observed a peak parking demand of 73 spaces, and the hotel was fully occupied throughout.

Using the dataset, hourly arrivals and departures were averaged for the peak hour of the adjacent roadway during a weekday condition and converted into trip rates per parking space using the site's observed peak parking demand as the reference condition.

This method directly ties trip activity to actual on-site parking behaviour rather than relying on generalized ITE trip generation rates which are specific to the number of hotel units as opposed to parking supply, offering a more precise representation of turnover characteristics specific to hotel parking operations, producing a context-specific estimate of inbound, outbound, and total two-way vehicle trips over the course of 72 hours capturing a detailed profile of trip generation activity.

Based on the proxy data, the following peak trip generation rates per parking space were observed during the adjacent roadway's peak hours: 0.11 trips during the weekday AM peak hour and 0.40 trips during the weekday PM peak hour. **Appendix D** includes the hotel's proxy survey data.

3.4.3 Comparison

The trip rates per parking space at the proxy hotel site in Niagara-on-the-Lake were slightly lower than those under the simplistic approach of using ITE rates and substituting the number of parking spaces with hotel units.

That difference is likely due to how hotel land uses actually affect trip generation, in that not every hotel trip results in a parked vehicle. A share of hotel activity will always involve passenger drop-offs and pick-ups, taxis, shuttles, rideshares, or quick personal-vehicle stops, and these movements don't occupy a parking space.

3.4.4 Adjacent Lots Proposed Estimates

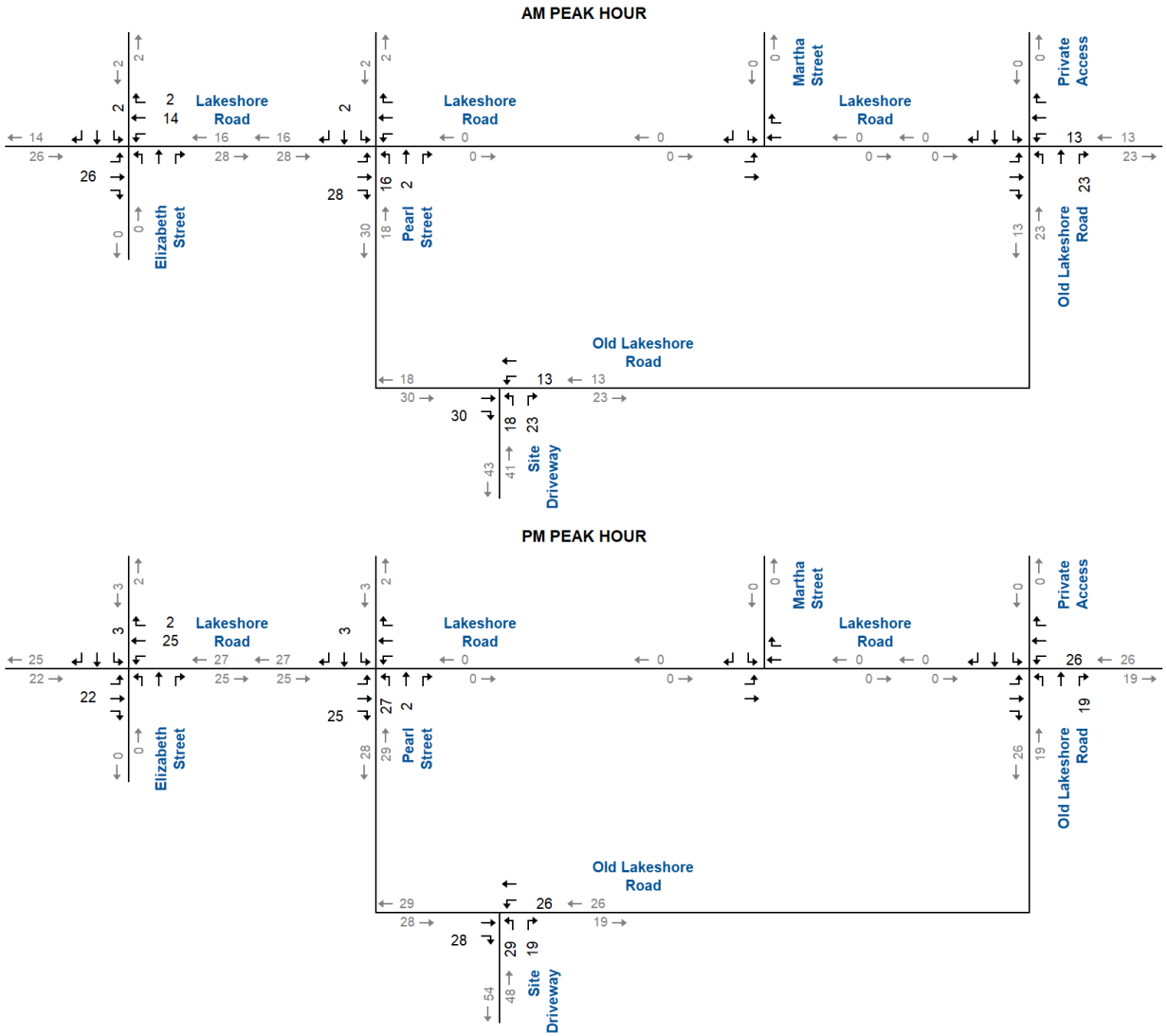
Based on the above and to remain conservative with the analysis, the trips associated with trip generation at the adjacent lots have been calculated using ITE trip rates, assuming the peak parking demand (72 spaces) as the variable rather than the number of hotel units.

Using these rates, it is estimated that 25 trips (13 in, 12 out) during the weekday AM peak hour and 34 trips (17 in, 17 out) during the weekday PM peak hour could be diverted to adjacent municipal lots located at the Waterfront Garage and the John Street North Lot through an equal distribution assumption. Further, it is assumed that 100% of the diverted trips will include a stop at the hotel for pick-up and drop-off, to remain conservative in the analysis.

3.5 Trip Assignment

Using the trip generation estimates, trip distribution, and diverted trip assumptions for the adjacent lots, the trips associated with the proposed development have been assigned to the transportation network.

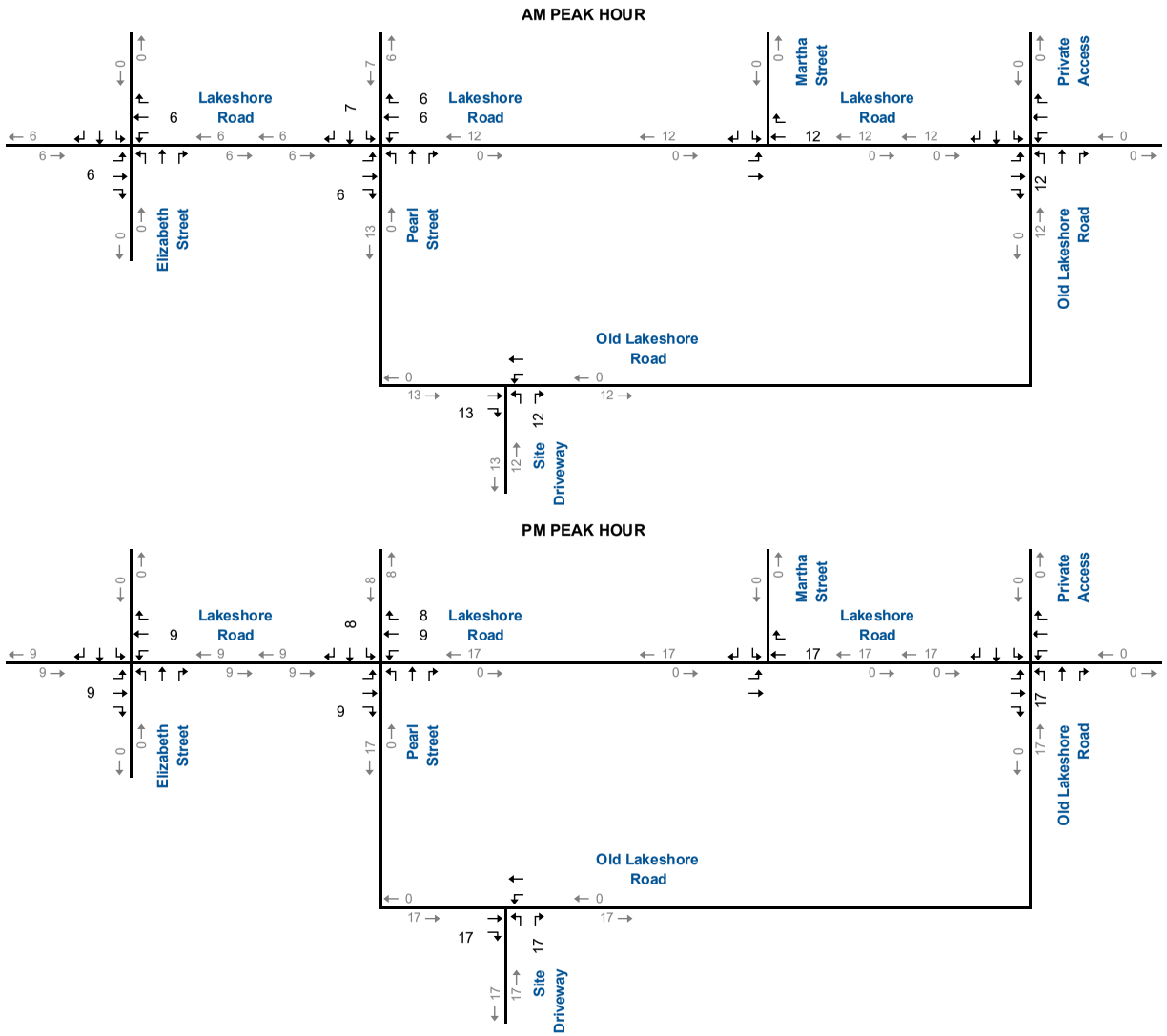
Figure 3.3 illustrates the site-generated and adjacent lot traffic estimates assigned to the transportation network.



Forecast Site Generated Traffic

2076 Old Lakeshore Road, Burlington
250220

Figure 3.3A



Forecast
Adjacent Lot Traffic

2076 Old Lakeshore Road, Burlington
250220

Figure 3.3B

3.6 Vehicle Elevator Operation

The proposed development will provide 82 parking spaces situated in an underground parking structure. Access to the underground parking is via the proposed driveway off Old Lakeshore Road.

Automobile elevators are proposed as an alternative to ramps within the parking garage, allowing cars to be pulled into an elevator off the street and enter the parking garage by travelling vertically between levels. An automobile elevator would occupy significantly less space than ramps within a parking garage. The width of the driveway and the opening in the building required for two automobile elevators side by side (in this case, approximately 7 metres) would be similar to the width required for a garage with one lane entering and one lane exiting.

One significant operational difference between automobile elevators and ramps is that each automobile elevator can only handle one vehicle at a time. In contrast, many vehicles could be on a ramp at the same time, all travelling to parking spaces. Because of this, an alternative parking facility that utilizes automobile elevators to access the garage may require space for vehicles to wait for the elevator, which this report refers to as a "valet staging area," particularly during peak usage times.

An important part of the pick-up and drop-off (PUDO) operation is to determine if any queuing issues will occur, given the time required to park and retrieve a vehicle from the automobile elevator system, which is proposed to operate as a dual-lane entry system during peak hours. During the weekday morning peak hour, it is expected that both car elevators will cater to outbound vehicles leaving the site. Conversely, during the afternoon peak hour, a reversal will occur, with both car elevators servicing inbound demand.

3.6.1 Time of Day Distribution

Time-of-day (TOD) distribution has been included in the assessment for vehicle elevator operations. TOD distribution is a critical factor when analyzing traffic impacts or operational demand for different land uses, particularly when peak trip periods differ. Trip generation rates alone provide a static estimate of vehicle activity, but without considering the temporal distribution of those trips, analyses may misrepresent actual peak demand and operational requirements.

Different land uses exhibit unique peak-hour behaviours. For example, a hotel may experience its highest trip generation during midday, corresponding to check-ins, check-outs, or guest movements. In

contrast, a high-rise residential building may peak in the late afternoon, reflecting evening departures or arrivals. The non-overlapping nature of these peaks means that the peak trip estimates alone do not capture the timing of vehicle arrivals and departures, which is crucial for input into the assessment.

For facilities with constrained access or specialized vehicle handling, such as car elevators in multi-level parking structures, TOD distribution directly informs operational staffing and capacity planning. By applying TOD distribution data, the assessment can determine when the elevator will experience peak loading, how many vehicles will queue, and whether additional staging areas or valet resources are required.

3.6.2 Hotel Daily Trip Demand

Trip demand for the hotel was estimated using a methodology based on the parking supply rather than the number of units. Given the limited parking supply proposed for the hotel component, traditional ITE-based trip rates would significantly overestimate the number of trips that would utilize the on-site parking facilities during the peak hours. Instead, trips associated with the on-site parking supply have been calculated using trip rates assumed per parking space.

As shown in **Table 3.1**, the projected trip generation for the hotel land-use is 52 weekday AM and 72 weekday PM peak hour trips, which is significantly higher than the proposed on-site parking supply of 35 spaces for hotel guests. However, not all trips to the hotel will require on-site parking, as a portion of trips are expected to consist of passenger drop-offs and pick-ups, such as taxis, shuttles, or personal vehicles making short-term stops.

Daily trip rates per parking space were determined using ITE's weekday and Saturday trip rates, which estimate that the 35 spaces could generate 204 trips on a weekday and 242 on a Saturday.

3.6.3 Residential Daily Trip Demand

Regarding the residential assumption, a similar approach was adopted to remain consistent with the methodology. However, as a high-rise residential building does not provide daily trip estimates, the projections were inferred using ITE's trip generation rates for the generator's peak hour, based on a High-Rise Residential Building land use code. This results in an assumed peak generation rate of 0.46 trips per unit occurring during the weekday PM peak hour. No data is available for a Saturday peak hour.



To estimate vehicle activity throughout the day, hourly trip-generation projections have been developed based on ITE's vehicle TOD distribution plots for a high-rise residential building, similar to what was developed for the hotel component. However, because the generator's peak hour is known for the weekday PM peak hour, daily trips have been calculated by dividing the total trips by the proportion that occurred during the generator's peak hour, which was from 6 PM to 7 PM. Based on this method, the 50 residential units could generate 247 daily trips.

3.6.4 Peak Hour Projections

To estimate hourly vehicle activity, TOD distribution plots from ITE have been applied to the hotel and residential land uses. By applying a TOD distribution of trips to and from the parking garage for both the hotel and residential components, which exhibit differing peak hours, interactions between overlapping or non-overlapping peaks can be assessed to account for the timing of vehicle movements and inform inputs into the vehicle elevator assessment.

Weekday and Saturday conditions have been completed; however, as noted previously, no Saturday trip-generation data are provided for the residential component. As a result, the residential TOD trips for a weekday were assumed for the Saturday conditions.

Based on the ITE TOD distribution plots, the vehicle elevator is projected to have a peak demand occur on a weekday between 5 PM and 6 PM with a total trip demand of 37 vehicles (16 hotel trips and 21 residential trips). Similarly, for a Saturday condition, the peak occurs between 2 PM and 3 PM, with a total trip demand of 37 vehicles (27 hotel trips and 10 residential trips).

The TOD distribution calculations are provided in **Appendix E**

3.6.5 Proxy Demand Review

To further support the plausibility of the above assumptions, Paradigm has reviewed trip generation data collected at the 124 Queen Street Hotel in Niagara-on-the-Lake, as originally referenced in sub-section 3.1.3 of the report. Based on the proxy data, the peak trip rate per parking stall at the surveyed hotel occurred on Saturday between 2:45 PM and 3:45 PM, with a rate of 0.45 trips per parking space. The trip rate is significantly lower than what ITE estimates for the hotel's peak hour on a Saturday; however, it is comparable to the weekday peak hour.



With respect to the residential component, Paradigm has reviewed trip generation data collected at a high-rise development at 2025 Maria Street in Burlington, collected in November 2022. The high-rise development has 154 residential units. All on-site parking is reserved for residents; no on-site visitor or public parking is available. **Appendix D** includes the proxy survey data for 2025 Maria Street.

The benefits of reviewing this data are that surveys captured continuous trip generation activity using a Miovision Scout Unit from Thursday at midnight till Sunday at midnight, for a total of 72 continuous hours, providing a robust profile of trip generation that can be tied to parking spaces. Data was recorded in 15-minute intervals and subsequently summarized into 60-minute totals to establish hourly arrivals, departures, and peak trip-generation rates over the course of the observation period. Using the dataset, hourly arrivals and departures were averaged and converted into trip rates per parking space based on 2025 Maria Street's observed peak parking demand of 123 vehicles.

Based on the proxy data, the residential peak trip generation rate per parking space was observed at 0.27 on a weekday between 3:45 PM and 4:45 PM and is significantly lower than the ITE estimates.

Comparing proxy survey data from a hotel and a residential high-rise building, peak trip demand is projected to be significantly lower than the ITE estimates. After accounting for TOD distribution, the peak trip demand is projected at 23 vehicles (11 hotel trips and 13 residential trips) occurring on a weekday between 3:45 PM and 4:45 PM.

To remain conservative, the analysis has utilized the ITE trip projections.

3.6.6 Parking Operations

Residents and hotel guests arriving by vehicle will pull into the short-term loading and drop-off zone along Old Lakeshore Road, situated in front of the proposed building and serving as its layby area. A valet station will be situated here, where attendants will receive vehicles and drive them to the on-site garage and into the vehicle elevator.

As this loading and drop-off zone cannot be reserved exclusively for valet operations, it will remain available for use by the general public. If the zone is occupied at the time of arrival, valet attendants will direct vehicles immediately to the designated staging area adjacent to the car elevator, which can accommodate up to four vehicles. When the vehicle elevator is in use, vehicles will be temporarily parked in this staging area until the elevator becomes available.

3.6.7 Elevator Service Rate

Based on preliminary vehicle elevator information gathered (see **Appendix F)**, an estimate of the elevator's lift capacity was determined.

Typically, a mechanical vehicle elevator for vertical vehicle conveyance is specified to travel at a speed of approximately 50 feet per minute. Given that the bottom level of the parking structure is approximately 40 feet below ground level (assuming each parking level has a floor-to-floor height of 10 feet), it would take the elevator approximately 48 seconds to travel between Old Lakeshore Road and level four, 36 seconds between level three, 24 seconds between level two, and 12 seconds between level one of the parking garage.

With four parking levels, it is expected that valet attendants will initially use the upper levels of underground parking when demand is low and then expand vehicle parking to the lower levels as demand increases. Given that levels two to four offer equal parking capacity, the average vertical lift for parking or retrieving a vehicle has been considered.

This method provides a representative estimate of typical elevator usage without making the model overly complex. Because the vertical spacing between levels is consistent and the elevator moves at a constant speed, the average travel distance and, consequently, the average travel time provide a valuable and balanced input for planning. It simplifies queue and cycle time estimates while still reflecting the expected distribution of trips, making it a fair and efficient assumption for early-stage garage design or operational assessments. Based on this, the average service rate for the vehicle elevator was calculated at 30 seconds.

Under the "inefficient scenario," where a vehicle is being parked and the elevator then returns empty to Old Lakeshore Road to load another car for parking, an additional 30 seconds of vertical conveyance has been added, resulting in a total of 60 seconds for the overall elevator service rate. Based on this estimate, the vehicle elevator would theoretically be able to handle approximately 60 vehicles per hour if they were each used inefficiently for parking only or retrieving only. With two elevator lifts, this translates into a theoretical operating capacity of approximately 120 vehicles per hour.



3.6.8 Pick-Up Drop-Off Service Time

The average service time for the site valet vehicle drop-off and retrieval is estimated to be 3 minutes and 15 seconds (195 seconds) based on the site layout and approximate interaction times. The following summarizes the valet service time estimation:

- Exchange between the valet attendant and driver (15 seconds)
- Attendant drives the vehicle from the lay-by area to the vehicle elevator (20 seconds)
- Elevator Door Opening/Closing (10 seconds)
- Vehicle elevator descends/ascends (60 seconds)
- Elevator Door Opening/Closing (10 seconds)
- Attendant parks vehicle (20 seconds)
- Attendant returns to valet desk (60 seconds)
- Total service rate per valet: 3:15 minutes or 18.5 vehicles (3600 seconds/195 seconds)

3.6.9 Queue Assessment

To determine the queue implications of this system, a multi-channel queuing model has been utilized. The multi-channel queueing model assumes that arrivals follow a Poisson probability distribution and that service times are exponentially distributed, with all arriving vehicles performing at the same rate.

The multi-channel formula has been used to calculate the probability of vehicle queues, assuming the following:

- m = the number of valet drivers – five to six valet drivers have been assumed.
- λ = average arrival rate – The average arrival rate is approximately 37 vehicles per hour.
- μ = average service rate – The average service rate for each valet driver is 18.5, representing the number of vehicles each valet can park within an hour.

An iterative approach was used to determine the optimal number of valet attendants required to accommodate the proposed trip demand during the analysis peak hour, ensuring that the probability of the vehicle queue extending beyond the designated valet staging area of four vehicles falls within the 95th percentile.

Using the 95th percentile is standard practice when evaluating queuing-sensitive operations because it captures almost all peak-period variability while avoiding the distortion caused by rare outlier conditions. In valet systems, where delays compound quickly and customer wait times directly influence service quality, planning to this confidence level helps ensure that staffing can absorb short surges in arrivals and departures without the system breaking down.

Table 3.4 outlines the operating characteristics. The queuing analysis is provided in **Appendix G**.

Based on the calculations, assuming five valet attendants are provided, the 95th percentile queue would be approximately five vehicles or fewer. However, if the six valet attendants are provided, the 95th percentile queue would be approximately four vehicles or fewer.

TABLE 3.4: VEHICLE ELEVATOR OPERATIONAL SUMMARY

Five Valet Attendants		
Operating Characteristic Weekday PM Peak Hour	Results	
Average Valet Utilization (p)	40%	
Average number of vehicles in the PUDO(L_q)	0.04 vehicles	
Average time spent in the PUDO (W_q)	0:06 min	
Probability (% of time) PUDO is empty (P_0)	13%	
Queue Number	Probability	Cumulative
0	13.4%	13.4%
1	26.9%	40.3%
2	26.9%	67.2%
3	17.9%	85.1%
4	9.0%	94.1%
5	3.6%	97.7%
6	1.4%	99.1%
7+	0.9%	100.0%
Six Valet Attendants		
Operating Characteristic Weekday PM Peak Hour	Results	
Average Valet Utilization (p)	33%	
Average number of vehicles in the PUDO(L_q)	0.01 vehicles	
Average time spent in the PUDO (W_q)	0:01 min	
Probability (% of time) PUDO is empty (P_0)	14%	
Queue Number	Probability	Cumulative
0	13.5%	13.5%
1	27.0%	40.5%
2	27.0%	67.5%
3	18.0%	85.5%
4	9.0%	94.5%
5	3.6%	98.1%
6	1.2%	99.3%
7+	0.7%	100.0%

3.6.10 Temporary Staging Areas

Beyond the dedicated on-site valet staging area, there is space within the site's loading area that can hold an additional four vehicles. This built-in buffer provides the valet team with extra room in the event of short bursts of higher-than-expected activity. Short-term parking for the proposed valet service can be accommodated by a lay-by area west of the driveway when not in use

When considering only the extra capacity in the loading area, the on-site staging can be temporarily increased to 5 or even 8 vehicles. During a hypothetical surge beyond the projected peak demand of 37 vehicles, adding an extra space in the loading area to raise capacity to 5 spaces allows the system to accommodate up to 48 vehicles within an hour without spilling onto Old Lakeshore Road. The corresponding queuing analysis is provided in **Appendix G**.

With six dedicated valet staging positions, four additional temporary spaces, and up to three additional spaces along the lay-by on Old Lakeshore Road, the facility has multiple layers of operational flexibility. These elements ensure the PUDO area can comfortably absorb both projected peaks and short-term fluctuations in activity.

3.7 Site Access Review

Heavy vehicle and site circulation were assessed using AutoTURN swept path analysis software. two design vehicles were used in the analysis, representing the large vehicles expected to use the site; garbage truck and moving truck as well as a typical passenger vehicle:

- Transportation Association of Canada (TAC) Medium Single Unit (MSU);
- TAC Passenger Car (P);

Appendix H contains the AutoTURN swept path analysis. No conflicts with the proposed on-site geometry are noted. At the Site Plan Stage, a detailed signage and pavement marking plan will be prepared for the site.

4 Future Conditions

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

- Background traffic forecast;
- Total traffic forecast;
- Level of service analysis for background traffic (pre-development); and
- Level of service analysis for total traffic (post-development).

Two horizon years have been assessed in this study: the full build-out year (Year 2028) and five years from full build-out of the development (Year 2033).

4.1 Forecast Traffic Volumes

Future traffic volumes near the subject site are estimated to consist of:

- Generalized background traffic growth of 1% per annum, as identified during pre-study consultation;
- Traffic generated by the following background development:
  - **2072 Lakeshore Road** [8] – 20-storey high-rise residential building with 165 units and 583 m² (6,270 ft²) of retail space.
  - **2083 Old Lakeshore Road** [9] – 27-storey mixed-use building with approximately 196 units and 418 m² (4,502 ft²) of retail space.
  - **374 Martha Street** [10] – 26-storey residential condominium building with 192 units and 3,520 ft² of ground floor retail space.
  - **2107 Old Lakeshore Road** [11] - 27-storey mixed-use building that will contain 599 m² (6,451 ft²) of retail space and 150 condominium units.

[8] LEA Consulting Limited, *Transportation Impact Study 2072 Lakeshore Road,* December 2024
[9] Paradigm Transportation Solutions Limited, *2083 Old Lakeshore Road Transportation Impact and Parking Study*, December 2024
[10] Paradigm Transportation Solutions Limited, *374 Martha Street Transportation Impact Study,* September 2015
[11] Paradigm Transportation Solutions Limited, *Old Lakeshore Road Transportation Impact Study, Parking Study and TDM Options Report,* February 2020

- **2100 Lakeshore Road** [12] – 27-storey mixed-use building with 310 residential units and 701.1 m² (7,547 ft²) of retail space at grade.
- **2069 Lakeshore Road** [13] – 29-storey mixed-use building that will contain 675 m² (7,262 ft²) of retail space, 280 condominium units and two live/work units.

- The projected background development traffic volumes have been incorporated into the 2028 future horizon analysis.
- Traffic generated by the subject site.

Appendix I contains the individual trip assignments for the background development included in this study.

The future traffic volumes are illustrated in the following figures:

- **Figure 4.1** illustrates the 2028 horizon background traffic volumes.
- **Figure 4.2** illustrates the 2028 horizon total traffic volumes.
- **Figure 4.3** illustrates the 2033 horizon background traffic volumes.
- **Figure 4.4** illustrates the 2033 horizon total traffic volumes.

4.1.1 Existing Motel Trip Reduction

The development site is currently occupied by the Marquis Lakeside Inn, which supports 11- motel units. As the site will be redeveloped to support the proposed development, trips generated by the existing inn will no longer contribute to traffic volumes within the study area. Therefore, the estimated trips associated with the inn have been removed from the future total horizon traffic forecasts. Land-use code 320 (Motels) was used to estimate the weekday AM and PM peak-hour traffic volumes that the existing Inn currently generates.

Table 4.1 summarizes the estimated site-generated trips from the existing Inn. The site's trip generation is estimated to be approximately 4 weekday AM and PM peak hour trips. To remain conservative, no reductions accounting for alternative modes of transportation (i.e., transit and active transportation) have been applied.

[12] LEA Consulting Limited, *2100 Lakeshore Road Transportation Impact Study,* August 2019

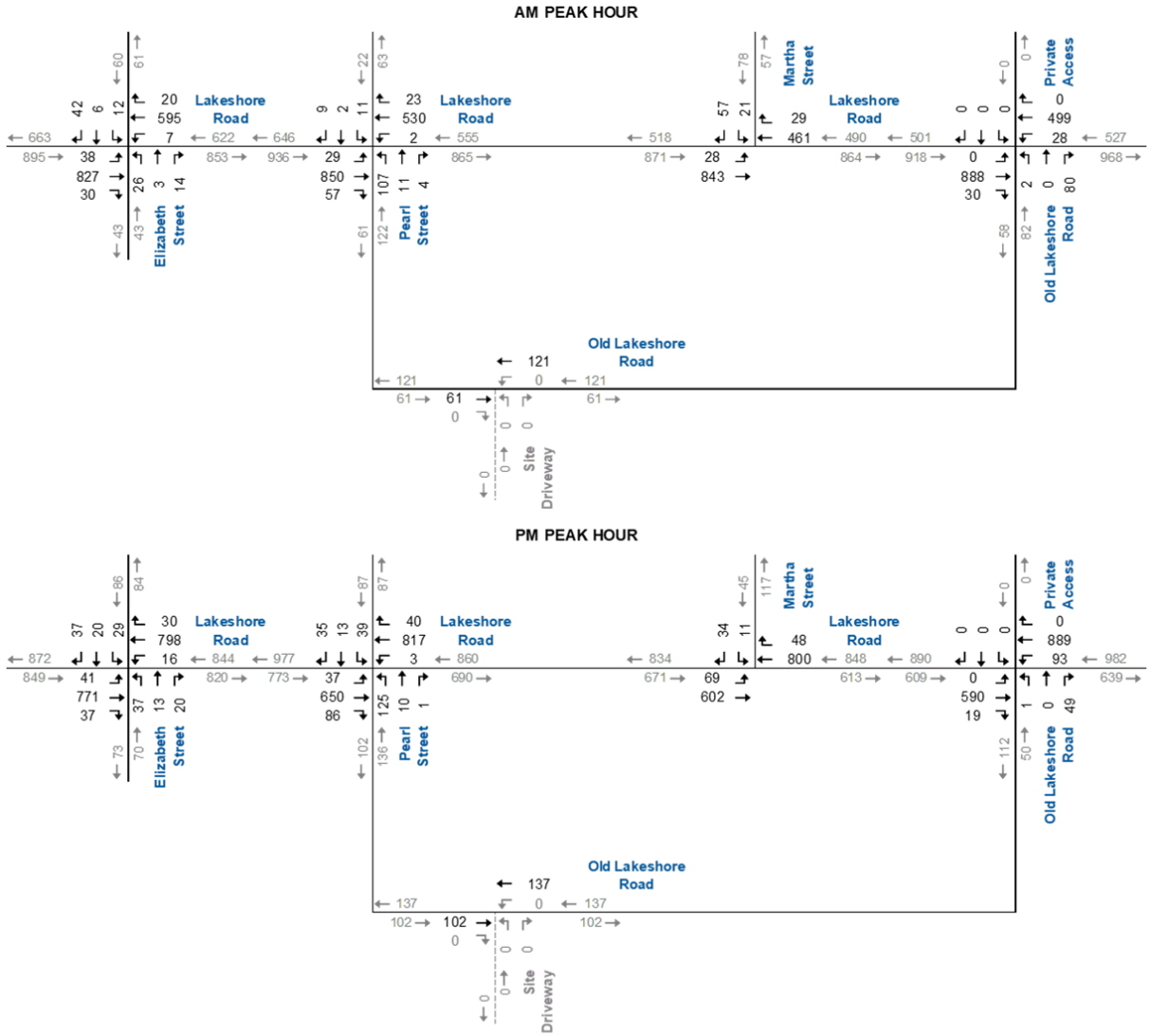
[13] Paradigm Transportation Solutions Limited, *2069 Lakeshore Road Transportation Impact Study, Parking Study and TDM Options Report,* August 2018

TABLE 4.1: TRIP GENERATION

ITE Land Use Code / Number of Units/Rooms	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
320 - Motel – 11 rooms	2	2	**4**	2	2	**4**
Total Generation	**2**	**2**	**4**	**2**	**2**	**4**

Equations
LUC 320 Eqn Per Room AM T = 0.32(X) + 0.48 | PM Avg Rate Per Unit = 0.37

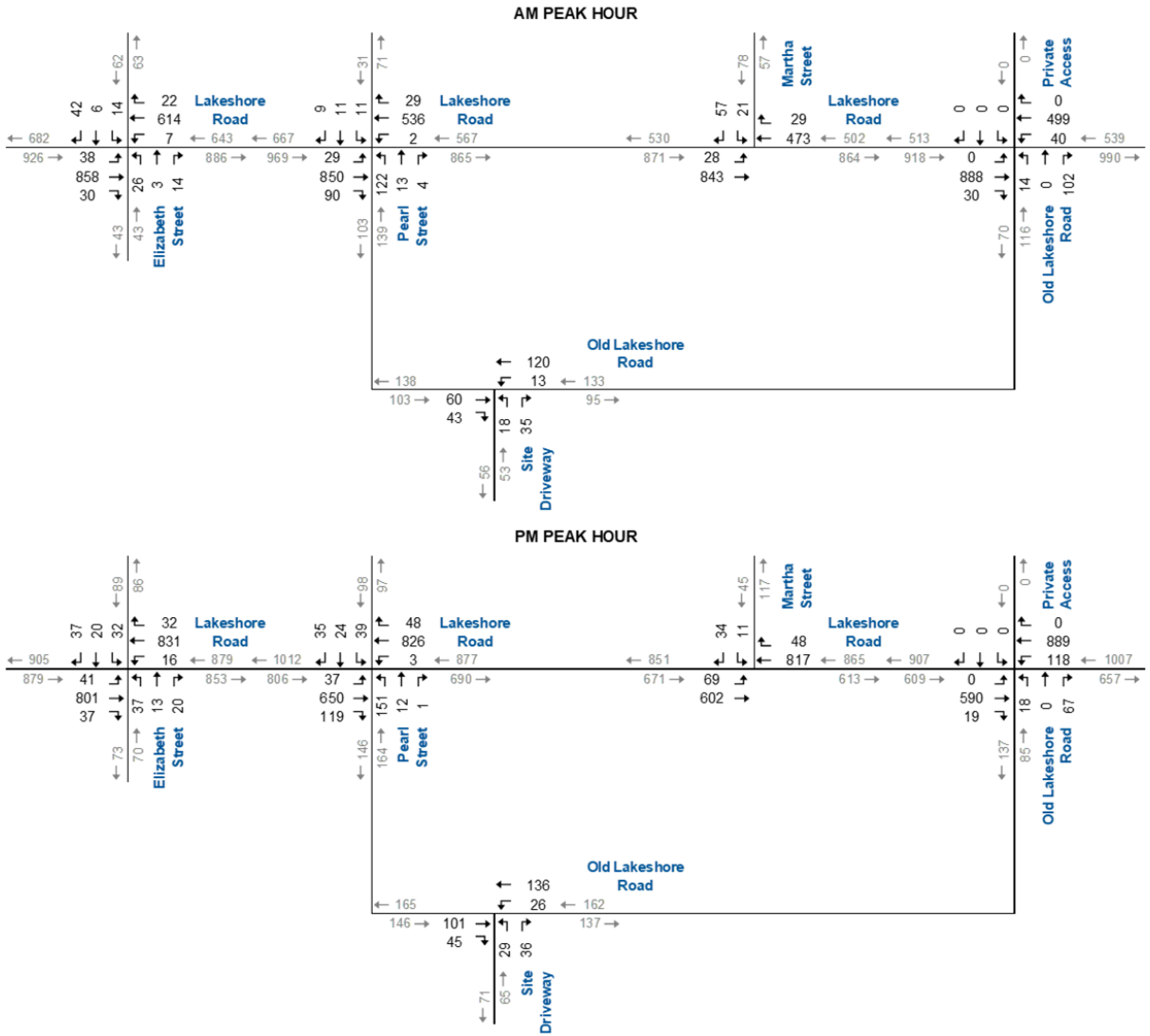
The Inn's trip distribution is expected to follow existing travel patterns observed from the collected traffic data, as the surrounding area is primarily residential and reflects commuter travel.



Background Traffic Volumes Opening-Year Horizon

2076 Old Lakeshore Road, Burlington
250220

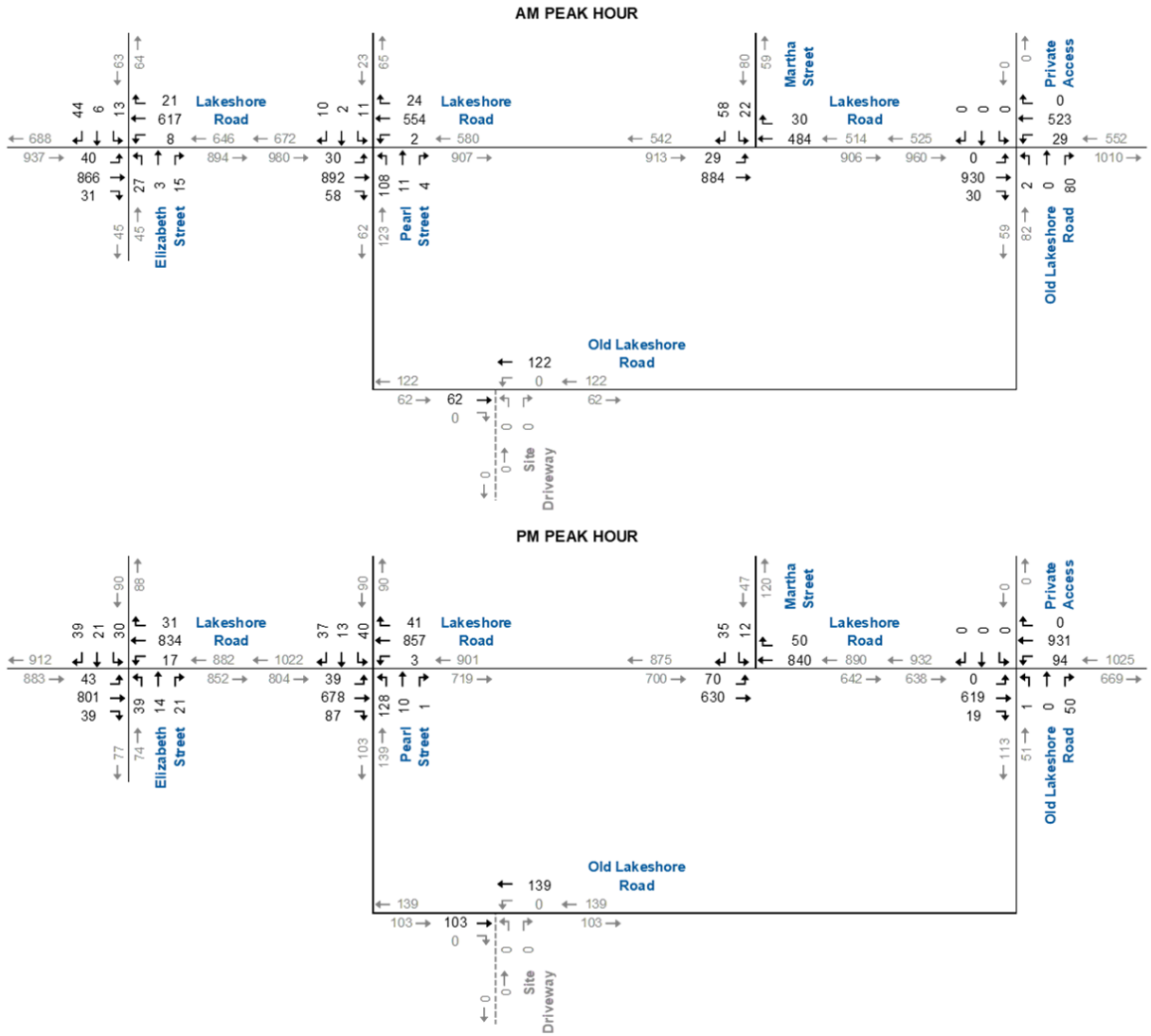
Figure 4.1



Total Traffic Volumes Opening-Year Horizon

2076 Old Lakeshore Road, Burlington
250220

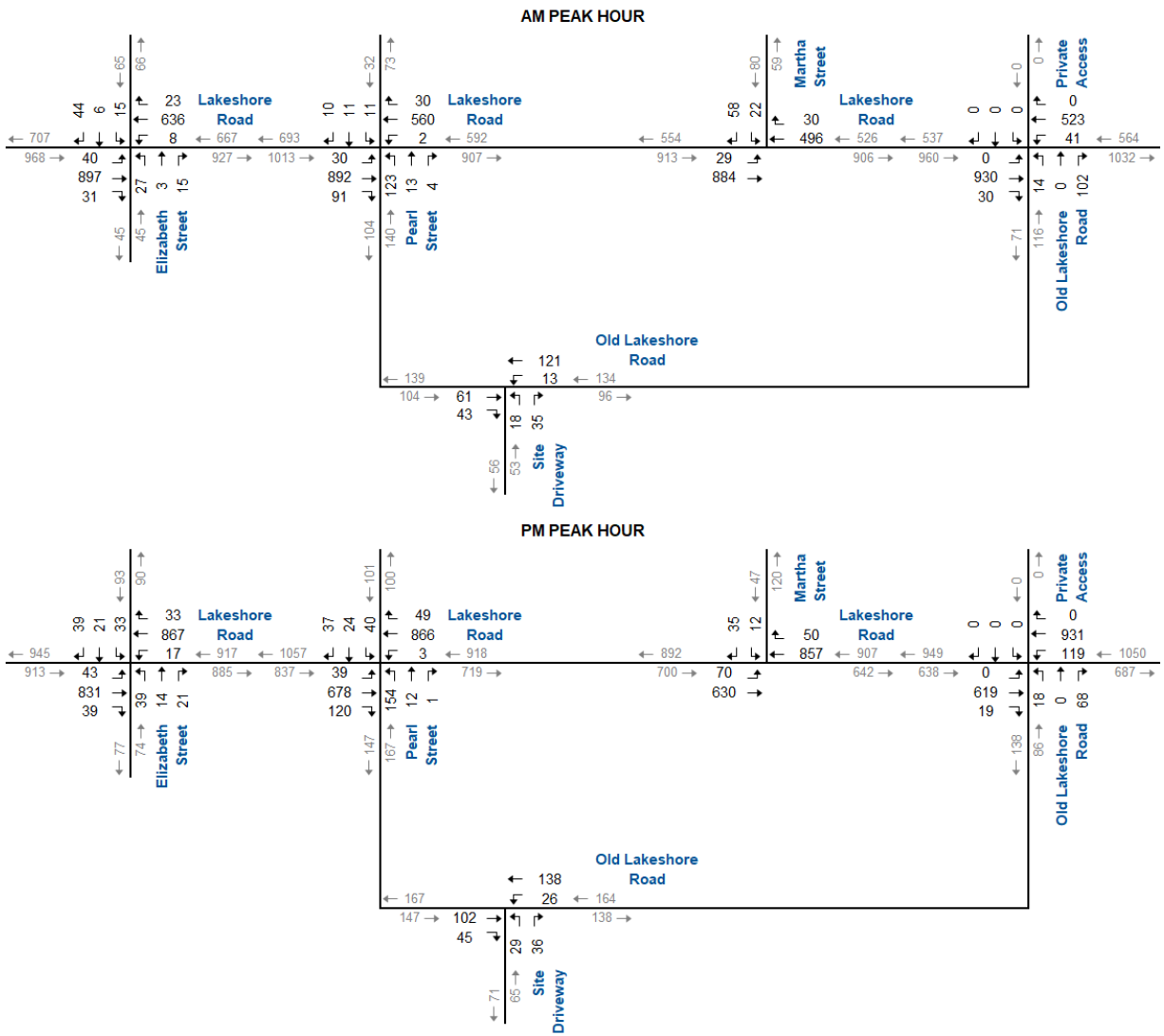
Figure 4.2



Background Traffic Volumes Five-Year Horizon

2076 Old Lakeshore Road, Burlington
250220

Figure 4.3



Total Traffic Volumes Five-Year Horizon

2076 Old Lakeshore Road, Burlington
250220

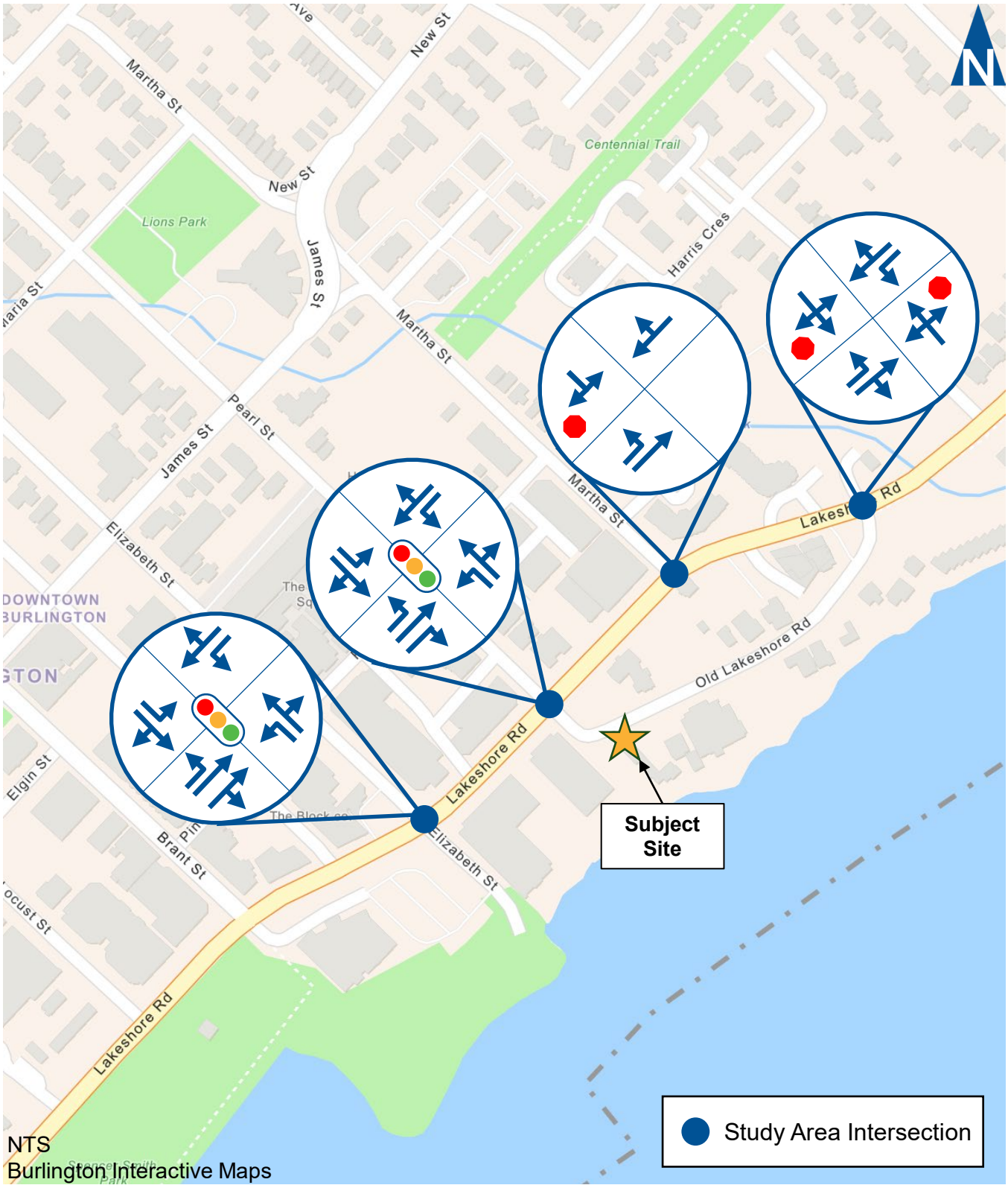
Figure 4.4

4.2 Future Lane Configuration

The City of Burlington has advised that Lakeshore Road is proposed to have changes to the roadway network and is currently being programmed into the capital budget, and includes the following changes:

- Lakeshore Road and Elizabeth Street:
  - Westbound: Reduction in traffic lanes from three (one left turn lane, one through lane, and one through-right lane) to two (one left turn lane and one through-right lane).
- Lakeshore Road and Pearl Street,
  - Eastbound: Convert the through-right lane to a through right turn lane.
  - Westbound: Reduction in traffic lanes from three (one left turn lane, one through lane, and one through-right lane) to two (one left turn lane and one through-right lane).

Figure 4.5 illustrates the future lane configuration.



Future Lane Configuration & Traffic Control

2076 Old Lakeshore Road, Burlington
250220

Figure 4.5

4.3 Opening-Year Horizon

The study area intersection operational analysis follows the same methodology used for existing conditions. No changes to the existing lane configurations or traffic control are assumed.

4.3.1 Background Traffic Operations

Table 4.2 summarizes the Opening-Year horizon background traffic level of service conditions.

AM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by approximately 20 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.

PM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 10m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 30 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 15 m.

Appendix J contains the detailed Synchro 12 reports.

TABLE 4.2: OPENING YEAR HORIZON – BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	A	B	>	B	A	B	>	B	C	C	>	C	C	C	>	C	B
			Delay	10	12	>	12	7	14	>	14	31	30	>	31	31	30	>	30	14
			V/C	0.12	0.42	>		0.02	0.58	>		0.08	0.02	>		0.05	0.05	>		0.43
			Q	9	65	>		1	121	>		12	6	>		10	10	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	31	-	>		29	-	>		-2	-	>		10	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	A	>	A	D	D	>	D	D	D	>	D	A
			Delay	2	7	0	6	4	6	>	6	50	38	>	48	42	41	>	41	10
			V/C	0.05	0.63	0.04		0.01	0.42	>		0.65	0.05	>		0.06	0.02	>		0.63
			Q	1	78	0		1	74	>		40	6	>		7	5	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	44	-	-		14	-	>		-20	-	>		-2	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	A	A		A		A	>	A					C		>	C	
			Delay	9	0		0		0	>	0					16		>	16	
			V/C	0.03	0.54				0.31	>						0.20		>		
			Q	1	0				0	>						6		>		
			Stor.	15	-				-	>						-		>		
			Avail.	14	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	B	A	>	A	<	C	>	C	<	A	>	A	
			Delay	0	0	>	0	11	0	>	1	<	24	>	24	<	0	>	0	
			V/C	0.00	0.59	>		0.05	0.32	>		<	0.32	>		<	0.00	>		
			Q	0	0	>		1	0	>		<	10	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		14	-	>		<	-	>		<	-	>		
PM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	B	B	>	B	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	12	11	>	11	5	12	>	12	36	35	>	36	36	36	>	36	13
			V/C	0.23	0.38	>		0.05	0.75	>		0.13	0.05	>		0.12	0.09	>		0.58
			Q	12	59	>		1	118	>		17	11	>		16	15	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	28	-	>		29	-	>		-7	-	>		4	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	5	7	1	6	7	17	>	17	44	36	>	44	39	38	>	38	16
			V/C	0.16	0.54	0.06		0.01	0.73	>		0.46	0.03	>		0.13	0.06	>		0.66
			Q	3	30	1		1	180	>		47	7	>		18	13	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	42	-	-		14	-	>		-27	-	>		-13	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	B	A		A		A	>	A					C		>	C	
			Delay	10	0		1		0	>	0					18		>	18	
			V/C	0.10	0.37				0.52	>						0.14		>		
			Q	2	0				0	>						4		>		
			Stor.	15	-				-	>						-		>		
			Avail.	13	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	B	>	B	<	A	>	A	
			Delay	0	0	>	0	9	0	>	1	<	13	>	13	<	0	>	0	
			V/C	0.00	0.37	>		0.10	0.54	>		<	0.11	>		<	0.00	>		
			Q	0	0	>		3	0	>		<	3	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		12	-	>		<	-	>		<	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
* - V/C ratio less than 0.01

4.3.2 Total Traffic Operations

Table 4.3 summarizes the Opening-Year horizon total traffic level of service conditions.

AM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 25 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.
- Old Lakeshore Road & Lakeshore Road (Unsignalized)
  - Northbound Approach: Forecast to operate at LOS D with a v/c ratio less than 0.50. Although classified as a critical movement, this approach is expected to operate well within capacity (i.e. a v/c ratio of 0.46).

PM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 10 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by approximately 40 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 15 m.

The proposed site connection to Old Lakeshore Road is forecast to operate with acceptable levels of service. Delays for the site driveway are forecast to operate at LOS B or better with a v/c ratio less than 0.10 during the weekday peak hours. The 95th percentile queue length is expected to be less than one vehicle.

Appendix K contains the detailed Synchro 12 reports.

TABLE 4.3: OPENING YEAR HORIZON – TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	A	B	>	B	A	B	>	B	C	C	>	C	C	C	>	C	B
			Delay	10	12	>	12	7	14	>	14	31	30	>	31	31	30	>	30	14
			V/C	0.13	0.44	>		0.02	0.59	>		0.08	0.02	>		0.06	0.05	>		0.44
			Q	9	68	>		1	97	>		12	6	>		10	10	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	31	-	>		29	-	>		-2	-	>		10	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	A	>	A	D	D	>	D	D	D	>	D	B
			Delay	2	7	0	6	4	7	>	7	52	37	>	50	40	40	>	40	11
			V/C	0.05	0.64	0.06		0.01	0.43	>		0.68	0.05	>		0.05	0.05	>		0.65
			Q	1	75	0		1	81	>		44	7	>		7	8	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	44	-	-		14	-	>		-24	-	>		-2	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	A	A		A		A	>	A					C		>	C	
			Delay	9	0		0		0	>	0					16		>	16	
			V/C	0.03	0.54				0.32	>						0.20		>		
			Q	1	0				0	>						6		>		
			Stor.	15	-				-	>						-		>		
			Avail.	14	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	B	A	>	A	<	D	>	D	<	A	>	A	
			Delay	0	0	>	0	12	0	>	1	<	28	>	28	<	0	>	0	
			V/C	0.00	0.59	>		0.07	0.32	>		<	0.46	>		<	0.00	>		
			Q	0	0	>		2	0	>		<	17	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		13	-	>		<	-	>		<	-	>		
	Site Driveway & Old Lakeshore Road/Pearl Street	TWSC	LOS		A	>	A	<	A		A	A		>	A					
			Delay		0	>	0	<	1		1	9		>	9					
			V/C		0.07	>		<	0.00*			0.07		>						
			Q		0	>		<	0			2		>						
PM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	B	B	>	B	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	13	11	>	11	6	14	>	14	36	35	>	36	36	36	>	36	14
			V/C	0.26	0.39	>		0.05	0.78	>		0.13	0.05	>		0.13	0.09	>		0.61
			Q	12	62	>		2	153	>		17	11	>		17	15	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	28	-	>		28	-	>		-7	-	>		3	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	5	7	1	6	7	17	>	17	48	36	>	47	39	38	>	38	16
			V/C	0.17	0.54	0.08		0.01	0.75	>		0.55	0.03	>		0.13	0.09	>		0.70
			Q	3	30	1		1	188	>		56	8	>		18	16	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	42	-	-		14	-	>		-36	-	>		-13	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	B	A		A		A	>	A					C		>	C	
			Delay	10	0		1		0	>	0					18		>	18	
			V/C	0.10	0.37				0.53	>						0.14		>		
			Q	2	0				0	>						4		>		
			Stor.	15	-				-	>						-		>		
			Avail.	13	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	C	>	C	<	A	>	A	
			Delay	0	0	>	0	10	0	>	1	<	18	>	18	<	0	>	0	
			V/C	0.00	0.37	>		0.13	0.54	>		<	0.24	>		<	0.00	>		
			Q	0	0	>		4	0	>		<	7	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		11	-	>		<	-	>		<	-	>		
	Site Driveway & Old Lakeshore Road/Pearl Street	TWSC	LOS		A	>	A	<	A		A	B		>	B					
			Delay		0	>	0	<	1		1	10		>	10					
			V/C		0.09	>		<	0.02			0.09		>						
			Q		0	>		<	0			2		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
* - V/C ratio less than 0.01

4.4 Five-Year Horizon

The study area intersection operational analysis follows the same methodology used for existing conditions. No changes to the existing lane configurations or traffic control are assumed.

4.4.1 Background Traffic Operations

Table 4.4 summarizes the Five-Year horizon background traffic level of service conditions.

AM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 20 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.
- Old Lakeshore Road & Lakeshore Road (Unsignalized)
  - Northbound Approach: Forecast to operate at LOS D with a v/c ratio of 0.35. Although classified as a critical movement, this approach is expected to operate well within capacity (i.e. a v/c ratio of 0.35).

PM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 10 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 30 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 15 m.

Appendix J contains the detailed Synchro 12 reports.

TABLE 4.4: FIVE-YEAR HORIZON – BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	B	B	>	B	A	B	>	B	C	C	>	C	C	C	>	C	B
			Delay	10	12	>	12	7	14	>	14	31	30	>	31	31	30	>	30	14
			V/C	0.14	0.44	>		0.03	0.60	>		0.08	0.02	>		0.06	0.05	>		0.44
			Q	10	69	>		1	121	>		12	6	>		10	10	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	30	-	>		29	-	>		-2	-	>		10	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	A	>	A	D	D	>	D	D	D	>	D	B
			Delay	2	8	0	7	4	7	>	7	50	39	>	49	41	41	>	41	10
			V/C	0.05	0.66	0.04		0.01	0.44	>		0.65	0.05	>		0.06	0.02	>		0.66
			Q	1	89	0		1	79	>		39	6	>		7	6	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	44	-	-		14	-	>		-19	-	>		-2	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	A	A		A		A	>	A					C		>	C	
			Delay	9	0		0		0	>	0					16		>	16	
			V/C	0.03	0.57				0.33	>						0.22		>		
			Q	1	0				0	>						6		>		
			Stor.	15	-				-	>						-		>		
			Avail.	14	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	B	A	>	A	<	D	>	D	<	A	>	A	
			Delay	0	0	>	0	12	0	>	1	<	26	>	26	<	0	>	0	
			V/C	0.00	0.61	>		0.06	0.33	>		<	0.35	>		<	0.00	>		
			Q	0	0	>		1	0	>		<	11	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		14	-	>		<	-	>		<	-	>		
PM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	B	B	>	B	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	13	11	>	11	5	12	>	12	37	35	>	36	36	36	>	36	14
			V/C	0.28	0.39	>		0.05	0.79	>		0.14	0.05	>		0.12	0.09	>		0.61
			Q	13	62	>		1	124	>		17	12	>		17	16	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	27	-	>		29	-	>		-7	-	>		3	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	6	8	1	7	7	18	>	18	45	36	>	44	39	38	>	38	16
			V/C	0.20	0.56	0.06		0.01	0.77	>		0.47	0.03	>		0.14	0.06	>		0.69
			Q	3	32	1		1	199	>		48	7	>		18	13	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	42	-	-		14	-	>		-28	-	>		-13	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	B	A		A		A	>	A					C		>	C	
			Delay	11	0		1		0	>	0					19		>	19	
			V/C	0.10	0.39				0.55	>						0.15		>		
			Q	3	0				0	>						4		>		
			Stor.	15	-				-	>						-		>		
			Avail.	12	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	B	>	B	<	A	>	A	
			Delay	0	0	>	0	10	0	>	1	<	14	>	14	<	0	>	0	
			V/C	0.00	0.39	>		0.11	0.56	>		<	0.11	>		<	0.00	>		
			Q	0	0	>		3	0	>		<	3	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		12	-	>		<	-	>		<	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
* - V/C ratio less than 0.01

4.4.2 Total Traffic Operations

Table 4.5 summarizes the Five-Year horizon total traffic level of service conditions.

AM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by approximately 20 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 5 m.
- Old Lakeshore Road & Lakeshore Road (Unsignalized)
  - Northbound Approach: Forecast to operate at LOS D with a v/c ratio of 0.50. Although classified as a critical movement, this approach is expected to operate well within capacity (i.e. a v/c ratio of 0.50).

PM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 10 m.
- Pearl Street & Lakeshore Road (Signalized)
  - Northbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 40 m.
  - Southbound Left-Turn: The 95th percentile queue is forecast to exceed the available storage by less than 15 m.

The proposed site connection to Old Lakeshore Road is forecast to operate with acceptable levels of service. Delays for the site driveway are forecast to operate at LOS B or better with a v/c ratio less than 0.10 during the weekday peak hours. The 95th percentile queue length is expected to be less than one vehicle.

Appendix K contains the detailed Synchro 12 reports.

