



BURNSIDE

**Wooden Sticks Golf Club Hotel  
Transportation Study**

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**R.J. Burnside & Associates Limited  
1465 Pickering Parkway Suite 200  
Pickering ON L1V 7G7 CANADA**

**November 2022  
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Wooden Sticks Golf Club Hotel Transportation Study  
November 2022

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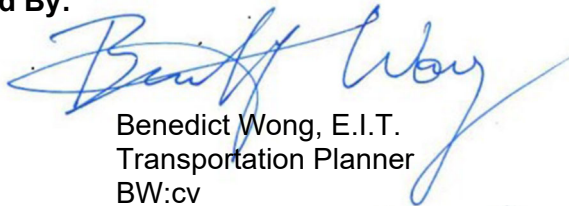
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## Record of Revisions

Revision	Date	Description
	November 4, 2022	Initial Submission

## R.J. Burnside & Associates Limited

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## Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by Wooden Sticks Golf Club (the Client) to undertake a Transportation Study for a proposed hotel that will be located at 40 Elgin Park Drive in the Township of Uxbridge.

The site is currently occupied by a golf course, clubhouse which contains a banquet hall, driving range, and maintenance yard. Existing access is provided by two full movement driveways along Elgin Park Drive. One driveway serves the golf course and clubhouse, whereas the other driveway serves the driving range.

A 79-room hotel is proposed adjacent to the clubhouse. Parking is currently provided by a parking lot that will be expanded.

The following is a summary of our key findings.

### Traffic Operations

Under existing and future traffic conditions, during both peak hours, all study intersections are currently and are forecasted to operate with excess capacity, a level-of-service (LOS) C or better and queues within their respective storage or link distances. No road network improvements are required as a result of the development.

### Site Plan Review

The site is well designed to accommodate all modes of travel. A maneuvering analysis confirms that a refuse truck and delivery truck can access the proposed loading spaces.

### Parking and Loading Review

The proposed vehicle parking supply will have a surplus of 103 to 201 spaces depending on parking demand, which will exceed the Township's Zoning By-law (ZBL) 81-19 requirements.

It is proposed to provide nine accessible spaces, which will exceed the Township's requirements. Two loading spaces are proposed, which will meet the ZBL requirements.

### Transportation Demand Management

To further facilitate other modes of travel and reduce vehicle trips and parking demand, there are several TDM measures proposed as follows:

- That the Township implement their planned in-boulevard multi-use path along Toronto Street South and paved shoulders on Elgin Park Drive and Concession Road 7, to facilitate active transportation in the study area.
- It is recommended that the operator of the proposed hotel encourage employees to utilize ridesharing, transit and cycling where possible.

## Table of Contents

<b>1.0</b>	<b>Introduction</b> .....	<b>1</b>
1.1	Background .....	1
1.2	Scope of Work .....	2
1.3	Intersection Analysis Methodology.....	2
<b>2.0</b>	<b>Existing Conditions</b> .....	<b>3</b>
2.1	Site Context.....	3
2.2	Existing Road Network .....	3
2.3	Existing Active Transportation .....	4
2.4	Existing Transit.....	4
2.5	Existing Traffic Volumes .....	6
<b>3.0</b>	<b>Background Conditions</b> .....	<b>6</b>
3.1	Future Active Transportation.....	7
3.2	Background Traffic Growth .....	7
3.3	Background Traffic Volumes.....	7
<b>4.0</b>	<b>Proposed Development</b> .....	<b>8</b>
4.1	Trip Generation.....	8
4.2	Trip Distribution and Assignment .....	10
<b>5.0</b>	<b>Total Conditions</b> .....	<b>11</b>
5.1	Total Traffic Volumes.....	11
<b>6.0</b>	<b>Traffic Operations Analysis</b> .....	<b>11</b>
6.1	Elgin Park Drive / Toronto Street South .....	11
6.2	Elgin Park Drive / Confederation Drive / Site Driveway .....	13
6.3	Elgin Park Drive / Concession Road 7 .....	13
<b>7.0</b>	<b>Site Plan Review</b> .....	<b>14</b>
<b>8.0</b>	<b>Parking and Loading Supply Review</b> .....	<b>14</b>
8.1	Vehicle Parking.....	14
8.1.1	Accessible Parking.....	15
8.2	Loading.....	15
<b>9.0</b>	<b>Transportation Demand Management</b> .....	<b>16</b>
<b>10.0</b>	<b>Conclusions</b> .....	<b>16</b>
10.1	Traffic Operations .....	16
10.2	Site Plan Review .....	16
10.3	Parking and Loading Review .....	17
10.4	Transportation Demand Management.....	17

**Tables**

Table 1: Site Trip Generation.....10  
Table 2: Vehicle Trip Distribution .....10  
Table 3: Elgin Park Drive / Toronto Street South Signalized Intersection Operations.... 12  
Table 4: Elgin Park Drive / Confederation Drive / Site Driveway Intersection  
Operations .....13  
Table 5: Elgin Park Drive / Concession Road 7 Intersection Operations.....14  
Table 6: ZBL 81-19 Vehicle Parking Requirements .....15

**Figures**

Figure 1: Site Location..... 1  
Figure 2: Existing Road Network ..... 4  
Figure 3: GO Transit Route Map..... 5  
Figure 4: Existing Traffic Volumes ..... 6  
Figure 5: Future Active Transportation Road Network ..... 7  
Figure 6: 2028 Background Traffic Volumes ..... 8  
Figure 7: Site Plan ..... 9  
Figure 8: Site Trips .....10  
Figure 9: 2028 Total Traffic Volumes .....11

**Appendices**

- Appendix A Traffic Counts and Signal Timing Plans
- Appendix B Existing Traffic Operations
- Appendix C 2028 Background Traffic Operations
- Appendix D 2028 Total Traffic Operations
- Appendix E Truck Access Analysis
- Appendix F Zoning By-law 81-19 Excerpts
- Appendix G Traffic By-law 2013-184 Excerpts

## Abbreviations

The following summarizes abbreviations that are utilized within this report:

### Jurisdiction

- Township—Township of Uxbridge
- Region—Durham Region

### Operations Analyses

- LOS—level of service
- v/c—volume to capacity ratio

### Traffic Movements

- EB—Eastbound
- SB—Southbound
- NB—Northbound
- WB—Westbound
- L—left-turn
- T—through
- R—right-turn
- LT—shared left-through movement
- LTR—shared left-through-right movement
- TR—shared through-right movement

### Other

- ITE—Institute of Transportation Engineers
- LUC—Land Use Code
- TTS—Transportation Tomorrow Survey
- ZBL—Zoning By-law
- ZBA—Zoning By-law Amendment
- TDM—Transportation Demand Management

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## 1.0 Introduction

### 1.1 Background

R.J. Burnside & Associates Limited (Burnside) was retained by Wooden Sticks Golf Club (the Client) to undertake a Transportation Study for a proposed hotel within the Wooden Sticks Golf Course at 40 Elgin Park Drive in the Township of Uxbridge. The main site is currently occupied by a golf course and clubhouse (which contains a banquet hall) and a 79-room hotel is proposed to be built adjacent to the golf course's clubhouse. An existing driving range and maintenance yard is located to the east.

Existing access to the golf course includes two full movement driveways on Elgin Park Drive. One driveway serves the clubhouse and golf course, and the other serves a driving range and maintenance yard. The existing parking lot will be reconfigured and expanded. The site location is illustrated in Figure 1.

**Figure 1: Site Location**



Burnside prepared this Transportation Study as part of Official Plan Amendment and Zoning By-law Amendment applications.

## 1.2 Scope of Work

The scope was confirmed with the Township of Uxbridge (Township) and is summarized below.

- |                        |  |
|------------------------|--|
| Analysis Scenarios     | <ul style="list-style-type: none"><li>• Existing traffic conditions</li><li>• 2028 background traffic conditions (five years after buildout)</li><li>• 2028 total traffic conditions (2028 background traffic plus site traffic)</li></ul> |
| Analysis Time Periods  | <ul style="list-style-type: none"><li>• Weekday AM peak hour (7:00 AM – 9:00 AM)</li><li>• Weekday PM peak hour (4:00 PM – 6:00 PM)</li></ul>  |
| Analysis Intersections | <ul style="list-style-type: none"><li>• Elgin Park Drive / Toronto Street (Regional Road 47)</li><li>• Elgin Park Drive / Confederation Drive / Existing Driveway</li><li>• Elgin Park Drive / Concession Road 7</li></ul>                 |

The Region's Traffic Impact Study (TIS) Guidelines dated October 2011 were taken into consideration.

## 1.3 Intersection Analysis Methodology

Signalized and stop controlled intersection operations were assessed for intersections in the study area using the software program Synchro 11, which employs methodology from the *Highway Capacity Manual (HCM 2000, HCM 2010 and HCM 6<sup>th</sup>)*, published by the Transportation Research Board National Research Council.

Synchro 11 can analyze both signalized and unsignalized intersections in a road corridor or network taking into account the spacing, interaction, queues and operations between intersections. The analysis utilizes the HCM 2000 methodology.

Signalized intersection analysis considers two separate measures of performance:

- The capacity of all intersection movements, which is based on a volume to capacity ratio that is a measure of the degree of capacity utilized.
- The level of service (LOS) for all intersection movements, which is based on the average control delay per vehicle for the various movements through the intersection and overall. Delay is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between A and F, with F being the longest delay. The link between LOS and delay (in seconds) for signalized intersections is summarized below.

Level of Service	Control Delay per Vehicle(s)
A	≤10
B	> 10 – 20
C	> 20 – 35
D	> 35 – 55
E	> 55 – 80
F	> 80

Stop controlled intersection analysis considers two separate measures of performance:

- The capacity of the intersection's critical movements, which is based on a volume to capacity ratio.
- The level of service for the critical movements, which is based on the average control delay per vehicle for the various critical movements within the intersection. The link between LOS and delay (in seconds) for stop-controlled intersections is summarized below.

Level of Service	Control Delay per Vehicle(s)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

## 2.0 Existing Conditions

### 2.1 Site Context

The site is currently occupied by a golf course and clubhouse with banquet hall. The site is bounded primarily by forest preserve, farmland and low to medium density residential to the west and north.

