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Transportation Impact Study

Parking Study

Transportation Demand Management

PROPOSED MEMORY CARE DEVELOPMENT

454-462 CUMBERLAND AVENUE AND
3255,3259,3265 NEW STREET, BURLINGTON

September 2023
Project No: NT-23-014

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NextEng Consulting Group Inc.

September 8, 2023

Mr. Bruce Stewart

Traditions Seniors Housing Ltd.
505-223 St Clair Avenue West
Toronto, ON M4V 0A5

Re: Transportation Impact Study
Proposed Memory Care Development
454-462 Cumberland Avenue and 3255,3259,3265 New Street, City of Burlington
Our Project No. NT-23-014

Nextrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) is pleased to present the enclosed Transportation Impact Study for the above noted site in support of Official Plan Amendment and Zoning By-law Amendment applications for a proposed memory care development.

The subject property is located at 454-462 Cumberland Avenue and 3255, 3259, 3265 New Street, on the north-west corner of New Street and Cumberland Avenue in the City of Burlington. The proposed development consists of a senior housing building with a focus on memory care with a proposed unit count of approximately 124 units. The proposed development will provide a total of 44 vehicle parking spaces. One access for the underground ramp will be proposed via New Street, and a one-way access driveway for pick-up drop-off area is proposed via Cumberland Avenue.

The transportation study concludes that the proposed development can adequately be accommodated by the existing transportation network, Burlington Transit Services, as well as the Transportation Demand Management measures and incentives recommended in this report.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

Nextrans Consulting Engineers
A Division of NextEng Consulting Group Inc.

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Issues and Revisions Registry

Identification	Date	Description of issued and/or revision
Draft Report	September 8, 2023	For Client Review
Final Report	September 8, 2023	For Client Submission

EXECUTIVE SUMMARY

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained by Traditions Seniors Housing Ltd. (the 'Client') to undertake a Transportation Impact Study in support of Official Plan Amendment and Zoning By-law Amendment applications for a memory care development. The subject property is located at 454-462 Cumberland Avenue and 3255,3259, 3265 New Street, in the City of Burlington.

Proposed Development

Currently the subject site is currently occupied by five single detached residential dwelling units and associated structures.

The proposed development consists of a 7-storey senior housing building focused on memory care with approximately 124 units.

Proposed Development Access

The proposed development is proposing one access for the underground ramp via New Street, and one-way access for pick-up drop-off area via Cumberland Avenue. The analysis indicates that the proposed access is expected to operate at acceptable levels of service with minimum delay or queue.

Capacity Analysis

The proposed development is expected to generate:

- 22 two-way auto trips (12 inbound and 10 outbound) and 30 two-way auto trips (11 inbound and 19 outbound) during the AM and PM peak hours, respectively.

Auto Mode Assessment

The intersection capacity analysis indicates that under the existing, future background and future total traffic conditions, all intersections are expected to operate at acceptable levels of service. It should be noted that the proposed development has negligible impacts to the roadway intersections, which confirmed through intersection capacity analysis. No improvement is required to accommodate the proposed development.

Based the applicable in-effect Zoning By-law requirement, the proposed development would be required to provide approximately 108 vehicle parking spaces, inclusive of occupant/employee, maintenance, and visitor spaces.

The proposed development is seeking to amend the Zoning By-law for site-specific permission to provide 44 parking spaces or a rate of 0.35 spaces/unit for both occupant/employee, maintenance, and visitor, which presents a reduction of 64 parking spaces or 59% reduction from the current in-effect Zoning By-law.

Based on the comprehensive parking justifications provided in this Study, Nextrans supports the development proposal and recommends that the proposed development provides a total of 44 parking spaces in order to meet the sustainability objectives and requirements of various Official Plans.

Transportation Demand Management Measures and Incentives

The TDM measures and incentives related to the proposed development have been assessed and recommended in Section 9 of this report to support active transportation and transit, to meet the objectives and requirements of the City of Burlington and Halton Region sustainable transportation objectives.

Loading Requirement

It is Nextrans' understanding that an off-street loading space is a requirement under the City of Burlington current Zoning By-law. The proposed development provides one loading space at grade and therefore no Zoning By-law amendment is required. The proposed development will be serviced by private waste collection, and the garbage truck will use the pick-up drop-off access via Cumberland Ave. For the purposes of this assessment, AutoTURN software was used (TAC - MSU) to generate vehicular turning templates for services truck (i.e., moving vehicles) to confirm and demonstrate the accessibility for the proposed development.

Study Conclusions and Recommendations

Based on the Study assessment, our report recommends that:

- The proposed development implements the TDM measures and incentives identified in this report to support active transportation and transit and to reduce the numbers of single-occupant-vehicle trips to and from the proposed development.
- The proposed development implements the recommended parking rates provided in this Study.
- The proposed development provides direct shared pedestrian and cycling connections to New Street and Cumberland Avenue

Potential mitigation measures for the existing transportation network include:

- No physical improvements are required for these two intersections at the horizon year considered.

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1.0 INTRODUCTION

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained by Traditions Housing Ltd. (the 'Client') to undertake a Transportation Impact Study in support of Official Plan Amendment and Zoning By-law Amendment applications for a memory care development. The subject property is located at 454-462 Cumberland Avenue and 3255,3259, 3265 New Street, in the City of Burlington.

The location of the proposed development is illustrated in **Figure 1**.

Figure 1 – Proposed Development Location



Source: Google Map

Currently the subject site is currently occupied by 5 single detached residential dwelling units and associated structures.

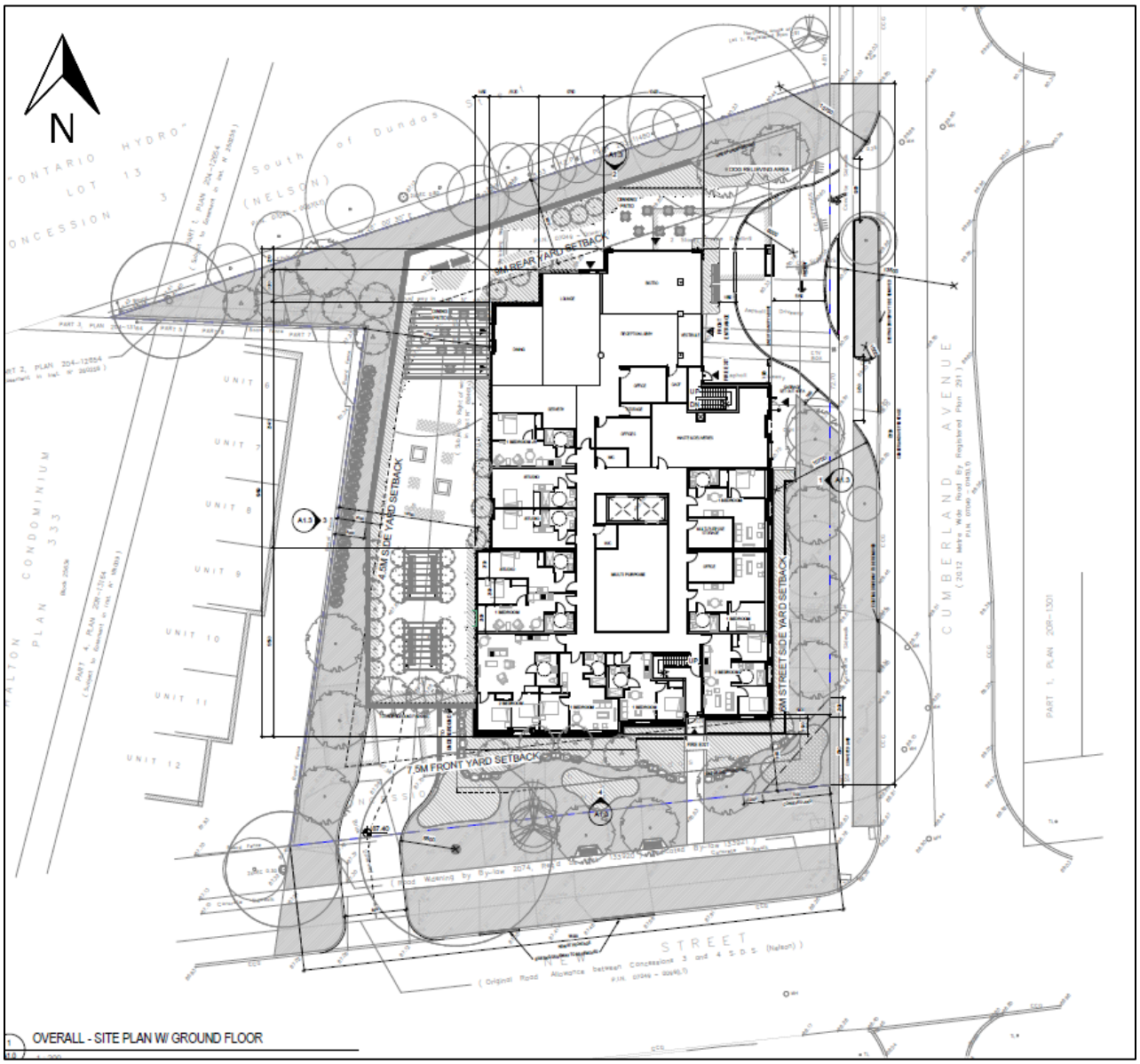
The proposed development consists of a 7-storey mid-rise senior housing building focused on memory care with approximately 124 units.

The proposed development will provide a total of 44 vehicle parking spaces.

The proposed development is proposing one access for the underground parking ramp via New Street and one-way access for pick up and drop off area, waste collection on Cumberland Avenue.

Figure 2 illustrates the proposed development site plan.

Figure 2 – Proposed Site Plan



2.0 EXISTING TRAFFIC CONDITIONS

2.1. Existing Road Network

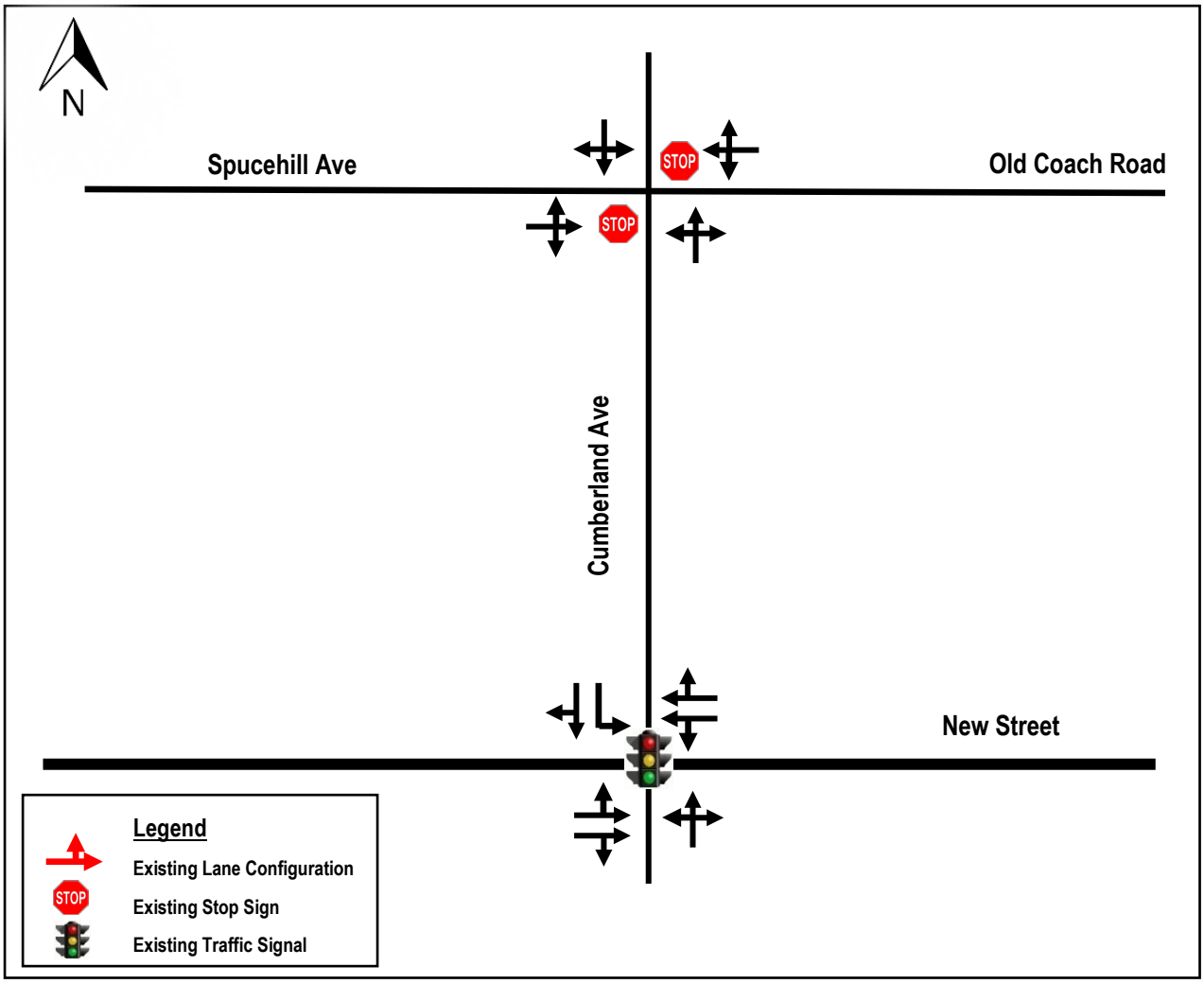
The existing road network, lane configuration and existing traffic control for the study area are shown in **Figure 3** (Existing Lane Configurations). The details area described below:

- **New Street:** is an east-west collector road under the City of Burlington jurisdiction. It has a four-lane cross-section in the vicinity of the proposed development. It maintains a posted speed limit of 50 km/h near the subject site.

- **Cumberland Avenue**: is a north-south local road under the City of Brampton jurisdiction. It has two general purpose lanes and maintains a posted speed limit of 40 km/h near the subject site.

- **Old Coach Road/Sprucehill Avenue** is an east-west local road under the City of Burlington jurisdiction. It has a two-lane cross-section in the vicinity of the proposed development. It maintains a posted speed limit of 40 km/h near the subject site.

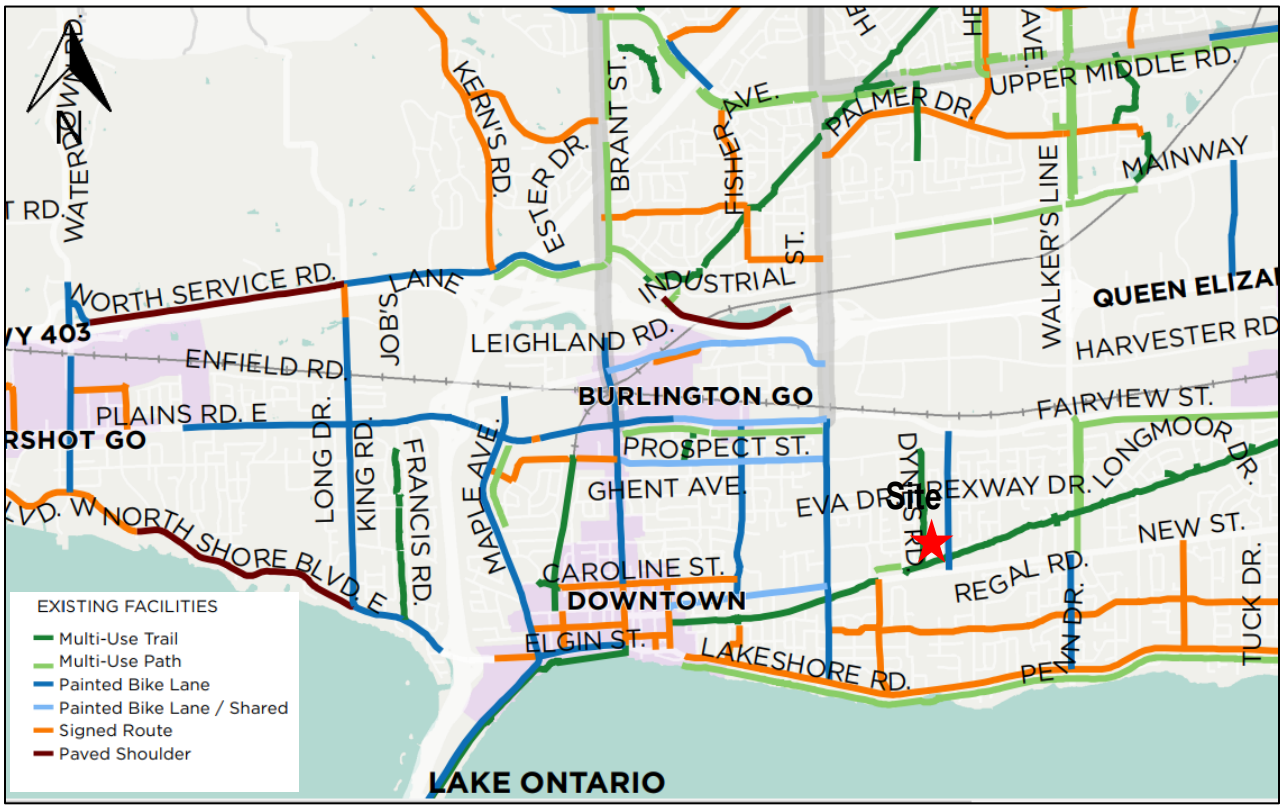
Figure 3 – Existing Lane Configuration and Traffic Control



2.2. Existing Active Transportation Network

Figure 4 illustrates the existing active transportation network in the study area.

Figure 4 – Existing Cycling Network in the Study Area (Burlington Cycling Map)



2.3. Existing Active Transportation Assessment

Walking

The sidewalk is currently available on both sides of public streets, no improvement is required at this time.

Cycling

Under the existing conditions, there are painted bike lanes on both sides of Cumberland Avenue. In the future, there are bike lanes proposed to be constructed by the City along New Street.

Figure 5 illustrates the proposed City of Burlington Bike Map.

Figure 5 – Proposed City of Burlington Bike Map



2.4. Existing Burlington Transit Service

The proposed development is located adjacent to the Burlington Transit Bus Route 10 New-Maple and about 500 m to the Bus Route 4 Central. The existing transit network in the area is illustrated in **Figure 6**.

Figure 6 – Existing Transit Network in the Study Area



Source: City of Burlington Transit Service Map

Below is a brief description of the Brampton Transit service available in the area:

- **10 New-Maple** – This Route is running in the east-west direction along New Street, between Appleby Go Station and Burlington Go Station. The service frequency is approximately 15 minutes during both the weekday morning and afternoon peak periods. This route runs 7 days a week.
- **4 Central** – This Route is running in the east-west direction along New Street, between Appleby Go Station and Aldershot Go Station. The service frequency is approximately 30 minutes during both the weekday morning and afternoon peak periods. This route runs 7 days a week.

2.3. Existing Traffic Volumes

Existing traffic turning movement counts at the study area intersections were conducted by AccumTraffic for the following intersections in the study area:

- New Street/ Cumberland Ave (Signalized) – Count date Wednesday March 22, 2023

- Cumberland Avenue/ Burlington Fire Hall access (Unsignalized) – Count date Wednesday March 22, 2023
- Cumberland Avenue/ Old Coach Road/ Sprucehill Ave (Unsignalized) – Count date Wednesday March 22, 2023

The turning movement counts were conducted during the morning (7:00 a.m. to 9:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) peak periods for all area intersections.

Turning movement counts are summarized in **Appendix A,** using the methodology noted above. The existing volumes are illustrated in **Figure 7.**

2.4. Existing Traffic Assessment

The existing volumes in **Figure 7** were analyzed using Synchro Version 11 software. The methodology of the software follows the procedures described and outlined in the Highway Capacity Manual, HCM 2000, published by the Transportation Research Board. The printouts for unsignalized intersections are based on HCM outputs and the results for signalized intersections are based on Synchro so that queues and more detailed information are provided. It should be noted that Synchro is more conservative than HCS in terms of delay. The detailed results are provided in **Appendix B** and summarized in **Table 1**. The analysis reflects the existing signal timing plans provided by the City of Burlington.

Based on the intersection capacity analysis, under the existing traffic conditions, the following observations are made:

- All the study intersections are expected to operate at acceptable levels of service, no physical improvement for this horizon years.

Table 1 – Existing Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour				Weekday PM Peak Hour			
		LOS (v/c)		Delay (s)	Queue 95th (m)	LOS (v/c)		Delay (s)	Queue 95th (m)
New Street/ Cumberland Ave (Signalized)	Overall	A	0.45	7.4		A	0.68	7.9	
	EB – LTR	A	0.43	6.0	38.4	A	0.37	5.3	29.5
	WB – LTR	A	0.30	4.3	23.9	A	0.70	7.5	84.4
	NB – LTR	C	0.04	20.3	4.2	C	0.05	20.5	4.2
	SB – L	C	0.53	24.3	22.6	C	0.44	23.2	18.6
	SB – TR	C	0.06	20.3	9.3	C	0.24	21.5	13.6
Cumberland Ave/ Fire Hall access (Unsignalized)	WB – LR	A	0.01	9.8	0.1	A	0.00	9.6	0.1
	SB – LT	A	0.00	0.0	0.0	A	0.00	0.0	0.0
Cumberland Ave/ Old Coach Rd/ Sprucehill Ave (Unsignalized)	EB – LTR	B	0.04	11.0	1.1	B	0.05	10.3	1.3
	WB – LTR	B	0.03	10.6	0.9	B	0.02	10.6	0.5
	NB – LTR	A	0.01	0.3	0.1	A	0.01	0.5	0.1
	SB – LTR	A	0.01	0.6	0.2	A	0.00	0.1	0.0

3.0 FUTURE BACKGROUND CONDITIONS

3.1. Analysis Horizon

The proposed development is expected to be completed by 2025. For the purposes of this assessment, a five-year horizon (2025 to 2030) has been conducted for the study analysis.

3.2. Future Background Corridor Growth

For the purposes of this assessment, a 2.0% growth rate per annum (compounded) will be applied to the through volumes on New Street to be consistent and conservative.

3.3. Background Development Applications

Based on Nextrans' review on the City's development map, there is no background development in the vicinity area of the proposed development. Therefore, no background development is considered in this study.

3.4. Future Background Traffic Assessment

The estimated 2030 future background traffic volumes are illustrated in **Figure 8** (background corridor growth + background development traffic) and were analyzed using Synchro Version 11 software. The detailed calculations are provided in **Appendix C** and summarized in **Table 2.**

Based on the intersection capacity analysis, under the future background traffic conditions, the following observations are made:

- All the study intersections are expected to operate at acceptable levels of service, no physical improvement for this horizon years.