TABLE 4.5: FIVE-YEAR HORIZON – TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	B	B	>	B	A	B	>	B	C	C	>	C	C	C	>	C	B
			Delay	10	12	>	12	7	14	>	14	31	30	>	31	31	30	>	30	14
			V/C	0.14	0.46	>		0.03	0.62	>		0.08	0.02	>		0.06	0.05	>		0.46
			Q	10	72	>		1	85	>		12	6	>		11	10	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	30	-	>		29	-	>		-2	-	>		9	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	A	>	A	D	D	>	D	D	D	>	D	B
			Delay	2	8	0	7	4	7	>	7	52	38	>	50	40	40	>	40	11
			V/C	0.06	0.68	0.06		0.01	0.45	>		0.68	0.05	>		0.05	0.05	>		0.68
			Q	1	85	0		1	87	>		44	7	>		7	8	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	44	-	-		14	-	>		-24	-	>		-2	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	A	A		A		A	>	A					C		>	C	
			Delay	9	0		0		0	>	0					17		>	17	
			V/C	0.03	0.57				0.34	>						0.22		>		
			Q	1	0				0	>						6		>		
			Stor.	15	-				-	>						-		>		
			Avail.	14	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	B	A	>	A	<	D	>	D	<	A	>	A	
			Delay	0	0	>	0	12	0	>	1	<	33	>	33	<	0	>	0	
			V/C	0.00	0.61	>		0.08	0.33	>		<	0.50	>		<	0.00	>		
			Q	0	0	>		2	0	>		<	20	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		13	-	>		<	-	>		<	-	>		
	Site Driveway & Old Lakeshore Road/Pearl Street	TWSC	LOS		A	>	A	<	A		A	A		>	A					
			Delay		0	>	0	<	1		1	9		>	9					
			V/C		0.07	>		<	0.00*			0.07		>						
			Q		0	>		<	0.2			2		>						
PM Peak Hour	Elizabeth Street & Lakeshore Road	TCS	LOS	B	B	>	B	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	16	11	>	11	6	14	>	14	37	35	>	36	37	36	>	36	15
			V/C	0.32	0.41	>		0.06	0.82	>		0.14	0.05	>		0.13	0.09	>		0.63
			Q	14	64	>		1	158	>		17	12	>		18	16	>		
			Stor.	40	-	>		30	-	>		10	-	>		20	-	>		
			Avail.	26	-	>		29	-	>		-7	-	>		2	-	>		
	Pearl Street & Lakeshore Road	TCS	LOS	A	A	A	A	A	B	>	B	D	D	>	D	D	D	>	D	B
			Delay	6	7	1	6	7	19	>	19	49	36	>	48	39	38	>	38	17
			V/C	0.21	0.56	0.08		0.01	0.78	>		0.57	0.03	>		0.14	0.09	>		0.73
			Q	3	31	1		1	208	>		57	7	>		18	16	>		
			Stor.	45	-	-		15	-	>		20	-	>		5	-	>		
			Avail.	42	-	-		14	-	>		-37	-	>		-13	-	>		
	Lakeshore Road & Martha Street	TWSC	LOS	B	A		A		A	>	A					C		>	C	
			Delay	11	0		1		0	>	0					19		>	19	
			V/C	0.10	0.39				0.56	>						0.16		>		
			Q	3	0				0	>						4		>		
			Stor.	15	-				-	>						-		>		
			Avail.	12	-				-	>						-		>		
	Old Lakeshore Road/Private Access & Lakeshore Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	C	>	C	<	A	>	A	
			Delay	0	0	>	0	10	0	>	1	<	19	>	19	<	0	>	0	
			V/C	0.00	0.39	>		0.14	0.56	>		<	0.25	>		<	0.00	>		
			Q	0	0	>		4	0	>		<	7	>		<	0	>		
			Stor.	10	-	>		15	-	>		<	-	>		<	-	>		
			Avail.	10	-	>		11	-	>		<	-	>		<	-	>		
	Site Driveway & Old Lakeshore Road/Pearl Street	TWSC	LOS		A	>	A	<	A		A	B		>	B					
			Delay		0	>	0	<	1		1	10		>	10					
			V/C		0.09	>		<	0.02			0.09		>						
			Q		0	>		<	0			2		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement
* - V/C ratio less than 0.01

5 Remedial Measures

The following section discusses potential remedial measures that could be considered better to accommodate the forecasted traffic volumes in the study area.

5.1 Queuing Assessment

A queue assessment of the study area intersections was conducted to provide a more accurate assessment of the potential queues. SimTraffic was utilized rather than Synchro in this assessment, as microscopic models, such as SimTraffic, individually track each vehicle in the traffic system through the model and collect comprehensive operational measures of effectiveness for every vehicle during each 0.1-second interval of the simulation. Unlike Synchro, SimTraffic measures the full impact of queuing and blocking. Synchro is best suited for determining the level of service and delay at the macro level, but it is not ideal for assessments that simulate real-world conditions. The analysis consisted of five (5) iterations of sixty (60) minute simulations to forecast the delay per vehicle in seconds. **Appendix L** provides the SimTraffic results.

Table 5.1 summarizes the existing storage lengths and the forecast 95th percentile queue lengths under the existing year (2028) and 2033 background conditions, as well as the 2028 and 2033 total conditions.

AM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - The eastbound through-right lane is projected to exhibit a 95th percentile queue by up to 118 m, which may impact the operation of upstream intersections.
- Pearl Street & Lakeshore Road (Signalized)
  - The westbound through-right lane is projected to exhibit a 95th percentile queue by up to 74 m.
- Lakeshore Road & Martha Street (Unsignalized)
  - 95th percentile queues at all approaches are expected to be manageable, with lengths less than 30 m and are expected to operate with minimal delays.
- Old Lakeshore Road & Lakeshore Road (Unsignalized)
  - 95th percentile queues at all approaches are expected to be manageable, with lengths less than 30 m and are expected to operate with minimal delays.

PM Peak Hour

- Elizabeth Street & Lakeshore Road (Signalized)
  - The eastbound through-right lane is projected to exhibit a 95th percentile queue by up to 112 m, which may impact the operation of upstream intersections.
  - 95th percentile queue lengths at the westbound through-right lane is expected to experience queues of less than 110 m, which may impact the operation of upstream intersections.
- Pearl Street & Lakeshore Road (Signalized)
  - The westbound through-right lane is projected to exhibit a 95th percentile queue by up to 115 m, which may impact the operation of upstream intersections.
- Lakeshore Road & Martha Street (Unsignalized)
  - 95th percentile queues at all approaches are expected to be manageable, with lengths less than 85 m and are expected to operate with manageable delays.
- Old Lakeshore Road & Lakeshore Road (Unsignalized)
  - 95th percentile queues at all approaches are expected to be manageable, with lengths less than 30 m and are expected to operate with minimal delays.

Queue storage along Lakeshore Road is also limited under existing conditions, with only 115 metres of space available between Elizabeth Street and Brant Street, and 100 metres between Elizabeth Street and Pearl Street. The current spacing restricts the corridor's ability to accommodate the queues.

Existing and future traffic conditions along Lakeshore Road show that the most critical queues occur on the eastbound and westbound approaches at the Elizabeth Street and Pearl Street intersections. Heavy through-traffic volumes contribute to 95th-percentile queues that reach or exceed 100 metres. These long queues are already a recurring issue within the corridor and reflect current operating conditions observed during peak periods.

The Ontario Traffic Manual advises a minimum intersection spacing of 215 metres to provide motorists with adequate time to react to traffic signals, and approximately 415 metres to maintain efficient signal progression. Because of these geometric and operational limitations, queue spillback is common along Lakeshore Road, and residual queues often remain from one cycle to the next. Although the City has coordinated signal timing along the corridor to reduce unnecessary

stops, the constrained roadway geometry remains a challenge. Adjusting signal timings to allocate more green time to the dominant east–west movements could provide some relief, but would likely degrade operations along minor street approaches due to reduced green time.

Considering these existing constraints, a queue management strategy might be more effective. This approach adjusts signal timing so that queues develop in locations with the least operational or safety impact. When queue growth cannot be controlled by adding more green time, the most practical option is to manage upstream capacity to prevent worsening congestion at downstream bottlenecks. This should be further reviewed by the City of Burlington's traffic signal department to determine the net benefits from an overall corridor perspective.

TABLE 5.1: FORECAST QUEUE LENGTHS SUMMARY

Analysis Period	Intersection	Horizon Year	Direction/Movement/Approach Queue Length (m)											
			Eastbound			Westbound			Northbound			Southbound		
			Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak Hour	Elizabeth Street & Lakeshore Road	2025 Base	24	110	>	6	25	>	14	13	>	11	18	>
		2028 Background	29	115	>	11	71	>	15	13	>	13	21	>
		2033 Background	30	118	>	11	79	>	16	12	>	16	22	>
		2028 Total	26	115	>	11	71	>	15	13	>	12	18	>
		2033 Total	38	118	>	17	72	>	15	15	>	16	21	>
	Pearl Street & Lakeshore Road	2025 Base	10	37	>	6	53	>	12	6	>	5	7	>
		2028 Background	14	44	6	6	68	>	32	39	>	9	10	>
		2033 Background	12	46	7	4	71	>	32	30	>	9	10	>
		2028 Total	10	47	7	3	69	>	31	41	>	10	15	>
		2033 Total	12	47	9	5	74	>	32	42	>	10	13	>
	Lakeshore Road & Martha Street	2025 Base	8	9			4	>				15		>
		2028 Background	11	8			8	>				20		>
		2033 Background	10	14			8	>				22		>
		2028 Total	11	12			4	>				26		>
		2033 Total	11	15			11	>				20		>
	Old Lakeshore Road/Private Access & Lakeshore Road	2025 Base	0	1	>	6	3	>	<	9	>	<	0	>
		2028 Background	0	14	>	12	7	>	<	23	>	<	0	>
		2033 Background	0	13	>	13	6	>	<	23	>	<	0	>
		2028 Total	0	15	>	14	6	>	<	29	>	<	0	>
		2033 Total	0	16	>	13	5	>	<	30	>	<	0	>
	Site Driveway & Old Lakeshore Road/Pearl Street	2028 Total		0	>	<	8		14		>			
		2033 Total		0	>	<	8		15		>			
PM Peak Hour	Elizabeth Street & Lakeshore Road	2025 Base	24	79	>	9	22	>	18	17	>	20	26	>
		2028 Background	30	100	>	13	79	>	18	16	>	22	27	>
		2033 Background	33	112	>	17	80	>	18	20	>	20	30	>
		2028 Total	35	105	>	19	93	>	18	18	>	19	27	>
		2033 Total	38	112	>	17	108	>	18	20	>	24	32	>
	Pearl Street & Lakeshore Road	2025 Base	16	37	>	2	100	>	23	6	>	12	18	>
		2028 Background	23	45	8	6	110	>	32	40	>	15	34	>
		2033 Background	20	43	8	5	111	>	32	44	>	16	28	>
		2028 Total	16	38	10	4	111	>	31	53	>	16	30	>
		2033 Total	23	47	9	7	115	>	31	56	>	16	32	>
	Lakeshore Road & Martha Street	2025 Base	13	10			24	>				13		>
		2028 Background	22	34			39	>				24		>
		2033 Background	21	25			49	>				18		>
		2028 Total	22	33			50	>				19		>
		2033 Total	21	29			81	>				22		>
	Old Lakeshore Road/Private Access & Lakeshore Road	2025 Base	0	9	>	10	10	>	<	8	>	<	0	>
		2028 Background	0	7	>	15	13	>	<	15	>	<	0	>
		2033 Background	0	8	>	18	22	>	<	15	>	<	0	>
		2028 Total	0	12	>	18	16	>	<	22	>	<	0	>
		2033 Total	0	13	>	19	30	>	<	28	>	<	0	>
	Site Driveway & Old Lakeshore Road/Pearl Street	2028 Total		0	>	<	15		16		>			
		2033 Total		1	>	<	19		17		>			

< / > - Shared with through movement

5.2 Traffic Control Signal

The unsignalized intersection of Lakeshore Road and Martha Street within the study area was assessed using the Ontario Traffic Manual (OTM Book 12 – Justification 7) signal warrant procedures. [14]. Specifically, the total traffic forecasts were assessed. **Appendix M** contains the warrant analysis.

Based on the warrant assessment, traffic control signals are not warranted at the unsignalized intersection of Lakeshore Road and Martha Street under the existing, forecast background, and forecast total traffic conditions.

5.3 Auxiliary Turn Lanes

The MTO *Design Supplement for the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads* [15] guides the assessment and/or need for auxiliary left-turn lanes. The warrant nomograph to determine if a left-turn lane is needed is based on the following criteria:

- Design speed of the road (posted speed + 10 km/h);
- Advancing volume;
- Opposing volume; and
- Percent of advancing vehicles performing a left-turn maneuver.

The movements were analyzed using the nomographs for left-turn lanes on two-lane undivided highways at unsignalized intersections. **Appendix N** contains the MTO left-turn lane nomographs for the site driveway intersections with Old Lakeshore Road.

The warrant analysis indicates that westbound left-turn lanes are not warranted along Old Lakeshore Road for the site driveway. No changes to the existing lane configuration are recommended.

[14] (Ministry of Transportation Ontario). Ontario Traffic Manual Book 12 Traffic Signals, Justification 7. (Ontario, March 2012).
[15] MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads, June 2017 Appendix 9 for Chapter 9 Intersections

5.4 Multimodal 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" refers to the efficiency with which 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 most significant delay. The metric is extensively used in transportation planning, but it is limited to the experience of car drivers.

Multimodal 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, where A indicates the best experience for users of that mode and F denotes 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 has used the MMLOS guidelines created by the Ontario Traffic Council (OTC). [16] These were developed after reviewing national and international best practices in MMLOS analysis. **Table 5.2** outlines the street type classification assumed for the study area roadways.

TABLE 5.2: MMLOS STREET TYPE CLASSIFICATION

Roadway	Classification	MMLOS Applicable Classification
Lakeshore Road	Urban Main Street	Urban Main Street

5.5 Level of Service Targets

Based on the street type, the MMLOS guidelines provide base LOS targets, which ultimately identify the modes that should be prioritized. **Table 5.3** summarizes the base and adjusted LOS target (used in the analysis), as directed by the City of Burlington. The LOS for each user is based on the following criteria:

- Pedestrian LOS criteria include facility width, buffer width and maximum distance between controlled crossings.
- Cycling LOS criteria include facility width, buffer width and conflicts with other modes (in-lane conflicts and crossing point conflicts).

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

- Transit LOS criteria include the facility type, passenger amenities, and pedestrian level of service. The level of service for trucks is based on the width of the curb lane and the level of service for cars.
- Car LOS criteria relate to the mid-block v/c ratio and curb lane conflicts.

TABLE 5.3: MMLOS TARGETS PER STREET TYPE

Street Classification	Pedestrian	Bikes	Transit	Trucks	Cars
Urban Main Street	C	C	D	D	D

5.6 MMLOS Segment Analysis

Table 5.4 summarizes the MMLOS analysis for the roadways. The existing and future conditions for the segment's lengths are assumed to be the same.

Pedestrian MMLOS along Lakeshore Road between Elizabeth Street to Pearl Street is assessed to be in the A and C range, reaching the target of LOS C. Pedestrian MMLOS can be further improved between Pearl Street to Old Lakeshore Road/Private Driveway by widening the pedestrian facility width, increasing pedestrian buffer width, or by adding additional controlled crossings to reduce the maximum distance between crossings.

Cycling MMLOS along Lakeshore Road, between Elizabeth Street and Pearl Street, is not applicable as no dedicated cycling facilities are present along the assessed roadway segments. The City of Burlington Cycling Master Plan proposes bike lanes from Brant Street to Old Lakeshore Road, which can be expected to improve the cycling MMLOS in the future. **Table 5.5** highlights the changes to the cycling MMLOS with the addition of future bidirectional bike lanes along Lakeshore Road. The cycling MMLOS is forecast to be in the E range, primarily due to the high number of conflict points per kilometre for the roadway segments. The MMLOS for cycling can be further improved by expanding the bicycle lane and buffer widths to provide greater separation from motor vehicle traffic. **Table 5.5** highlights the changes to the cycling MMLOS with the addition of future bike lanes.

Transit MMLOS along Lakeshore Road, between Elizabeth Street to Pearl Street is assessed to be in the C range, satisfying the target grade of LOS D. In contrast, Pearl Street to Old Lakeshore Road operate at LOS D. Passenger amenities such as shelters, seating, and

posted schedules can help further enhance Transit MMLOS by improving comfort and accessibility at transit stops.

The truck MMLOS along Lakeshore Road, between Elizabeth Street and Pearl Street, is in the D range, meeting the target grade.

Car MMLOS along Lakeshore Road between Elizabeth Street and Pearl Street is in the B range, exceeding the target grade.

Appendix O contains the detailed MMLOS assessment.

TABLE 5.4: MMLOS SEGMENT ANALYSIS

Segment	Pedestrian	Bikes	Transit	Trucks	Cars
Lakeshore Road (Elizabeth Street to Pearl Street)	A	n/a	C	D	B
Lakeshore Road (Pearl Street to Martha Street)	C	n/a	D	D	B
Lakeshore Road (Martha Street to Old Lakeshore Road/Private Driveway)	C	n/a	D	D	B

TABLE 5.5: MMLOS SEGMENT ANALYSIS (WITH FUTURE BIKEWAYS)

Segment	Pedestrian	Bikes	Transit	Trucks	Cars
Lakeshore Road (Elizabeth Street to Pearl Street)	A	E	C	D	B
Lakeshore Road (Pearl Street to Martha Street)	C	E	D	D	B
Lakeshore Road (Martha Street to Old Lakeshore Road/Private Driveway)	C	E	D	D	B

6 Transportation Demand Management

Based on best practices and policy objectives, there is merit in further reducing transportation demand through a Transportation Demand Management (TDM) program.

A 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 disincentives that increase people's likelihood of changing travel behaviour. Strategies include financial incentives, time incentives, new or enhanced commuter services, information dissemination, and alternative marketing services. Such methods include providing information on modes accessible to the site, bike parking, and the proper amount of parking.

The TDM plan has been formulated to extend reasonable and practical strategies that encourage residents and visitors to take alternative modes of transportation. The identified strategies are expected to enhance transportation access and connectivity for the proposed development.

Quantifying the likeness of each TDM measure in reducing vehicle demand has been based on vehicle miles travelled (VMT) reductions. The estimates were derived based on a research report conducted by the University of California, Davis Institute of Transportation Studies [17]. This report provides an overview of possible estimation methods for 45 mitigation strategies and recommendations on the most appropriate method for estimating the reduction in vehicle travel distance expected from implementing a specific measure. The methods take into account the extent of the measure but may not account for the specific context. In general, two types of methods are available: travel demand forecasting models and effect-size approaches. For several measures, this report concludes that reductions in VMT cannot be estimated from the available evidence. The Evidence Assessment Report provides an assessment of the strength of the evidence for each of the measures.

[17] Assessment of Options for Quantifying Reduction in Vehicle Miles Traveled (VMT) from Mitigation Measures, University of California, Davis Institute of Transportation Studies, June 2025

6.1 Potential TDM Measures

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

6.1.1 Transportation Information

Knowing which modes are available and accessible is a significant part of mode choice. As a component of the resident welcome packet, information on transportation options and links to the relevant websites should be provided to all prospective residents.

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

Limited evidence suggests a potential reduction in VMT through community-based travel planning programs that offer personalized travel information and facilitate alternatives to driving. Studies indicate that pilot initiatives have succeeded in shifting trips from driving to other modes, but lack precise quantification. The 2025 California Air Resources Board (CARB) Voluntary Travel Behaviour Change Programs brief concludes that such programs decrease VMT by 5% to 9% for participants.

6.1.2 Cycling

By providing additional opportunities and safeguards for residents who choose to travel to/from the development by cycling, sustainable transportation, and a reduction in automobile trips and parking requirements are expected to occur.

the City of Burlington City-Wide Parking Standards Review [18] provides guidelines regarding the amount of bicycle parking that should be provided. Based on the Parking Standard Review requirements:

- Residential:
  - Bicycle parking shall be provided at a rate of 0.5 long-term spaces per unit; and
  - 0.05 short-term bicycle parking spaces per unit.

Table 6.1 summarizes the required bicycle parking supply outlined by the Parking Standards Review. Based on the rates, the site should

[18] IBI Group, *Burlington City-Wide Parking Standards Review*, (Burlington: IBI Group, 2017), 116.

provide at least 25 long-term bicycle parking spaces and three short-term bicycle parking spaces to support a reduced parking supply.

The site statistics indicate a provision of 32 long-term and three short-term bicycle parking spaces, which meet or exceed the City's Zoning By-law requirement.

The referenced material does not examine how bicycle parking supply affects VMT-related outcomes and is insufficient to quantify a VMT effect.

TABLE 6.1: REQUIRED BICYCLE PARKING SUPPLY

Land Use	Parking Type	Minimum Parking Rate	Parking Spaces Required	Parking Spaces Provided
Residential mixed-use building (50 units)	Short Term	0.05 spaces per dwelling unit	3	3
	Long Term	0.5 spaces per dwelling unit	25	32

6.1.3 Walking

Similar to cycling, providing a safe and attractive environment for residents walking to/from the development will contribute to sustainable transportation.

Walking is encouraged by the provision of a pedestrian-friendly site layout that features an extensive network of sidewalks and entrances at key points both within the site and connecting to the existing pedestrian network. The site's connection to Old Lakeshore Road enhances pedestrian accessibility by strengthening overall connectivity to the surrounding network, including Lakeshore Road and the Waterfront Trail. This integrated network of pedestrian routes is intended to create a seamless and enjoyable walking experience for all site users.

By leveraging the future public sidewalk network to attract and serve pedestrians, combined with multiple pedestrian connections within the site, the development offers walkability as a key design feature.

Improving sidewalk coverage is consistently shown to increase walking and can yield modest but meaningful reductions in VMT. The strongest empirical estimate indicates that a 10% increase in sidewalk coverage reduces VMT by about 0.5%, and reported auto-to-walk substitution rates average roughly 20%. While study results vary and are often context-specific, evidence clearly shows that better pedestrian infrastructure supports mode shift.

6.1.4 Parking

A parking management plan recognizes the need to provide adequate parking but values strategies that result in more efficient use of parking resources and reduce the amount of parking needed at a particular location.

Rather than establishing generous parking requirements to satisfy the maximum potential demand that may occur, parking management allows contingency-based planning, which means that various solutions are identified which can be deployed if needed.

The single most significant contributor to the ubiquitous use of the SOV is the oversupply of inexpensive parking. By limiting parking supply, the developer provides a key ingredient in managing parking demand at the site. Reducing the parking supply to match but not exceed the expected demand can positively influence the selection of alternative travel modes.

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

Evidence shows that limiting residential parking to one space per unit or less can meaningfully reduce vehicle ownership, vehicle trips, and overall VMT. Studies from New York and California report roughly a 10% reduction in daily VMT for households with constrained parking, with scenario testing in Los Angeles suggesting reductions as high as 21% depending on context. For practical application, a 10% reduction in total VKT is a reasonable estimate when evaluating new residential developments that restrict parking supplies.

6.1.5 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; consumers can adjust their parking supply to reflect their needs. To further encourage apartment building residents to utilize sustainable travel modes, parking should be unbundled from the cost of the units.

This is an essential factor, as residents are notified at the project's onset that parking will be provided as an additional cost, in addition to the price of renting a unit. If residents are significantly considering changing their travel behaviour, the cost of renting a parking space could contribute to this change.

Very few studies examine how unbundling residential parking costs from property costs affects VMT-related outcomes, and the results are inconclusive and insufficient to quantify a VMT effect.

7 Conclusions and Recommendations

7.1 Conclusions

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

- **Study Area**: The intersections assessed in this study include:
  - Lakeshore Road and Old Lakeshore Road (unsignalized);
  - Lakeshore Road and Martha Street (unsignalized);
  - Lakeshore Road and Pearl Street/Old Lakeshore Road (signalized);
  - Lakeshore Road and Elizabeth Street (signalized); and
  - One proposed driveway connection to Old Lakeshore Road.
- **Existing Traffic Conditions:** The study area intersections operate at acceptable service levels and within capacity during the weekday peak hours. However, at the intersection of Elizabeth Street and Lakeshore Road, the 95th percentile queue length in the northbound left-turn lane exceeds the available storage during the weekday peak hour. The southbound left-turn lane at Pearl Street and Lakeshore Road also exhibits queues exceeding storage capacity at the 95th percentile during the weekday PM peak hour.
- **Trip Generation:** The site's vehicular trip generation is estimated to be approximately 62-85 weekday AM/PM peak-hour trips.
- **Heavy Vehicle Circulation:** No conflicts with the proposed on-site geometry are noted.
- **Background Traffic Conditions:** Under background traffic conditions, the critical movements identified in the base year traffic analysis are forecast to remain critical. Under the opening-year horizon, the northbound left-turn lane at Pearl Street and Lakeshore Road is forecast to exhibit 95th percentile queues that exceed the available storage during weekday peak hours.
- **Total Traffic Conditions:** Under total traffic conditions, operations at the study area intersections are similar to the base year and background conditions. Critical movement is forecast in the northbound approach at the intersection of Old Lakeshore Road and Lakeshore Road, degrading to LOS D during the weekday AM peak hour. However, this is common for minor roadways approaching a major road and is still expected to

operate with acceptable delays, as indicated by a v/c ratio of 0.50.

The driveway approach to Old Lakeshore Road is forecast to operate within capacity with a v/c ratio of less than 0.10 and delays of LOS B or better. The 95th percentile queue length is forecast to be one vehicle or less.

- **Remedial Measures:** Based upon the warrant assessment, traffic control signals are not warranted at the unsignalized intersections of Lakeshore Road at Martha Street and Lakeshore Road at Old Lakeshore Road.

  The site's driveway connection to Old Lakeshore Road should operate under stop control.

  The left-turn warrant analysis indicates that the westbound left-turn lanes are not warranted on Old Lakeshore Road at the Site Driveway. No changes to the existing lane configuration are recommended along Old Lakeshore Road.

- **Transportation Demand Management:** The proposed development includes TDM measures such as bicycle parking to encourage cycling and pedestrian facilities to provide accessibility to and from the development.

  The applicant will consider developing marketing or informational materials outlining available transportation options, which could be shared with future residents and hotel guests as part of a welcome package. These materials may include transit schedules for local and regional services, maps of bicycle routes and trail networks, as well as the locations of nearby retail and recreational destinations.

  By limiting on-site parking to match projected demand, the development encourages the use of alternative transportation modes. In doing so, it sets a positive example for residents and visitors to reduce reliance on single-occupant vehicles (SOV) and consider more sustainable travel options.

- **MMLOS Assessment:** The existing study area segments and intersections along Lakeshore Road meet or exceed the level of service targets for pedestrians, transit, trucks, and cars. To further improve these modes, the City of Burlington should explore enhanced transit facilities, wider sidewalks, improved pedestrian measures, and protected cycling facilities.

7.2 Recommendations

Based on the findings of this study, the following is recommended:

- The City of Burlington recognizes the conclusions drawn above.
- The City may explore reallocating street space along Lakeshore Road to enhance pedestrian and cycling facilities, including wider sidewalks, increased pedestrian buffers, additional transit facilities, and protected cycling lanes, to improve MMLOS targets further.
- The site's TDM program should be implemented and monitored over time to help manage its transportation and parking impacts.

Appendix A

Terms of Reference

Outlook

RE: 250220: 2076 Old Lakeshore Road, Burlington - Transportation Impact Study - Terms of Reference

---

From Napoli, Derek <Derek.Napoli@burlington.ca>
Date Fri 2025-04-25 3:27 PM
To Brian Kim <bkim@ptsl.com>
Cc Adam Makarewicz <amakarewicz@ptsl.com>; Lucas, Sandra <Sandra.Lucas@burlington.ca>

Hi Brian,

Please find our comments in red text for the Terms of Reference. Let me know if you have any questions or if you would like to discuss.

Proposed Terms of Reference including Transportation Planning Comments in red text

Generally, follow Halton Region's Transportation Impact Study Guidelines.

Study Area Intersections
- Lakeshore Road and Old Lakeshore Road (unsignalized)
- Lakeshore Road and Martha Street (unsignalized)
- Lakeshore Road and Peal Street/Old Lakeshore Road (signalized)
- Lakeshore Road and Elizabeth Street (signalized)
- Up to two site driveways

Existing Data
- TMCs to be collected by Paradigm.
- The following standard practices for collecting turning movement count data must be followed:
  - The counts are conducted on a "typical" mid-week weekday (Tuesday, Wednesday or Thursday),
  - Avoid counts during the Thanksgiving and Christmas holidays (mid-December to mid-January),
  - Avoid counts during March Break, and
  - Avoid counts during the summer (mid June to mid September).

Horizon Years
- 2025 Base Year
- Full build-out year if before 2030 or five years from date of the study (2030)
- Five years post full build-out or 2035

Analysis Periods
- Weekday AM peak hour
- Weekday PM peak hour

Analysis
- Synchro 12
- HCM 2000 – Synchro output files must be submitted with the report.
- SimTraffic Queueing (five 60-min iterations) – include an assessment of queueing lengths and SimTraffic output files must be submitted with the report.

- Following the City's IMP, development location is within the downtown Enhanced Pedestrian Realm, adjacent to cycling routes, and a future transit priority corridor, therefore a Multimodal Level of Service (MMLOS) analysis is required. The analysis must evaluate the benefits of "complete streets" design option for Lakeshore Road. Additionally, MMLOS analysis must identify the area where the transportation system needs improvement, prioritize investments in transportation infrastructure and inform transportation planning and policy decision. The City's MMLOS Targets for each travel mode will be provided upon request.

Background Traffic

- Generalized growth rate 1% per annum
- **Please identify any adjacent development applications to include in the traffic forecast.**
  - 2072 Lakeshore Road
  - 2083 Old Lakeshore Road
  - 374 Martha Street
  - 2107 Old Lakeshore Road & 2119 Lakeshore Road
  - 2093, 2097, 2101 Old Lakeshore Road & 2096, 2100 Lakeshore Road
  - 2069-2079 Lakeshore Road & 383-385 Pearl Street

Future Road Improvements

- Lakeshore Road Resurfacing - 2027 Between Brant Street and Torrance Avenue. The City's Integrated Mobility Plan identifies an enhanced pedestrian realm and buffered bike lanes from Brant Street to Martha Street.
- Note that the lane configuration at the Lakeshore Road and Pearl Street intersection shall be coded with only a single eastbound receiving lane, as the existing curb lane ends only 30 metres after the intersection.

Site Traffic Estimates

- ITE Trip Generation Data On-line Edition – site traffic volume estimates shall be based on full build-out and/or maximum land use intensity allowed.
- Assessment of site generated transit demand on transit services and stops that are expected to experience a ridership increase of 5% or more.
- No modal split reductions

Site Traffic Distribution

- Existing travel patterns/TTS data

Parking and Loading

- The City of Burlington Zoning By-law 2020 will be reviewed for parking and loading requirements.
- If a parking reduction is proposed, appropriate analyses and justification will be provided to demonstrate the adequacy of the proposed supply.
  - Prior to conducting any Parking Surveys, a list of comparable proxy sites shall be submitted to the City for approval.
- The City of Burlington Site Plan Application Guidelines will be reviewed for underground parking garage requirements.

Access and Circulation Review

- ACR will be conducted to ensure compliance of the proposed development plan with review agency requirements and applicable industry guidelines
- The ACR will ensure that vehicular movements can be accommodated at the proposed driveway access(es), loading bay, surface and underground parking stalls, drive aisles, and parking garage ramps.

TDM Plan

- Will outline existing and proposed TDM measures that will aid in reducing single occupancy vehicle trips and increase the mode share active transportation and transit modes. Assess their likely effectiveness for the proposed development
- TDM measures should extend beyond general information sharing. Please include specific strategies along with their anticipated outcomes.

Report
We will document the study methodologies, findings, and conclusions in a report with appendices containing the detailed analysis results and any data collected.

Regards,
Derek Napoli, C.E.T.
Transportation Planning Technologist
Transportation Services Department
(905) 335-7600 ext.7972
derek.napoli@burlington.ca

City of Burlington Logo
Our working hours may be different. You are not obligated to reply outside of your typical working hours.

From: Napoli, Derek
Sent: Tuesday, April 22, 2025 3:26 PM
To: Brian Kim <bkim@ptsl.com>
Cc: Adam Makarewicz <amakarewicz@ptsl.com>; Lucas, Sandra <Sandra.Lucas@burlington.ca>
Subject: RE: 250220: 2076 Old Lakeshore Road, Burlington - Transportation Impact Study - Terms of Reference

Hi Brian,

I hope you had a great long weekend. We're still finalizing a few details on our comments for the ToR, so they're not quite ready yet. We'll be sure to get them over to you before the end of the week.

Regards,
Derek Napoli, C.E.T.
Transportation Planning Technologist
Transportation Services Department
(905) 335-7600 ext.7972
derek.napoli@burlington.ca

City of Burlington Logo
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From: Brian Kim <bkim@ptsl.com>
Sent: Tuesday, April 22, 2025 10:50 AM
To: Mailbox, Transportation Planning <devapptransportationplanning@burlington.ca>
Cc: Adam Makarewicz <amakarewicz@ptsl.com>; Napoli, Derek <Derek.Napoli@burlington.ca>
Subject: Re: 250220: 2076 Old Lakeshore Road, Burlington - Transportation Impact Study - Terms of Reference

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Sandra,

I hope you're doing well. Just wanted to follow up on this.

Thanks!

Brian Kim
Transportation Consultant

5A-150 Pinebush Road, Cambridge ON, N1R 8J8
p: 905.381.2229 x301
e: bkim@ptsl.com
w: www.ptsl.com

Paradigm operates on a four-day workweek. Our offices are closed on Fridays.

From: Mailbox, Transportation Planning <devapptransportationplanning@burlington.ca>
Sent: April 9, 2025 10:35 AM
To: Brian Kim <bkim@ptsl.com>
Cc: Adam Makarewicz <amakarewicz@ptsl.com>; Napoli, Derek <Derek.Napoli@burlington.ca>; Mailbox, Transportation Planning <devapptransportationplanning@burlington.ca>
Subject: RE: 250220: 2076 Old Lakeshore Road, Burlington - Transportation Impact Study - Terms of Reference

Thanks Brian,

We will get back to you.

Regards

Sandra Lucas (she/her)
Supervisor of Transportation Planning
Transportation Services Department

MAIN: 905-335-7600 ext 7401
sandra.lucas@burlington.ca

426 Brant Street P.O. Box 5013, Burlington, Ontario, L7R 3Z6

Our working hours may be different. You are not obligated to reply outside of your typical working hours.

From: Brian Kim <bkim@ptsl.com>
Sent: April 7, 2025 4:13 PM
To: Mailbox, Transportation Planning <devapptransportationplanning@burlington.ca>
Cc: Adam Makarewicz <amakarewicz@ptsl.com>
Subject: 250220: 2076 Old Lakeshore Road, Burlington - Transportation Impact Study - Terms of Reference

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

Paradigm Transportations Solutions Limited has been retained to conduct a Transportation Impact Study for a proposed development at 2076 Old Lakeshore Road, currently operating as the Ascot Motel in the City of Burlington. The applicant is proposing to construct a 28-story mixed-use development containing 187 hotel rooms (floors 1-14), shared amenity space (floor 15), and 82 residential units (floors 16-28). Regarding parking, the site plan included two levels of an automated underground parking system that will provide 82 parking spaces. Vehicle access is proposed via two driveway connections to Old Lakeshore Road.

We'd like to prepare our report based on the following scope, subject to your comments:

Proposed Terms of Reference

Study Area Intersections

- Lakeshore Road and Old Lakeshore Road (unsignalized)
- Lakeshore Road and Martha Street (unsignalized)
- Lakeshore Road and Peal Street/Old Lakeshore Road (signalized)
- Up to two site driveways

Existing Data

- TMCs to be collected by Paradigm.

Horizon Years

- 2025 Base Year
- Five years from date of the study (2030)

Analysis Periods

- Weekday AM peak hour
- Weekday PM peak hour

Analysis

- Synchro 12
- HCM 2000
- SimTraffic Queueing (five 60-min iterations)

Background Traffic

- Generalized growth rate 1% per annum
- **Please identify any adjacent development applications to include in the traffic forecast.**

Site Traffic Estimates

- ITE Trip Generation Data On-line Edition
- No modal split reductions

Site Traffic Distribution

- Existing travel patterns/TTS data

Access and Circulation Review

- ACR will be conducted to ensure compliance of the proposed development plan with review agency requirements and applicable industry guidelines

TDM Plan

- Will outline existing and proposed TDM measures and assess their likely effectiveness for the proposed development

Report

- We will document the study methodologies, findings, and conclusions in a report with appendices containing the detailed analysis results and any data collected.

Please let us know if you have any comments on the proposed study.

Thank you,

Brian Kim
Transportation Consultant

paradigm TRANSPORTATION SOLUTIONS LIMITED

Great Place To Work. Certified NOV 2023 - NOV 2024 CANADA

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e: bkim@ptsl.com
w: www.ptsl.com

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This e-mail and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this e-mail in error please notify the sender immediately. Please note that any views or opinions presented in this e-mail are solely those of the author and do not necessarily represent those of Paradigm Transportation Solutions Limited. Finally, the recipient should 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.
This message, including any attachments, is privileged and intended only for the addressee(s) named above. If you are not the intended recipient, you must not read, use or disseminate the information contained in this email/fax. If you have received this email/fax transmission in error, please notify the sender immediately by telephone, fax or email and permanently delete this email from your computer/shred this fax, including any attachments, without making a copy. Access to this email/fax by anyone else is unauthorized. Thank you.

Appendix B

Existing Traffic Data



Lakeshore Rd @ Martha St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Burlington
Site #: 0000000002
Intersection: Lakeshore Rd & Martha St
TFR File #: 2
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

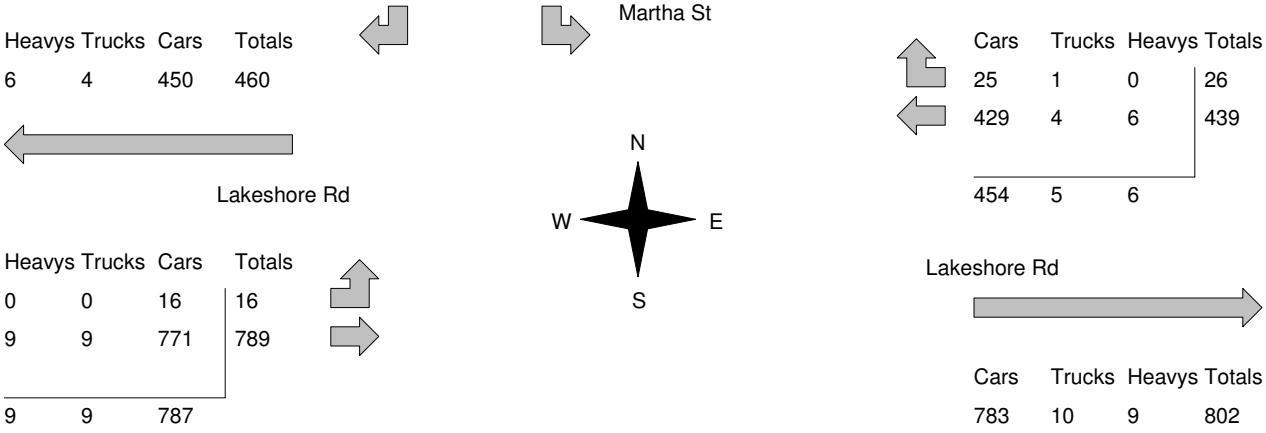
Major Road: Lakeshore Rd runs W/E

North Leg Total: 76
North Entering: 34
North Peds: 14
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	1	1
Cars	21	12	33
Totals	21	13	

Heavys	0
Trucks	1
Cars	41
Totals	42

East Leg Total: 1267
East Entering: 465
East Peds: 1
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 8
West Entering: 805
West Leg Total: 1265

Comments

Lakeshore Rd @ Martha St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

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

Municipality: Burlington
Site #: 0000000002
Intersection: Lakeshore Rd & Martha St
TFR File #: 2
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

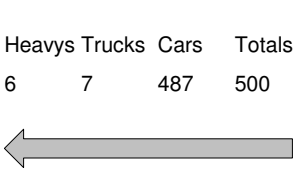
Major Road: Lakeshore Rd runs W/E

North Leg Total: 69
North Entering: 25
North Peds: 5
Peds Cross: ⋈

Heavys	1	0	1
Trucks	2	0	2
Cars	13	9	22
Totals	16	9	

Heavys	0
Trucks	1
Cars	43
Totals	44

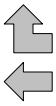
East Leg Total: 1006
East Entering: 506
East Peds: 6
Peds Cross: ⧖



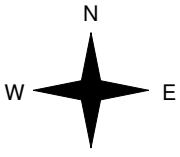
Heavys	Trucks	Cars	Totals
6	7	487	500

Lakeshore Rd

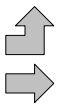
Martha St



Cars	Trucks	Heavys	Totals
22	0	0	22
474	5	5	484
496	5	5	



Heavys	Trucks	Cars	Totals
0	1	21	22
10	10	471	491
10	11	492	



Lakeshore Rd



Cars	Trucks	Heavys	Totals
480	10	10	500

Peds Cross: ⧖
West Peds: 9
West Entering: 513
West Leg Total: 1013

Comments

Lakeshore Rd @ Martha St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Burlington
Site #: 0000000002
Intersection: Lakeshore Rd & Martha St
TFR File #: 2
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

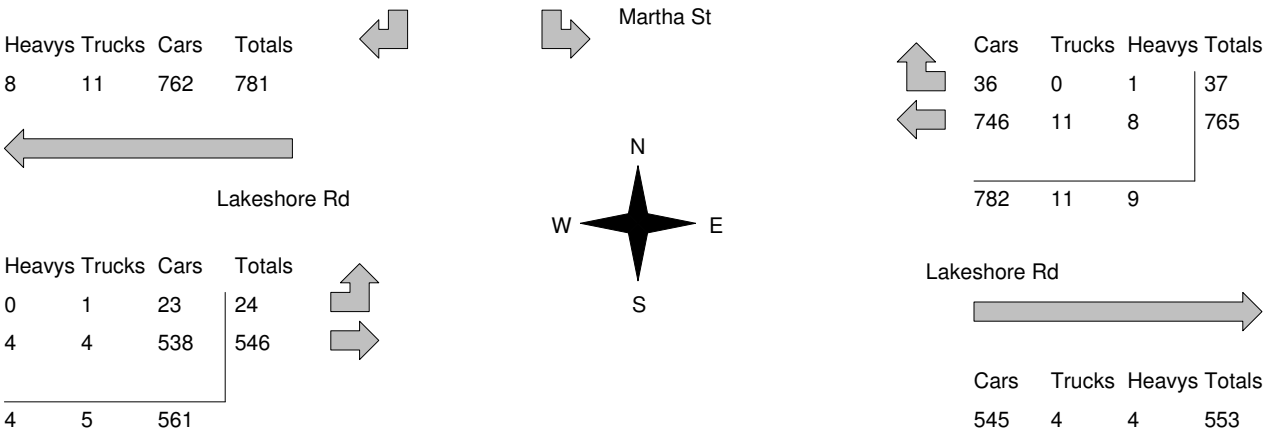
Major Road: Lakeshore Rd runs W/E

North Leg Total: 84
North Entering: 23
North Peds: 7
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	16	7	23
Totals	16	7	

Heavys	1
Trucks	1
Cars	59
Totals	61

East Leg Total: 1355
East Entering: 802
East Peds: 3
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 10
West Entering: 570
West Leg Total: 1351

Comments

Lakeshore Rd @ Martha St

Total Count Diagram

Municipality: Burlington
Site #: 0000000002
Intersection: Lakeshore Rd & Martha St
TFR File #: 2
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E

North Leg Total: 696
North Entering: 215
North Peds: 73
Peds Cross: ⋈

Heavys	3	0	3
Trucks	2	2	4
Cars	146	62	208
Totals	151	64	

Heavys	3
Trucks	8
Cars	470
Totals	481

East Leg Total: 9975
East Entering: 4835
East Peds: 31
Peds Cross: ⧖

Martha St

Heavys	Trucks	Cars	Totals
68	48	4611	4727

	Cars	Trucks	Heavys	Totals
	253	4	2	259
	4465	46	65	4576
	4718	50	67	

Lakeshore Rd

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W E
S

Heavys	Trucks	Cars	Totals
1	4	217	222
73	55	4948	5076
74	59	5165	

Lakeshore Rd

Cars	Trucks	Heavys	Totals
5010	57	73	5140

Peds Cross: ⧖
West Peds: 56
West Entering: 5298
West Leg Total: 10025

Comments

Lakeshore Rd @ Old Lakeshore Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Burlington
Site #: 0000000003
Intersection: Lakeshore Rd & Old Lakeshore Rd
TFR File #: 3
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E

North Leg Total:	0
North Entering:	0
North Peds:	11
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	0	0	0	

Heavys	0
Trucks	0
Cars	0
Totals	0

East Leg Total:	1287
East Entering:	472
East Peds:	3
Peds Cross:	⧖

Driveway

Heavys	Trucks	Cars	Totals
9	5	452	466

Cars	Trucks	Heavys	Totals
0	0	0	0
450	5	9	464
8	0	0	8
458	5	9	

Lakeshore Rd

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Heavys	Trucks	Cars	Totals
0	0	0	0
9	9	779	797
0	1	2	3
9	10	781	

Lakeshore Rd

Cars	Trucks	Heavys	Totals
797	9	9	815

Old Lakeshore Rd

Peds Cross:	⧖
West Peds:	1
West Entering:	800
West Leg Total:	1266

Cars	10			
Trucks	1			
Heavys	0			
Totals	11			

Cars	2	0	18	20
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	2	0	18	

Peds Cross:	⋈
South Peds:	1
South Entering:	20
South Leg Total:	31

Comments

Lakeshore Rd @ Old Lakeshore Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

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

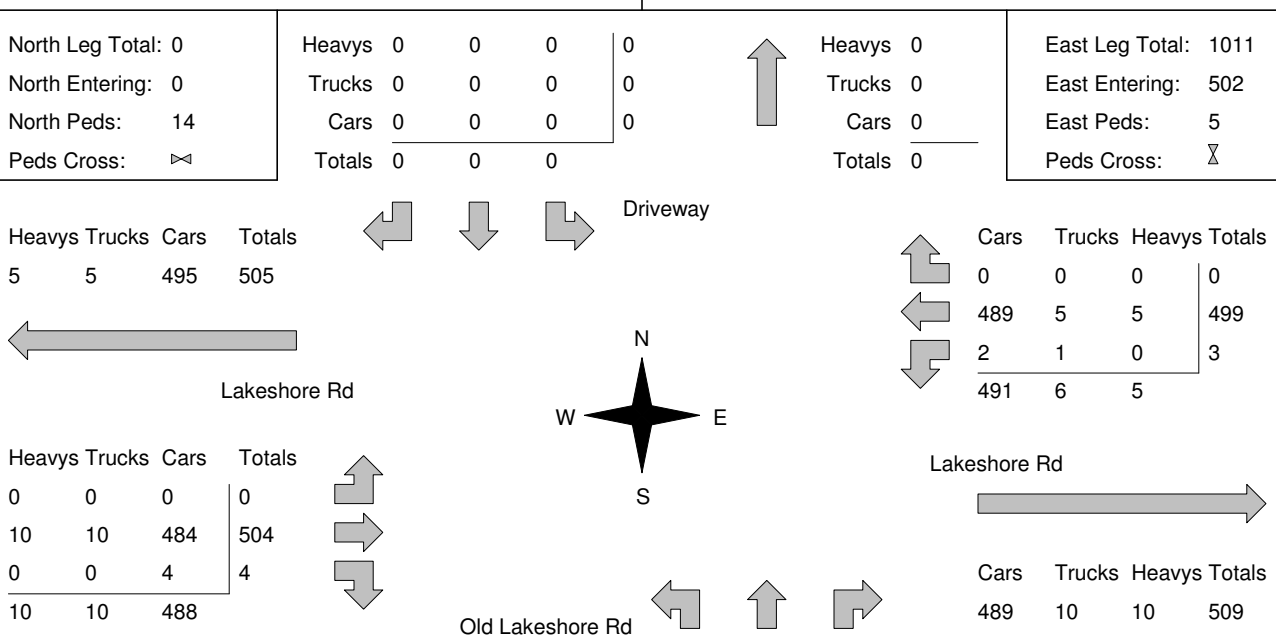
Municipality: Burlington
Site #: 0000000003
Intersection: Lakeshore Rd & Old Lakeshore Rd
TFR File #: 3
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E



Comments

Lakeshore Rd @ Old Lakeshore Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Burlington
Site #: 0000000003
Intersection: Lakeshore Rd & Old Lakeshore Rd
TFR File #: 3
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E

North Leg Total:	0
North Entering:	0
North Peds:	14
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	0	0	0	

Heavys	0
Trucks	0
Cars	0
Totals	0

East Leg Total:	1383
East Entering:	837
East Peds:	8
Peds Cross:	⧖

Driveway

Heavys	Trucks	Cars	Totals
8	10	795	813

Cars	Trucks	Heavys	Totals
0	0	0	0
794	10	8	812
25	0	0	25
819	10	8	

Lakeshore Rd

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Heavys	Trucks	Cars	Totals
0	0	0	0
4	4	531	539
0	0	3	3
4	4	534	

Lakeshore Rd

Cars	Trucks	Heavys	Totals
538	4	4	546

Old Lakeshore Rd

Peds Cross:	⧖
West Peds:	0
West Entering:	542
West Leg Total:	1355

Cars	1	0	7	8
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	1	0	7	

Cars	28
Trucks	0
Heavys	0
Totals	28

Peds Cross:	⋈
South Peds:	3
South Entering:	8
South Leg Total:	36

Comments

Lakeshore Rd @ Old Lakeshore Rd

Total Count Diagram

Municipality: Burlington
Site #: 0000000003
Intersection: Lakeshore Rd & Old Lakeshore Rd
TFR File #: 3
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E

North Leg Total:	0
North Entering:	0
North Peds:	122
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	0	0	0	

Heavys	0
Trucks	0
Cars	0
Totals	0

East Leg Total:	10072
East Entering:	4910
East Peds:	67
Peds Cross:	⧖

Heavys	Trucks	Cars	Totals
67	50	4719	4836

Driveway

Cars	Trucks	Heavys	Totals
0	0	0	0
4693	50	67	4810
99	1	0	100
4792	51	67	

Lakeshore Rd

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Heavys	Trucks	Cars	Totals
0	0	0	0
74	53	4953	5080
1	1	20	22
75	54	4973	

Lakeshore Rd

Cars	Trucks	Heavys	Totals
5033	55	74	5162

Old Lakeshore Rd

Peds Cross:	⧖
West Peds:	7
West Entering:	5102
West Leg Total:	9938

Cars	119
Trucks	2
Heavys	1
Totals	122

Cars	26	0	80	106
Trucks	0	0	2	2
Heavys	0	0	0	0
Totals	26	0	82	

Peds Cross:	⋈
South Peds:	19
South Entering:	108
South Leg Total:	230

Comments

Lakeshore Rd @ Pearl St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

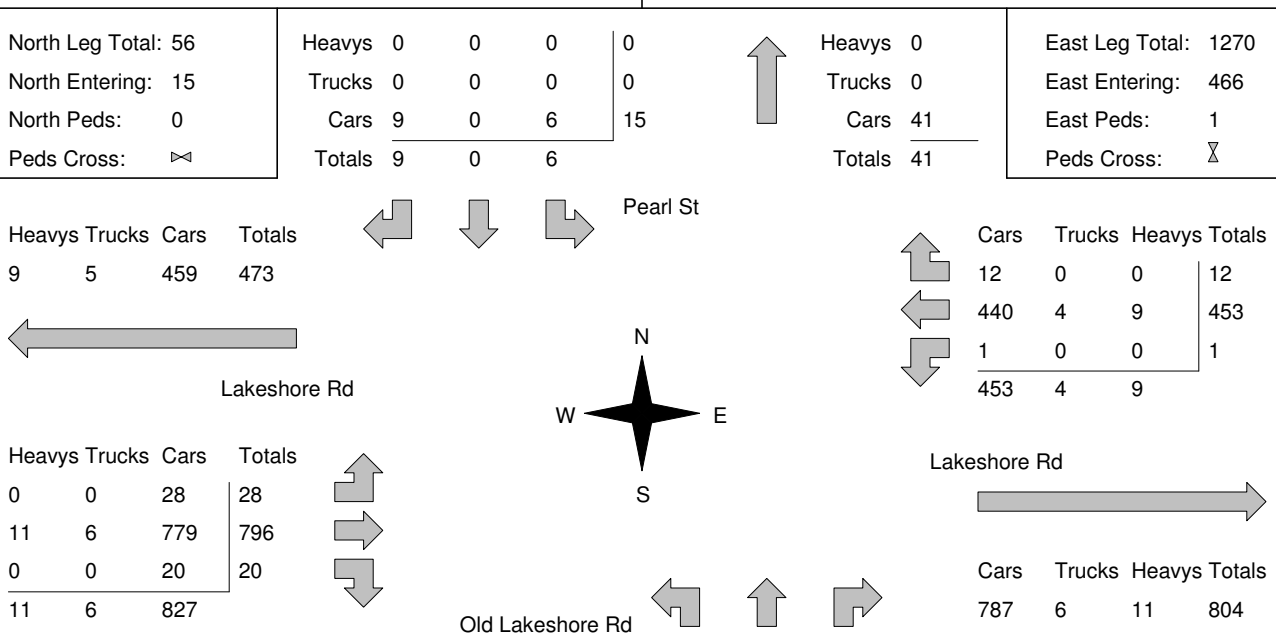
Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Pearl St
TFR File #: 1
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E



Comments

Lakeshore Rd @ Pearl St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:30:00
To: 12:30:00

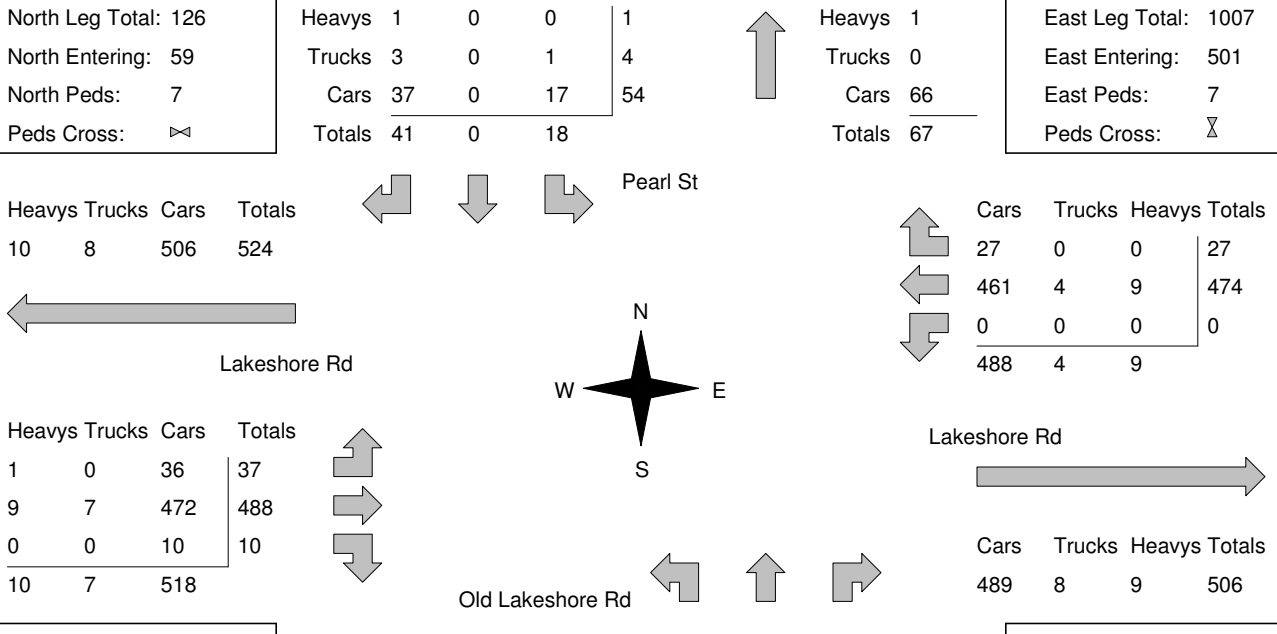
Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Pearl St
TFR File #: 1
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E



Comments

Lakeshore Rd @ Pearl St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

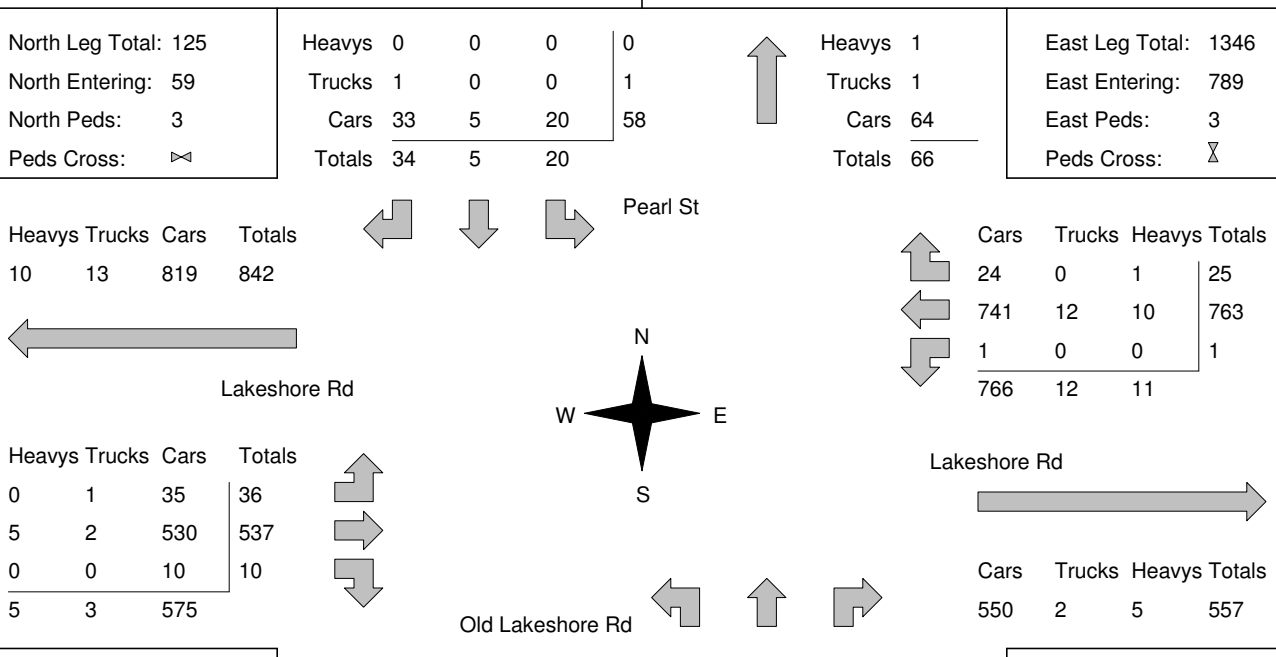
Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Pearl St
TFR File #: 1
Count date: 15-Apr-2025

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E



Comments

Lakeshore Rd @ Pearl St

Total Count Diagram

Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Pearl St
TFR File #: 1
Count date: 15-Apr-2025