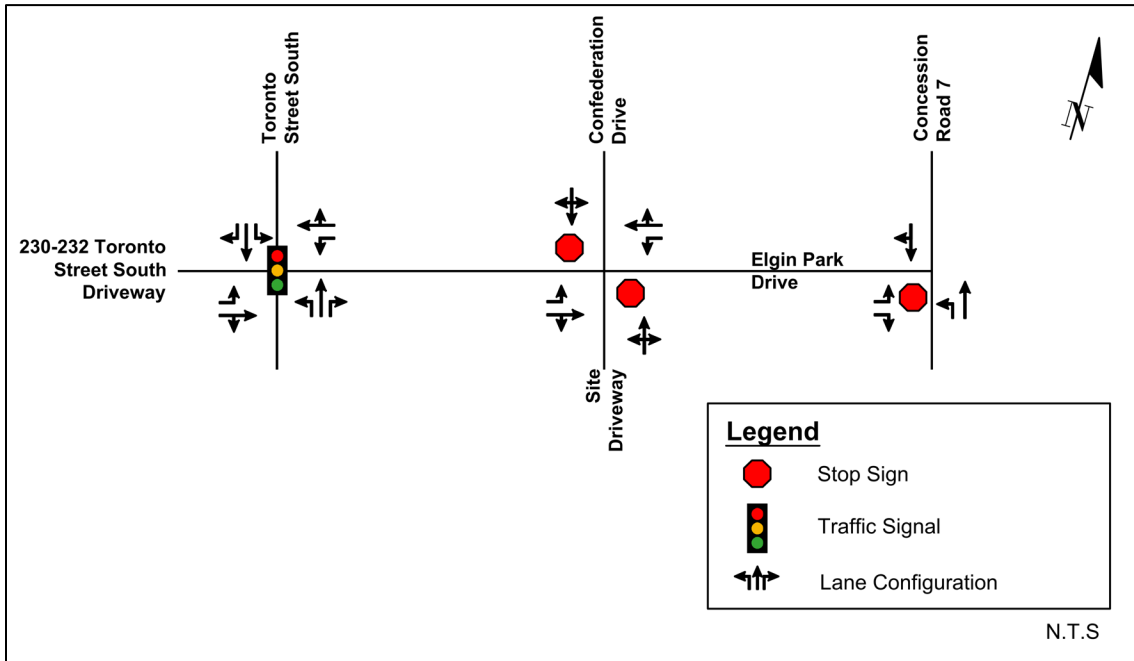
### 2.2 Existing Road Network

The existing road network is described below and illustrated in Figure 2, with existing traffic control.

Toronto Street  
(Durham Regional  
Road 47)

Toronto Street is a north-south Type B arterial road under the jurisdiction of the Region. The roadway consists of a three-lane urban cross-section, including a centre two-way left-turn lane (TWLTL) and has a posted speed limit of 50 km/h. Sidewalks are provided on both sides, while parking is prohibited along both sides of the road.

**Figure 2: Existing Road Network**



**Elgin Park Drive**

Elgin Park Drive is an east-west local road under the jurisdiction of the Township. The roadway has a two-lane rural cross-section with a posted speed limit of 40 km/h. Parking is prohibited on both sides of the road.

**Concession Road 7**

Concession Road 7 is a north-south local road under the jurisdiction of the Township. The roadway consists of a two-lane rural cross-section with a posted speed limit of 40 km/h. Parking is prohibited along both sides of the road north of Elgin Park Drive.

**2.3 Existing Active Transportation**

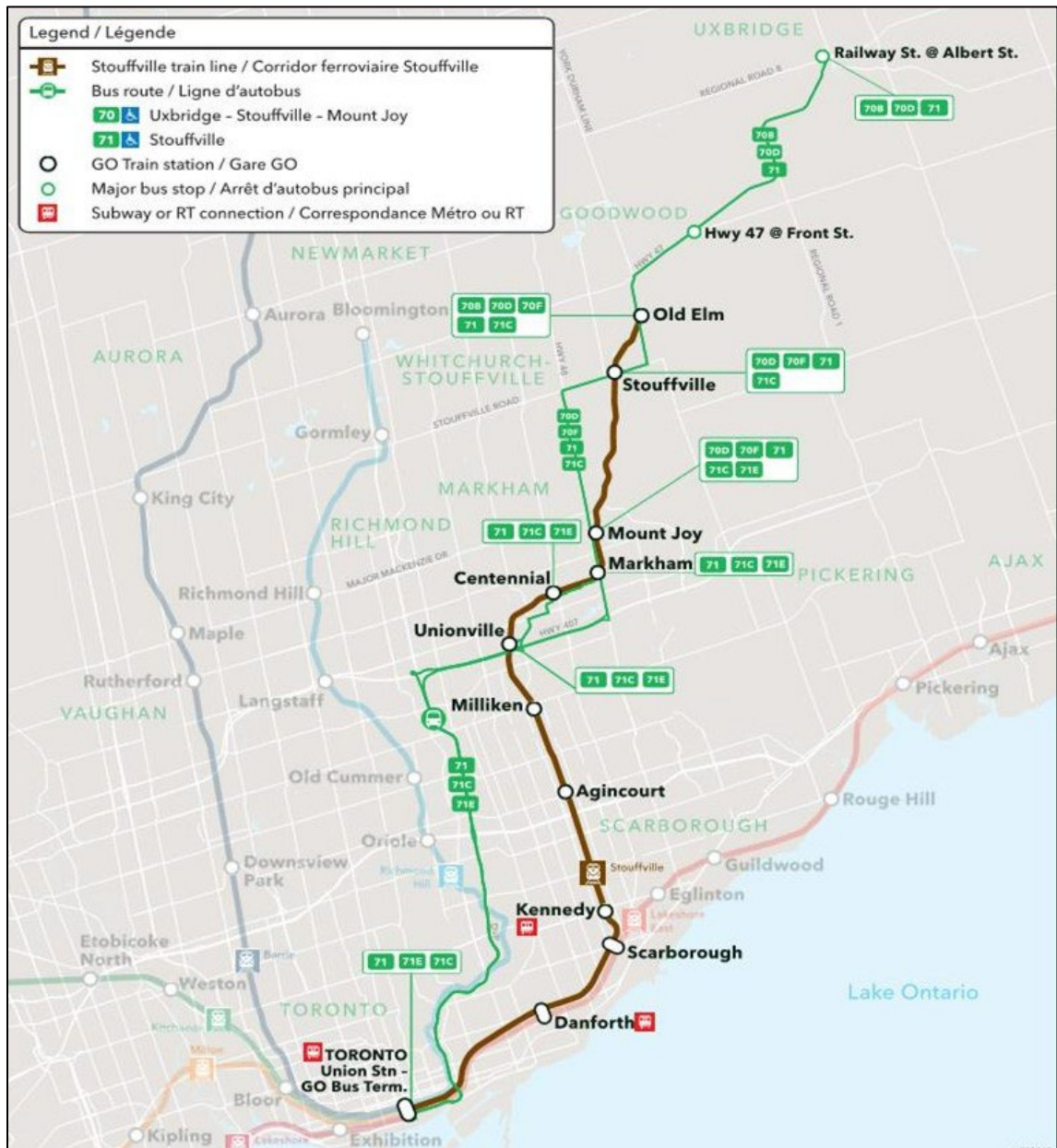
There is an existing paved shoulder along the north side of Elgin Park Drive which can be utilized by cyclists.

**2.4 Existing Transit**

The subject site is located within the Rural On-Demand area for Durham Region Transit (DRT). The DRT On Demand service is a shared ride service, which provides connections from a designated pick-up point (driveway or curb for rural areas) to the nearest local bus route and GO Transit services, which are selected based on the passenger destination and direction of travel.

GO Transit operates two bus routes within the vicinity of the area and both are illustrated in Figure 3. Bus Route No. 70 (Uxbridge-Stouffville-Mount Joy) provides service between the Mount Joy GO Station in Markham to Uxbridge. During the weekday morning and afternoon peak period, the bus provides hourly frequency service. Bus Route No. 71 (Stouffville) provides daily service between Union GO Station in Toronto to Uxbridge. The closest bus stops are located at the intersection of Elgin Park Drive and Toronto Street for GO Transit, which is approximately within 750 m (or a nine-minute walk) from the site.

**Figure 3: GO Transit Route Map**

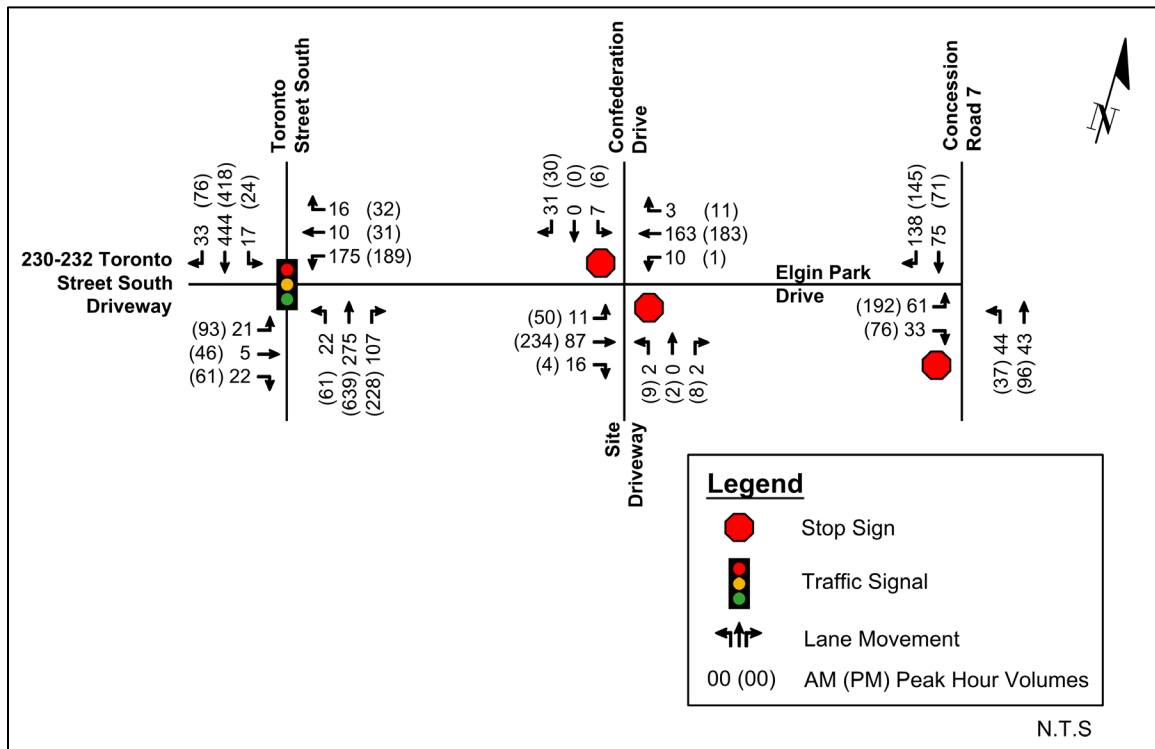


Source: GO Transit Route 70-71 Stouffville Map (September 2022)

## 2.5 Existing Traffic Volumes

Count data was collected at the three study intersections by Accu-Traffic Inc., on behalf of Burnside, for the weekday morning (7:00 AM – 9:00 AM) and afternoon (4:00 PM – 6:00 PM) peak periods on Wednesday, August 24, 2022. The existing traffic volumes are illustrated in Figure 4 and existing traffic counts and signal timing plans are provided in Appendix A.