Table 2 – 2030 Future Background Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour				Weekday PM Peak Hour			
		LOS (v/c)		Delay (s)	Queue 95th (m)	LOS (v/c)		Delay (s)	Queue 95th (m)
New Street/ Cumberland Ave (Signalized)	Overall	A	0.49	7.4		A	0.74	8.8	
	EB – LTR	A	0.48	6.3	43.2	A	0.41	5.6	33.3
	WB – LTR	A	0.32	4.4	26.8	A	0.77	8.8	110.8
	NB – LTR	C	0.04	20.3	4.2	C	0.05	20.5	4.2
	SB – L	C	0.53	24.3	22.3	C	0.44	23.2	18.6
	SB – TR	C	0.06	20.3	9.3	C	0.27	21.7	14.4
Cumberland Ave/ Fire Hall access (Unsignalized)	WB – LR	A	0.01	9.8	0.1	A	0.00	9.6	0.1
	SB – LT	A	0.00	0.0	0.0	A	0.00	0.0	0.0
Cumberland Ave/ Old Coach Rd/ Sprucehill Ave (Unsignalized)	EB – LTR	B	0.04	11.0	1.1	B	0.05	10.3	1.3
	WB – LTR	B	0.03	10.6	0.9	B	0.02	10.6	0.5
	NB – LTR	A	0.01	0.3	0.1	A	0.01	0.5	0.1
	SB – LTR	A	0.01	0.6	0.2	A	0.00	0.1	0.0

4.0 SITE TRAFFIC

4.1. Proposed Development

The proposed development consists of a 7-storey mid-rise senior housing building focused on memory care with approximately 124 units. The 2016 Transportation Tomorrow Survey (TTS), the *Trip Generation Manual, 11th Edition* published by the Institute of Transportation Engineers (ITE) and information was reviewed to estimate the modal split, trip distribution and trip generation for the proposed development.

4.2. Modes of Travel Assessment in the Area

Table 3 summarizes the travel mode split information based on the review of the 2016 Transportation Tomorrow Survey data for Traffic Zones 4064,4065,4066 and 4067. The 2016 TTS data extraction is included in **Appendix D**.

Table 3 – Modal Split based on 2016 TTS Data for Traffic Zones

Time	Trips Made by Traffic Zones				
	Auto Driver	Auto Passenger	Transit	Cycle	Walk
AM Peak Period (6:00AM – 9:00AM)	71%	10%	10%	2%	7%
PM Peak Period (4:00PM – 7:00PM)	70%	12%	3%	3%	12%

Based on the information above, the auto mode is account of 71% in morning peak period and 70% in afternoon peak period.

4.3. Site Trip Generation

The trip generation forecasts were undertaken using the information contained in the *Trip Generation Manual, 11th Edition* published by the Institute of Transportation Engineers (ITE). For the purposes of this assessment, the ITE Land Use Codes (LUC) 254 "Assisted Living General Urban/Suburban" average rates have been utilized for the proposed development. The site trip generation is summarized in **Table 4**.

Table 4 – Site Trip Generation

ITE Land Use	Magnitude (units/beds)	Parameters	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Assisted Living LUC 254 General Urban/Suburban	124	Trip Rates AM -0.18 PM - 0.24	0.10	0.08	0.18	0.09	0.15	0.24
		Total Trips	12	10	22	11	19	30

Based on the analysis noted above, the proposed development is expected to generate:

- 22 two-way auto trips (12 inbound and 10 outbound) and 30 two-way auto trips (11 inbound and 19 outbound) during the AM and PM peak hours, respectively.

4.4. Site Trip Distribution and Assignment

The 2016 Transportation Tomorrow Survey (TTS) data was reviewed for Traffic Zones 4064,4065,4066, and 4067 to estimate the general trip distribution for the proposed development. **Table 5** summarizes the planning district/traffic zones distribution based on the 2016 TTS data, with **Table 6** summarizing the site trip assignment based on the 2016 TTS data and the existing traffic turning movement counts in the area.

Table 5 – Trip Distribution for Residential Component

Mode	Toronto	Peel Region	Halton Region	Hamilton and West	Burlington	Total
Auto	5%	7%	22%	19%	47%	100%

Table 6 – Site Trip Distribution

General Direction (To/From)	Auto
East	45%
West	31%
North	24%
South	0%

Figure 10 illustrates the proposed development generated traffic volumes. It should be noted that the auto site trip distribution and assignment have been taken into consideration the 2016 TTS information, existing turning restrictions, existing turning movement and intersection operations.

5.0 FUTURE TOTAL TRAFFIC CONDITIONS

5.1. Future Total Traffic Assessment for Auto Mode

The estimated 2030 future total traffic volumes (future background traffic volumes plus site generated traffic volumes) are illustrated in **Figure 9** and were analyzed using Synchro Version 11 and Sim Traffic software. The detailed calculations are provided in **Appendix E** and summarized in **Table 7**.

Based on the intersection capacity analysis, it is indicated that the future total conditions are similar to the existing and future background conditions. The proposed development is expected to add very minimal delay to the existing intersections (1-3 seconds to certain movement).

Based on the intersection capacity analysis, under the future total traffic conditions, the following observations are made:

- All the study intersections are expected to operate at acceptable levels of service, no physical improvement for this horizon years.
- The proposed site access onto New Street expected to operate with acceptable levels of service with minimal delay or queues, except for southbound left turn movement with level of service F.
- The southbound left turn from the site access to New Street is expected to operate at higher delay due to heavy two-way through traffic on New Street. The estimated delay is approximately 60 seconds per vehicle, which is about a minute delay. However, the v/c ratio is only 0.25 due to very low traffic volumes. This is a typical condition for any unsignalized intersection that is intersecting a major arterial road in the City of Burlington. In fact, any unsignalized accesses along New Street is expected to experience the similar operating conditions.
- It should be noted that if the delay to make a southbound left turn is longer than expected, the drivers have an option to make a right turn and find other routes to go eastbound on New Street. This is the reason why a road network was implemented in the City of Burlington to address the growth in the city.

Table 7 – 2030 Future Total Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)		Delay (s)	LOS (v/c)		Delay (s)
New Street/ Cumberland Ave (Signalized)	Overall	A	0.49	7.5	A	0.74	8.9
	EB – LTR	A	0.48	6.4	A	0.43	5.7
	WB – LTR	A	0.33	4.5	A	0.77	8.9
	NB – LTR	C	0.04	20.3	C	0.05	20.5
	SB – L	C	0.53	24.3	C	0.44	23.2
	SB - TR	C	0.06	20.3	C	0.28	21.8
Cumberland Ave/ Fire Hall access/ Proposed Pickup drops off access (Unsignalized)	EB - LTR	A	0.00	0.0	A	0.00	0.0
	WB – LTR	A	0.01	10.0	A	0.00	9.8
	SB - LTR	A	0.00	0.0	A	0.00	0.0
Cumberland Ave/ Old Coach Rd/ Sprucehill Ave (Unsignalized)	EB – LTR	B	0.04	11.0	B	0.05	10.4
	WB – LTR	B	0.03	10.7	B	0.05	10.7
	NB – LTR	A	0.01	0.3	A	0.01	0.5
	SB - LTR	A	0.01	0.6	A	0.00	0.1
New Street/ Site Access(unsignalized)	EB – TR	A	0.00	0.2	A	0.01	0.4
	SB - LR	C	0.04	18.3	F	0.25	60.2

5.2. Queuing Analysis

As required by City of Burlington, Sim Traffic queuing analysis has been conducted based on 10-minute seeding, 60-minute run duration and minimum of five runs were conducted for the future condition.

Table 8 summarizes the estimated 95th queuing result based on the Sim Traffic analysis with details are includes in Appendix F.

The analysis indicates that the estimated 95th queues can be accommodated by the existing storage length with no spill back or create any operational issues.

Table 8 – 2030 Future Total Queuing

Intersection	Key Movement	Weekday AM Peak Hour 95th Queue (m)	Weekday PM Peak Hour 95th Queue (m)	Existing Storage Length (m)
New Street/ Cumberland Ave (Signalized)	EB – LT EB – TR WB – LT WB – TR NB – LTR SB – L SB - TR	35.0 34.6 27.0 24.4 7.4 27.3 16.7	49.8 48.8 57.2 59.1 8.1 24.8 15.7	~350 ~350 ~175 ~175 ~15 ~29 ~152
Cumberland Ave/ Fire Hall access and Proposed Driveway (Unsignalized)	WB – LR	6.7	4.0	~20
Cumberland Ave/ Old Coach Rd/ Sprucehill Ave (Unsignalized)	EB – LTR WB – LTR NB – LTR SB - LTR	13.1 12.0 2.6 6.0	13.8 9.1 2.3	~50 ~170 ~152 ~380
New Street/ Site Access(unsignalized)	EB – LT EB – T SB - LR	25.8 10.0 8.3	35.8 19.1 13.5	~310 ~310 ~20

6.0 SITE PLAN REVIEW

6.1. Loading Requirement

It is Nextrans' understanding that an off-street loading space is a requirement under the City of Burlington current Zoning By-law. The proposed development provides one loading space and therefore no Zoning By-law amendment is required. The proposed development will be serviced by private waste collection, and the garbage truck will use the pick-up drop-off access via Cumberland Ave.

For the purposes of this assessment, AutoTURN software was used (TAC - MSU) to generate vehicular turning templates for services truck (i.e., moving vehicles) to confirm and demonstrate the accessibility for the proposed development. The auto turn analysis also confirms that the concurrent left turn movement at proposed pick-up drop off access and existing Burlington Fire Hall access is not overlap.

Figure 10 illustrates the turning movement templates for passenger vehicles and service trucks.

6.2. Safety Review

Based on Nextrans' review of the area context, site observation and review of the survey plan, New Street is flat and straight with no horizon curves or vertical curves in the vicinity of the proposed site access. The proposed access condition is like the existing residential home access condition which will locate approximately 40m from the New Street and Cumberland Avenue intersection.

Based on the future total analysis, it is our understanding that the southbound left turn movement of proposed site access on New Street is expected to operate at higher level of service with approximately 1 minute delay due to heavy two-way through traffic, however, NexTrans recommends that the proposed site access should be full movement instead of RI-RO access by following reasons:

- The RI-RO access to be designed with pork chop island: based on TAC 2017 design, the pork chop island has a minimum width of 10m and curb radii of minimum 15m. Given the site constraints and due to City requested

maintaining the municipal trees within the ROW, as well as a pork chop island will land in the ROW, therefore, this design is not feasible.

- The RI-RO access to be designed by extending the central median on New Street to prohibit the left turn movement. Based on the existing condition, there is no centre median on New Street, therefore this design is not feasible.

- The proposed site traffic is expected to operate with minimal queues and delays to the existing road network, and the proposed development has two separate accesses, one for underground parking and another for the pick up-drop off area, which will help eliminate the delay and queue on New Street and Cumberland Avenue. Therefore, the proposed site access via New Street to be designated as full movement is feasible.

7.0 PARKING ASSESSMENT

7.1. Vehicle Parking Requirement

Table 9 below summarizes the vehicle parking requirements for the proposed development, based on the City of Burlington Zoning By-law.

Table 9 – City of Burlington Zoning By-law Vehicle Parking Requirements

Unit Type	No. of Unit	Parking Rates	Parking Requirement
Retirement Home	124	Occupant/ Employee: 0.6 spaces/unit Visitor: 0.25 spaces per unit One additional space per 50 units for the use of maintenance vehicles servicing the site	108 spaces

Based the applicable Zoning By-law requirement, the proposed development will require to provide approximately 108 vehicle parking spaces, inclusive of occupant/employee, maintenance, and visitor spaces.

The proposed development provides 44 parking spaces or a rate of 0.35 spaces/unit for both occupant/employee, maintenance, and visitor, which presents a technical short of 64 parking spaces or 59% reduction from the City's in-effect Zoning By-law

7.2. Recommended Parking Rate

7.2.1. Recommended Parking Rates for the Proposed Development

As indicated in Section 2.3, the proposed development is located close to several existing Burlington Transit and active transportation facilities in the vicinity area.

With the extensive transit investment by all levels of government along with the lack of redevelopment activities in the area, appropriate parking management should be considered to promote higher ridership and incentivize future developments. Appropriate parking management is also required to support sustainable objectives as outlined in the City of Burlington Official Plan. For these reasons, it is Nextrans' opinion that there are more viable and convenient modes of transportation to and from the proposed development instead of driving private vehicles. It is Nextrans' opinion that these recommended parking rates are required to support transportation demand management measures and to encourage more active mode of transportation such as walking and cycling, as well as public transit to and from the proposed development. Based on various research and our experience, parking management is one of the most important Transportation Demand Management (TDM) measures.

Nextrans recommends that the parking requirement for the proposed development should be reduced based on justifications provided in this Study. **Table 10** summarizes the recommended parking rates for the proposed development.

Table 10– Recommended Blended Parking Rates for the Proposed Development

Land Use	No. of Unit	Parking Rates	Parking Requirement
Memory Care	124 units	0.35 spaces/ unit	44 spaces

Based on these recommended parking rates, the proposed development will require to provide a total of 44 parking spaces or 59% reduction from the zoning by-law requirements.

The justifications to support these recommended parking rates for the proposed development are included below.

7.2.2. Development Proposal Context

The proposed development consists of a 7-storey memory care building with 124 rooms. Memory care provides specialized care and services to assist seniors living with a type of dementia or Alzheimer's disease. While technically the proposed development does not meet the definition of a long-term care facility under the Province of Ontario (LTCs care are generally publicly funded establishments regulated by the Ministry of Long-Term Care), the type of care is similar in that both are centered around 24/7 supervised care for residents who can no longer take care of themselves independently. Some requirement homes, for example, are focused on "independent living", "lifestyle communities", and/or "life lease", which often cater to older adults who require little to no supervision and minimal assistance with day to day living (such as Maranatha retirement home on the south side of New Street, adjacent to the proposed development).

Given the proposed development's type of land use is a specialized senior's housing that is primarily focused on memory care, residents of the development will not be able to own or operate a motorized vehicle, so therefore most of the trips to and from the proposed development will be made by employees or visitors.

Based on other seniors housing buildings operated by the Client, the following information regarding number of employees, work shifts, and visitor has been provided:

- Day Shift (7am – 3pm): ~18 employees (managers, culinary staff, maintenance, PSW/care)
- Afternoon Shift (3pm – 11pm): ~12 employees (manager, part-time culinary staff, PSW/care)
- Night Shift (11pm – 7am): ~8 employees (manager, PSW/care)

Based on the above information, the peak number of employees at any given time is approximately 18 employees, i.e., 18 parking spaces utilized. The development proposes 44 parking spaces, which results in surplus of 26 parking spaces.

As indicated, the subject site is located within the area which has supportable transit, pedestrian, cycling performance. The key objectives related to trip reduction include:

- to create a balance of high-quality commercial, employment, residential, institutional, and open space uses that reduce automobile dependency and meets the needs of the local community.
- to provide a connected, attractive, safe, and comfortable system of pedestrian bicycle routes; and
- to improve streetscapes to create an attractive pedestrian environment.

The proposed redevelopment will also help revitalize the area and capitalize on the major transit infrastructure investments in the area including Burlington Bus Route and Burlington GO Train Station. To achieve this objective, it is Nextrans' opinion that reduced parking supply is reasonable and justified.

7.2.3. City of Burlington Official Plan

Over the last several decades, the City of Burlington growth has relied on the public transit system, and other modes of transportation. The integration of transportation and land use planning allows the city to enjoy its success today without widening or building more roads to accommodate population growth.

As indicated in Section 6.2.3(1), future growth within the City will focus in the areas which are well served by the existing public transit system, the existing road network and that have a number of properties with redevelopment potential. The growths areas are the locations where good transit access can be provided along bus routes and GO Bus/Train stations.

The Official Plan also indicates that: "*a) To promote the use of transit and reduce reliance on the private automobile by making transit an attractive and convenient transportation option by encouraging transit-supportive land use. b) To develop the transit system as a part of a multi-modal network that supports the city's Urban Area, with a focus on the city's Primary, Secondary and Employment Growth Areas. c) To implement frequent transit corridors as a priority component of the citywide transit network, to support community connectivity, facilitate intensification and increase ridership in the city's growth areas. d) To implement other local transit service, such as support corridors, with varying levels of service and geographic coverage across the city to support the needs of city residents, employees, employers, and customers. e) To co-ordinate transit service with other service in the Greater Toronto and Hamilton Area (GTHA) to achieve convenient and effective transit service integration with GO transit, VIA rail, Hamilton Street Rail (HSR), Oakville Transit and other neighbouring service providers. f) To ensure that new development provides adequate on-site connections to transit, such as pedestrian pathways that connect to the public right-of-way.*"

7.2.4. Existing Burlington Transit and GO Transit system.

The subject site is situated in a transit supportive area with Burlington Transit which provides to Burlington GO Station. The analysis indicates that the area is currently servicing by supportable existing land use, transportation network and transit network. This will accommodate other modes of transportation such as walking, cycling and public transit.

8.0 Proxy Site Parking Utilization Survey

It is Nextrans' understanding that the city typically requires proxy site parking utilization surveys for adjacent and comparable sites to support the recommended vehicle parking rates for the proposed development with empirical data. Both proxy sites have similar land use, which is a retirement home with memory care, where residents are unable to operate a vehicle, both proxy sites are located nearby, and have similar traffic condition as the proposed development. It is noted that the proxy survey was conducted during typical weekday/weekend and not during a major event such as Mother's Day and Christmas Day. During these holidays, residents are often taken off-site for outings rather than requiring the full-time care of a nurse throughout a visit. It is confirmed by Client's operation team that during major events, it is industry standard to pre-schedule visitors during specific time periods to avoid any overflow in the building, this practice will mitigate any requirement for a contingency plan for high demand in parking spaces. For this reason, Nextrans has conducted parking utilization study for the following two sites in the proximity of the study area:

1. 3131 New Street (located adjacent to Bus Route 10, located about 500m to the subject site) – total 71 units fully occupied, 27 parking spaces.

   The Survey was conducted on Thursday, March 2, 2023 (9am to 9pm); and Saturday March 4, 2023 (9am to 9pm).

2. 2109 Lakeshore Road (located adjacent to Bus Route 3, located about 2.2 km to the subject site) – total 57 units fully occupied, 25 parking spaces.

   The Survey was conducted on Thursday, March 9, 2023 (9am to 9pm); and Saturday March 11, 2023 (9am to 9pm).

The parking survey result are summarized in **Appendix G**. Based on the parking survey results, the following observations are made:

3131 New Street, Burlington

- The highest parking demand is 14 parking spaces and lowest is 7 parking spaces.
- The highest parking rate is 0.20 spaces/ unit and lowest is 0.10 spaces/unit.

2109 Lakeshore Road, Burlington

- The highest parking demand is 14 parking spaces and lowest is 6 parking spaces.
- The highest visitor parking rate is 0.25 spaces/ unit and lowest is 0.10 spaces/unit.

Based on the parking survey results above, the peak parking demand rate is 0.25 spaces per unit. As such, the proposed parking rate of 0.35 spaces per unit is reasonable and justified.

8.1. Bicycle Parking Assessment

It is our understanding that the City of Burlington Zoning By-law does have bicycle parking requirement for the proposed development type of land use. However, the proposed development will provide a minimum of 6 secured bicycle parking spaces (details to be confirmed through detailed design of the proposed development) to support the active transportation modes, the existing/proposing cycling facilities in the area, provide convenience and accessibility for the employees/visitor choices of travel, and support the reduced parking rate.

8.2. Comparable Zoning Bylaw

Nextrans has reviewed the different City's Zoning By-law for parking rate comparison. Based on Town of Oakville Zoning Bylaw 2014-014, the parking requirement for retirement home -assisted living (similar focus as the proposed development) is 0.33 spaces per unit. Given the Town of Oakville and City of Burlington has similar traffic characteristics, the proposed parking rate of 0.35 spaces per unit is reasonable and justified.

9.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a coordinated series of actions aimed at maximizing the people moving capability of the transportation system. It is intended to help reduce single-occupant auto use. Potential TDM measures may include but not limited to: TDM supportive land use, bicycle and pedestrian programs and facilities, public transit improvements, preferential treatments for buses and high occupancy vehicles (if applicable), ridesharing, and employee incentives.

The TDM Measures can be categorized into two (2) groups: "soft" measure and "hard" measure. This is based on the level of investment required from the public agencies.

- **Carpooling**

  The Smart Commute Program has been established in the form of 10 transportation management associations (TMAs) across the GTHA. The Smart Commute TMAs are supported by Metrolinx to coordinate and implement TDM initiatives. They are committed to:

  - Implement employee trip reduction program at local workplaces.
  - Decrease traffic congestion and improve air quality and health by reducing vehicle emissions.
  - Improve employee productivity and morale and reduce employee turnover.
  - Advocate for improved transit service and increased local transportation infrastructure.

- Bus-only and cycling lanes, and a wider network of subway and light rapid transit.
- Promote the benefits of transit-supportive development and smart-growth strategies.
- Encourage legislative flexibility in support of high value, cost effective transportation strategies such as vanpools, telework, transit subsidies and shuttle services, and.
- Increase opportunities for TMA collaboration with business and government.

Smart Commute offers one-on-one support for staff to use sustainable modes and provides promotions and incentives on an on-going basis. A web-based car matching tool is provided to allow carpoolers to easily identify ride matching options among a large membership base and form carpooling arrangements. The benefits of this program include the following:

Employer Benefits:

- A more attractive workplace for potential recruits.
- Better employee retention.
- Increased employee productivity; and,
- Reduce parking requirements.

Employee Benefits:

- Reduced commuting time and costs.
- Increased job satisfaction; and
- Improved health and well-being.

- **Guaranteed Ride Home Service**

  An impediment to some commuters participating in TDM initiatives is the need and flexibility to have a ride home in the event of a personal need or emergency. Guaranteed Ride Home programs have been developed in many communities and by employers to provide card fare or alternative methods of ensuring that there is a return mode of travel if an emergency arises.

- **Parking Management**

  Based on our experience, excessive parking supply imposes environmental costs, contradicts community development objects for more livable and walkable communities, and tends to increase driving and discourage the use of alternative mode of travel. It is anticipated that the combination of reduced parking supply and an efficient public transit system will encourage the use of alternative modes of travel.

- **TDM Implementation**

  The Owner is committed to promoting a sustainable transportation system. It actively encourages its employees to explore and take advantage of the alternative modes of travelling available within their neighborhood. The Smart Commute Website has been developed to provide a comprehensive list of items including materials, e- resources, links, and PDF brochures on the following categories: Public Transit, Smart Commute, Cycling Information, and Active Transportation.

  The webpage can be found at: https://www.smartcommute.ca/public/home.aspx and will be updated to be include this development proposal for future employer perusal and reference.

Based on the review of the context of the proposed development in relation to the TDM requirements in the Region's Transportation Mobility Plan Guidelines for Development Applications as referenced in the Region's Transportation Mobility Plan Guidelines for Development Applications, the **Table 11** TDM measures and incentives are recommended

for the proposed development:

Table 11 – Recommended TDM Measures for the Proposed Development

Category	TDM Measures or NexTrans Recommendations	Recommended Actions	Responsibility
Cycling and Walking	• Pedestrian Connections • Cycling Connections • Ped/cycling connections to transit facilities. • Internal ped/cycling circulation • Active transportation network/fine grid	• The proposed development provides direct shared pedestrian and cycling connection to New Street and Cumberland Avenue, where appropriate • It is our understanding that there are no current requirements for bicycle parking for the proposed development. However, a minimum of 6 secured bicycle parking spaces will be provided (more details to be provided during detailed design)	• Applicant
Transit	• Transit incentives (i.e., PRESTO cards) • Information packages (Transit maps, GO schedules, cycling maps)	• The applicant will explore the Transit Incentive Information Packages programs and PRESTO card for the employees if requested.	• Applicant • Applicant
Parking	• Carpool parking • Membership with Smart Commute	• The applicant will consider providing 1-2 carpooling spaces. • The applicant will explore the Smart Commute information, such as website and membership.	• Applicant • Applicant

10.0 CONCLUSIONS / FINDINGS

10.1. Study Conclusions

The findings and conclusions of the analysis are as follows:

- The proposed development is expected to generate:
    - 22 two-way auto trips (12 inbound and 10 outbound) and 30 two-way auto trips (11 inbound and 19 outbound) during the AM and PM peak hours, respectively.