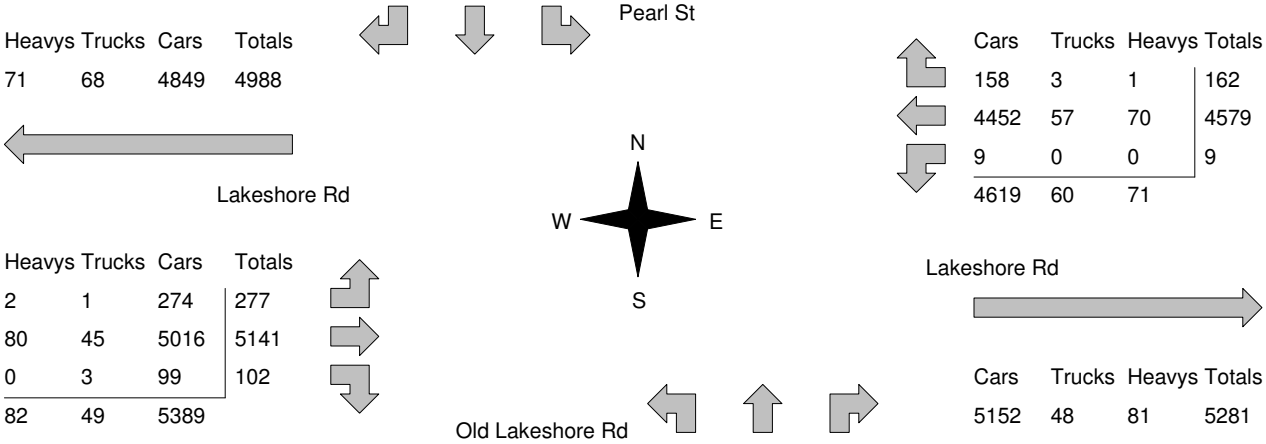
Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E

North Leg Total:	882			
North Entering:	412			
North Peds:	22			
Peds Cross:	⋈			
Heavys	1	0	1	2
Trucks	9	1	3	13
Cars	259	15	123	397
Totals	269	16	127	
Heavys	3			
Trucks	5			
Cars	462			
Totals	470			
East Leg Total:	10031			
East Entering:	4750			
East Peds:	19			
Peds Cross:	⧖			



Peds Cross:	⧖							Peds Cross:	⋈
West Peds:	196							South Peds:	55
West Entering:	5520							South Entering:	184
West Leg Total:	10508							South Leg Total:	311
Cars	123			Cars	138	30	13	181	
Trucks	4			Trucks	2	1	0	3	
Heavys	0			Heavys	0	0	0	0	
Totals	127			Totals	140	31	13		

Comments

Lakeshore Rd @ Elizabeth St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

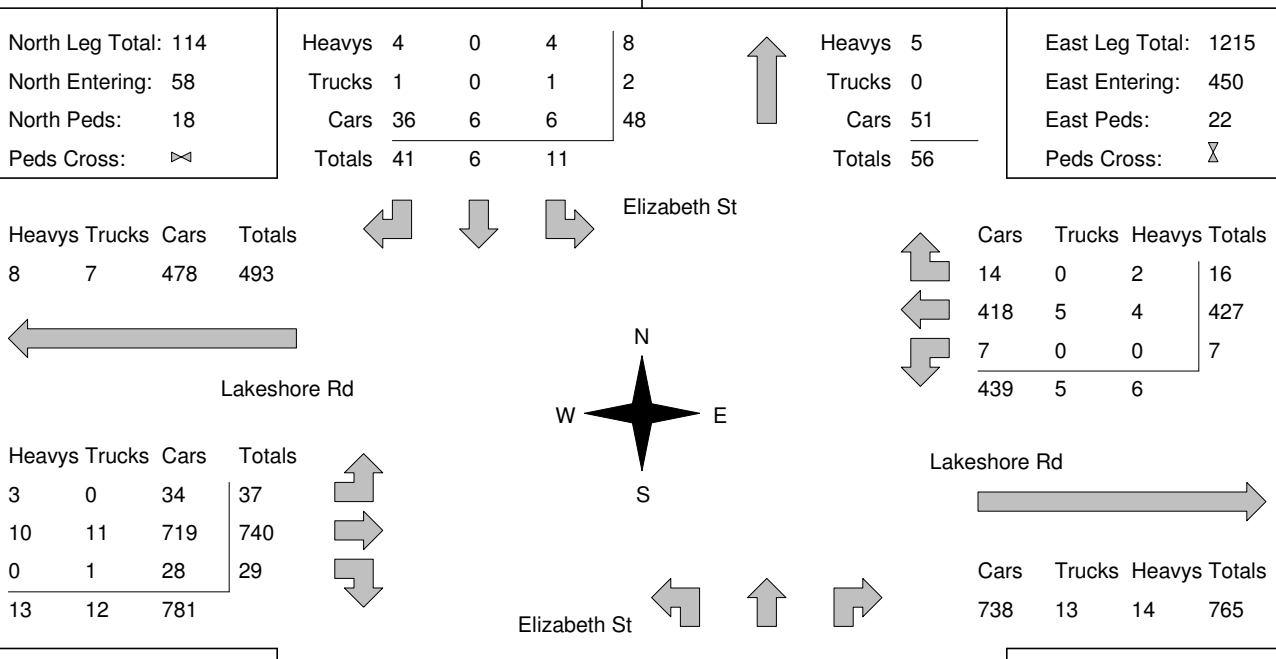
Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Elizabeth St
TFR File #: 1
Count date: 14-May-2025

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E



Comments

Lakeshore Rd @ Elizabeth St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Elizabeth St
TFR File #: 1
Count date: 14-May-2025

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E

North Leg Total:	162			
North Entering:	90			
North Peds:	40			
Peds Cross:	⋈			
Heavys	7	0	4	11
Trucks	1	0	0	1
Cars	45	14	19	78
Totals	53	14	23	
Heavys	5			
Trucks	2			
Cars	65			
Totals	72			
East Leg Total:	1042			
East Entering:	594			
East Peds:	38			
Peds Cross:	⧖			

Elizabeth St

Heavys	Trucks	Cars	Totals
12	14	614	640

	Cars	Trucks	Heavys	Totals
	28	0	2	30
	532	13	5	550
	13	1	0	14
	573	14	7	

Lakeshore Rd

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W E
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Heavys	Trucks	Cars	Totals
3	2	29	34
1	6	401	408
0	0	29	29
4	8	459	

Lakeshore Rd

	Cars	Trucks	Heavys	Totals
	435	8	5	448

Elizabeth St

Peds Cross:	⧖			
West Peds:	32			
West Entering:	471			
West Leg Total:	1111			
Cars	56			
Trucks	1			
Heavys	0			
Totals	57			
Cars	37	8	15	60
Trucks	0	0	2	2
Heavys	0	0	0	0
Totals	37	8	17	
Peds Cross:	⋈			
South Peds:	34			
South Entering:	62			
South Leg Total:	119			

Comments

Lakeshore Rd @ Elizabeth St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:45:00
To: 16:45:00

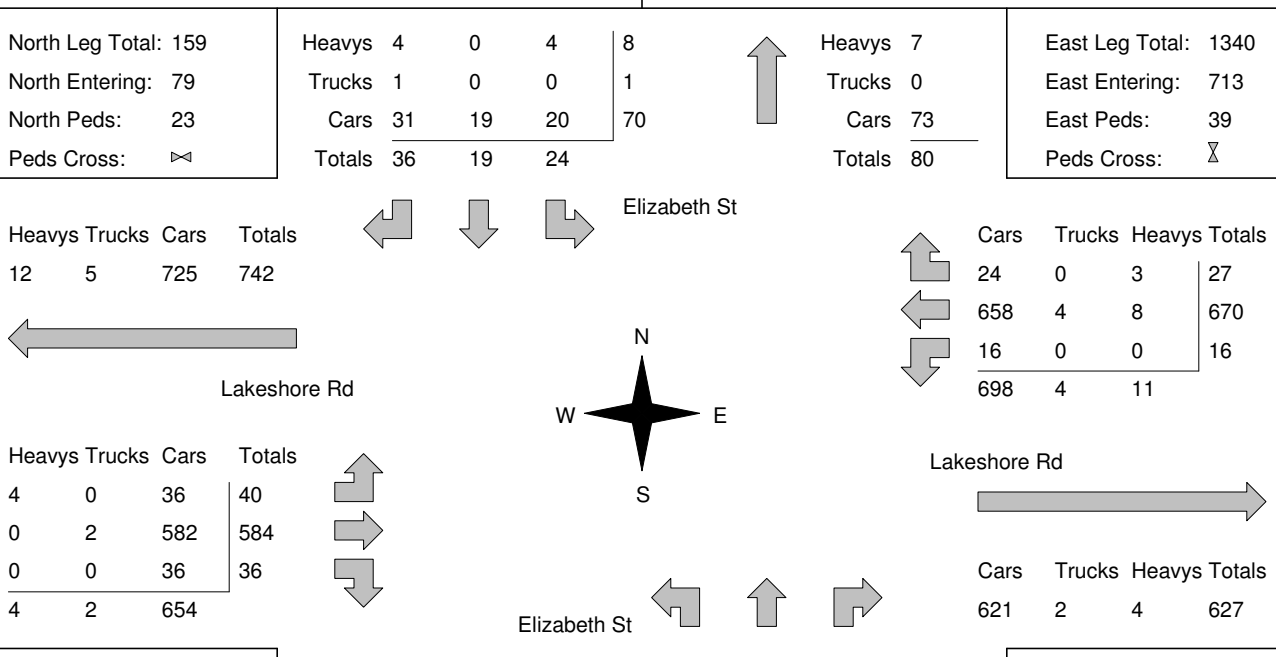
Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Elizabeth St
TFR File #: 1
Count date: 14-May-2025

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E



Comments

Lakeshore Rd @ Elizabeth St

Total Count Diagram

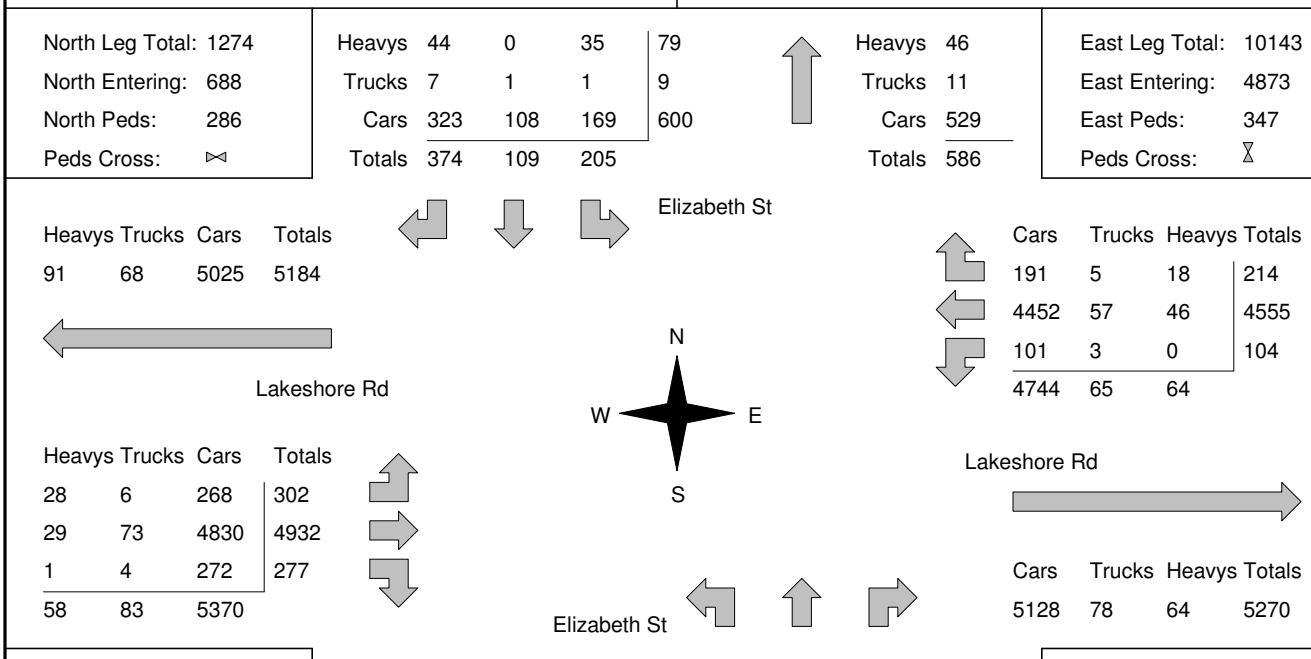
Municipality: Burlington
Site #: 0000000001
Intersection: Lakeshore Rd & Elizabeth St
TFR File #: 1
Count date: 14-May-2025

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Signalized Intersection ****

Major Road: Lakeshore Rd runs W/E



Comments

Intersection Name:	TS ID:	Controller Make:	Model:	IP address:
Lakeshore Road @ Elizabeth Street	211	Econolite	ASC/3	172.24.42.2

*-Start from Main Menu

Type of Operation: 8 Phase Semi-Actuated

No	Date			Description	Prepared by
	Y	M	D		
13	2023	8	31	Implement new weekend coord plan	PT
14	2023	9	27	Implement LPI	MA
15	2025	4	10	Optimization	JR

PHASE DESCRIPTION

Ph1		Ph5	
Ph2	EB - Lakeshore Rd	Ph6	WB - Lakeshore Rd
Ph3		Ph7	
Ph4	NB - Elizabeth St	Ph8	SB - Elizabeth St

CONFIGURATION (PHASE SEQ): PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use		X		X		X		X
Exclusive PED								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1

	Phase: 1	2	3	4	5	6	7	8
Minimum Green		8		8		8		8
Bike Minimum Green								
Delay Green				6				6
Walk		16		8		16		8
Ped. Clearance		18		21		18		21
Vehicle Extension		3		3		3		3
MAX 1		35		30		35		30
MAX 2		35		30		35		30
Yellow Change		4		4		4		4
Red Clearance		3		3		3		3
Phase Minimum:	0	41	0	36	0	41	0	36

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector								
Vehicle Recall								
Pedestrian Recall		X		X		X		X
MAX Recall		X				X		
Min Recall								

4/8 during PM Peak only

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN *** - 3 - 2, - 3 - 3**

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec)							
					1	2	3	4	5	6	7	8
1	110	42	1	1	11	63		36		74		36
2	100	46	1	2	11	53		36		64		36
3	120	56	1	3	11	73		36		84		36
4	90	84	1	4	0	49		41		49		41
5	110	49	1	5	0	60		50		60		50
10			1	254								

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	4	06:30	4	1
1	1	1	07:00	1	1
1	1	2	09:00	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
2	2	1	07:00	1	1
2	2	5	18:00	5	1
2	2	10	23:00	254	1
2	2	1	08:30	1	1
2	2	5	18:00	5	1
2	2	10	22:00	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

Special Programming: **4/8 ped recall on during weekday PM peak only**

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOW	WOM/ Year	Day Plan
New Year's Day	1	Fixed	1	1	0	3
Family Day	2	Float				3
Good Friday	3	Float				3
Victoria Day	4	Float				3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float				3
Labour Day	7	Float				3
Thanksgiving	8	Float				3
Christmas Day	9	Fixed	12	25	0	3

Intersection Name:	TS ID:	Controller Make:	Model:	IP address:
Lakeshore Road @ Pearl Street	212	Econolite	ASC/3	172.24.43.2

*-Start from Main Menu

Type of Operation: 8 Phase Semi-Actuated

No	Date			Description	Prepared by
	Y	M	D		
13	2023	11	27	Revert back timings	MA
14	2024	4	8	Revert back timings	MA
15	2025	4	10	Optimization	JR

PHASE DESCRIPTION

Ph1		Ph5	
Ph2	EB - Lakeshore Rd	Ph6	WB - Lakeshore Rd
Ph3		Ph7	
Ph4	NB - Pearl St	Ph8	SB - Pearl St

CONFIGURATION (PHASE SEQ): PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use		X		X		X	X	
Exclusive PED								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1	Phase: 1	2	3	4	5	6	7	8
Minimum Green		8		8		8		8
Bike Minimum Green								
Delay Green				5				5
Walk		16		8		16		8
Ped. Clearance		17		17		17		17
Vehicle Extension		3		3		3		3
MAX 1		35		25		35		25
MAX 2		35		25		35		25
Yellow Change		4		4		4		4
Red Clearance		3		3		3		3
Phase Minimum:	0	40	0	32	0	40	0	32

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector								
Vehicle Recall								
Pedestrian Recall		X		X		X		X
MAX Recall		X				X		
Min Recall								

4/8 during PM Peak only

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN *** - 3 - 2, - 3 - 3**

Coordinator Pattern (CP)	Cycle Length	Offset (sec)	Timing Plan	Split Pattern	Phases (sec)							
					1	2	3	4	5	6	7	8
1	110	42	1	1		77		33		77		33
2	100	44	1	2		67		33		67		33
3	120	51	1	3		87		33		87		33
4	90	88	1	4		57		33		57		33
10			1	254								

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	4	06:30	4	1
1	1	1	07:00	1	1
1	1	2	09:00	2	1
1	1	3	15:30	3	1
1	1	4	19:00	4	1
1	1	10	20:30	254	1
2	2	1	07:00	1	1
2	2	10	20:30	254	1
3	3	1	08:30	1	1
3	3	10	20:30	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

Special Programming: **Phase 4/8 ped recall on during weekday PM Peak only**

TIME BASE DATA - TIME OF YEAR EVENTS *** - 5 - 5**

Events	Exception Day		MON/ MON	DOW/ DOW	WOM/ Year	Day Plan
New Year's Day	1	Fixed	1	1	0	3
Family Day	2	Float				3
Good Friday	3	Float				3
Victoria Day	4	Float				3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float				3
Labour Day	7	Float				3
Thanksgiving	8	Float				3
Christmas Day	9	Fixed	12	25	0	3

Prepared By: *PYRAMID* Traffic Inc.

Lakeshore Rd @ Elizabeth St

Municipality: Burlington
Major Road: Lakeshore Rd
Minor Road: Elizabeth St

Date: May 14, 2025

Major Road Runs: East/West
Weather Conditions: Cloudy/Dry
Person No. 1 Pyramid Traffic
Person No. 2

Period	North Approach							East Approach							South Approach							West Approach							Veh. Summary	
	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.		
Ending	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	15	60
7:15	1	1	2	1	0	1	1	1	65	0	0	5	0	1	9	1	3	0	0	0	5	2	149	5	0	8	0	4	254	
7:30	0	4	8	1	0	0	1	1	74	1	0	2	0	3	6	0	4	1	0	0	2	2	175	4	2	5	0	1	290	
7:45	1	2	7	2	0	3	2	3	90	1	0	2	2	2	4	2	4	0	0	0	8	2	118	9	1	6	1	4	260	
8:00	1	0	8	0	0	0	4	2	98	2	0	3	1	2	5	0	2	1	0	0	8	6	201	5	1	4	1	3	341	1145
8:15	2	3	10	1	0	1	7	1	114	2	0	4	0	5	6	1	5	0	0	1	3	9	175	6	1	5	0	3	347	1238
8:30	0	0	5	1	0	1	3	3	95	2	0	2	0	6	6	1	3	0	0	0	8	5	171	3	0	8	0	1	306	1254
8:45	3	3	13	3	0	3	4	1	111	8	0	0	1	9	7	1	3	0	0	0	4	14	172	14	1	4	0	4	362	1356
9:00	3	2	5	0	0	1	4	2	105	1	0	0	2	3	3	1	4	0	0	0	5	11	165	13	0	2	0	4	320	1335
9:15	3	1	3	1	0	3	11	1	102	3	0	2	0	4	4	3	5	0	0	0	5	4	157	15	0	3	0	5	310	1298
9:30	4	3	5	1	1	2	9	2	89	4	0	2	0	11	5	3	3	0	0	0	9	7	118	9	1	10	0	2	269	1261
9:45	2	1	3	1	0	1	10	3	107	5	0	2	1	8	6	2	1	1	0	0	16	7	132	3	2	4	0	4	284	1183
10:00	3	1	7	1	0	3	3	3	93	4	0	4	0	6	6	1	1	0	0	0	10	10	117	4	1	6	0	0	265	1128
11:15	7	2	12	1	0	1	9	2	96	6	0	3	0	19	5	5	2	0	0	0	12	6	99	6	0	3	0	11	256	
11:30	11	2	8	1	0	1	15	1	88	4	0	2	1	25	4	1	5	0	0	0	9	5	103	10	1	2	0	6	250	
11:45	6	1	9	1	0	2	12	3	123	6	0	6	0	19	10	1	1	0	0	0	10	10	114	11	1	1	0	4	306	
12:00	7	1	12	1	0	1	7	2	106	4	0	4	0	7	7	2	3	0	0	0	5	13	101	9	2	4	0	5	279	1091
12:15	6	1	4	1	0	1	18	4	117	9	0	2	0	15	8	2	3	0	0	0	13	4	115	8	0	5	1	4	291	1126
12:30	8	7	9	1	0	0	11	6	93	7	0	3	0	8	7	0	1	1	0	0	10	10	107	5	1	4	1	4	271	1147
12:45	6	3	6	1	0	1	9	4	121	6	1	2	2	10	5	0	6	0	0	0	15	11	104	1	1	1	0	4	282	1123
13:00	7	7	16	1	0	0	13	4	125	9	1	2	2	15	8	1	4	0	0	1	12	9	107	11	0	1	0	9	316	1160
13:15	4	4	18	1	0	3	13	4	120	9	0	4	1	10	7	1	7	0	0	1	9	8	108	9	0	2	0	6	311	1180
13:30	2	2	7	1	0	2	8	1	118	8	1	6	0	7	9	2	2	0	0	1	7	5	95	8	2	1	0	13	273	1182
13:45	4	3	7	1	0	2	12	4	141	5	0	2	1	12	11	5	1	0	0	0	10	9	103	2	2	1	0	4	304	1204
14:00	9	5	13	1	0	1	7	4	153	6	0	6	0	9	10	0	5	0	0	0	8	7	95	10	1	3	0	9	329	1217
15:15	5	0	13	1	0	1	12	2	158	4	0	3	1	11	4	2	3	0	0	0	9	9	147	2	2	2	0	8	359	
15:30	6	5	11	1	0	2	7	1	146	10	0	2	0	9	5	6	2	0	0	0	3	6	160	5	2	0	0	2	370	
15:45	12	4	15	1	0	3	3	1	148	6	0	3	1	7	10	1	2	0	0	0	7	9	121	5	2	0	0	6	344	
16:00	8	6	6	1	0	0	5	4	197	9	0	5	2	12	6	1	2	0	0	0	11	16	137	11	0	0	0	7	411	1484
16:15	4	4	10	1	0	2	9	2	162	7	0	1	0	8	10	3	2	0	0	0	13	9	136	7	1	0	0	12	361	1486
16:30	4	6	6	0	0	2	6	6	165	4	0	4	1	9	10	6	5	0	0	0	4	6	144	11	2	1	0	5	383	1499
16:45	4	3	9	2	0	1	3	4	134	4	0	2	0	10	10	3	10	0	0	0	9	5	165	7	1	1	0	18	365	1520
17:00	3	4	7	1	0	2	14	3	186	6	0	2	1	11	4	1	6	0	0	0	8	5	151	10	1	0	0	2	393	1502
17:15	5	2	12	1	0	1	13	3	141	9	0	2	0	18	15	1	5	0	0	0	15	9	138	4	1	2	0	6	351	1492
17:30	4	2	14	1	0	2	8	1	133	5	0	3	1	11	10	2	4	1	0	0	4	6	163	8	0	0	0	8	360	1469
17:45	7	7	10	1	0	1	7	6	159	7	0	2	2	13	3	6	4	0	0	0	4	3	151	11	0	2	0	6	382	1486
18:00	7	6	13	0	0	0	6	6	179	8	0	4	0	12	5	2	6	0	0	0	19	9	116	11	1	1	1	8	375	1468

0.936464 PHF

0.924574 PHF

Prepared By: *PYRAMID* Traffic Inc.

Lakeshore Rd @ Martha St

Municipality: Burlington
Major Road: Lakeshore Rd
Minor Road: Martha St

Date: Apr 15, 2025

Major Road Runs: East/West
Weather Conditions: Clear/Dry
Person No. 1 Pyramid Traffic
Person No. 2

Period Ending	North Approach							East Approach							South Approach							West Approach							Veh. Summary	
	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.		
	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	15	60
7:15	1	0	7	0	0	0	4	0	50	2	0	2	0	0	0	0	0	0	0	0	0	4	144	0	0	5	0	3	215	
7:30	1	0	3	0	0	0	0	0	63	2	0	3	0	1	0	0	0	0	0	0	0	1	138	0	0	4	0	4	215	
7:45	5	0	4	0	0	0	0	0	95	4	0	2	0	1	0	0	0	0	0	0	0	7	176	0	0	7	0	3	300	
8:00	2	0	7	1	0	0	3	0	111	2	0	0	0	0	0	0	0	0	0	0	0	4	187	0	0	5	0	2	319	1049
8:15	4	0	6	0	0	0	6	0	99	2	0	5	1	1	0	0	0	0	0	0	0	3	202	0	0	5	0	0	327	1161
8:30	4	0	3	0	0	0	3	0	113	14	0	4	0	0	0	0	0	0	0	0	0	3	210	0	0	3	0	1	354	1300
8:45	2	0	5	0	0	0	2	0	106	7	0	1	0	0	0	0	0	0	0	0	0	6	172	0	0	5	0	5	304	1304
9:00	3	0	7	0	0	0	3	0	117	10	0	3	0	0	0	0	0	0	0	0	0	1	160	0	0	7	0	2	308	1293
9:15	3	0	5	0	0	0	1	0	100	4	0	0	1	3	0	0	0	0	0	0	0	6	170	0	1	5	0	6	295	1261
9:30	3	0	3	0	0	0	0	0	109	4	0	6	0	0	0	0	0	0	0	0	0	7	182	0	1	7	0	0	322	1229
9:45	0	0	1	0	0	0	1	0	103	3	0	4	0	1	0	0	0	0	0	0	0	8	174	0	0	9	0	1	302	1227
10:00	0	0	1	0	0	0	1	0	103	3	0	5	1	0	0	0	0	0	0	0	0	6	149	0	0	5	0	1	273	1192
11:15	3	0	4	0	0	1	2	0	130	11	0	3	0	4	0	0	0	0	0	0	0	5	105	0	1	4	0	2	267	
11:30	2	0	2	0	0	1	2	0	104	3	0	3	0	2	0	0	0	0	0	0	0	7	113	0	0	6	0	5	241	
11:45	2	0	4	0	0	0	1	0	130	6	0	2	0	0	0	0	0	0	0	0	0	3	145	0	0	4	0	1	296	
12:00	2	0	3	0	0	1	0	0	110	2	0	2	0	0	0	0	0	0	0	0	0	6	108	0	0	6	0	1	240	1044
12:15	0	0	4	0	0	0	0	0	120	4	0	2	0	0	0	0	0	0	0	0	0	5	104	0	0	4	0	2	243	1020
12:30	1	0	7	0	0	0	6	0	108	4	0	5	0	0	0	0	0	0	0	0	0	7	115	0	0	3	0	2	250	1029
12:45	3	0	4	0	0	0	2	0	116	6	0	4	0	0	0	0	0	0	0	0	0	9	123	0	0	0	0	0	265	998
13:00	0	0	7	0	0	0	7	0	101	11	0	3	0	5	0	0	0	0	0	0	0	11	112	0	0	2	0	2	247	1005
13:15	0	0	5	0	0	0	4	0	106	3	0	1	1	0	0	0	0	0	0	0	0	10	109	0	0	4	0	1	239	1001
13:30	0	0	7	0	0	0	2	0	97	8	0	6	0	0	0	0	0	0	0	0	0	5	108	0	0	3	0	0	234	985
13:45	2	0	6	0	0	0	2	0	99	5	0	4	0	0	0	0	0	0	0	0	0	6	102	0	1	1	0	0	226	946
14:00	0	0	2	0	0	0	2	0	101	5	0	2	0	0	0	0	0	0	0	0	0	8	134	0	0	4	0	0	256	955
15:15	2	0	5	0	0	1	3	0	167	10	0	6	1	2	0	0	0	0	0	0	0	4	134	0	0	3	0	0	333	
15:30	1	0	6	1	0	1	0	0	181	9	0	2	0	1	0	0	0	0	0	0	0	7	136	0	0	1	0	1	345	
15:45	2	0	5	0	0	0	1	0	200	5	0	7	0	1	0	0	0	0	0	0	0	8	115	0	0	3	0	5	345	
16:00	2	0	4	0	0	0	3	0	199	12	0	4	0	0	0	0	0	0	0	0	0	5	138	0	0	1	0	0	365	1388
16:15	2	0	4	0	0	0	3	0	178	9	0	4	1	2	0	0	0	0	0	0	0	3	134	0	1	1	0	3	337	1392
16:30	1	0	3	0	0	0	0	0	169	10	0	4	0	0	0	0	0	0	0	0	0	7	151	0	0	3	0	2	348	1395
16:45	3	0	1	0	0	0	0	0	135	14	0	1	0	3	0	0	0	0	0	0	0	8	130	0	0	1	0	1	293	1343
17:00	2	0	3	0	0	0	2	0	162	11	0	5	0	2	0	0	0	0	0	0	0	8	127	0	0	0	0	0	318	1296
17:15	0	0	2	0	0	0	2	0	177	13	0	0	0	1	0	0	0	0	0	0	0	8	109	0	0	1	0	0	310	1269
17:30	0	0	2	0	0	0	0	0	80	13	0	2	0	0	0	0	0	0	0	0	0	6	131	0	0	1	0	0	235	1156
17:45	1	0	4	0	0	0	1	0	136	8	0	3	0	0	0	0	0	0	0	0	0	4	113	0	0	2	0	0	271	1134
18:00	3	0	0	0	0	0	4	0	190	14	0	1	0	1	0	0	0	0	0	0	0	11	88	0	0	3	0	0	310	1126

0.920904 PHF

0.955479 PHF

Prepared By: *PYRAMID* Traffic Inc.

Lakeshore Rd @ Old Lakeshore Rd

Municipality: Burlington
Major Road: Lakeshore Rd
Minor Road: Old Lakeshore Rd

Date: Apr 15, 2025

Major Road Runs: East/West
Weather Conditions: Clear/Dry
Person No. 1 Pyramid Traffic
Person No. 2

Period	North Approach							East Approach							South Approach							West Approach							Veh. Summary	
	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.		
Ending	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	15	60
7:15	0	0	0	0	0	0	4	0	54	0	0	2	0	0	0	0	2	0	0	0	0	0	145	0	0	5	0	0	208	
7:30	0	0	0	0	0	0	3	0	66	0	0	3	0	0	1	0	4	0	0	0	0	0	137	0	0	4	0	0	215	
7:45	0	0	0	0	0	0	2	0	99	0	0	2	0	1	0	0	2	0	0	0	0	0	177	0	0	6	1	0	287	
8:00	0	0	0	0	0	0	2	1	112	0	0	3	0	0	1	0	1	0	0	0	1	0	186	0	0	5	1	0	310	1020
8:15	0	0	0	0	0	0	0	0	98	0	0	6	0	0	0	0	2	0	0	0	0	0	205	0	0	6	0	0	317	1129
8:30	0	0	0	0	0	0	2	3	130	0	0	4	0	0	0	0	2	0	0	0	0	0	207	2	0	3	0	1	351	1265
8:45	0	0	0	0	0	0	7	4	110	0	0	1	0	3	1	0	13	0	0	0	0	0	181	0	0	4	0	0	314	1292
9:00	0	0	0	0	0	0	7	2	127	0	0	3	0	3	1	0	4	0	0	1	5	0	159	0	0	5	0	0	302	1284
9:15	0	0	0	0	0	0	1	2	104	0	0	1	0	4	0	0	3	0	0	0	1	0	168	0	0	5	0	0	283	1250
9:30	0	0	0	0	0	0	6	0	109	0	0	6	0	4	2	0	1	0	0	0	0	0	180	1	0	6	0	0	305	1204
9:45	0	0	0	0	0	0	2	1	102	0	0	4	0	3	0	0	4	0	0	1	0	0	176	0	0	11	0	0	299	1189
10:00	0	0	0	0	0	0	5	4	107	0	0	5	0	5	0	0	1	0	0	0	0	0	149	0	0	5	0	0	271	1158
11:15	0	0	0	0	0	0	6	0	140	0	0	2	0	0	1	0	1	0	0	0	1	0	108	0	0	4	0	0	256	
11:30	0	0	0	0	0	0	6	1	105	0	0	3	0	3	2	0	0	0	0	0	0	0	117	1	0	6	0	0	235	
11:45	0	0	0	0	0	0	2	1	133	0	0	3	0	2	1	0	2	0	0	0	0	0	147	1	0	3	0	0	291	
12:00	0	0	0	0	0	0	0	0	111	0	1	2	0	0	2	0	2	0	0	0	2	0	112	2	0	7	0	2	239	1021
12:15	0	0	0	0	0	0	1	1	123	0	0	2	0	2	1	0	4	0	0	0	0	0	104	0	0	4	0	0	239	1004
12:30	0	0	0	0	0	0	3	2	113	0	0	5	0	1	1	0	1	0	0	0	0	0	112	2	0	3	0	0	239	1008
12:45	0	0	0	0	0	0	2	0	120	0	0	4	0	2	1	0	0	0	0	0	0	0	122	1	0	2	0	0	250	967
13:00	0	0	0	0	0	0	1	1	111	0	0	3	0	2	2	0	4	0	0	0	0	0	108	1	0	2	0	0	232	960
13:15	0	0	0	0	0	0	5	2	107	0	0	3	0	2	1	0	2	0	0	0	1	0	111	0	0	3	0	0	229	950
13:30	0	0	0	0	0	0	7	3	104	0	0	5	0	4	3	0	2	0	0	0	0	0	105	0	0	3	0	1	225	936
13:45	0	0	0	0	0	0	2	2	102	0	0	4	0	0	0	0	1	0	0	0	0	0	104	2	0	1	0	0	216	902
14:00	0	0	0	0	0	0	3	0	104	0	0	3	0	0	3	0	2	0	0	0	0	0	132	1	0	3	0	0	248	918
15:15	0	0	0	0	0	0	9	0	174	0	0	6	0	1	0	0	0	0	0	0	2	0	133	2	0	3	0	2	318	
15:30	0	0	0	0	0	0	3	1	192	0	0	2	0	2	1	0	3	0	0	0	0	0	139	1	0	2	0	0	341	
15:45	0	0	0	0	0	0	4	8	206	0	0	6	0	1	0	0	4	0	0	0	1	0	116	0	0	3	0	0	343	
16:00	0	0	0	0	0	0	2	5	211	0	0	4	0	3	1	0	1	0	0	0	0	0	134	0	0	1	0	0	357	1359
16:15	0	0	0	0	0	0	2	4	192	0	0	4	0	0	0	0	0	0	0	0	0	0	136	1	0	1	0	0	338	1379
16:30	0	0	0	0	0	0	6	8	185	0	0	4	0	4	0	0	2	0	0	0	2	0	145	2	0	3	0	0	349	1387
16:45	0	0	0	0	0	0	1	7	140	0	0	1	0	1	0	0	2	0	0	0	0	0	139	0	0	1	0	0	290	1334
17:00	0	0	0	0	0	0	4	5	170	0	0	5	0	4	0	0	2	0	0	0	1	0	126	0	0	0	0	1	308	1285
17:15	0	0	0	0	0	0	4	9	197	0	0	0	0	5	0	0	1	0	0	0	0	0	107	0	0	1	0	0	315	1262
17:30	0	0	0	0	0	0	4	15	94	0	0	3	0	2	0	0	1	0	0	0	0	0	131	0	0	1	0	0	245	1158
17:45	0	0	0	0	0	0	3	5	147	0	0	2	0	3	0	0	1	0	0	0	0	0	111	0	0	2	0	0	268	1136
18:00	0	0	0	0	0	0	1	2	194	0	0	1	0	0	0	0	3	0	0	0	2	0	84	0	0	3	0	0	287	1115

0.920228 PHF

0.971289 PHF

Prepared By: *PYRAMID* Traffic Inc.

Lakeshore Rd @ Pearl St

Municipality: Burlington
Major Road: Lakeshore Rd
Minor Road: Pearl St

Date: Apr 15, 2025

Major Road Runs: East/West
Weather Conditions: Clear/Dry
Person No. 1 Pyramid Traffic
Person No. 2

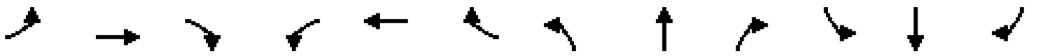
Period Ending	North Approach							East Approach							South Approach							West Approach							Veh. Summary	
	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.		
	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	15	60
7:15	0	1	0	0	0	0	0	0	54	0	0	2	0	2	0	0	0	0	0	0	1	2	150	4	0	5	0	3	218	
7:30	0	0	1	0	0	0	0	0	64	0	0	3	0	0	0	0	0	0	0	0	5	5	141	5	0	4	0	7	223	
7:45	1	0	4	1	1	0	0	0	94	1	0	3	0	0	1	0	0	0	0	0	1	5	185	5	0	6	0	8	307	
8:00	0	0	2	0	0	0	0	0	122	0	0	3	0	1	1	0	1	1	0	0	2	7	193	1	0	5	0	2	336	1084
8:15	1	0	2	0	0	0	0	0	102	3	0	5	0	0	2	0	0	0	0	0	0	11	203	2	0	5	0	6	336	1202
8:30	2	0	3	0	0	0	0	0	111	4	0	3	0	0	3	0	1	0	0	0	4	5	208	2	0	2	0	11	344	1323
8:45	3	0	2	0	0	0	0	1	105	5	0	2	0	0	4	1	0	0	0	0	1	5	175	15	0	5	0	6	323	1339
9:00	2	2	5	0	0	0	2	0	117	8	0	3	0	2	2	1	1	0	0	0	1	7	159	7	0	6	1	5	321	1324
9:15	0	0	2	0	0	0	0	0	103	2	0	0	0	0	2	0	0	0	0	0	0	4	180	2	0	6	0	6	301	1289
9:30	2	0	0	1	0	0	0	1	103	6	0	6	0	1	1	2	0	0	0	0	3	3	185	3	0	6	0	7	319	1264
9:45	2	1	5	1	0	0	1	0	101	5	0	4	0	1	1	0	0	0	0	0	1	7	187	3	0	10	1	12	328	1269
10:00	2	0	6	0	0	2	1	0	98	4	0	5	0	0	1	0	0	0	0	0	3	11	154	1	0	6	0	18	290	1238
11:15	3	0	4	0	0	0	1	2	127	3	0	6	0	1	3	0	0	0	0	0	3	6	107	2	0	4	0	7	267	
11:30	9	1	8	0	0	1	0	0	106	2	0	3	1	0	1	1	0	0	0	0	2	6	114	1	0	5	0	5	259	
11:45	5	0	10	1	0	0	0	0	125	10	0	3	0	0	2	1	0	0	0	0	1	7	141	4	0	3	0	1	312	
12:00	5	0	7	0	0	1	2	0	110	3	0	4	0	2	2	1	0	1	0	0	1	9	109	2	0	6	0	2	260	1098
12:15	4	0	11	0	0	1	4	0	117	6	0	2	0	4	2	1	0	0	0	0	3	6	102	3	0	4	0	2	259	1090
12:30	3	0	9	0	0	2	1	0	109	8	0	4	0	1	2	0	0	0	0	0	2	14	120	1	1	3	0	6	276	1107
12:45	8	1	9	0	0	0	2	0	115	4	0	4	0	0	0	1	0	0	0	0	1	10	123	4	1	2	0	5	282	1077
13:00	4	0	3	0	0	0	1	0	105	5	0	3	0	1	1	1	1	0	0	0	0	11	112	2	0	1	0	5	249	1066
13:15	4	0	9	0	0	0	0	0	108	4	0	2	0	0	1	0	1	0	0	0	2	7	115	4	0	4	0	9	259	1066
13:30	7	0	9	0	0	0	0	0	93	8	0	5	2	0	3	0	0	0	0	0	0	8	106	4	0	3	0	7	248	1038
13:45	1	1	10	0	0	0	1	2	101	5	0	6	0	0	3	1	2	0	0	0	0	6	105	4	0	1	0	8	248	1004
14:00	3	2	9	0	0	0	1	0	101	6	0	4	0	0	1	0	0	0	1	0	0	14	136	2	0	4	1	5	284	1039
15:15	7	2	3	0	0	0	0	0	164	9	0	6	1	0	7	0	0	0	0	0	4	10	129	5	0	3	0	4	346	
15:30	4	1	12	0	0	1	2	1	176	6	0	6	0	3	22	0	0	0	0	0	5	12	145	0	0	2	0	4	388	
15:45	6	1	12	0	0	0	1	0	197	3	0	5	0	0	12	4	0	0	0	0	0	8	114	4	1	1	0	6	368	
16:00	3	1	6	0	0	0	0	0	204	6	0	5	0	0	4	1	0	0	0	0	1	5	142	1	0	1	0	3	379	1481
16:15	3	0	20	0	0	0	0	0	177	1	0	4	0	0	5	1	2	0	0	0	3	7	113	1	0	2	0	2	336	1471
16:30	3	0	10	0	0	0	0	0	171	4	0	4	0	0	8	1	2	0	0	0	1	9	151	0	0	2	0	4	365	1448
16:45	3	0	15	0	0	0	0	1	128	5	0	1	0	0	10	5	1	0	0	0	4	9	134	0	0	1	0	4	313	1393
17:00	2	0	10	0	0	0	1	0	162	7	0	3	0	0	5	0	0	0	0	0	0	11	131	2	0	0	0	3	333	1347
17:15	5	1	20	0	0	0	0	0	174	4	0	2	0	0	5	3	0	0	0	0	0	6	108	0	0	2	0	4	330	1341
17:30	9	0	8	0	0	1	0	0	81	1	0	2	0	0	12	3	0	0	0	0	0	8	133	1	0	0	0	1	259	1235
17:45	6	0	8	0	0	1	1	0	136	3	0	2	0	0	6	1	0	0	0	0	0	5	106	0	0	3	0	6	277	1199
18:00	1	0	5	0	0	0	0	1	191	7	0	2	0	0	3	0	1	0	0	0	0	8	100	2	0	2	0	2	323	1189

0.97311 PHF

0.954253 PHF

Appendix C

Base Year Traffic Operation Reports



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	740	29	7	427	16	25	3	14	11	6	41
Future Volume (vph)	37	740	29	7	427	16	25	3	14	11	6	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	1.00		0.99	1.00		0.99	0.97		0.98	0.98	
Frt		0.994			0.995			0.875			0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	3515	0	1825	3541	0	1755	1540	0	1259	1476	0
Flt Permitted	0.482			0.310			0.724			0.746		
Satd. Flow (perm)	844	3515	0	589	3541	0	1322	1540	0	964	1476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			6			15			44	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			55.1			68.6			100.8	
Travel Time (s)		7.7			4.0			4.9			7.3	
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Adj. Flow (vph)	39	787	31	7	454	17	27	3	15	12	6	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	818	0	7	471	0	27	18	0	12	50	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
v/c Ratio	0.08	0.38		0.02	0.22		0.08	0.04		0.05	0.12	
Control Delay (s/veh)	9.4	11.5		6.6	8.6		31.4	15.8		31.0	11.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	9.4	11.5		6.6	8.6		31.4	15.8		31.0	11.7	
LOS	A	B		A	A		C	B		C	B	
Approach Delay (s/veh)		11.4			8.6			25.1			15.4	
Approach LOS		B			A			C			B	
Queue Length 50th (m)	3.2	43.4		0.6	23.0		4.4	0.5		1.9	1.0	
Queue Length 95th (m)	7.7	55.3		m1.4	28.3		11.4	6.0		6.8	10.1	
Internal Link Dist (m)		82.8			31.1			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	514	2143		358	2159		348	417		254	421	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	47		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.39		0.02	0.22		0.08	0.04		0.05	0.12	

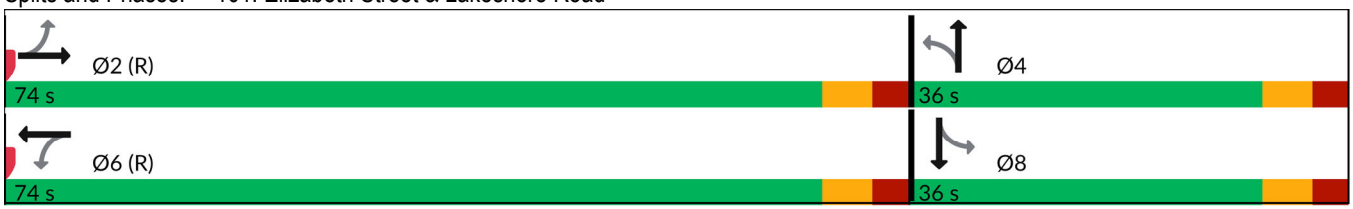
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay (s/veh): 11.1	Intersection LOS: B

Intersection Capacity Utilization 66.6% ICU Level of Service C

Analysis Period (min) 15

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

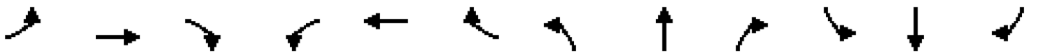
Splits and Phases: 101: Elizabeth Street & Lakeshore Road



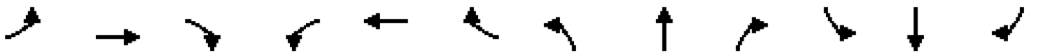
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	740	29	7	427	16	25	3	14	11	6	41
Future Volume (vph)	37	740	29	7	427	16	25	3	14	11	6	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.99	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.88		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1664	3516		1805	3539		1734	1540		1228	1476	
Flt Permitted	0.48	1.00		0.31	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	844	3516		589	3539		1323	1540		964	1476	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	39	787	31	7	454	17	27	3	15	12	6	44
RTOR Reduction (vph)	0	2	0	0	2	0	0	11	0	0	32	0
Lane Group Flow (vph)	39	816	0	7	469	0	27	7	0	12	18	0
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	514	2141		358	2155		348	406		254	389	
v/s Ratio Prot		c0.23			0.13			0.00			0.01	
v/s Ratio Perm	0.05			0.01			c0.02			0.01		
v/c Ratio	0.08	0.38		0.02	0.22		0.08	0.02		0.05	0.05	
Uniform Delay, d1	8.8	10.9		8.5	9.7		30.4	30.0		30.2	30.2	
Progression Factor	1.00	1.00		0.74	0.87		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		0.1	0.2		0.4	0.1		0.4	0.2	
Delay (s)	9.1	11.5		6.4	8.7		30.9	30.0		30.5	30.4	
Level of Service	A	B		A	A		C	C		C	C	
Approach Delay (s/veh)		11.4			8.6			30.5			30.4	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	796	20	1	453	12	11	1	2	6	0	9
Future Volume (vph)	28	796	20	1	453	12	11	1	2	6	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.97	0.99		1.00	0.96	
Frt		0.996			0.996			0.900			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1875	0	1825	1859	0	1674	1703	0	1825	1561	0
Flt Permitted	0.490			0.318								
Satd. Flow (perm)	941	1875	0	610	1859	0	1705	1703	0	1917	1561	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			2			423	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.9			116.1			61.5			107.3	
Travel Time (s)		5.0			8.4			4.4			7.7	
Confl. Peds. (#/hr)			7	7			25		1	1		25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	29	821	21	1	467	12	11	1	2	6	0	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	842	0	1	479	0	11	3	0	6	9	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0		33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	70.0	70.0		70.0	70.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	101.1	101.1		101.1	101.1		8.1	8.1		8.1	8.1	
Actuated g/C Ratio	0.92	0.92		0.92	0.92		0.07	0.07		0.07	0.07	
v/c Ratio	0.03	0.49		0.00	0.28		0.09	0.02		0.04	0.02	
Control Delay (s/veh)	1.0	5.2		2.0	2.0		48.1	37.7		48.0	0.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	1.0	5.2		2.0	2.0		48.1	37.7		48.0	0.1	
LOS	A	A		A	A		D	D		D	A	
Approach Delay (s/veh)		5.1			2.0			45.9			19.3	
Approach LOS		A			A			D			B	
Queue Length 50th (m)	0.0	53.1		0.0	0.0		2.2	0.1		1.2	0.0	
Queue Length 95th (m)	1.3	75.7		0.3	31.9		m7.1	m2.6		5.3	0.0	
Internal Link Dist (m)		44.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	865	1724		561	1709		403	404		453	691	
Starvation Cap Reductn	0	8		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	0.03	0.49		0.00	0.28		0.03	0.01		0.01	0.01	

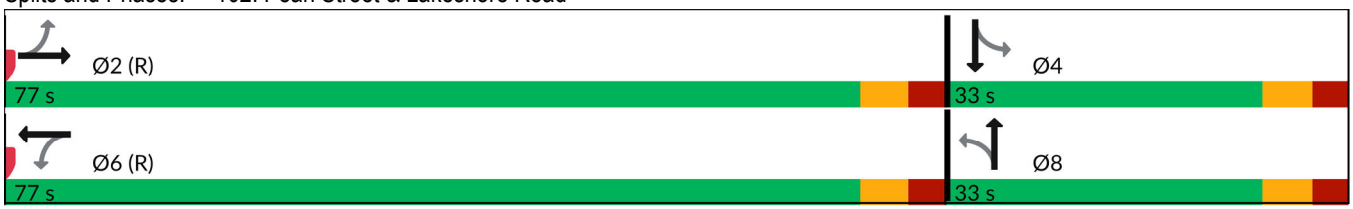
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay (s/veh): 4.6	Intersection LOS: A

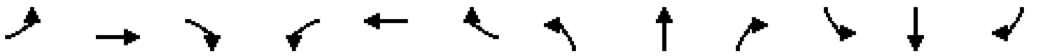
Intersection Capacity Utilization 69.5% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 102: Pearl Street & Lakeshore Road

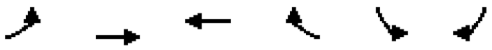




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	796	20	1	453	12	11	1	2	6	0	9
Future Volume (vph)	28	796	20	1	453	12	11	1	2	6	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.97	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.90		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1876		1819	1860		1620	1703		1821	1561	
Flt Permitted	0.49	1.00		0.32	1.00		1.00	1.00		1.00	1.00	
Satd. Flow (perm)	940	1876		610	1860		1705	1703		1917	1561	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	29	821	21	1	467	12	11	1	2	6	0	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	9	0
Lane Group Flow (vph)	29	842	0	1	479	0	11	1	0	6	0	0
Confl. Peds. (#/hr)			7	7			25		1	1		25
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	92.7	92.7		92.7	92.7		3.3	3.3		3.3	3.3	
Effective Green, g (s)	92.7	92.7		92.7	92.7		3.3	3.3		3.3	3.3	
Actuated g/C Ratio	0.84	0.84		0.84	0.84		0.03	0.03		0.03	0.03	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	792	1580		514	1567		51	51		57	46	
v/s Ratio Prot		c0.45			0.26			0.00			0.00	
v/s Ratio Perm	0.03			0.00			c0.01			0.00		
v/c Ratio	0.04	0.53		0.00	0.31		0.22	0.02		0.11	0.01	
Uniform Delay, d1	1.4	2.5		1.4	1.8		52.1	51.8		51.9	51.8	
Progression Factor	0.55	1.89		1.00	1.00		0.98	1.02		1.00	1.00	
Incremental Delay, d2	0.1	1.2		0.0	0.5		2.1	0.2		0.8	0.1	
Delay (s)	0.8	5.9		1.4	2.3		53.0	52.8		52.7	51.8	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s/veh)		5.7			2.3			52.9			52.2	
Approach LOS		A			A			D			D	

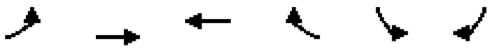
Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	789	439	26	13	21
Future Volume (vph)	16	789	439	26	13	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.993		0.916	
Flt Protected	0.950				0.981	
Satd. Flow (prot)	1825	1883	1868	0	1676	0
Flt Permitted	0.950				0.981	
Satd. Flow (perm)	1825	1883	1868	0	1676	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	14			14	1	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	4%	8%	0%
Adj. Flow (vph)	17	858	477	28	14	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	858	505	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

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



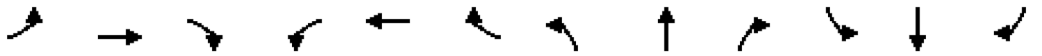
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	789	439	26	13	21
Future Volume (Veh/h)	16	789	439	26	13	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	858	477	28	14	23
Pedestrians		8	1		14	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.85	
vC, conflicting volume	519				1398	513
vC1, stage 1 conf vol					505	
vC2, stage 2 conf vol					893	
vCu, unblocked vol	519				1380	513
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)					5.5	
tF (s)	2.2				3.6	3.3
p0 queue free %	98				96	96
cM capacity (veh/h)	1043				322	553

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	17	858	505	37
Volume Left	17	0	0	14
Volume Right	0	0	28	23
cSH	1043	1700	1700	435
Volume to Capacity	0.02	0.50	0.30	0.09
Queue Length 95th (m)	0.4	0.0	0.0	2.1
Control Delay (s/veh)	8.5	0.0	0.0	14.0
Lane LOS	A			B
Approach Delay (s/veh)	0.2		0.0	14.0
Approach LOS				B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	797	3	8	464	0	2	0	18	0	0	0
Future Volume (vph)	0	797	3	8	464	0	2	0	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999						0.877				
Flt Protected				0.950				0.995				
Satd. Flow (prot)	1921	1880	0	1825	1865	0	0	1676	0	0	1921	0
Flt Permitted				0.950				0.995				
Satd. Flow (perm)	1921	1880	0	1825	1865	0	0	1676	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			228.6			61.5	
Travel Time (s)		10.3			6.5			16.5			4.4	
Confl. Peds. (#/hr)	11		1	1		11	1		3	3		1
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%	2%	33%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	866	3	9	504	0	2	0	20	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	869	0	9	504	0	0	22	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

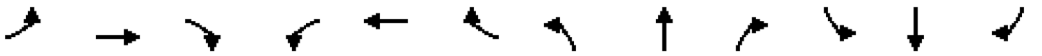
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	797	3	8	464	0	2	0	18	0	0	0
Future Volume (Veh/h)	0	797	3	8	464	0	2	0	18	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	866	3	9	504	0	2	0	20	0	0	0
Pedestrians		1			3			1			11	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.84			0.84	0.84	0.84	0.84	0.84	
vC, conflicting volume	515			870			1392	1402	872	1422	1403	516
vC1, stage 1 conf vol							869	869		533	533	
vC2, stage 2 conf vol							523	533		889	870	
vCu, unblocked vol	515			750			1371	1383	751	1407	1384	516
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	94	100	100	100
cM capacity (veh/h)	1050			728			295	305	346	267	299	556

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	869	9	504	22	0
Volume Left	0	0	9	0	2	0
Volume Right	0	3	0	0	20	0
cSH	1700	1700	728	1700	341	1700
Volume to Capacity	0.00	0.51	0.01	0.30	0.06	0.00
Queue Length 95th (m)	0.0	0.0	0.3	0.0	1.6	0.0
Control Delay (s/veh)	0.0	0.0	10.0	0.0	16.3	0.0
Lane LOS			B		C	A
Approach Delay (s/veh)	0.0		0.2		16.3	0.0
Approach LOS					C	A

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	53.1%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	584	36	16	670	27	36	13	19	24	19	36
Future Volume (vph)	40	584	36	16	670	27	36	13	19	24	19	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.98	1.00		0.95	0.96		0.95	0.96	
Frt		0.991			0.994			0.910			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3600	0	1825	3537	0	1825	1686	0	1560	1523	0
Flt Permitted	0.340			0.377			0.718			0.734		
Satd. Flow (perm)	586	3600	0	707	3537	0	1313	1686	0	1150	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			21			39	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			54.3			68.6			100.8	
Travel Time (s)		7.7			3.9			4.9			7.3	
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
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 (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Adj. Flow (vph)	43	635	39	17	728	29	39	14	21	26	21	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	674	0	17	757	0	39	35	0	26	60	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
v/c Ratio	0.11	0.29		0.04	0.33		0.12	0.08		0.09	0.15	
Control Delay (s/veh)	9.3	9.7		4.3	4.2		37.0	20.0		36.6	17.4	
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	9.3	9.7		4.3	4.5		37.0	20.0		36.6	17.4	
LOS	A	A		A	A		D	C		D	B	
Approach Delay (s/veh)		9.7			4.5			29.0			23.2	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	3.6	33.4		0.6	12.2		7.2	2.6		4.8	3.8	
Queue Length 95th (m)	8.6	42.8		m0.9	16.0		16.5	10.8		12.4	14.8	
Internal Link Dist (m)		82.8			30.3			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	376	2313		453	2272		317	423		277	397	
Starvation Cap Reductn	0	0		0	838		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.29		0.04	0.53		0.12	0.08		0.09	0.15	

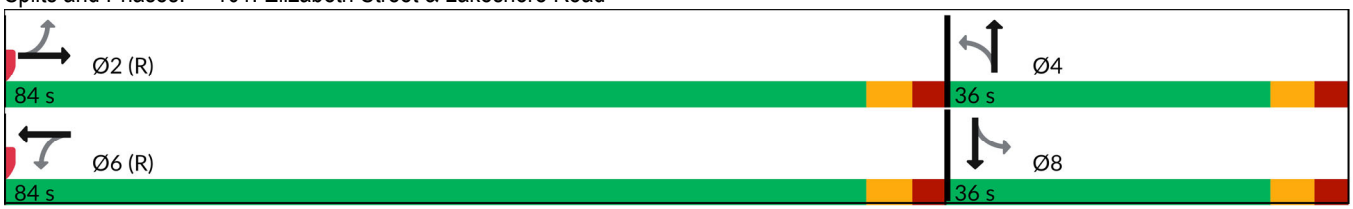
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 56 (47%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.33	
Intersection Signal Delay (s/veh): 8.8	Intersection LOS: A

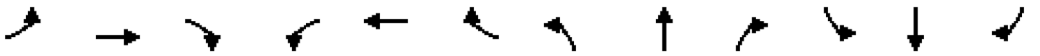
Intersection Capacity Utilization 69.1% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road



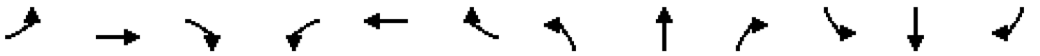


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	584	36	16	670	27	36	13	19	24	19	36
Future Volume (vph)	40	584	36	16	670	27	36	13	19	24	19	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.96		1.00	0.96	
Flpb, ped/bikes	0.99	1.00		0.98	1.00		0.95	1.00		0.95	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1637	3601		1781	3538		1738	1686		1488	1524	
Flt Permitted	0.34	1.00		0.38	1.00		0.72	1.00		0.73	1.00	
Satd. Flow (perm)	586	3601		707	3538		1313	1686		1150	1524	
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)	43	635	39	17	728	29	39	14	21	26	21	39
RTOR Reduction (vph)	0	4	0	0	3	0	0	16	0	0	30	0
Lane Group Flow (vph)	43	670	0	17	754	0	39	19	0	26	30	0
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
Heavy Vehicles (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	376	2310		453	2270		317	407		277	368	
v/s Ratio Prot		0.19			c0.21			0.01			0.02	
v/s Ratio Perm	0.07			0.02			c0.03			0.02		
v/c Ratio	0.11	0.29		0.04	0.33		0.12	0.05		0.09	0.08	
Uniform Delay, d1	8.3	9.5		7.9	9.8		35.6	34.9		35.3	35.2	
Progression Factor	1.00	1.00		0.51	0.40		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3		0.1	0.3		0.8	0.2		0.7	0.4	
Delay (s)	8.9	9.8		4.2	4.2		36.4	35.1		36.0	35.6	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s/veh)		9.7			4.2			35.8			35.7	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	537	10	1	763	25	45	5	0	20	5	34
Future Volume (vph)	36	537	10	1	763	25	45	5	0	20	5	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00		0.98			0.99	0.97	
Frt		0.997			0.995						0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	1895	0	1825	1854	0	1825	1921	0	1825	1573	0
Flt Permitted	0.234			0.381			0.730			0.754		
Satd. Flow (perm)	436	1895	0	727	1854	0	1370	1921	0	1438	1573	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			3						36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		69.6			116.1			61.5			107.3	
Travel Time (s)		5.0			8.4			4.4			7.7	
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	38	565	11	1	803	26	47	5	0	21	5	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	576	0	1	829	0	47	5	0	21	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0		33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	27.5%		27.5%	27.5%	
Maximum Green (s)	80.0	80.0		80.0	80.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0		17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	80.0	80.0		80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.22	0.22		0.22	0.22	
v/c Ratio	0.13	0.46		0.00	0.67		0.16	0.01		0.07	0.11	
Control Delay (s/veh)	5.2	6.8		7.0	15.4		39.4	37.6		38.2	14.7	
Queue Delay	0.0	0.1		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	5.2	6.8		7.0	15.4		39.4	37.6		38.2	14.7	
LOS	A	A		A	B		D	D		D	B	
Approach Delay (s/veh)		6.7			15.4			39.2			22.7	
Approach LOS		A			B			D			C	
Queue Length 50th (m)	1.4	20.6		0.1	107.3		9.1	1.0		4.0	0.9	
Queue Length 95th (m)	3.1	26.5		0.7	148.7		19.6	m4.4		10.8	10.2	
Internal Link Dist (m)		45.6			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	290	1264		484	1237		296	416		311	369	
Starvation Cap Reductn	0	98		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.49		0.00	0.67		0.16	0.01		0.07	0.11	