**Figure 4: Existing Traffic Volumes**



## 3.0 Background Conditions

Future background traffic consists of existing traffic, background traffic growth and traffic from other developments. Background traffic growth and traffic from other developments are discussed below, which were confirmed with Township staff. The horizon year of 2028 was selected for future projections, assuming buildout by 2023. There are no future planned road network or transit improvements or other proposed developments within the study horizon year.

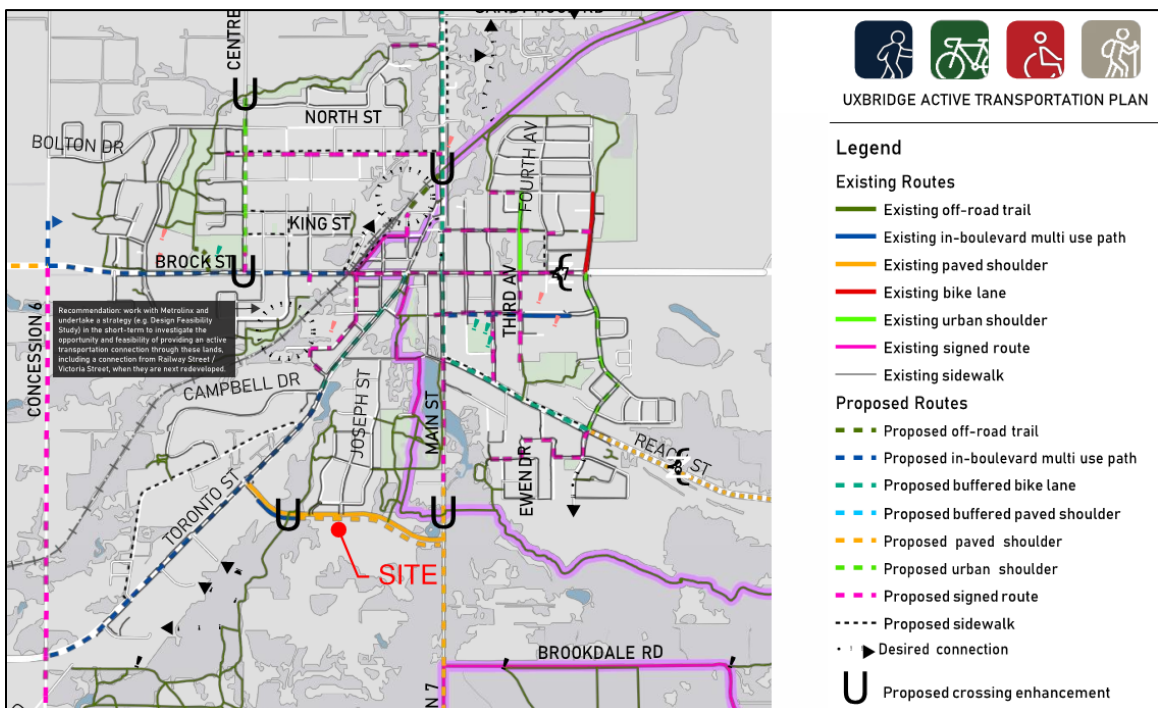


### 3.1 Future Active Transportation

According to the *Uxbridge Active Transportation Plan* (WSP Group, June 2021), the following future active transportation network improvements are proposed within the vicinity of the site as illustrated in Figure 5:

- In-boulevard multi-use path on Toronto Street South.
- Paved Shoulder on south side of Elgin Park Drive.
- Paved Shoulder on Concession Road 7.

**Figure 5: Future Active Transportation Road Network**



Source: Town Active Transportation Plan, June 2021

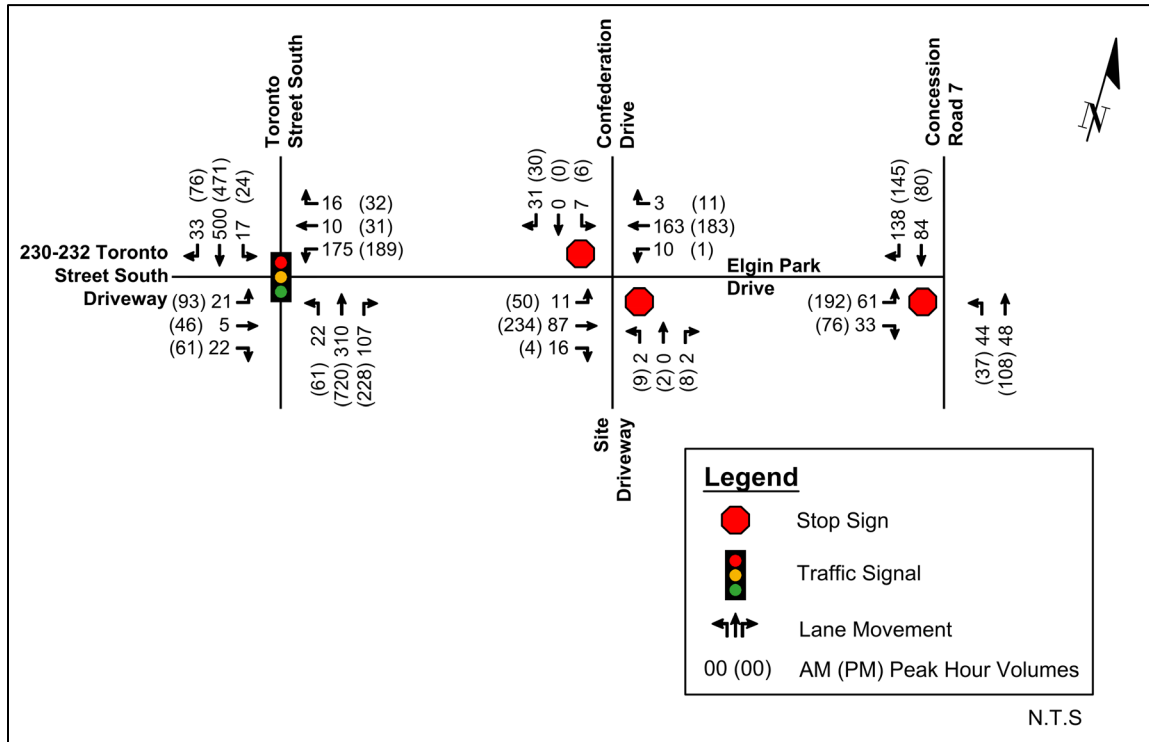
### 3.2 Background Traffic Growth

The average annual daily traffic (AADT) traffic along Toronto Street South and available historical traffic counts were reviewed. An annual background traffic growth of 2% was applied to through traffic volumes on Toronto Street and Concession Road 7.

### 3.3 Background Traffic Volumes

Background traffic volumes consist of the application of traffic growth per annum up to the horizon year 2028 to existing traffic volumes. The resulting 2028 background traffic volumes are illustrated in Figure 6.

**Figure 6: 2028 Background Traffic Volumes**



#### 4.0 Proposed Development

The proposed development will include the addition of a 79-room hotel. Access is proposed via the existing full movement driveway on Elgin Park Drive. Parking will be provided by an expansion of the existing parking lot. The proposed site plan is shown in Figure 7.

#### 4.1 Trip Generation

Trip generation was based on information contained in the *Trip Generation Manual*, 11<sup>th</sup> Edition, published by the Institute of Transportation Engineers (ITE). Land Use Code (LUC) 310 (Hotel) was used. No modal split was assumed to be conservative.

The resulting projected trip generation summarized in Table 1.



Figure 7: Site Plan



**Table 1: Site Trip Generation**

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
<b>Hotel (LUC 310) – 79 rooms</b>						
<b>New Trips</b>	<b>20</b>	<b>16</b>	<b>36</b>	<b>24</b>	<b>23</b>	<b>47</b>

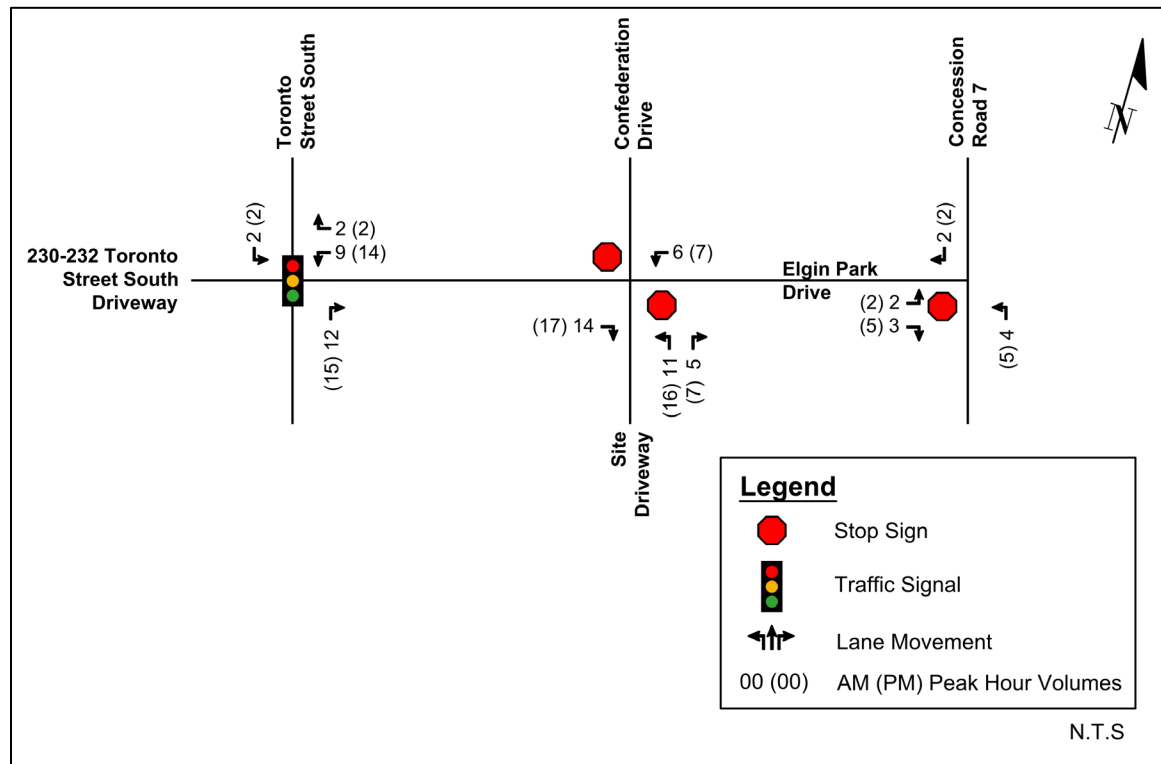
**4.2 Trip Distribution and Assignment**

Trip distribution and assignment were derived from existing travel patterns and the existing road network. The estimated distribution for site trips is summarized in Table 2 and the resulting vehicle site traffic assignment is shown in Figure 8.