- The intersection capacity analysis indicates that under the existing, future background and future total traffic conditions, all intersections are expected to operate at acceptable levels of service. The 95th percentile queues can be accommodated by the existing storage, with the queue may occasionally spill back but only 5% of the time and should not cause any major operational issues. It should be noted that the proposed development has negligible impacts to the roadway intersections, which confirmed through intersection capacity analysis.

- Based the applicable Zoning By-law requirement, the proposed development will require to provide approximately 108 vehicle parking spaces, inclusive of occupant/employee, maintenance, and visitor spaces.

- The proposed development provides 44 parking spaces or a of 0.35 spaces/unit for both occupant/employee, maintenance, and visitor, which presents a technical short of 64 parking spaces or 59% reduction from Zoning By-law.

- The proposed development will provide 6 bicycle parking spaces to support active transportation modes and proposed reduced parking rate.

- The proposed development is proposing one full movement access via New Street. The analysis indicates that the proposed access onto New Street expected to operate at acceptable levels of service with minimum delay or queue.

- It is Nextrans' understanding that an off-street loading space is a requirement under the City of Burlington current Zoning By-law. The proposed development provides one loading space and therefore no Zoning By-law amendment is required. The proposed development will be serviced by private waste collection, and the garbage truck will use the pick-up drop-off access via Cumberland Ave. AutoTURN software was used (TAC - MSU) to generate vehicular turning templates for services truck (i.e., moving vehicles) to confirm and demonstrate the accessibility for the proposed development.

10.2. Study Recommendations

Based on the Study assessment, our report recommends that:

- The proposed development implements the TDM measures and incentives identified in this report to support active transportation and transit and to reduce the numbers of single-occupant-vehicle trips to and from the proposed development.
- The proposed development implements the recommended parking rates provided in this Study.
- The proposed development provides direct shared pedestrian and cycling connections to New Street and Cumberland Avenue

Potential mitigation measures for the existing transportation network include:

- No physical improvements are required for these two intersections at the horizon year considered.

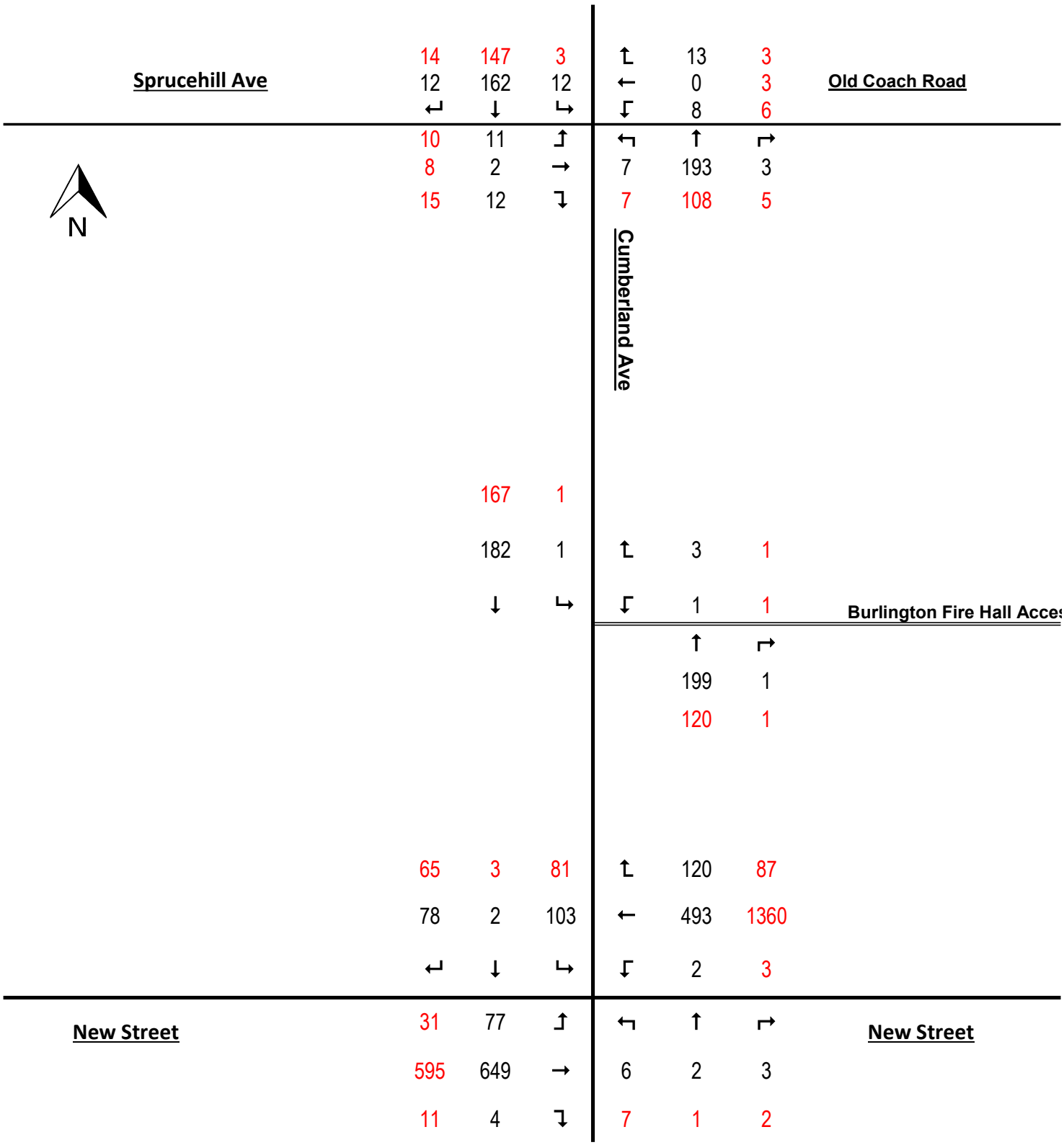


FIGURE 7- EXISTING TRAFFIC VOLUMES

LEGEND:
XX - AM TRAFFIC VOLUME
XX - PM TRAFFIC VOLUME

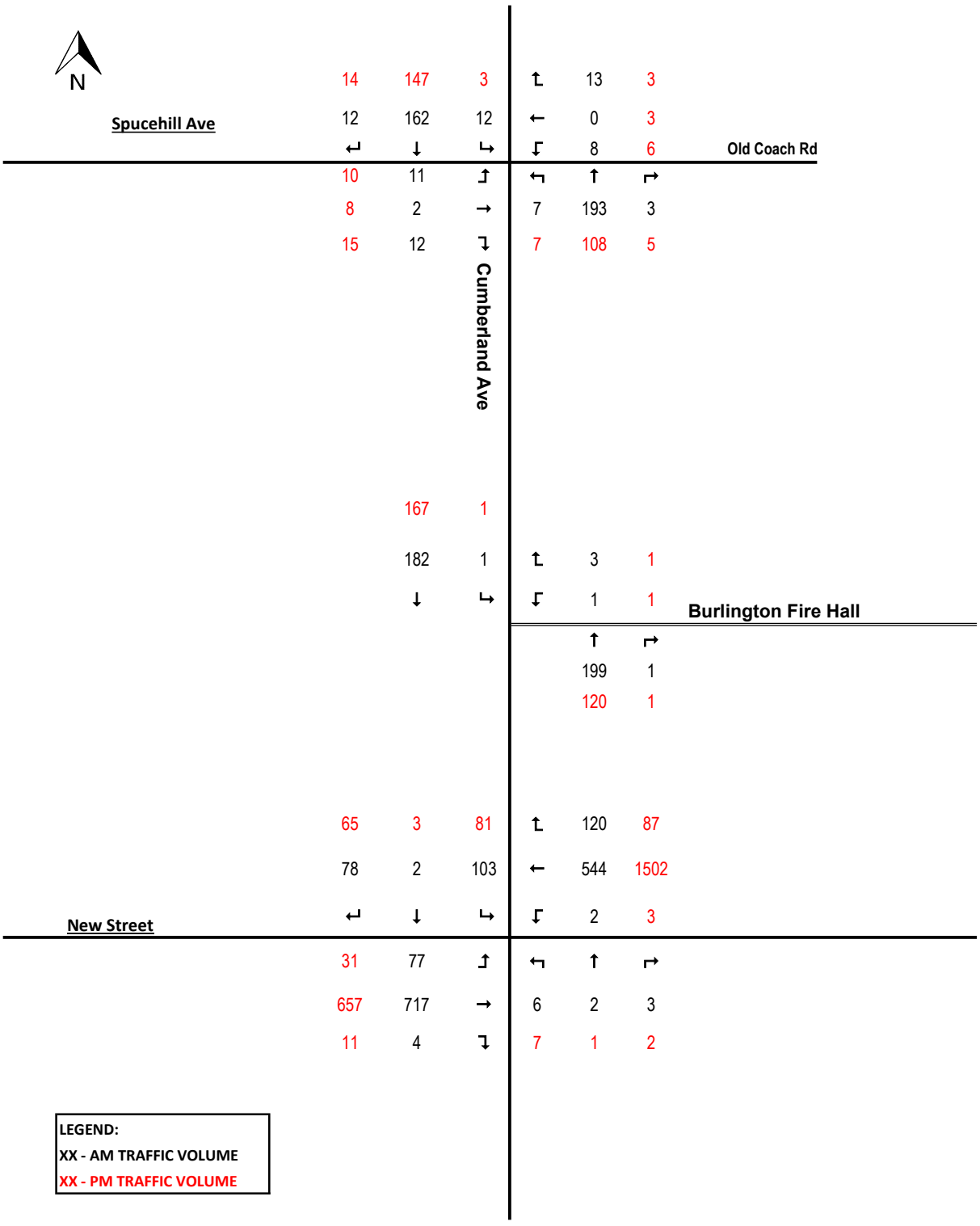


FIGURE 8 - FUTURE BACKGROUND TRAFFIC VOLUMES

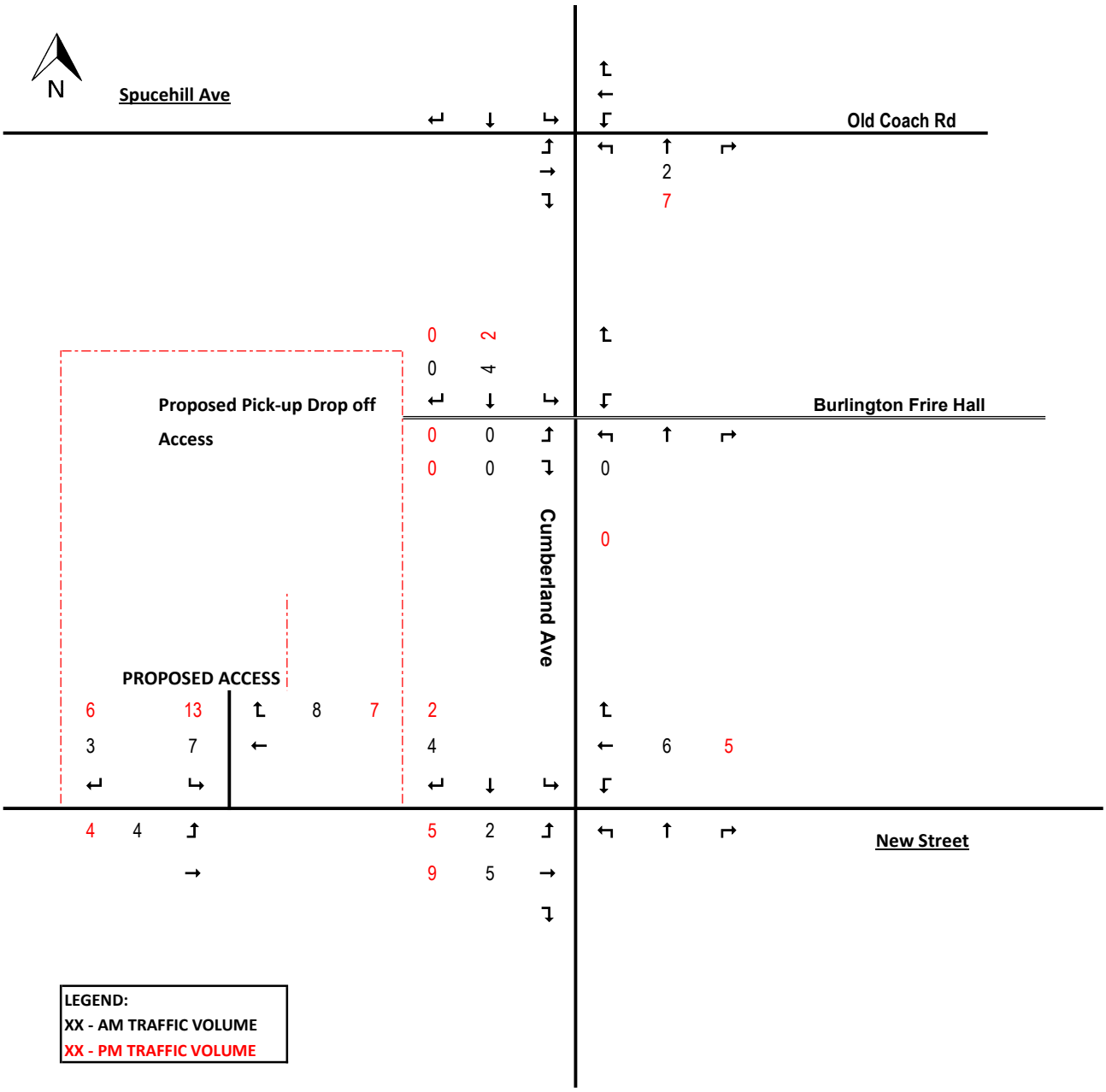


FIGURE 9 - SITE TRAFFIC VOLUMES

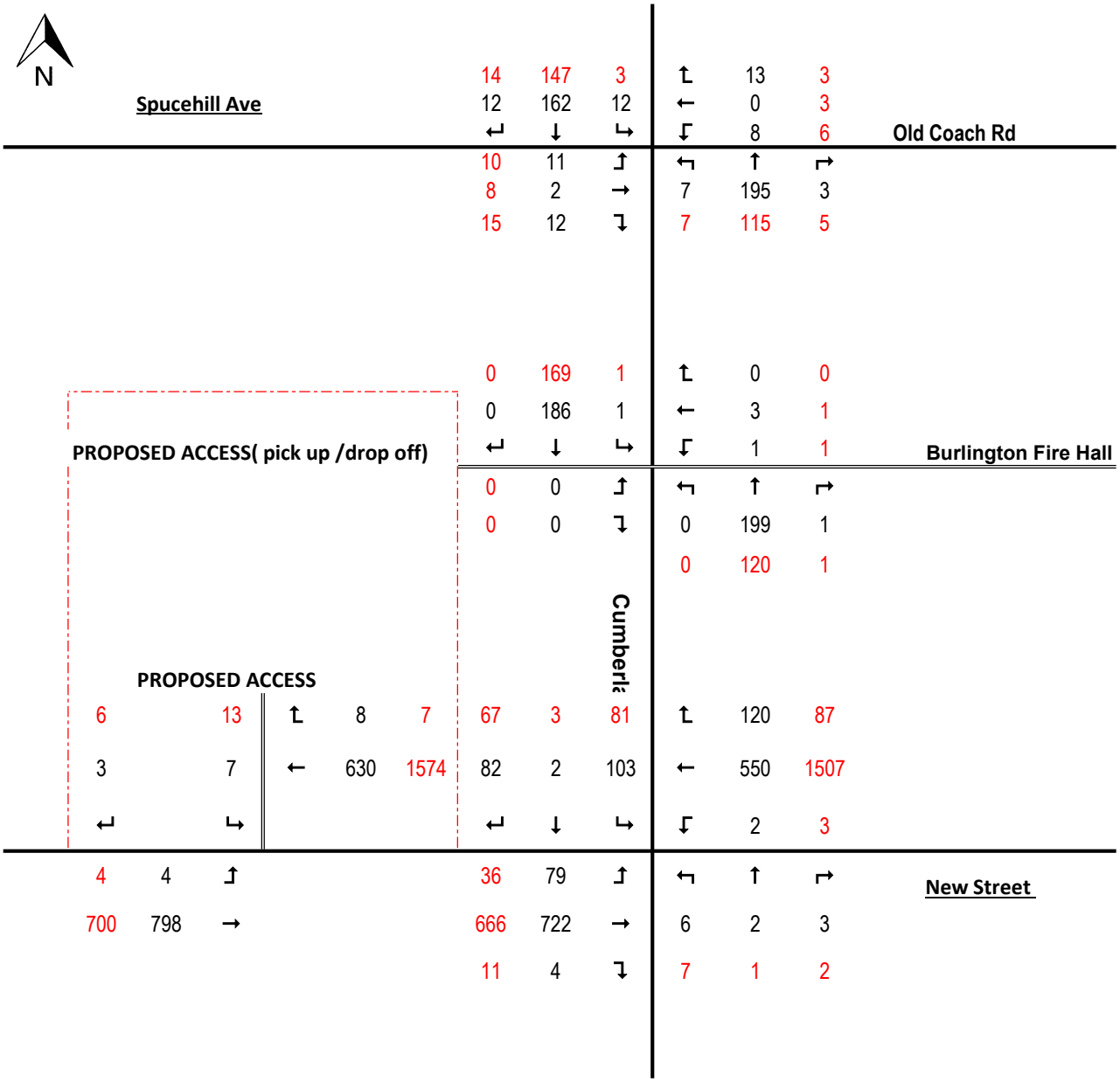
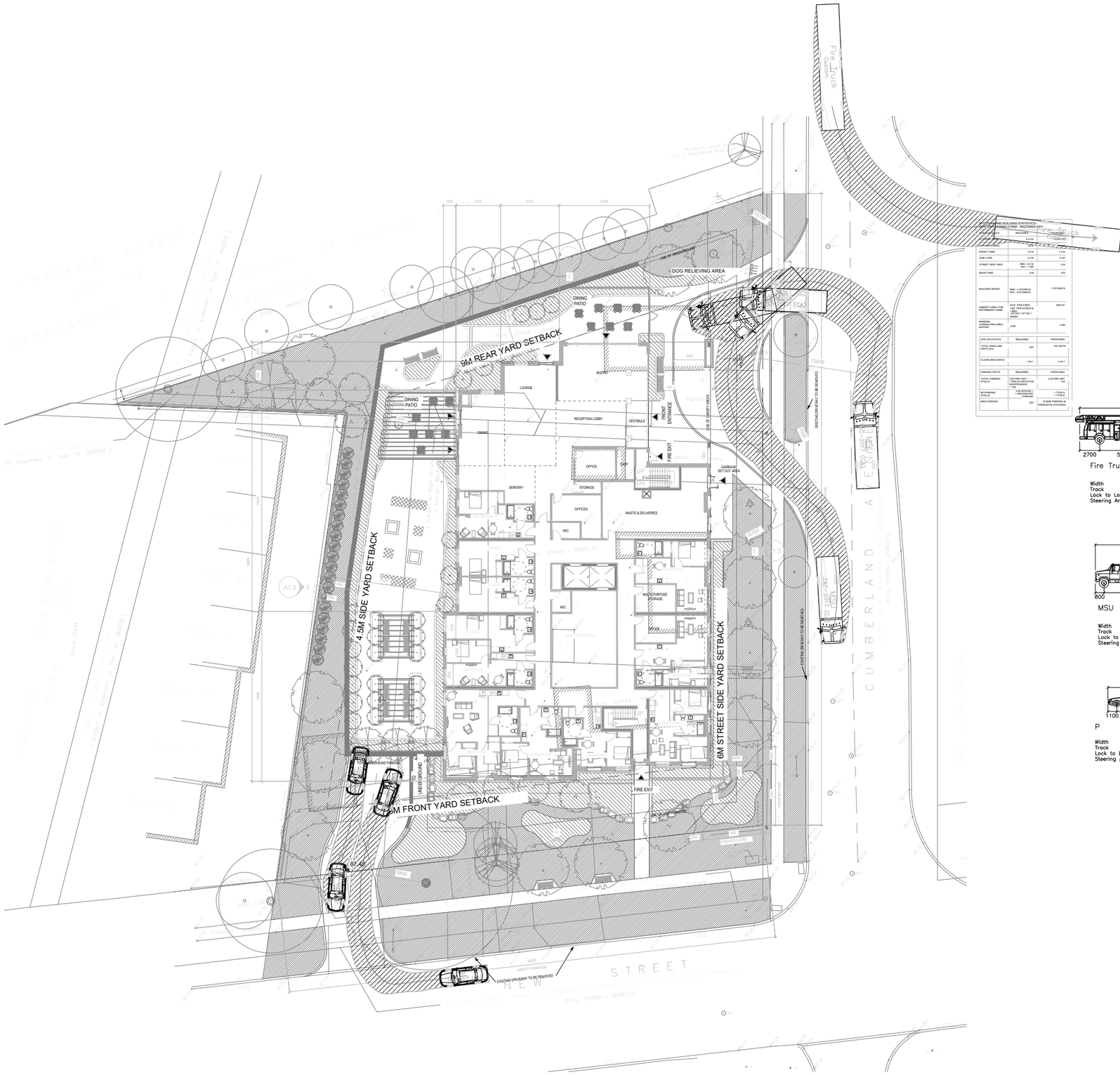


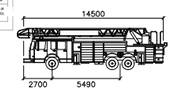
FIGURE 10 - FUTURE TOTAL TRAFFIC VOLUMES

LEGEND:
XX - AM TRAFFIC VOLUME
XX - PM TRAFFIC VOLUME



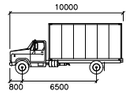
RECOMMENDED BUILDING STATISTICS - DISTINCTION AVENUE PLANS - REZONING 2017		
SITE STATISTICS	REQUIRED	PROPOSED
LOT AREA		1.1 HA(AC/AR)
FSI/DENSITY	0.5 FSI	0.5 FSI
FRONT YARD	7.5 M	7.5 M
SIDE YARD	4.5 M	13 M
STREET SIDE YARD	REQ - 6.0 M MAY - 7.5M	6 M
REAR YARD	9 M	9 M
BUILDING HEIGHT	REQ - 2 STOREYS MAY - 4 STOREYS	2 STOREYS
AMENITY AREA FOR RETIREMENT HOME	20 M² PER 2 BED UNIT, PER STUDIO & 1 BED (20 M² x 150 UNITS) = 3000 M² (1/3RD)	3000 M²
MINIMUM LANDSCAPED AREA BUFFER	4.5M	4.5M

SITE STATISTICS	REQUIRED	PROPOSED
TOTAL DWELLING UNITS (DU)	N/A	144 UNITS
FLOOR AREA RATIO	1.0/0.1	0.45/1
PARKING STATS	REQUIRED	PROPOSED
TOTAL PARKING STALLS	0.8U/PER UNIT + 0.2U/UNIT FOR MAINTENANCE	0.35 PER UNIT + 43
BF PARKING STALLS	5-50 SPACES = 1 BARRIER FREE PARKING	1 TYPE A 1 TYPE B
BIKE PARKING	N/A	18 BIKE PARKING (6 HORIZONTAL STACKED)



Fire Truck

	mm
Width	: 2590
Track	: 2590
Lock to Lock Time	: 6.0
Steering Angle	: 28.1



MSU

	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.2



P

	mm
Width	: 2000
Track	: 2000
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

KEY PLAN

BENCHMARK

REVISIONS

NO.	REVISION	DATE	BY

STAMP

nexTrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:

Residential Development

454-462 Cumberland Ave-3255,3259,3265 New Street

City of Burlington

DRAWING TITLE:

AutoTURN Analysis
P&MSU TAC-2017
FIRE TRUCK

DESIGN BY: K.A.	DATE: September 8, 2023
CHECKED BY: R.P.	PROJECT NO. NT-23-014
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 10

TERM OF REFERENCE

520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

Phone: 905-503-2563
www.nextrans.ca

NextEng Consulting Group Inc.