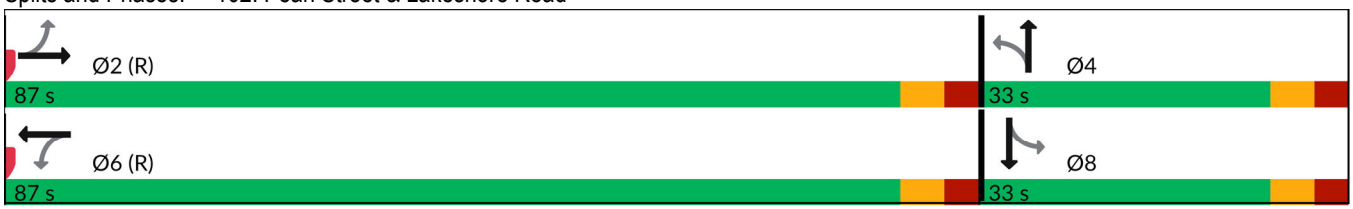
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 51 (43%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay (s/veh): 13.1	Intersection LOS: B

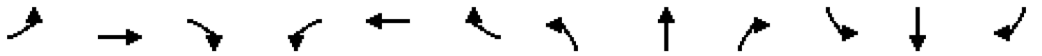
Intersection Capacity Utilization 74.2% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Pearl Street & Lakeshore Road

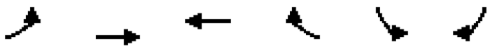




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	537	10	1	763	25	45	5	0	20	5	34
Future Volume (vph)	36	537	10	1	763	25	45	5	0	20	5	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1896		1813	1854		1783	1921		1812	1574	
Flt Permitted	0.23	1.00		0.38	1.00		0.73	1.00		0.75	1.00	
Satd. Flow (perm)	435	1896		728	1854		1371	1921		1439	1574	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	565	11	1	803	26	47	5	0	21	5	36
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	0	0	28	0
Lane Group Flow (vph)	38	575	0	1	828	0	47	5	0	21	13	0
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	80.0	80.0		80.0	80.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)	80.0	80.0		80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	290	1264		485	1236		297	416		311	341	
v/s Ratio Prot		0.30			c0.45			0.00			0.01	
v/s Ratio Perm	0.09			0.00			c0.03			0.01		
v/c Ratio	0.13	0.46		0.00	0.67		0.16	0.01		0.07	0.04	
Uniform Delay, d1	7.3	9.6		6.7	12.0		38.1	36.9		37.4	37.1	
Progression Factor	0.55	0.57		1.00	1.00		0.99	1.01		1.00	1.00	
Incremental Delay, d2	0.9	1.2		0.0	2.9		1.1	0.1		0.4	0.2	
Delay (s)	4.9	6.6		6.7	14.9		38.7	37.4		37.8	37.3	
Level of Service	A	A		A	B		D	D		D	D	
Approach Delay (s/veh)		6.5			14.9			38.6			37.5	
Approach LOS		A			B			D			D	

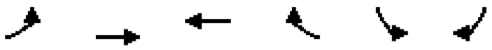
Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	546	765	37	7	16
Future Volume (vph)	24	546	765	37	7	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.994		0.904	
Flt Protected	0.950				0.986	
Satd. Flow (prot)	1755	1902	1871	0	1712	0
Flt Permitted	0.950				0.986	
Satd. Flow (perm)	1755	1902	1871	0	1712	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	7			7	3	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	1%	2%	3%	0%	0%
Adj. Flow (vph)	25	569	797	39	7	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	569	836	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			



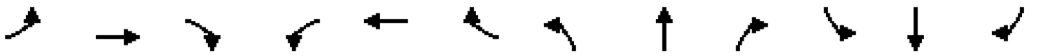
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	546	765	37	7	16
Future Volume (Veh/h)	24	546	765	37	7	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	25	569	797	39	7	17
Pedestrians		10	3		7	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.85	
vC, conflicting volume	843				1446	834
vC1, stage 1 conf vol					824	
vC2, stage 2 conf vol					622	
vCu, unblocked vol	843				1436	834
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	95
cM capacity (veh/h)	779				345	365

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	25	569	836	24
Volume Left	25	0	0	7
Volume Right	0	0	39	17
cSH	779	1700	1700	359
Volume to Capacity	0.03	0.33	0.49	0.07
Queue Length 95th (m)	0.8	0.0	0.0	1.6
Control Delay (s/veh)	9.8	0.0	0.0	15.7
Lane LOS	A			C
Approach Delay (s/veh)	0.4		0.0	15.7
Approach LOS				C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	539	3	25	812	0	1	0	7	0	0	0
Future Volume (vph)	0	539	3	25	812	0	1	0	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999						0.882				
Flt Protected				0.950				0.994				
Satd. Flow (prot)	1921	1900	0	1825	1883	0	0	1684	0	0	1921	0
Flt Permitted				0.950				0.994				
Satd. Flow (perm)	1921	1900	0	1825	1883	0	0	1684	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			239.6			61.5	
Travel Time (s)		10.3			6.5			17.3			4.4	
Confl. Peds. (#/hr)	14		3	3		14			8	8		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	556	3	26	837	0	1	0	7	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	559	0	26	837	0	0	8	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	539	3	25	812	0	1	0	7	0	0	0
Future Volume (Veh/h)	0	539	3	25	812	0	1	0	7	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	556	3	26	837	0	1	0	7	0	0	0
Pedestrians					8			3			14	
Lane Width (m)					3.7			3.7			3.7	
Walking Speed (m/s)					1.1			1.1			1.1	
Percent Blockage					1			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.85			0.85	0.85	0.85	0.85	0.85	
vC, conflicting volume	851			562			1450	1464	569	1474	1465	851
vC1, stage 1 conf vol							561	561		903	903	
vC2, stage 2 conf vol							889	903		571	562	
vCu, unblocked vol	851			403			1441	1457	410	1470	1459	851
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	99	100	100	100
cM capacity (veh/h)	785			995			287	296	546	273	292	358

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	559	26	837	8	0
Volume Left	0	0	26	0	1	0
Volume Right	0	3	0	0	7	0
cSH	1700	1700	995	1700	491	1700
Volume to Capacity	0.00	0.33	0.03	0.49	0.02	0.00
Queue Length 95th (m)	0.0	0.0	0.6	0.0	0.4	0.0
Control Delay (s/veh)	0.0	0.0	8.7	0.0	12.5	0.0
Lane LOS			A		B	A
Approach Delay (s/veh)	0.0		0.3		12.5	0.0
Approach LOS					B	A

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	55.1%	ICU Level of Service		B
Analysis Period (min)	15			

Appendix D

Proxy Survey Data

118-126 Queen Street (NOTL) - Trip Generation Survey

51 Room Hotel + SPA (12,000 ft2) + Two Restaurants
Town of Niagara-on-the-Lake

Hotel Rooms:	76
Hotel Rooms Occupied:	76
Peak Parking Demand Observed:	73
Walk Score:	62
Transit Score:	0
Bike Score:	66

Day	Time	Outbound	Inbound	15 min Total	60 min Total	Trip Rate Per Parking Space	Percentage Inbound	Percentage Outbound
Thursday November 7, 2024	12:00 AM	0	0	0				
Thursday November 7, 2024	12:15 AM	0	0	0				
Thursday November 7, 2024	12:30 AM	0	0	0				
Thursday November 7, 2024	12:45 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	1:00 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	1:15 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	1:30 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	1:45 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	2:00 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	2:15 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	2:30 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	2:45 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	3:00 AM	0	1	1	1	0.01	100%	0%
Thursday November 7, 2024	3:15 AM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	3:30 AM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	3:45 AM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	4:00 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	4:15 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	4:30 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	4:45 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	5:00 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	5:15 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	5:30 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	5:45 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	6:00 AM	0	1	1	1	0.01	100%	0%
Thursday November 7, 2024	6:15 AM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	6:30 AM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	6:45 AM	1	0	1	2	0.03	50%	50%
Thursday November 7, 2024	7:00 AM	1	0	1	2	0.03	0%	100%
Thursday November 7, 2024	7:15 AM	0	0	0	2	0.03	0%	100%
Thursday November 7, 2024	7:30 AM	0	0	0	2	0.03	0%	100%
Thursday November 7, 2024	7:45 AM	0	0	0	1	0.01	0%	100%
Thursday November 7, 2024	8:00 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	8:15 AM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	8:30 AM	0	1	1	1	0.01	100%	0%
Thursday November 7, 2024	**8:45 AM**	**0**	**1**	**1**	**2**	**0.03**	**100%**	**0%**
Thursday November 7, 2024	9:00 AM	1	1	2	4	0.05	75%	25%
Thursday November 7, 2024	9:15 AM	2	3	5	9	0.12	67%	33%
Thursday November 7, 2024	9:30 AM	2	2	4	12	0.16	58%	42%
Thursday November 7, 2024	9:45 AM	2	2	4	15	0.21	53%	47%
Thursday November 7, 2024	10:00 AM	1	1	2	15	0.21	53%	47%
Thursday November 7, 2024	10:15 AM	0	0	0	10	0.14	50%	50%
Thursday November 7, 2024	10:30 AM	0	4	4	10	0.14	70%	30%
Thursday November 7, 2024	10:45 AM	1	1	2	8	0.11	75%	25%
Thursday November 7, 2024	11:00 AM	4	1	5	11	0.15	55%	45%
Thursday November 7, 2024	11:15 AM	2	0	2	13	0.18	46%	54%
Thursday November 7, 2024	11:30 AM	1	1	2	11	0.15	27%	73%
Thursday November 7, 2024	11:45 AM	1	4	5	14	0.19	43%	57%
Thursday November 7, 2024	12:00 PM	2	0	2	11	0.15	45%	55%
Thursday November 7, 2024	12:15 PM	2	2	4	13	0.18	54%	46%
Thursday November 7, 2024	12:30 PM	0	0	0	11	0.15	55%	45%
Thursday November 7, 2024	12:45 PM	0	1	1	7	0.10	43%	57%
Thursday November 7, 2024	1:00 PM	3	1	4	9	0.12	44%	56%
Thursday November 7, 2024	1:15 PM	9	1	10	15	0.21	20%	80%
Thursday November 7, 2024	1:30 PM	4	1	5	20	0.27	20%	80%
Thursday November 7, 2024	1:45 PM	2	0	2	21	0.29	14%	86%
Thursday November 7, 2024	2:00 PM	3	0	3	20	0.27	10%	90%
Thursday November 7, 2024	2:15 PM	3	6	9	19	0.26	37%	63%
Thursday November 7, 2024	2:30 PM	4	4	8	22	0.30	45%	55%
Thursday November 7, 2024	2:45 PM	1	6	7	27	0.37	59%	41%
Thursday November 7, 2024	3:00 PM	1	4	5	29	0.40	69%	31%
Thursday November 7, 2024	3:15 PM	1	1	2	22	0.30	68%	32%
Thursday November 7, 2024	3:30 PM	0	6	6	20	0.27	85%	15%
Thursday November 7, 2024	3:45 PM	2	2	4	17	0.23	76%	24%
Thursday November 7, 2024	4:00 PM	2	4	6	18	0.25	72%	28%
Thursday November 7, 2024	4:15 PM	3	2	5	21	0.29	67%	33%
Thursday November 7, 2024	**4:30 PM**	**1**	**6**	**7**	**22**	**0.30**	**64%**	**36%**
Thursday November 7, 2024	4:45 PM	3	2	5	23	0.32	61%	39%
Thursday November 7, 2024	5:00 PM	0	1	1	18	0.25	61%	39%
Thursday November 7, 2024	5:15 PM	2	1	3	16	0.22	63%	38%
Thursday November 7, 2024	5:30 PM	0	0	0	9	0.12	44%	56%
Thursday November 7, 2024	5:45 PM	2	1	3	7	0.10	43%	57%
Thursday November 7, 2024	6:00 PM	0	0	0	6	0.08	33%	67%
Thursday November 7, 2024	6:15 PM	1	0	1	4	0.05	25%	75%
Thursday November 7, 2024	6:30 PM	2	1	3	7	0.10	29%	71%
Thursday November 7, 2024	6:45 PM	0	1	1	5	0.07	40%	60%
Thursday November 7, 2024	7:00 PM	0	0	0	5	0.07	40%	60%
Thursday November 7, 2024	7:15 PM	0	0	0	4	0.05	50%	50%
Thursday November 7, 2024	7:30 PM	1	0	1	2	0.03	50%	50%
Thursday November 7, 2024	7:45 PM	0	0	0	1	0.01	0%	100%
Thursday November 7, 2024	8:00 PM	2	2	4	5	0.07	40%	60%
Thursday November 7, 2024	8:15 PM	0	0	0	5	0.07	40%	60%
Thursday November 7, 2024	8:30 PM	1	2	3	7	0.10	57%	43%
Thursday November 7, 2024	8:45 PM	1	0	1	8	0.11	50%	50%
Thursday November 7, 2024	9:00 PM	0	1	1	5	0.07	60%	40%
Thursday November 7, 2024	9:15 PM	1	0	1	6	0.08	50%	50%
Thursday November 7, 2024	9:30 PM	0	2	2	5	0.07	60%	40%
Thursday November 7, 2024	9:45 PM	0	0	0	4	0.05	75%	25%
Thursday November 7, 2024	10:00 PM	0	0	0	3	0.04	67%	33%
Thursday November 7, 2024	10:15 PM	0	1	1	3	0.04	100%	0%
Thursday November 7, 2024	10:30 PM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	10:45 PM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	11:00 PM	0	0	0	1	0.01	100%	0%
Thursday November 7, 2024	11:15 PM	0	0	0	0	0.00	-	-
Thursday November 7, 2024	11:30 PM	0	1	1	1	0.01	100%	0%
Thursday November 7, 2024	11:45 PM	0	0	0	1	0.01	100%	0%

2025 Maria Street - Trip Generation Survey

154 Residential High-Rise Development
City of Burlington

Residential Units:	154
Residential Units Occupied:	154
Peak Parking Demand Observed:	123
Walk Score:	98
Transit Score:	49
Bike Score:	78

Day	Time	Outbound	Inbound	15 min Total	60 min Total	Trip Rate Per Parking Space	Percentage Inbound	Percentage Outbound	2076 Old Lakeshorew Esimates		
									Hotel	Residential	Total
									35	47	82
Thursday November 24, 2022	12:00 AM	1	2	3					0	0	0
Thursday November 24, 2022	12:15 AM	0	0	0					0	0	0
Thursday November 24, 2022	12:30 AM	0	0	0					0	0	0
Thursday November 24, 2022	12:45 AM	0	0	0	3	0.02	67%	33%	0	1	1
Thursday November 24, 2022	1:00 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	1:15 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	1:30 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	1:45 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	2:00 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	2:15 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	2:30 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	2:45 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	3:00 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	3:15 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	3:30 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	3:45 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	4:00 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	4:15 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	4:30 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	4:45 AM	1	0	1	1	0.01	0%	100%	0	0	0
Thursday November 24, 2022	5:00 AM	0	0	0	1	0.01	0%	100%	0	0	0
Thursday November 24, 2022	5:15 AM	0	0	0	1	0.01	0%	100%	0	0	0
Thursday November 24, 2022	5:30 AM	0	0	0	1	0.01	0%	100%	0	0	0
Thursday November 24, 2022	5:45 AM	0	0	0	0	0.00	-	-	0	0	0
Thursday November 24, 2022	6:00 AM	1	0	1	1	0.01	0%	100%	0	0	1
Thursday November 24, 2022	6:15 AM	0	0	0	1	0.01	0%	100%	0	0	1
Thursday November 24, 2022	6:30 AM	0	0	0	1	0.01	0%	100%	0	0	1
Thursday November 24, 2022	6:45 AM	1	0	1	2	0.02	0%	100%	1	1	2
Thursday November 24, 2022	7:00 AM	2	0	2	3	0.02	0%	100%	1	1	2
Thursday November 24, 2022	7:15 AM	5	0	5	8	0.07	0%	100%	1	3	4
Thursday November 24, 2022	7:30 AM	7	1	8	16	0.13	6%	94%	1	6	7
Thursday November 24, 2022	7:45 AM	2	0	2	17	0.14	6%	94%	0	6	7
Thursday November 24, 2022	8:00 AM	3	2	5	20	0.16	15%	85%	0	8	8
Thursday November 24, 2022	8:15 AM	5	0	5	20	0.16	15%	85%	0	8	8
Thursday November 24, 2022	8:30 AM	3	0	3	15	0.12	13%	87%	0	6	6
Thursday November 24, 2022	**8:45 AM**	**4**	**4**	**8**	**21**	**0.17**	**29%**	**71%**	**1**	**8**	**9**
Thursday November 24, 2022	9:00 AM	4	1	5	21	0.17	24%	76%	2	8	10
Thursday November 24, 2022	9:15 AM	3	1	4	20	0.16	30%	70%	4	8	12
Thursday November 24, 2022	9:30 AM	3	0	3	20	0.16	30%	70%	6	8	13
Thursday November 24, 2022	9:45 AM	1	0	1	13	0.11	15%	85%	7	5	12
Thursday November 24, 2022	10:00 AM	3	1	4	12	0.10	17%	83%	7	5	12
Thursday November 24, 2022	10:15 AM	3	0	3	11	0.09	9%	91%	5	4	9
Thursday November 24, 2022	10:30 AM	2	2	4	12	0.10	25%	75%	5	5	9
Thursday November 24, 2022	10:45 AM	3	2	5	16	0.13	31%	69%	4	6	10
Thursday November 24, 2022	11:00 AM	2	1	3	15	0.12	33%	67%	5	6	11
Thursday November 24, 2022	11:15 AM	4	1	5	17	0.14	35%	65%	6	6	13
Thursday November 24, 2022	11:30 AM	4	4	8	21	0.17	38%	62%	5	8	13
Thursday November 24, 2022	11:45 AM	3	2	5	21	0.17	38%	62%	7	8	15
Thursday November 24, 2022	12:00 PM	0	4	4	22	0.18	50%	50%	5	8	14
Thursday November 24, 2022	12:15 PM	1	2	3	20	0.16	60%	40%	6	8	14
Thursday November 24, 2022	12:30 PM	7	1	8	20	0.16	45%	55%	5	8	13
Thursday November 24, 2022	12:45 PM	3	2	5	20	0.16	45%	55%	3	8	11
Thursday November 24, 2022	1:00 PM	1	0	1	17	0.14	29%	71%	4	6	11
Thursday November 24, 2022	1:15 PM	1	1	2	16	0.13	25%	75%	7	6	13
Thursday November 24, 2022	1:30 PM	3	3	6	14	0.11	43%	57%	10	5	15
Thursday November 24, 2022	1:45 PM	4	4	8	17	0.14	47%	53%	10	6	17
Thursday November 24, 2022	2:00 PM	2	2	4	20	0.16	50%	50%	10	8	17
Thursday November 24, 2022	2:15 PM	0	3	3	21	0.17	57%	43%	9	8	17
Thursday November 24, 2022	2:30 PM	0	5	5	20	0.16	70%	30%	11	8	18
Thursday November 24, 2022	2:45 PM	2	2	4	16	0.13	75%	25%	13	6	19
Thursday November 24, 2022	3:00 PM	5	2	7	19	0.15	63%	37%	14	7	21
Thursday November 24, 2022	3:15 PM	1	2	3	19	0.15	58%	42%	11	7	18
Thursday November 24, 2022	3:30 PM	1	2	3	17	0.14	47%	53%	10	6	16
Thursday November 24, 2022	3:45 PM	5	4	9	22	0.18	45%	55%	8	8	17
Thursday November 24, 2022	4:00 PM	1	5	6	21	0.17	62%	38%	9	8	17
Thursday November 24, 2022	4:15 PM	2	4	6	24	0.20	63%	38%	10	9	19
Thursday November 24, 2022	**4:30 PM**	**6**	**6**	**12**	**33**	**0.27**	**58%**	**42%**	**11**	**13**	**23**
Thursday November 24, 2022	4:45 PM	0	3	3	27	0.22	67%	33%	11	10	21
Thursday November 24, 2022	5:00 PM	0	6	6	27	0.22	70%	30%	9	10	19
Thursday November 24, 2022	5:15 PM	1	5	6	27	0.22	74%	26%	8	10	18
Thursday November 24, 2022	5:30 PM	0	0	0	15	0.12	93%	7%	4	6	10
Thursday November 24, 2022	5:45 PM	1	1	2	14	0.11	86%	14%	3	5	9
Thursday November 24, 2022	6:00 PM	2	0	2	10	0.08	60%	40%	3	4	7
Thursday November 24, 2022	6:15 PM	2	0	2	6	0.05	17%	83%	2	2	4
Thursday November 24, 2022	6:30 PM	1	1	2	8	0.07	25%	75%	3	3	6
Thursday November 24, 2022	6:45 PM	1	2	3	9	0.07	33%	67%	2	3	6
Thursday November 24, 2022	7:00 PM	1	3	4	11	0.09	55%	45%	2	4	7
Thursday November 24, 2022	7:15 PM	0	1	1	10	0.08	70%	30%	2	4	6
Thursday November 24, 2022	7:30 PM	0	1	1	9	0.07	78%	22%	1	3	4
Thursday November 24, 2022	7:45 PM	1	2	3	9	0.07	78%	22%	0	3	4
Thursday November 24, 2022	8:00 PM	0	2	2	7	0.06	86%	14%	2	3	5
Thursday November 24, 2022	8:15 PM	0	0	0	6	0.05	83%	17%	2	2	5
Thursday November 24, 2022	8:30 PM	0	2	2	7	0.06	86%	14%	3	3	6
Thursday November 24, 2022	8:45 PM	0	1	1	5	0.04	100%	0%	4	2	6
Thursday November 24, 2022	9:00 PM	0	3	3	6	0.05	100%	0%	2	2	5
Thursday November 24, 2022	9:15 PM	0	4	4	10	0.08	100%	0%	3	4	7
Thursday November 24, 2022	9:30 PM	0	1	1	9	0.07	100%	0%	2	3	6
Thursday November 24, 2022	9:45 PM	0	0	0	8	0.07	100%	0%	2	3	5
Thursday November 24, 2022	10:00 PM	0	1	1	6	0.05	100%	0%	1	2	4
Thursday November 24, 2022	10:15 PM	0	0	0	2	0.02	100%	0%	1	1	2
Thursday November 24, 2022	10:30 PM	0	2	2	3	0.02	100%	0%	0	1	2
Thursday November 24, 2022	10:45 PM	0	1	1	4	0.03	100%	0%	0	2	2
Thursday November 24, 2022	11:00 PM	0	1	1	4	0.03	100%	0%	0	2	2
Thursday November 24, 2022	11:15 PM	0	2	2	6	0.05	95%	5%	0	2	2
Thursday November 24, 2022	11:30 PM	0	0	0	4	0.03	100%	0%	0	2	2
Thursday November 24, 2022	11:45 PM	0	0	0	3	0.02	100%	0%	0	1	2

paradigm

118-126 Queen Street (NOTL) - Trip Generation Survey

51 Room Hotel + SPA (12,000 ft2) + Two Restaurants
Town of Niagara-on-the-Lake

Hotel Rooms:	76
Hotel Rooms Occupied:	76
Peak Parking Demand Observed:	73
Walk Score:	62
Transit Score:	0
Bike Score:	66

Day	Time	Outbound	Inbound	15 min Total	60 min Total	Trip Rate Per Parking Space	Percentage Inbound	Percentage Outbound
Friday November 8, 2024	12:00 AM	0	0	0	1	0.01	100%	-
Friday November 8, 2024	12:15 AM	0	0	0	1	0.01	100%	-
Friday November 8, 2024	12:30 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	12:45 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	1:00 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	1:15 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	1:30 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	1:45 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	2:00 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	2:15 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	2:30 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	2:45 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	3:00 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	3:15 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	3:30 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	3:45 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	4:00 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	4:15 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	4:30 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	4:45 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	5:00 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	5:15 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	5:30 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	5:45 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	6:00 AM	0	0	0	0	0.00	-	-
Friday November 8, 2024	6:15 AM	1	1	2	2	0.03	50%	50%
Friday November 8, 2024	6:30 AM	1	0	1	3	0.04	33%	67%
Friday November 8, 2024	6:45 AM	4	1	5	8	0.11	25%	75%
Friday November 8, 2024	7:00 AM	0	0	0	8	0.11	25%	75%
Friday November 8, 2024	7:15 AM	1	0	1	7	0.10	14%	86%
Friday November 8, 2024	7:30 AM	0	0	0	6	0.08	17%	83%
Friday November 8, 2024	7:45 AM	0	0	0	1	0.01	0%	100%
Friday November 8, 2024	8:00 AM	0	1	1	2	0.03	50%	50%
Friday November 8, 2024	8:15 AM	2	0	2	3	0.04	33%	67%
Friday November 8, 2024	8:30 AM	0	1	1	4	0.05	50%	50%
Friday November 8, 2024	**8:45 AM**	**0**	**0**	**0**	**4**	**0.05**	**50%**	**50%**
Friday November 8, 2024	9:00 AM	0	1	1	4	0.05	50%	50%
Friday November 8, 2024	9:15 AM	1	0	1	3	0.04	67%	33%
Friday November 8, 2024	9:30 AM	1	0	1	3	0.04	33%	67%
Friday November 8, 2024	9:45 AM	0	2	2	5	0.07	60%	40%
Friday November 8, 2024	10:00 AM	3	1	4	8	0.11	38%	63%
Friday November 8, 2024	10:15 AM	2	2	4	11	0.15	45%	55%
Friday November 8, 2024	10:30 AM	0	2	2	12	0.16	58%	42%
Friday November 8, 2024	10:45 AM	1	1	2	12	0.16	50%	50%
Friday November 8, 2024	11:00 AM	2	0	2	10	0.14	50%	50%
Friday November 8, 2024	11:15 AM	3	1	4	10	0.14	40%	60%
Friday November 8, 2024	11:30 AM	2	3	5	13	0.18	38%	62%
Friday November 8, 2024	11:45 AM	1	0	1	12	0.16	33%	67%
Friday November 8, 2024	12:00 PM	1	2	3	13	0.18	46%	54%
Friday November 8, 2024	12:15 PM	1	0	1	10	0.14	50%	50%
Friday November 8, 2024	12:30 PM	2	1	3	8	0.11	38%	63%
Friday November 8, 2024	12:45 PM	2	0	2	9	0.12	33%	67%
Friday November 8, 2024	1:00 PM	1	0	1	7	0.10	14%	86%
Friday November 8, 2024	1:15 PM	1	1	2	8	0.11	25%	75%
Friday November 8, 2024	1:30 PM	1	0	1	6	0.08	17%	83%
Friday November 8, 2024	1:45 PM	2	3	5	9	0.12	44%	56%
Friday November 8, 2024	2:00 PM	2	1	3	11	0.15	45%	55%
Friday November 8, 2024	2:15 PM	1	3	4	13	0.18	54%	46%
Friday November 8, 2024	2:30 PM	1	4	5	17	0.23	65%	35%
Friday November 8, 2024	2:45 PM	1	4	5	17	0.23	71%	29%
Friday November 8, 2024	3:00 PM	2	3	5	19	0.26	74%	26%
Friday November 8, 2024	3:15 PM	0	5	5	20	0.27	80%	20%
Friday November 8, 2024	3:30 PM	2	3	5	20	0.27	75%	25%
Friday November 8, 2024	3:45 PM	1	4	5	20	0.27	75%	25%
Friday November 8, 2024	4:00 PM	1	2	3	18	0.25	78%	22%
Friday November 8, 2024	4:15 PM	0	3	3	16	0.22	75%	25%
Friday November 8, 2024	**4:30 PM**	**0**	**3**	**3**	**14**	**0.19**	**86%**	**14%**
Friday November 8, 2024	4:45 PM	0	2	2	11	0.15	91%	9%
Friday November 8, 2024	5:00 PM	1	2	3	11	0.15	91%	9%
Friday November 8, 2024	5:15 PM	0	2	2	10	0.14	90%	10%
Friday November 8, 2024	5:30 PM	1	2	3	10	0.14	80%	20%
Friday November 8, 2024	5:45 PM	2	3	5	13	0.18	69%	31%
Friday November 8, 2024	6:00 PM	2	0	2	12	0.16	58%	42%
Friday November 8, 2024	6:15 PM	0	2	2	12	0.16	58%	42%
Friday November 8, 2024	6:30 PM	0	2	2	11	0.15	64%	36%
Friday November 8, 2024	6:45 PM	1	0	1	7	0.10	57%	43%
Friday November 8, 2024	7:00 PM	0	2	2	7	0.10	86%	14%
Friday November 8, 2024	7:15 PM	1	2	3	8	0.11	75%	25%
Friday November 8, 2024	7:30 PM	2	1	3	9	0.12	56%	44%
Friday November 8, 2024	7:45 PM	0	1	1	9	0.12	67%	33%
Friday November 8, 2024	8:00 PM	0	0	0	7	0.10	57%	43%
Friday November 8, 2024	8:15 PM	1	1	2	6	0.08	50%	50%
Friday November 8, 2024	8:30 PM	1	2	3	6	0.08	67%	33%
Friday November 8, 2024	8:45 PM	0	0	0	5	0.07	60%	40%
Friday November 8, 2024	9:00 PM	1	1	2	7	0.10	57%	43%
Friday November 8, 2024	9:15 PM	0	0	0	5	0.07	60%	40%
Friday November 8, 2024	9:30 PM	0	0	0	2	0.03	50%	50%
Friday November 8, 2024	9:45 PM	0	0	0	2	0.03	50%	50%
Friday November 8, 2024	10:00 PM	0	2	2	2	0.03	100%	0%
Friday November 8, 2024	10:15 PM	0	1	1	3	0.04	100%	0%
Friday November 8, 2024	10:30 PM	2	1	3	6	0.08	67%	33%
Friday November 8, 2024	10:45 PM	0	0	0	6	0.08	67%	33%
Friday November 8, 2024	11:00 PM	0	0	0	4	0.05	50%	50%
Friday November 8, 2024	11:15 PM	0	0	0	3	0.04	33%	67%
Friday November 8, 2024	11:30 PM	0	0	0	0	0.00	-	-
Friday November 8, 2024	11:45 PM	0	0	0	0	0.00	-	-

2025 Maria Street - Trip Generation Survey

154 Residential High-Rise Development
City of Burlington

Residential Units:	154
Residential Units Occupied:	154
Peak Parking Demand Observed:	123
Walk Score:	98
Transit Score:	49
Bike Score:	78

Day	Time	Outbound	Inbound	15 min Total	60 min Total	Trip Rate Per Parking Space	Percentage Inbound	Percentage Outbound
Friday November 25, 2022	12:00 AM	0	1	1	3	0.02	100%	0%
Friday November 25, 2022	12:15 AM	0	0	0	1	0.01	100%	0%
Friday November 25, 2022	12:30 AM	0	1	1	2	0.02	100%	0%
Friday November 25, 2022	12:45 AM	0	0	0	2	0.02	100%	0%
Friday November 25, 2022	1:00 AM	0	0	0	1	0.01	100%	0%
Friday November 25, 2022	1:15 AM	0	0	0	1	0.01	100%	0%
Friday November 25, 2022	1:30 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	1:45 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	2:00 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	2:15 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	2:30 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	2:45 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	3:00 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	3:15 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	3:30 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	3:45 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	4:00 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	4:15 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	4:30 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	4:45 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	5:00 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	5:15 AM	0	0	0	0	0.00	-	-
Friday November 25, 2022	5:30 AM	1	0	1	1	0.01	0%	100%
Friday November 25, 2022	5:45 AM	1	0	1	2	0.02	0%	100%
Friday November 25, 2022	6:00 AM	0	0	0	2	0.02	0%	100%
Friday November 25, 2022	6:15 AM	1	0	1	3	0.02	0%	100%
Friday November 25, 2022	6:30 AM	0	0	0	2	0.02	0%	100%
Friday November 25, 2022	6:45 AM	1	0	1	2	0.02	0%	100%
Friday November 25, 2022	7:00 AM	1	0	1	3	0.02	0%	100%
Friday November 25, 2022	7:15 AM	3	0	3	5	0.04	0%	100%
Friday November 25, 2022	7:30 AM	2	2	4	9	0.07	22%	78%
Friday November 25, 2022	7:45 AM	5	0	5	13	0.11	15%	85%
Friday November 25, 2022	8:00 AM	3	0	3	15	0.12	13%	87%
Friday November 25, 2022	8:15 AM	3	0	3	15	0.12	13%	87%
Friday November 25, 2022	8:30 AM	2	1	3	14	0.11	7%	93%
Friday November 25, 2022	**8:45 AM**	**4**	**0**	**4**	**13**	**0.11**	**8%**	**92%**
Friday November 25, 2022	9:00 AM	3	0	3	13	0.11	8%	92%
Friday November 25, 2022	9:15 AM	3	1	4	14	0.11	14%	86%
Friday November 25, 2022	9:30 AM	6	3	9	20	0.16	20%	80%
Friday November 25, 2022	9:45 AM	7	1	8	24	0.20	21%	79%
Friday November 25, 2022	10:00 AM	2	1	3	24	0.20	25%	75%
Friday November 25, 2022	10:15 AM	0	2	2	22	0.18	32%	68%
Friday November 25, 2022	10:30 AM	4	1	5	18	0.15	28%	72%
Friday November 25, 2022	10:45 AM	0	1	1	11	0.09	45%	55%
Friday November 25, 2022	11:00 AM	2	4	6	14	0.11	57%	43%
Friday November 25, 2022	11:15 AM	3	1	4	16	0.13	44%	56%
Friday November 25, 2022	11:30 AM	6	2	8	19	0.15	42%	58%
Friday November 25, 2022	11:45 AM	3	1	4	22	0.18	36%	64%
Friday November 25, 2022	12:00 PM	2	0	2	18	0.15	22%	78%
Friday November 25, 2022	12:15 PM	3	1	4	18	0.15	22%	78%
Friday November 25, 2022	12:30 PM	1	2	3	13	0.11	31%	69%
Friday November 25, 2022	12:45 PM	2	0	2	11	0.09	27%	73%
Friday November 25, 2022	1:00 PM	2	5	7	16	0.13	50%	50%
Friday November 25, 2022	1:15 PM	0	4	4	16	0.13	69%	31%
Friday November 25, 2022	1:30 PM	1	3	4	17	0.14	71%	29%
Friday November 25, 2022	1:45 PM	0	5	5	20	0.16	85%	15%
Friday November 25, 2022	2:00 PM	3	3	6	19	0.15	79%	21%
Friday November 25, 2022	2:15 PM	1	5	6	21	0.17	76%	24%
Friday November 25, 2022	2:30 PM	1	2	3	20	0.16	75%	25%
Friday November 25, 2022	2:45 PM	1	1	2	17	0.14	65%	35%
Friday November 25, 2022	3:00 PM	2	2	4	15	0.12	67%	33%
Friday November 25, 2022	3:15 PM	3	2	5	14	0.11	50%	50%
Friday November 25, 2022	3:30 PM	1	4	5	16	0.13	56%	44%
Friday November 25, 2022	3:45 PM	4	4	8	22	0.18	55%	45%
Friday November 25, 2022	4:00 PM	5	2	7	25	0.20	48%	52%
Friday November 25, 2022	4:15 PM	1	1	2	22	0.18	50%	50%
Friday November 25, 2022	**4:30 PM**	**3**	**6**	**9**	**26**	**0.21**	**50%**	**50%**
Friday November 25, 2022	4:45 PM	1	4	5	23	0.19	57%	43%
Friday November 25, 2022	5:00 PM	1	2	3	19	0.15	68%	32%
Friday November 25, 2022	5:15 PM	5	7	12	29	0.24	66%	34%
Friday November 25, 2022	5:30 PM	3	3	6	26	0.21	62%	38%
Friday November 25, 2022	5:45 PM	2	3	5	26	0.21	58%	42%
Friday November 25, 2022	6:00 PM	1	3	4	27	0.22	59%	41%
Friday November 25, 2022	6:15 PM	1	1	2	17	0.14	59%	41%
Friday November 25, 2022	6:30 PM	2	3	5	16	0.13	63%	38%
Friday November 25, 2022	6:45 PM	3	5	8	19	0.15	63%	37%
Friday November 25, 2022	7:00 PM	0	0	0	15	0.12	60%	40%
Friday November 25, 2022	7:15 PM	0	3	3	16	0.13	69%	31%
Friday November 25, 2022	7:30 PM	0	0	0	11	0.09	73%	27%
Friday November 25, 2022	7:45 PM	1	3	4	7	0.06	86%	14%
Friday November 25, 2022	8:00 PM	3	1	4	11	0.09	64%	36%
Friday November 25, 2022	8:15 PM	0	2	2	10	0.08	60%	40%
Friday November 25, 2022	8:30 PM	0	0	0	10	0.08	60%	40%
Friday November 25, 2022	8:45 PM	0	1	1	7	0.06	57%	43%
Friday November 25, 2022	9:00 PM	0	3	3	6	0.05	100%	0%
Friday November 25, 2022	9:15 PM	0	2	2	6	0.05	100%	0%
Friday November 25, 2022	9:30 PM	0	0	0	6	0.05	100%	0%
Friday November 25, 2022	9:45 PM	0	3	3	8	0.07	100%	0%
Friday November 25, 2022	10:00 PM	1	0	1	6	0.05	83%	17%
Friday November 25, 2022	10:15 PM	0	1	1	5	0.04	80%	20%
Friday November 25, 2022	10:30 PM	0	0	0	5	0.04	80%	20%
Friday November 25, 2022	10:45 PM	0	0	0	2	0.02	50%	50%
Friday November 25, 2022	11:00 PM	0	0	0	1	0.01	100%	0%
Friday November 25, 2022	11:15 PM	0	3	3	3	0.02	100%	0%
Friday November 25, 2022	11:30 PM	0	0	0	3	0.02	100%	0%
Friday November 25, 2022	11:45 PM	0	0	0	3	0.02	100%	0%

2076 Old Lakeshorew Esimates		
Hotel	Residential	Total
35	47	82
0	1	2
0	0	1
0	1	1
0	1	1
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	1	1
1	1	2
4	1	5
4	1	5
3	2	5
3	3	6
0	5	5
1	6	7
2	5	7
2	**5**	**7**
2	5	7
1	5	7
1	8	9
2	9	12
4	9	13
5	8	14
6	7	13
6	4	10
5	5	10
5	6	11
6	7	13
6	8	14
6	7	13
5	7	12
4	5	9
4	4	9
3	6	9
4	6	10
3	6	9
4	8	12
5	7	13
6	8	14
8	8	16
8	6	15
9	6	15
10	5	15
10	6	16
10	8	18
9	10	18
8	8	16
7	**10**	**17**
5	9	14
5	7	13
5	11	16
5	10	15
6	10	16
6	10	16
6	6	12
5	6	11
3	7	11
3	6	9
4	6	10
4	4	9
4	3	7
3	4	8
3	4	7
3	4	7
2	3	5
3	2	6
2	2	5
1	2	3
1	3	4
1	2	3
3	2	5
3	1	4
2	0	2
1	1	3
0	1	1
0	1	1

paradigm TRANSPORTATION SOLUTIONS LIMITED

118-126 Queen Street (NOTL) - Trip Generation Survey

51 Room Hotel + SPA (12,000 ft2) + Two Restaurants
Town of Niagara-on-the-Lake

Hotel Rooms:	76
Hotel Rooms Occupied:	76
Peak Parking Demand Observed:	73
Walk Score:	62
Transit Score:	0
Bike Score:	66

2025 Maria Street - Trip Generation Survey

154 Residential High-Rise Development
City of Burlington

Residential Units:	154
Residential Units Occupied:	154
Peak Parking Demand Observed:	123
Walk Score:	98
Transit Score:	49
Bike Score:	78

Day	Time	Outbound	Inbound	15 min Total	60 min Total	Trip Rate Per Parking Space	Percentage Inbound	Percentage Outbound	Day	Time	Outbound	Inbound	15 min Total	60 min Total	Trip Rate Per Parking Space	Percentage Inbound	Percentage Outbound	2076 Old Lakeshorew Esimates: Hotel	Residential	Total
																		35	47	82
Saturday November 9, 2024	12:00 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	12:00 AM	0	1	1	4	0.03	100%	0%	0	2	2
Saturday November 9, 2024	12:15 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	12:15 AM	0	1	1	2	0.02	100%	0%	0	1	1
Saturday November 9, 2024	12:30 AM	0	1	1	1	0.01	100%	0%	Saturday November 26, 2022	12:30 AM	0	1	1	3	0.02	100%	0%	0	1	2
Saturday November 9, 2024	12:45 AM	0	0	0	1	0.01	100%	0%	Saturday November 26, 2022	12:45 AM	0	0	0	3	0.02	100%	0%	0	1	2
Saturday November 9, 2024	1:00 AM	0	0	0	1	0.01	100%	0%	Saturday November 26, 2022	1:00 AM	1	0	1	3	0.02	67%	33%	0	1	2
Saturday November 9, 2024	1:15 AM	0	0	0	1	0.01	100%	0%	Saturday November 26, 2022	1:15 AM	0	0	0	2	0.02	50%	50%	0	1	1
Saturday November 9, 2024	1:30 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	1:30 AM	0	0	0	1	0.01	0%	100%	0	0	0
Saturday November 9, 2024	1:45 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	1:45 AM	0	1	1	2	0.02	50%	50%	0	1	1
Saturday November 9, 2024	2:00 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	2:00 AM	0	0	0	1	0.01	100%	0%	0	0	0
Saturday November 9, 2024	2:15 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	2:15 AM	0	0	0	1	0.01	100%	0%	0	0	0
Saturday November 9, 2024	2:30 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	2:30 AM	0	0	0	1	0.01	100%	0%	0	0	0
Saturday November 9, 2024	2:45 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	2:45 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	3:00 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	3:00 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	3:15 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	3:15 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	3:30 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	3:30 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	3:45 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	3:45 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	4:00 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	4:00 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	4:15 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	4:15 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	4:30 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	4:30 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	4:45 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	4:45 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	5:00 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	5:00 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	5:15 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	5:15 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	5:30 AM	1	0	1	1	0.01	0%	100%	Saturday November 26, 2022	5:30 AM	0	0	0	0	0.00	-	-	0	0	0
Saturday November 9, 2024	5:45 AM	0	1	1	2	0.03	50%	50%	Saturday November 26, 2022	5:45 AM	0	0	0	0	0.00	-	-	1	0	1
Saturday November 9, 2024	6:00 AM	1	0	1	3	0.04	33%	67%	Saturday November 26, 2022	6:00 AM	1	0	1	1	0.01	0%	100%	1	0	2
Saturday November 9, 2024	6:15 AM	1	0	1	4	0.05	25%	75%	Saturday November 26, 2022	6:15 AM	0	0	0	1	0.01	0%	100%	2	0	2
Saturday November 9, 2024	6:30 AM	0	0	0	3	0.04	33%	67%	Saturday November 26, 2022	6:30 AM	1	0	1	2	0.02	0%	100%	1	1	2
Saturday November 9, 2024	6:45 AM	0	0	0	2	0.03	0%	100%	Saturday November 26, 2022	6:45 AM	1	0	1	3	0.02	0%	100%	1	1	2
Saturday November 9, 2024	7:00 AM	0	0	0	1	0.01	0%	100%	Saturday November 26, 2022	7:00 AM	0	0	0	2	0.02	0%	100%	0	1	1
Saturday November 9, 2024	7:15 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	7:15 AM	0	0	0	2	0.02	0%	100%	0	1	1
Saturday November 9, 2024	7:30 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	7:30 AM	0	1	1	2	0.02	50%	50%	0	1	1
Saturday November 9, 2024	7:45 AM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	7:45 AM	0	1	1	2	0.02	100%	0%	0	1	1
Saturday November 9, 2024	8:00 AM	1	0	1	1	0.01	0%	100%	Saturday November 26, 2022	8:00 AM	2	0	2	4	0.03	50%	50%	0	2	2
Saturday November 9, 2024	8:15 AM	1	0	1	2	0.03	0%	100%	Saturday November 26, 2022	8:15 AM	3	0	3	7	0.06	29%	71%	1	3	4
Saturday November 9, 2024	8:30 AM	3	1	4	6	0.08	17%	83%	Saturday November 26, 2022	8:30 AM	2	0	2	8	0.07	13%	88%	3	3	6
Saturday November 9, 2024	8:45 AM	2	4	6	12	0.16	42%	58%	Saturday November 26, 2022	8:45 AM	0	1	1	8	0.07	13%	88%	6	3	9
Saturday November 9, 2024	9:00 AM	1	1	2	13	0.18	46%	54%	Saturday November 26, 2022	9:00 AM	5	0	5	11	0.09	9%	91%	6	4	10
Saturday November 9, 2024	9:15 AM	2	0	2	14	0.19	43%	57%	Saturday November 26, 2022	9:15 AM	3	1	4	12	0.10	17%	83%	7	5	11
Saturday November 9, 2024	9:30 AM	1	1	2	12	0.16	50%	50%	Saturday November 26, 2022	9:30 AM	1	1	2	12	0.10	25%	75%	6	5	10
Saturday November 9, 2024	9:45 AM	1	0	1	7	0.10	29%	71%	Saturday November 26, 2022	9:45 AM	4	2	6	17	0.14	24%	76%	3	6	10
Saturday November 9, 2024	10:00 AM	3	1	4	9	0.12	22%	78%	Saturday November 26, 2022	10:00 AM	3	0	3	15	0.12	27%	73%	4	6	10
Saturday November 9, 2024	10:15 AM	2	0	2	9	0.12	22%	78%	Saturday November 26, 2022	10:15 AM	6	1	7	18	0.15	22%	78%	4	7	11
Saturday November 9, 2024	10:30 AM	0	0	0	7	0.10	14%	86%	Saturday November 26, 2022	10:30 AM	5	0	5	21	0.17	14%	86%	3	8	11
Saturday November 9, 2024	10:45 AM	1	3	4	10	0.14	40%	60%	Saturday November 26, 2022	10:45 AM	4	1	5	20	0.16	10%	90%	5	8	12
Saturday November 9, 2024	11:00 AM	4	4	8	14	0.19	50%	50%	Saturday November 26, 2022	11:00 AM	2	2	4	21	0.17	19%	81%	7	8	15
Saturday November 9, 2024	11:15 AM	0	0	0	12	0.16	58%	42%	Saturday November 26, 2022	11:15 AM	5	0	5	19	0.15	16%	84%	6	7	13
Saturday November 9, 2024	11:30 AM	0	2	2	14	0.19	64%	36%	Saturday November 26, 2022	11:30 AM	3	1	4	18	0.15	22%	78%	7	7	14
Saturday November 9, 2024	11:45 AM	1	1	2	12	0.16	58%	42%	Saturday November 26, 2022	11:45 AM	3	1	4	17	0.14	24%	76%	6	6	12
Saturday November 9, 2024	12:00 PM	5	0	5	9	0.12	33%	67%	Saturday November 26, 2022	12:00 PM	4	2	6	19	0.15	21%	79%	4	7	12
Saturday November 9, 2024	12:15 PM	6	1	7	16	0.22	25%	75%	Saturday November 26, 2022	12:15 PM	3	3	6	20	0.16	35%	65%	8	8	15
Saturday November 9, 2024	12:30 PM	11	5	16	30	0.41	23%	77%	Saturday November 26, 2022	12:30 PM	3	0	3	19	0.15	32%	68%	14	7	22
Saturday November 9, 2024	12:45 PM	3	1	4	32	0.44	22%	78%	Saturday November 26, 2022	12:45 PM	3	3	6	21	0.17	38%	62%	15	8	23
Saturday November 9, 2024	1:00 PM	2	3	5	32	0.44	31%	69%	Saturday November 26, 2022	1:00 PM	1	1	2	17	0.14	41%	59%	15	6	22
Saturday November 9, 2024	1:15 PM	0	2	2	27	0.37	41%	59%	Saturday November 26, 2022	1:15 PM	3	4	7	18	0.15	44%	56%	13	7	20
Saturday November 9, 2024	1:30 PM	1	1	2	13	0.18	54%	46%	Saturday November 26, 2022	1:30 PM	2	1	3	18	0.15	50%	50%	6	7	13
Saturday November 9, 2024	1:45 PM	3	6	9	18	0.25	67%	33%	Saturday November 26, 2022	1:45 PM	3	1	4	16	0.13	44%	56%	9	6	15
Saturday November 9, 2024	2:00 PM	3	7	10	23	0.32	70%	30%	Saturday November 26, 2022	2:00 PM	2	7	9	23	0.19	57%	43%	11	9	20
Saturday November 9, 2024	2:15 PM	0	2	2	23	0.32	70%	30%	Saturday November 26, 2022	2:15 PM	0	3	3	19	0.15	63%	37%	11	7	18
Saturday November 9, 2024	2:30 PM	0	5	5	26	0.36	77%	23%	Saturday November 26, 2022	2:30 PM	2	0	2	18	0.15	61%	39%	12	7	19
Saturday November 9, 2024	2:45 PM	5	5	10	27	0.37	70%	30%	Saturday November 26, 2022	2:45 PM	1	1	2	16	0.13	69%	31%	13	6	19
Saturday November 9, 2024	3:00 PM	2	9	11	28	0.38	75%	25%	Saturday November 26, 2022	3:00 PM	2	2	4	11	0.09	55%	45%	13	4	18
Saturday November 9, 2024	3:15 PM	1	4	5	31	0.42	74%	26%	Saturday November 26, 2022	3:15 PM	1	5	6	14	0.11	57%	43%	15	5	20
Saturday November 9, 2024	**3:30 PM**	**3**	**4**	**7**	**33**	**0.45**	**67%**	**33%**	**Saturday November 26, 2022**	**3:30 PM**	**2**	**4**	**6**	**18**	**0.15**	**67%**	**33%**	**16**	**7**	**23**
Saturday November 9, 2024	3:45 PM	5	3	8	31	0.42	65%	35%	Saturday November 26, 2022	3:45 PM	0	0	0	16	0.13	69%	31%	15	6	21
Saturday November 9, 2024	4:00 PM	1	3	4	24	0.33	58%	42%	Saturday November 26, 2022	4:00 PM	1	4	5	17	0.14	76%	24%	12	6	18
Saturday November 9, 2024	4:15 PM	3	3	6	25	0.34	52%	48%	Saturday November 26, 2022	4:15 PM	1	6	7	18	0.15	78%	22%	12	7	19
Saturday November 9, 2024	4:30 PM	3	4	7	25	0.34	52%	48%	Saturday November 26, 2022	4:30 PM	5	1	6	18	0.15	61%	39%	12	7	19
Saturday November 9, 2024	4:45 PM	3	5	8	25	0.34	60%	40%	Saturday November 26, 2022	4:45 PM	1	3	4	22	0.18	64%	36%	12	8	20
Saturday November 9, 2024	5:00 PM	5	1	6	27	0.37	48%	52%	Saturday November 26, 2022	5:00 PM	2	6	8	25	0.20	64%	36%	13	10	22
Saturday November 9, 2024	5:15 PM	2	2	4	25	0.34	48%	52%	Saturday November 26, 2022	5:15 PM	2	4	6	24	0.20	58%	42%	12	9	21
Saturday November 9, 2024	5:30 PM	4	1	5	23	0.32	39%	61%	Saturday November 26, 2022	5:30 PM	4	3	7	25	0.20	64%	36%	11	10	21
Saturday November 9, 2024	5:45 PM	3	0	3	18	0.25	22%	78%	Saturday November 26, 2022	5:45 PM	1	3	4	25	0.20	64%	36%	9	10	18
Saturday November 9, 2024	6:00 PM	1	1	2	14	0.19	29%	71%	Saturday November 26, 2022	6:00 PM	0	5	5	22	0.18	68%	32%	7	8	15
Saturday November 9, 2024	6:15 PM	0	2	2	12	0.16	33%	67%	Saturday November 26, 2022	6:15 PM	2	3	5	21	0.17	67%	33%	6	8	14
Saturday November 9, 2024	6:30 PM	1	1	2	9	0.12	44%	56%	Saturday November 26, 2022	6:30 PM	1	2	3	17	0.14	76%	24%	4	6	11
Saturday November 9, 2024	6:45 PM	1	1	2	8	0.11	63%	38%	Saturday November 26, 2022	6:45 PM	1	0	1	14	0.11	71%	29%	4	5	9
Saturday November 9, 2024	7:00 PM	1	0	1	7	0.10	57%	43%	Saturday November 26, 2022	7:00 PM	0	3	3	12	0.10	67%	33%	3	5	8
Saturday November 9, 2024	7:15 PM	0	1	1	6	0.08	50%	50%	Saturday November 26, 2022	7:15 PM	0	0	0	7	0.06	71%	29%	3	3	6
Saturday November 9, 2024	7:30 PM	0	0	0	4	0.05	50%	50%	Saturday November 26, 2022	7:30 PM	1	0	1	5	0.04	60%	40%	2	2	4
Saturday November 9, 2024	7:45 PM	0	2	2	4	0.05	75%	25%	Saturday November 26, 2022	7:45 PM	0	1	1	5	0.04	80%	20%	2	2	4
Saturday November 9, 2024	8:00 PM	0	1	1	4	0.05	100%	0%	Saturday November 26, 2022	8:00 PM	0	1	1	3	0.02	67%	33%	2	1	3
Saturday November 9, 2024	8:15 PM	1	0	1	4	0.05	75%	25%	Saturday November 26, 2022	8:15 PM	2	2	4	7	0.06	57%	43%	2	3	5
Saturday November 9, 2024	8:30 PM	1	1	2	6	0.08	67%	33%	Saturday November 26, 2022	8:30 PM	0	0	0	6	0.05	67%	33%	3	2	5
Saturday November 9, 2024	8:45 PM	0	0	0	4	0.05	50%	50%	Saturday November 26, 2022	8:45 PM	0	1	1	6	0.05	67%	33%	2	2	4
Saturday November 9, 2024	9:00 PM	0	0	0	3	0.04	33%	67%	Saturday November 26, 2022	9:00 PM	0	2	2	7	0.06	71%	29%	1	3	4
Saturday November 9, 2024	9:15 PM	0	2	2	4	0.05	75%	25%	Saturday November 26, 2022	9:15 PM	1	2	3	6	0.05	83%	17%	2	2	4
Saturday November 9, 2024	9:30 PM	0	1	1	3	0.04	100%	0%	Saturday November 26, 2022	9:30 PM	0	0	0	6	0.05	83%	17%	1	2	4
Saturday November 9, 2024	9:45 PM	1	1	2	5	0.07	80%	20%	Saturday November 26, 2022	9:45 PM	0	1	1	6	0.05	83%	17%	2	2	5
Saturday November 9, 2024	10:00 PM	1	0	1	6	0.08	67%	33%	Saturday November 26, 2022	10:00 PM	0	2	2	6	0.05	83%	17%	3	2	5
Saturday November 9, 2024	10:15 PM	0	0	0	4	0.05	50%	50%	Saturday November 26, 2022	10:15 PM	0	0	0	3	0.02	100%	0%	2	1	3
Saturday November 9, 2024	10:30 PM	1	0	1	4	0.05	25%	75%	Saturday November 26, 2022	10:30 PM	0	0	0	3	0.02	100%	0%	2	1	3
Saturday November 9, 2024	10:45 PM	0	0	0	2	0.03	0%	100%	Saturday November 26, 2022	10:45 PM	0	2	2	4	0.03	100%	0%	1	2	2
Saturday November 9, 2024	11:00 PM	0	0	0	1	0.01	0%	100%	Saturday November 26, 2022	11:00 PM	1	2	3	5	0.04	80%	20%	0	2	2
Saturday November 9, 2024	11:15 PM	0	0	0	1	0.01	0%	100%	Saturday November 26, 2022	11:15 PM	0	0	0	5	0.04	80%	20%	0	2	2
Saturday November 9, 2024	11:30 PM	0	0	0	0	0.00	-	-	Saturday November 26, 2022	11:30 PM	0	1	1	6	0.05	83%	17%	0	2	2
Saturday November 9, 2024	11:45 PM	0	1	1	1	0.01	100%	0%	Saturday November 26, 2022	11:45 PM	0	0	0	4	0.03	75%	25%	0	2	2

Appendix E

TOD Distributions

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE *Trip Generation Manual*, 12th Edition

Weekday

Land Use Code	310				222				
Land Use	Hotel				Multifamily Housing (High-Rise)				
Setting	General Urban/Suburban				General Urban/Suburban				
Time Period	Weekday				Weekday				
# Data Sites	1				2				
	% of 24-Hour Vehicle Trips				% of 24-Hour Vehicle Trips				
Time	Total	Entering	Exiting	Total Trips	Total	Entering	Exiting	Total Trips	Combined
12:00 - 6:00 AM	1.5%			3	4.8%			12	15
6:00 - 7:00 AM	1.5%	0.8%	2.2%	3	3.2%	1.1%	5.4%	8	11
7:00 - 8:00 AM	5.3%	2.4%	8.2%	11	6.7%	2.2%	11.3%	17	27
8:00 - 9:00 AM	4.8%	3.3%	6.3%	10	7.7%	2.1%	13.4%	19	29
9:00 - 10:00 AM	5.8%	4.8%	6.7%	12	4.2%	1.9%	6.6%	10	22
10:00 - 11:00 AM	6.9%	5.9%	7.8%	14	2.9%	2.0%	3.8%	7	21
11:00 - 12:00 PM	7.8%	7.4%	8.1%	16	2.8%	2.6%	3.0%	7	23
12:00 - 1:00 PM	8.3%	10.3%	6.2%	17	2.9%	2.7%	3.0%	7	24
1:00 - 2:00 PM	9.0%	10.7%	7.2%	18	4.2%	4.2%	4.3%	10	29
2:00 - 3:00 PM	7.9%	7.8%	8.0%	16	4.0%	4.5%	3.5%	10	26
3:00 - 4:00 PM	7.6%	8.2%	7.0%	16	5.6%	6.1%	5.1%	14	29
4:00 - 5:00 PM	7.3%	7.1%	7.6%	15	7.0%	9.1%	4.9%	17	32
5:00 - 6:00 PM	7.7%	8.8%	6.5%	16	8.6%	11.4%	5.9%	21	37
6:00 - 7:00 PM	5.1%	5.4%	4.8%	10	9.3%	12.2%	6.5%	23	33
7:00 - 8:00 PM	4.5%	5.8%	3.2%	9	8.1%	10.3%	5.9%	20	29
8:00 - 9:00 PM	3.2%	3.1%	3.2%	6	6.1%	7.7%	4.6%	15	22
9:00 - 10:00 PM	2.4%	2.1%	2.8%	5	5.0%	6.5%	3.5%	12	17
10:00 - 11:00 PM	2.4%	3.1%	1.8%	5	4.0%	5.4%	2.6%	10	15
11:00 - 12:00 AM	1.2%	1.5%	0.9%	2	2.6%	3.4%	1.8%	6	9
	100.0%		Daily Trips	204	100.0%		Daily Trips	247	451

Saturday

Land Use Code	310				222				
Land Use	Hotel				Multifamily Housing (High-Rise)				
Setting	General Urban/Suburban				General Urban/Suburban				
Time Period	Saturday				Weekday				
# Data Sites	1				2				
	% of 24-Hour Vehicle Trips				% of 24-Hour Vehicle Trips				
Time	Total	Entering	Exiting	Total Trips	Total	Entering	Exiting	Total Trips	Combined
12:00 - 6:00 AM	1.4%	1.2%	1.6%	3	4.8%			12	15
6:00 - 7:00 AM	0.5%	0.0%	1.0%	1	3.2%	1.1%	5.4%	8	9
7:00 - 8:00 AM	3.1%	1.6%	4.6%	8	6.7%	2.2%	11.3%	17	24
8:00 - 9:00 AM	5.2%	3.9%	6.3%	12	7.7%	2.1%	13.4%	19	32
9:00 - 10:00 AM	5.2%	4.3%	6.2%	13	4.2%	1.9%	6.6%	10	23
10:00 - 11:00 AM	7.9%	7.8%	8.0%	19	2.9%	2.0%	3.8%	7	26
11:00 - 12:00 PM	8.1%	9.8%	6.5%	20	2.8%	2.6%	3.0%	7	27
12:00 - 1:00 PM	8.5%	7.8%	9.1%	21	2.9%	2.7%	3.0%	7	28
1:00 - 2:00 PM	7.7%	8.0%	7.4%	19	4.2%	4.2%	4.3%	10	29
2:00 - 3:00 PM	11.2%	12.5%	9.9%	27	4.0%	4.5%	3.5%	10	37
3:00 - 4:00 PM	9.2%	8.4%	9.9%	22	5.6%	6.1%	5.1%	14	36
4:00 - 5:00 PM	6.5%	6.4%	6.5%	16	7.0%	9.1%	4.9%	17	33
5:00 - 6:00 PM	4.4%	5.5%	3.3%	11	8.6%	11.4%	5.9%	21	32
6:00 - 7:00 PM	3.1%	4.5%	1.9%	8	9.3%	12.2%	6.5%	23	31
7:00 - 8:00 PM	5.4%	7.0%	3.9%	13	8.1%	10.3%	5.9%	20	33
8:00 - 9:00 PM	3.1%	2.7%	3.4%	7	6.1%	7.7%	4.6%	15	23
9:00 - 10:00 PM	3.2%	1.6%	4.8%	8	5.0%	6.5%	3.5%	12	20
10:00 - 11:00 PM	3.9%	3.7%	4.1%	10	4.0%	5.4%	2.6%	10	19
11:00 - 12:00 AM	2.4%	3.2%	1.5%	6	2.6%	3.4%	1.8%	6	12
			Daily Trips	242	100.0%		Daily Trips	247	489

Appendix F

Vehicle Elevator Specifications

2500 Williams Parkway East, Unit 7
Brampton, Ontario. L6S 5M9. Canada
Phone: + 1 (905) 799-3777
Email: sales@expresselp.com
www.expresselevatorslifts.com

Ref: 9736_01
Project: West Harbour Condo, 41 Stuart Street, Hamilton, ON. L8L 1B5
Subject: Technical Specifications.