**Table 2: Vehicle Trip Distribution**

To/From	Via	Distribution
North	Toronto Street South	10%
	Concession Road 7	10%
South	Toronto Street South	60%
	Concession Road 7	20%
<b>Total</b>		<b>100%</b>

**Figure 8: Site Trips**

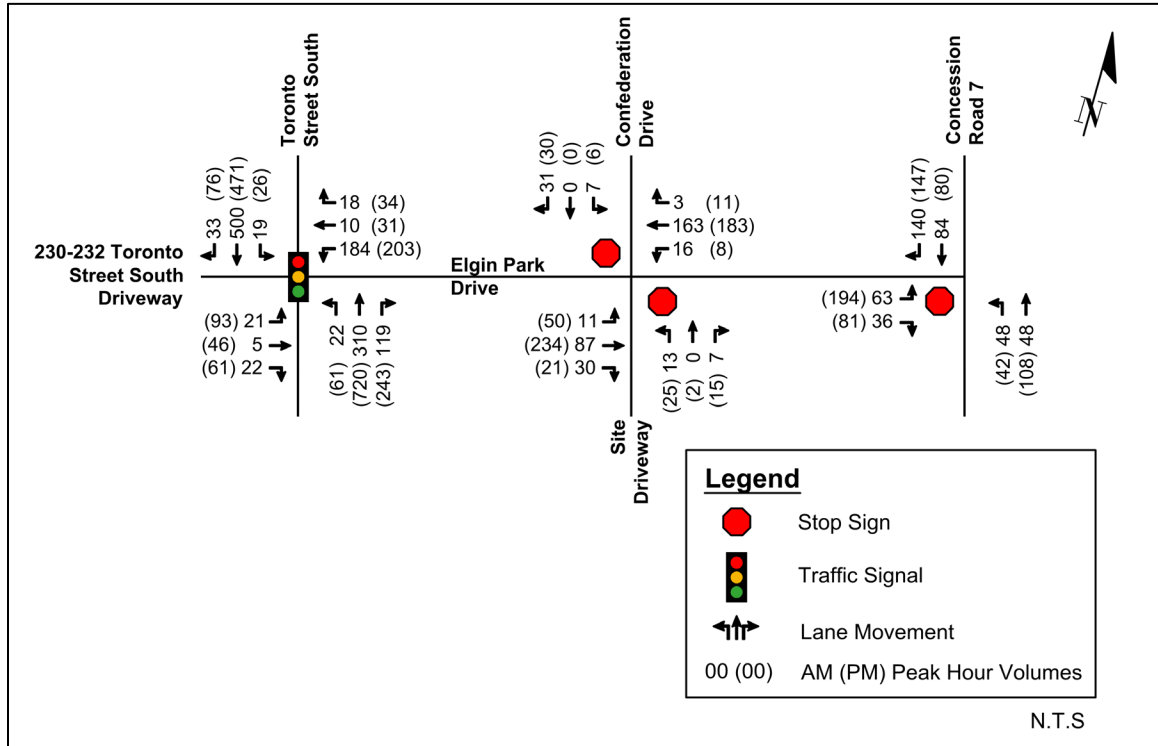


## 5.0 Total Conditions

### 5.1 Total Traffic Volumes

Total traffic volumes consist of background traffic volumes in Figure 6 plus site traffic shown in Figure 8. The resulting 2028 total traffic volumes are shown in Figure 9.

**Figure 9: 2028 Total Traffic Volumes**



## 6.0 Traffic Operations Analysis

Traffic operations analyses were conducted for existing and future vehicular traffic volumes for the weekday AM and PM peak hours at all study intersections. Queueing was reviewed using Synchro’s 95<sup>th</sup> percentile queues. A comparison of the existing storage and projected queues are summarized for all movements. Detailed Synchro reports are provided in Appendices B to D for each year and condition.

### 6.1 Elgin Park Drive / Toronto Street South

Existing and future traffic operations at the Elgin Park Drive / Toronto Street South intersection are summarized in Table 3.

Wooden Sticks Golf Club Hotel Transportation Study  
November 2022

**Table 3: Elgin Park Drive / Toronto Street South Signalized Intersection Operations**

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95 <sup>th</sup> %ile Queue (m)	v/c	LOS	95 <sup>th</sup> %ile Queue (m)
<b>Existing Conditions</b>							
Overall	-	0.46	B	-	0.61	B	-
EBL	25+	0.08	C	8	0.32	C	22
EBTR	25+	0.03	C	7	0.16	C	16
WBL	53	0.66	C	43	0.69	C	43
WBTR	100+	0.04	C	7	0.10	C	12
NBL	67	0.04	A	5	0.12	A	12
NBT	300+	0.25	A	37	0.58	B	113
NBR	50	0.07	A	7	0.16	A	12
SBL	58	0.03	A	4	0.07	A	6
SBT	300+	0.40	A	64	0.38	A	63
SBR	50	0.02	A	4	0.05	A	6
<b>Background 2028 Conditions</b>							
Overall	-	0.50	B	-	0.66	B	-
EBL	25+	0.08	C	8	0.32	C	22
EBTR	25+	0.03	C	7	0.16	C	16
WBL	53	0.66	C	43	0.69	C	43
WBTR	100+	0.04	C	7	0.10	C	12
NBL	67	0.05	A	5	0.13	A	12
NBT	300+	0.28	A	42	0.66	B	137
NBR	50	0.07	A	7	0.17	A	14
SBL	58	0.03	A	4	0.09	A	7
SBT	300+	0.45	A	74	0.43	A	73
SBR	50	0.02	A	4	0.05	A	6
<b>Total 2028 Conditions</b>							
Overall	-	0.51	B	-	0.68	B	-
EBL	25+	0.08	C	8	0.30	C	22
EBTR	25+	0.03	C	6	0.16	C	16
WBL	53	0.68	C	44	0.70	C	46
WBTR	100+	0.04	C	7	0.10	C	12
NBL	67	0.05	A	5	0.13	A	12
NBT	300+	0.29	A	43	0.67	B	147
NBR	50	0.08	A	7	0.19	A	16
SBL	58	0.03	A	5	0.10	A	7
SBT	300+	0.45	A	76	0.44	A	75
SBR	50	0.02	A	4	0.05	A	7

Wooden Sticks Golf Club Hotel Transportation Study  
November 2022

Under existing and future conditions, during both peak hours, all movements are operating and will operate with excess capacity, a level of service (LOS) C or better and queues within their respective storage and link distances.

## 6.2 Elgin Park Drive / Confederation Drive / Site Driveway

Existing and future traffic operations at the existing site driveway on Elgin Park Drive at Confederation Drive under southbound / northbound stop control are summarized in Table 4.

**Table 4: Elgin Park Drive / Confederation Drive / Site Driveway Intersection Operations**

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95 <sup>th</sup> %ile Queue (m)	v/c	LOS	95 <sup>th</sup> %ile Queue (m)
<b>Existing Conditions</b>							
EBL	50	0.01	A	1	0.04	A	1
WBL	38	0.01	A	1	0.00	A	0
NBLTR	25+	0.01	B	1	0.04	B	1
SBLTR	25+	0.05	A	2	0.05	B	2
<b>Background 2028 Conditions</b>							
EBL	50	0.01	A	1	0.04	A	1
WBL	38	0.01	A	1	0.00	A	0
NBLTR	25+	0.01	B	1	0.04	B	1
SBLTR	25+	0.05	A	2	0.05	B	2
<b>Total 2028 Conditions</b>							
EBL	50	0.01	A	1	0.04	A	1
WBL	38	0.01	A	1	0.01	A	1
NBLTR	25+	0.03	B	1	0.10	B	3
SBLTR	25+	0.05	A	2	0.05	B	2

Under existing and future conditions, during both peak hours, all movements are operating and will operate with excess capacity, a level of service (LOS) B or better and queues within their respective storage and link distances.

## 6.3 Elgin Park Drive / Concession Road 7

Existing and future traffic operations at the Elgin Park Drive / Concession Road 7 intersection under eastbound stop control are summarized in Table 5.

**Table 5: Elgin Park Drive / Concession Road 7 Intersection Operations**

Movement	Existing Storage / Link Distance (m)	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	LOS	95 <sup>th</sup> %ile Queue (m)	v/c	LOS	95 <sup>th</sup> %ile Queue (m)
<b>Existing Conditions</b>							
EBL	35	0.10	B	3	0.31	B	11
EBR	100+	0.04	A	1	0.09	A	3
NBL	25	0.04	A	1	0.03	A	1
<b>Background 2028 Conditions</b>							
EBL	35	0.10	B	3	0.32	B	11
EBR	100+	0.04	A	1	0.09	A	3
NBLT	25	0.04	A	1	0.03	A	1
<b>Total 2028 Conditions</b>							
EBL	35	0.11	B	3	0.33	B	11
EBR	100+	0.05	A	2	0.10	A	3
NBLT	25	0.04	A	1	0.03	A	1

Under existing and future conditions, during both peak hours, all movements are operating and will operate with excess capacity, a level of service (LOS) B or better and queues within their respective storage and link distances.