July 21, 2023

Transportation Planning
City of Burlington

Re: Transportation Impact Study – Term of Reference
Proposed Memory Care Development
454-462 Cumberland Avenue and 3255,3259,3265 New Street, City of Burlington
Our Project No. NT-23-014

NexTrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) has been retained by Traditions Senior Housing Ltd. to undertake a Transportation Impact Study to support a proposed development located at 454-462 Cumberland Avenue and 3255,3259, 3265 New Street, in the City of Burlington. The following is a proposed study term of reference that takes into consideration of the City Traffic Impact Study Guidelines and Region Traffic Impact Study Guidelines.

1. Study Area Intersection:

    - New Street at Cumberland Avenue (Signalized)
    - Cumberland Avenue at Burlington Fire Hall Access (Unsignalized)
    - Cumberland Avenue at Spucehill Avenue/ Old Coach Road (Unsignalized)

    We obtained the signal timing plan from City of Burlington.

    For the intersection analysis we used:

    - Synchro 11 version for intersection analysis.
    - Existing signal timing plan with no optimization.
    - Sim Traffic to access queue.

2. Horizon year:

    - Assumed project completion by 2025.
    - Analysis horizon year 2030 – 5 years from 2025.

3. Background Developments will be reviewed and obtained from Burlington Website of Current Development Projects: https://www.burlington.ca/Modules/News/en/Development. Please advise if there is any background development should be considered by City if possible.

4. Trip Generation will be calculated based on ITE Trip Generation Manual 11th Edition.

5. Trip Distribution will be extracted from 2016 TTS data based on the surrounding traffic zones where appropriate.

6. Future Total Assessment:

The following tasks will be conducted for the future total conditions:

- Future total traffic assessment for auto mode

- Proposed development access assessment includes queueing analysis.
- Vehicular and bicycle parking assessment
- Internal Site Circulation and loading assessment include Swept-Path analysis where necessary (i.e. underground, parking ramp, pick up and drop off area)

7. Transit, Active Transportation and TDM.

- Conduct a review of the existing and proposed future transit network in the area. Based on these findings, appropriate recommendations will be provided to ensure walking distances to/from the proposed development to transit stations/stops.
- Review the existing and proposed future active transportation network in the area. Based on these findings, NexTrans will identify missing gaps and additional interconnections and connections from the proposed development to adjacent land uses, the City and the Region's facilities, as well as to transition stations/stops.
- A Transportation Demand Management (TDM) assessment will be undertaken to identify measures and programs to reduce single-occupant-vehicle trips to/from the proposed development. These TDM measures and programs may include but not limited to: carpooling, auto-share, bike racks, parking management strategies, etc. The TDM report will be completed and included as part of this Study for submission purposes submitted in accordance with the City and Region requirements.

8. Parking Study: assess current occupancy rates for the existing buildings with current parking utilization when assessing parking requirement.

   NexTrans has conducted the parking utilization survey at two following proxy sites which have similar land use context and traffic condition to support the proposed parking rate:

- 3131 New Street (located adjacent to Bus Route 10) – total 71 units fully occupied, 27 parking spaces.
    - The Survey was conducted on Thursday, March 2, 2023 (9am to 9pm); and Saturday March 4, 2023 (9am to 9pm).
- 2109 Lakeshore Road (located adjacent to Bus Route 3) – total 57 units fully occupied, 25 parking spaces.
    - The Survey was conducted on Thursday, March 9, 2023 (9am to 9pm); and Saturday March 11, 2023 (9am to 9pm).

If possible, please provide us with your comments at your earliest convenient so that we can complete the study for formal submission.

Yours truly,

Nextrans Consulting Engineers
A Division of NextEng Consulting Group Inc.

Prepared by:



Sam Nguyen, Dipl.

Transportation Analyst

TRAFFIC & TRANSPORTATION | ROADS AND HIGHWAYS | URBAN DEVELOPMENT | ENVIRONMENTAL

From: Adiga, Smeeta
To: Emily Rosen
Cc: Bruce Stewart; Lucas, Sandra; Richard Pernicky; Sam Nguyen; Schneider, Jaclyn
Subject: RE: New/Cumberland Check In
Date: August 25, 2023 1:24:45 PM

Hi Emily,

Sorry for the late response.

Please forward the updated TIS in the upcoming submission, include all the items listed below in the report. The report shall justify the full move access on New Street.

Furthermore, the report had parking calculation based on the retirement home, where as the proposal involves a senior housing facility for living/memory care. Would this fall under the classification of long-term care facilities? If affirmative, the parking requirements differ as outline in zoning bylaw Table 1.2.6: Off-Street Parking Standards.

Additionally, ensure the incorporation of all the provided statements below in the parking justification report.

Thanks,

Smeeta Adiga
Transportation Planning Technologist
Transportation Services Department

P. 905 335 7600, ext 7691 | E. smeeta.adiga@burlington.ca
Address: 426 Brant Street P.O. Box 5013, Burlington, Ontario, L7R 3Z6

City of Burlington | www.burlington.ca

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

City of Burlington | www.burlington.ca

From: Emily Rosen <emilysrosen@gmail.com>
Sent: Friday, August 25, 2023 12:24 PM
To: Adiga, Smeeta <Smeeta.Adiga@burlington.ca>
Cc: Bruce Stewart <bwstewart01@gmail.com>; Lucas, Sandra <Sandra.Lucas@burlington.ca>; Richard Pernicky <richard@nextrans.ca>; Sam Nguyen <sam@nextrans.ca>; Schneider, Jaclyn <Jaclyn.Schneider@burlington.ca>
Subject: Re: New/Cumberland Check In

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 Smeeta,

Kindly following up on your thoughts based on our responses to your original comments. I am cognisant of the September 11, 2023 deadline for us to submit the rezoning application, which is 180 days from our March 15th pre-application meeting. We'd really like to confirm your position and work with your team on a solution prior to filing the application, so we're hopeful to hear back from you ASAP on next steps.

Thanks so much,

Emily Rosen
647-921-7946

On Tue, 22 Aug 2023 at 10:58, Emily Rosen <emilysrosen@gmail.com> wrote:

> Thank you Smeeta. Please let us know if you have any questions. Of course we are happy to jump on a call again to discuss. Looking forward to hearing from you.
>
> Thanks,
>
> Emily Rosen
> 647-921-7946
>
> On Wed, Aug 16, 2023 at 8:53 AM Adiga, Smeeta <Smeeta.Adiga@burlington.ca> wrote:
>
> > Hi Emily,
> >
> > We have received your email and will get back to you as soon as possible.
> >
> > Thank you!
> >
> > **Smeeta Adiga**
> > **Transportation Planning Technologist**
> > **Transportation Services Department**
> > P. 905 335 7600, ext 7691 | E. smeeta.adiga@burlington.ca
> > Address: 426 Brant Street P.O. Box 5013, Burlington, Ontario, L7R 3Z6
> >
> > City of Burlington | www.burlington.ca
> >
> > Our working hours may be different. You are not obligated to reply outside of your typical working hours.
> >
> > City of Burlington | www.burlington.ca
> >
> > ---
> >
> > **From:** Emily Rosen <emilysrosen@gmail.com>

Sent: Tuesday, August 15, 2023 9:14 AM
To: Schneider, Jaclyn <Jaclyn.Schneider@burlington.ca>
Cc: Adiga, Smeeta <Smeeta.Adiga@burlington.ca>; Lucas, Sandra <Sandra.Lucas@burlington.ca>; Bruce Stewart <bwstewart01@gmail.com>; Sam Nguyen <sam@nextrans.ca>; Richard Pernicky <richard@nextrans.ca>
Subject: Re: New/Cumberland Check In

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 Smeeta and Sandra,

Thanks again for your comments. We have reviewed as a team - please see our responses/questions to your comments below in **green:**

TIS:

1) The report should include appendices containing existing data, LOS calculations, Synchro, sim traffic analysis, and parking survey data. Please provide us with the synchro files.
We will include this in the report.

2) The report should contain correspondence with the municipality pertaining to the TIS and Terms- of- Reference within the appendices.
We will include this in the report.

3) Section 5.0 (Future Total Traffic Conditions), the analysis for the New Street EB LT to site access is missing. Furthermore, the LOS for SB (exiting from the site driveway) is determined to be F with a 62.1-second delay. Given this situation, access to New Street might only be feasible as right-in-right-out. A comprehensive analysis of the site driveway is necessary to justify safe full-move access.
We will include this in the report. We have run the comprehensive analysis and have determined that this driveway works effectively as proposed as a full-move access. It is also determined that a right-in-right-out is not be feasible due to the limitation of the width of the driveway to preserve the municipal trees within the ROW as well as that a centre island in the ROW may also not be possible.

4) The report lacks an analysis of the Cumberland Avenue site access. This analysis is of utmost importance, considering its proximity to the fire station access.
We will include this analysis in the report.

5) In Section 5.2 Queuing Analysis, it is noted that the future total queuing for EB traffic at the intersection of New Street and Cumberland Avenue will be a maximum of 49.5 m during weekday peak hours. However, it is worth mentioning that the site driveway, located approximately 40 meters from the intersection, experiences a delay of 62.1 seconds for vehicles exiting and turning left. Consequently, a traffic analysis for safe left turn for exiting and entering vehicles from the site will be necessary.
We will include this analysis in the report.

Parking:

1) Please provide the number of employees serving the 132 units. A detail parking breakdown is required.

Generally, operations for a seniors housing development like this (with a focus on memory care, which caters to people with alzheimers/dementia) has 24/7 care that is divided into three shifts in a 24 hour period. We have spoken with our operations team, and the number of employees per shift for a 132-unit facility is as follows:

- **Day Shift (7am - 3pm): 18 employees (managers, culinary, maintenance, psw/care)**
- **Afternoon Shift (3pm - 11pm): 12 employees (manager, part-time culinary, psw/care)**
- **Night Shift (11pm - 7am): 8 employees (manager, psw/care)**

The maximum number of employees at any given time is ~18, but based on previous experience, less than half of the staff drive to work while most take transit.

From a visitor perspective, the peak time for visitors are evenings and weekends. Many visitors will not park on site as they pick-up the residents to go off-site for an outing.

2) The proxy sites used for comparison have fewer units and a smaller gross floor area compared to this proposal. One of the selected proxy sites is in a core downtown area, where parking requirements may vary

We believe the proxy sites we selected are the best possible options for comparison, despite some differences. It is important to note that the downtown facility is only 2km from our site, while the other option is even closer. The important similarity between these two proxy sites is that they are programmed with a similar land use (assisted living and memory care type of seniors housing), within both of which the residents typically are not able to own/operate their own vehicles.

3) Please conduct a proxy site analysis for 3290 New Street and 3260 New Street (Maranatha retirement home), which is situated opposite to this proposal.

Similar to the response above, these two retirement homes focus on a "life lease" type of seniors housing. This is a very independent style of living where residents often do own and operate their own vehicles. Based on this, these two facilities are not at all similar to the type of facility that we are proposing with a focus on memory care, specifically from a parking perspective. Please see more info on types of seniors housing on the provincial website: https://www.ontario.ca/page/seniors-find-place-to-live

4) Parking surveys shall be conducted during AM, PM, and weekend peaks, along with the peak hours of operations including any special events and services which occur on a regular basis, The following detail shall be discussed within the report:

a) # of spaces required per patron

b) On-site and off- site parking during normal and major events.

Our parking surveys were conducted from 9am-9pm on both a weekday and weekend, meaning the AM and PM peak periods were captured throughout the week and weekend. We can add detail for the number of spaces required per resident based on the results based on normal events, however, we cannot test or confirm major events. Generally the only two major events are Mother's Day and Christmas, but as noted above, given this is a memory care facility, residents are very much able to be taken off-site for outings rather than requiring the full-time care of a nurse throughout a visit. We have spoken with our operations team and they confirmed that during major events such as these days, it is industry standard to pre-schedule visitors during specific time periods to avoid any overflow in the building. This practice will mitigate any requirement for a contingency plan for high demand in parking spaces. In any development, we always plan and design for typical events - we never design for 100% capacity as this would result in an unsustainable approach to building and providing parking.

Please let me know your thoughts. We are hoping to submit the rezoning submission as soon as possible.

Thank you,

Emily Rosen
647-921-7946

On Thu, 3 Aug 2023 at 15:14, Emily Rosen <emilysrosen@gmail.com> wrote:

> Thank you Jaclyn. Smeeta and Sandra, we'll review and let you know if any questions!
>
> Appreciate your quick turnaround on this.
>
> Emily
>
> On Thu, Aug 3, 2023 at 1:40 PM Schneider, Jaclyn <Jaclyn.Schneider@burlington.ca> wrote:
>
> > Hi Emily,
> >
> > Thank you for your patience. Please find attached the comments from Transportation Planning staff. Please don't hesitate to reach out if you have any questions.
> >
> > Cheers,
> > **Jaclyn Schneider**
> > Planner II - Development
> > Community Planning
> > (905) 335-7600 ext.7326
> > jaclyn.schneider@burlington.ca



From: Emily Rosen <emilysrosen@gmail.com>
Sent: Tuesday, August 1, 2023 10:01 PM
To: Schneider, Jaclyn <Jaclyn.Schneider@burlington.ca>
Subject: Re: New/Cumberland Check In

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 Jaclyn,

I know Smeeta had planned to review this relatively quickly, so I wanted to check in to see if you've heard from her yet on our draft TIS and TOR? Happy to schedule a follow up meeting to discuss?

Please LMK, thank you!

Emily Rosen
647-921-7946

On Fri, 21 Jul 2023 at 14:48, Schneider, Jaclyn <Jaclyn.Schneider@burlington.ca> wrote:

> Hi Emily,
>
> I will forward this to Transportation staff. As for the height survey, you can review the supporting documents on recent development applications to see example height surveys which can be found here:
> https://www.burlington.ca/Modules/News/en/Development
>
> Cheers,
> **Jaclyn Schneider**
> Planner II - Development
> Community Planning
> (905) 335-7600 ext.7326
> jaclyn.schneider@burlington.ca



From: Emily Rosen <emilysrosen@gmail.com>
Sent: Friday, July 21, 2023 1:44 PM
To: Schneider, Jaclyn <Jaclyn.Schneider@burlington.ca>
Subject: Re: New/Cumberland Check In

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 Jaclyn,

I spoke too soon. Please see attached draft TOR and a draft TIS report for Transportation's review. We look forward to your comments and to continue working with the City on this exciting memory care senior's housing project.

Please confirm the question below re Height Survey when you have a moment, and if you have an example you can share of another project that would be very helpful!

Thanks,

Emily Rosen
647-921-7946

On Fri, Jul 21, 2023 at 8:28 AM Emily Rosen <emilysrosen@gmail.com> wrote:

> Hi Jacklyn,
>
> Happy Friday! I wanted to touch base with you on two things this morning:
>
> - I've reviewed a draft of the TIS but we will need another day or two before it's finalized. I mentioned I'd try to get it to you by today but it is looking like we'll be able to send it (hopefully) by Tuesday at the latest. I know you and Smeeta were setting aside some time to review next week (thank you for that!) so please adjust accordingly.
>
> - With regards to the "Height Survey of Adjacent Buildings" submission requirement, are you looking for something similar to the attached which is prepared by the architect/urban designer (I pulled this from one of Burlington's development applications)? Or is this typically a survey prepared by a surveyor? If you can please confirm or share an example of what you're looking for to satisfy this requirement.
>
> Thank you!
>
> Emily Rosen
> 647-921-7946

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---------- Forwarded message ----------
From: "Adiga, Smeeta" <Smeeta.Adiga@burlington.ca>
To: "Schneider, Jaclyn" <Jaclyn.Schneider@burlington.ca>
Cc: "Lucas, Sandra" <Sandra.Lucas@burlington.ca>
Bcc:
Date: Wed, 2 Aug 2023 13:57:35 +0000
Subject: New/Cumberland TIS/Parking comments

Hi Jaclyn,

After reviewing the draft TIS and parking justification report submitted by the applicant, comments are as follows:

TIS:

1) The report should include appendices containing existing data, LOS calculations, Synchro, sim traffic analysis, and parking survey data. Please provide us with the synchro files.

2) The report should contain correspondence with the municipality pertaining to the TIS and Terms- of- Reference within the appendices.

3) Section 5.0 (Future Total Traffic Conditions), the analysis for the New Street EB LT to site access is missing. Furthermore, the LOS for SB (exiting from the site driveway) is determined to be F with a 62.1-second delay. Given this situation, access to New Street might only be feasible as right-in-right-out. A comprehensive analysis of the site driveway is necessary to justify safe full-move access.

4) The report lacks an analysis of the Cumberland Avenue site access. This analysis is of utmost importance, considering its proximity to the fire station access.

5) In Section 5.2 Queuing Analysis, it is noted that the future total

queuing for EB traffic at the intersection of New Street and Cumberland Avenue will be a maximum of 49.5 m during weekday peak hours. However, it is worth mentioning that the site driveway, located approximately 40 meters from the intersection, experiences a delay of 62.1 seconds for vehicles exiting and turning left. Consequently, a traffic analysis for safe left turn for exiting and entering vehicles from the site will be necessary.

Parking:

1) Please provide the number of employees serving the 132 units. A detail parking breakdown is required.

2) The proxy sites used for comparison have fewer units and a smaller gross floor area compared to this proposal. One of the selected proxy sites is in a core downtown area, where parking requirements may vary.

3) Please conduct a proxy site analysis for 3290 New Street and 3260 New Street (Maranatha retirement home), which is situated opposite to this proposal.

4) Parking surveys shall be conducted during AM, PM, and weekend peaks, along with the peak hours of operations including any special events and services which occur on a regular basis, The following detail shall be discussed within the report:

a) # of spaces required per patron

b) On-site and off- site parking during normal and major events.

Thanks,

Smeeta Adiga
Transportation Planning Technologist
Transportation Services Department

P. 905 335 7600, ext 7691 | E. smeeta.adiga@burlington.ca
Address: 426 Brant Street P.O. Box 5013, Burlington, Ontario, L7R 3Z6

City of Burlington | www.burlington.ca



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Appendix A – Existing Traffic Data

Intersection Name:	TS ID:	Line No:	IP address:
New St @ Cumberland Ave	222	6	172.22.162.2

Controller Make:	Model:
Econolite	ACS/3

Type of Operation: 8 Phase Semi-Actuated

No	Date Y	Date M	Date D	Description	Prepared by
4	2022	11	24	Changed clearance	PT

*- Start from Main Manu

PHASE DESCRIPTION

Ph1		Ph5	
Ph2	EB - New St	Ph6	WB - New St
Ph3		Ph7	
Ph4	NB - Cumberland Ave	Ph8	SB - Cumberland Ave

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
Walk :		21		8		21		8
Ped. Clearance :		11		15		11		15
Vehicle Extension :		3		3		3		3
MAX 1 :		35		25		35		25
MAX 2 :		35		25		35		25
Yellow Change :		3.7		3.3		3.7		3.3
Red Clearance :		2		3.1		2		3.1

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		
MAX Recall :								
Soft Recall :								

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	100	37	1	1		70		30		70		30
2	85	10	1	2		54		31		54		31
3	100	0	1	3		70		30		70		30
4	85	10	1	4		54		31		54		31
10	0	0	0	10		0		0		0		0

CP # 1, 2, 10	Phase:	1	2	3	4	5	6	7	8
Coord Phase	:		X				X		
Vehicle Recall	:								
Pedestrian Recall *(3-3, 5-2)	:		X				X		
Recall to MAX Time	:								
Phase Omit	:								
Special Function Outputs	:								

Coordinator Pattern #	Prefer.	Phase							
		1	2	3	4	5	6	7	8
	1								
	2								

X - select "." deselect

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	06:00	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	22:00	254	1
2	2	4	07:30	4	1
2	2	10	21:00	254	1
3	3	4	09:00	4	1
3	3	10	21:00	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)

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	2	2	3	3
Good Friday	3	Float	4	6	1	3
Victoria Day	4	Float	5	2	3	3
Canada Day	5	Fixed	7	1	0	3
Civic Day	6	Float	8	2	1	3
Labour Day	7	Float	9	2	1	3
Thanksgiving	8	Float	10	2	2	3
Christmas Day	9	Fixed	12	25	0	3

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

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 #: 2308500001
Intersection: Cumberland Ave & Sprucehill Ave
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Cumberland Ave runs N/S

North Leg Total:	403			
North Entering:	186			
North Peds:	13			
Peds Cross:	⋈			
Heavys	2	6	1	9
Trucks	0	2	0	2
Cars	10	154	11	175
Totals	12	162	12	
Heavys	6			
Trucks	1			
Cars	210			
Totals	217			
East Leg Total:	38			
East Entering:	21			
East Peds:	19			
Peds Cross:	⧖			

Cumberland Ave

Heavys	Trucks	Cars	Totals
3	0	16	19

Sprucehill Ave

Cars	Trucks	Heavys	Totals
13	0	0	13
0	0	0	0
8	0	0	8
21	0	0	

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	11	11
0	0	2	2
0	0	12	12
0	0	25	

Old Coach Rd

Cars	Trucks	Heavys	Totals
16	0	1	17

Cumberland Ave

Peds Cross:	⧖			
West Peds:	28			
West Entering:	25			
West Leg Total:	44			
Cars	174			
Trucks	2			
Heavys	6			
Totals	182			
Cars	6	186	3	195
Trucks	0	1	0	1
Heavys	1	6	0	7
Totals	7	193	3	
Peds Cross:	⋈			
South Peds:	1			
South Entering:	203			
South Leg Total:	385			

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

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

Municipality: Burlington
Site #: 2308500001
Intersection: Cumberland Ave & Sprucehill Ave
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Cumberland Ave runs N/S