Product	Hydraulic Freight [Automobile] Elevator
Capacity	8,000 lbs. (3,629 kg)
Class of Loading	B, Automobile Loading.
Speed:	50 fpm (0.25 m/ sec)
Nominal Car Size	9′ – 0″ (2743mm) Wide x 20′ – 0″ (6096mm) Long x 7′ – 0″ (2134mm) High
Hoistway shaft size required	11′ – 8″ (3556mm) Wide X 21′ – 8″ (6604mm) Long
Hoistway shaft type	Cast in place concrete or reinforced masonry shaft wall by others
Overhead Required	14′ – 8″ (4166mm) clear to the underside of the hoisting beam.
Floor to Floor	❖ G to P1: 10′ – 6″ (3200mm) ❖ P1 to P2: 14′ – 1″ (4300mm)
Travel	24′ – 7″ (7500mm)
Pit depth required (Approximate):	72″ (1829 mm) with no habitable space below pit
Stops:	❖ Total 3 ❖ Ground, P1 and P2
Entrances:	❖ Total 3 ❖ 1 Front at Ground, P1 and P2
Operation:	Single Automatic Pushbutton Operation.
Power unit:	❖ Approximate 40 HP ❖ 600 Volts, 3 Phase, 60 Hz
Elevator Car:	❖ Steel checkered floor ❖ Steel walls, 84″ high ❖ Expanded metal sheets ceiling panel with light fixture. ❖ Car platform, wall and ceiling panels to be in enamel painted finish. ❖ Car operating panel with operation buttons and stop button. Car position indicator. ❖ Battery operated alarm ❖ Battery operated emergency light. ❖ Fire fighters service phase 1 & 2. ❖ 1 in number, power operated, 72″ high, mesh steel, single section, vertical slide-up car gate
Elevator Entrances:	❖ 3 in number. ❖ Nominal 9′ – 0″ Wide x 7′ – 0″ High. ❖ Automatic, vertical bi-parting steel panel doors ❖ Electro-mechanical interlocking ❖ 1.5-hour fire rating
Machine room location and size	❖ Adjacent to the hoistway shaft at P2. ❖ Machine room size required: 13′ - 1″ (4000mm) wide X 10′ – 0″ (3048mm) long X 7′ – 0″ (2134mm) high.

Appendix G

Queue Analysis

Data

Arrival rate (λ)	37
Service rate (μ)	18.5
Number of entrances (M)	5

Results

Average server utilization(ρ)	0.40	
Average number of vehicles in the queue(L_q)	0.04	
Average number of vehicles in the system(L)	2.04	
Average waiting time in the queue(W_q)	0.00	0.06 min
Average time in the system(W)	0.06	3.31 min
Probability (% of time) system is empty (P_0)	0.13	13.43%

Probabilities

Number	Probability	Cumulative Probability	
0	13.4%	13.4%	86.567164%
1	26.9%	40.3%	59.701493%
2	26.9%	67.2%	32.835821%
3	17.9%	85.1%	14.925373%
4	9.0%	94.0%	5.970149%
5	3.6%	97.6%	2.388060%
6	1.4%	99.0%	0.955224%
7	0.6%	99.6%	0.382090%
8	0.2%	99.8%	0.152836%
9	0.1%	99.9%	0.061134%
10	0.0%	100.0%	0.024454%
11	0.0%	100.0%	0.009781%
12	0.0%	100.0%	0.003913%
13	0.0%	100.0%	0.001565%
14	0.0%	100.0%	0.000626%
15	0.0%	100.0%	0.000250%
16	0.0%	100.0%	0.000100%
17	0.0%	100.0%	0.000040%
18	0.0%	100.0%	0.000016%
19	0.0%	100.0%	0.000006%
20	0.0%	100.0%	0.000003%

Computations

n or s	(lam/mu)^n/n!	Cumsum(n-1)	term2		P0(s)	Rho(s)	Lq(s)	L(s)	Wq(s)	W(S)
0	1									
1	2	1		-2	-1	2	-4	-2	-0.10811	-0.05405
2	2	3	#DIV/0!		#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	1.333333333	5		4	0.11111	0.666667	0.888888889	2.888889	0.024024	0.078078
4	0.666666667	6.333333333		1.333333333	0.13043	0.5	0.173913043	2.173913	0.0047	0.058754
5	0.266666667	7		0.444444444	0.13433	0.4	0.039800995	2.039801	0.001076	0.05513
6	0.088888889	7.266666667		0.133333333	0.13514	0.333333	0.009009009	2.009009	0.000243	0.054298
7	0.025396825	7.355555556		0.035555556	0.1353	0.285714	0.001924233	2.001924	5.2E-05	0.054106
8	0.006349206	7.380952381		0.008465608	0.13533	0.25	0.00038188	2.000382	1.03E-05	0.054064
9	0.001410935	7.387301587		0.001814059	0.13533	0.222222	7.01441E-05	2.00007	1.9E-06	0.054056
10	0.000282187	7.388712522		0.000352734	0.13534	0.2	1.19343E-05	2.000012	3.23E-07	0.054054
11	5.13067E-05	7.388994709		6.27082E-05	0.13534	0.181818	1.88592E-06	2.000002	5.1E-08	0.054054
12	8.55112E-06	7.389046016		1.02613E-05	0.13534	0.166667	2.77744E-07	2	7.51E-09	0.054054
13	1.31556E-06	7.389054567		1.55475E-06	0.13534	0.153846	3.82568E-08	2	1.03E-09	0.054054
14	1.87937E-07	7.389055882		2.19259E-07	0.13534	0.142857	4.94559E-09	2	1.34E-10	0.054054
15	2.50582E-08	7.38905607		2.89133E-08	0.13534	0.133333	6.01999E-10	2	1.63E-11	0.054054
16	3.13228E-09	7.389056095		3.57975E-09	0.13534	0.125	6.92094E-11	2	1.87E-12	0.054054
17	3.68503E-10	7.389056099		4.17637E-10	0.13534	0.117647	7.53614E-12	2	2.04E-13	0.054054
18	4.09448E-11	7.389056099		4.60629E-11	0.13534	0.111111	7.79242E-13	2	2.11E-14	0.054054
19	4.30998E-12	7.389056099		4.81704E-12	0.13534	0.105263	7.66959E-14	2	2.07E-15	0.054054
20	4.30998E-13	7.389056099		4.78887E-13	0.13534	0.1	7.20114E-15	2	1.95E-16	0.054054
21	4.10474E-14	7.389056099		4.53682E-14	0.13534	0.095238	6.46307E-16	2	1.75E-17	0.054054
22	3.73158E-15	7.389056099		4.10474E-15	0.13534	0.090909	5.55517E-17	2	1.5E-18	0.054054

Data

Arrival rate (λ)	37
Service rate (μ)	18.5
Number of entrances (M)	6

Results

Average server utilization(ρ)	0.33	
Average number of vehicles in the queue(L_q)	0.01	
Average number of vehicles in the system(L)	2.01	
Average waiting time in the queue(W_q)	0.00	0.01 min
Average time in the system(W)	0.05	3.26 min
Probability (% of time) system is empty (P_0)	0.14	13.51%

Probabilities

Number	Probability	Cumulative Probability	
0	13.5%	13.5%	86.486486%
1	27.0%	40.5%	59.459459%
2	27.0%	67.6%	32.432432%
3	18.0%	85.6%	14.414414%
4	9.0%	94.6%	5.405405%
5	3.6%	98.2%	1.801802%
6	1.2%	99.4%	0.600601%
7	0.4%	99.8%	0.200200%
8	0.1%	99.9%	0.066733%
9	0.0%	100.0%	0.022244%
10	0.0%	100.0%	0.007415%
11	0.0%	100.0%	0.002472%
12	0.0%	100.0%	0.000824%
13	0.0%	100.0%	0.000275%
14	0.0%	100.0%	0.000092%
15	0.0%	100.0%	0.000031%
16	0.0%	100.0%	0.000010%
17	0.0%	100.0%	0.000003%
18	0.0%	100.0%	0.000001%
19	0.0%	100.0%	0.000000%
20	0.0%	100.0%	0.000000%

Computations

n or s	(lam/mu)^n/n!	Cumsum(n-1)	term2		P0(s)	Rho(s)	Lq(s)	L(s)	Wq(s)	W(S)
0	1									
1	2	1		-2	-1	2	-4	-2	-0.10811	-0.05405
2	2	3	#DIV/0!		#DIV/0!	1	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	1.333333333	5		4	0.11111	0.666667	0.888888889	2.888889	0.024024	0.078078
4	0.666666667	6.333333333		1.333333333	0.13043	0.5	0.173913043	2.173913	0.0047	0.058754
5	0.266666667	7		0.444444444	0.13433	0.4	0.039800995	2.039801	0.001076	0.05513
6	0.088888889	7.266666667		0.133333333	0.13514	0.333333	0.009009009	2.009009	0.000243	0.054298
7	0.025396825	7.355555556		0.035555556	0.1353	0.285714	0.001924233	2.001924	5.2E-05	0.054106
8	0.006349206	7.380952381		0.008465608	0.13533	0.25	0.00038188	2.000382	1.03E-05	0.054064
9	0.001410935	7.387301587		0.001814059	0.13533	0.222222	7.01441E-05	2.00007	1.9E-06	0.054056
10	0.000282187	7.388712522		0.000352734	0.13534	0.2	1.19343E-05	2.000012	3.23E-07	0.054054
11	5.13067E-05	7.388994709		6.27082E-05	0.13534	0.181818	1.88592E-06	2.000002	5.1E-08	0.054054
12	8.55112E-06	7.389046016		1.02613E-05	0.13534	0.166667	2.77744E-07	2	7.51E-09	0.054054
13	1.31556E-06	7.389054567		1.55475E-06	0.13534	0.153846	3.82568E-08	2	1.03E-09	0.054054
14	1.87937E-07	7.389055882		2.19259E-07	0.13534	0.142857	4.94559E-09	2	1.34E-10	0.054054
15	2.50582E-08	7.38905607		2.89133E-08	0.13534	0.133333	6.01999E-10	2	1.63E-11	0.054054
16	3.13228E-09	7.389056095		3.57975E-09	0.13534	0.125	6.92094E-11	2	1.87E-12	0.054054
17	3.68503E-10	7.389056099		4.17637E-10	0.13534	0.117647	7.53614E-12	2	2.04E-13	0.054054
18	4.09448E-11	7.389056099		4.60629E-11	0.13534	0.111111	7.79242E-13	2	2.11E-14	0.054054
19	4.30998E-12	7.389056099		4.81704E-12	0.13534	0.105263	7.66959E-14	2	2.07E-15	0.054054
20	4.30998E-13	7.389056099		4.78887E-13	0.13534	0.1	7.20114E-15	2	1.95E-16	0.054054
21	4.10474E-14	7.389056099		4.53682E-14	0.13534	0.095238	6.46307E-16	2	1.75E-17	0.054054
22	3.73158E-15	7.389056099		4.10474E-15	0.13534	0.090909	5.55517E-17	2	1.5E-18	0.054054

Data

Arrival rate (λ)	48
Service rate (μ)	18.5
Number of entrances (M)	6

Results

Average server utilization(ρ)	0.43	
Average number of vehicles in the queue(L_q)	0.04	
Average number of vehicles in the system(L)	2.64	
Average waiting time in the queue(W_q)	0.00	0.05 min
Average time in the system(W)	0.05	3.30 min
Probability (% of time) system is empty (P_0)	0.07	7.41%

Probabilities

Number	Probability	Cumulative Probability	
0	7.4%	7.4%	92.585105%
1	19.2%	26.7%	73.346457%
2	25.0%	51.6%	48.388212%
3	21.6%	73.2%	26.802702%
4	14.0%	87.2%	12.801291%
5	7.3%	94.5%	5.535693%
6	3.1%	97.6%	2.393813%
7	1.4%	99.0%	1.035163%
8	0.6%	99.6%	0.447638%
9	0.3%	99.8%	0.193573%
10	0.1%	99.9%	0.083707%
11	0.0%	100.0%	0.036198%
12	0.0%	100.0%	0.015653%
13	0.0%	100.0%	0.006769%
14	0.0%	100.0%	0.002927%
15	0.0%	100.0%	0.001266%
16	0.0%	100.0%	0.000547%
17	0.0%	100.0%	0.000237%
18	0.0%	100.0%	0.000102%
19	0.0%	100.0%	0.000044%
20	0.0%	100.0%	0.000019%

Computations

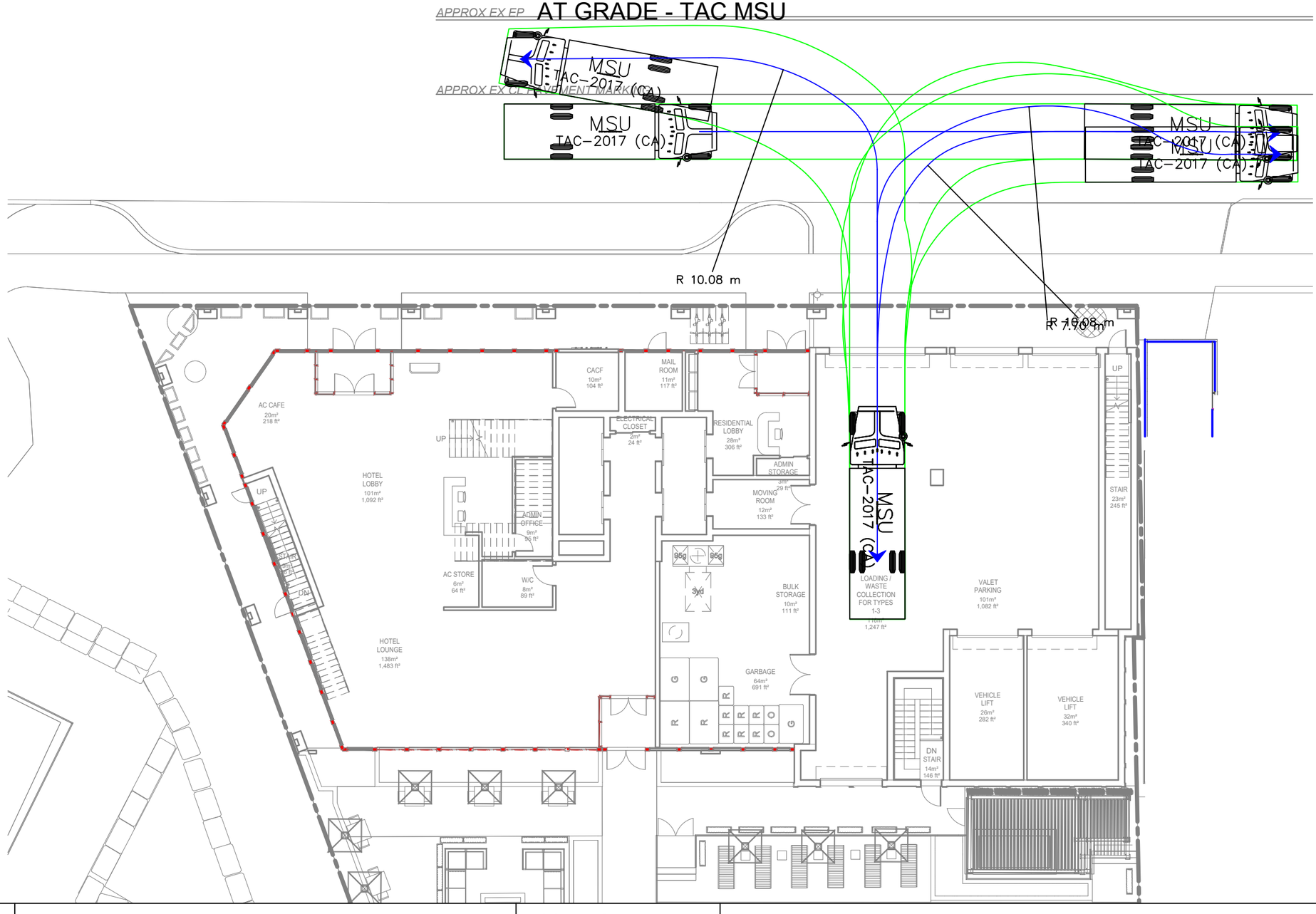
n or s	(lam/mu)^n/n!	Cumsum(n-1)	term2	P0(s)	Rho(s)	Lq(s)	L(s)	Wq(s)	W(S)
0	1								
1	2.594594595	1	-1.627118644	-1.5946	2.594595	-4.221713239	-1.62712	-0.08795	-0.0339
2	3.365960555	3.594594595	-11.32186732	-0.1294	1.297297	-6.393525076	-3.79893	-0.1332	-0.07914
3	2.911101021	6.96055515	21.54214755	0.03508	0.864865	4.837076181	7.431671	0.100772	0.154826
4	1.888281743	9.87165617	5.374340346	0.06559	0.648649	0.650784558	3.245379	0.013558	0.067612
5	0.979865121	11.75993791	2.036798285	0.07248	0.518919	0.159240263	2.753835	0.003318	0.057372
6	0.423725458	12.73980303	0.746563902	0.07415	0.432432	0.04217671	2.636771	0.000879	0.054933
7	0.15705654	13.16352849	0.249556098	0.07455	0.370656	0.010957794	2.605552	0.000228	0.054282
8	0.050937256	13.32058503	0.075387139	0.07465	0.324324	0.002701247	2.597296	5.63E-05	0.05411
9	0.014684614	13.37152229	0.020632813	0.07467	0.288288	0.000624066	2.595219	1.3E-05	0.054067
10	0.003810062	13.3862069	0.005144974	0.07468	0.259459	0.000134611	2.594729	2.8E-06	0.054057
11	0.000898688	13.39001697	0.001176096	0.07468	0.235872	2.71103E-05	2.594622	5.65E-07	0.054055
12	0.000194311	13.39091565	0.000247914	0.07468	0.216216	5.1071E-06	2.5946	1.06E-07	0.054054
13	3.87814E-05	13.39110996	4.84515E-05	0.07468	0.199584	9.02194E-07	2.594595	1.88E-08	0.054054
14	7.18728E-06	13.39114875	8.82231E-06	0.07468	0.185328	1.49873E-07	2.594595	3.12E-09	0.054054
15	1.24321E-06	13.39115593	1.50322E-06	0.07468	0.172973	2.34781E-08	2.594595	4.89E-10	0.054054
16	2.01601E-07	13.39115718	2.4062E-07	0.07468	0.162162	3.4778E-09	2.594595	7.25E-11	0.054054
17	3.0769E-08	13.39115738	3.63109E-08	0.07468	0.152623	4.88385E-10	2.594595	1.02E-11	0.054054
18	4.43517E-09	13.39115741	5.18214E-09	0.07468	0.144144	6.5176E-11	2.594595	1.36E-12	0.054054
19	6.05656E-10	13.39115741	7.01443E-10	0.07468	0.136558	8.28432E-12	2.594595	1.73E-13	0.054054
20	7.85716E-11	13.39115741	9.02841E-11	0.07468	0.12973	1.00503E-12	2.594595	2.09E-14	0.054054
21	9.70769E-12	13.39115741	1.10762E-11	0.07468	0.123552	1.16599E-13	2.594595	2.43E-15	0.054054
22	1.14489E-12	13.39115741	1.29796E-12	0.07468	0.117936	1.29596E-14	2.594595	2.7E-16	0.054054

Appendix H

AutoTURN Analysis

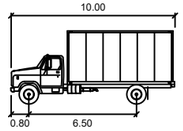
THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

AT GRADE - TAC MSU



NO.	DATE	INITIAL	REVISION DETAIL

DESIGN VEHICLE:



MSU

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

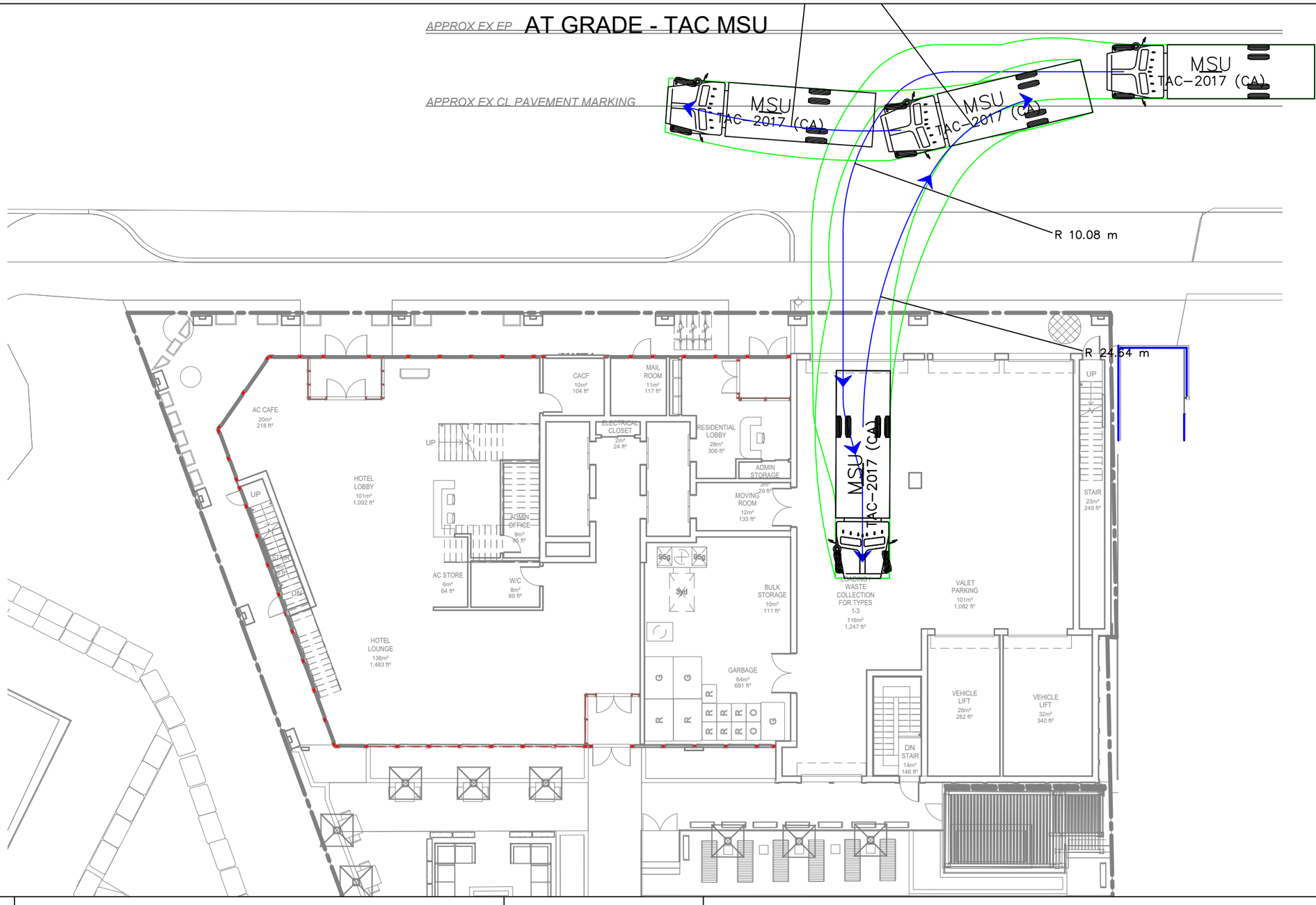
AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

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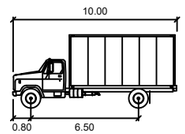
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AT GRADE - TAC MSU



NO.	DATE	INITIAL	REVISION DETAIL

DESIGN VEHICLE:



MSU

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

AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

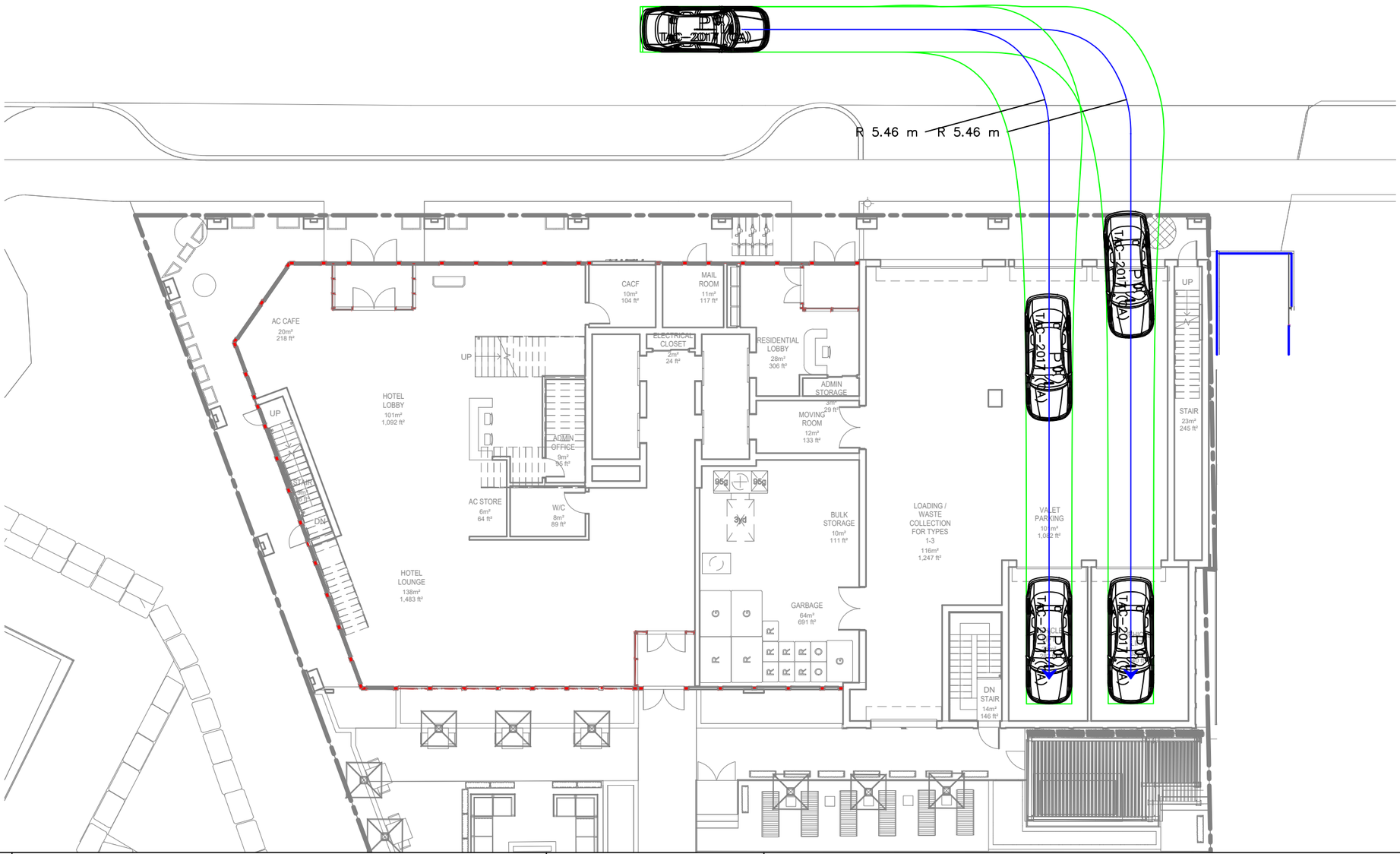
paradigm TRANSPORTATION SOLUTIONS LIMITED

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APPROX EX EP

AT GRADE - TAC P

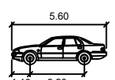
APPROX EX CL PAVEMENT MARKING



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

DESIGN VEHICLE:



P

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

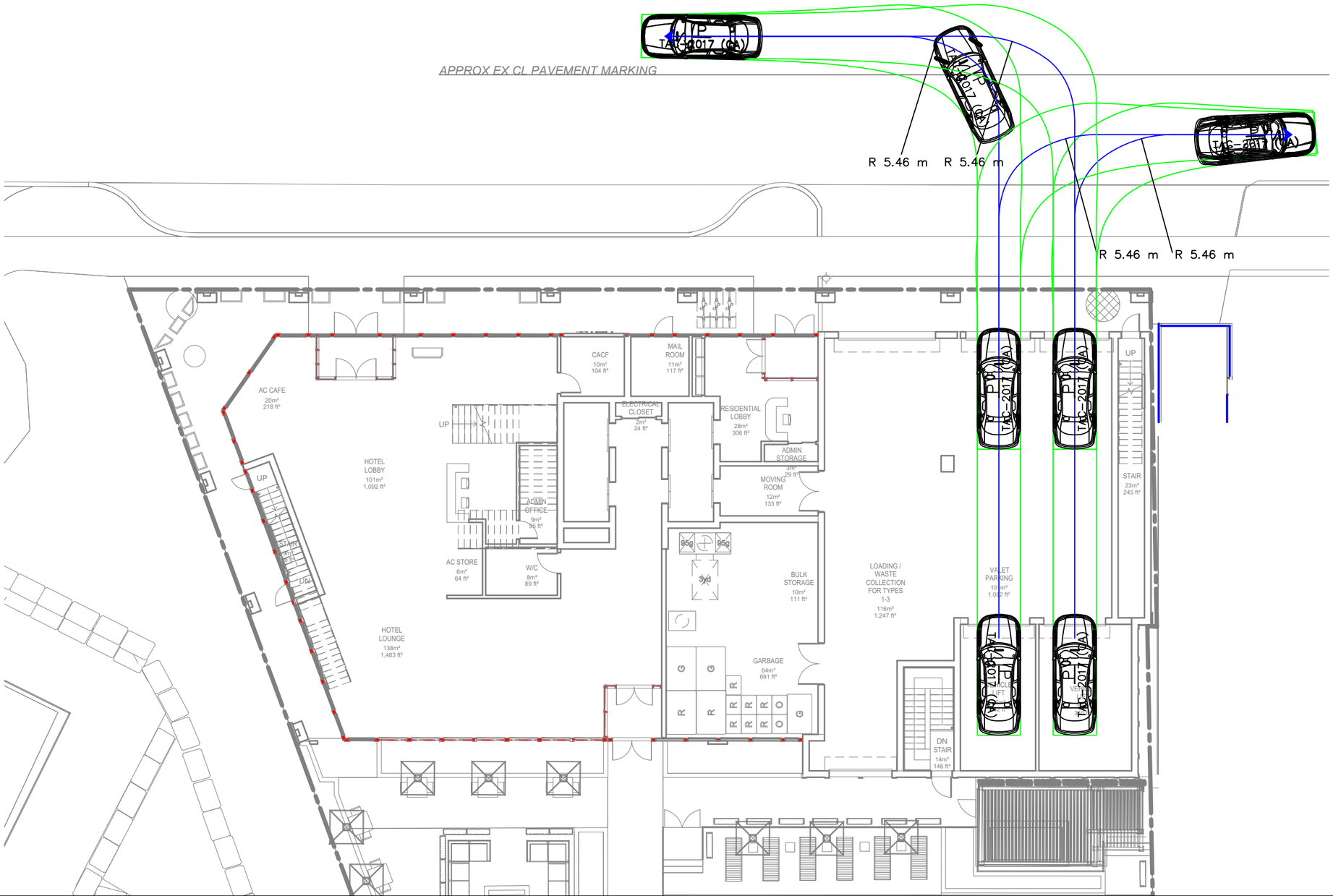
AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

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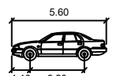
THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

AT GRADE - TAC P



NO.	DATE	INITIAL	REVISION DETAIL

DESIGN VEHICLE:



P

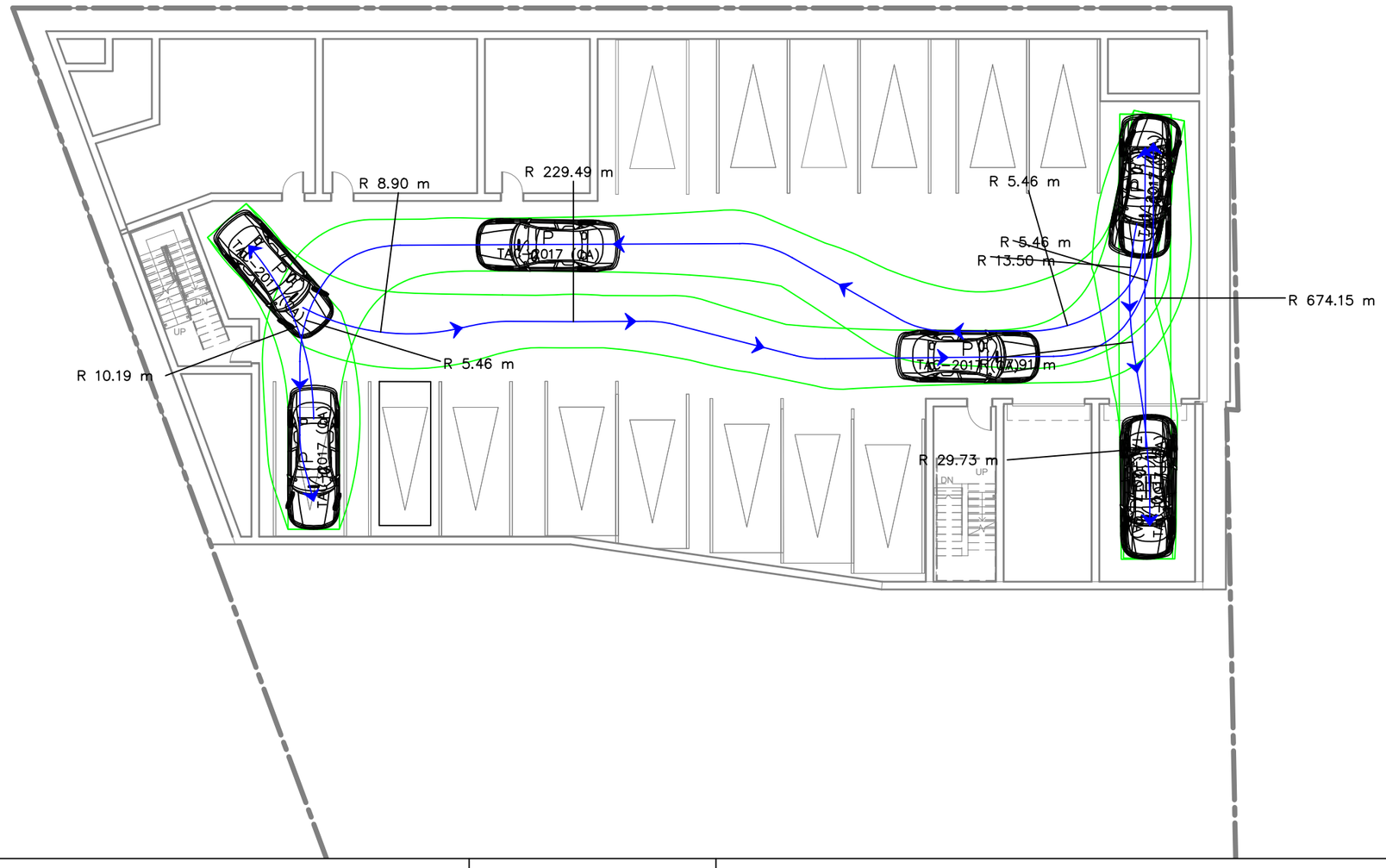
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Lock to Lock Time	: 6.0
Steering Angle	: 35.9

AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

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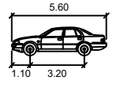
PARKING LEVEL 1 - TAC P



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NO.	DATE	INITIAL	REVISION DETAIL

DESIGN VEHICLE:



P

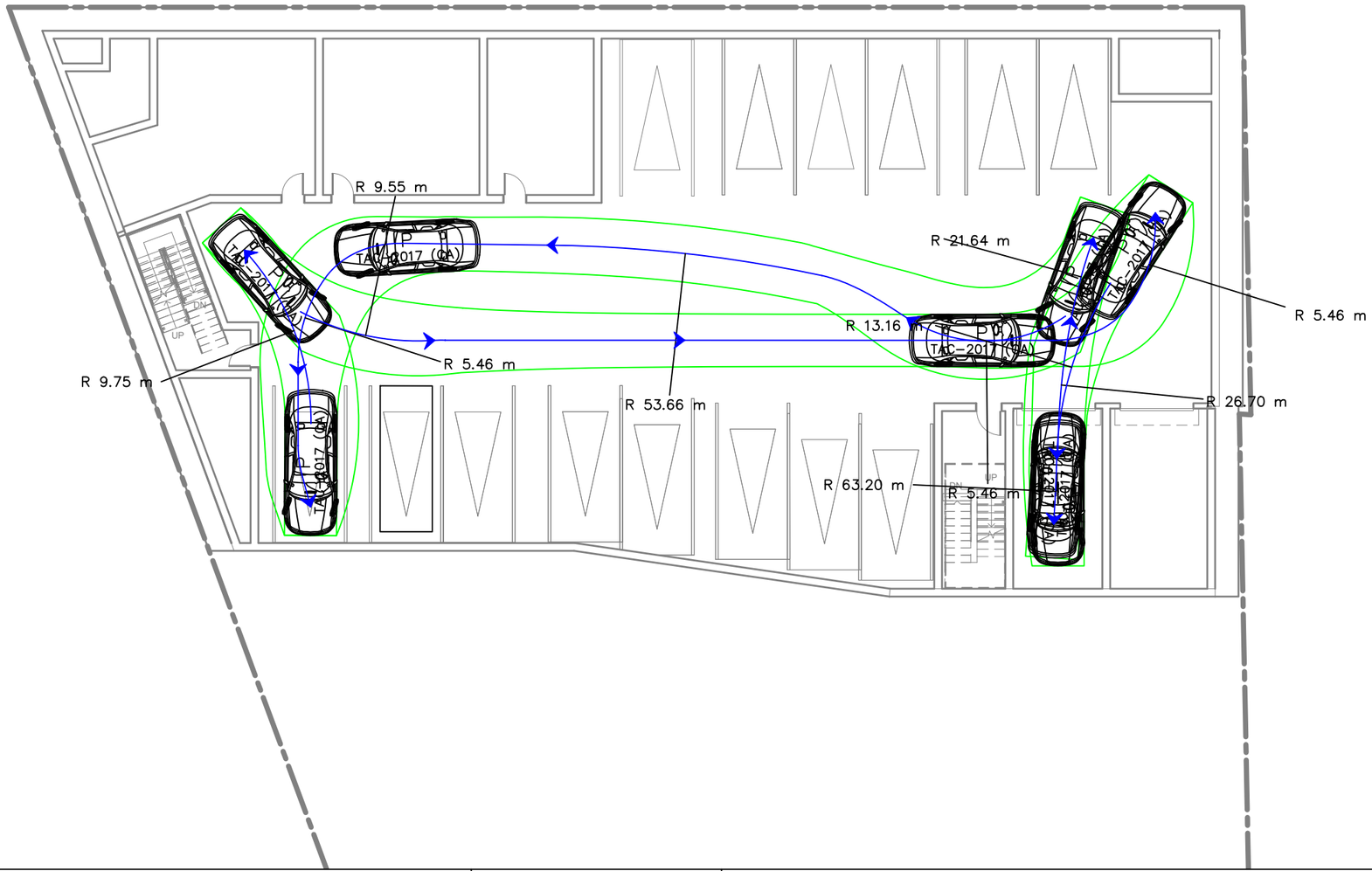
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Steering Angle	: 35.9

AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 250220	DATE: SEPT 2025	SCALE: 1:200	DRAWING NO.: 05
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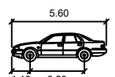
PARKING LEVEL 1 - TAC P



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

DESIGN VEHICLE:



P

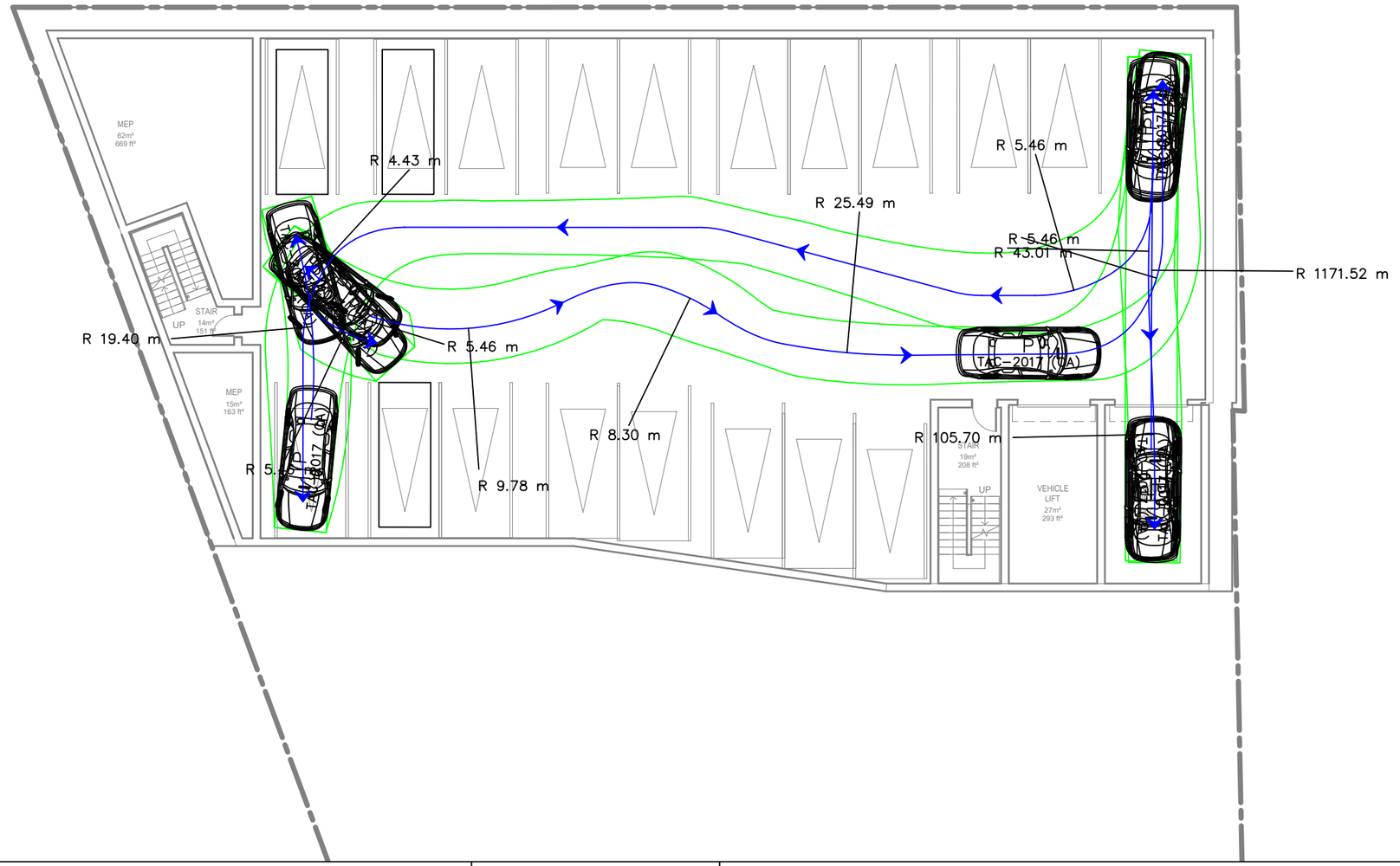
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Steering Angle	: 35.9

AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 250220	DATE: SEPT 2025	SCALE: 1:200	DRAWING NO.: 06
DESIGN: SC	DRAWN: SC	CHECK: AMa	

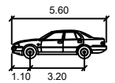
PARKING LEVEL 2 - TAC P



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

DESIGN VEHICLE:



P

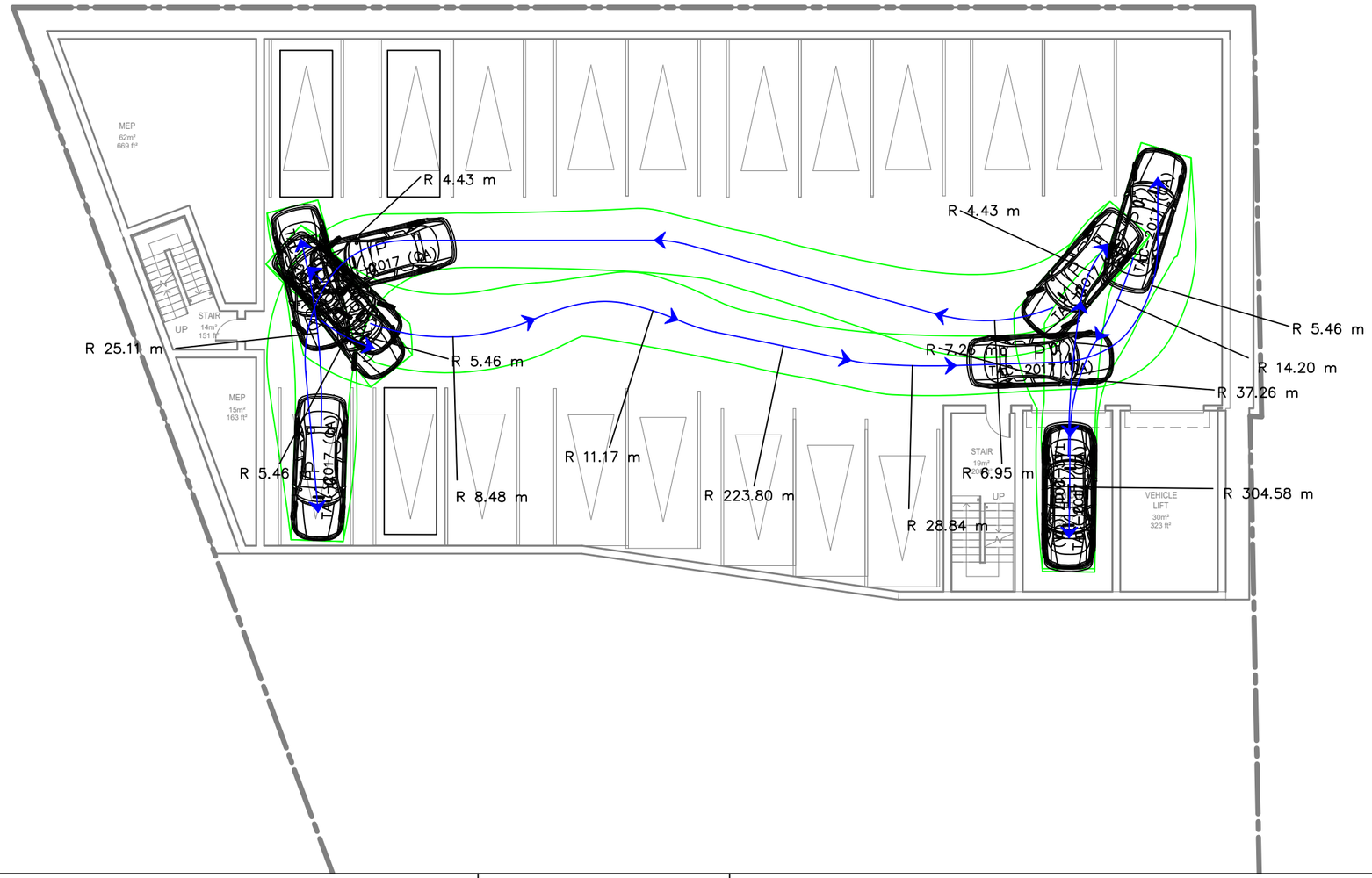
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Lock to Lock Time	: 6.0
Steering Angle	: 35.9

AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

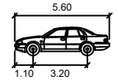
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PARKING LEVEL 2 - TAC P



NO.	DATE	INITIAL	REVISION DETAIL

DESIGN VEHICLE:



P

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

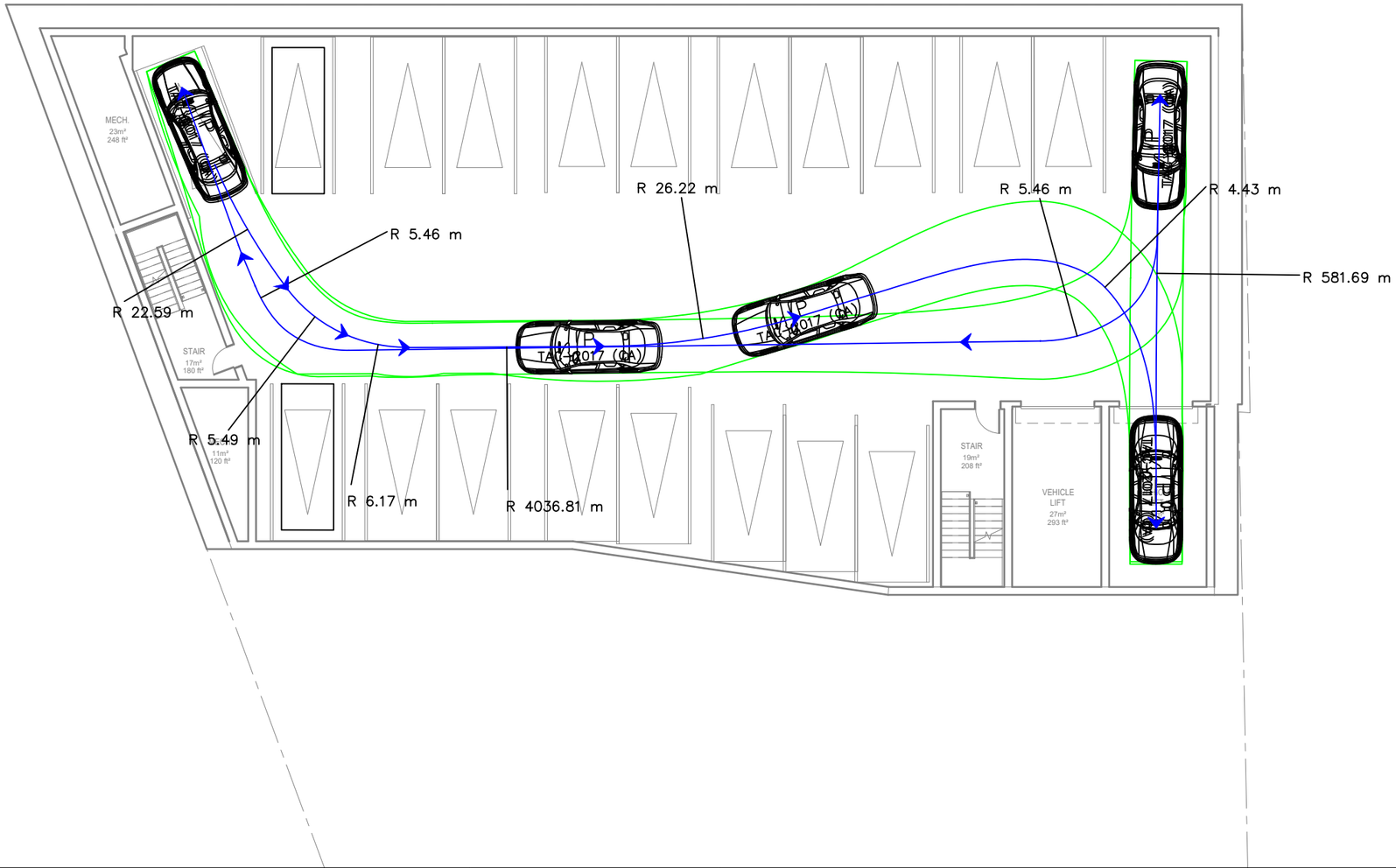
AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 250220	DATE: SEPT 2025	SCALE: 1:200	DRAWING NO.: 08
DESIGN: SC	DRAWN: SC	CHECK: AMa	

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.