## 7.0 Site Plan Review

A high-level review of the proposed site plan was conducted for multi modal circulation and access. The site is well designed to accommodate pedestrians, cyclists, and vehicles. Cyclists can access the site via the existing site driveway.

A truck access analysis for the proposed refuse pick-up / loading space was conducted for a private refuse truck and delivery truck using AutoTURN, which is shown in Appendix E. The analysis confirms that the proposed geometrics will accommodate a refuse truck, which represents the largest expected design vehicle that will visit the site.

## 8.0 Parking and Loading Supply Review

### 8.1 Vehicle Parking

A total 328 parking spaces are proposed in the reconfigured existing and new surface parking lot for patron and employee use. The Township's Zoning By-law 81-19 (ZBL) was reviewed to determine the minimum vehicular parking supply required. As the existing site uses are seasonal in nature, two different scenarios were reviewed. The first scenario represents parking requirements for peak operations of the golf course and hotel, whereas the second scenario represents the parking requirements for a

worst-case scenario, which assumes the peak parking demand of the banquet hall was to occur at the same time as the golf course and hotel.

The results of the analysis are summarized below in Table 6 and the applicable excerpts from the ZBL are provided in Appendix F.

**Table 6: ZBL 81-19 Vehicle Parking Requirements**

Existing & Proposed Use	ZBL Use	Size (Units)	Parking Rate (space per unit)	Minimum Required	Proposed Supply	Surplus / Deficit
<b>Scenario 1: Golf Course and Hotel</b>						
18 Holes Golf Course (Existing)	Golf Course	18 holes	24 parking spaces for each 9 holes	48	<b>328</b>	<b>+201</b>
Hotel (Proposed)	Hotel	79 rooms	1 space / guest room	79		
<b>Total</b>				<b>127</b>		
<b>Scenario 2: Golf Course, Hotel, and Banquet Hall</b>						
18 Holes Golf Course (Existing)	Golf Course	18 holes	24 parking spaces for each 9 holes	48	<b>328</b>	<b>+103</b>
Banquet Hall (Existing)	Assembly Hall	391 persons	1 space per 4 persons	98		
Hotel (Proposed)	Hotel	79 rooms	1 space / guest room	79		
<b>Total</b>				<b>225</b>		

Based upon the ZBL, the proposed parking supply will result in a surplus of 103 to 201 spaces under a typical or worst-case seasonal scenario.

### 8.1.1 Accessible Parking

The Township Traffic By-law 2013-184 requires a minimum of five accessible parking spaces to be provided if the proposed parking supply is between 201 to 400 spaces. A total of nine accessible parking spaces are proposed, which exceeds the Township's requirements. An excerpt of the Traffic By-law is provided in Appendix G.

### 8.2 Loading

The proposed hotel gross floor area (GFA) is 5,398 m<sup>2</sup>. The ZBL requires a minimum of two loading spaces to be provided if the proposed building gross floor area is between

Wooden Sticks Golf Club Hotel Transportation Study  
November 2022

2,300 to 7,500 m<sup>2</sup> and two loading spaces are proposed, which meets the ZBL requirements.

## **9.0 Transportation Demand Management**

Transportation Demand Management (TDM) is a strategy for promoting active and healthy travel options, encouraging alternative modes of travel such as cycling, carpooling, and public transit and therefore reducing single occupancy vehicle travel.

The Township is encouraged to continue and develop their planned paved shoulders along the south side of Elgin Park Drive and on Concession Road 7, as well as proposed in-boulevard multi-use path on Toronto Street South.

As noted in Section 2.3, the DRT currently offers On-Demand ride share services which provide connections to nearby local bus routes or GO Transit services, as well GO Transit Bus Stops are located nearby within a 10-minute walking distance along Toronto Street South.

It is recommended that the operator of the proposed hotel encourage employees to utilize ridesharing, transit, and cycling where possible.

## **10.0 Conclusions**

### **10.1 Traffic Operations**

Under existing and future conditions at all study intersections, during both peak hours, all movements are operating and will operate with excess capacity, a level of service (LOS) C or better. All existing and future projected queues are within their respective storage lengths or link distances. No road network improvements are required as a result of the development.

### **10.2 Site Plan Review**

A high-level review of the proposed site plan was conducted for multi modal circulation and access. The site is well designed to accommodate pedestrians, cyclists, and vehicles. Cyclists can access the site via the existing site driveway.

A truck access analysis for the proposed refuse pick-up / loading space was conducted for a private refuse truck and delivery truck using AutoTURN. The analysis confirms that the proposed geometrics will accommodate a refuse truck, which represents the largest expected design vehicle that will visit the site.



### **10.3 Parking and Loading Review**

The proposed vehicle parking supply was reviewed under two scenarios; one with peak parking demand for a golf course and hotel and one which assumes the existing banquet hall is operating at the same time. This resulted in a surplus for either scenario between 103 to 201 spaces, which exceeds the ZBL requirements.

It is proposed to provide nine accessible spaces, which will exceed the Township's requirements.

Two loading spaces are proposed, which will meet the ZBL requirements.

### **10.4 Transportation Demand Management**

It is recommended that the following TDM measures to be considered in the future to reduce single occupancy vehicle travel in the study area:

- That the Township implement their planned in-boulevard multi-use path along Toronto Street South and paved shoulders on Elgin Park Drive and Concession Road 7, to facilitate active transportation in the area.
- It is recommended that the operator of the proposed hotel encourage employees to utilize ridesharing, transit and cycling where possible.



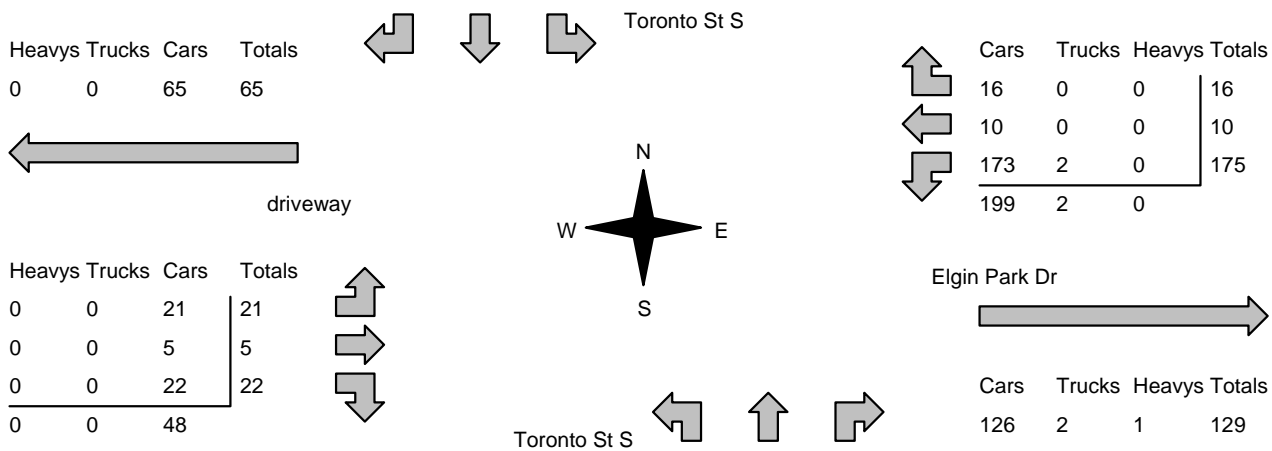
BURNSIDE

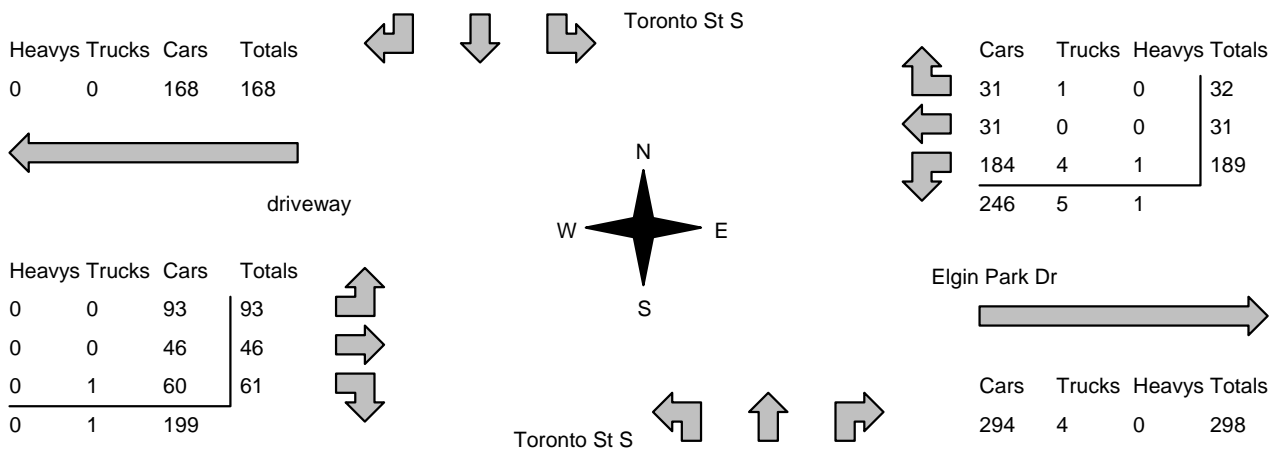
[THE DIFFERENCE IS OUR PEOPLE]