North Leg Total: 285
North Entering: 164
North Peds: 2
Peds Cross: ⋈

Heavys	0	2	0	2
Trucks	0	2	0	2
Cars	14	143	3	160
Totals	14	147	3	

Heavys	1
Trucks	0
Cars	120
Totals	121

East Leg Total: 28
East Entering: 12
East Peds: 9
Peds Cross: ⧖

Cumberland Ave

Heavys	Trucks	Cars	Totals
0	0	24	24

Sprucehill Ave

Heavys	Trucks	Cars	Totals
0	0	10	10
0	0	8	8
0	0	15	15
0	0	33	

Cars	Trucks	Heavys	Totals
2	0	1	3
3	0	0	3
6	0	0	6
11	0	1	

N
W E
S

Old Coach Rd

Cars	Trucks	Heavys	Totals
16	0	0	16

Cumberland Ave

Peds Cross: ⧖
West Peds: 2
West Entering: 33
West Leg Total: 57

Cars	164
Trucks	2
Heavys	2
Totals	168

Cars	7	108	5	120
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	7	108	5	

Peds Cross: ⋈
South Peds: 0
South Entering: 120
South Leg Total: 288

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

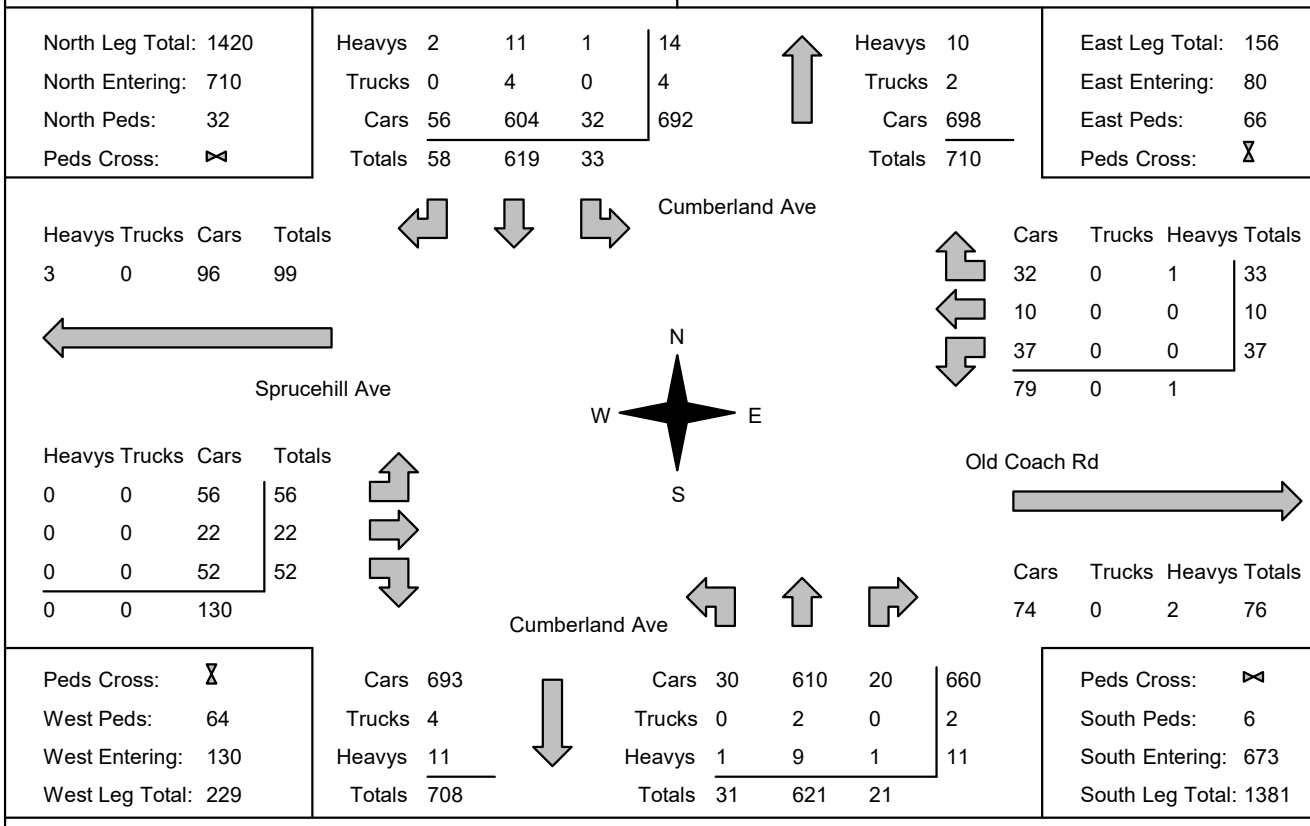
Municipality: Burlington
Site #: 2308500001
Intersection: Cumberland Ave & Sprucehill Ave
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Cumberland Ave runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Cumberland Ave & Sprucehill Ave | **Count Date:** 22-Mar-23 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*1*	*51*	*1*	*53*	*2*
9:00:00	*13*	*164*	*16*	*193*	*17*
10:00:00	*4*	*58*	*6*	*68*	*1*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*3*	*147*	*14*	*164*	*2*
18:00:00	*9*	*104*	*9*	*122*	*2*
19:00:00	*3*	*95*	*12*	*110*	*8*
Totals:	33	619	58	710	32

North/South Total Approaches: 1383

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*3*	*89*	*2*	*94*	*0*
9:00:00	*6*	*155*	*3*	*164*	*1*
10:00:00	*4*	*87*	*4*	*95*	*0*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*7*	*108*	*5*	*120*	*0*
18:00:00	*7*	*102*	*3*	*112*	*2*
19:00:00	*4*	*80*	*4*	*88*	*3*
S Totals:	31	621	21	673	6

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*3*	*2*	*0*	*5*	*10*
9:00:00	*11*	*2*	*15*	*28*	*20*
10:00:00	*7*	*2*	*5*	*14*	*8*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*6*	*3*	*3*	*12*	*9*
18:00:00	*6*	*1*	*7*	*14*	*11*
19:00:00	*4*	*0*	*3*	*7*	*8*
Totals:	37	10	33	80	66

East/West Total Approaches: 210

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*5*	*1*	*9*	*15*	*11*
9:00:00	*12*	*4*	*13*	*29*	*30*
10:00:00	*8*	*3*	*5*	*16*	*7*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*10*	*8*	*15*	*33*	*2*
18:00:00	*8*	*4*	*6*	*18*	*6*
19:00:00	*13*	*2*	*4*	*19*	*8*
W Totals:	56	22	52	130	64

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*7:00*	*8:00*	*9:00*	*10:00*	*16:00*	*17:00*	*18:00*	*19:00*
Crossing Values:	*0*	*12*	*45*	*19*	*0*	*26*	*22*	*30*

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Traffic Monitoring & Data Analysis

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Count Date: 22-Mar-23 Site #: 2308500001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	1	10	5	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0
7:45:00	1	0	18	8	1	0	0	0	0	0	0	0	0	0	3	2	0	0	2	2
8:00:00	1	0	43	25	1	0	0	0	1	1	0	0	0	0	7	4	0	0	2	0
8:15:00	5	4	100	57	4	3	0	0	2	1	0	0	0	0	7	0	0	0	2	0
8:30:00	9	4	133	33	6	2	0	0	2	0	0	0	1	1	8	1	1	1	12	10
8:45:00	12	3	172	39	11	5	0	0	2	0	0	0	1	0	9	1	2	1	15	3
9:00:00	13	1	204	32	15	4	0	0	2	0	0	0	1	0	9	0	2	0	19	4
9:15:00	14	1	217	13	15	0	0	0	2	0	0	0	1	0	9	0	2	0	19	0
9:30:00	16	2	231	14	17	2	0	0	2	0	0	0	1	0	9	0	2	0	20	1
9:45:00	16	0	245	14	18	1	0	0	2	0	0	0	1	0	9	0	2	0	20	0
10:00:00	17	1	262	17	21	3	0	0	2	0	0	0	1	0	9	0	2	0	20	0
10:15:00	17	0	262	0	21	0	0	0	2	0	0	0	1	0	9	0	2	0	20	0
16:00:00	17	0	262	0	21	0	0	0	2	0	0	0	1	0	9	0	2	0	20	0
16:15:00	18	1	301	39	23	2	0	0	3	1	0	0	1	0	11	2	2	0	21	1
16:30:00	18	0	339	38	26	3	0	0	3	0	0	0	1	0	11	0	2	0	21	0
16:45:00	18	0	379	40	31	5	0	0	4	1	0	0	1	0	11	0	2	0	21	0
17:00:00	20	2	405	26	35	4	0	0	4	0	0	0	1	0	11	0	2	0	22	1
17:15:00	21	1	430	25	36	1	0	0	4	0	0	0	1	0	11	0	2	0	22	0
17:30:00	21	0	461	31	40	4	0	0	4	0	0	0	1	0	11	0	2	0	22	0
17:45:00	25	4	487	26	42	2	0	0	4	0	0	0	1	0	11	0	2	0	23	1
18:00:00	29	4	509	22	44	2	0	0	4	0	0	0	1	0	11	0	2	0	24	1
18:15:00	31	2	539	30	46	2	0	0	4	0	0	0	1	0	11	0	2	0	26	2
18:30:00	32	1	566	27	49	3	0	0	4	0	0	0	1	0	11	0	2	0	28	2
18:45:00	32	0	586	20	53	4	0	0	4	0	0	0	1	0	11	0	2	0	30	2
19:00:00	32	0	604	18	56	3	0	0	4	0	0	0	1	0	11	0	2	0	32	2
19:15:00	32	0	604	0	56	0	0	0	4	0	0	0	1	0	11	0	2	0	32	0
19:15:15	32	0	604	0	56	0	0	0	4	0	0	0	1	0	11	0	2	0	32	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
7:45:00	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5
8:00:00	3	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	2
8:15:00	5	2	2	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	13	3
8:30:00	7	2	2	0	10	6	0	0	0	0	0	0	0	0	0	0	0	0	16	3
8:45:00	10	3	2	0	13	3	0	0	0	0	0	0	0	0	0	0	0	0	27	11
9:00:00	14	4	4	2	15	2	0	0	0	0	0	0	0	0	0	0	0	0	30	3
9:15:00	15	1	4	0	17	2	0	0	0	0	0	0	0	0	0	0	0	0	32	2
9:30:00	17	2	4	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	36	4
9:45:00	19	2	4	0	18	1	0	0	0	0	0	0	0	0	0	0	0	0	36	0
10:00:00	21	2	6	2	20	2	0	0	0	0	0	0	0	0	0	0	0	0	38	2
10:15:00	21	0	6	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	38	0
16:00:00	21	0	6	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	38	0
16:15:00	21	0	6	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	43	5
16:30:00	21	0	9	3	21	1	0	0	0	0	0	0	0	0	0	0	1	1	44	1
16:45:00	26	5	9	0	21	0	0	0	0	0	0	0	0	0	0	0	1	0	47	3
17:00:00	27	1	9	0	22	1	0	0	0	0	0	0	0	0	0	0	1	0	47	0
17:15:00	27	0	9	0	24	2	0	0	0	0	0	0	0	0	0	0	1	0	48	1
17:30:00	29	2	9	0	27	3	0	0	0	0	0	0	0	0	0	0	1	0	51	3
17:45:00	30	1	10	1	28	1	0	0	0	0	0	0	0	0	0	0	1	0	54	3
18:00:00	33	3	10	0	29	1	0	0	0	0	0	0	0	0	0	0	1	0	58	4
18:15:00	34	1	10	0	29	0	0	0	0	0	0	0	0	0	0	0	1	0	60	2
18:30:00	35	1	10	0	30	1	0	0	0	0	0	0	0	0	0	0	1	0	61	1
18:45:00	36	1	10	0	32	2	0	0	0	0	0	0	0	0	0	0	1	0	63	2
19:00:00	37	1	10	0	32	0	0	0	0	0	0	0	0	0	0	0	1	0	66	3
19:15:00	37	0	10	0	32	0	0	0	0	0	0	0	0	0	0	0	1	0	66	0
19:15:15	37	0	10	0	32	0	0	0	0	0	0	0	0	0	0	0	1	0	66	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	18	10	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0
7:45:00	0	0	25	7	1	1	0	0	0	0	0	0	0	0	3	2	1	0	0	0
8:00:00	2	2	82	57	1	0	0	0	1	1	0	0	1	1	6	3	1	0	0	0
8:15:00	3	1	149	67	2	1	0	0	1	0	0	0	1	0	7	1	1	0	0	0
8:30:00	5	2	177	28	4	2	0	0	1	0	0	0	1	0	7	0	1	0	0	0
8:45:00	6	1	211	34	4	0	0	0	1	0	0	0	1	0	9	2	1	0	1	1
9:00:00	8	2	234	23	4	0	0	0	1	0	0	0	1	0	9	0	1	0	1	0
9:15:00	9	1	254	20	6	2	0	0	1	0	0	0	1	0	9	0	1	0	1	0
9:30:00	11	2	269	15	6	0	0	0	1	0	0	0	1	0	9	0	1	0	1	0
9:45:00	11	0	291	22	7	1	0	0	2	1	0	0	1	0	9	0	1	0	1	0
10:00:00	12	1	320	29	8	1	0	0	2	0	0	0	1	0	9	0	1	0	1	0
10:15:00	12	0	320	0	8	0	0	0	2	0	0	0	1	0	9	0	1	0	1	0
16:00:00	12	0	320	0	8	0	0	0	2	0	0	0	1	0	9	0	1	0	1	0
16:15:00	14	2	346	26	11	3	0	0	2	0	0	0	1	0	9	0	1	0	1	0
16:30:00	16	2	373	27	11	0	0	0	2	0	0	0	1	0	9	0	1	0	1	0
16:45:00	16	0	398	25	13	2	0	0	2	0	0	0	1	0	9	0	1	0	1	0
17:00:00	19	3	428	30	13	0	0	0	2	0	0	0	1	0	9	0	1	0	1	0
17:15:00	20	1	458	30	14	1	0	0	2	0	0	0	1	0	9	0	1	0	1	0
17:30:00	23	3	481	23	15	1	0	0	2	0	0	0	1	0	9	0	1	0	1	0
17:45:00	25	2	501	20	15	0	0	0	2	0	0	0	1	0	9	0	1	0	3	2
18:00:00	26	1	530	29	16	1	0	0	2	0	0	0	1	0	9	0	1	0	3	0
18:15:00	29	3	553	23	16	0	0	0	2	0	0	0	1	0	9	0	1	0	3	0
18:30:00	30	1	575	22	18	2	0	0	2	0	0	0	1	0	9	0	1	0	5	2
18:45:00	30	0	591	16	20	2	0	0	2	0	0	0	1	0	9	0	1	0	6	1
19:00:00	30	0	610	19	20	0	0	0	2	0	0	0	1	0	9	0	1	0	6	0
19:15:00	30	0	610	0	20	0	0	0	2	0	0	0	1	0	9	0	1	0	6	0
19:15:15	30	0	610	0	20	0	0	0	2	0	0	0	1	0	9	0	1	0	6	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	3	2	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45:00	4	1	1	1	7	5	0	0	0	0	0	0	0	0	0	0	0	0	5	4
8:00:00	5	1	1	0	9	2	0	0	0	0	0	0	0	0	0	0	0	0	11	6
8:15:00	9	4	1	0	13	4	0	0	0	0	0	0	0	0	0	0	0	0	15	4
8:30:00	10	1	1	0	15	2	0	0	0	0	0	0	0	0	0	0	0	0	20	5
8:45:00	15	5	3	2	19	4	0	0	0	0	0	0	0	0	0	0	0	0	33	13
9:00:00	17	2	5	2	22	3	0	0	0	0	0	0	0	0	0	0	0	0	41	8
9:15:00	19	2	5	0	23	1	0	0	0	0	0	0	0	0	0	0	0	0	41	0
9:30:00	22	3	5	0	24	1	0	0	0	0	0	0	0	0	0	0	0	0	42	1
9:45:00	24	2	7	2	26	2	0	0	0	0	0	0	0	0	0	0	0	0	45	3
10:00:00	25	1	8	1	27	1	0	0	0	0	0	0	0	0	0	0	0	0	48	3
10:15:00	25	0	8	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0
16:00:00	25	0	8	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0
16:15:00	28	3	8	0	29	2	0	0	0	0	0	0	0	0	0	0	0	0	48	0
16:30:00	30	2	12	4	34	5	0	0	0	0	0	0	0	0	0	0	0	0	48	0
16:45:00	33	3	15	3	40	6	0	0	0	0	0	0	0	0	0	0	0	0	50	2
17:00:00	35	2	16	1	42	2	0	0	0	0	0	0	0	0	0	0	0	0	50	0
17:15:00	36	1	18	2	45	3	0	0	0	0	0	0	0	0	0	0	0	0	51	1
17:30:00	40	4	19	1	48	3	0	0	0	0	0	0	0	0	0	0	0	0	53	2
17:45:00	42	2	20	1	48	0	0	0	0	0	0	0	0	0	0	0	0	0	53	0
18:00:00	43	1	20	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	56	3
18:15:00	46	3	21	1	49	1	0	0	0	0	0	0	0	0	0	0	0	0	57	1
18:30:00	48	2	22	1	49	0	0	0	0	0	0	0	0	0	0	0	0	0	62	5
18:45:00	54	6	22	0	51	2	0	0	0	0	0	0	0	0	0	0	0	0	62	0
19:00:00	56	2	22	0	52	1	0	0	0	0	0	0	0	0	0	0	0	0	64	2
19:15:00	56	0	22	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0
19:15:15	56	0	22	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

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 #: 2308500002
Intersection: Cumberland Ave & Burlington Fire
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

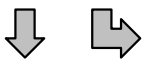
Major Road: Cumberland Ave runs N/S

North Leg Total: 385
North Entering: 183
North Peds: 0
Peds Cross: ⋈

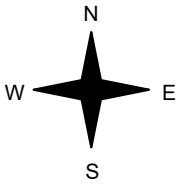
Heavys	8	0	8
Trucks	3	0	3
Cars	171	1	172
Totals	182	1	

Heavys	7
Trucks	1
Cars	194
Totals	202

East Leg Total: 6
East Entering: 4
East Peds: 18
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	2	1	0	3
	0	0	1	1
	2	1	1	





	Cars	Trucks	Heavys	Totals
	1	0	1	2



Cars	171		
Trucks	3		
Heavys	9		
Totals	183		

Cars	192	0	192
Trucks	0	0	0
Heavys	7	1	8
Totals	199	1	

Peds Cross: ⋈
South Peds: 0
South Entering: 200
South Leg Total: 383

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

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

Municipality: Burlington
Site #: 2308500002
Intersection: Cumberland Ave & Burlington Fire
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Cumberland Ave runs N/S

North Leg Total: 289
North Entering: 168
North Peds: 0
Peds Cross: ⋈

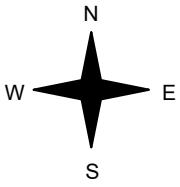
Heavys	2	0	2
Trucks	2	0	2
Cars	163	1	164
Totals	167	1	

Heavys	0
Trucks	0
Cars	121
Totals	121

East Leg Total: 4
East Entering: 2
East Peds: 6
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	1	0	0	1
	1	0	0	1
	2	0	0	





	Cars	Trucks	Heavys	Totals
	2	0	0	2



Cars	164		
Trucks	2		
Heavys	2		
Totals	168		

Cars	120	1	121
Trucks	0	0	0
Heavys	0	0	0
Totals	120	1	

Peds Cross: ⋈
South Peds: 0
South Entering: 121
South Leg Total: 289

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

Municipality: Burlington
Site #: 2308500002
Intersection: Cumberland Ave & Burlington Fire
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

Major Road: Cumberland Ave runs N/S

North Leg Total: 1389
North Entering: 713
North Peds: 2
Peds Cross: ⋈

Heavys	12	0	12
Trucks	5	0	5
Cars	689	7	696
Totals	706	7	

Heavys	11
Trucks	2
Cars	663
Totals	676

East Leg Total: 26
East Entering: 12
East Peds: 59
Peds Cross: ⋈

Cumberland Ave

	Cars	Trucks	Heavys	Totals
	3	1	0	4
	7	0	1	8
	10	1	1	

N
W E
S

Burlington Fire Station

Cars	Trucks	Heavys	Totals
12	1	1	14

Cumberland Ave

Cars	696
Trucks	5
Heavys	13
Totals	714

Cars	660	5	665
Trucks	1	1	2
Heavys	11	1	12
Totals	672	7	

Peds Cross: ⋈
South Peds: 2
South Entering: 679
South Leg Total: 1393

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Cumberland Ave & Burlington Fire | **Count Date:** 22-Mar-23 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*2*	*61*	*0*	*63*	*0*
9:00:00	*0*	*189*	*0*	*189*	*0*
10:00:00	*0*	*75*	*0*	*75*	*0*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*1*	*167*	*0*	*168*	*0*
18:00:00	*1*	*115*	*0*	*116*	*2*
19:00:00	*3*	*99*	*0*	*102*	*0*
Totals:	7	706	0	713	2

North/South Total Approaches: 1392

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*0*	*93*	*0*	*93*	*0*
9:00:00	*0*	*163*	*1*	*164*	*1*
10:00:00	*0*	*97*	*0*	*97*	*0*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*0*	*120*	*1*	*121*	*0*
18:00:00	*0*	*111*	*1*	*112*	*0*
19:00:00	*0*	*88*	*4*	*92*	*1*
S Totals:	0	672	7	679	2

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*1*	*0*	*2*	*3*	*12*
9:00:00	*0*	*0*	*1*	*1*	*17*
10:00:00	*0*	*0*	*0*	*0*	*6*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*1*	*0*	*1*	*2*	*6*
18:00:00	*3*	*0*	*0*	*3*	*13*
19:00:00	*3*	*0*	*0*	*3*	*5*
Totals:	8	0	4	12	59

East/West Total Approaches: 12

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*0*	*0*	*0*	*0*	*0*
9:00:00	*0*	*0*	*0*	*0*	*0*
10:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*0*	*0*	*0*	*0*	*0*
18:00:00	*0*	*0*	*0*	*0*	*0*
19:00:00	*0*	*0*	*0*	*0*	*0*
W Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*7:00*	*8:00*	*9:00*	*10:00*	*16:00*	*17:00*	*18:00*	*19:00*
Crossing Values:	*0*	*1*	*1*	*0*	*0*	*1*	*5*	*4*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500002