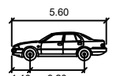
PARKING LEVEL 3-4 - TAC P



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

DESIGN VEHICLE:



P

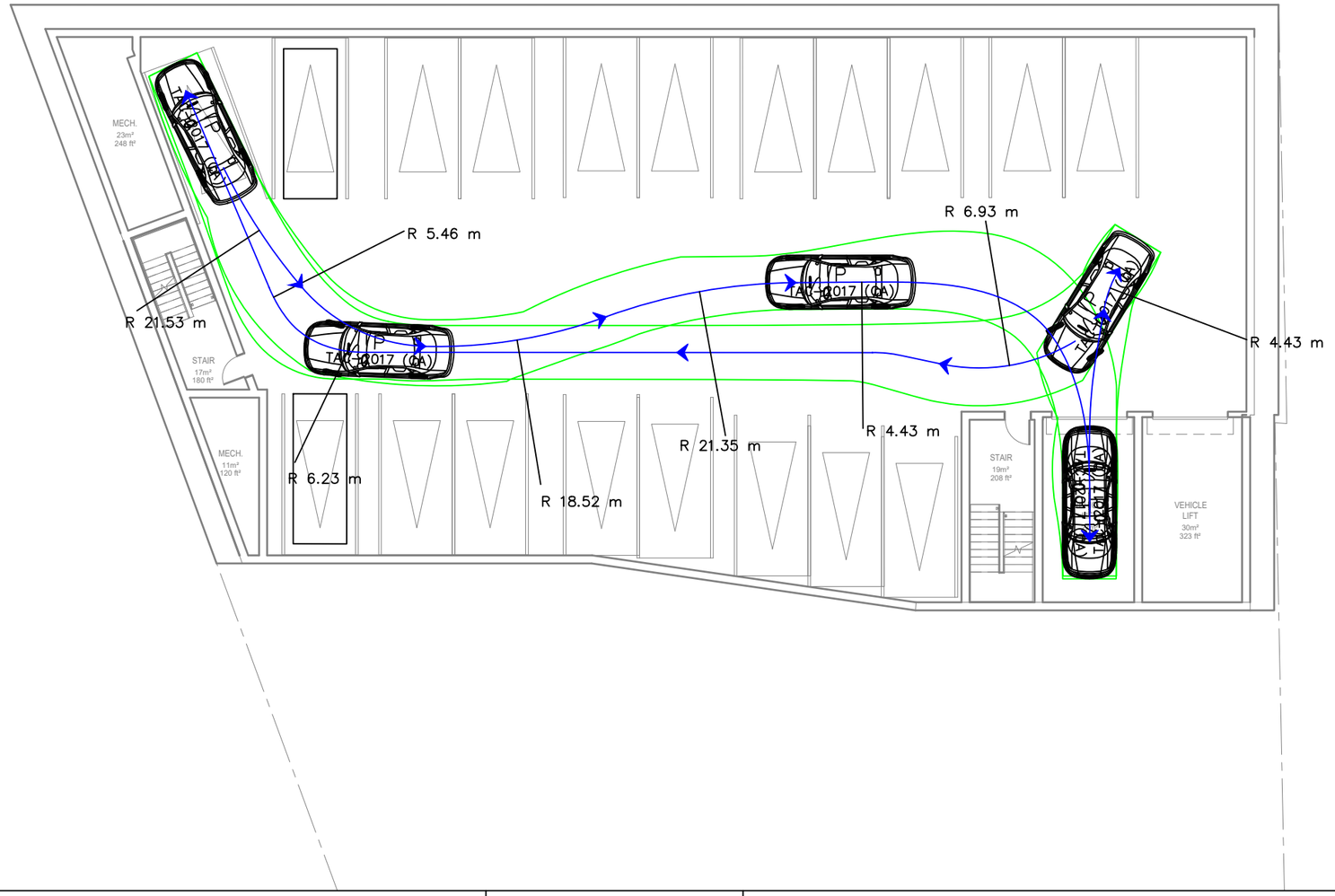
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Lock to Lock Time	: 6.0
Steering Angle	: 35.9

AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 250220	DATE: SEPT 2025	SCALE: 1:200	DRAWING NO.: 09
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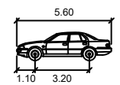
PARKING LEVEL 3-4 - TAC P



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

DESIGN VEHICLE:



P

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

AUTOTURN ASSESSMENT
2076 OLD LAKESHORE RD
CITY OF BURLINGTON

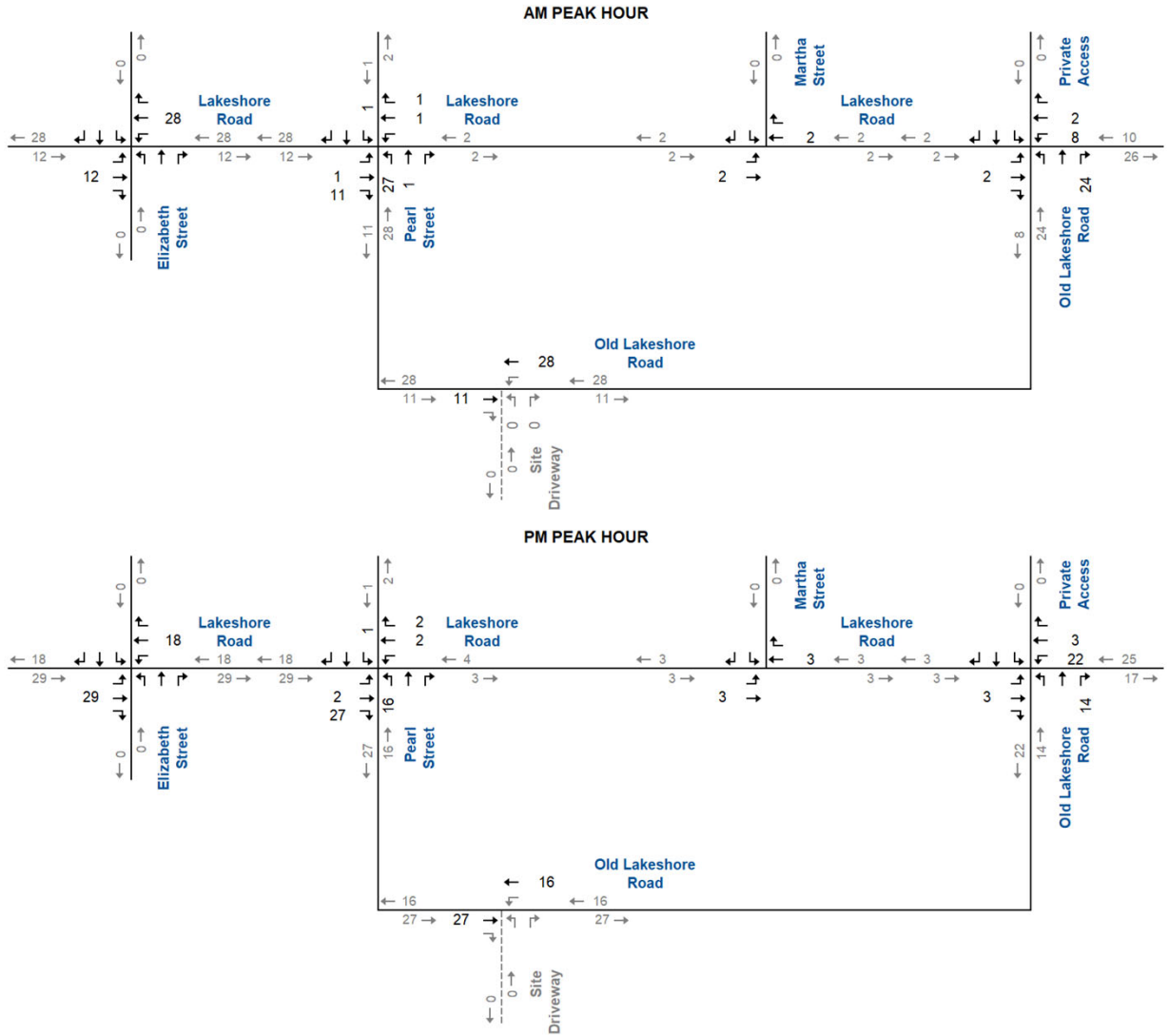
paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 250220	DATE: SEPT 2025	SCALE: 1:200	DRAWING NO.:
DESIGN: SC	DRAWN: SC	CHECK: AMa	10

Appendix I

Adjacent Development Traffic Forecasts



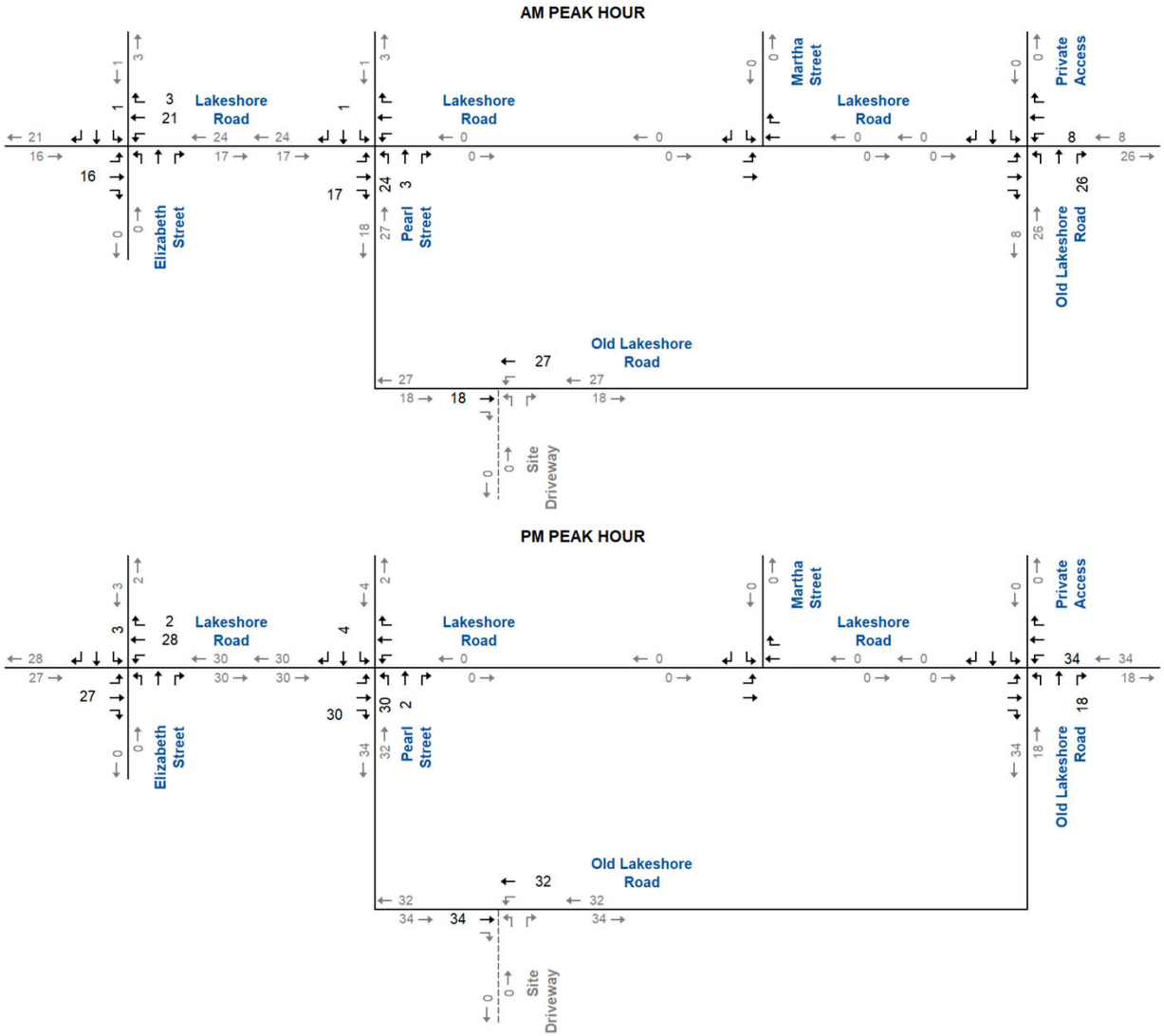


paradigm TRANSPORTATION SOLUTIONS LIMITED

2072 Lakeshore Road

2076 Old Lakeshore Road, Burlington
250220

Appendix I

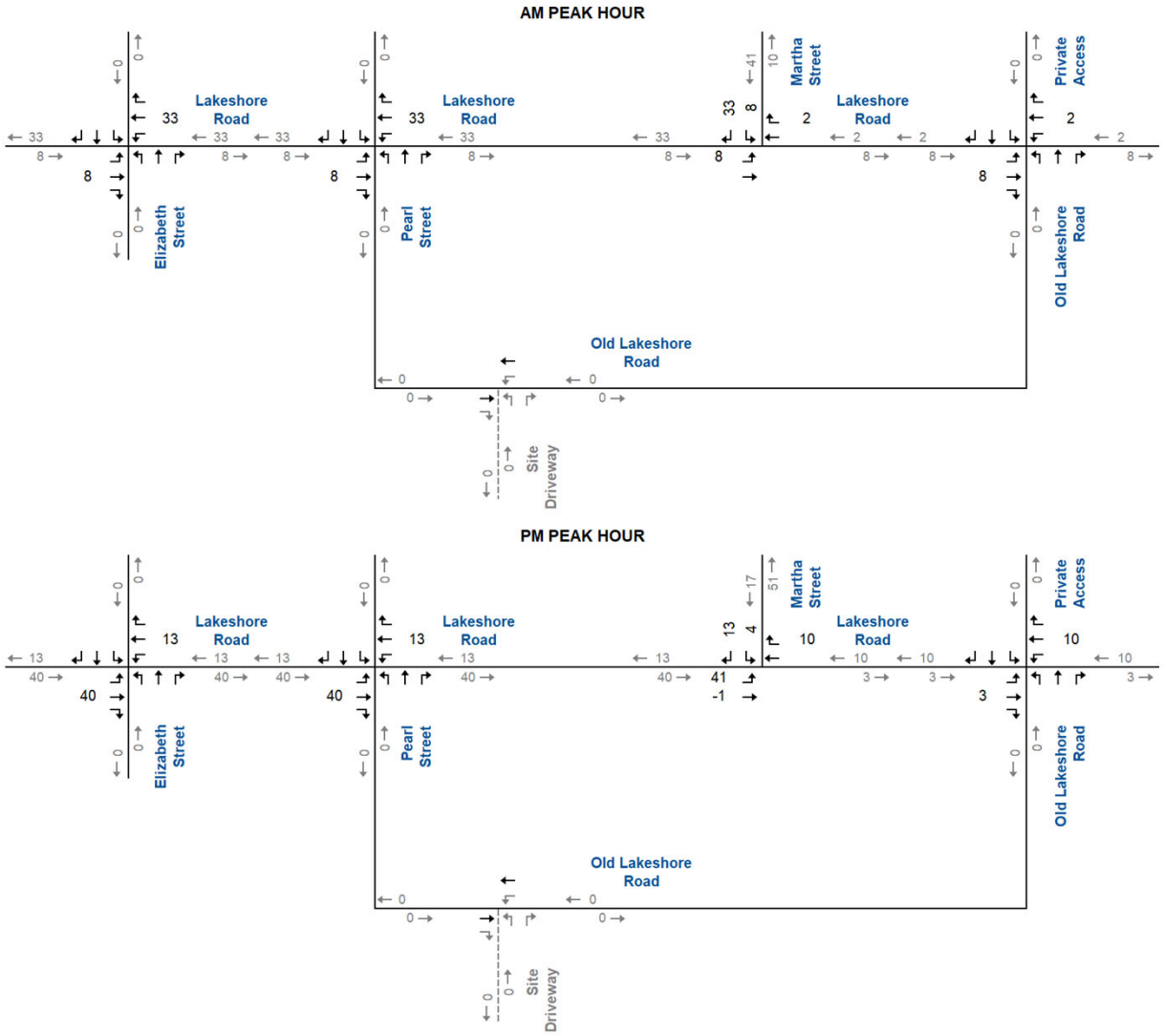


paradigm TRANSPORTATION SOLUTIONS LIMITED

2083 Old Lakeshore Road

2076 Old Lakeshore Road, Burlington
250220

Appendix I

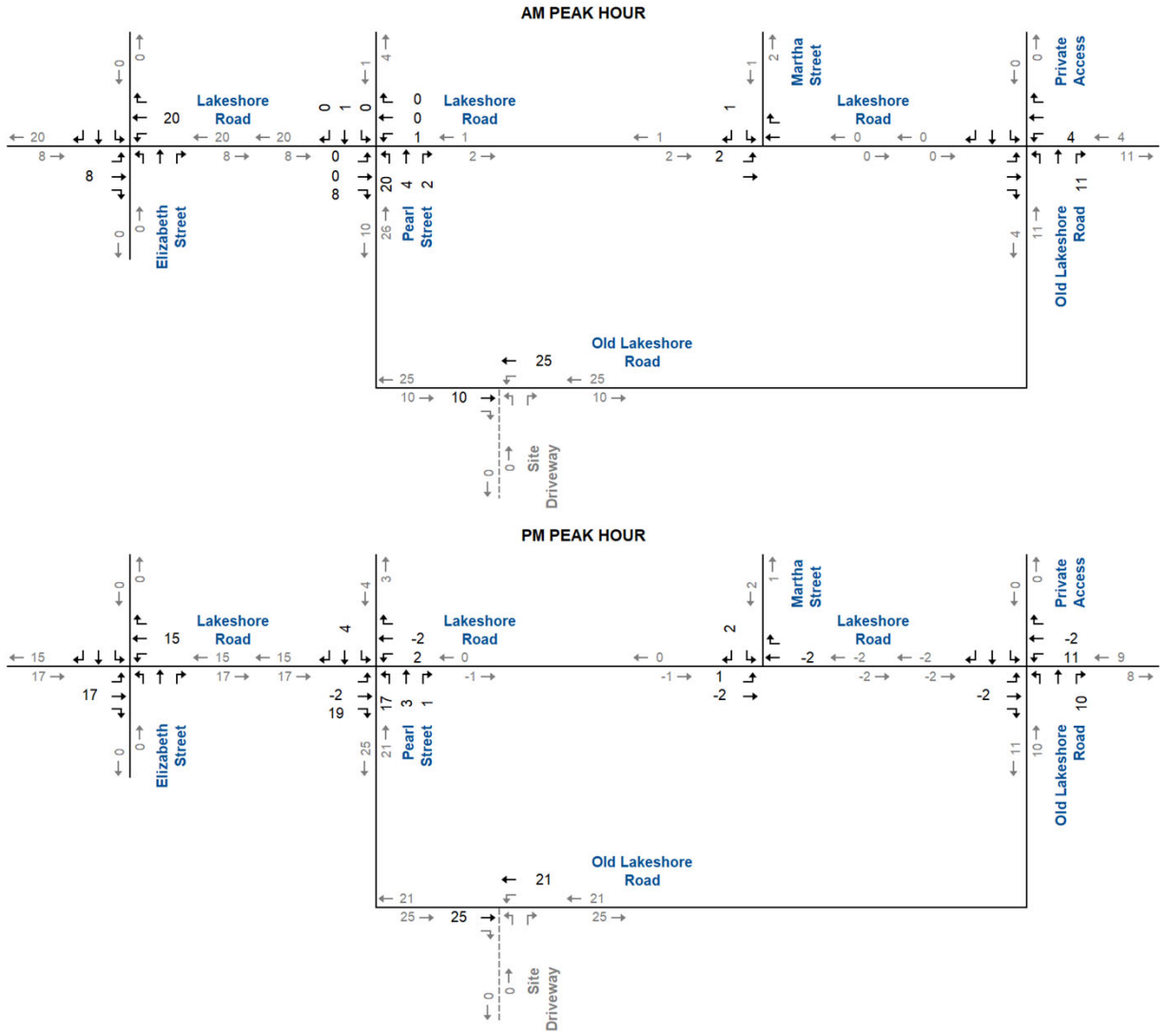


paradigm TRANSPORTATION SOLUTIONS LIMITED

374 Martha Street

2076 Old Lakeshore Road, Burlington
250220

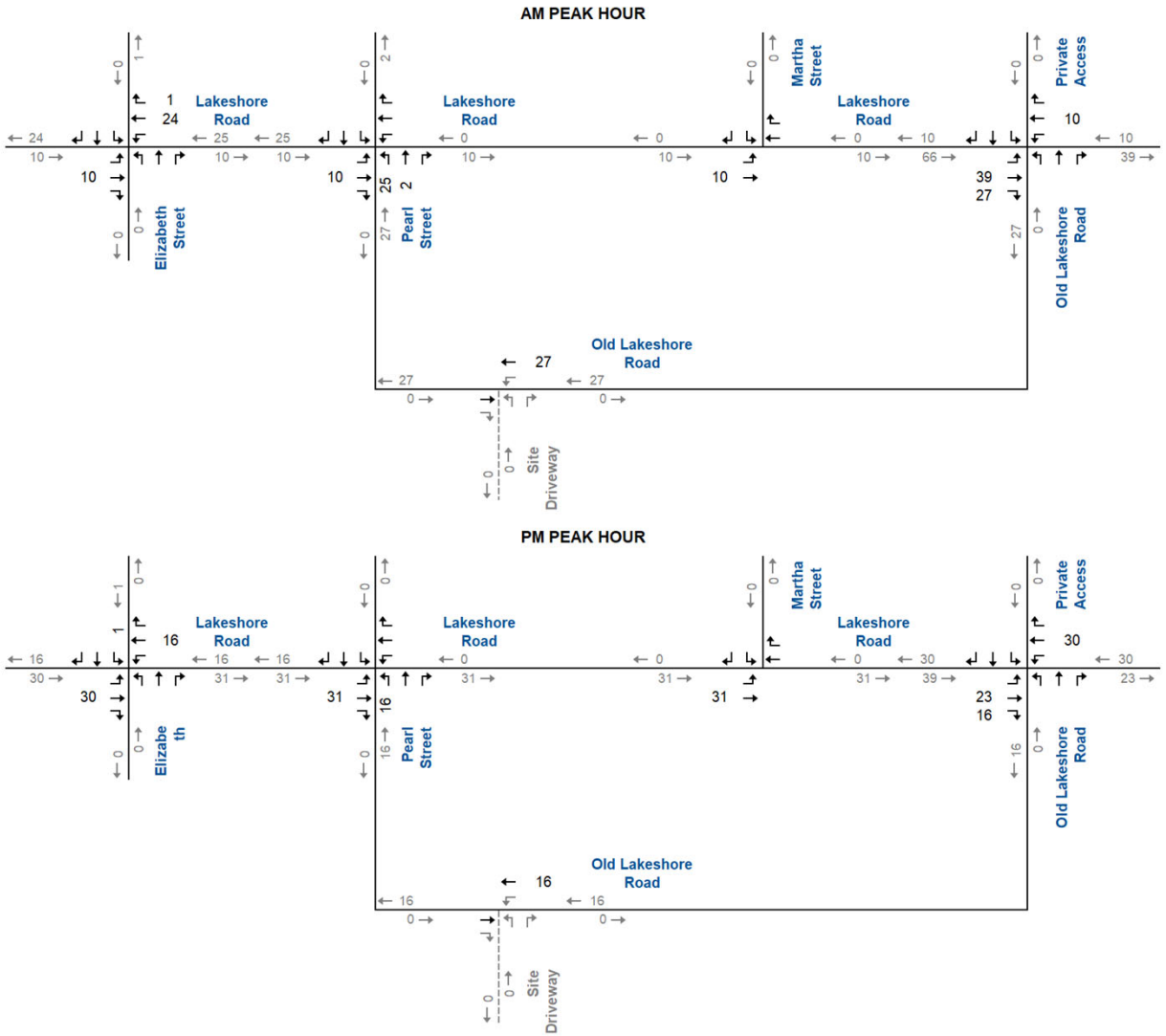
Appendix I



2107 Old Lakeshore Road

2076 Old Lakeshore Road, Burlington
250220

Appendix I

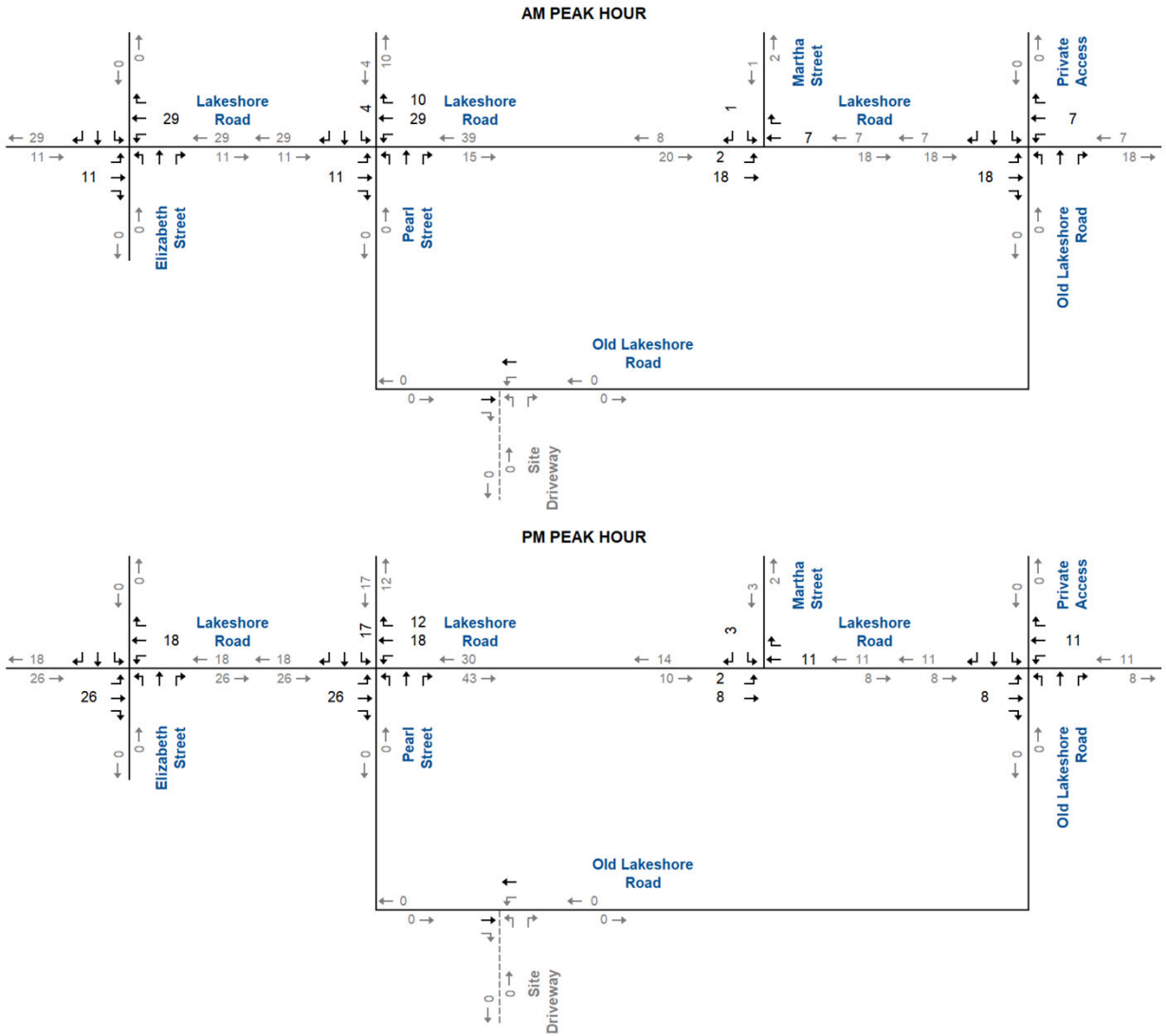


paradigm TRANSPORTATION SOLUTIONS LIMITED

2100 Lakeshore Road

2076 Old Lakeshore Road, Burlington
250220

Appendix I



paradigm TRANSPORTATION SOLUTIONS LIMITED

2069 Lakeshore Road

2076 Old Lakeshore Road, Burlington
250220

Appendix I

Appendix J

Background Traffic Operation Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	827	30	7	595	20	26	3	14	12	6	42
Future Volume (vph)	38	827	30	7	595	20	26	3	14	12	6	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00		0.98	0.97		0.98	0.96	
Frt		0.995			0.995			0.875			0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	3519	0	1825	1865	0	1755	1540	0	1259	1454	0
Flt Permitted	0.307			0.272			0.724			0.746		
Satd. Flow (perm)	541	3519	0	518	1865	0	1311	1540	0	964	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3			15			45	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Adj. Flow (vph)	40	880	32	7	633	21	28	3	15	13	6	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	912	0	7	654	0	28	18	0	13	51	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
v/c Ratio	0.12	0.43		0.02	0.58		0.08	0.04		0.05	0.12	
Control Delay (s/veh)	10.3	12.0		6.7	14.1		31.4	15.8		31.2	11.5	
Queue Delay	0.0	0.0		0.0	0.4		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	10.3	12.0		6.7	14.5		31.4	15.8		31.2	11.5	
LOS	B	B		A	B		C	B		C	B	
Approach Delay (s/veh)		11.9			14.4			25.3			15.5	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	3.6	51.4		0.4	97.4		4.7	0.5		2.9	1.0	
Queue Length 95th (m)	9.0	64.8		m1.0	120.8		12.1	6.0		9.5	10.1	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	329	2145		315	1137		345	417		254	416	
Starvation Cap Reductn	0	0		0	141		0	0		0	0	
Spillback Cap Reductn	0	29		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.43		0.02	0.66		0.08	0.04		0.05	0.12	

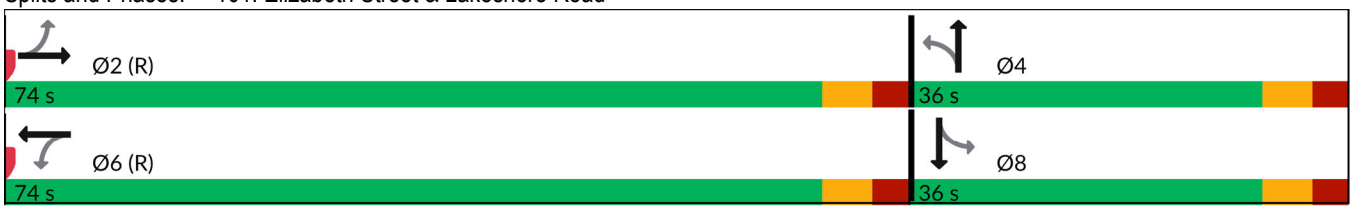
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay (s/veh): 13.4	Intersection LOS: B

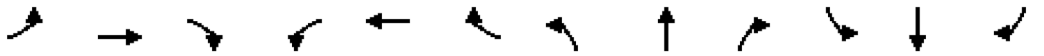
Intersection Capacity Utilization 68.4% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road



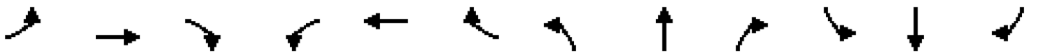


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	827	30	7	595	20	26	3	14	12	6	42
Future Volume (vph)	38	827	30	7	595	20	26	3	14	12	6	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.96	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.88		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1675	3518		1808	1865		1721	1540		1228	1453	
Flt Permitted	0.31	1.00		0.27	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	542	3518		519	1865		1311	1540		964	1453	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	880	32	7	633	21	28	3	15	13	6	45
RTOR Reduction (vph)	0	2	0	0	1	0	0	11	0	0	33	0
Lane Group Flow (vph)	40	910	0	7	653	0	28	7	0	13	18	0
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	330	2142		316	1135		345	406		254	383	
v/s Ratio Prot		0.26			c0.35			0.00			0.01	
v/s Ratio Perm	0.07			0.01			c0.02			0.01		
v/c Ratio	0.12	0.42		0.02	0.58		0.08	0.02		0.05	0.05	
Uniform Delay, d1	9.1	11.3		8.5	12.9		30.5	30.0		30.2	30.2	
Progression Factor	1.00	1.00		0.76	0.92		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.6		0.1	2.0		0.5	0.1		0.4	0.2	
Delay (s)	9.8	12.0		6.6	13.8		30.9	30.0		30.6	30.4	
Level of Service	A	B		A	B		C	C		C	C	
Approach Delay (s/veh)		11.9			13.8			30.6			30.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	850	57	2	530	23	107	11	4	11	2	9
Future Volume (vph)	29	850	57	2	530	23	107	11	4	11	2	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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	1.00			0.95	0.99		1.00	0.94	
Frt			0.850		0.994			0.960			0.877	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1883	1633	1825	1856	0	1674	1833	0	1825	1583	0
Flt Permitted	0.414			0.253			0.750			0.748		
Satd. Flow (perm)	795	1883	1582	485	1856	0	1250	1833	0	1434	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			59		4			4			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)			7	7			25		1	1		25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	876	59	2	546	24	110	11	4	11	2	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	876	59	2	570	0	110	15	0	11	11	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	77.0	77.0	77.0	77.0	77.0		33.0	33.0		33.0	33.0	
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	70.0	70.0	70.0	70.0	70.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	81.0	81.0	81.0	81.0	81.0		15.0	15.0		15.0	15.0	
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74		0.14	0.14		0.14	0.14	
v/c Ratio	0.05	0.63	0.05	0.01	0.42		0.65	0.06		0.06	0.05	
Control Delay (s/veh)	2.3	7.8	0.2	5.5	7.2		58.2	29.5		38.7	22.3	
Queue Delay	0.0	0.0	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	2.3	7.8	0.2	5.5	7.3		58.2	29.5		38.7	22.3	
LOS	A	A	A	A	A		E	C		D	C	
Approach Delay (s/veh)		7.2			7.3			54.8			30.5	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	0.5	54.6	0.0	0.1	40.6		24.2	2.0		2.1	0.4	
Queue Length 95th (m)	m1.4	78.4	0.2	0.9	74.2		m39.6	m6.2		6.8	5.2	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	585	1386	1180	357	1368		295	436		338	381	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	93		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.63	0.05	0.01	0.45		0.37	0.03		0.03	0.03	

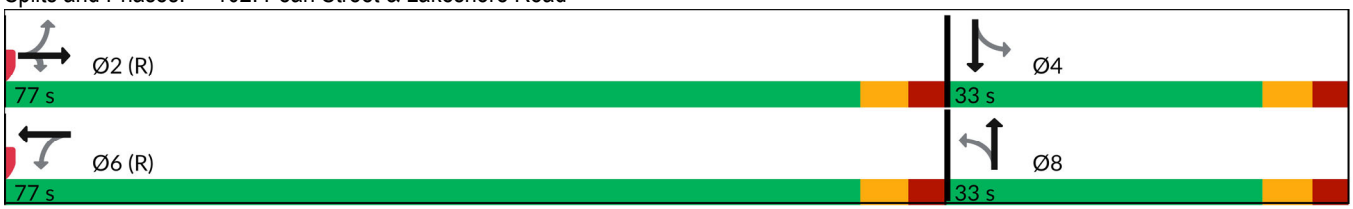
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay (s/veh): 11.1	Intersection LOS: B

Intersection Capacity Utilization 71.3% ICU Level of Service C

Analysis Period (min) 15

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

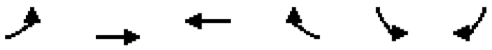
Splits and Phases: 102: Pearl Street & Lakeshore Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	850	57	2	530	23	107	11	4	11	2	9
Future Volume (vph)	29	850	57	2	530	23	107	11	4	11	2	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.99		1.00	0.94	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.95	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1883	1582	1821	1856		1584	1833		1821	1583	
Flt Permitted	0.41	1.00	1.00	0.25	1.00		0.75	1.00		0.75	1.00	
Satd. Flow (perm)	796	1883	1582	485	1856		1251	1833		1433	1583	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	30	876	59	2	546	24	110	11	4	11	2	9
RTOR Reduction (vph)	0	0	16	0	1	0	0	3	0	0	8	0
Lane Group Flow (vph)	30	876	43	2	569	0	110	12	0	11	3	0
Confl. Peds. (#/hr)			7	7			25		1	1		25
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	81.0	81.0	81.0	81.0	81.0		15.0	15.0		15.0	15.0	
Effective Green, g (s)	81.0	81.0	81.0	81.0	81.0		15.0	15.0		15.0	15.0	
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74		0.14	0.14		0.14	0.14	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	586	1386	1164	357	1366		170	249		195	215	
v/s Ratio Prot		c0.47			0.31			0.01			0.00	
v/s Ratio Perm	0.04		0.03	0.00			c0.09			0.01		
v/c Ratio	0.05	0.63	0.04	0.01	0.42		0.65	0.05		0.06	0.02	
Uniform Delay, d1	4.0	7.2	3.9	3.8	5.5		45.0	41.3		41.3	41.1	
Progression Factor	0.41	0.69	0.06	1.00	1.00		0.93	0.92		1.00	1.00	
Incremental Delay, d2	0.2	2.1	0.1	0.0	0.9		8.2	0.1		0.1	0.0	
Delay (s)	1.8	7.0	0.3	3.9	6.5		49.9	38.1		41.5	41.1	
Level of Service	A	A	A	A	A		D	D		D	D	
Approach Delay (s/veh)		6.4			6.4			48.5			41.3	
Approach LOS		A			A			D			D	

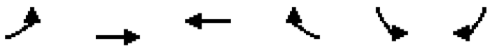
Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	843	461	29	21	57
Future Volume (vph)	28	843	461	29	21	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.992		0.902	
Flt Protected	0.950				0.987	
Satd. Flow (prot)	1825	1883	1866	0	1674	0
Flt Permitted	0.950				0.987	
Satd. Flow (perm)	1825	1883	1866	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	14			14	1	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	4%	8%	0%
Adj. Flow (vph)	30	916	501	32	23	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	916	533	0	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			



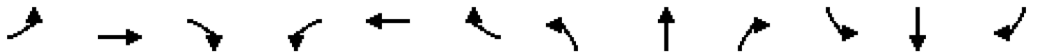
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	843	461	29	21	57
Future Volume (Veh/h)	28	843	461	29	21	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	916	501	32	23	62
Pedestrians		8	1		14	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.74	
vC, conflicting volume	547				1508	539
vC1, stage 1 conf vol					531	
vC2, stage 2 conf vol					977	
vCu, unblocked vol	547				1511	539
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)					5.5	
tF (s)	2.2				3.6	3.3
p0 queue free %	97				92	88
cM capacity (veh/h)	1018				278	535

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	30	916	533	85
Volume Left	30	0	0	23
Volume Right	0	0	32	62
cSH	1018	1700	1700	428
Volume to Capacity	0.03	0.54	0.31	0.20
Queue Length 95th (m)	0.7	0.0	0.0	5.6
Control Delay (s/veh)	8.6	0.0	0.0	15.5
Lane LOS	A			C
Approach Delay (s/veh)	0.3		0.0	15.5
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	888	30	28	499	0	2	0	80	0	0	0
Future Volume (vph)	0	888	30	28	499	0	2	0	80	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.868				
Flt Protected				0.950				0.999				
Satd. Flow (prot)	1921	1855	0	1825	1865	0	0	1666	0	0	1921	0
Flt Permitted				0.950				0.999				
Satd. Flow (perm)	1921	1855	0	1825	1865	0	0	1666	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			238.2			61.5	
Travel Time (s)		10.3			6.5			17.2			4.4	
Confl. Peds. (#/hr)	11		1	1		11	1		3	3		1
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%	2%	33%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	965	33	30	542	0	2	0	87	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	998	0	30	542	0	0	89	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

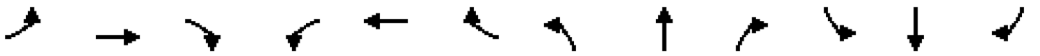


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	888	30	28	499	0	2	0	80	0	0	0
Future Volume (Veh/h)	0	888	30	28	499	0	2	0	80	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	965	33	30	542	0	2	0	87	0	0	0
Pedestrians		1			3			1			11	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.72			0.72	0.72	0.72	0.72	0.72	
vC, conflicting volume	553			999			1586	1596	986	1668	1612	554
vC1, stage 1 conf vol							983	983		613	613	
vC2, stage 2 conf vol							603	613		1055	999	
vCu, unblocked vol	553			800			1619	1633	781	1735	1657	554
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			99	100	69	100	100	100
cM capacity (veh/h)	1016			595			239	248	284	132	225	530

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	998	30	542	89	0
Volume Left	0	0	30	0	2	0
Volume Right	0	33	0	0	87	0
cSH	1700	1700	595	1700	282	1700
Volume to Capacity	0.00	0.59	0.05	0.32	0.32	0.00
Queue Length 95th (m)	0.0	0.0	1.2	0.0	9.9	0.0
Control Delay (s/veh)	0.0	0.0	11.4	0.0	23.5	0.0
Lane LOS			B		C	A
Approach Delay (s/veh)	0.0		0.6		23.5	0.0
Approach LOS					C	A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	866	31	8	617	21	27	3	15	13	6	44
Future Volume (vph)	40	866	31	8	617	21	27	3	15	13	6	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00		0.98	0.97		0.98	0.96	
Frt		0.995			0.995			0.874			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	3519	0	1825	1865	0	1755	1537	0	1259	1451	0
Flt Permitted	0.292			0.257			0.722			0.745		
Satd. Flow (perm)	515	3519	0	490	1865	0	1308	1537	0	963	1451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3			16			47	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Adj. Flow (vph)	43	921	33	9	656	22	29	3	16	14	6	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	954	0	9	678	0	29	19	0	14	53	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
v/c Ratio	0.14	0.44		0.03	0.60		0.08	0.05		0.06	0.13	
Control Delay (s/veh)	10.6	12.3		6.9	14.4		31.4	15.4		31.2	11.5	
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	10.6	12.3		6.9	14.7		31.4	15.4		31.2	11.5	
LOS	B	B		A	B		C	B		C	B	
Approach Delay (s/veh)		12.2			14.6			25.1			15.6	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	3.9	54.6		0.5	102.1		4.9	0.5		3.1	1.0	
Queue Length 95th (m)	9.7	68.7		m1.3	120.9		12.5	6.2		9.9	10.5	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	313	2145		298	1137		344	416		253	417	
Starvation Cap Reductn	0	0		0	117		0	0		0	0	
Spillback Cap Reductn	0	42		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.45		0.03	0.66		0.08	0.05		0.06	0.13	

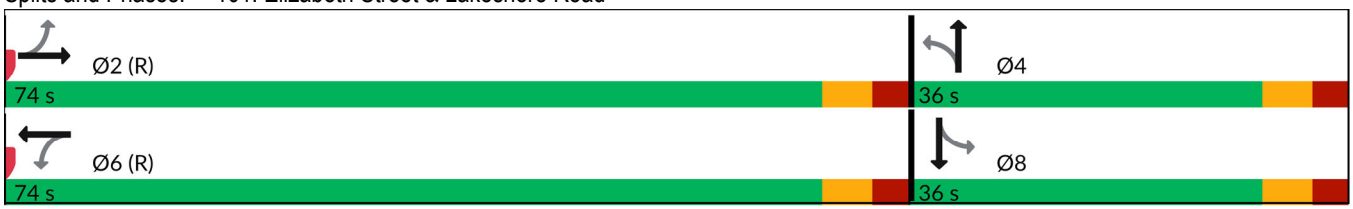
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay (s/veh): 13.6	Intersection LOS: B

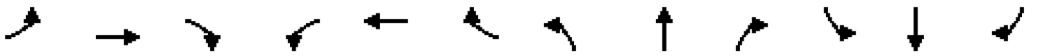
Intersection Capacity Utilization 69.6% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road



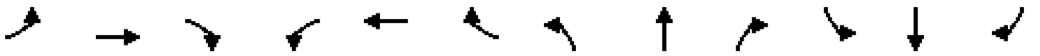


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	866	31	8	617	21	27	3	15	13	6	44
Future Volume (vph)	40	866	31	8	617	21	27	3	15	13	6	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.96	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	3519		1810	1865		1721	1536		1228	1451	
Flt Permitted	0.29	1.00		0.26	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	515	3519		489	1865		1309	1536		963	1451	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	43	921	33	9	656	22	29	3	16	14	6	47
RTOR Reduction (vph)	0	2	0	0	1	0	0	12	0	0	35	0
Lane Group Flow (vph)	43	952	0	9	677	0	29	7	0	14	18	0
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	313	2143		297	1135		345	404		253	382	
v/s Ratio Prot		0.27			c0.36			0.00			0.01	
v/s Ratio Perm	0.08			0.02			c0.02			0.01		
v/c Ratio	0.14	0.44		0.03	0.60		0.08	0.02		0.06	0.05	
Uniform Delay, d1	9.2	11.5		8.6	13.2		30.5	30.0		30.3	30.2	
Progression Factor	1.00	1.00		0.76	0.90		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.7		0.2	2.1		0.5	0.1		0.4	0.2	
Delay (s)	10.1	12.2		6.6	14.1		31.0	30.0		30.7	30.4	
Level of Service	B	B		A	B		C	C		C	C	
Approach Delay (s/veh)		12.1			14.0			30.6			30.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	892	58	2	554	24	108	11	4	11	2	10
Future Volume (vph)	30	892	58	2	554	24	108	11	4	11	2	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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				0.95	0.99		1.00	0.94	
Frt			0.850		0.994			0.960			0.875	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1883	1633	1825	1856	0	1674	1833	0	1825	1577	0
Flt Permitted	0.399			0.231			0.750			0.748		
Satd. Flow (perm)	767	1883	1582	444	1856	0	1250	1833	0	1434	1577	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			60		4			4			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)			7	7			25		1	1		25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	31	920	60	2	571	25	111	11	4	11	2	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	920	60	2	596	0	111	15	0	11	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	77.0	77.0	77.0	77.0	77.0		33.0	33.0		33.0	33.0	
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	70.0	70.0	70.0	70.0	70.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.9	80.9	80.9	80.9	80.9		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74		0.14	0.14		0.14	0.14	
v/c Ratio	0.05	0.66	0.05	0.01	0.44		0.65	0.06		0.06	0.05	
Control Delay (s/veh)	2.3	8.6	0.2	5.5	7.5		58.4	29.9		38.6	21.3	
Queue Delay	0.0	0.0	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	2.3	8.6	0.2	5.5	7.6		58.4	29.9		38.6	21.3	
LOS	A	A	A	A	A		E	C		D	C	
Approach Delay (s/veh)		7.9			7.6			55.0			29.6	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	0.6	61.8	0.0	0.1	43.5		24.2	2.0		2.1	0.4	
Queue Length 95th (m)	m1.4	88.6	0.2	0.9	79.1		m39.2	m6.2		6.8	5.5	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	564	1385	1180	326	1366		295	436		338	380	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	125		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.66	0.05	0.01	0.48		0.38	0.03		0.03	0.03	

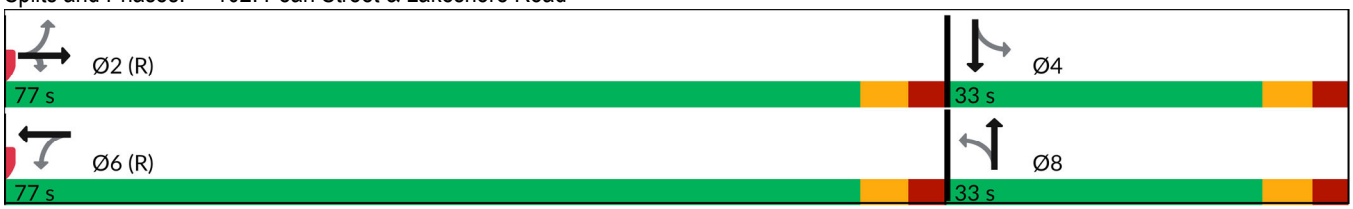
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay (s/veh): 11.5	Intersection LOS: B

Intersection Capacity Utilization 73.6% ICU Level of Service D

Analysis Period (min) 15

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

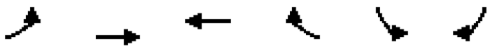
Splits and Phases: 102: Pearl Street & Lakeshore Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	892	58	2	554	24	108	11	4	11	2	10
Future Volume (vph)	30	892	58	2	554	24	108	11	4	11	2	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.99		1.00	0.94	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.95	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1883	1582	1821	1856		1584	1833		1821	1577	
Flt Permitted	0.40	1.00	1.00	0.23	1.00		0.75	1.00		0.75	1.00	
Satd. Flow (perm)	767	1883	1582	442	1856		1250	1833		1433	1577	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	920	60	2	571	25	111	11	4	11	2	10
RTOR Reduction (vph)	0	0	16	0	1	0	0	3	0	0	9	0
Lane Group Flow (vph)	31	920	44	2	595	0	111	12	0	11	3	0
Confl. Peds. (#/hr)			7	7			25		1	1		25
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	80.9	80.9	80.9	80.9	80.9		15.1	15.1		15.1	15.1	
Effective Green, g (s)	80.9	80.9	80.9	80.9	80.9		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74		0.14	0.14		0.14	0.14	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	564	1384	1163	325	1365		171	251		196	216	
v/s Ratio Prot		c0.49			0.32			0.01			0.00	
v/s Ratio Perm	0.04		0.03	0.00			c0.09			0.01		
v/c Ratio	0.05	0.66	0.04	0.01	0.44		0.65	0.05		0.06	0.02	
Uniform Delay, d1	4.0	7.5	4.0	3.9	5.7		44.9	41.2		41.3	41.0	
Progression Factor	0.41	0.70	0.06	1.00	1.00		0.93	0.94		1.00	1.00	
Incremental Delay, d2	0.2	2.4	0.1	0.0	1.0		8.2	0.1		0.1	0.0	
Delay (s)	1.8	7.7	0.3	3.9	6.7		49.9	38.7		41.4	41.1	
Level of Service	A	A	A	A	A		D	D		D	D	
Approach Delay (s/veh)		7.1			6.7			48.6			41.2	
Approach LOS		A			A			D			D	

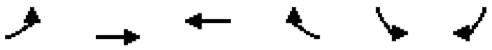
Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	884	484	30	22	58
Future Volume (vph)	29	884	484	30	22	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.992		0.902	
Flt Protected	0.950				0.986	
Satd. Flow (prot)	1825	1883	1866	0	1672	0
Flt Permitted	0.950				0.986	
Satd. Flow (perm)	1825	1883	1866	0	1672	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	14			14	1	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	4%	8%	0%
Adj. Flow (vph)	32	961	526	33	24	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	961	559	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

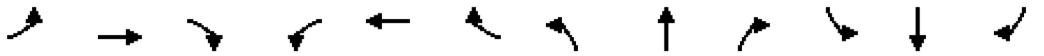
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	884	484	30	22	58
Future Volume (Veh/h)	29	884	484	30	22	58
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	961	526	33	24	63
Pedestrians		8	1		14	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.71	
vC, conflicting volume	573				1583	565
vC1, stage 1 conf vol					557	
vC2, stage 2 conf vol					1026	
vCu, unblocked vol	573				1616	565
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)					5.5	
tF (s)	2.2				3.6	3.3
p0 queue free %	97				91	88
cM capacity (veh/h)	996				255	517

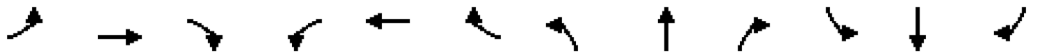
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	32	961	559	87
Volume Left	32	0	0	24
Volume Right	0	0	33	63
cSH	996	1700	1700	403
Volume to Capacity	0.03	0.57	0.33	0.22
Queue Length 95th (m)	0.8	0.0	0.0	6.2
Control Delay (s/veh)	8.7	0.0	0.0	16.4
Lane LOS	A			C
Approach Delay (s/veh)	0.3		0.0	16.4
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	930	30	29	523	0	2	0	80	0	0	0
Future Volume (vph)	0	930	30	29	523	0	2	0	80	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.868				
Flt Protected				0.950				0.999				
Satd. Flow (prot)	1921	1856	0	1825	1865	0	0	1666	0	0	1921	0
Flt Permitted				0.950				0.999				
Satd. Flow (perm)	1921	1856	0	1825	1865	0	0	1666	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			239.9			61.5	
Travel Time (s)		10.3			6.5			17.3			4.4	
Confl. Peds. (#/hr)	11		1	1		11	1		3	3		1
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%	2%	33%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1011	33	32	568	0	2	0	87	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1044	0	32	568	0	0	89	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.6%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	930	30	29	523	0	2	0	80	0	0	0
Future Volume (Veh/h)	0	930	30	29	523	0	2	0	80	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1011	33	32	568	0	2	0	87	0	0	0
Pedestrians		1			3			1			11	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.68			0.68	0.68	0.68	0.68	0.68	
vC, conflicting volume	579			1045			1662	1672	1032	1744	1688	580
vC1, stage 1 conf vol							1029	1029		643	643	
vC2, stage 2 conf vol							633	643		1101	1045	
vCu, unblocked vol	579			828			1739	1753	808	1860	1778	580
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			99	100	66	100	100	100
cM capacity (veh/h)	994			549			218	228	259	110	203	512

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	1044	32	568	89	0
Volume Left	0	0	32	0	2	0
Volume Right	0	33	0	0	87	0
cSH	1700	1700	549	1700	258	1700
Volume to Capacity	0.00	0.61	0.06	0.33	0.35	0.00
Queue Length 95th (m)	0.0	0.0	1.4	0.0	11.2	0.0
Control Delay (s/veh)	0.0	0.0	12.0	0.0	26.1	0.0
Lane LOS			B		D	A
Approach Delay (s/veh)	0.0		0.6		26.1	0.0
Approach LOS					D	A

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	63.6%	ICU Level of Service		B
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	771	37	16	798	30	37	13	20	29	20	37
Future Volume (vph)	41	771	37	16	798	30	37	13	20	29	20	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	1.00		0.92	0.96		0.95	0.93	
Frt		0.993			0.994			0.908			0.903	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3611	0	1825	1862	0	1825	1681	0	1560	1483	0
Flt Permitted	0.176			0.290			0.717			0.734		
Satd. Flow (perm)	307	3611	0	548	1862	0	1268	1681	0	1150	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			3			22			40	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
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 (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Adj. Flow (vph)	45	838	40	17	867	33	40	14	22	32	22	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	878	0	17	900	0	40	36	0	32	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

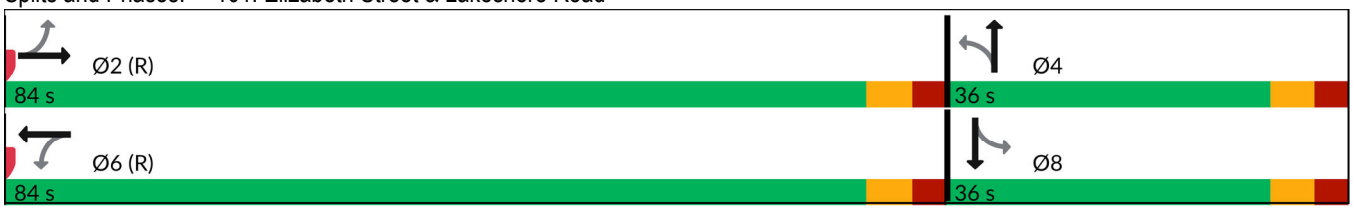


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
v/c Ratio	0.23	0.38		0.05	0.75		0.13	0.09		0.12	0.16	
Control Delay (s/veh)	12.7	10.6		5.6	12.4		37.1	19.6		37.0	17.6	
Queue Delay	0.0	0.0		0.0	1.4		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	12.7	10.6		5.6	13.8		37.1	19.6		37.0	17.6	
LOS	B	B		A	B		D	B		D	B	
Approach Delay (s/veh)		10.7			13.6			28.8			24.2	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	4.5	47.1		0.8	78.0		7.4	2.6		6.7	4.0	
Queue Length 95th (m)	11.6	58.7		m1.3	117.5		16.8	11.0		16.4	15.2	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	196	2319		351	1195		306	422		277	388	
Starvation Cap Reductn	0	0		0	136		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	0.23	0.38		0.05	0.85		0.13	0.09		0.12	0.16	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 56 (47%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay (s/veh): 13.4	Intersection LOS: B

Intersection Capacity Utilization 79.7% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: Elizabeth Street & Lakeshore Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	771	37	16	798	30	37	13	20	29	20	37
Future Volume (vph)	41	771	37	16	798	30	37	13	20	29	20	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.96		1.00	0.93	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.92	1.00		0.95	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	3611		1794	1863		1680	1682		1488	1483	
Flt Permitted	0.18	1.00		0.29	1.00		0.72	1.00		0.73	1.00	
Satd. Flow (perm)	308	3611		549	1863		1267	1682		1149	1483	
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)	45	838	40	17	867	33	40	14	22	32	22	40
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	30	0
Lane Group Flow (vph)	45	875	0	17	899	0	40	19	0	32	32	0
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
Heavy Vehicles (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	197	2317		352	1195		306	406		277	358	
v/s Ratio Prot		0.24			c0.48			0.01			0.02	
v/s Ratio Perm	0.15			0.03			c0.03			0.03		
v/c Ratio	0.23	0.38		0.05	0.75		0.13	0.05		0.12	0.09	
Uniform Delay, d1	9.0	10.2		8.0	14.9		35.6	34.9		35.5	35.3	
Progression Factor	1.00	1.00		0.66	0.59		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.5		0.2	3.2		0.9	0.2		0.8	0.5	
Delay (s)	11.7	10.6		5.4	12.0		36.5	35.1		36.3	35.7	
Level of Service	B	B		A	B		D	D		D	D	
Approach Delay (s/veh)		10.7			11.8			35.9			35.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	650	86	3	817	40	125	10	1	39	13	35
Future Volume (vph)	37	650	86	3	817	40	125	10	1	39	13	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.96	0.99	1.00		0.96	1.00		0.99	0.96	
Frt			0.850		0.993			0.987			0.891	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	1902	1633	1825	1849	0	1825	1892	0	1825	1602	0
Flt Permitted	0.193			0.316			0.724			0.750		
Satd. Flow (perm)	360	1902	1571	604	1849	0	1338	1892	0	1431	1602	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		4			1			37	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	39	684	91	3	860	42	132	11	1	41	14	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	684	91	3	902	0	132	12	0	41	51	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	87.0	87.0	87.0	87.0	87.0		33.0	33.0		33.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	72.5%		27.5%	27.5%		27.5%	27.5%	
Maximum Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
v/c Ratio	0.16	0.54	0.08	0.01	0.73		0.46	0.03		0.13	0.14	
Control Delay (s/veh)	5.5	7.4	0.3	6.7	17.4		45.2	34.5		39.4	17.6	
Queue Delay	0.0	0.0	0.0	0.0	0.6		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	5.5	7.4	0.3	6.7	18.0		45.2	34.5		39.4	17.6	
LOS	A	A	A	A	B		D	C		D	B	
Approach Delay (s/veh)		6.5			18.0			44.3			27.3	
Approach LOS		A			B			D			C	
Queue Length 50th (m)	1.3	23.9	0.0	0.2	129.1		27.4	2.1		7.8	2.6	
Queue Length 95th (m)	3.1	29.8	0.7	1.3	180.4		47.0	m6.7		17.6	13.0	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	240	1268	1077	402	1234		289	410		310	376	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	95		0	0		0	1	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.54	0.08	0.01	0.79		0.46	0.03		0.13	0.14	

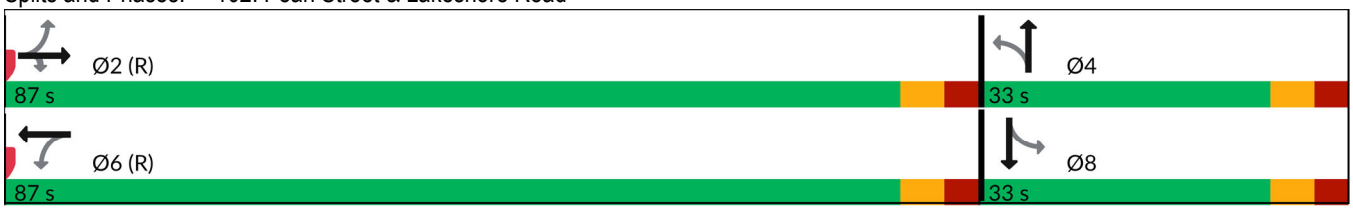
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 51 (43%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay (s/veh): 15.6	Intersection LOS: B

Intersection Capacity Utilization 77.9% ICU Level of Service D

Analysis Period (min) 15

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

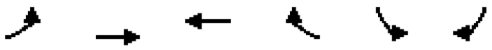
Splits and Phases: 102: Pearl Street & Lakeshore Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	650	86	3	817	40	125	10	1	39	13	35
Future Volume (vph)	37	650	86	3	817	40	125	10	1	39	13	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		0.96	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1902	1571	1816	1849		1756	1893		1812	1603	
Flt Permitted	0.19	1.00	1.00	0.32	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	361	1902	1571	604	1849		1338	1893		1430	1603	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	39	684	91	3	860	42	132	11	1	41	14	37
RTOR Reduction (vph)	0	0	30	0	1	0	0	1	0	0	29	0
Lane Group Flow (vph)	39	684	61	3	901	0	132	11	0	41	22	0
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Actuated Green, G (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	240	1268	1047	402	1232		289	410		309	347	
v/s Ratio Prot		0.36			c0.49			0.01			0.01	
v/s Ratio Perm	0.11		0.04	0.00			c0.10			0.03		
v/c Ratio	0.16	0.54	0.06	0.01	0.73		0.46	0.03		0.13	0.06	
Uniform Delay, d1	7.5	10.4	6.9	6.7	13.0		40.9	37.0		37.9	37.3	
Progression Factor	0.52	0.54	0.14	1.00	1.00		0.96	0.97		1.00	1.00	
Incremental Delay, d2	1.4	1.6	0.1	0.0	3.8		5.1	0.1		0.9	0.4	
Delay (s)	5.2	7.2	1.1	6.7	16.9		44.4	36.2		38.8	37.7	
Level of Service	A	A	A	A	B		D	D		D	D	
Approach Delay (s/veh)		6.4			16.8			43.7			38.2	
Approach LOS		A			B			D			D	

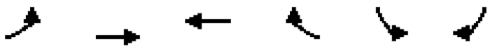
Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	69	602	800	48	11	34
Future Volume (vph)	69	602	800	48	11	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.992		0.897	
Flt Protected	0.950				0.988	
Satd. Flow (prot)	1755	1902	1867	0	1703	0
Flt Permitted	0.950				0.988	
Satd. Flow (perm)	1755	1902	1867	0	1703	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	7			7	3	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	1%	2%	3%	0%	0%
Adj. Flow (vph)	72	627	833	50	11	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	627	883	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			



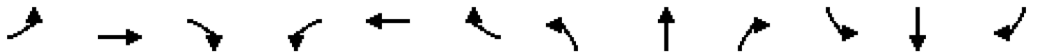
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	602	800	48	11	34
Future Volume (Veh/h)	69	602	800	48	11	34
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	72	627	833	50	11	35
Pedestrians		10	3		7	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.81	
vC, conflicting volume	890				1639	875
vC1, stage 1 conf vol					865	
vC2, stage 2 conf vol					774	
vCu, unblocked vol	890				1671	875
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	90				96	90
cM capacity (veh/h)	748				290	346

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	72	627	883	46
Volume Left	72	0	0	11
Volume Right	0	0	50	35
cSH	748	1700	1700	331
Volume to Capacity	0.10	0.37	0.52	0.14
Queue Length 95th (m)	2.4	0.0	0.0	3.6
Control Delay (s/veh)	10.3	0.0	0.0	17.6
Lane LOS	B			C
Approach Delay (s/veh)	1.1		0.0	17.6
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	590	19	93	889	0	1	0	49	0	0	0
Future Volume (vph)	0	590	19	93	889	0	1	0	49	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.868				
Flt Protected				0.950				0.999				
Satd. Flow (prot)	1921	1893	0	1825	1883	0	0	1666	0	0	1921	0
Flt Permitted				0.950				0.999				
Satd. Flow (perm)	1921	1893	0	1825	1883	0	0	1666	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			237.4			61.5	
Travel Time (s)		10.3			6.5			17.1			4.4	
Confl. Peds. (#/hr)	14		3	3		14			8	8		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	608	20	96	916	0	1	0	51	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	628	0	96	916	0	0	52	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	590	19	93	889	0	1	0	49	0	0	0
Future Volume (Veh/h)	0	590	19	93	889	0	1	0	49	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	608	20	96	916	0	1	0	51	0	0	0
Pedestrians					8			3			14	
Lane Width (m)					3.7			3.7			3.7	
Walking Speed (m/s)					1.1			1.1			1.1	
Percent Blockage					1			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.82			0.82	0.82	0.82	0.82	0.82	
vC, conflicting volume	930			631			1729	1743	629	1789	1753	930
vC1, stage 1 conf vol							621	621		1122	1122	
vC2, stage 2 conf vol							1108	1122		667	631	
vCu, unblocked vol	930			437			1780	1797	434	1854	1810	930
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			100	100	90	100	100	100
cM capacity (veh/h)	734			924			206	221	506	180	210	322

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	628	96	916	52	0
Volume Left	0	0	96	0	1	0
Volume Right	0	20	0	0	51	0
cSH	1700	1700	924	1700	492	1700
Volume to Capacity	0.00	0.37	0.10	0.54	0.11	0.00
Queue Length 95th (m)	0.0	0.0	2.6	0.0	2.7	0.0
Control Delay (s/veh)	0.0	0.0	9.3	0.0	13.2	0.0
Lane LOS			A		B	A
Approach Delay (s/veh)	0.0		0.9		13.2	0.0
Approach LOS					B	A