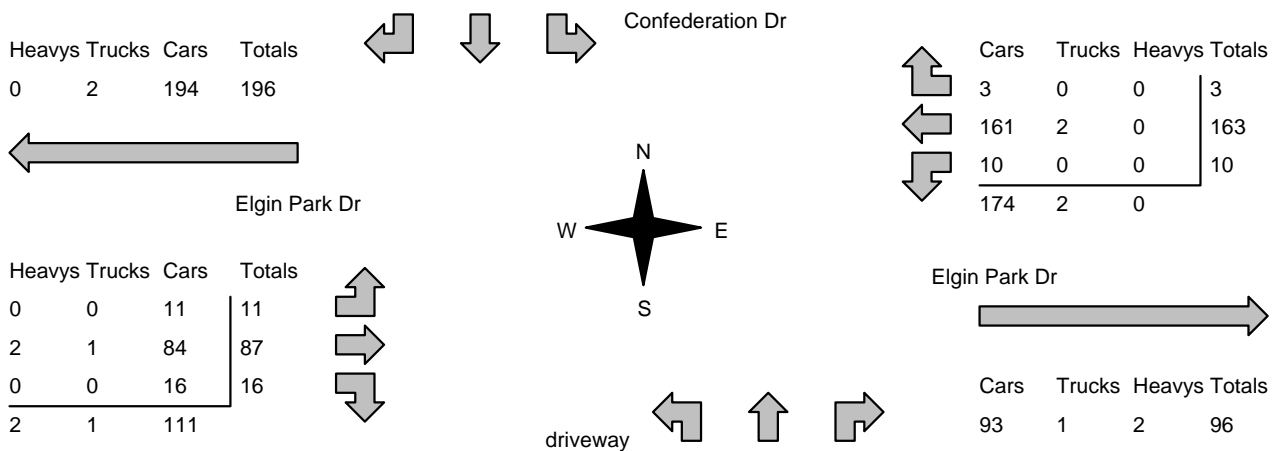
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## Appendix A

### Traffic Counts and Signal Timing Plans

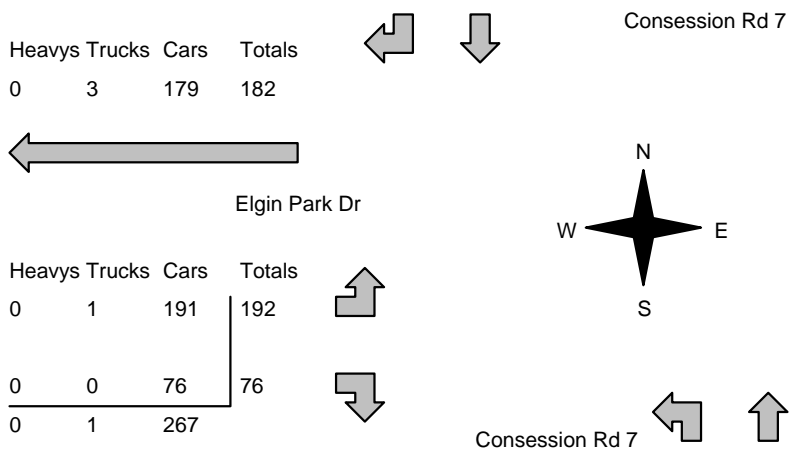
<b>Morning Peak Diagram</b>		<b>Specified Period</b> <b>From:</b> 7:00:00 <b>To:</b> 9:00:00	<b>One Hour Peak</b> <b>From:</b> 8:00:00 <b>To:</b> 9:00:00																																																																																
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<b>** Signalized Intersection **</b>		<b>Major Road:</b> Toronto St S runs N/S																																																																																	
North Leg Total: 806 North Entering: 494 North Peds: 2 Peds Cross: ☒	<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>6</td><td>0</td><td>6</td></tr> <tr><td>Trucks</td><td>0</td><td>6</td><td>0</td><td>6</td></tr> <tr><td>Cars</td><td>33</td><td>432</td><td>17</td><td>482</td></tr> <tr><td>Totals</td><td>33</td><td>444</td><td>17</td><td></td></tr> </table>	Heavys	0	6	0	6	Trucks	0	6	0	6	Cars	33	432	17	482	Totals	33	444	17		<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>10</td></tr> <tr><td>Trucks</td><td>11</td></tr> <tr><td>Cars</td><td>291</td></tr> <tr><td>Totals</td><td>312</td></tr> </table>	Heavys	10	Trucks	11	Cars	291	Totals	312	East Leg Total: 330 East Entering: 201 East Peds: 1 Peds Cross: ☒																																																				
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Peds Cross: ☒ West Peds: 4 West Entering: 48 West Leg Total: 113	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>627</td></tr> <tr><td>Trucks</td><td>8</td></tr> <tr><td>Heavys</td><td>6</td></tr> <tr><td>Totals</td><td>641</td></tr> </table>	Cars	627	Trucks	8	Heavys	6	Totals	641	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>22</td><td>254</td><td>104</td><td>380</td></tr> <tr><td>Trucks</td><td>0</td><td>11</td><td>2</td><td>13</td></tr> <tr><td>Heavys</td><td>0</td><td>10</td><td>1</td><td>11</td></tr> <tr><td>Totals</td><td>22</td><td>275</td><td>107</td><td></td></tr> </table>	Cars	22	254	104	380	Trucks	0	11	2	13	Heavys	0	10	1	11	Totals	22	275	107		Peds Cross: ☒ South Peds: 1 South Entering: 404 South Leg Total: 1045																																																				
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<b>Afternoon Peak Diagram</b>		<b>Specified Period</b> <b>From:</b> 16:00:00 <b>To:</b> 18:00:00	<b>One Hour Peak</b> <b>From:</b> 16:30:00 <b>To:</b> 17:30:00																																																																																
<b>Municipality:</b> Uxbridge <b>Site #:</b> 2215800001 <b>Intersection:</b> Toronto St S & Elgin Park Dr <b>TFR File #:</b> 1 <b>Count date:</b> 24-Aug-22		<b>Weather conditions:</b>  <b>Person counted:</b> <b>Person prepared:</b> <b>Person checked:</b>																																																																																	
<b>** Signalized Intersection **</b>		<b>Major Road:</b> Toronto St S runs N/S																																																																																	
North Leg Total: 1282 North Entering: 518 North Peds: 2 Peds Cross: ☒	<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>10</td><td>0</td><td>10</td></tr> <tr><td>Trucks</td><td>0</td><td>2</td><td>1</td><td>3</td></tr> <tr><td>Cars</td><td>76</td><td>406</td><td>23</td><td>505</td></tr> <tr><td>Totals</td><td>76</td><td>418</td><td>24</td><td></td></tr> </table>	Heavys	0	10	0	10	Trucks	0	2	1	3	Cars	76	406	23	505	Totals	76	418	24		<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>5</td></tr> <tr><td>Trucks</td><td>12</td></tr> <tr><td>Cars</td><td>747</td></tr> <tr><td>Totals</td><td>764</td></tr> </table>	Heavys	5	Trucks	12	Cars	747	Totals	764	East Leg Total: 550 East Entering: 252 East Peds: 5 Peds Cross: ☒																																																				
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Peds Cross: ☒ West Peds: 9 West Entering: 200 West Leg Total: 368	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>650</td></tr> <tr><td>Trucks</td><td>7</td></tr> <tr><td>Heavys</td><td>11</td></tr> <tr><td>Totals</td><td>668</td></tr> </table>	Cars	650	Trucks	7	Heavys	11	Totals	668	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>61</td><td>623</td><td>225</td><td>909</td></tr> <tr><td>Trucks</td><td>0</td><td>11</td><td>3</td><td>14</td></tr> <tr><td>Heavys</td><td>0</td><td>5</td><td>0</td><td>5</td></tr> <tr><td>Totals</td><td>61</td><td>639</td><td>228</td><td></td></tr> </table>	Cars	61	623	225	909	Trucks	0	11	3	14	Heavys	0	5	0	5	Totals	61	639	228		Peds Cross: ☒ South Peds: 4 South Entering: 928 South Leg Total: 1596																																																				
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<b>Morning Peak Diagram</b>		<b>Specified Period</b> <b>From:</b> 7:00:00 <b>To:</b> 9:00:00	<b>One Hour Peak</b> <b>From:</b> 8:00:00 <b>To:</b> 9:00:00																												
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<b>** Non-Signalized Intersection **</b>		<b>Major Road:</b> Elgin Park Dr runs W/E																													
North Leg Total: 52 North Entering: 38 North Peds: 3 Peds Cross: ☒	<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>31</td><td>0</td><td>7</td><td>38</td></tr> <tr><td>Totals</td><td>31</td><td>0</td><td>7</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	31	0	7	38	Totals	31	0	7		<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>14</td></tr> <tr><td>Totals</td><td>14</td></tr> </table>	Heavys	0	Trucks	0	Cars	14	Totals	14	East Leg Total: 272 East Entering: 176 East Peds: 0 Peds Cross: ☒
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Trucks	0	0	0	0																											
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 <p style="text-align: center;">Confederation Dr</p> <p style="text-align: center;">Elgin Park Dr</p> <p style="text-align: center;">driveway</p>																															
Peds Cross: ☒ West Peds: 0 West Entering: 114 West Leg Total: 310	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>26</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Totals</td><td>26</td></tr> </table>	Cars	26	Trucks	0	Heavys	0	Totals	26	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>2</td><td>0</td><td>2</td><td>4</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Totals</td><td>2</td><td>0</td><td>2</td><td></td></tr> </table>	Cars	2	0	2	4	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	2	0	2		Peds Cross: ☒ South Peds: 0 South Entering: 4 South Leg Total: 30
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<b>Comments</b>																															