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	12	6	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
7:45:00	1	1	26	14	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0
8:00:00	2	1	52	26	0	0	0	0	2	2	0	0	0	0	7	5	0	0	0	0
8:15:00	2	0	114	62	0	0	0	0	3	1	0	0	0	0	7	0	0	0	0	0
8:30:00	2	0	152	38	0	0	0	0	3	0	0	0	0	0	8	1	0	0	0	0
8:45:00	2	0	197	45	0	0	0	0	3	0	0	0	0	0	10	2	0	0	0	0
9:00:00	2	0	237	40	0	0	0	0	3	0	0	0	0	0	10	0	0	0	0	0
9:15:00	2	0	252	15	0	0	0	0	3	0	0	0	0	0	10	0	0	0	0	0
9:30:00	2	0	271	19	0	0	0	0	3	0	0	0	0	0	10	0	0	0	0	0
9:45:00	2	0	291	20	0	0	0	0	3	0	0	0	0	0	10	0	0	0	0	0
10:00:00	2	0	312	21	0	0	0	0	3	0	0	0	0	0	10	0	0	0	0	0
10:15:00	2	0	312	0	0	0	0	0	3	0	0	0	0	0	10	0	0	0	0	0
16:00:00	2	0	312	0	0	0	0	0	3	0	0	0	0	0	10	0	0	0	0	0
16:15:00	2	0	352	40	0	0	0	0	4	1	0	0	0	0	12	2	0	0	0	0
16:30:00	3	1	393	41	0	0	0	0	4	0	0	0	0	0	12	0	0	0	0	0
16:45:00	3	0	443	50	0	0	0	0	5	1	0	0	0	0	12	0	0	0	0	0
17:00:00	3	0	475	32	0	0	0	0	5	0	0	0	0	0	12	0	0	0	0	0
17:15:00	3	0	503	28	0	0	0	0	5	0	0	0	0	0	12	0	0	0	0	0
17:30:00	4	1	538	35	0	0	0	0	5	0	0	0	0	0	12	0	0	0	0	0
17:45:00	4	0	565	27	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	2
18:00:00	4	0	590	25	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	0
18:15:00	4	0	621	31	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	0
18:30:00	5	1	649	28	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	0
18:45:00	7	2	669	20	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	0
19:00:00	7	0	689	20	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	0
19:15:00	7	0	689	0	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	0
19:15:15	7	0	689	0	0	0	0	0	5	0	0	0	0	0	12	0	0	0	2	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500002

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4
8:00:00	0	0	0	0	1	1	0	0	0	0	1	1	1	1	0	0	0	0	12	4
8:15:00	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	16	4
8:30:00	0	0	0	0	2	1	0	0	0	0	1	0	1	0	0	0	0	0	22	6
8:45:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	26	4
9:00:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	29	3
9:15:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	30	1
9:30:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	33	3
9:45:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	35	2
10:00:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	35	0
10:15:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	35	0
16:00:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	35	0
16:15:00	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	38	3
16:30:00	0	0	0	0	3	1	0	0	0	0	1	0	1	0	0	0	0	0	38	0
16:45:00	0	0	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	41	3
17:00:00	1	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	41	0
17:15:00	1	0	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	44	3
17:30:00	2	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	48	4
17:45:00	3	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	54	6
18:00:00	4	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	54	0
18:15:00	4	0	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	55	1
18:30:00	6	2	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	56	1
18:45:00	6	0	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	58	2
19:00:00	7	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	59	1
19:15:00	7	0	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	59	0
19:15:15	7	0	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0	0	59	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500002

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	19	10	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0
7:45:00	0	0	28	9	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0
8:00:00	0	0	85	57	0	0	0	0	0	0	0	0	0	0	8	4	0	0	0	0
8:15:00	0	0	154	69	0	0	0	0	0	0	0	0	0	0	9	1	0	0	0	0
8:30:00	0	0	186	32	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0
8:45:00	0	0	220	34	0	0	0	0	0	0	0	0	0	0	11	2	1	1	0	0
9:00:00	0	0	245	25	0	0	0	0	0	0	0	0	0	0	11	0	1	0	1	1
9:15:00	0	0	268	23	0	0	0	0	0	0	0	0	0	0	11	0	1	0	1	0
9:30:00	0	0	287	19	0	0	0	0	0	0	0	0	0	0	11	0	1	0	1	0
9:45:00	0	0	312	25	0	0	0	0	1	1	0	0	0	0	11	0	1	0	1	0
10:00:00	0	0	341	29	0	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
10:15:00	0	0	341	0	0	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
16:00:00	0	0	341	0	0	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
16:15:00	0	0	373	32	0	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
16:30:00	0	0	401	28	0	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
16:45:00	0	0	428	27	1	1	0	0	1	0	0	0	0	0	11	0	1	0	1	0
17:00:00	0	0	461	33	1	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
17:15:00	0	0	492	31	1	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
17:30:00	0	0	519	27	1	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
17:45:00	0	0	541	22	2	1	0	0	1	0	0	0	0	0	11	0	1	0	1	0
18:00:00	0	0	572	31	2	0	0	0	1	0	0	0	0	0	11	0	1	0	1	0
18:15:00	0	0	599	27	3	1	0	0	1	0	0	0	0	0	11	0	1	0	1	0
18:30:00	0	0	624	25	5	2	0	0	1	0	0	0	0	0	11	0	1	0	2	1
18:45:00	0	0	642	18	5	0	0	0	1	0	0	0	0	0	11	0	1	0	2	0
19:00:00	0	0	660	18	5	0	0	0	1	0	1	1	0	0	11	0	1	0	2	0
19:15:00	0	0	660	0	5	0	0	0	1	0	1	0	0	0	11	0	1	0	2	0
19:15:15	0	0	660	0	5	0	0	0	1	0	1	0	0	0	11	0	1	0	2	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500002

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

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 #: 2308500003
Intersection: New St & Cumberland Ave
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

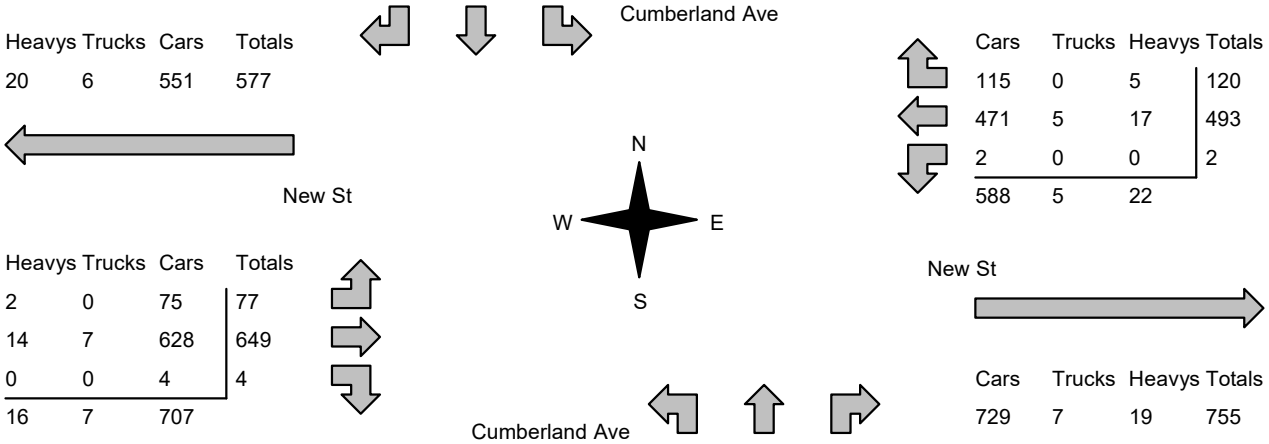
Major Road: New St runs W/E

North Leg Total: 382
North Entering: 183
North Peds: 5
Peds Cross: ⋈

Heavys	3	0	5	8
Trucks	1	0	0	1
Cars	74	2	98	174
Totals	78	2	103	

Heavys	7
Trucks	0
Cars	192
Totals	199

East Leg Total: 1370
East Entering: 615
East Peds: 11
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 11
West Entering: 730
West Leg Total: 1307

Cars	8			
Trucks	0			
Heavys	0			
Totals	8			

Cars	6	2	3	11
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	6	2	3	

Peds Cross: ⋈
South Peds: 6
South Entering: 11
South Leg Total: 19

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Burlington
Site #: 2308500003
Intersection: New St & Cumberland Ave
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: New St runs W/E

North Leg Total:	268
North Entering:	149
North Peds:	4
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	1	0	0	1
Cars	64	3	81	148
Totals	65	3	81	

Heavys	0
Trucks	0
Cars	119
Totals	119

East Leg Total:	2128
East Entering:	1450
East Peds:	9
Peds Cross:	⧖

Cumberland Ave

Heavys	Trucks	Cars	Totals
8	6	1418	1432

New St

Cars	Trucks	Heavys	Totals
87	0	0	87
1347	5	8	1360
3	0	0	3
1437	5	8	

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	31	31
6	3	586	595
0	0	11	11
6	3	628	

New St

Cars	Trucks	Heavys	Totals
669	3	6	678

Cumberland Ave

Peds Cross:	⧖
West Peds:	6
West Entering:	637
West Leg Total:	2069

Cars	17			
Trucks	0			
Heavys	0			
Totals	17			

Cars	7	1	2	10
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	7	1	2	

Peds Cross:	⋈
South Peds:	7
South Entering:	10
South Leg Total:	27

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Total Count Diagram

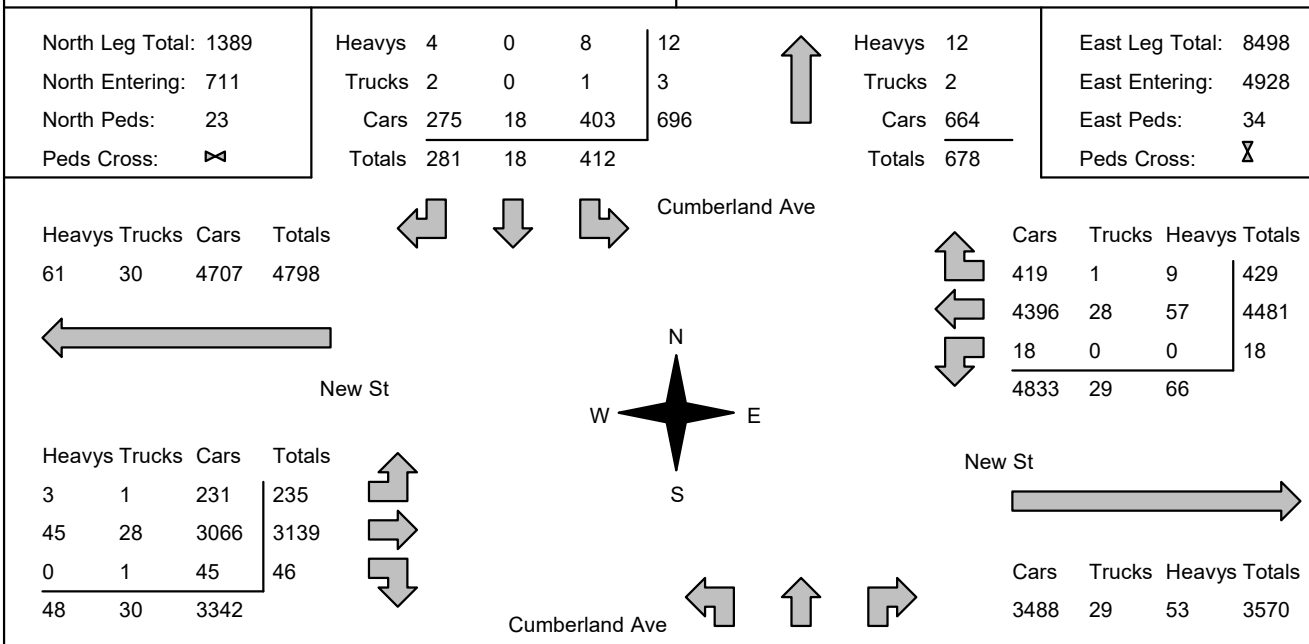
Municipality: Burlington
Site #: 2308500003
Intersection: New St & Cumberland Ave
TFR File #: 1
Count date: 22-Mar-23

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: New St runs W/E



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: New St & Cumberland Ave | **Count Date:** 22-Mar-23 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*37*	*2*	*23*	*62*	*6*
9:00:00	*103*	*1*	*84*	*188*	*5*
10:00:00	*38*	*4*	*33*	*75*	*2*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*99*	*6*	*63*	*168*	*1*
18:00:00	*64*	*3*	*47*	*114*	*6*
19:00:00	*71*	*2*	*31*	*104*	*3*
Totals:	412	18	281	711	23

North/South Total Approaches: 780

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*2*	*0*	*3*	*5*	*5*
9:00:00	*8*	*2*	*4*	*14*	*10*
10:00:00	*8*	*9*	*4*	*21*	*12*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*2*	*0*	*3*	*5*	*5*
18:00:00	*11*	*1*	*2*	*14*	*6*
19:00:00	*5*	*2*	*3*	*10*	*2*
S Totals:	36	14	19	69	40

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*0*	*288*	*58*	*346*	*9*
9:00:00	*4*	*533*	*93*	*630*	*10*
10:00:00	*1*	*484*	*57*	*542*	*1*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*3*	*1302*	*83*	*1388*	*5*
18:00:00	*8*	*1240*	*81*	*1329*	*8*
19:00:00	*2*	*634*	*57*	*693*	*1*
Totals:	18	4481	429	4928	34

East/West Total Approaches: 8348

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*35*	*523*	*2*	*560*	*7*
9:00:00	*69*	*634*	*4*	*707*	*17*
10:00:00	*30*	*418*	*11*	*459*	*4*
16:00:00	*0*	*0*	*0*	*0*	*0*
17:00:00	*39*	*591*	*11*	*641*	*11*
18:00:00	*30*	*555*	*10*	*595*	*4*
19:00:00	*32*	*418*	*8*	*458*	*5*
W Totals:	235	3139	46	3420	48

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*7:00*	*8:00*	*9:00*	*10:00*	*16:00*	*17:00*	*18:00*	*19:00*
Crossing Values:	*0*	*57*	*140*	*60*	*0*	*123*	*90*	*84*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500003

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	5	4	0	0	7	3	0	0	0	0	0	0	1	1	0	0	0	0	1	0
7:45:00	14	9	1	1	10	3	0	0	0	0	0	0	2	1	0	0	0	0	4	3
8:00:00	30	16	2	1	22	12	0	0	0	0	0	0	7	5	0	0	1	1	6	2
8:15:00	69	39	2	0	42	20	0	0	0	0	1	1	7	0	0	0	1	0	6	0
8:30:00	97	28	3	1	56	14	0	0	0	0	1	0	7	0	0	0	2	1	7	1
8:45:00	112	15	3	0	84	28	0	0	0	0	1	0	7	0	0	0	3	1	9	2
9:00:00	133	21	3	0	103	19	0	0	0	0	1	0	7	0	0	0	3	0	11	2
9:15:00	141	8	4	1	111	8	0	0	0	0	1	0	7	0	0	0	3	0	12	1
9:30:00	152	11	5	1	117	6	0	0	0	0	1	0	7	0	0	0	3	0	12	0
9:45:00	161	9	5	0	127	10	0	0	0	0	1	0	7	0	0	0	3	0	13	1
10:00:00	171	10	7	2	136	9	0	0	0	0	1	0	7	0	0	0	3	0	13	0
10:15:00	171	0	7	0	136	0	0	0	0	0	1	0	7	0	0	0	3	0	13	0
16:00:00	171	0	7	0	136	0	0	0	0	0	1	0	7	0	0	0	3	0	13	0
16:15:00	196	25	9	2	149	13	1	1	0	0	1	0	8	1	0	0	4	1	14	1
16:30:00	221	25	11	2	162	13	1	0	0	0	1	0	8	0	0	0	4	0	14	0
16:45:00	250	29	13	2	182	20	1	0	0	0	2	1	8	0	0	0	4	0	14	0
17:00:00	268	18	13	0	197	15	1	0	0	0	2	0	8	0	0	0	4	0	14	0
17:15:00	285	17	13	0	208	11	1	0	0	0	2	0	8	0	0	0	4	0	15	1
17:30:00	302	17	14	1	226	18	1	0	0	0	2	0	8	0	0	0	4	0	18	3
17:45:00	315	13	15	1	239	13	1	0	0	0	2	0	8	0	0	0	4	0	18	0
18:00:00	332	17	16	1	244	5	1	0	0	0	2	0	8	0	0	0	4	0	20	2
18:15:00	355	23	16	0	254	10	1	0	0	0	2	0	8	0	0	0	4	0	20	0
18:30:00	373	18	17	1	266	12	1	0	0	0	2	0	8	0	0	0	4	0	21	1
18:45:00	389	16	18	1	268	2	1	0	0	0	2	0	8	0	0	0	4	0	21	0
19:00:00	403	14	18	0	275	7	1	0	0	0	2	0	8	0	0	0	4	0	23	2
19:15:00	403	0	18	0	275	0	1	0	0	0	2	0	8	0	0	0	4	0	23	0
19:15:15	403	0	18	0	275	0	1	0	0	0	2	0	8	0	0	0	4	0	23	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500003

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	42	42	5	5	0	0	3	3	0	0	0	0	3	3	0	0	0	0
7:30:00	0	0	91	49	11	6	0	0	4	1	0	0	0	0	4	1	1	1	1	1
7:45:00	0	0	163	72	13	2	0	0	4	0	0	0	0	0	6	2	4	3	3	2
8:00:00	0	0	270	107	52	39	0	0	5	1	0	0	0	0	13	7	6	2	9	6
8:15:00	1	1	398	128	103	51	0	0	7	2	0	0	0	0	16	3	7	1	11	2
8:30:00	1	0	509	111	117	14	0	0	8	1	0	0	0	0	18	2	7	0	13	2
8:45:00	2	1	634	125	128	11	0	0	9	1	0	0	0	0	23	5	9	2	14	1
9:00:00	4	2	787	153	142	14	0	0	9	0	0	0	0	0	25	2	9	0	19	5
9:15:00	4	0	889	102	152	10	0	0	9	0	0	0	0	0	27	2	9	0	19	0
9:30:00	5	1	1017	128	163	11	0	0	12	3	0	0	0	0	29	2	9	0	19	0
9:45:00	5	0	1121	104	180	17	0	0	13	1	0	0	0	0	30	1	9	0	20	1
10:00:00	5	0	1258	137	199	19	0	0	15	2	0	0	0	0	32	2	9	0	20	0
10:15:00	5	0	1258	0	199	0	0	0	15	0	0	0	0	0	32	0	9	0	20	0
16:00:00	5	0	1258	0	199	0	0	0	15	0	0	0	0	0	32	0	9	0	20	0
16:15:00	5	0	1551	293	219	20	0	0	17	2	0	0	0	0	35	3	9	0	23	3
16:30:00	7	2	1871	320	237	18	0	0	20	3	0	0	0	0	40	5	9	0	23	0
16:45:00	8	1	2191	320	257	20	0	0	22	2	0	0	0	0	43	3	9	0	25	2
17:00:00	8	0	2538	347	282	25	0	0	25	3	0	0	0	0	44	1	9	0	25	0
17:15:00	10	2	2883	345	304	22	0	0	25	0	0	0	0	0	45	1	9	0	30	5
17:30:00	10	0	3218	335	324	20	0	0	25	0	0	0	0	0	48	3	9	0	32	2
17:45:00	14	4	3525	307	339	15	0	0	26	1	0	0	0	0	50	2	9	0	32	0
18:00:00	16	2	3768	243	363	24	0	0	27	1	0	0	0	0	52	2	9	0	33	1
18:15:00	16	0	3972	204	380	17	0	0	28	1	0	0	0	0	54	2	9	0	33	0
18:30:00	18	2	4122	150	399	19	0	0	28	0	0	0	0	0	55	1	9	0	33	0
18:45:00	18	0	4282	160	409	10	0	0	28	0	0	0	0	0	56	1	9	0	34	1
19:00:00	18	0	4396	114	419	10	0	0	28	0	1	1	0	0	57	1	9	0	34	0
19:15:00	18	0	4396	0	419	0	0	0	28	0	1	0	0	0	57	0	9	0	34	0
19:15:15	18	0	4396	0	419	0	0	0	28	0	1	0	0	0	57	0	9	0	34	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500003

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
7:45:00	2	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:00:00	2	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	5	1
8:15:00	3	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
8:30:00	5	2	2	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	7	2
8:45:00	8	3	2	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	10	3
9:00:00	10	2	2	0	7	2	0	0	0	0	0	0	0	0	0	0	0	0	15	5
9:15:00	12	2	3	1	9	2	0	0	0	0	0	0	0	0	0	0	0	0	18	3
9:30:00	12	0	4	1	10	1	0	0	0	0	0	0	0	0	0	0	0	0	20	2
9:45:00	14	2	9	5	11	1	0	0	0	0	0	0	0	0	0	0	0	0	21	1
10:00:00	18	4	11	2	11	0	0	0	0	0	0	0	0	0	0	0	0	0	27	6
10:15:00	18	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0
16:00:00	18	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0
16:15:00	18	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	28	1
16:30:00	19	1	11	0	13	2	0	0	0	0	0	0	0	0	0	0	0	0	29	1
16:45:00	19	0	11	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	32	3
17:00:00	20	1	11	0	14	1	0	0	0	0	0	0	0	0	0	0	0	0	32	0
17:15:00	22	2	12	1	15	1	0	0	0	0	0	0	0	0	0	0	0	0	34	2
17:30:00	26	4	12	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	36	2
17:45:00	28	2	12	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0
18:00:00	31	3	12	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	38	2
18:15:00	33	2	12	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	39	1
18:30:00	35	2	13	1	17	1	0	0	0	0	0	0	0	0	0	0	0	0	40	1
18:45:00	36	1	13	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0
19:00:00	36	0	14	1	19	2	0	0	0	0	0	0	0	0	0	0	0	0	40	0
19:15:00	36	0	14	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0
19:15:15	36	0	14	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0

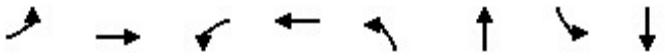
Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Count Date: 22-Mar-23 Site #: 2308500003

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	4	4	107	107	0	0	0	0	1	1	0	0	0	0	1	1	0	0	1	1
7:30:00	8	4	215	108	1	1	0	0	2	1	0	0	1	1	2	1	0	0	1	0
7:45:00	15	7	350	135	1	0	0	0	6	4	0	0	1	0	3	1	0	0	4	3
8:00:00	33	18	507	157	2	1	0	0	8	2	0	0	2	1	8	5	0	0	7	3
8:15:00	52	19	655	148	4	2	0	0	11	3	0	0	2	0	9	1	0	0	12	5
8:30:00	67	15	807	152	5	1	0	0	12	1	0	0	2	0	12	3	0	0	14	2
8:45:00	90	23	978	171	5	0	0	0	13	1	0	0	3	1	17	5	0	0	15	1
9:00:00	101	11	1123	145	6	1	0	0	15	2	0	0	3	0	19	2	0	0	24	9
9:15:00	113	12	1246	123	7	1	0	0	16	1	0	0	3	0	22	3	0	0	25	1
9:30:00	119	6	1344	98	11	4	0	0	17	1	0	0	3	0	24	2	0	0	26	1
9:45:00	122	3	1434	90	15	4	1	1	18	1	0	0	3	0	25	1	0	0	27	1
10:00:00	130	8	1529	95	16	1	1	0	20	2	1	1	3	0	26	1	0	0	28	1
10:15:00	130	0	1529	0	16	0	1	0	20	0	1	0	3	0	26	0	0	0	28	0
16:00:00	130	0	1529	0	16	0	1	0	20	0	1	0	3	0	26	0	0	0	28	0
16:15:00	144	14	1691	162	19	3	1	0	22	2	1	0	3	0	26	0	0	0	31	3
16:30:00	153	9	1827	136	20	1	1	0	22	0	1	0	3	0	31	5	0	0	33	2
16:45:00	161	8	1972	145	23	3	1	0	23	1	1	0	3	0	33	2	0	0	37	4
17:00:00	169	8	2108	136	27	4	1	0	24	1	1	0	3	0	34	1	0	0	39	2
17:15:00	177	8	2254	146	28	1	1	0	25	1	1	0	3	0	35	1	0	0	39	0
17:30:00	184	7	2413	159	31	3	1	0	25	0	1	0	3	0	37	2	0	0	39	0
17:45:00	192	8	2540	127	34	3	1	0	26	1	1	0	3	0	38	1	0	0	42	3
18:00:00	199	7	2656	116	37	3	1	0	27	1	1	0	3	0	38	0	0	0	43	1
18:15:00	210	11	2765	109	39	2	1	0	27	0	1	0	3	0	41	3	0	0	45	2
18:30:00	217	7	2864	99	42	3	1	0	27	0	1	0	3	0	43	2	0	0	46	1
18:45:00	225	8	2971	107	43	1	1	0	27	0	1	0	3	0	44	1	0	0	47	1
19:00:00	231	6	3066	95	45	2	1	0	28	1	1	0	3	0	45	1	0	0	48	1
19:15:00	231	0	3066	0	45	0	1	0	28	0	1	0	3	0	45	0	0	0	48	0
19:15:15	231	0	3066	0	45	0	1	0	28	0	1	0	3	0	45	0	0	0	48	0