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	66.2%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	801	39	17	834	31	39	14	21	30	21	39
Future Volume (vph)	43	801	39	17	834	31	39	14	21	30	21	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	1.00		0.92	0.96		0.95	0.93	
Frt		0.993			0.995			0.909			0.903	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3611	0	1825	1864	0	1825	1683	0	1560	1483	0
Flt Permitted	0.153			0.277			0.715			0.732		
Satd. Flow (perm)	267	3611	0	524	1864	0	1265	1683	0	1147	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			3			23			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
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 (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Adj. Flow (vph)	47	871	42	18	907	34	42	15	23	33	23	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	913	0	18	941	0	42	38	0	33	65	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
v/c Ratio	0.27	0.39		0.05	0.79		0.14	0.09		0.12	0.17	
Control Delay (s/veh)	14.5	10.8		5.5	12.9		37.3	19.7		37.0	17.4	
Queue Delay	0.0	0.0		0.0	2.1		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	14.5	10.8		5.5	15.0		37.3	19.7		37.0	17.4	
LOS	B	B		A	B		D	B		D	B	
Approach Delay (s/veh)		11.0			14.8			28.9			24.0	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	4.8	49.7		0.9	88.2		7.8	2.7		6.9	4.2	
Queue Length 95th (m)	13.1	61.6		m1.4	124.3		17.4	11.6		16.9	15.6	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	171	2319		336	1197		305	424		277	390	
Starvation Cap Reductn	0	0		0	136		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	0.27	0.39		0.05	0.89		0.14	0.09		0.12	0.17	

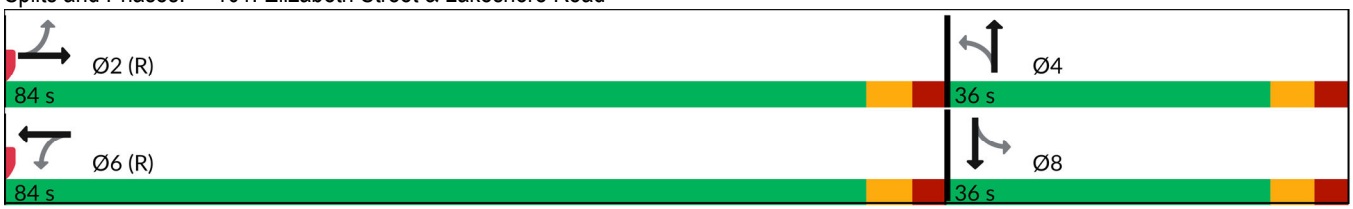
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 56 (47%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay (s/veh): 14.0	Intersection LOS: B

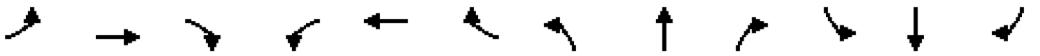
Intersection Capacity Utilization 81.7% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road

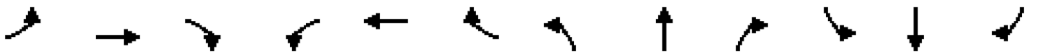




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	801	39	17	834	31	39	14	21	30	21	39
Future Volume (vph)	43	801	39	17	834	31	39	14	21	30	21	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.96		1.00	0.93	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.92	1.00		0.95	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	3611		1796	1863		1680	1684		1488	1483	
Flt Permitted	0.15	1.00		0.28	1.00		0.71	1.00		0.73	1.00	
Satd. Flow (perm)	266	3611		524	1863		1264	1684		1147	1483	
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)	47	871	42	18	907	34	42	15	23	33	23	42
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	32	0
Lane Group Flow (vph)	47	910	0	18	940	0	42	21	0	33	33	0
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
Heavy Vehicles (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	170	2317		336	1195		305	406		277	358	
v/s Ratio Prot		0.25			c0.50			0.01			0.02	
v/s Ratio Perm	0.18			0.03			c0.03			0.03		
v/c Ratio	0.28	0.39		0.05	0.79		0.14	0.05		0.12	0.09	
Uniform Delay, d1	9.4	10.3		8.0	15.6		35.7	34.9		35.5	35.3	
Progression Factor	1.00	1.00		0.64	0.56		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.5		0.2	3.7		0.9	0.2		0.9	0.5	
Delay (s)	13.4	10.8		5.3	12.5		36.6	35.2		36.4	35.8	
Level of Service	B	B		A	B		D	D		D	D	
Approach Delay (s/veh)		10.9			12.3			35.9			36.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	678	87	3	857	41	128	10	1	40	13	37
Future Volume (vph)	39	678	87	3	857	41	128	10	1	40	13	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.96	1.00	1.00		0.96	1.00		0.99	0.96	
Frt			0.850		0.993			0.987			0.890	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	1902	1633	1825	1849	0	1825	1892	0	1825	1599	0
Flt Permitted	0.170			0.299			0.722			0.750		
Satd. Flow (perm)	317	1902	1571	572	1849	0	1334	1892	0	1431	1599	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		4			1			39	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	41	714	92	3	902	43	135	11	1	42	14	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	714	92	3	945	0	135	12	0	42	53	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	87.0	87.0	87.0	87.0	87.0		33.0	33.0		33.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	72.5%		27.5%	27.5%		27.5%	27.5%	
Maximum Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
v/c Ratio	0.19	0.56	0.09	0.01	0.77		0.47	0.03		0.14	0.14	
Control Delay (s/veh)	6.1	7.7	0.3	6.7	18.9		45.5	34.5		39.5	17.1	
Queue Delay	0.0	0.0	0.0	0.0	0.9		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.1	7.7	0.3	6.7	19.8		45.5	34.5		39.5	17.1	
LOS	A	A	A	A	B		D	C		D	B	
Approach Delay (s/veh)		6.8			19.7			44.6			27.0	
Approach LOS		A			B			D			C	
Queue Length 50th (m)	1.4	24.7	0.3	0.2	141.5		27.9	2.2		8.1	2.6	
Queue Length 95th (m)	3.2	32.3	0.7	1.3	198.8		47.9	m6.7		17.9	13.2	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	211	1268	1078	381	1234		289	410		310	377	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	102		0	0		0	1	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.56	0.09	0.01	0.83		0.47	0.03		0.14	0.14	

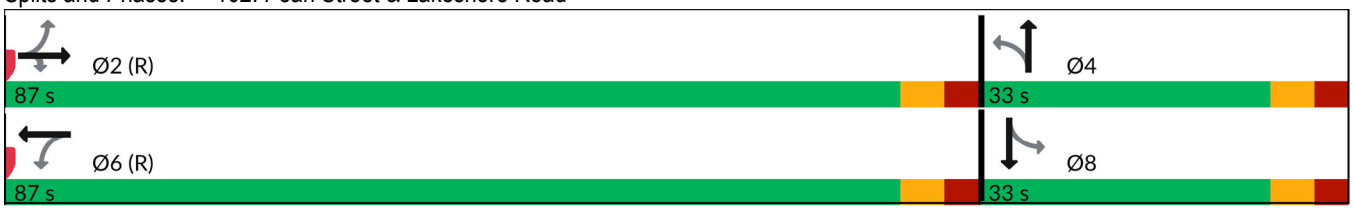
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 51 (43%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay (s/veh): 16.5	Intersection LOS: B

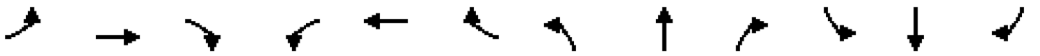
Intersection Capacity Utilization 80.1% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Pearl Street & Lakeshore Road

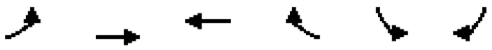




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	678	87	3	857	41	128	10	1	40	13	37
Future Volume (vph)	39	678	87	3	857	41	128	10	1	40	13	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.96	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1902	1571	1816	1849		1756	1893		1812	1598	
Flt Permitted	0.17	1.00	1.00	0.30	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	316	1902	1571	571	1849		1335	1893		1430	1598	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	714	92	3	902	43	135	11	1	42	14	39
RTOR Reduction (vph)	0	0	31	0	1	0	0	1	0	0	31	0
Lane Group Flow (vph)	41	714	61	3	944	0	135	11	0	42	22	0
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Actuated Green, G (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	1268	1047	380	1232		289	410		309	346	
v/s Ratio Prot		0.38			c0.51			0.01			0.01	
v/s Ratio Perm	0.13		0.04	0.01			c0.10			0.03		
v/c Ratio	0.20	0.56	0.06	0.01	0.77		0.47	0.03		0.14	0.06	
Uniform Delay, d1	7.7	10.7	6.9	6.7	13.6		41.0	37.0		37.9	37.3	
Progression Factor	0.50	0.54	0.13	1.00	1.00		0.96	0.97		1.00	1.00	
Incremental Delay, d2	2.0	1.7	0.1	0.0	4.6		5.3	0.1		0.9	0.4	
Delay (s)	5.8	7.5	1.0	6.7	18.2		44.7	36.2		38.8	37.7	
Level of Service	A	A	A	A	B		D	D		D	D	
Approach Delay (s/veh)		6.7			18.2			44.0			38.2	
Approach LOS		A			B			D			D	

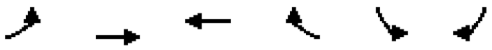
Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	630	840	50	12	35
Future Volume (vph)	70	630	840	50	12	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.992		0.901	
Flt Protected	0.950				0.987	
Satd. Flow (prot)	1755	1902	1867	0	1708	0
Flt Permitted	0.950				0.987	
Satd. Flow (perm)	1755	1902	1867	0	1708	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	7			7	3	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	1%	2%	3%	0%	0%
Adj. Flow (vph)	73	656	875	52	13	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	656	927	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

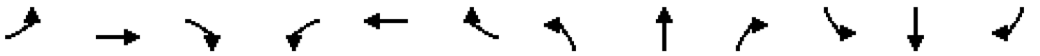
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.5%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	630	840	50	12	35
Future Volume (Veh/h)	70	630	840	50	12	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	73	656	875	52	12	36
Pedestrians		10	3		7	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.80	
vC, conflicting volume	934				1713	918
vC1, stage 1 conf vol					908	
vC2, stage 2 conf vol					805	
vCu, unblocked vol	934				1767	918
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	90				96	89
cM capacity (veh/h)	720				274	327

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	73	656	927	48
Volume Left	73	0	0	12
Volume Right	0	0	52	36
cSH	720	1700	1700	312
Volume to Capacity	0.10	0.39	0.55	0.15
Queue Length 95th (m)	2.6	0.0	0.0	4.1
Control Delay (s/veh)	10.6	0.0	0.0	18.6
Lane LOS	B			C
Approach Delay (s/veh)	1.1		0.0	18.6
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	619	19	94	931	0	1	0	50	0	0	0
Future Volume (vph)	0	619	19	94	931	0	1	0	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.868				
Flt Protected				0.950				0.999				
Satd. Flow (prot)	1921	1893	0	1825	1883	0	0	1666	0	0	1921	0
Flt Permitted				0.950				0.999				
Satd. Flow (perm)	1921	1893	0	1825	1883	0	0	1666	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			239.2			61.5	
Travel Time (s)		10.3			6.5			17.2			4.4	
Confl. Peds. (#/hr)	14		3	3		14			8	8		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	638	20	97	960	0	1	0	52	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	658	0	97	960	0	0	53	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.5%		ICU Level of Service C	
Analysis Period (min) 15			

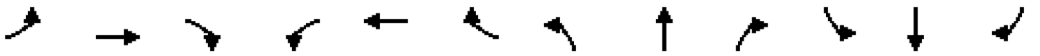
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	619	19	94	931	0	1	0	50	0	0	0
Future Volume (Veh/h)	0	619	19	94	931	0	1	0	50	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	638	20	97	960	0	1	0	52	0	0	0
Pedestrians					8			3			14	
Lane Width (m)					3.7			3.7			3.7	
Walking Speed (m/s)					1.1			1.1			1.1	
Percent Blockage					1			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.80			0.80	0.80	0.80	0.80	0.80	
vC, conflicting volume	974			661			1805	1819	659	1866	1829	974
vC1, stage 1 conf vol							651	651		1168	1168	
vC2, stage 2 conf vol							1154	1168		698	661	
vCu, unblocked vol	974			453			1881	1898	450	1957	1911	974
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			89			99	100	89	100	100	100
cM capacity (veh/h)	706			893			193	209	486	168	197	304

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	658	97	960	53	0
Volume Left	0	0	97	0	1	0
Volume Right	0	20	0	0	52	0
cSH	1700	1700	893	1700	472	1700
Volume to Capacity	0.00	0.39	0.11	0.56	0.11	0.00
Queue Length 95th (m)	0.0	0.0	2.8	0.0	2.9	0.0
Control Delay (s/veh)	0.0	0.0	9.5	0.0	13.6	0.0
Lane LOS			A		B	A
Approach Delay (s/veh)	0.0		0.9		13.6	0.0
Approach LOS					B	A

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	68.5%	ICU Level of Service		C
Analysis Period (min)	15			

Appendix K

Total Traffic Operation Reports



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	858	30	7	614	22	26	3	14	14	6	42
Future Volume (vph)	38	858	30	7	614	22	26	3	14	14	6	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00		0.98	0.97		0.98	0.96	
Frt		0.995			0.995			0.875			0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	3519	0	1825	1864	0	1755	1540	0	1259	1454	0
Flt Permitted	0.293			0.260			0.724			0.746		
Satd. Flow (perm)	517	3519	0	495	1864	0	1311	1540	0	964	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3			15			45	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Adj. Flow (vph)	40	913	32	7	653	23	28	3	15	15	6	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	945	0	7	676	0	28	18	0	15	51	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
v/c Ratio	0.13	0.44		0.02	0.60		0.08	0.04		0.06	0.12	
Control Delay (s/veh)	10.4	12.2		7.0	14.5		31.4	15.8		31.3	11.5	
Queue Delay	0.0	0.0		0.0	0.4		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	10.4	12.2		7.0	14.9		31.4	15.8		31.3	11.5	
LOS	B	B		A	B		C	B		C	B	
Approach Delay (s/veh)		12.1			14.8			25.3			16.0	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	3.6	53.9		0.5	104.3		4.7	0.5		3.3	1.0	
Queue Length 95th (m)	9.1	68.0		m1.0	96.7		12.1	6.0		10.4	10.1	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	314	2145		301	1136		345	417		254	416	
Starvation Cap Reductn	0	0		0	123		0	0		0	0	
Spillback Cap Reductn	0	25		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.45		0.02	0.67		0.08	0.04		0.06	0.12	

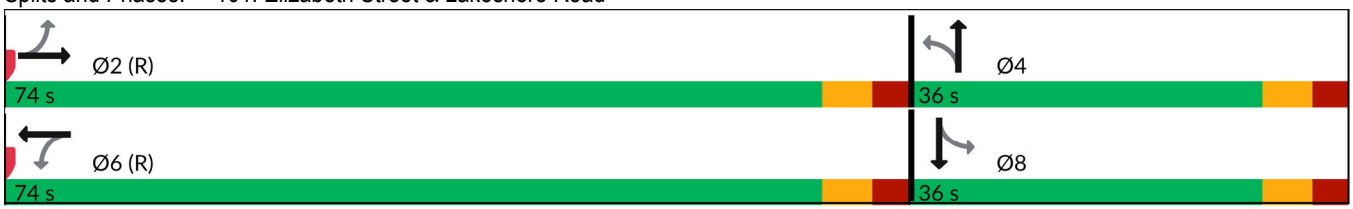
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay (s/veh): 13.6	Intersection LOS: B

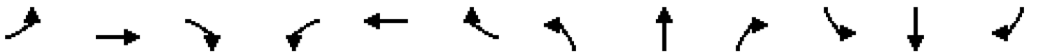
Intersection Capacity Utilization 69.5% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road



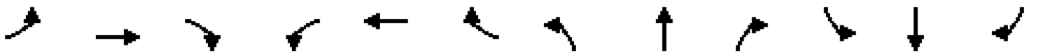


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	858	30	7	614	22	26	3	14	14	6	42
Future Volume (vph)	38	858	30	7	614	22	26	3	14	14	6	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.96	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.88		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	3519		1809	1864		1721	1540		1228	1453	
Flt Permitted	0.29	1.00		0.26	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	517	3519		495	1864		1311	1540		964	1453	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	913	32	7	653	23	28	3	15	15	6	45
RTOR Reduction (vph)	0	2	0	0	1	0	0	11	0	0	33	0
Lane Group Flow (vph)	40	943	0	7	675	0	28	7	0	15	18	0
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	314	2143		301	1135		345	406		254	383	
v/s Ratio Prot		0.27			c0.36			0.00			0.01	
v/s Ratio Perm	0.08			0.01			c0.02			0.02		
v/c Ratio	0.13	0.44		0.02	0.59		0.08	0.02		0.06	0.05	
Uniform Delay, d1	9.1	11.5		8.5	13.2		30.5	30.0		30.3	30.2	
Progression Factor	1.00	1.00		0.79	0.92		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.7		0.1	2.1		0.5	0.1		0.4	0.2	
Delay (s)	9.9	12.1		6.8	14.2		30.9	30.0		30.7	30.4	
Level of Service	A	B		A	B		C	C		C	C	
Approach Delay (s/veh)		12.0			14.1			30.6			30.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	850	90	2	536	29	122	13	4	11	11	9
Future Volume (vph)	29	850	90	2	536	29	122	13	4	11	11	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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	1.00			0.95	0.99		1.00	0.97	
Frt			0.850		0.992			0.965			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1883	1633	1825	1853	0	1674	1844	0	1825	1731	0
Flt Permitted	0.402			0.246			0.744			0.746		
Satd. Flow (perm)	772	1883	1582	472	1853	0	1241	1844	0	1430	1731	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		5			4			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)			7	7			25		1	1		25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	876	93	2	553	30	126	13	4	11	11	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	876	93	2	583	0	126	17	0	11	20	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	77.0	77.0	77.0	77.0	77.0		33.0	33.0		33.0	33.0	
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	70.0	70.0	70.0	70.0	70.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	79.6	79.6	79.6	79.6	79.6		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.15	0.15		0.15	0.15	
v/c Ratio	0.05	0.64	0.08	0.01	0.43		0.68	0.06		0.05	0.08	
Control Delay (s/veh)	2.5	8.0	0.2	6.0	8.0		59.0	28.8		37.2	26.1	
Queue Delay	0.0	0.0	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	2.5	8.0	0.2	6.0	8.1		59.0	28.8		37.2	26.1	
LOS	A	A	A	A	A		E	C		D	C	
Approach Delay (s/veh)		7.1			8.1			55.5			30.0	
Approach LOS		A			A			E			C	
Queue Length 50th (m)	0.5	51.8	0.1	0.1	44.5		27.9	2.3		2.1	2.0	
Queue Length 95th (m)	m1.4	75.1	0.2	1.0	81.2		m44.3	m6.9		6.6	8.2	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	558	1362	1170	341	1342		293	438		338	416	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	135		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.64	0.08	0.01	0.48		0.43	0.04		0.03	0.05	

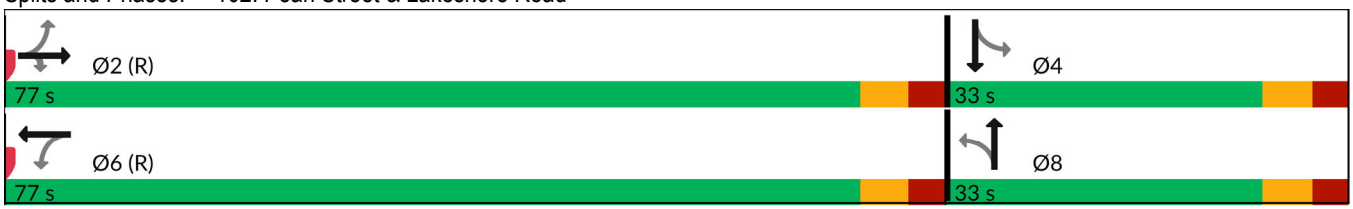
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 11.8	Intersection LOS: B

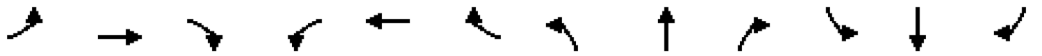
Intersection Capacity Utilization 71.3% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 102: Pearl Street & Lakeshore Road

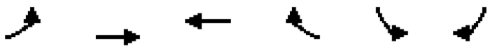




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	850	90	2	536	29	122	13	4	11	11	9
Future Volume (vph)	29	850	90	2	536	29	122	13	4	11	11	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.95	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1883	1582	1821	1854		1585	1844		1821	1732	
Flt Permitted	0.40	1.00	1.00	0.25	1.00		0.74	1.00		0.75	1.00	
Satd. Flow (perm)	773	1883	1582	471	1854		1242	1844		1431	1732	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	30	876	93	2	553	30	126	13	4	11	11	9
RTOR Reduction (vph)	0	0	26	0	1	0	0	3	0	0	8	0
Lane Group Flow (vph)	30	876	67	2	582	0	126	14	0	11	12	0
Confl. Peds. (#/hr)			7	7			25		1	1		25
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	79.6	79.6	79.6	79.6	79.6		16.4	16.4		16.4	16.4	
Effective Green, g (s)	79.6	79.6	79.6	79.6	79.6		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.15	0.15		0.15	0.15	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	559	1362	1144	340	1341		185	274		213	258	
v/s Ratio Prot		c0.47			0.31			0.01			0.01	
v/s Ratio Perm	0.04		0.04	0.00			c0.10			0.01		
v/c Ratio	0.05	0.64	0.06	0.01	0.43		0.68	0.05		0.05	0.05	
Uniform Delay, d1	4.4	7.9	4.4	4.2	6.1		44.3	40.1		40.1	40.1	
Progression Factor	0.40	0.62	0.04	1.00	1.00		0.94	0.93		1.00	1.00	
Incremental Delay, d2	0.2	2.2	0.1	0.0	1.0		9.9	0.1		0.1	0.1	
Delay (s)	1.9	7.1	0.3	4.3	7.1		51.5	37.3		40.2	40.2	
Level of Service	A	A	A	A	A		D	D		D	D	
Approach Delay (s/veh)		6.3			7.1			49.8			40.2	
Approach LOS		A			A			D			D	

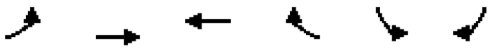
Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	843	473	29	21	57
Future Volume (vph)	28	843	473	29	21	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.992		0.902	
Flt Protected	0.950				0.987	
Satd. Flow (prot)	1825	1883	1866	0	1674	0
Flt Permitted	0.950				0.987	
Satd. Flow (perm)	1825	1883	1866	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	14			14	1	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	4%	8%	0%
Adj. Flow (vph)	30	916	514	32	23	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	916	546	0	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			



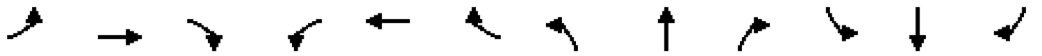
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	843	473	29	21	57
Future Volume (Veh/h)	28	843	473	29	21	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	916	514	32	23	62
Pedestrians		8	1		14	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.73	
vC, conflicting volume	560				1521	552
vC1, stage 1 conf vol					544	
vC2, stage 2 conf vol					977	
vCu, unblocked vol	560				1529	552
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)					5.5	
tF (s)	2.2				3.6	3.3
p0 queue free %	97				92	88
cM capacity (veh/h)	1007				275	526

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	30	916	546	85
Volume Left	30	0	0	23
Volume Right	0	0	32	62
cSH	1007	1700	1700	422
Volume to Capacity	0.03	0.54	0.32	0.20
Queue Length 95th (m)	0.7	0.0	0.0	5.7
Control Delay (s/veh)	8.7	0.0	0.0	15.7
Lane LOS	A			C
Approach Delay (s/veh)	0.3		0.0	15.7
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	888	30	40	499	0	14	0	102	0	0	0
Future Volume (vph)	0	888	30	40	499	0	14	0	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.881				
Flt Protected				0.950				0.994				
Satd. Flow (prot)	1921	1855	0	1825	1865	0	0	1682	0	0	1921	0
Flt Permitted				0.950				0.994				
Satd. Flow (perm)	1921	1855	0	1825	1865	0	0	1682	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			231.3			61.5	
Travel Time (s)		10.3			6.5			16.7			4.4	
Confl. Peds. (#/hr)	11		1	1		11	1		3	3		1
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%	2%	33%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	965	33	43	542	0	15	0	111	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	998	0	43	542	0	0	126	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	888	30	40	499	0	14	0	102	0	0	0
Future Volume (Veh/h)	0	888	30	40	499	0	14	0	102	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	965	33	43	542	0	15	0	111	0	0	0
Pedestrians		1			3			1			11	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.70			0.70	0.70	0.70	0.70	0.70	
vC, conflicting volume	553			999			1612	1622	986	1718	1638	554
vC1, stage 1 conf vol							983	983		639	639	
vC2, stage 2 conf vol							629	639		1079	999	
vCu, unblocked vol	553			789			1658	1673	769	1810	1696	554
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			94	100	61	100	100	100
cM capacity (veh/h)	1016			591			234	242	283	96	212	530

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	998	43	542	126	0
Volume Left	0	0	43	0	15	0
Volume Right	0	33	0	0	111	0
cSH	1700	1700	591	1700	276	1700
Volume to Capacity	0.00	0.59	0.07	0.32	0.46	0.00
Queue Length 95th (m)	0.0	0.0	1.8	0.0	17.1	0.0
Control Delay (s/veh)	0.0	0.0	11.6	0.0	28.5	0.0
Lane LOS			B		D	A
Approach Delay (s/veh)	0.0		0.9		28.5	0.0
Approach LOS					D	A

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	63.2%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	60	43	13	120	18	35
Future Volume (vph)	60	43	13	120	18	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943				0.912	
Flt Protected				0.995	0.983	
Satd. Flow (prot)	1776	0	0	1874	1688	0
Flt Permitted				0.995	0.983	
Satd. Flow (perm)	1776	0	0	1874	1688	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	61.5			231.3	41.1	
Travel Time (s)	4.4			16.7	3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	47	14	130	20	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	0	0	144	58	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	60	43	13	120	18	35
Future Volume (Veh/h)	60	43	13	120	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	47	14	130	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	62					
pX, platoon unblocked						
vC, conflicting volume			112		247	89
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			112		247	89
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	96
cM capacity (veh/h)			1478		735	970

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	112	144	58
Volume Left	0	14	20
Volume Right	47	0	38
cSH	1700	1478	873
Volume to Capacity	0.07	0.00*	0.07
Queue Length 95th (m)	0.0	0.2	1.6
Control Delay (s/veh)	0.0	0.8	9.4
Lane LOS		A	A
Approach Delay (s/veh)	0.0	0.8	9.4
Approach LOS			A

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		23.7%	ICU Level of Service A
Analysis Period (min)		15	

* Value less than 0.01.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	897	31	8	636	23	27	3	15	15	6	44
Future Volume (vph)	40	897	31	8	636	23	27	3	15	15	6	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00		0.98	0.97		0.98	0.96	
Frt		0.995			0.995			0.874			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	3519	0	1825	1864	0	1755	1537	0	1259	1451	0
Flt Permitted	0.277			0.245			0.722			0.745		
Satd. Flow (perm)	489	3519	0	467	1864	0	1308	1537	0	963	1451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3			16			47	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Adj. Flow (vph)	43	954	33	9	677	24	29	3	16	16	6	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	987	0	9	701	0	29	19	0	16	53	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
v/c Ratio	0.14	0.46		0.03	0.62		0.08	0.05		0.06	0.13	
Control Delay (s/veh)	10.8	12.5		7.0	14.6		31.4	15.4		31.3	11.5	
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	10.8	12.5		7.0	14.9		31.4	15.4		31.3	11.5	
LOS	B	B		A	B		C	B		C	B	
Approach Delay (s/veh)		12.4			14.8			25.1			16.1	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	3.9	57.3		0.6	109.3		4.9	0.5		3.5	1.0	
Queue Length 95th (m)	9.8	71.9		m1.3	84.8		12.5	6.2		11.1	10.5	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	297	2145		284	1136		344	416		253	417	
Starvation Cap Reductn	0	0		0	97		0	0		0	0	
Spillback Cap Reductn	0	38		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.47		0.03	0.67		0.08	0.05		0.06	0.13	

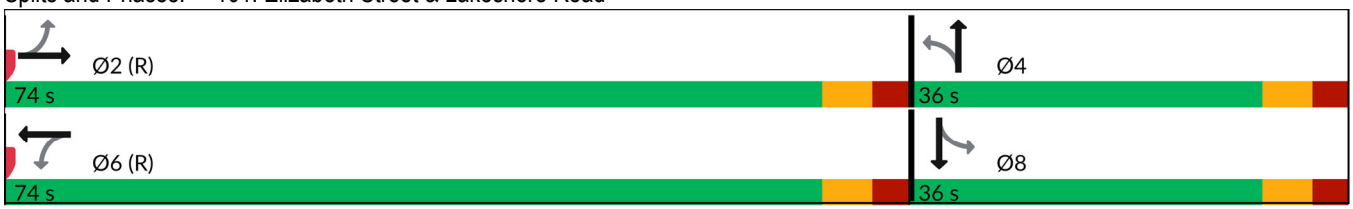
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay (s/veh): 13.8	Intersection LOS: B

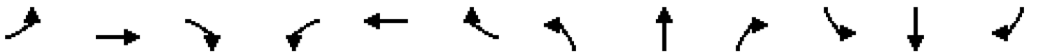
Intersection Capacity Utilization 70.8% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road



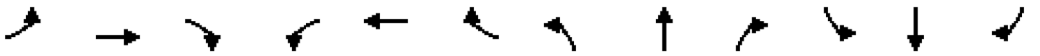


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	897	31	8	636	23	27	3	15	15	6	44
Future Volume (vph)	40	897	31	8	636	23	27	3	15	15	6	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.96	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1677	3519		1810	1864		1721	1536		1228	1451	
Flt Permitted	0.28	1.00		0.25	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	489	3519		467	1864		1309	1536		963	1451	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	43	954	33	9	677	24	29	3	16	16	6	47
RTOR Reduction (vph)	0	2	0	0	1	0	0	12	0	0	35	0
Lane Group Flow (vph)	43	985	0	9	700	0	29	7	0	16	18	0
Confl. Peds. (#/hr)	18		23	23		18	11		22	22		11
Heavy Vehicles (%)	8%	3%	3%	0%	2%	13%	4%	0%	7%	45%	0%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	67.0	67.0		67.0	67.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.26	0.26		0.26	0.26	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	297	2143		284	1135		345	404		253	382	
v/s Ratio Prot		0.28			c0.38			0.00			0.01	
v/s Ratio Perm	0.09			0.02			c0.02			0.02		
v/c Ratio	0.14	0.46		0.03	0.62		0.08	0.02		0.06	0.05	
Uniform Delay, d1	9.2	11.7		8.6	13.5		30.5	30.0		30.3	30.2	
Progression Factor	1.00	1.00		0.77	0.89		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.7		0.2	2.3		0.5	0.1		0.5	0.2	
Delay (s)	10.2	12.4		6.8	14.2		31.0	30.0		30.8	30.4	
Level of Service	B	B		A	B		C	C		C	C	
Approach Delay (s/veh)		12.3			14.2			30.6			30.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	892	91	2	560	30	123	13	4	11	11	10
Future Volume (vph)	30	892	91	2	560	30	123	13	4	11	11	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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				0.95	0.99		1.00	0.96	
Frt			0.850		0.992			0.965			0.929	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1883	1633	1825	1853	0	1674	1844	0	1825	1722	0
Flt Permitted	0.388			0.223			0.744			0.746		
Satd. Flow (perm)	745	1883	1582	428	1853	0	1241	1844	0	1430	1722	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94		5			4			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)			7	7			25		1	1		25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	31	920	94	2	577	31	127	13	4	11	11	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	920	94	2	608	0	127	17	0	11	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	78.0	78.0	78.0	78.0	78.0		32.0	32.0		32.0	32.0	
Total Split (%)	70.9%	70.9%	70.9%	70.9%	70.9%		29.1%	29.1%		29.1%	29.1%	
Maximum Green (s)	71.0	71.0	71.0	71.0	71.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	79.5	79.5	79.5	79.5	79.5		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.15	0.15		0.15	0.15	
v/c Ratio	0.06	0.68	0.08	0.01	0.45		0.68	0.06		0.05	0.08	
Control Delay (s/veh)	2.3	8.6	0.2	6.0	8.3		59.2	29.5		37.1	25.6	
Queue Delay	0.0	0.0	0.0	0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	2.3	8.6	0.2	6.0	8.4		59.2	29.5		37.1	25.6	
LOS	A	A	A	A	A		E	C		D	C	
Approach Delay (s/veh)		7.6			8.4			55.7			29.6	
Approach LOS		A			A			E			C	
Queue Length 50th (m)	0.5	59.0	0.0	0.1	47.5		28.0	2.3		2.1	2.0	
Queue Length 95th (m)	m1.3	85.2	0.2	1.0	86.6		m44.3	m7.0		6.6	8.4	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	538	1360	1169	309	1340		282	422		325	399	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	152		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.68	0.08	0.01	0.51		0.45	0.04		0.03	0.05	

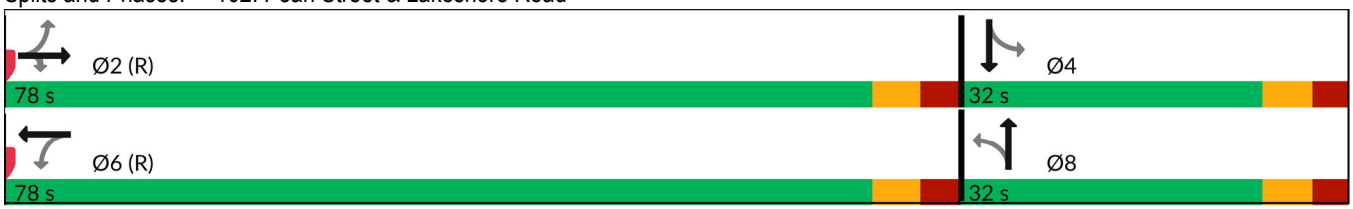
Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 12.1	Intersection LOS: B

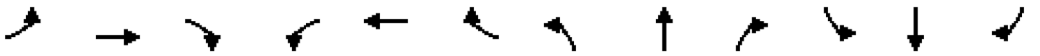
Intersection Capacity Utilization 73.6% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Pearl Street & Lakeshore Road

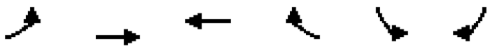




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	892	91	2	560	30	123	13	4	11	11	10
Future Volume (vph)	30	892	91	2	560	30	123	13	4	11	11	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.99		1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.95	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1883	1582	1821	1854		1585	1844		1821	1721	
Flt Permitted	0.39	1.00	1.00	0.22	1.00		0.74	1.00		0.75	1.00	
Satd. Flow (perm)	745	1883	1582	428	1854		1241	1844		1431	1721	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	920	94	2	577	31	127	13	4	11	11	10
RTOR Reduction (vph)	0	0	26	0	1	0	0	3	0	0	9	0
Lane Group Flow (vph)	31	920	68	2	607	0	127	14	0	11	13	0
Confl. Peds. (#/hr)			7	7			25		1	1		25
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	79.5	79.5	79.5	79.5	79.5		16.5	16.5		16.5	16.5	
Effective Green, g (s)	79.5	79.5	79.5	79.5	79.5		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.15	0.15		0.15	0.15	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	538	1360	1143	309	1339		186	276		214	258	
v/s Ratio Prot		c0.49			0.33			0.01			0.01	
v/s Ratio Perm	0.04		0.04	0.00			c0.10			0.01		
v/c Ratio	0.06	0.68	0.06	0.01	0.45		0.68	0.05		0.05	0.05	
Uniform Delay, d1	4.4	8.3	4.4	4.2	6.3		44.3	40.0		40.0	40.0	
Progression Factor	0.36	0.62	0.03	1.00	1.00		0.94	0.95		1.00	1.00	
Incremental Delay, d2	0.2	2.5	0.1	0.0	1.1		9.9	0.1		0.1	0.1	
Delay (s)	1.8	7.6	0.2	4.3	7.4		51.6	38.1		40.1	40.1	
Level of Service	A	A	A	A	A		D	D		D	D	
Approach Delay (s/veh)		6.8			7.4			50.0			40.1	
Approach LOS		A			A			D			D	

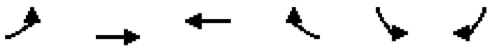
Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	884	496	30	22	58
Future Volume (vph)	29	884	496	30	22	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.992		0.902	
Flt Protected	0.950				0.986	
Satd. Flow (prot)	1825	1883	1866	0	1672	0
Flt Permitted	0.950				0.986	
Satd. Flow (perm)	1825	1883	1866	0	1672	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	14			14	1	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	4%	8%	0%
Adj. Flow (vph)	32	961	539	33	24	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	961	572	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

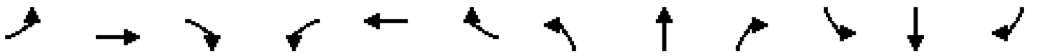
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	884	496	30	22	58
Future Volume (Veh/h)	29	884	496	30	22	58
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	961	539	33	24	63
Pedestrians		8	1		14	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.70	
vC, conflicting volume	586				1596	578
vC1, stage 1 conf vol					570	
vC2, stage 2 conf vol					1026	
vCu, unblocked vol	586				1636	578
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)					5.5	
tF (s)	2.2				3.6	3.3
p0 queue free %	97				91	88
cM capacity (veh/h)	985				253	509

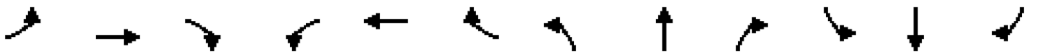
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	32	961	572	87
Volume Left	32	0	0	24
Volume Right	0	0	33	63
cSH	985	1700	1700	398
Volume to Capacity	0.03	0.57	0.34	0.22
Queue Length 95th (m)	0.8	0.0	0.0	6.3
Control Delay (s/veh)	8.8	0.0	0.0	16.6
Lane LOS	A			C
Approach Delay (s/veh)	0.3		0.0	16.6
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	930	30	41	523	0	14	0	102	0	0	0
Future Volume (vph)	0	930	30	41	523	0	14	0	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.881				
Flt Protected				0.950				0.994				
Satd. Flow (prot)	1921	1856	0	1825	1865	0	0	1682	0	0	1921	0
Flt Permitted				0.950				0.994				
Satd. Flow (perm)	1921	1856	0	1825	1865	0	0	1682	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			235.4			61.5	
Travel Time (s)		10.3			6.5			16.9			4.4	
Confl. Peds. (#/hr)	11		1	1		11	1		3	3		1
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%	2%	33%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1011	33	45	568	0	15	0	111	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1044	0	45	568	0	0	126	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	930	30	41	523	0	14	0	102	0	0	0
Future Volume (Veh/h)	0	930	30	41	523	0	14	0	102	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1011	33	45	568	0	15	0	111	0	0	0
Pedestrians		1			3			1			11	
Lane Width (m)		3.7			3.7			3.7			3.7	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.66			0.66	0.66	0.66	0.66	0.66	
vC, conflicting volume	579			1045			1688	1698	1032	1794	1714	580
vC1, stage 1 conf vol							1029	1029		669	669	
vC2, stage 2 conf vol							659	669		1125	1045	
vCu, unblocked vol	579			815			1782	1797	795	1942	1822	580
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			92			93	100	57	100	100	100
cM capacity (veh/h)	994			545			214	223	259	73	190	512

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	1044	45	568	126	0
Volume Left	0	0	45	0	15	0
Volume Right	0	33	0	0	111	0
cSH	1700	1700	545	1700	252	1700
Volume to Capacity	0.00	0.61	0.08	0.33	0.50	0.00
Queue Length 95th (m)	0.0	0.0	2.0	0.0	19.6	0.0
Control Delay (s/veh)	0.0	0.0	12.2	0.0	32.7	0.0
Lane LOS			B		D	A
Approach Delay (s/veh)	0.0		0.9		32.7	0.0
Approach LOS					D	A

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	65.4%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	61	43	13	121	18	35
Future Volume (vph)	61	43	13	121	18	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944				0.912	
Flt Protected				0.995	0.983	
Satd. Flow (prot)	1778	0	0	1874	1688	0
Flt Permitted				0.995	0.983	
Satd. Flow (perm)	1778	0	0	1874	1688	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	61.5			235.4	41.1	
Travel Time (s)	4.4			16.9	3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	47	14	132	20	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	0	146	58	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.8%		ICU Level of Service A	
Analysis Period (min) 15			

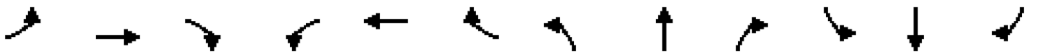


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	61	43	13	121	18	35
Future Volume (Veh/h)	61	43	13	121	18	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	47	14	132	20	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	62					
pX, platoon unblocked						
vC, conflicting volume			113		250	90
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			113		250	90
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	96
cM capacity (veh/h)			1476		732	968

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	113	146	58
Volume Left	0	14	20
Volume Right	47	0	38
cSH	1700	1476	871
Volume to Capacity	0.07	0.00*	0.07
Queue Length 95th (m)	0.0	0.2	1.6
Control Delay (s/veh)	0.0	0.8	9.4
Lane LOS		A	A
Approach Delay (s/veh)	0.0	0.8	9.4
Approach LOS			A

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		23.8%	ICU Level of Service A
Analysis Period (min)		15	

* Value less than 0.01.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	801	37	16	831	32	37	13	20	32	20	37
Future Volume (vph)	41	801	37	16	831	32	37	13	20	32	20	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	1.00		0.92	0.96		0.95	0.93	
Frt		0.993			0.994			0.908			0.903	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3611	0	1825	1862	0	1825	1681	0	1560	1483	0
Flt Permitted	0.154			0.278			0.717			0.734		
Satd. Flow (perm)	269	3611	0	525	1862	0	1268	1681	0	1150	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			3			22			40	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
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 (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Adj. Flow (vph)	45	871	40	17	903	35	40	14	22	35	22	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	911	0	17	938	0	40	36	0	35	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
v/c Ratio	0.26	0.39		0.05	0.78		0.13	0.09		0.13	0.16	
Control Delay (s/veh)	14.1	10.8		5.9	14.4		37.1	19.6		37.2	17.6	
Queue Delay	0.0	0.0		0.0	2.1		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	14.1	10.8		5.9	16.5		37.1	19.6		37.2	17.6	
LOS	B	B		A	B		D	B		D	B	
Approach Delay (s/veh)		11.0			16.3			28.8			24.7	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	4.6	49.5		0.9	122.6		7.4	2.6		7.4	4.0	
Queue Length 95th (m)	12.4	61.5		m1.5	152.6		16.8	11.0		17.3	15.2	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	172	2319		336	1195		306	422		277	388	
Starvation Cap Reductn	0	0		0	138		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	0.26	0.39		0.05	0.89		0.13	0.09		0.13	0.16	

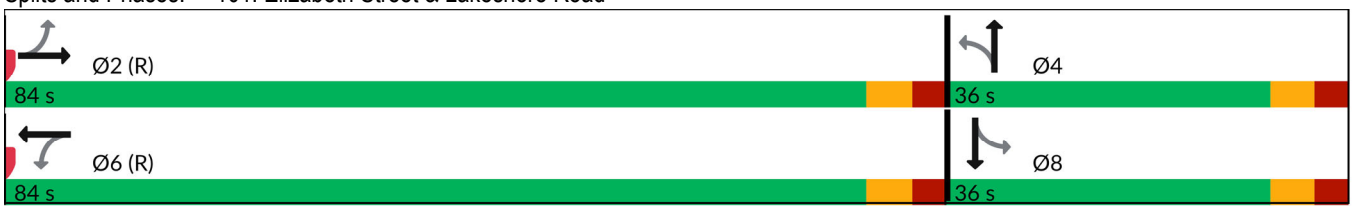
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 56 (47%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay (s/veh): 14.7	Intersection LOS: B

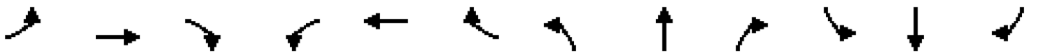
Intersection Capacity Utilization 81.6% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	801	37	16	831	32	37	13	20	32	20	37
Future Volume (vph)	41	801	37	16	831	32	37	13	20	32	20	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.96		1.00	0.93	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.92	1.00		0.95	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	3613		1796	1863		1680	1682		1488	1483	
Flt Permitted	0.15	1.00		0.28	1.00		0.72	1.00		0.73	1.00	
Satd. Flow (perm)	269	3613		526	1863		1267	1682		1149	1483	
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)	45	871	40	17	903	35	40	14	22	35	22	40
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	30	0
Lane Group Flow (vph)	45	908	0	17	937	0	40	19	0	35	32	0
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
Heavy Vehicles (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	2318		337	1195		306	406		277	358	
v/s Ratio Prot		0.25			c0.50			0.01			0.02	
v/s Ratio Perm	0.17			0.03			c0.03			0.03		
v/c Ratio	0.26	0.39		0.05	0.78		0.13	0.05		0.13	0.09	
Uniform Delay, d1	9.3	10.3		8.0	15.5		35.6	34.9		35.6	35.3	
Progression Factor	1.00	1.00		0.70	0.65		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.5		0.2	3.7		0.9	0.2		0.9	0.5	
Delay (s)	12.9	10.8		5.8	13.8		36.5	35.1		36.5	35.7	
Level of Service	B	B		A	B		D	D		D	D	
Approach Delay (s/veh)		10.9			13.7			35.9			36.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	650	119	3	826	48	151	12	1	39	24	35
Future Volume (vph)	37	650	119	3	826	48	151	12	1	39	24	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.96	0.99	1.00		0.96	1.00		0.99	0.96	
Frt			0.850		0.992			0.989			0.910	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	1902	1633	1825	1847	0	1825	1896	0	1825	1656	0
Flt Permitted	0.183			0.316			0.717			0.748		
Satd. Flow (perm)	341	1902	1571	604	1847	0	1326	1896	0	1427	1656	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125		5			1			37	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	39	684	125	3	869	51	159	13	1	41	25	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	684	125	3	920	0	159	14	0	41	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	87.0	87.0	87.0	87.0	87.0		33.0	33.0		33.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	72.5%		27.5%	27.5%		27.5%	27.5%	
Maximum Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
v/c Ratio	0.17	0.54	0.11	0.01	0.75		0.55	0.03		0.13	0.16	
Control Delay (s/veh)	5.7	7.2	0.4	6.7	18.0		49.2	34.8		39.4	20.0	
Queue Delay	0.0	0.0	0.0	0.0	1.1		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	5.7	7.2	0.4	6.7	19.1		49.2	34.8		39.4	20.0	
LOS	A	A	A	A	B		D	C		D	B	
Approach Delay (s/veh)		6.2			19.0			48.0			27.7	
Approach LOS		A			B			D			C	
Queue Length 50th (m)	1.4	23.9	0.0	0.2	133.9		33.5	2.5		7.8	4.7	
Queue Length 95th (m)	3.2	30.1	0.7	1.3	188.0		56.2	m7.5		17.6	16.2	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	227	1268	1089	402	1233		287	411		309	387	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	128		0	0		0	2	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.54	0.11	0.01	0.83		0.55	0.03		0.13	0.16	

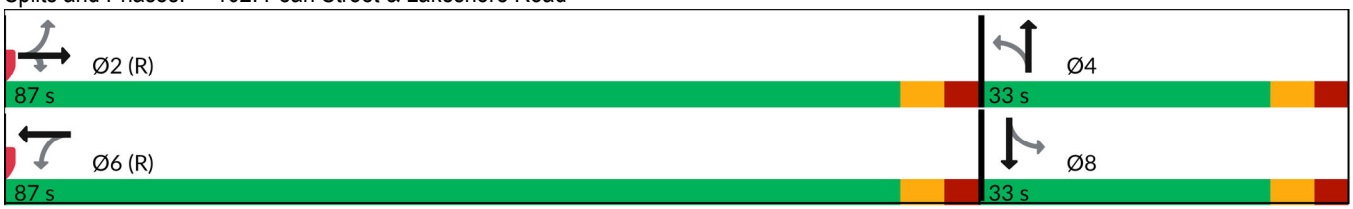
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 51 (43%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay (s/veh): 16.6	Intersection LOS: B

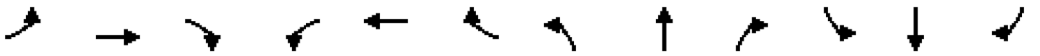
Intersection Capacity Utilization 78.9% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Pearl Street & Lakeshore Road

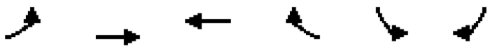




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	650	119	3	826	48	151	12	1	39	24	35
Future Volume (vph)	37	650	119	3	826	48	151	12	1	39	24	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		0.96	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1902	1571	1816	1846		1757	1897		1812	1657	
Flt Permitted	0.18	1.00	1.00	0.32	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	342	1902	1571	604	1846		1325	1897		1428	1657	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	39	684	125	3	869	51	159	13	1	41	25	37
RTOR Reduction (vph)	0	0	42	0	2	0	0	1	0	0	29	0
Lane Group Flow (vph)	39	684	83	3	918	0	159	13	0	41	33	0
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Actuated Green, G (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	228	1268	1047	402	1230		287	411		309	359	
v/s Ratio Prot		0.36			c0.50			0.01			0.02	
v/s Ratio Perm	0.11		0.05	0.00			c0.12			0.03		
v/c Ratio	0.17	0.54	0.08	0.01	0.75		0.55	0.03		0.13	0.09	
Uniform Delay, d1	7.5	10.4	7.0	6.7	13.3		41.8	37.1		37.9	37.6	
Progression Factor	0.51	0.53	0.13	1.00	1.00		0.97	0.98		1.00	1.00	
Incremental Delay, d2	1.5	1.6	0.1	0.0	4.2		7.5	0.1		0.9	0.5	
Delay (s)	5.4	7.1	1.0	6.7	17.4		48.3	36.3		38.8	38.1	
Level of Service	A	A	A	A	B		D	D		D	D	
Approach Delay (s/veh)		6.1			17.4			47.3			38.4	
Approach LOS		A			B			D			D	

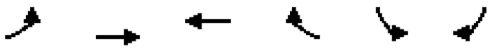
Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	69	602	817	48	11	34
Future Volume (vph)	69	602	817	48	11	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.993		0.897	
Flt Protected	0.950				0.988	
Satd. Flow (prot)	1755	1902	1869	0	1703	0
Flt Permitted	0.950				0.988	
Satd. Flow (perm)	1755	1902	1869	0	1703	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	7			7	3	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	1%	2%	3%	0%	0%
Adj. Flow (vph)	72	627	851	50	11	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	627	901	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			



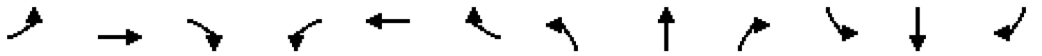
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	602	817	48	11	34
Future Volume (Veh/h)	69	602	817	48	11	34
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	72	627	851	50	11	35
Pedestrians		10	3		7	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.81	
vC, conflicting volume	908				1657	893
vC1, stage 1 conf vol					883	
vC2, stage 2 conf vol					774	
vCu, unblocked vol	908				1693	893
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	90				96	90
cM capacity (veh/h)	736				287	338

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	72	627	901	46
Volume Left	72	0	0	11
Volume Right	0	0	50	35
cSH	736	1700	1700	324
Volume to Capacity	0.10	0.37	0.53	0.14
Queue Length 95th (m)	2.5	0.0	0.0	3.7
Control Delay (s/veh)	10.4	0.0	0.0	18.0
Lane LOS	B			C
Approach Delay (s/veh)	1.1		0.0	18.0
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	590	19	118	889	0	18	0	67	0	0	0
Future Volume (vph)	0	590	19	118	889	0	18	0	67	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.894				
Flt Protected				0.950				0.989				
Satd. Flow (prot)	1921	1893	0	1825	1883	0	0	1699	0	0	1921	0
Flt Permitted				0.950				0.989				
Satd. Flow (perm)	1921	1893	0	1825	1883	0	0	1699	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			234.1			61.5	
Travel Time (s)		10.3			6.5			16.9			4.4	
Confl. Peds. (#/hr)	14		3	3		14			8	8		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	608	20	122	916	0	19	0	69	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	628	0	122	916	0	0	88	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	590	19	118	889	0	18	0	67	0	0	0
Future Volume (Veh/h)	0	590	19	118	889	0	18	0	67	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	608	20	122	916	0	19	0	69	0	0	0
Pedestrians					8			3			14	
Lane Width (m)					3.7			3.7			3.7	
Walking Speed (m/s)					1.1			1.1			1.1	
Percent Blockage					1			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.82			0.82	0.82	0.82	0.82	0.82	
vC, conflicting volume	930			631			1781	1795	629	1859	1805	930
vC1, stage 1 conf vol							621	621		1174	1174	
vC2, stage 2 conf vol							1160	1174		685	631	
vCu, unblocked vol	930			437			1844	1861	434	1939	1873	930
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			87			90	100	86	100	100	100
cM capacity (veh/h)	734			924			189	205	506	158	193	322

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	628	122	916	88	0
Volume Left	0	0	122	0	19	0
Volume Right	0	20	0	0	69	0
cSH	1700	1700	924	1700	372	1700
Volume to Capacity	0.00	0.37	0.13	0.54	0.24	0.00
Queue Length 95th (m)	0.0	0.0	3.5	0.0	6.9	0.0
Control Delay (s/veh)	0.0	0.0	9.5	0.0	17.7	0.0
Lane LOS			A		C	A
Approach Delay (s/veh)	0.0		1.1		17.7	0.0
Approach LOS					C	A

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	67.7%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	101	45	26	136	29	36
Future Volume (vph)	101	45	26	136	29	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958				0.926	
Flt Protected				0.992	0.978	
Satd. Flow (prot)	1804	0	0	1868	1706	0
Flt Permitted				0.992	0.978	
Satd. Flow (perm)	1804	0	0	1868	1706	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	61.5			234.1	41.1	
Travel Time (s)	4.4			16.9	3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	110	49	28	148	32	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	0	0	176	71	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

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



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	101	45	26	136	29	36
Future Volume (Veh/h)	101	45	26	136	29	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	110	49	28	148	32	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)	62					
pX, platoon unblocked						
vC, conflicting volume			159		339	135
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			159		339	135
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		95	96
cM capacity (veh/h)			1420		644	914

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	159	176	71
Volume Left	0	28	32
Volume Right	49	0	39
cSH	1700	1420	769
Volume to Capacity	0.09	0.02	0.09
Queue Length 95th (m)	0.0	0.5	2.3
Control Delay (s/veh)	0.0	1.3	10.2
Lane LOS		A	B
Approach Delay (s/veh)	0.0	1.3	10.2
Approach LOS			B

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	831	39	17	867	33	39	14	21	33	21	39
Future Volume (vph)	43	831	39	17	867	33	39	14	21	33	21	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	30.0		0.0	10.0		0.0	20.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	1.00		0.92	0.96		0.95	0.93	
Frt		0.993			0.994			0.909			0.903	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3611	0	1825	1862	0	1825	1683	0	1560	1483	0
Flt Permitted	0.131			0.266			0.715			0.732		
Satd. Flow (perm)	229	3611	0	503	1862	0	1265	1683	0	1147	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			3			23			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		106.8			123.9			68.6			100.8	
Travel Time (s)		7.7			8.9			4.9			7.3	
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
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 (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Adj. Flow (vph)	47	903	42	18	942	36	42	15	23	36	23	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	945	0	18	978	0	42	38	0	36	65	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	41.0	41.0		41.0	41.0		36.0	36.0		36.0	36.0	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0		16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	18.0	18.0		18.0	18.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
v/c Ratio	0.32	0.41		0.06	0.82		0.14	0.09		0.13	0.17	
Control Delay (s/veh)	17.1	11.0		5.8	15.0		37.3	19.7		37.3	17.4	
Queue Delay	0.0	0.0		0.0	3.5		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	17.1	11.0		5.8	18.5		37.3	19.7		37.3	17.4	
LOS	B	B		A	B		D	B		D	B	
Approach Delay (s/veh)		11.3			18.3			28.9			24.5	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	5.0	52.1		1.0	131.7		7.8	2.7		7.6	4.2	
Queue Length 95th (m)	14.5	64.5		m1.4	158.5		17.4	11.6		17.8	15.6	
Internal Link Dist (m)		82.8			99.9			44.6			76.8	
Turn Bay Length (m)	40.0			30.0			10.0			20.0		
Base Capacity (vph)	146	2319		322	1195		305	424		277	390	
Starvation Cap Reductn	0	0		0	138		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	0.32	0.41		0.06	0.93		0.14	0.09		0.13	0.17	

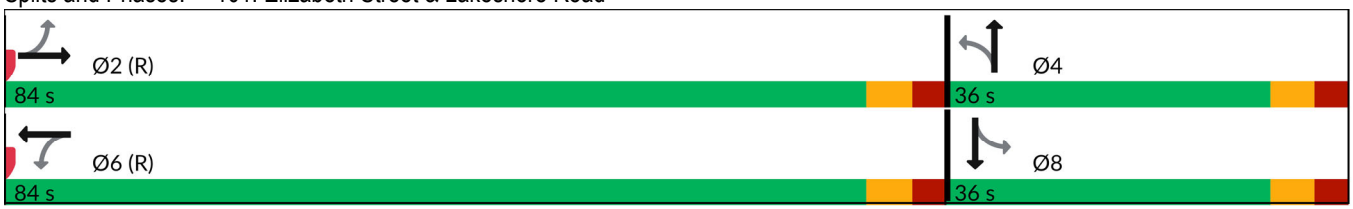
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 56 (47%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay (s/veh): 15.7	Intersection LOS: B

Intersection Capacity Utilization 83.5% ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 101: Elizabeth Street & Lakeshore Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	831	39	17	867	33	39	14	21	33	21	39
Future Volume (vph)	43	831	39	17	867	33	39	14	21	33	21	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.96		1.00	0.93	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.92	1.00		0.95	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.91		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	3612		1797	1863		1680	1684		1488	1483	
Flt Permitted	0.13	1.00		0.27	1.00		0.71	1.00		0.73	1.00	
Satd. Flow (perm)	229	3612		503	1863		1264	1684		1147	1483	
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)	47	903	42	18	942	36	42	15	23	36	23	42
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	32	0
Lane Group Flow (vph)	47	942	0	18	977	0	42	21	0	36	33	0
Confl. Peds. (#/hr)	23		37	37		23	42		39	39		42
Heavy Vehicles (%)	10%	0%	0%	0%	2%	11%	0%	0%	0%	17%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)	77.0	77.0		77.0	77.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	146	2317		322	1195		305	406		277	358	
v/s Ratio Prot		0.26			c0.52			0.01			0.02	
v/s Ratio Perm	0.21			0.04			c0.03			0.03		
v/c Ratio	0.32	0.41		0.06	0.82		0.14	0.05		0.13	0.09	
Uniform Delay, d1	9.7	10.4		8.0	16.2		35.7	34.9		35.6	35.3	
Progression Factor	1.00	1.00		0.68	0.63		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.7	0.5		0.2	4.3		0.9	0.2		1.0	0.5	
Delay (s)	15.5	11.0		5.6	14.4		36.6	35.2		36.6	35.8	
Level of Service	B	B		A	B		D	D		D	D	
Approach Delay (s/veh)		11.2			14.3			35.9			36.1	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	678	120	3	866	49	154	12	1	40	24	37
Future Volume (vph)	39	678	120	3	866	49	154	12	1	40	24	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	15.0		0.0	20.0		0.0	5.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.96	1.00	1.00		0.96	1.00		0.99	0.96	
Frt			0.850		0.992			0.989			0.909	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1772	1902	1633	1825	1847	0	1825	1896	0	1825	1652	0
Flt Permitted	0.159			0.299			0.715			0.748		
Satd. Flow (perm)	297	1902	1571	572	1847	0	1322	1896	0	1427	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126		5			1			39	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.9			116.1			61.5			107.3	
Travel Time (s)		8.9			8.4			4.4			7.7	
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	41	714	126	3	912	52	162	13	1	42	25	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	714	126	3	964	0	162	14	0	42	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Detector Phase	2	2	2	6	6		4	4		8	8	
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)	40.0	40.0	40.0	40.0	40.0		32.0	32.0		32.0	32.0	
Total Split (s)	87.0	87.0	87.0	87.0	87.0		33.0	33.0		33.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	72.5%		27.5%	27.5%		27.5%	27.5%	
Maximum Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	16.0	16.0	16.0	16.0	16.0		8.0	8.0		8.0	8.0	
Flash Don't Walk (s)	17.0	17.0	17.0	17.0	17.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
v/c Ratio	0.21	0.56	0.12	0.01	0.78		0.57	0.03		0.14	0.16	
Control Delay (s/veh)	6.4	7.5	0.4	6.7	19.6		49.7	34.8		39.5	19.6	
Queue Delay	0.0	0.0	0.0	0.0	1.8		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.4	7.5	0.4	6.7	21.4		49.7	34.8		39.5	19.6	
LOS	A	A	A	A	C		D	C		D	B	
Approach Delay (s/veh)		6.5			21.4			48.5			27.4	
Approach LOS		A			C			D			C	
Queue Length 50th (m)	1.5	25.0	0.0	0.2	147.4		34.3	2.5		8.1	4.7	
Queue Length 95th (m)	3.3	31.2	0.7	1.3	208.4		57.1	m7.4		17.9	16.2	
Internal Link Dist (m)		99.9			92.1			37.5			83.3	
Turn Bay Length (m)	45.0			15.0			20.0			5.0		
Base Capacity (vph)	198	1268	1089	381	1233		286	411		309	388	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	136		0	0		0	2	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.56	0.12	0.01	0.88		0.57	0.03		0.14	0.17	