<b>Afternoon Peak Diagram</b>		<b>Specified Period</b> <b>From:</b> 16:00:00 <b>To:</b> 18:00:00	<b>One Hour Peak</b> <b>From:</b> 16:15:00 <b>To:</b> 17:15:00																												
<b>Municipality:</b> Uxbridge <b>Site #:</b> 2215800002 <b>Intersection:</b> Elgin Park Dr & Confederation Dr <b>TFR File #:</b> 1 <b>Count date:</b> 24-Aug-22		<b>Weather conditions:</b>  <b>Person counted:</b> <b>Person prepared:</b> <b>Person checked:</b>																													
<b>** Non-Signalized Intersection **</b>		<b>Major Road:</b> Elgin Park Dr runs W/E																													
North Leg Total: 99 North Entering: 36 North Peds: 0 Peds Cross: ☒	<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>30</td><td>0</td><td>6</td><td>36</td></tr> <tr><td>Totals</td><td>30</td><td>0</td><td>6</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	30	0	6	36	Totals	30	0	6		<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>63</td></tr> <tr><td>Totals</td><td>63</td></tr> </table>	Heavys	0	Trucks	0	Cars	63	Totals	63	East Leg Total: 443 East Entering: 195 East Peds: 1 Peds Cross: ☒
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Cars	30	0	6	36																											
Totals	30	0	6																												
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Cars	63																														
Totals	63																														
<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>2</td><td>3</td><td>217</td><td>222</td></tr> </table>	Heavys	Trucks	Cars	Totals	2	3	217	222		<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>Trucks</td><td>Heavys</td><td>Totals</td></tr> <tr><td>11</td><td>0</td><td>0</td><td>11</td></tr> <tr><td>179</td><td>2</td><td>2</td><td>183</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>191</td><td>2</td><td>2</td><td></td></tr> </table>	Cars	Trucks	Heavys	Totals	11	0	0	11	179	2	2	183	1	0	0	1	191	2	2		
Heavys	Trucks	Cars	Totals																												
2	3	217	222																												
Cars	Trucks	Heavys	Totals																												
11	0	0	11																												
179	2	2	183																												
1	0	0	1																												
191	2	2																													
<table style="width:100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>Trucks</td><td>Cars</td><td>Totals</td></tr> <tr><td>0</td><td>0</td><td>50</td><td>50</td></tr> <tr><td>0</td><td>2</td><td>232</td><td>234</td></tr> <tr><td>0</td><td>1</td><td>3</td><td>4</td></tr> <tr><td>0</td><td>3</td><td>285</td><td></td></tr> </table>	Heavys	Trucks	Cars	Totals	0	0	50	50	0	2	232	234	0	1	3	4	0	3	285												
Heavys	Trucks	Cars	Totals																												
0	0	50	50																												
0	2	232	234																												
0	1	3	4																												
0	3	285																													
Peds Cross: ☒ West Peds: 0 West Entering: 288 West Leg Total: 510	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>4</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Totals</td><td>5</td></tr> </table>	Cars	4	Trucks	1	Heavys	0	Totals	5	<table style="width:100%; border-collapse: collapse;"> <tr><td>Cars</td><td>8</td><td>2</td><td>8</td><td>18</td></tr> <tr><td>Trucks</td><td>1</td><td>0</td><td>0</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Totals</td><td>9</td><td>2</td><td>8</td><td></td></tr> </table>	Cars	8	2	8	18	Trucks	1	0	0	1	Heavys	0	0	0	0	Totals	9	2	8		Peds Cross: ☒ South Peds: 0 South Entering: 19 South Leg Total: 24
Cars	4																														
Trucks	1																														
Heavys	0																														
Totals	5																														
Cars	8	2	8	18																											
Trucks	1	0	0	1																											
Heavys	0	0	0	0																											
Totals	9	2	8																												
<b>Comments</b>																															

<b>Morning Peak Diagram</b>		<b>Specified Period</b> <b>From:</b> 7:00:00 <b>To:</b> 9:00:00	<b>One Hour Peak</b> <b>From:</b> 8:00:00 <b>To:</b> 9:00:00									
<b>Municipality:</b> Uxbridge <b>Site #:</b> 2215800003 <b>Intersection:</b> Consession Rd 7 & Elgin Park Dr <b>TFR File #:</b> 1 <b>Count date:</b> 24-Aug-22		<b>Weather conditions:</b>  <b>Person counted:</b> <b>Person prepared:</b> <b>Person checked:</b>										
<b>** Non-Signalized Intersection **</b>		<b>Major Road:</b> Consession Rd 7 runs N/S										
North Leg Total: 317 North Entering: 213 North Peds: 0 Peds Cross:	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">           Heavys 0    0            Trucks 3    4            Cars 135   71            Totals 138   75         </td> <td style="width: 10%; text-align: center; vertical-align: middle;">           0 7 206         </td> <td style="width: 40%; text-align: center;">             Heavys 2            Trucks 3            Cars 99            Totals 104         </td> </tr> </table>	Heavys 0    0 Trucks 3    4 Cars 135   71 Totals 138   75	0 7 206	 Heavys 2 Trucks 3 Cars 99 Totals 104	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">             Elgin Park Dr         </div> <div style="text-align: center;">           Consession Rd 7              N W    E S         </div> <div style="text-align: center;">           Consession Rd 7    </div> </div>							
Heavys 0    0 Trucks 3    4 Cars 135   71 Totals 138   75	0 7 206	 Heavys 2 Trucks 3 Cars 99 Totals 104										
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">           Heavys Trucks Cars Totals            0    3    179   182         </td> <td style="width: 10%; text-align: center; vertical-align: middle;">   </td> <td style="width: 40%;"></td> </tr> </table>	Heavys Trucks Cars Totals 0    3    179   182	 		<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">           Heavys Trucks Cars Totals            1    2    58   61         </td> <td style="width: 10%; text-align: center; vertical-align: middle;">   </td> <td style="width: 40%;"></td> </tr> <tr> <td style="border-top: 1px solid black;">           0    0    33   33            1    2    91         </td> <td style="text-align: center; vertical-align: middle;">   </td> <td style="text-align: center; vertical-align: middle;">   </td> </tr> </table>			Heavys Trucks Cars Totals 1    2    58   61	 		0    0    33   33 1    2    91	 	 
Heavys Trucks Cars Totals 0    3    179   182	 											
Heavys Trucks Cars Totals 1    2    58   61	 											
0    0    33   33 1    2    91	 	 										
Peds Cross: West Peds: 0 West Entering: 94 West Leg Total: 276	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">           Cars 104            Trucks 4            Heavys 0            Totals 108         </td> <td style="width: 10%; text-align: center; vertical-align: middle;"> </td> <td style="width: 40%;">           Cars 44    41            Trucks 0    1            Heavys 0    1            Totals 44   43         </td> </tr> </table>	Cars 104 Trucks 4 Heavys 0 Totals 108		Cars 44    41 Trucks 0    1 Heavys 0    1 Totals 44   43	Peds Cross: South Peds: 0 South Entering: 87 South Leg Total: 195							
Cars 104 Trucks 4 Heavys 0 Totals 108		Cars 44    41 Trucks 0    1 Heavys 0    1 Totals 44   43										
<b>Comments</b>												

<h1>Afternoon Peak Diagram</h1>		<b>Specified Period</b> <b>From:</b> 16:00:00 <b>To:</b> 18:00:00	<b>One Hour Peak</b> <b>From:</b> 17:00:00 <b>To:</b> 18:00:00																																																	
<b>Municipality:</b> Uxbridge <b>Site #:</b> 2215800003 <b>Intersection:</b> Consession Rd 7 & Elgin Park Dr <b>TFR File #:</b> 1 <b>Count date:</b> 24-Aug-22		<b>Weather conditions:</b>  <b>Person counted:</b> <b>Person prepared:</b> <b>Person checked:</b>																																																		
<b>** Non-Signalized Intersection **</b>		<b>Major Road:</b> Consession Rd 7 runs N/S																																																		
North Leg Total: 504 North Entering: 216 North Peds: 0 Peds Cross: ☒	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Trucks</td><td>2</td><td>0</td><td style="border-left: 1px solid black;">2</td></tr> <tr><td>Cars</td><td>143</td><td>71</td><td style="border-left: 1px solid black; border-bottom: 1px solid black;">214</td></tr> <tr><td>Totals</td><td>145</td><td>71</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	0	0	Trucks	2	0	2	Cars	143	71	214	Totals	145	71		<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>1</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Cars</td><td style="border-bottom: 1px solid black;">286</td></tr> <tr><td>Totals</td><td>288</td></tr> </table>	Heavys	1	Trucks	1	Cars	286	Totals	288																										
Heavys	0	0	0																																																	
Trucks	2	0	2																																																	
Cars	143	71	214																																																	
Totals	145	71																																																		
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Trucks	1																																																			
Cars	286																																																			
Totals	288																																																			
																																																				
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>3</td><td>179</td><td>182</td></tr> </table>	Heavys	0	3	179	182	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>1</td><td>191</td><td>192</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>76</td><td>76</td></tr> <tr><td>Cars</td><td>0</td><td>1</td><td>267</td><td></td></tr> </table>	Heavys	0	1	191	192	Trucks	0	0	76	76	Cars	0	1	267		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>147</td><td style="border-left: 1px solid black;">131</td></tr> <tr><td>Trucks</td><td>0</td><td style="border-left: 1px solid black;">1</td></tr> <tr><td>Heavys</td><td>0</td><td style="border-left: 1px solid black; border-bottom: 1px solid black;">1</td></tr> <tr><td>Totals</td><td>147</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	147	131	Trucks	0	1	Heavys	0	1	Totals	147		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>36</td><td>95</td><td style="border-left: 1px solid black;">131</td></tr> <tr><td>Trucks</td><td>1</td><td>0</td><td style="border-left: 1px solid black;">1</td></tr> <tr><td>Heavys</td><td>0</td><td>1</td><td style="border-left: 1px solid black; border-bottom: 1px solid black;">1</td></tr> <tr><td>Totals</td><td>37</td><td>96</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	36	95	131	Trucks	1	0	1	Heavys	0	1	1	Totals	37	96		Peds Cross: ☒ South Peds: 0 South Entering: 133 South Leg Total: 280
Heavys	0	3	179	182																																																
Heavys	0	1	191	192																																																
Trucks	0	0	76	76																																																
Cars	0	1	267																																																	
Cars	147	131																																																		
Trucks	0	1																																																		
Heavys	0	1																																																		
Totals	147																																																			
Cars	36	95	131																																																	
Trucks	1	0	1																																																	
Heavys	0	1	1																																																	
Totals	37	96																																																		
<h2>Comments</h2>																																																				





# INTERSECTION SIGNAL TIMING REPORT

Location	Toronto St. (HWY 47) and Elgin Park Dr.		
Date	2022-09-16	C&E No.	36324096
Prepared for	RJ Burnside	Prepared by	M.A

## AM Peak (06:00-09:00)

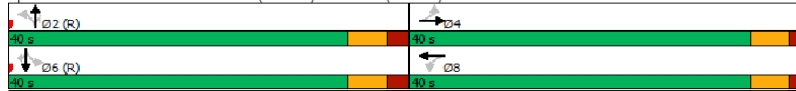


Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	40	40	40	40
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	31	29	31	29
Yellow Time (s)	3.9	3.7	3.9	3.7
All-Red Time (s)	2.3	2.2	2.3	2.2
Minimum Initial (s)	20	8	20	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	17	16	17	16

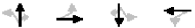
### Intersection Summary

Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 34.4 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 900: TORONTO ST (HWY 47)/TORONTO (HWY 47) & ELGIN PARK