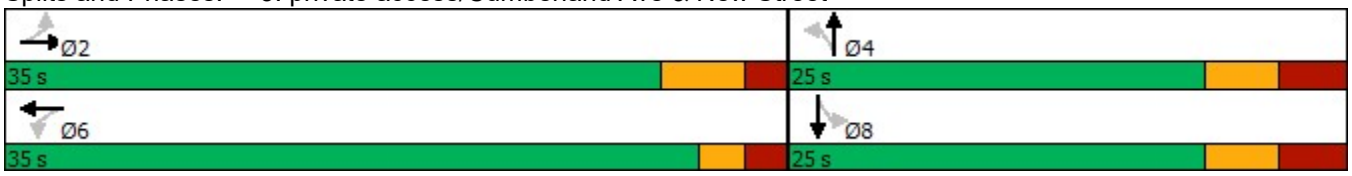
Appendix B – Existing Traffic Level of Service Calculations

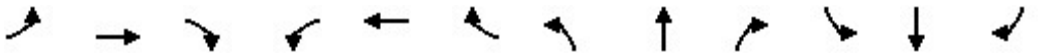


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	77	649	2	493	6	2	103	2
Future Volume (vph)	77	649	2	493	6	2	103	2
Lane Group Flow (vph)	0	793	0	668	0	12	112	87
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		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)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.7	3.7	2.0	2.0	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		5.7		4.0		6.4	6.4	6.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		36.3		37.7		10.1	10.1	10.1
Actuated g/C Ratio		0.67		0.69		0.19	0.19	0.19
v/c Ratio		0.41		0.29		0.05	0.43	0.24
Control Delay		6.9		4.6		16.1	25.0	7.2
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.9		4.6		16.1	25.0	7.2
LOS		A		A		B	C	A
Approach Delay		6.9		4.6		16.1		17.2
Approach LOS		A		A		B		B
Queue Length 50th (m)		19.9		11.8		0.8	10.3	0.2
Queue Length 95th (m)		38.4		23.9		4.2	22.6	9.3
Internal Link Dist (m)		381.4		411.4		58.3		63.9
Turn Bay Length (m)							29.0	
Base Capacity (vph)		1930		2293		484	478	599
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.41		0.29		0.02	0.23	0.15

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 54.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 60.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: private access/Cumberland Ave & New Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	649	4	2	493	120	6	2	3	103	2	78
Future Volume (vph)	77	649	4	2	493	120	6	2	3	103	2	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7			4.0			6.4		6.4	6.4	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frt		1.00			0.97			0.97		1.00	0.85	
Flt Protected		0.99			1.00			0.97		0.95	1.00	
Satd. Flow (prot)		3518			3435			1749		1770	1590	
Flt Permitted		0.82			0.95			0.78		0.75	1.00	
Satd. Flow (perm)		2888			3277			1407		1397	1590	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	705	4	2	536	130	7	2	3	112	2	85
RTOR Reduction (vph)	0	0	0	0	25	0	0	3	0	0	72	0
Lane Group Flow (vph)	0	793	0	0	643	0	0	9	0	112	15	0
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)		35.1			36.8			8.4		8.4	8.4	
Effective Green, g (s)		35.1			36.8			8.4		8.4	8.4	
Actuated g/C Ratio		0.63			0.66			0.15		0.15	0.15	
Clearance Time (s)		5.7			4.0			6.4		6.4	6.4	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		1823			2168			212		211	240	
v/s Ratio Prot											0.01	
v/s Ratio Perm		c0.27			0.20			0.01		c0.08		
v/c Ratio		0.43			0.30			0.04		0.53	0.06	
Uniform Delay, d1		5.2			4.0			20.2		21.8	20.2	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.8			0.3			0.1		2.6	0.1	
Delay (s)		6.0			4.3			20.3		24.3	20.3	
Level of Service		A			A			C		C	C	
Approach Delay (s)		6.0			4.3			20.3			22.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	12.1
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

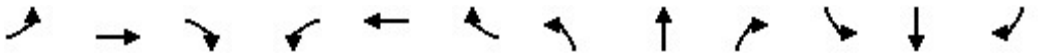
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	3	199	1	1	182
Future Volume (Veh/h)	1	3	199	1	1	182
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	216	1	1	198
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			
pX, platoon unblocked						
vC, conflicting volume	416	216			217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	416	216			217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	592	823			1353	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	217	199
Volume Left	1	0	1
Volume Right	3	1	0
cSH	750	1700	1353
Volume to Capacity	0.01	0.13	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.8	0.0	0.0
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.0
Approach LOS	A		

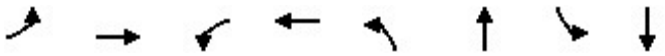
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	12	8	0	13	7	193	3	12	162	12
Future Volume (Veh/h)	11	2	12	8	0	13	7	193	3	12	162	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	2	13	9	0	14	8	210	3	13	176	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								176				
pX, platoon unblocked												
vC, conflicting volume	450	438	182	450	442	212	189			213		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	450	438	182	450	442	212	189			213		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	98	100	98	99			99		
cM capacity (veh/h)	505	505	860	504	502	829	1385			1357		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	27	23	221	202
Volume Left	12	9	8	13
Volume Right	13	14	3	13
cSH	630	662	1385	1357
Volume to Capacity	0.04	0.03	0.01	0.01
Queue Length 95th (m)	1.1	0.9	0.1	0.2
Control Delay (s)	11.0	10.6	0.3	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.0	10.6	0.3	0.6
Approach LOS	B	B		

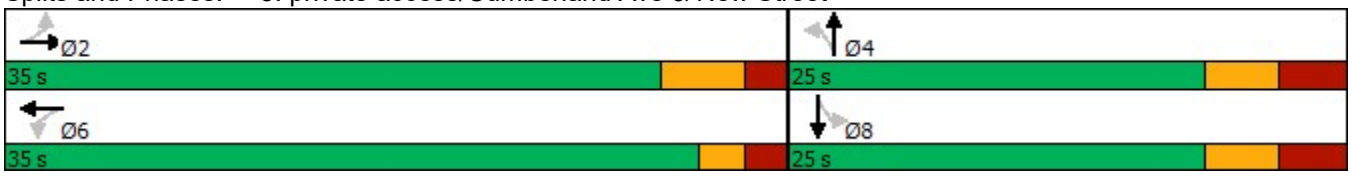
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	24.3%	ICU Level of Service	A	
Analysis Period (min)	15			

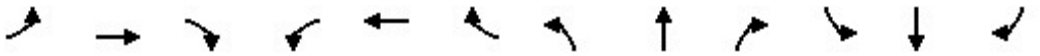


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	595	3	1360	7	1	81	3
Future Volume (vph)	31	595	3	1360	7	1	81	3
Lane Group Flow (vph)	0	693	0	1576	0	11	88	74
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		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)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.7	3.7	2.0	2.0	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		5.7		4.0		6.4	6.4	6.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		36.2		37.6		9.4	9.4	9.4
Actuated g/C Ratio		0.68		0.70		0.18	0.18	0.18
v/c Ratio		0.35		0.67		0.05	0.36	0.25
Control Delay		6.0		8.4		17.0	23.8	16.6
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.0		8.4		17.0	23.8	16.6
LOS		A		A		B	C	B
Approach Delay		6.0		8.4		17.0		20.5
Approach LOS		A		A		B		C
Queue Length 50th (m)		15.5		44.7		0.8	8.0	4.6
Queue Length 95th (m)		29.5		84.4		4.2	18.6	13.6
Internal Link Dist (m)		381.4		411.4		58.3		63.9
Turn Bay Length (m)							29.0	
Base Capacity (vph)		1975		2350		466	484	567
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.35		0.67		0.02	0.18	0.13

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 53.6	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 57.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: private access/Cumberland Ave & New Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	595	11	3	1360	87	7	1	2	81	3	65
Future Volume (vph)	31	595	11	3	1360	87	7	1	2	81	3	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7			4.0			6.4		6.4	6.4	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frt		1.00			0.99			0.98		1.00	0.86	
Flt Protected		1.00			1.00			0.96		0.95	1.00	
Satd. Flow (prot)		3521			3507			1753		1770	1595	
Flt Permitted		0.83			0.95			0.74		0.75	1.00	
Satd. Flow (perm)		2922			3347			1341		1398	1595	
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)	34	647	12	3	1478	95	8	1	2	88	3	71
RTOR Reduction (vph)	0	1	0	0	5	0	0	2	0	0	19	0
Lane Group Flow (vph)	0	692	0	0	1571	0	0	9	0	88	55	0
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)		35.1			36.8			7.8		7.8	7.8	
Effective Green, g (s)		35.1			36.8			7.8		7.8	7.8	
Actuated g/C Ratio		0.64			0.67			0.14		0.14	0.14	
Clearance Time (s)		5.7			4.0			6.4		6.4	6.4	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		1864			2239			190		198	226	
v/s Ratio Prot											0.03	
v/s Ratio Perm		0.24			c0.47			0.01		c0.06		
v/c Ratio		0.37			0.70			0.05		0.44	0.24	
Uniform Delay, d1		4.7			5.7			20.4		21.6	21.0	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.6			1.9			0.1		1.6	0.6	
Delay (s)		5.3			7.5			20.5		23.2	21.5	
Level of Service		A			A			C		C	C	
Approach Delay (s)		5.3			7.5			20.5			22.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	1	120	1	1	167
Future Volume (Veh/h)	1	1	120	1	1	167
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	130	1	1	182
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			
pX, platoon unblocked						
vC, conflicting volume	314	130			131	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	314	130			131	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	678	919			1454	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	131	183
Volume Left	1	0	1
Volume Right	1	1	0
cSH	780	1700	1454
Volume to Capacity	0.00	0.08	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

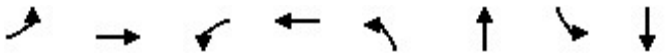
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	8	15	6	3	3	7	108	5	3	147	14
Future Volume (Veh/h)	10	8	15	6	3	3	7	108	5	3	147	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	9	16	7	3	3	8	117	5	3	160	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								176				
pX, platoon unblocked												
vC, conflicting volume	314	312	168	330	316	120	175			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314	312	168	330	316	120	175			122		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	98	99	99	100	99			100		
cM capacity (veh/h)	631	599	877	602	595	932	1401			1465		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	36	13	130	178
Volume Left	11	7	8	3
Volume Right	16	3	5	15
cSH	710	653	1401	1465
Volume to Capacity	0.05	0.02	0.01	0.00
Queue Length 95th (m)	1.3	0.5	0.1	0.0
Control Delay (s)	10.3	10.6	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.3	10.6	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	19.8%	ICU Level of Service	A	
Analysis Period (min)	15			

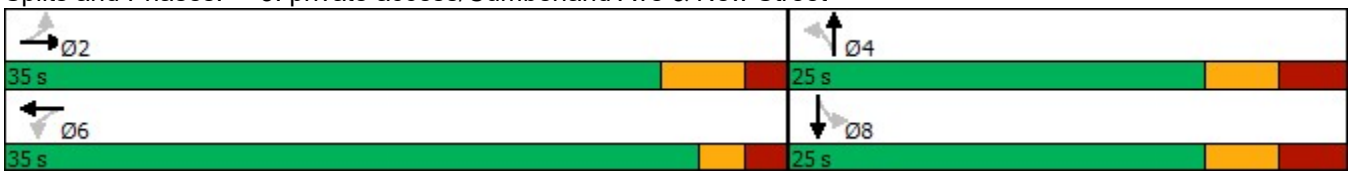
Appendix C – Future Background Traffic Level of Service Calculations



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	77	717	2	544	6	2	103	2
Future Volume (vph)	77	717	2	544	6	2	103	2
Lane Group Flow (vph)	0	867	0	723	0	12	112	87
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)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.7	3.7	2.0	2.0	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		5.7		4.0		6.4	6.4	6.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		36.3		37.7		10.1	10.1	10.1
Actuated g/C Ratio		0.67		0.69		0.19	0.19	0.19
v/c Ratio		0.45		0.32		0.05	0.43	0.24
Control Delay		7.3		4.9		16.1	25.0	7.2
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		7.3		4.9		16.1	25.0	7.2
LOS		A		A		B	C	A
Approach Delay		7.3		4.9		16.1		17.2
Approach LOS		A		A		B		B
Queue Length 50th (m)		22.5		13.4		0.8	10.3	0.2
Queue Length 95th (m)		43.2		26.8		4.2	22.6	9.3
Internal Link Dist (m)		381.4		411.4		58.3		63.9
Turn Bay Length (m)							29.0	
Base Capacity (vph)		1925		2295		484	478	599
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.45		0.32		0.02	0.23	0.15

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 54.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: private access/Cumberland Ave & New Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	717	4	2	544	120	6	2	3	103	2	78
Future Volume (vph)	77	717	4	2	544	120	6	2	3	103	2	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7			4.0			6.4		6.4	6.4	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frt		1.00			0.97			0.97		1.00	0.85	
Flt Protected		1.00			1.00			0.97		0.95	1.00	
Satd. Flow (prot)		3520			3443			1749		1770	1590	
Flt Permitted		0.82			0.95			0.78		0.75	1.00	
Satd. Flow (perm)		2884			3285			1407		1397	1590	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	779	4	2	591	130	7	2	3	112	2	85
RTOR Reduction (vph)	0	0	0	0	22	0	0	3	0	0	72	0
Lane Group Flow (vph)	0	867	0	0	701	0	0	9	0	112	15	0
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)		35.1			36.8			8.4		8.4	8.4	
Effective Green, g (s)		35.1			36.8			8.4		8.4	8.4	
Actuated g/C Ratio		0.63			0.66			0.15		0.15	0.15	
Clearance Time (s)		5.7			4.0			6.4		6.4	6.4	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		1820			2174			212		211	240	
v/s Ratio Prot											0.01	
v/s Ratio Perm		c0.30			0.21			0.01		c0.08		
v/c Ratio		0.48			0.32			0.04		0.53	0.06	
Uniform Delay, d1		5.4			4.0			20.2		21.8	20.2	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.9			0.4			0.1		2.6	0.1	
Delay (s)		6.3			4.4			20.3		24.3	20.3	
Level of Service		A			A			C		C	C	
Approach Delay (s)		6.3			4.4			20.3			22.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	12.1
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	3	199	1	1	182
Future Volume (Veh/h)	1	3	199	1	1	182
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	216	1	1	198
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			
pX, platoon unblocked						
vC, conflicting volume	416	216			217	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	416	216			217	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	592	823			1353	

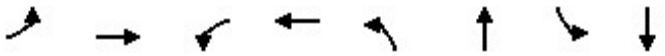
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	4	217	199
Volume Left	1	0	1
Volume Right	3	1	0
cSH	750	1700	1353
Volume to Capacity	0.01	0.13	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.8	0.0	0.0
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	12	8	0	13	7	193	3	12	162	12
Future Volume (Veh/h)	11	2	12	8	0	13	7	193	3	12	162	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	2	13	9	0	14	8	210	3	13	176	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								176				
pX, platoon unblocked												
vC, conflicting volume	450	438	182	450	442	212	189			213		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	450	438	182	450	442	212	189			213		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	98	100	98	99			99		
cM capacity (veh/h)	505	505	860	504	502	829	1385			1357		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	27	23	221	202
Volume Left	12	9	8	13
Volume Right	13	14	3	13
cSH	630	662	1385	1357
Volume to Capacity	0.04	0.03	0.01	0.01
Queue Length 95th (m)	1.1	0.9	0.1	0.2
Control Delay (s)	11.0	10.6	0.3	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.0	10.6	0.3	0.6
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

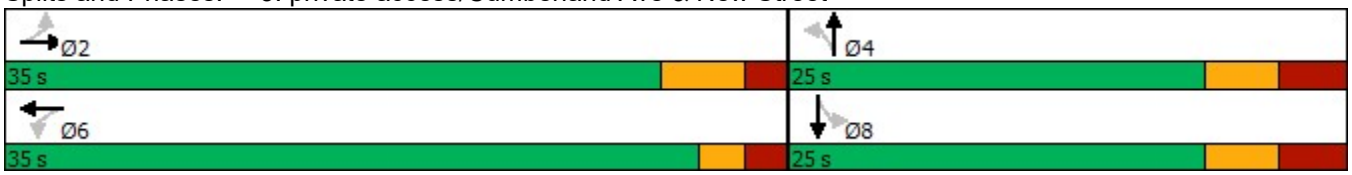


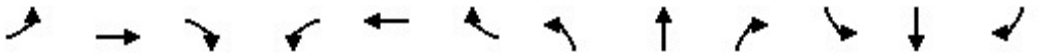
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	31	657	3	1502	7	1	81	3
Future Volume (vph)	31	657	3	1502	7	1	81	3
Lane Group Flow (vph)	0	760	0	1731	0	11	88	74
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		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)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.7	3.7	2.0	2.0	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		5.7		4.0		6.4	6.4	6.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		36.2		37.6		9.4	9.4	9.4
Actuated g/C Ratio		0.68		0.70		0.18	0.18	0.18
v/c Ratio		0.39		0.74		0.05	0.36	0.26
Control Delay		6.3		10.2		17.0	23.8	18.4
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.3		10.2		17.0	23.8	18.4
LOS		A		B		B	C	B
Approach Delay		6.3		10.2		17.0		21.3
Approach LOS		A		B		B		C
Queue Length 50th (m)		17.6		54.0		0.8	8.0	5.3
Queue Length 95th (m)		33.3		#110.8		4.2	18.6	14.4
Internal Link Dist (m)		381.4		411.4		58.3		63.9
Turn Bay Length (m)							29.0	
Base Capacity (vph)		1958		2351		466	484	562
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.39		0.74		0.02	0.18	0.13

Intersection Summary			
Cycle Length: 60			
Actuated Cycle Length: 53.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			

Queue shown is maximum after two cycles.

Splits and Phases: 3: private access/Cumberland Ave & New Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	657	11	3	1502	87	7	1	2	81	3	65
Future Volume (vph)	31	657	11	3	1502	87	7	1	2	81	3	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7			4.0			6.4		6.4	6.4	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frt		1.00			0.99			0.98		1.00	0.86	
Flt Protected		1.00			1.00			0.96		0.95	1.00	
Satd. Flow (prot)		3523			3510			1753		1770	1595	
Flt Permitted		0.82			0.95			0.74		0.75	1.00	
Satd. Flow (perm)		2894			3350			1341		1398	1595	
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)	34	714	12	3	1633	95	8	1	2	88	3	71
RTOR Reduction (vph)	0	1	0	0	5	0	0	2	0	0	12	0
Lane Group Flow (vph)	0	759	0	0	1726	0	0	9	0	88	62	0
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)		35.1			36.8			7.8		7.8	7.8	
Effective Green, g (s)		35.1			36.8			7.8		7.8	7.8	
Actuated g/C Ratio		0.64			0.67			0.14		0.14	0.14	
Clearance Time (s)		5.7			4.0			6.4		6.4	6.4	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		1846			2241			190		198	226	
v/s Ratio Prot											0.04	
v/s Ratio Perm		0.26			c0.52			0.01		c0.06		
v/c Ratio		0.41			0.77			0.05		0.44	0.27	
Uniform Delay, d1		4.9			6.2			20.4		21.6	21.1	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.7			2.6			0.1		1.6	0.7	
Delay (s)		5.6			8.8			20.5		23.2	21.7	
Level of Service		A			A			C		C	C	
Approach Delay (s)		5.6			8.8			20.5			22.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	1	120	1	1	167
Future Volume (Veh/h)	1	1	120	1	1	167
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	130	1	1	182
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			88			
pX, platoon unblocked						
vC, conflicting volume	314	130			131	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	314	130			131	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	678	919			1454	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	131	183
Volume Left	1	0	1
Volume Right	1	1	0
cSH	780	1700	1454
Volume to Capacity	0.00	0.08	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	19.6%	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)	10	8	15	6	3	3	7	108	5	3	147	14
Future Volume (Veh/h)	10	8	15	6	3	3	7	108	5	3	147	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	9	16	7	3	3	8	117	5	3	160	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								176				
pX, platoon unblocked												
vC, conflicting volume	314	312	168	330	316	120	175			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314	312	168	330	316	120	175			122		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	98	99	99	100	99			100		
cM capacity (veh/h)	631	599	877	602	595	932	1401			1465		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	36	13	130	178
Volume Left	11	7	8	3
Volume Right	16	3	5	15
cSH	710	653	1401	1465
Volume to Capacity	0.05	0.02	0.01	0.00
Queue Length 95th (m)	1.3	0.5	0.1	0.0
Control Delay (s)	10.3	10.6	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.3	10.6	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	19.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix D – 2016 Transportation Tomorrow Survey (TTS) Data Analysis

Tue Apr 25 2023 14:24:06 GMT-0400 (Eastern Daylight Time) - Run Time: 2696ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA z 4065 4066 4067
and
Primary trav c d g j m p t u w
and
Start time of trip - start_time In 600-900

Trip 2016
Table:

	Transit excludin	Cycle	Auto drive	GO rail onl	Joint GO ra	Auto passe	Taxi passer	Walk	
4064	150	48	1567	58	61	176	15	122	
4065	0	26	837	37	90	56	0	20	
4066	0	0	704	19	0	37	0	97	
4067	0.00	19.00	849.00	93.00	12.00	283.00	0.00	163.00	
	150	93	3957	207	163	552	15	402	5539
	3%	2%	71%	4%	3%	10%	0%	7%	

Tue Apr 25 2023 14:25:18 GMT-0400 (Eastern Daylight Time) - Run Time: 2727ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA z 4065 4066 4067
and
Primary trav c d g j m p t u w
and
Start time of trip - start_time In 1500-1800

Trip 2016
Table:

	Transit excludin	Cycle	Auto drive	Joint GO ra	Auto passe	Walk	
4064.00	32.00	7.00	1083.00	15.00	150.00	189.00	
4065	60	0	733	0	51	0	
4066	0	92	320	0	96	252	
4067	0	0	424	0	129	0	
	92.00	**99.00**	**2560.00**	**15.00**	**426.00**	**441.00**	**3633.00**
	3%	**3%**	**70%**	**0%**	**12%**	**12%**	