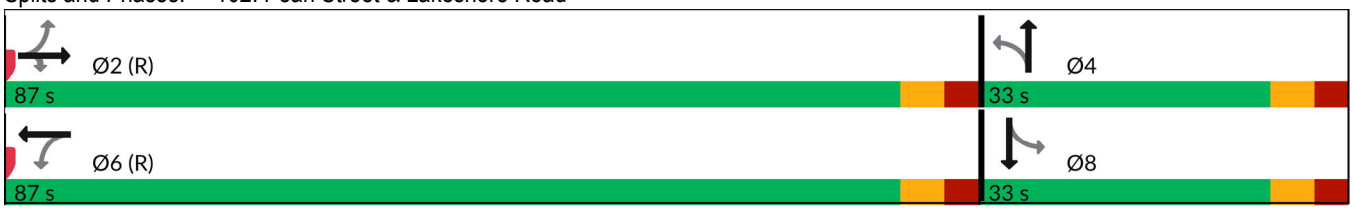
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 51 (43%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay (s/veh): 17.7	Intersection LOS: B

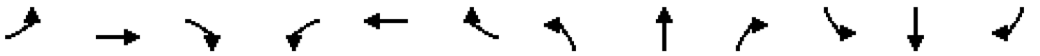
Intersection Capacity Utilization 81.1% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Pearl Street & Lakeshore Road

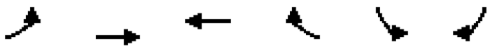




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	678	120	3	866	49	154	12	1	40	24	37
Future Volume (vph)	39	678	120	3	866	49	154	12	1	40	24	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		0.96	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	1902	1571	1816	1847		1757	1897		1812	1652	
Flt Permitted	0.16	1.00	1.00	0.30	1.00		0.72	1.00		0.75	1.00	
Satd. Flow (perm)	297	1902	1571	571	1847		1323	1897		1428	1652	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	714	126	3	912	52	162	13	1	42	25	39
RTOR Reduction (vph)	0	0	42	0	2	0	0	1	0	0	31	0
Lane Group Flow (vph)	41	714	84	3	962	0	162	13	0	42	33	0
Confl. Peds. (#/hr)	3		10	10		3	17		3	3		17
Heavy Vehicles (%)	3%	1%	0%	0%	3%	4%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Actuated Green, G (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)	80.0	80.0	80.0	80.0	80.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	1268	1047	380	1231		286	411		309	357	
v/s Ratio Prot		0.38			c0.52			0.01			0.02	
v/s Ratio Perm	0.14		0.05	0.01			c0.12			0.03		
v/c Ratio	0.21	0.56	0.08	0.01	0.78		0.57	0.03		0.14	0.09	
Uniform Delay, d1	7.7	10.7	7.0	6.7	13.9		42.0	37.1		37.9	37.6	
Progression Factor	0.50	0.53	0.13	1.00	1.00		0.97	0.97		1.00	1.00	
Incremental Delay, d2	2.2	1.7	0.1	0.0	5.0		7.9	0.1		0.9	0.5	
Delay (s)	6.1	7.4	1.0	6.7	18.9		48.8	36.3		38.8	38.1	
Level of Service	A	A	A	A	B		D	D		D	D	
Approach Delay (s/veh)		6.4			18.9			47.8			38.4	
Approach LOS		A			B			D			D	

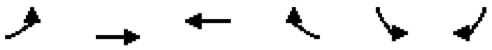
Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	630	857	50	12	35
Future Volume (vph)	70	630	857	50	12	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.993		0.901	
Flt Protected	0.950				0.987	
Satd. Flow (prot)	1755	1902	1869	0	1708	0
Flt Permitted	0.950				0.987	
Satd. Flow (perm)	1755	1902	1869	0	1708	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		116.1	143.3		106.3	
Travel Time (s)		8.4	10.3		7.7	
Confl. Peds. (#/hr)	7			7	3	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	1%	2%	3%	0%	0%
Adj. Flow (vph)	73	656	893	52	13	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	656	945	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane			Yes			
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

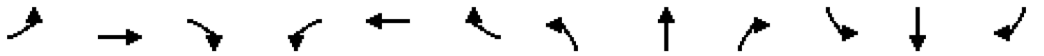
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	630	857	50	12	35
Future Volume (Veh/h)	70	630	857	50	12	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	73	656	893	52	12	36
Pedestrians		10	3		7	
Lane Width (m)		3.7	3.7		3.7	
Walking Speed (m/s)		1.1	1.1		1.1	
Percent Blockage		1	0		1	
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (m)		116				
pX, platoon unblocked					0.80	
vC, conflicting volume	952				1731	936
vC1, stage 1 conf vol					926	
vC2, stage 2 conf vol					805	
vCu, unblocked vol	952				1789	936
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	90				96	89
cM capacity (veh/h)	709				271	319

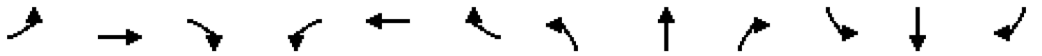
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	73	656	945	48
Volume Left	73	0	0	12
Volume Right	0	0	52	36
cSH	709	1700	1700	305
Volume to Capacity	0.10	0.39	0.56	0.16
Queue Length 95th (m)	2.6	0.0	0.0	4.2
Control Delay (s/veh)	10.7	0.0	0.0	19.0
Lane LOS	B			C
Approach Delay (s/veh)	1.1		0.0	19.0
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	619	19	119	931	0	18	0	68	0	0	0
Future Volume (vph)	0	619	19	119	931	0	18	0	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	10.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.894				
Flt Protected				0.950				0.989				
Satd. Flow (prot)	1921	1893	0	1825	1883	0	0	1699	0	0	1921	0
Flt Permitted				0.950				0.989				
Satd. Flow (perm)	1921	1893	0	1825	1883	0	0	1699	0	0	1921	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		143.3			89.6			237.0			61.5	
Travel Time (s)		10.3			6.5			17.1			4.4	
Confl. Peds. (#/hr)	14		3	3		14			8	8		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	638	20	123	960	0	19	0	70	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	658	0	123	960	0	0	89	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	619	19	119	931	0	18	0	68	0	0	0
Future Volume (Veh/h)	0	619	19	119	931	0	18	0	68	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	638	20	123	960	0	19	0	70	0	0	0
Pedestrians					8			3			14	
Lane Width (m)					3.7			3.7			3.7	
Walking Speed (m/s)					1.1			1.1			1.1	
Percent Blockage					1			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		259										
pX, platoon unblocked				0.80			0.80	0.80	0.80	0.80	0.80	
vC, conflicting volume	974			661			1857	1871	659	1936	1881	974
vC1, stage 1 conf vol							651	651		1220	1220	
vC2, stage 2 conf vol							1206	1220		716	661	
vCu, unblocked vol	974			453			1946	1963	450	2044	1976	974
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			86			89	100	86	100	100	100
cM capacity (veh/h)	706			893			177	193	486	146	181	304

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	0	658	123	960	89	0
Volume Left	0	0	123	0	19	0
Volume Right	0	20	0	0	70	0
cSH	1700	1700	893	1700	354	1700
Volume to Capacity	0.00	0.39	0.14	0.56	0.25	0.00
Queue Length 95th (m)	0.0	0.0	3.6	0.0	7.4	0.0
Control Delay (s/veh)	0.0	0.0	9.7	0.0	18.6	0.0
Lane LOS			A		C	A
Approach Delay (s/veh)	0.0		1.1		18.6	0.0
Approach LOS					C	A

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	69.9%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	102	45	26	138	29	36
Future Volume (vph)	102	45	26	138	29	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.959				0.926	
Flt Protected				0.992	0.978	
Satd. Flow (prot)	1806	0	0	1868	1706	0
Flt Permitted				0.992	0.978	
Satd. Flow (perm)	1806	0	0	1868	1706	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	61.5			237.0	41.1	
Travel Time (s)	4.4			17.1	3.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	49	28	150	32	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	0	0	178	71	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	102	45	26	138	29	36
Future Volume (Veh/h)	102	45	26	138	29	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	49	28	150	32	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)	62					
pX, platoon unblocked						
vC, conflicting volume			160		342	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			160		342	136
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		95	96
cM capacity (veh/h)			1419		642	913

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	160	178	71
Volume Left	0	28	32
Volume Right	49	0	39
cSH	1700	1419	767
Volume to Capacity	0.09	0.02	0.09
Queue Length 95th (m)	0.0	0.5	2.3
Control Delay (s/veh)	0.0	1.3	10.2
Lane LOS		A	B
Approach Delay (s/veh)	0.0	1.3	10.2
Approach LOS			B

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix L

SimTraffic Reports

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	42.5	102.4	22.5	9.0	29.3	27.6	17.0	14.7	16.5	22.0
Average Queue (m)	5.9	68.0	2.3	1.4	11.8	10.1	5.0	4.0	2.7	7.1
95th Queue (m)	24.0	109.5	12.7	6.2	24.6	23.5	14.1	12.9	11.2	17.7
Link Distance (m)		90.4			37.6	37.6		53.0		81.8
Upstream Blk Time (%)		4			0	0				
Queuing Penalty (veh)		0			0	0				
Storage Bay Dist (m)	40.0		15.0	30.0			10.0		20.0	
Storage Blk Time (%)		26	0		0		13	7	0	0
Queuing Penalty (veh)		115	0		0		2	2	0	0

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	B2	B2	WB	NB	NB	SB	SB
Directions Served	L	TR	T		TR	L	TR	L	TR
Maximum Queue (m)	13.2	41.8	6.1	12.4	58.6	17.3	10.0	8.0	8.7
Average Queue (m)	3.3	15.9	0.2	0.5	23.2	3.6	1.0	1.0	1.8
95th Queue (m)	10.2	36.5	3.3	5.5	53.0	12.4	5.7	5.1	7.4
Link Distance (m)		51.2	37.6	37.6	97.4		44.9		91.6
Upstream Blk Time (%)		0							
Queuing Penalty (veh)		0							
Storage Bay Dist (m)	45.0					20.0		5.0	
Storage Blk Time (%)		0			12	1	0	6	1
Queuing Penalty (veh)		0			0	0	0	1	0

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	10.3	17.8	9.2	21.1
Average Queue (m)	2.1	1.2	0.4	6.5
95th Queue (m)	8.4	9.0	4.3	14.7
Link Distance (m)		97.4	122.3	95.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	1.7	7.7	3.2	14.5
Average Queue (m)	0.1	1.3	0.2	2.8
95th Queue (m)	1.2	5.9	2.6	9.1
Link Distance (m)	122.3		78.8	209.5
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	0		0	
Queuing Penalty (veh)	0		0	

Zone Summary

Zone wide Queuing Penalty: 121

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	46.7	103.0	22.6	22.2	85.3	16.7	23.0	23.0	27.4
Average Queue (m)	8.3	74.7	6.1	2.1	41.7	5.2	3.4	3.5	8.7
95th Queue (m)	28.5	114.7	21.1	11.0	70.8	14.7	13.1	13.1	20.9
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		7			0				
Queuing Penalty (veh)		0			0				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)	0	27	0		10	14	5	0	1
Queuing Penalty (veh)	0	130	0		1	2	1	0	0

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	21.5	46.6	9.3	11.2	77.4	27.4	46.6	10.0	15.1
Average Queue (m)	4.2	22.8	1.4	0.7	36.0	21.3	11.4	2.4	2.8
95th Queue (m)	14.2	43.5	6.1	5.1	67.6	31.7	39.0	8.7	10.4
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)							2		
Queuing Penalty (veh)							2		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)		1			18	25	0	9	4
Queuing Penalty (veh)		0			0	4	0	1	0

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	14.5	12.4	14.5	27.2
Average Queue (m)	3.5	1.2	1.3	10.5
95th Queue (m)	11.4	7.6	8.0	19.8
Link Distance (m)		97.4	125.9	95.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	1	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	29.5	14.1	14.9	26.5
Average Queue (m)	2.2	4.2	0.9	12.1
95th Queue (m)	14.3	11.8	6.5	22.6
Link Distance (m)	125.9		78.8	224.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	1	1	0	
Queuing Penalty (veh)	0	5	0	

Zone Summary

Zone wide Queuing Penalty: 149

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	47.3	101.6	22.6	20.8	93.5	16.8	20.8	22.6	31.4
Average Queue (m)	9.6	79.5	5.1	2.3	42.6	6.1	3.5	4.4	8.9
95th Queue (m)	30.4	117.9	18.7	10.9	79.0	15.9	12.4	16.0	21.5
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		8			0				
Queuing Penalty (veh)		0			1				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)	0	28	0		11	17	6	1	2
Queuing Penalty (veh)	0	140	1		1	3	1	0	0

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	14.7	54.4	10.8	6.9	83.3	27.4	42.8	10.8	13.8
Average Queue (m)	4.0	23.1	1.8	0.7	36.9	19.8	8.3	2.7	2.6
95th Queue (m)	11.9	46.2	7.1	4.3	70.7	31.9	29.9	9.4	9.8
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)					0		0		
Queuing Penalty (veh)					1		0		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)		2			18	23	0	11	4
Queuing Penalty (veh)		1			0	3	0	1	0

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	9.2	27.5	13.4	29.5
Average Queue (m)	3.3	2.2	1.1	11.0
95th Queue (m)	10.4	13.5	7.6	22.0
Link Distance (m)		97.4	125.9	95.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	32.5	15.5	13.5	27.4
Average Queue (m)	1.7	4.6	0.6	12.4
95th Queue (m)	13.1	12.9	5.8	22.6
Link Distance (m)	125.9		78.8	225.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	0	1	0	
Queuing Penalty (veh)	0	5	0	

Zone Summary

Zone wide Queuing Penalty: 160

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	47.4	105.9	22.6	20.9	87.6	16.0	19.8	17.6	21.8
Average Queue (m)	8.1	78.0	6.9	2.2	40.7	5.4	3.7	3.1	7.8
95th Queue (m)	26.3	115.0	22.1	10.8	70.9	14.9	12.8	11.6	17.7
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		8			0				
Queuing Penalty (veh)		0			0				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)		28	0		10	15	6	0	1
Queuing Penalty (veh)		138	2		1	3	1	0	0

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	10.8	51.5	9.2	5.1	82.1	27.5	46.0	12.4	20.4
Average Queue (m)	3.4	24.2	1.6	0.4	36.6	21.8	12.9	3.0	5.3
95th Queue (m)	10.1	46.5	6.7	3.3	69.0	31.4	41.2	10.3	15.0
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)					0		3		
Queuing Penalty (veh)					0		4		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)		1			18	29	0	10	11
Queuing Penalty (veh)		0			0	5	0	2	1

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	12.1	24.6	9.2	37.8
Average Queue (m)	3.5	2.1	0.5	11.6
95th Queue (m)	11.1	12.2	3.8	25.6
Link Distance (m)		97.4	124.8	95.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	1	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	35.1	16.3	14.4	35.3
Average Queue (m)	2.3	5.4	0.5	15.3
95th Queue (m)	14.8	13.5	5.6	28.5
Link Distance (m)	124.8		78.8	215.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	1	1	0	
Queuing Penalty (veh)	0	7	0	

Intersection: 105: Site Driveway & Old Lakeshore Road/Pearl Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	14.2	15.2
Average Queue (m)	1.2	7.2
95th Queue (m)	7.5	13.6
Link Distance (m)	215.2	33.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 166

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	47.4	104.0	22.6	31.4	84.2	16.5	22.5	24.1	28.8
Average Queue (m)	12.6	84.1	6.8	3.6	42.9	6.4	4.7	4.6	9.0
95th Queue (m)	38.0	118.2	22.5	17.2	71.9	15.3	14.9	16.1	21.0
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		11			0				
Queuing Penalty (veh)		0			0				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)	0	29	0		11	21	7	1	2
Queuing Penalty (veh)	1	149	2		1	4	2	1	0

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	13.6	55.0	14.8	8.4	89.4	27.4	48.2	11.6	16.7
Average Queue (m)	3.9	24.4	2.6	0.7	39.7	22.3	13.7	3.4	4.1
95th Queue (m)	11.9	47.3	9.2	4.5	73.9	32.4	42.1	10.3	13.2
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)					0		2		
Queuing Penalty (veh)					0		3		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)		1			19	29	0	14	8
Queuing Penalty (veh)		0			0	5	0	3	1

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	13.1	33.4	27.1	27.8
Average Queue (m)	3.4	2.7	1.4	10.3
95th Queue (m)	11.1	15.0	10.7	19.9
Link Distance (m)		97.4	125.9	95.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	31.1	14.3	11.9	37.9
Average Queue (m)	2.2	5.3	0.5	16.4
95th Queue (m)	15.9	13.0	5.2	30.2
Link Distance (m)	125.9		78.8	221.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	0	1	0	
Queuing Penalty (veh)	0	7	0	

Intersection: 105: Site Driveway & Old Lakeshore Road/Pearl Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	15.6	16.9
Average Queue (m)	1.4	7.9
95th Queue (m)	8.4	14.7
Link Distance (m)	221.1	33.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 180

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	40.1	91.0	22.4	9.4	23.9	28.6	17.1	23.4	26.4	38.7
Average Queue (m)	6.1	44.5	2.3	2.6	9.5	10.2	8.1	6.8	7.8	10.2
95th Queue (m)	24.3	79.4	12.8	8.8	20.9	21.8	17.9	17.1	19.8	25.6
Link Distance (m)		90.4			36.8	36.8		53.0		81.8
Upstream Blk Time (%)		0				0				
Queuing Penalty (veh)		0				0				
Storage Bay Dist (m)	40.0		15.0	30.0			10.0		20.0	
Storage Blk Time (%)		21	0		0		24	12	2	2
Queuing Penalty (veh)		76	0		0		8	4	1	0

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	B2	B2	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	T		L	TR	L	TR	L	TR
Maximum Queue (m)	19.5	48.9	13.0	12.2	4.9	99.7	25.4	8.9	12.4	18.1
Average Queue (m)	6.1	18.6	0.6	0.5	0.2	62.7	11.0	1.2	4.7	7.8
95th Queue (m)	16.2	36.9	5.6	5.1	2.1	100.3	23.1	5.7	12.0	17.9
Link Distance (m)		51.9	36.8	36.8		97.4		44.9		91.6
Upstream Blk Time (%)		0				1				
Queuing Penalty (veh)		1				5				
Storage Bay Dist (m)	45.0				15.0		20.0		5.0	
Storage Blk Time (%)		0				25	6		16	11
Queuing Penalty (veh)		0				0	0		6	2

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	13.4	21.2	46.9	15.6
Average Queue (m)	4.3	1.6	5.7	5.1
95th Queue (m)	12.5	10.1	24.4	13.1
Link Distance (m)		97.4	125.8	95.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	1	0		
Queuing Penalty (veh)	4	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	18.7	11.3	17.5	8.6
Average Queue (m)	1.2	2.9	1.8	2.0
95th Queue (m)	8.9	9.7	10.0	7.7
Link Distance (m)	125.8		78.9	220.2
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	1	0	

Zone Summary

Zone wide Queuing Penalty: 109

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	42.0	96.2	22.6	25.2	102.9	17.4	21.5	26.9	33.2
Average Queue (m)	10.6	59.7	9.6	3.2	42.5	8.3	6.5	7.9	12.3
95th Queue (m)	29.8	99.5	26.3	13.3	79.3	18.0	16.0	21.6	27.3
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		3			0				
Queuing Penalty (veh)		0			4				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)	0	23	1		14	25	13	3	5
Queuing Penalty (veh)	3	105	2		2	8	5	2	1

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	32.0	59.1	11.9	10.8	99.6	27.4	46.6	12.4	45.4
Average Queue (m)	9.3	22.7	2.1	1.0	71.4	21.9	12.6	8.3	15.1
95th Queue (m)	23.2	45.3	7.8	5.8	109.7	31.8	39.7	15.3	33.7
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)					2		1		
Queuing Penalty (veh)					15		2		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)	0	1			27	25	0	31	26
Queuing Penalty (veh)	0	0			1	3	0	15	10

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	22.8	64.8	64.0	29.4
Average Queue (m)	11.0	6.1	11.1	9.6
95th Queue (m)	21.7	33.8	39.3	23.7
Link Distance (m)		97.4	125.9	95.6
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		1		
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	6	0		
Queuing Penalty (veh)	38	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	14.0	16.8	29.8	17.8
Average Queue (m)	0.9	7.2	2.0	7.7
95th Queue (m)	6.5	14.7	12.8	14.9
Link Distance (m)	125.9		78.8	222.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	0	1	0	
Queuing Penalty (veh)	0	12	0	

Zone Summary

Zone wide Queuing Penalty: 230

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	47.4	96.2	22.6	29.2	103.4	17.5	25.2	25.2	43.0
Average Queue (m)	12.9	68.1	7.0	4.5	43.6	7.6	7.8	7.2	12.8
95th Queue (m)	33.0	112.2	22.2	17.4	79.7	17.5	19.7	19.8	29.9
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		5			0				
Queuing Penalty (veh)		0			3				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)	0	24	0	0	14	21	17	3	4
Queuing Penalty (veh)	0	114	1	0	2	8	6	2	1

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	22.0	54.3	10.7	7.9	100.6	27.4	49.7	12.4	35.1
Average Queue (m)	9.0	21.9	2.4	0.6	75.6	22.3	13.7	7.8	14.6
95th Queue (m)	19.6	42.9	8.3	5.0	111.4	32.0	43.8	15.6	28.4
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)					2		3		
Queuing Penalty (veh)					18		4		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)		1		0	29	28	0	27	27
Queuing Penalty (veh)		0		0	1	3	0	13	11

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	22.4	52.4	72.1	24.0
Average Queue (m)	10.9	4.3	14.6	8.7
95th Queue (m)	20.8	24.7	49.4	18.3
Link Distance (m)		97.4	125.8	95.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	4	0		
Queuing Penalty (veh)	28	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	12.5	22.3	43.0	19.2
Average Queue (m)	1.1	8.9	3.7	7.6
95th Queue (m)	7.7	17.7	21.9	15.2
Link Distance (m)	125.8		78.9	223.9
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	0	1	0	
Queuing Penalty (veh)	0	13	0	

Zone Summary

Zone wide Queuing Penalty: 229

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	43.1	96.8	22.6	31.5	102.5	17.5	24.8	25.4	34.8
Average Queue (m)	12.6	63.5	8.3	4.4	52.9	8.4	7.0	7.2	12.6
95th Queue (m)	34.5	105.2	24.1	18.8	92.6	17.9	17.7	19.1	26.8
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		3			0				
Queuing Penalty (veh)		0			4				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)	0	23	1		17	25	13	1	4
Queuing Penalty (veh)	0	110	4		3	8	5	1	1

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	19.6	45.1	12.1	6.7	100.3	27.5	50.1	12.4	39.8
Average Queue (m)	6.8	20.2	3.2	0.5	72.1	24.9	19.3	7.5	15.2
95th Queue (m)	15.6	38.3	9.6	3.7	110.7	31.2	53.2	15.5	30.4
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)					2		6		
Queuing Penalty (veh)					14		10		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)		0			28	43	0	25	28
Queuing Penalty (veh)		0			1	6	0	15	11

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	21.1	57.3	82.7	25.2
Average Queue (m)	10.6	6.1	13.2	8.3
95th Queue (m)	21.5	32.9	49.5	18.5
Link Distance (m)		97.4	125.9	95.6
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	6	0		
Queuing Penalty (veh)	36	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	26.1	21.0	27.0	31.2
Average Queue (m)	2.0	8.7	2.8	11.7
95th Queue (m)	11.6	17.5	15.7	22.2
Link Distance (m)	125.9		78.8	218.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	1	2	0	
Queuing Penalty (veh)	0	19	0	

Intersection: 105: Site Driveway & Old Lakeshore Road/Pearl Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	20.8	20.6
Average Queue (m)	3.4	9.0
95th Queue (m)	14.8	16.3
Link Distance (m)	218.7	32.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 249

Intersection: 101: Elizabeth Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	47.4	97.1	22.6	31.4	101.8	17.1	26.6	27.4	43.8
Average Queue (m)	14.4	71.7	8.6	3.9	62.9	9.0	7.9	9.1	14.6
95th Queue (m)	38.2	112.0	24.6	16.8	107.9	18.4	19.6	23.8	31.7
Link Distance (m)		91.6			99.7		53.0		85.8
Upstream Blk Time (%)		6			1				
Queuing Penalty (veh)		0			15				
Storage Bay Dist (m)	40.0		15.0	30.0		10.0		20.0	
Storage Blk Time (%)	1	24	1		21	29	17	3	5
Queuing Penalty (veh)	4	119	5		4	10	7	2	2

Intersection: 102: Pearl Street & Lakeshore Road

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	TR	L	TR	L	TR
Maximum Queue (m)	28.5	67.2	9.7	14.0	99.8	27.5	47.8	12.4	37.7
Average Queue (m)	10.3	23.4	3.1	1.2	81.9	25.2	22.2	7.8	17.4
95th Queue (m)	22.5	47.4	9.1	7.0	114.5	31.4	56.1	15.9	32.0
Link Distance (m)		99.7	99.7		97.4		43.8		95.3
Upstream Blk Time (%)		0			5		9		
Queuing Penalty (veh)		0			41		15		
Storage Bay Dist (m)	45.0			15.0		20.0		5.0	
Storage Blk Time (%)		1			32	42	0	26	36
Queuing Penalty (veh)		1			1	6	0	16	15

Intersection: 103: Lakeshore Road & Martha Street

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (m)	22.6	54.8	95.6	26.4
Average Queue (m)	11.0	4.2	25.9	10.3
95th Queue (m)	20.6	29.2	81.1	21.8
Link Distance (m)		97.4	125.9	95.6
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		2	1	
Storage Bay Dist (m)	15.0			
Storage Blk Time (%)	8	0		
Queuing Penalty (veh)	48	0		

Intersection: 104: Old Lakeshore Road/Private Access & Lakeshore Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	TR	LTR
Maximum Queue (m)	26.5	22.1	62.1	34.6
Average Queue (m)	2.4	10.6	5.1	14.2
95th Queue (m)	13.2	19.0	29.9	28.2
Link Distance (m)	125.9		78.8	221.9
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (m)		15.0		
Storage Blk Time (%)	1	3	1	
Queuing Penalty (veh)	0	31	1	

Intersection: 105: Site Driveway & Old Lakeshore Road/Pearl Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	1.3	28.5	21.0
Average Queue (m)	0.0	4.9	9.1
95th Queue (m)	0.9	19.4	17.0
Link Distance (m)	43.8	221.9	32.8
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 344

Appendix M

Signal Warrant

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2025
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Martha Street
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Lakeshore Road						Minor Street: Martha Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	16	789			439	26				13		21	9
PM Peak Hour	24	546			765	37				7		16	13
Average Hourly Volume	**10**	**334**	**0**	**0**	**301**	**16**	**0**	**0**	**0**	**5**	**0**	**9**	**6**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	675
1B - Minor	14
2A - Major	661
2B - Cross	11

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	675
					% Fulfilled	75.0%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	14
					% Fulfilled	8.4%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	661
					% Fulfilled	73.4%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	11
					% Fulfilled	14.0%

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2028 Background
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Martha Street
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Lakeshore Road						Minor Street: Martha Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	28	843			461	29				21		57	9
PM Peak Hour	69	602			800	48				11		34	13
Average Hourly Volume	**24**	**361**	**0**	**0**	**315**	**19**	**0**	**0**	**0**	**8**	**0**	**23**	**6**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	751
1B - Minor	31
2A - Major	720
2B - Cross	14

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	751
					% Fulfilled	83.4%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	31
					% Fulfilled	18.1%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	720
					% Fulfilled	80.0%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	14
					% Fulfilled	18.0%

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2033 Background
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Martha Street
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Lakeshore Road						Minor Street: Martha Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	29	884			484	30				22		58	9
PM Peak Hour	70	630			840	50				12		35	13
Average Hourly Volume	**25**	**379**	**0**	**0**	**331**	**20**	**0**	**0**	**0**	**9**	**0**	**23**	**6**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	786
1B - Minor	32
2A - Major	754
2B - Cross	14

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	786
					% Fulfilled	87.3%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	32
					% Fulfilled	18.7%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	754
					% Fulfilled	83.8%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	14
					% Fulfilled	18.7%

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2028 Total
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Martha Street
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Lakeshore Road						Minor Street: Martha Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	28	843			473	29				21		57	9
PM Peak Hour	69	602			817	48				11		34	13
Average Hourly Volume	**24**	**361**	**0**	**0**	**323**	**19**	**0**	**0**	**0**	**8**	**0**	**23**	**6**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	758
1B - Minor	31
2A - Major	727
2B - Cross	14

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	758
					% Fulfilled	84.2%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	31
					% Fulfilled	18.1%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	727
					% Fulfilled	80.8%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	14
					% Fulfilled	18.0%

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2033 Total
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Martha Street
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Lakeshore Road						Minor Street: Martha Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	29	884			496	30				22		58	9
PM Peak Hour	70	630			857	50				12		35	13
Average Hourly Volume	**25**	**379**	**0**	**0**	**338**	**20**	**0**	**0**	**0**	**9**	**0**	**23**	**6**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	793
1B - Minor	32
2A - Major	762
2B - Cross	14

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	793
					% Fulfilled	88.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	32
					% Fulfilled	18.7%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	762
					% Fulfilled	84.6%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	14
					% Fulfilled	18.7%

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2025
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Old Lakeshore Road
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Lakeshore Road						Minor Street: Old Lakeshore Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	0	797	3	8	464	0	2	0	18	0	0	0	4
PM Peak Hour	0	539	3	25	812	0	1	0	7	0	0	0	8
Average Hourly Volume	**0**	**334**	**2**	**8**	**319**	**0**	**1**	**0**	**6**	**0**	**0**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	670
1B - Minor	7
2A - Major	663
2B - Cross	4

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	670
					% Fulfilled	**74.4%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	7
					% Fulfilled	**4.1%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	663
					% Fulfilled	**73.6%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	4
					% Fulfilled	**5.0%**

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2028 Background
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Old Lakeshore Road
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Lakeshore Road						Old Lakeshore Road						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	0	888	30	28	499	0	2	0	80	0	0	0	4
PM Peak Hour	0	590	19	93	889	0	1	0	49	0	0	0	8
Average Hourly Volume	**0**	**370**	**12**	**30**	**347**	**0**	**1**	**0**	**32**	**0**	**0**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	792
1B - Minor	33
2A - Major	759
2B - Cross	4

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	792
					% Fulfilled	**88.0%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	33
					% Fulfilled	**19.4%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	759
					% Fulfilled	**84.3%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	4
					% Fulfilled	**5.0%**

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2033 Background
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Old Lakeshore Road
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Lakeshore Road						Old Lakeshore Road						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	0	930	30	29	523	0	2	0	80	0	0	0	4
PM Peak Hour	0	619	19	94	931	0	1	0	50	0	0	0	8
Average Hourly Volume	**0**	**387**	**12**	**31**	**364**	**0**	**1**	**0**	**33**	**0**	**0**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	827
1B - Minor	33
2A - Major	794
2B - Cross	4

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	827
					% Fulfilled	**91.9%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	33
					% Fulfilled	**19.6%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	794
					% Fulfilled	**88.2%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	4
					% Fulfilled	**5.0%**

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2028 Total
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Old Lakeshore Road
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Lakeshore Road						Minor Street: Old Lakeshore Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	0	888	30	40	499	0	14	0	102	0	0	0	4
PM Peak Hour	0	590	19	118	889	0	18	0	67	0	0	0	8
Average Hourly Volume	**0**	**370**	**12**	**40**	**347**	**0**	**8**	**0**	**42**	**0**	**0**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	819
1B - Minor	50
2A - Major	768
2B - Cross	11

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	819
					% Fulfilled	90.9%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	50
					% Fulfilled	29.6%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	768
					% Fulfilled	85.4%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	11
					% Fulfilled	14.7%

Signal Justification Calculation for Existing Volumes (OTM Book 12 - Justification 7)

Horizon Year: 2033 Total
Region/City/Township: Burlington

Major Street: Lakeshore Road
Minor Street: Old Lakeshore Road
North/South: N

Number of Approach Lanes: 2 or more
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Lakeshore Road						Old Lakeshore Road						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	0	930	30	41	523	0	14	0	102	0	0	0	4
PM Peak Hour	0	619	19	119	931	0	18	0	68	0	0	0	8
Average Hourly Volume	**0**	**387**	**12**	**40**	**364**	**0**	**8**	**0**	**43**	**0**	**0**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	854
1B - Minor	51
2A - Major	803
2B - Cross	11

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	854
					% Fulfilled	**94.8%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	51
					% Fulfilled	**29.7%**

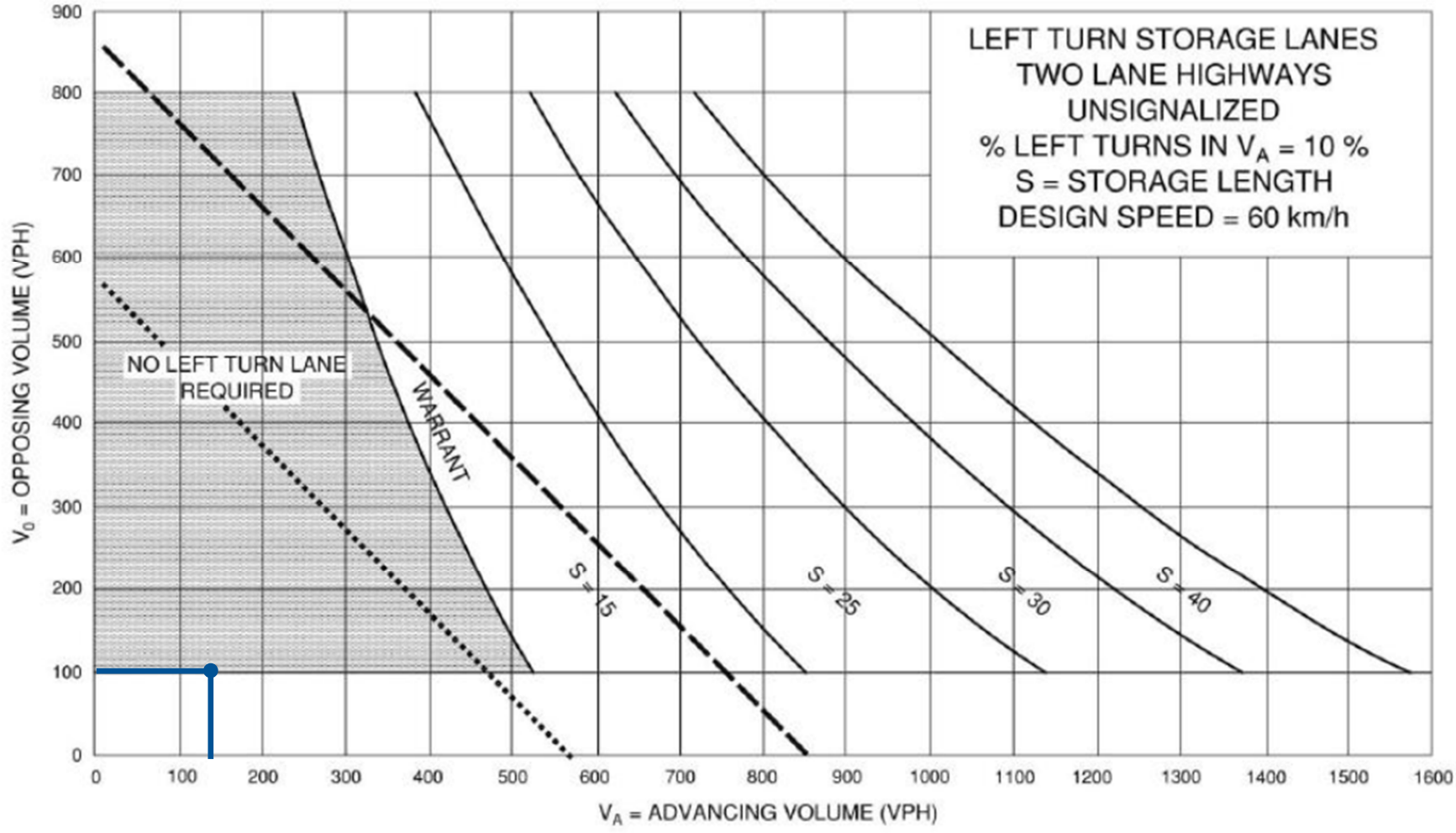
Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	803
					% Fulfilled	**89.2%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	120	170	11
					% Fulfilled	**14.7%**

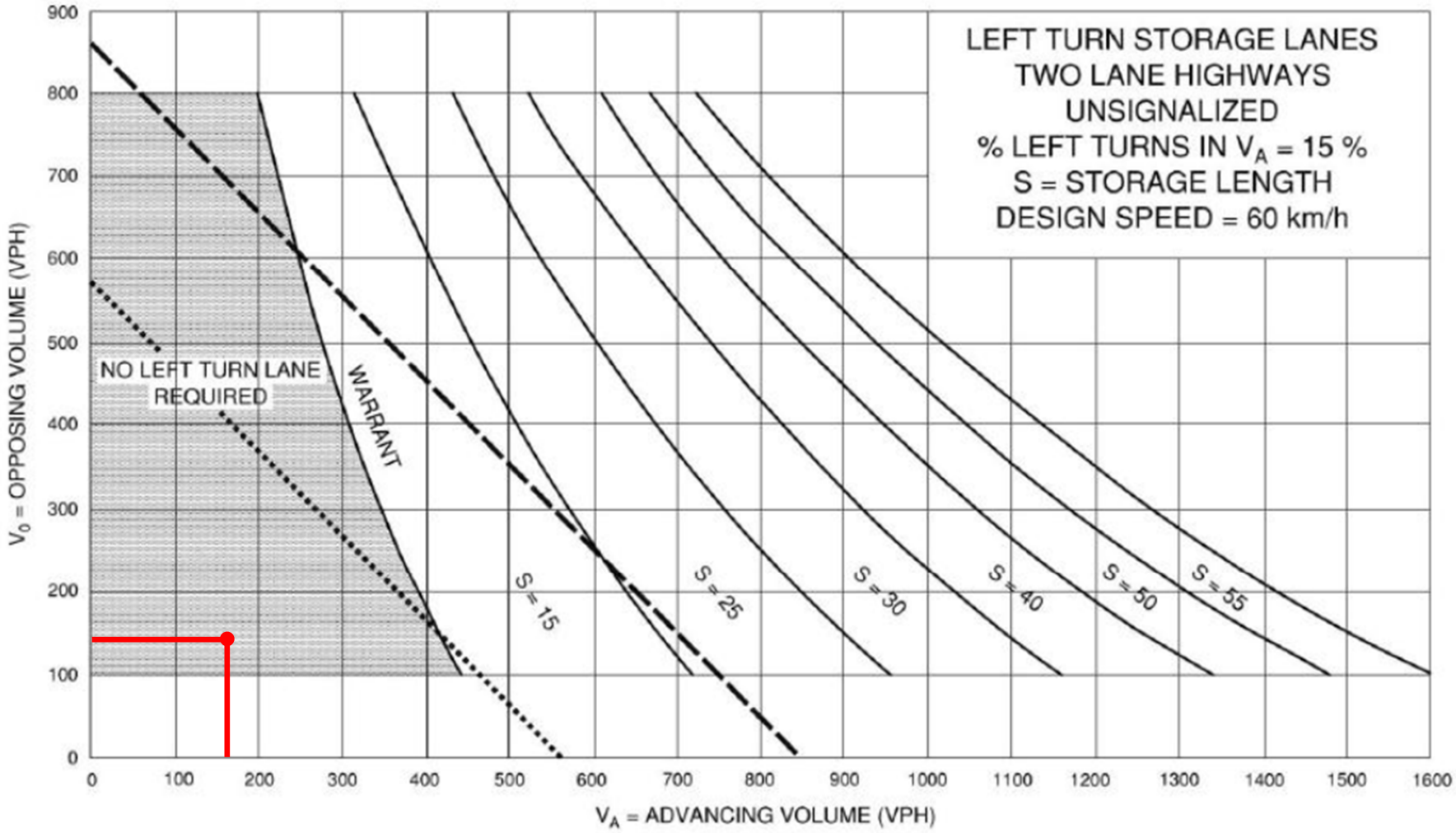
Appendix N

Left-Turn Warrants



paradigm TRANSPORTATION SOLUTIONS LIMITED

West Driveway at Old Lakeshore Road
Left-Turn Lane Warrant – Weekday AM Peak Hour



paradigm TRANSPORTATION SOLUTIONS LIMITED

West Driveway at Old Lakeshore Road
Left-Turn Lane Warrant – Weekday PM Peak Hour

Appendix O

MMLOS Data Sheets

LOS AND DATA ENTRY - Use this to enter what you know and for detailed or summary results presentation

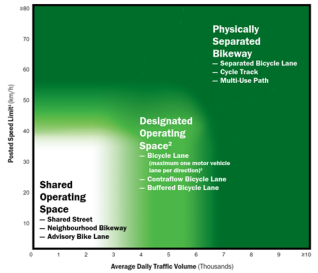
Actual	A		C	D	B
SCENARIO:	***Lakeshore Road (Elizabeth Street to Pearl Street)***				
Area Type:	***Urban Main Street***				
MODE					
Type	**SEGMENTS**				
Target (Custom if necessary)					
Adjustment for Planning Direction	None	None	None	None	None
Reasons for adjustment (if applicable)					
Adjustment for Strategic Policy	None	None	None	None	None
Reasons for adjustment (if applicable)					
Actual	A		C	D	B

Active Transportation Design Check	
Do the pedestrian facilities provide direct access to all properties along the segment? (Direct access can be provided by an adjacent facility or designated crossing to the property in question)	Yes
Does the bicycle facility selected correspond with the minimum appropriate facility type identified in the context appropriate nomograph (Figure 6.1, 6.2)?	No
-	
-	
-	

MMLOS Evaluation

Measure 1	Pedestrian Facility Width (m)	Bike Facility Width per Direction (m)	Transit Facility Type	Width of Curb Lane (m)	Mid-block V/C Ratio
	Greater than 3.0		Mixed traffic with > 1 lane per direction	Less than 3.4	Less than 0.60
Measure 2	Pedestrian Buffer Width (m)	Bike Buffer Width (m)	Transit Passenger Amenities	Car Level of Service	Curb Lane Conflicts
	Greater than 2.5		Low presence of passenger amenities such as shelters, seating, shade trees, etc.	B	3-4
Measure 3	Max Distance Between Controlled Crossings (m)	Conflicts with Other Modes (in-lane conflicts and cross point conflicts)	Pedestrian Level of Service	-	-
	200		A		
Measure 4		-	-	-	-

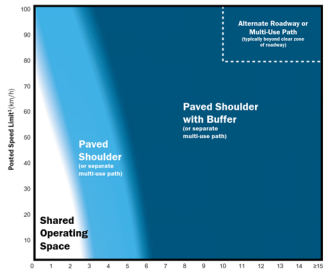
Desirable Cycling Facility Pre-Selection Nomograph
Urban/Suburban Context



1. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.
2. Physically separated bikeways may always be considered in the designated operating space area of the nomograph.
3. On roadways with two or more lanes per direction (including multi-lane one-way roadways), a buffered bicycle lane should be considered the minimum with a typical facility being a physically separated bikeway.

Figure 5.5 – Desirable Cycling Facility Pre-selection Nomograph — Urban/Suburban Context

Desirable Cycling Facility Pre-Selection Nomograph
Rural Context[1]



1. In rural town/hamlet/village contexts, the urban/suburban nomograph may be used.
2. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.

Figure 5.6 – Desirable Cycling Facility Pre-selection Nomograph — Rural Context

LOS AND DATA ENTRY - Use this to enter what you know and for detailed or summary results presentation

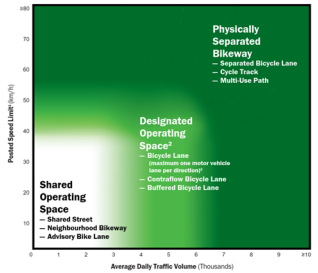
Actual	C		D	D	B
SCENARIO:	***Lakeshore Road (Pearl Street to Martha Street)***				
Area Type:	***Urban Main Street***				
MODE					
Type	**SEGMENTS**				
Target (Custom if necessary)					
Adjustment for Planning Direction	None	None	None	None	None
Reasons for adjustment (if applicable)					
Adjustment for Strategic Policy	None	None	None	None	None
Reasons for adjustment (if applicable)					
Actual	C		D	D	B

Active Transportation Design Check	
Do the pedestrian facilities provide direct access to all properties along the segment? (Direct access can be provided by an adjacent facility or designated crossing to the property in question)	Yes
Does the bicycle facility selected correspond with the minimum appropriate facility type identified in the context appropriate nomograph (Figure 6.1, 6.2)?	No
-	
-	
-	

MMLOS Evaluation

Measure 1	Pedestrian Facility Width (m)	Bike Facility Width per Direction (m)	Transit Facility Type	Width of Curb Lane (m)	Mid-block V/C Ratio
	1.8 - 2.0		Mixed traffic with 1 lane per direction	Less than 3.4	Less than 0.60
Measure 2	Pedestrian Buffer Width (m)	Bike Buffer Width (m)	Transit Passenger Amenities	Car Level of Service	Curb Lane Conflicts
	1.3 - 1.5		Low presence of passenger amenities such as shelters, seating, shade trees, etc.	B	3-4
Measure 3	Max Distance Between Controlled Crossings (m)	Conflicts with Other Modes (in-lane conflicts and cross point conflicts)	Pedestrian Level of Service	-	-
	200		C		
Measure 4		-	-	-	-

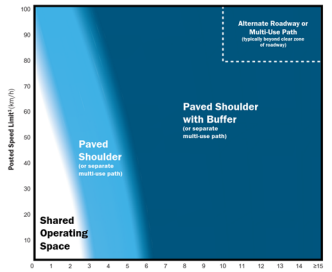
Desirable Cycling Facility Pre-Selection Nomograph
Urban/Suburban Context



1. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.
2. Physically separated bikeways may always be considered in the designated operating space area of the nomograph.
3. On roadways with two or more lanes per direction (including multi-lane one-way roadways), a buffered bicycle lane should be considered the minimum with a typical facility being a physically separated bikeway.

Figure 5.5 – Desirable Cycling Facility Pre-selection Nomograph — Urban/Suburban Context

Desirable Cycling Facility Pre-Selection Nomograph
Rural Context¹



1. In rural town/hamlet/village contexts, the urban/suburban nomograph may be used.
2. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.

Figure 5.6 – Desirable Cycling Facility Pre-selection Nomograph — Rural Context

LOS AND DATA ENTRY - Use this to enter what you know and for detailed or summary results presentation

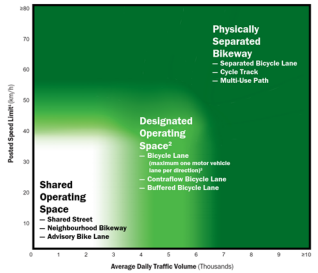
Actual	C		D	D	B
SCENARIO:	***Lakeshore Road (Martha Street to Old Lakeshore Road/Private Driveway)***				
Area Type:	***Urban Main Street***				
MODE					
Type	**SEGMENTS**				
Target (Custom if necessary)					
Adjustment for Planning Direction	None	None	None	None	None
Reasons for adjustment (if applicable)					
Adjustment for Strategic Policy	None	None	None	None	None
Reasons for adjustment (if applicable)					
Actual	C		D	D	B

Active Transportation Design Check	
Do the pedestrian facilities provide direct access to all properties along the segment? (Direct access can be provided by an adjacent facility or designated crossing to the property in question)	Yes
Does the bicycle facility selected correspond with the minimum appropriate facility type identified in the context appropriate nomograph (Figure 6.1, 6.2)?	No
-	
-	
-	

MMLOS Evaluation

Measure 1	Pedestrian Facility Width (m)	Bike Facility Width per Direction (m)	Transit Facility Type	Width of Curb Lane (m)	Mid-block V/C Ratio
	1.8 - 2.0		Mixed traffic with 1 lane per direction	Less than 3.4	Less than 0.60
Measure 2	Pedestrian Buffer Width (m)	Bike Buffer Width (m)	Transit Passenger Amenities	Car Level of Service	Curb Lane Conflicts
	1.3 - 1.5		Low presence of passenger amenities such as shelters, seating, shade trees, etc.	B	5-6
Measure 3	Max Distance Between Controlled Crossings (m)	Conflicts with Other Modes (in-lane conflicts and cross point conflicts)	Pedestrian Level of Service	-	-
	200		C		
Measure 4		-	-	-	-

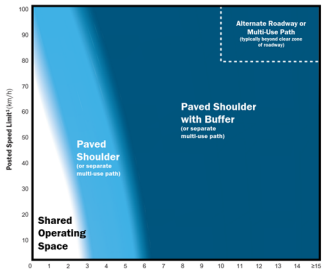
Desirable Cycling Facility Pre-Selection Nomograph
Urban/Suburban Context



1. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.
2. Physically separated bikeways may always be considered in the designated operating space area of the nomograph.
3. On roadways with two or more lanes per direction (including multi-lane one-way roadways), a buffered bicycle lane should be considered the minimum with a typical facility being a physically separated bikeway.

Figure 5.5 – Desirable Cycling Facility Pre-selection Nomograph — Urban/Suburban Context

Desirable Cycling Facility Pre-Selection Nomograph
Rural Context¹



1. In rural town/hamlet/village contexts, the urban/suburban nomograph may be used.
2. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.

Figure 5.6 – Desirable Cycling Facility Pre-selection Nomograph — Rural Context

LOS AND DATA ENTRY - Use this to enter what you know and for detailed or summary results presentation

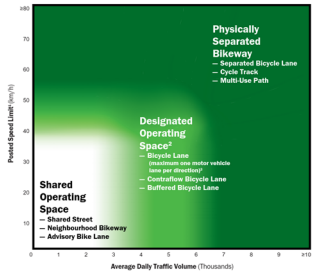
Actual	A	E	C	D	B
SCENARIO:	*Lakeshore Road (Elizabeth Street to Pearl Street with Bike Lanes)*				
Area Type:	*Urban Main Street*				
MODE					
Type	**SEGMENTS**				
Target (Custom if necessary)					
Adjustment for Planning Direction	None	None	None	None	None
Reasons for adjustment (if applicable)					
Adjustment for Strategic Policy	None	None	None	None	None
Reasons for adjustment (if applicable)					
Actual	A	E	C	D	B

Active Transportation Design Check	
Do the pedestrian facilities provide direct access to all properties along the segment? (Direct access can be provided by an adjacent facility or designated crossing to the property in question)	Yes
Does the bicycle facility selected correspond with the minimum appropriate facility type identified in the context appropriate nomograph (Figure 6.1, 6.2)?	Yes
-	
-	
-	

MMLOS Evaluation

Measure 1	Pedestrian Facility Width (m)	Bike Facility Width per Direction (m)	Transit Facility Type	Width of Curb Lane (m)	Mid-block V/C Ratio
	Greater than 3.0	1.6 - 1.8	Mixed traffic with > 1 lane per direction	Less than 3.4	Less than 0.60
Measure 2	Pedestrian Buffer Width (m)	Bike Buffer Width (m)	Transit Passenger Amenities	Car Level of Service	Curb Lane Conflicts
	Greater than 2.5	Has no physical measures and buffer width is < 0.5	Low presence of passenger amenities such as shelters, seating, shade trees, etc.	B	3-4
Measure 3	Max Distance Between Controlled Crossings (m)	Conflicts with Other Modes (in-lane conflicts and cross point conflicts)	Pedestrian Level of Service	-	-
	200	One "low" conflict indicator and one "high" conflict indicator	A		
Measure 4		-	-	-	-

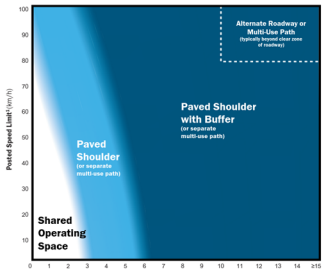
Desirable Cycling Facility Pre-Selection Nomograph
Urban/Suburban Context



1. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.
2. Physically separated bikeways may always be considered in the designated operating space area of the nomograph.
3. On roadways with two or more lanes per direction (including multi-lane one-way roadways), a buffered bicycle lane should be considered the minimum with a typical facility being a physically separated bikeway.

Figure 5.5 – Desirable Cycling Facility Pre-selection Nomograph — Urban/Suburban Context

Desirable Cycling Facility Pre-Selection Nomograph
Rural Context¹



1. In rural town/hamlet/village contexts, the urban/suburban nomograph may be used.
2. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.

Figure 5.6 – Desirable Cycling Facility Pre-selection Nomograph — Rural Context

LOS AND DATA ENTRY - Use this to enter what you know and for detailed or summary results presentation

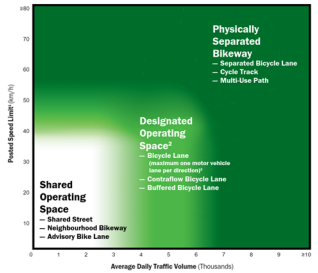
Actual	C	E	D	D	B
SCENARIO:	***Lakeshore Road (Pearl Street to Martha Street with Bike Lanes)***				
Area Type:	***Urban Main Street***				
MODE					
Type	**SEGMENTS**				
Target (Custom if necessary)					
Adjustment for Planning Direction	None	None	None	None	None
Reasons for adjustment (if applicable)					
Adjustment for Strategic Policy	None	None	None	None	None
Reasons for adjustment (if applicable)					
Actual	C	E	D	D	B

Active Transportation Design Check	
Do the pedestrian facilities provide direct access to all properties along the segment? (Direct access can be provided by an adjacent facility or designated crossing to the property in question)	Yes
Does the bicycle facility selected correspond with the minimum appropriate facility type identified in the context appropriate nomograph (Figure 6.1, 6.2)?	Yes
-	
-	
-	

MMLOS Evaluation

Measure 1	Pedestrian Facility Width (m)	Bike Facility Width per Direction (m)	Transit Facility Type	Width of Curb Lane (m)	Mid-block V/C Ratio
	1.8 - 2.0	1.6 - 1.8	Mixed traffic with 1 lane per direction	Less than 3.4	Less than 0.60
Measure 2	Pedestrian Buffer Width (m)	Bike Buffer Width (m)	Transit Passenger Amenities	Car Level of Service	Curb Lane Conflicts
	1.3 - 1.5	Has no physical measures and buffer width is < 0.5	Low presence of passenger amenities such as shelters, seating, shade trees, etc.	B	3-4
Measure 3	Max Distance Between Controlled Crossings (m)	Conflicts with Other Modes (in-lane conflicts and cross point conflicts)	Pedestrian Level of Service	-	-
	200	One "low" conflict indicator and one "high" conflict indicator	C		
Measure 4		-	-	-	-

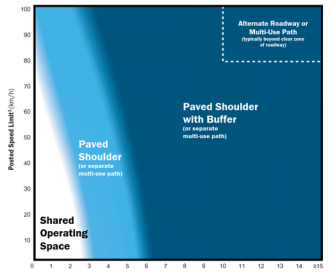
Desirable Cycling Facility Pre-Selection Nomograph
Urban/Suburban Context



1. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.
2. Physically separated bikeways may always be considered in the designated operating space area of the nomograph.
3. On roadways with two or more lanes per direction (including multi-lane one-way roadways), a buffered bicycle lane should be considered the minimum with a typical facility being a physically separated bikeway.

Figure 5.5 – Desirable Cycling Facility Pre-selection Nomograph — Urban/Suburban Context

Desirable Cycling Facility Pre-Selection Nomograph
Rural Context¹



1. In rural town/hamlet/village contexts, the urban/suburban nomograph may be used.
2. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.

Figure 5.6 – Desirable Cycling Facility Pre-selection Nomograph — Rural Context

LOS AND DATA ENTRY - Use this to enter what you know and for detailed or summary results presentation

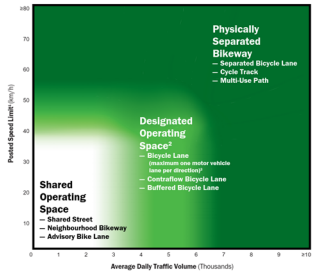
Actual	C	E	D	D	B
SCENARIO:	***Lakeshore Road (Martha Street to Old Lakeshore Road/Private Driveway with Bike Lanes)***				
Area Type:	***Urban Main Street***				
MODE					
Type	**SEGMENTS**				
Target (Custom if necessary)					
Adjustment for Planning Direction	None	None	None	None	None
Reasons for adjustment (if applicable)					
Adjustment for Strategic Policy	None	None	None	None	None
Reasons for adjustment (if applicable)					
Actual	C	E	D	D	B

Active Transportation Design Check	
Do the pedestrian facilities provide direct access to all properties along the segment? (Direct access can be provided by an adjacent facility or designated crossing to the property in question)	Yes
Does the bicycle facility selected correspond with the minimum appropriate facility type identified in the context appropriate nomograph (Figure 6.1, 6.2)?	Yes
-	
-	
-	

MMLOS Evaluation

Measure 1	Pedestrian Facility Width (m)	Bike Facility Width per Direction (m)	Transit Facility Type	Width of Curb Lane (m)	Mid-block V/C Ratio
	1.8 - 2.0	1.6 - 1.8	Mixed traffic with 1 lane per direction	Less than 3.4	Less than 0.60
Measure 2	Pedestrian Buffer Width (m)	Bike Buffer Width (m)	Transit Passenger Amenities	Car Level of Service	Curb Lane Conflicts
	1.3 - 1.5	Has no physical measures and buffer width is < 0.5	Low presence of passenger amenities such as shelters, seating, shade trees, etc.	B	5-6
Measure 3	Max Distance Between Controlled Crossings (m)	Conflicts with Other Modes (in-lane conflicts and cross point conflicts)	Pedestrian Level of Service	-	-
	200	One "low" conflict indicator and one "high" conflict indicator	C		
Measure 4		-	-	-	-

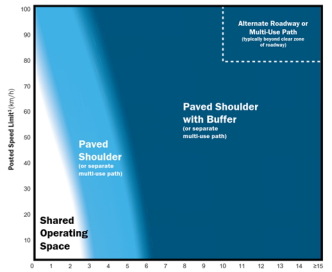
Desirable Cycling Facility Pre-Selection Nomograph
Urban/Suburban Context



1. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.
2. Physically separated bikeways may always be considered in the designated operating space area of the nomograph.
3. On roadways with two or more lanes per direction (including multi-lane one-way roadways), a buffered bicycle lane should be considered the minimum with a typical facility being a physically separated bikeway.

Figure 5.5 – Desirable Cycling Facility Pre-selection Nomograph — Urban/Suburban Context

Desirable Cycling Facility Pre-Selection Nomograph
Rural Context[1]



1. In rural town/hamlet/village contexts, the urban/suburban nomograph may be used.
2. Operating speeds are assumed to be similar to posted speeds. If evidence suggests this is not the case, practitioners may consider using 85th percentile speeds or implementing measures to reduce operating speeds.

Figure 5.6 – Desirable Cycling Facility Pre-selection Nomograph — Rural Context