Tue Apr 25 2023 14:41:44 GMT-0400 (Eastern Daylight Time) - Run Time: 2199ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Planning district of destination - pd_dest

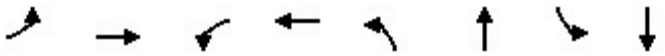
Filters:
2006 GTA zone of origin 4065 4066 4067
and
Primary travel mode of tr m
and
Start time of trip - start_time In 600-900

Trip 2016
Table:

	PD 1 of Tor	PD 3 of Tor	PD 5 of Toronto	PD 8 of Tor	PD 9 of Tor	PD 10 of Tc	Brampton	Mississaug	Halton Hills	Oakville	Burlington	Ancaster	Glanbrook	Stoney Cre	Hamilton	Grimsby	Lincoln	Niagara-or	Niagara Fa	Cambridge	City of Gue	Haldimand	Tay	Brantford	External	
4064	0	26	38	0	17	0	33	88	0	314	795	17	17	35	93	26	**25**	**0**	**0**	**26**	**17**	0	0	0	0	
4065	65	0	0	24	0	16	0	46	0	86	292	0	0	18	167	21	18	0	18	0	0	0	24	27	18	
4066	0	0	0	0	0	0	0	40	0	219	290	0	0	39	84	0	0	0	15	0	0	18	0	0	0	
4067	14	0	0	0	0	0	18	39	11	242	478	0	0	0	26	0	0	21	0	0	0	0	0	0	0	
	79	**26**	**38**	**24**	**17**	**16**	**51**	**213**	**11**	**861**	**1855**	**17**	**17**	**92**	**370**	**47**	**43**	**21**	**33**	**26**	**17**	**18**	**24**	**27**	**18**	**3961**
	2%	**1%**	**1%**	**1%**	**0%**	**0%**	**1%**	**5%**	**0%**	**22%**	**47%**	**0%**	**0%**	**2%**	**9%**	**1%**	**1%**	**1%**	**1%**	**1%**	**0%**	**0%**	**1%**	**1%**	**0%**	19%

toronto	5%	north	23%
peel region	7%	south	0%
halton region	22%	east	45%
hamilton and west	19%	west	31%
burlington	47%		100%
	100%		

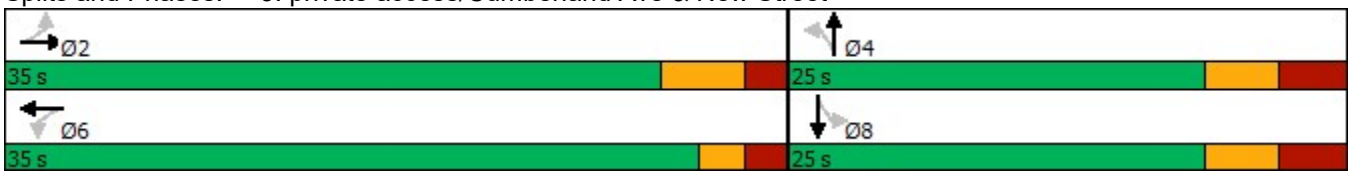
Appendix E – Future Total Traffic Level of Service Calculations



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	79	722	2	550	6	2	103	2
Future Volume (vph)	79	722	2	550	6	2	103	2
Lane Group Flow (vph)	0	875	0	730	0	12	112	91
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)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.7	3.7	2.0	2.0	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		5.7		4.0		6.4	6.4	6.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		36.3		37.7		10.1	10.1	10.1
Actuated g/C Ratio		0.67		0.69		0.19	0.19	0.19
v/c Ratio		0.46		0.32		0.05	0.43	0.25
Control Delay		7.3		4.9		16.1	25.0	7.2
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		7.3		4.9		16.1	25.0	7.2
LOS		A		A		B	C	A
Approach Delay		7.3		4.9		16.1		17.0
Approach LOS		A		A		B		B
Queue Length 50th (m)		22.9		13.5		0.8	10.3	0.2
Queue Length 95th (m)		44.0		27.1		4.2	22.6	9.5
Internal Link Dist (m)		26.2		411.4		58.3		63.9
Turn Bay Length (m)							29.0	
Base Capacity (vph)		1915		2295		483	478	602
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.46		0.32		0.02	0.23	0.15

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 54.4	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 7.5	Intersection LOS: A
Intersection Capacity Utilization 64.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: private access/Cumberland Ave & New Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	722	4	2	550	120	6	2	3	103	2	82
Future Volume (vph)	79	722	4	2	550	120	6	2	3	103	2	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7			4.0			6.4		6.4	6.4	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frt		1.00			0.97			0.97		1.00	0.85	
Flt Protected		1.00			1.00			0.97		0.95	1.00	
Satd. Flow (prot)		3519			3444			1749		1770	1589	
Flt Permitted		0.81			0.95			0.78		0.75	1.00	
Satd. Flow (perm)		2869			3286			1403		1397	1589	
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)	86	785	4	2	598	130	7	2	3	112	2	89
RTOR Reduction (vph)	0	0	0	0	22	0	0	3	0	0	76	0
Lane Group Flow (vph)	0	875	0	0	708	0	0	9	0	112	15	0
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)		35.1			36.8			8.4		8.4	8.4	
Effective Green, g (s)		35.1			36.8			8.4		8.4	8.4	
Actuated g/C Ratio		0.63			0.66			0.15		0.15	0.15	
Clearance Time (s)		5.7			4.0			6.4		6.4	6.4	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		1811			2174			211		211	240	
v/s Ratio Prot											0.01	
v/s Ratio Perm		c0.30			0.22			0.01		c0.08		
v/c Ratio		0.48			0.33			0.04		0.53	0.06	
Uniform Delay, d1		5.4			4.1			20.2		21.8	20.2	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.9			0.4			0.1		2.6	0.1	
Delay (s)		6.4			4.5			20.3		24.3	20.3	
Level of Service		A			A			C		C	C	
Approach Delay (s)		6.4			4.5			20.3			22.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	12.1
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1	0	3	0	199	1	1	182	0
Future Volume (Veh/h)	0	0	0	1	0	3	0	199	1	1	182	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1	0	3	0	216	1	1	198	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								88				
pX, platoon unblocked												
vC, conflicting volume	420	417	198	416	416	216	198			217		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	420	417	198	416	416	216	198			217		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	542	526	843	546	527	823	1375			1353		

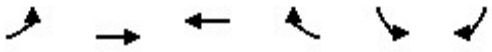
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	4	217	199
Volume Left	0	1	0	1
Volume Right	0	3	1	0
cSH	1700	731	1375	1353
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	10.0	0.0	0.0
Lane LOS	A	A		A
Approach Delay (s)	0.0	10.0	0.0	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	2	12	8	0	13	7	195	3	12	162	12
Future Volume (Veh/h)	11	2	12	8	0	13	7	195	3	12	162	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	2	13	9	0	14	8	212	3	13	176	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								176				
pX, platoon unblocked												
vC, conflicting volume	452	440	182	452	444	214	189			215		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	452	440	182	452	444	214	189			215		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	98	100	98	99			99		
cM capacity (veh/h)	503	504	860	502	500	827	1385			1355		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	27	23	223	202
Volume Left	12	9	8	13
Volume Right	13	14	3	13
cSH	629	660	1385	1355
Volume to Capacity	0.04	0.03	0.01	0.01
Queue Length 95th (m)	1.1	0.9	0.1	0.2
Control Delay (s)	11.0	10.7	0.3	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.0	10.7	0.3	0.6
Approach LOS	B	B		

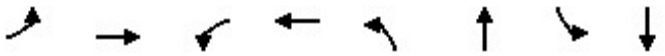
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	24.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	798	628	10	7	3
Future Volume (Veh/h)	4	798	628	10	7	3
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)	4	867	683	11	8	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			50			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	694				1130	347
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	518				987	144
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	100
cM capacity (veh/h)	970				226	815

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	293	578	455	239	11
Volume Left	4	0	0	0	8
Volume Right	0	0	0	11	3
cSH	970	1700	1700	1700	282
Volume to Capacity	0.00	0.34	0.27	0.14	0.04
Queue Length 95th (m)	0.1	0.0	0.0	0.0	1.0
Control Delay (s)	0.2	0.0	0.0	0.0	18.3
Lane LOS	A				C
Approach Delay (s)	0.1		0.0		18.3
Approach LOS					C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

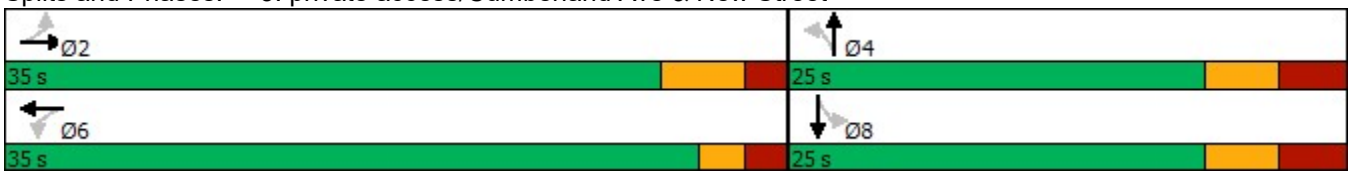


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	36	666	3	1507	7	1	81	3
Future Volume (vph)	36	666	3	1507	7	1	81	3
Lane Group Flow (vph)	0	775	0	1736	0	11	88	76
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		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)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	3.7	3.7	2.0	2.0	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	3.1	3.1	3.1	3.1
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		5.7		4.0		6.4	6.4	6.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		36.2		37.6		9.4	9.4	9.4
Actuated g/C Ratio		0.68		0.70		0.18	0.18	0.18
v/c Ratio		0.41		0.74		0.05	0.36	0.26
Control Delay		6.5		10.3		17.0	23.8	18.5
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.5		10.3		17.0	23.8	18.5
LOS		A		B		B	C	B
Approach Delay		6.5		10.3		17.0		21.4
Approach LOS		A		B		B		C
Queue Length 50th (m)		18.2		54.2		0.8	8.0	5.5
Queue Length 95th (m)		35.0		#112.7		4.2	18.6	14.7
Internal Link Dist (m)		33.5		411.4		58.3		63.9
Turn Bay Length (m)							29.0	
Base Capacity (vph)		1891		2351		465	484	562
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.41		0.74		0.02	0.18	0.14

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 53.6	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 9.9	Intersection LOS: A
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	

Queue shown is maximum after two cycles.

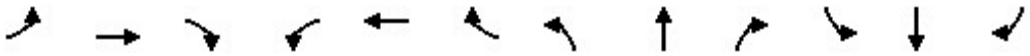
Splits and Phases: 3: private access/Cumberland Ave & New Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	666	11	3	1507	87	7	1	2	81	3	67
Future Volume (vph)	36	666	11	3	1507	87	7	1	2	81	3	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.7			4.0			6.4		6.4	6.4	
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00	
Frt		1.00			0.99			0.98		1.00	0.86	
Flt Protected		1.00			1.00			0.96		0.95	1.00	
Satd. Flow (prot)		3522			3510			1753		1770	1594	
Flt Permitted		0.79			0.95			0.74		0.75	1.00	
Satd. Flow (perm)		2795			3350			1339		1398	1594	
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)	39	724	12	3	1638	95	8	1	2	88	3	73
RTOR Reduction (vph)	0	1	0	0	5	0	0	2	0	0	12	0
Lane Group Flow (vph)	0	774	0	0	1731	0	0	9	0	88	64	0
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)		35.1			36.8			7.8		7.8	7.8	
Effective Green, g (s)		35.1			36.8			7.8		7.8	7.8	
Actuated g/C Ratio		0.64			0.67			0.14		0.14	0.14	
Clearance Time (s)		5.7			4.0			6.4		6.4	6.4	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		1783			2241			189		198	226	
v/s Ratio Prot											0.04	
v/s Ratio Perm		0.28			c0.52			0.01		c0.06		
v/c Ratio		0.43			0.77			0.05		0.44	0.28	
Uniform Delay, d1		5.0			6.2			20.4		21.6	21.1	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.8			2.7			0.1		1.6	0.7	
Delay (s)		5.7			8.9			20.5		23.2	21.8	
Level of Service		A			A			C		C	C	
Approach Delay (s)		5.7			8.9			20.5			22.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1	0	1	0	120	1	1	167	0
Future Volume (Veh/h)	0	0	0	1	0	1	0	120	1	1	167	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1	0	1	0	130	1	1	182	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								88				
pX, platoon unblocked												
vC, conflicting volume	316	315	182	314	314	130	182			131		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	316	315	182	314	314	130	182			131		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	636	600	861	638	601	919	1393			1454		

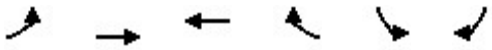
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	2	131	183
Volume Left	0	1	0	1
Volume Right	0	1	1	0
cSH	1700	753	1393	1454
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	9.8	0.0	0.0
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.8	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	19.6%	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)	10	8	15	6	3	3	7	115	5	3	147	14
Future Volume (Veh/h)	10	8	15	6	3	3	7	115	5	3	147	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	9	16	7	3	3	8	125	5	3	160	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								176				
pX, platoon unblocked												
vC, conflicting volume	322	320	168	338	324	128	175			130		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	322	320	168	338	324	128	175			130		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	98	98	99	99	100	99			100		
cM capacity (veh/h)	623	593	877	594	589	923	1401			1455		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	36	13	138	178
Volume Left	11	7	8	3
Volume Right	16	3	5	15
cSH	705	646	1401	1455
Volume to Capacity	0.05	0.02	0.01	0.00
Queue Length 95th (m)	1.3	0.5	0.1	0.0
Control Delay (s)	10.4	10.7	0.5	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.4	10.7	0.5	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	20.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	699	1574	7	13	6
Future Volume (Veh/h)	4	699	1574	7	13	6
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)	4	760	1711	8	14	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			58			
pX, platoon unblocked	0.66				0.66	0.66
vC, conflicting volume	1719				2103	860
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1058				1640	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				76	99
cM capacity (veh/h)	431				59	715

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	257	507	1141	578	21
Volume Left	4	0	0	0	14
Volume Right	0	0	0	8	7
cSH	431	1700	1700	1700	86
Volume to Capacity	0.01	0.30	0.67	0.34	0.25
Queue Length 95th (m)	0.2	0.0	0.0	0.0	7.0
Control Delay (s)	0.4	0.0	0.0	0.0	60.2
Lane LOS	A				F
Approach Delay (s)	0.1		0.0		60.2
Approach LOS					F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F – Sim Traffic Report

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	1729	1731	1710	1706	1664	1710
Vehs Exited	1744	1734	1718	1715	1657	1713
Starting Vehs	45	33	35	40	33	35
Ending Vehs	30	30	27	31	40	31
Travel Distance (km)	1413	1410	1388	1393	1358	1392
Travel Time (hr)	34.6	33.5	33.6	34.1	32.7	33.7
Total Delay (hr)	5.0	4.0	4.6	4.7	4.3	4.5
Total Stops	826	699	790	784	735	767
Fuel Used (l)	108.9	107.4	106.7	107.5	103.4	106.8

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1729	1731	1710	1706	1664	1710
Vehs Exited	1744	1734	1718	1715	1657	1713
Starting Vehs	45	33	35	40	33	35
Ending Vehs	30	30	27	31	40	31
Travel Distance (km)	1413	1410	1388	1393	1358	1392
Travel Time (hr)	34.6	33.5	33.6	34.1	32.7	33.7
Total Delay (hr)	5.0	4.0	4.6	4.7	4.3	4.5
Total Stops	826	699	790	784	735	767
Fuel Used (l)	108.9	107.4	106.7	107.5	103.4	106.8

Intersection: 3: private access/Cumberland Ave & New Street

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	TR
Maximum Queue (m)	33.5	33.6	32.1	32.3	9.4	32.2	20.9
Average Queue (m)	26.1	21.7	16.6	12.4	1.8	14.6	8.5
95th Queue (m)	35.0	34.6	27.0	24.4	7.4	27.3	16.7
Link Distance (m)	28.7	28.7	423.4	423.4	69.5		65.2
Upstream Blk Time (%)	6	1					
Queuing Penalty (veh)	22	5					
Storage Bay Dist (m)						29.0	
Storage Blk Time (%)						1	0
Queuing Penalty (veh)						1	0

Intersection: 6: Cumberland Ave & pick up drop off access/Burlington Fire

Movement	WB
Directions Served	LTR
Maximum Queue (m)	8.8
Average Queue (m)	1.4
95th Queue (m)	6.7
Link Distance (m)	26.4
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Cumberland Ave & Spucehill Ave/Old Coach Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.5	10.7	4.9	12.1
Average Queue (m)	5.3	4.5	0.2	0.9
95th Queue (m)	13.1	12.0	2.6	6.0
Link Distance (m)	41.7	57.0	71.8	265.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: New Street & site access

Movement	EB	EB	SB
Directions Served	LT	T	LR
Maximum Queue (m)	34.7	21.4	9.4
Average Queue (m)	8.5	1.1	2.2
95th Queue (m)	25.8	10.0	8.3
Link Distance (m)	347.9	347.9	7.8
Upstream Blk Time (%)			4
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 28

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:35	7:35	7:35	7:35	7:35	7:35
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	2533	2565	2520	2531	2506	2529
Vehs Exited	2519	2545	2534	2528	2502	2525
Starting Vehs	52	46	58	52	47	51
Ending Vehs	66	66	44	55	51	56
Travel Distance (km)	2077	2097	2064	2082	2060	2076
Travel Time (hr)	54.3	53.6	52.5	53.4	52.7	53.3
Total Delay (hr)	11.3	10.4	10.0	10.5	10.0	10.4
Total Stops	1293	1127	1181	1208	1125	1186
Fuel Used (l)	162.9	162.7	160.0	162.7	159.4	161.5

Interval #0 Information Seeding

Start Time	7:35
End Time	7:45
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2533	2565	2520	2531	2506	2529
Vehs Exited	2519	2545	2534	2528	2502	2525
Starting Vehs	52	46	58	52	47	51
Ending Vehs	66	66	44	55	51	56
Travel Distance (km)	2077	2097	2064	2082	2060	2076
Travel Time (hr)	54.3	53.6	52.5	53.4	52.7	53.3
Total Delay (hr)	11.3	10.4	10.0	10.5	10.0	10.4
Total Stops	1293	1127	1181	1208	1125	1186
Fuel Used (l)	162.9	162.7	160.0	162.7	159.4	161.5

Intersection: 3: private access/Cumberland Ave & New Street

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	TR
Maximum Queue (m)	45.1	45.2	67.0	66.3	11.8	28.3	17.8
Average Queue (m)	32.1	28.0	36.1	35.0	1.9	12.7	8.0
95th Queue (m)	49.8	48.8	57.2	59.1	8.1	24.8	15.7
Link Distance (m)	36.9	36.9	423.4	423.4	69.7		65.8
Upstream Blk Time (%)	13	4					
Queuing Penalty (veh)	46	13					
Storage Bay Dist (m)						29.0	
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 6: Cumberland Ave & pick up droff-off access/Burlington Fire access

Movement	WB
Directions Served	LTR
Maximum Queue (m)	8.8
Average Queue (m)	0.5
95th Queue (m)	4.0
Link Distance (m)	26.4
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Cumberland Ave & Spucehill Ave/Old Coach Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	12.2	9.1	5.5
Average Queue (m)	6.4	2.5	0.2
95th Queue (m)	13.8	9.1	2.3
Link Distance (m)	41.7	57.0	71.5
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: New Street & site access

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (m)	51.0	42.5	2.2	13.1
Average Queue (m)	11.7	2.9	0.1	4.8
95th Queue (m)	35.8	19.1	1.6	13.5
Link Distance (m)	343.1	343.1	36.9	19.0
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 59

Appendix G - Parking Survey Result

PARKING SURVEY SHEET

ADDRESS: 3131 New Street

DATE: Thursday March 2, 2023

TOTAL PARKING : 27 spaces, 71 units

71

TIME	PARKING DEMAND	Rate
9:00	7	0.10
9:30	7	0.10
10:00	9	0.13
10:30	11	0.15
11:00	12	0.17
11:30	10	0.14
12:00	14	0.20
12:30	13	0.18
13:00	12	0.17
13:30	12	0.17
14:00	12	0.17
14:30	10	0.14
15:00	10	0.14
15:30	9	0.13
16:00	8	0.11
16:30	9	0.13
17:00	7	0.10
17:30	7	0.10
18:00	7	0.10
18:30	8	0.11
19:00	8	0.11
19:30	10	0.14
20:00	8	0.11
20:30	7	0.10
21:00	7	0.10

PARKING SURVEY SHEET

ADDRESS: 2109 Lakeshore Road

DATE: Thursday March 2, 2023

TOTAL PARKING : 25 spaces, 57 units

57

TIME	PARKING DEMAND	Rate
9:00	6	0.11
9:30	8	0.14
10:00	10	0.18
10:30	9	0.16
11:00	10	0.18
11:30	10	0.18
12:00	11	0.19
12:30	9	0.16
13:00	8	0.14
13:30	10	0.18
14:00	11	0.19
14:30	13	0.23
15:00	12	0.21
15:30	11	0.19
16:00	10	0.18
16:30	9	0.16
17:00	6	0.11
17:30	8	0.14
18:00	5	0.09
18:30	8	0.14
19:00	7	0.12
19:30	7	0.12
20:00	6	0.11
20:30	6	0.11
21:00	6	0.11

PARKING SURVEY SHEET

ADDRESS: 3131 New Street

DATE: Saturday, March 4, 2023

TOTAL PARKING : 27 spaces, 71 units

71

TIME	PARKING DEMAND	Rate
9:00	10	0.14
9:30	11	0.15
10:00	13	0.18
10:30	12	0.17
11:00	11	0.15
11:30	14	0.20
12:00	13	0.18
12:30	12	0.17
13:00	12	0.17
13:30	11	0.15
14:00	13	0.18
14:30	14	0.20
15:00	11	0.15
15:30	12	0.17
16:00	13	0.18
16:30	10	0.14
17:00	9	0.13
17:30	7	0.10
18:00	8	0.11
18:30	8	0.11
19:00	7	0.10
19:30	7	0.10
20:00	7	0.10
20:30	7	0.10
21:00	7	0.10

PARKING SURVEY SHEET

ADDRESS: 2109 Lakeshore Road

DATE: Saturday, March 4, 2023

TOTAL PARKING : 25 spaces, 57 units

57

TIME	PARKING DEMAND	Rate
9:00	11	0.19
9:30	13	0.23
10:00	12	0.21
10:30	14	0.25
11:00	10	0.18
11:30	11	0.19
12:00	12	0.21
12:30	10	0.18
13:00	13	0.23
13:30	14	0.25
14:00	12	0.21
14:30	11	0.19
15:00	13	0.23
15:30	11	0.19
16:00	9	0.16
16:30	10	0.18
17:00	8	0.14
17:30	9	0.16
18:00	7	0.12
18:30	8	0.14
19:00	9	0.16
19:30	8	0.14
20:00	8	0.14
20:30	7	0.12
21:00	7	0.12