## PM Peak (15:00-20:00)

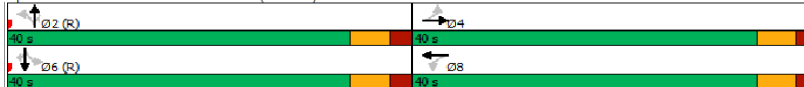


Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	40	40	40	40
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	31	29	31	29
Yellow Time (s)	3.9	3.7	3.9	3.7
All-Red Time (s)	2.3	2.2	2.3	2.2
Minimum Initial (s)	20	8	20	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	17	16	17	16

### Intersection Summary

Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	75
Offset: 8.8 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 900: TORONTO ST (HWY 47) & ELGIN PARK



## Weekend Peak 09:00-19:00

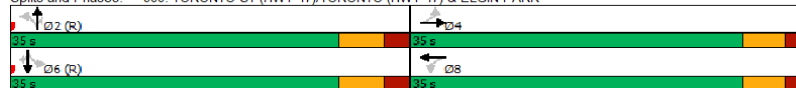


Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	35	35	35	35
Maximum Split (%)	50.0%	50.0%	50.0%	50.0%
Minimum Split (s)	31	29	31	29
Yellow Time (s)	3.9	3.7	3.9	3.7
All-Red Time (s)	2.3	2.2	2.3	2.2
Minimum Initial (s)	20	8	20	8
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	17	16	17	16

### Intersection Summary

Cycle Length	70
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 62.3 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	

Splits and Phases: 900: TORONTO ST (HWY 47)/TORONTO (HWY 47) & ELGIN PARK



\*Please note a concerted effort has been made to ensure the accuracy and completeness of the data provided, however, inadvertent errors or omissions can still occur. Please bring any errors or omissions to the Region's attention.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

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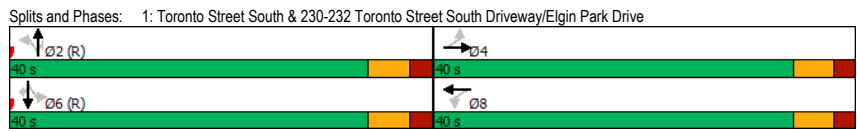
## Appendix B

### Existing Traffic Operations

Timings  
1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	21	5	175	10	22	275	107	17	444	33
Future Volume (vph)	21	5	175	10	22	275	107	17	444	33
Lane Group Flow (vph)	23	29	192	29	24	302	118	19	488	36
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2		2	6	6
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	29.0	29.0	29.0	29.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.08	0.08	0.67	0.08	0.04	0.25	0.11	0.03	0.40	0.03
Control Delay	23.3	11.2	39.7	13.7	7.3	7.8	2.0	7.2	9.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	11.2	39.7	13.7	7.3	7.8	2.0	7.2	9.1	2.6
Queue Length 50th (m)	2.9	0.6	27.0	1.3	1.2	17.3	0.0	0.9	31.4	0.0
Queue Length 95th (m)	7.6	6.1	42.7	6.8	4.8	36.6	6.4	4.0	63.1	3.4
Internal Link Dist (m)		34.9		232.2		384.5		284.0		
Turn Bay Length (m)			53.0		67.0		52.0	58.0		50.0
Base Capacity (vph)	602	718	597	742	546	1198	1058	709	1222	1035
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.32	0.04	0.04	0.25	0.11	0.03	0.40	0.03

**Intersection Summary**  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 34.4 (43%), Referenced to phase 2:NBL and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated



HCM Signalized Intersection Capacity Analysis  
1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	21	5	22	175	10	16	22	275	107	17	444	33
Future Volume (vph)	21	5	22	175	10	16	22	275	107	17	444	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.88		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1819	1652		1804	1717		1819	1865	1582	1823	1902	1590
Fit Permitted	0.74	1.00		0.74	1.00		0.44	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	1414	1652		1402	1717		850	1865	1582	1105	1902	1590
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	23	5	24	192	11	18	24	302	118	19	488	36
RTOR Reduction (vph)	0	19	0	0	14	0	0	0	42	0	0	13
Lane Group Flow (vph)	23	10	0	192	15	0	24	302	76	19	488	23
Confl. Peds. (#/hr)	2		1	1		2	4		1	1		4
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	3%	1%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2		6		6
Permitted Phases	4				8			2		6		6
Actuated Green, G (s)	16.5	16.5		16.5	16.5		51.4	51.4	51.4	51.4	51.4	51.4
Effective Green, g (s)	16.5	16.5		16.5	16.5		51.4	51.4	51.4	51.4	51.4	51.4
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	340		289	354		546	1198	1016	709	1222	1021
v/s Ratio Prot		0.01			0.01			0.16				c0.26
v/s Ratio Perm	0.02			c0.14			0.03		0.05	0.02		0.01
v/c Ratio	0.08	0.03		0.66	0.04		0.04	0.25	0.07	0.03	0.40	0.02
Uniform Delay, d1	25.6	25.4		29.2	25.4		5.3	6.1	5.4	5.2	6.9	5.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		5.7	0.0		0.2	0.5	0.1	0.1	1.0	0.0
Delay (s)	25.7	25.4		34.9	25.5		5.4	6.6	5.5	5.3	7.9	5.2
Level of Service	C	C		C	C		A	A	A	A	A	A
Approach Delay (s)		25.5			33.6			6.3				7.6
Approach LOS		C			C			A				A

**Intersection Summary**

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
2: Site Driveway/Confederation Drive & Elgin Park Drive

2022 Existing AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕			↕	
Traffic Volume (veh/h)	11	87	16	10	163	3	2	0	2	7	0	31
Future Volume (Veh/h)	11	87	16	10	163	3	2	0	2	7	0	31
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	96	18	11	179	3	2	0	2	8	0	34
Pedestrians	3											
Lane Width (m)	3.7											
Walking Speed (m/s)	1.1											
Percent Blockage	0											
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	185	114			364			336	105	328	344	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185	114			364			336	105	328	344	184
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	99	99			100			100	100	99	100	96
cM capacity (veh/h)	1398	1488			564			577	955	617	571	862
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	12	114	11	182	4	42						
Volume Left	12	0	11	0	2	8						
Volume Right	0	18	0	3	2	34						
cSH	1398	1700	1488	1700	709	801						
Volume to Capacity	0.01	0.07	0.01	0.11	0.01	0.05						
Queue Length 95th (m)	0.2	0.0	0.2	0.0	0.1	1.3						
Control Delay (s)	7.6	0.0	7.4	0.0	10.1	9.7						
Lane LOS	A	A		B		A						
Approach Delay (s)	0.7	0.4			10.1	9.7						
Approach LOS	B			A								
<b>Intersection Summary</b>												
Average Delay	1.7											
Intersection Capacity Utilization	19.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
3: Concession Road 7 & Elgin Park Drive

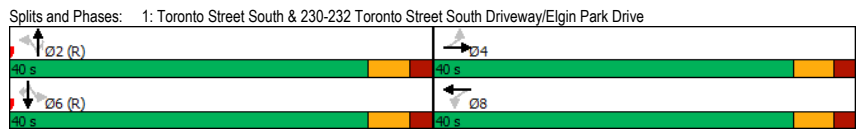
2022 Existing AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	
Traffic Volume (veh/h)	61	33	44	43	75	138
Future Volume (Veh/h)	61	33	44	43	75	138
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	67	36	48	47	82	152
Pedestrians	3					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	301	158	234			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	301	158	234			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	96	96			
cM capacity (veh/h)	660	893	1345			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	67	36	48	47	234	
Volume Left	67	0	48	0	0	
Volume Right	0	36	0	0	152	
cSH	660	893	1345	1700	1700	
Volume to Capacity	0.10	0.04	0.04	0.03	0.14	
Queue Length 95th (m)	2.6	1.0	0.8	0.0	0.0	
Control Delay (s)	11.1	9.2	7.8	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	10.4	3.9		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	3.3					
Intersection Capacity Utilization	29.1%		ICU Level of Service		A	
Analysis Period (min)	15					

Timings 2022 Existing PM  
1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↖
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	93	46	189	31	61	639	228	24	418	76
Future Volume (vph)	93	46	189	31	61	639	228	24	418	76
Lane Group Flow (vph)	99	114	201	67	65	680	243	26	445	81
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2		2	6	6
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	29.0	29.0	29.0	29.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.32	0.26	0.69	0.16	0.12	0.58	0.23	0.07	0.38	0.08
Control Delay	26.4	12.3	39.6	13.4	8.9	13.1	2.5	9.0	10.0	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	12.3	39.6	13.4	8.9	13.1	2.5	9.0	10.0	2.6
Queue Length 50th (m)	12.6	6.0	28.2	4.0	3.6	54.5	1.3	1.4	29.8	0.0
Queue Length 95th (m)	21.9	15.7	42.9	11.4	11.4	112.1	12.0	5.9	62.4	5.9
Internal Link Dist (m)		34.9		232.2		384.5		284.0		
Turn Bay Length (m)			53.0		67.0		52.0	58.0		50.0
Base Capacity (vph)	581	770	546	756	552	1168	1057	350	1168	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.15	0.37	0.09	0.12	0.58	0.23	0.07	0.38	0.08

**Intersection Summary**  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 8.8 (11%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated



HCM Signalized Intersection Capacity Analysis 2022 Existing PM  
 1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↖		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	93	46	61	189	31	32	61	639	228	24	418	76
Future Volume (vph)	93	46	61	189	31	32	61	639	228	24	418	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1819	1720		1779	1727		1811	1883	1571	1751	1883	1576
Fit Permitted	0.71	1.00		0.68	1.00		0.47	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)	1366	1720		1280	1727		890	1883	1571	564	1883	1576
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	49	65	201	33	34	65	680	243	26	445	81
RTOR Reduction (vph)	0	50	0	0	26	0	0	0	83	0	0	31
Lane Group Flow (vph)	99	64	0	201	41	0	65	680	160	26	445	50
Confl. Peds. (#/hr)	2		4	4		2	9		5	5		9
Heavy Vehicles (%)	0%	0%	1%	2%	0%	3%	0%	2%	1%	4%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2		6		6
Permitted Phases	4			8			2		6		6	
Actuated Green, G (s)	18.3	18.3		18.3	18.3		49.6	49.6	49.6	49.6	49.6	49.6
Effective Green, g (s)	18.3	18.3		18.3	18.3		49.6	49.6	49.6	49.6	49.6	49.6
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	312	393		292	395		551	1167	974	349	1167	977
v/s Ratio Prot		0.04			0.02			c0.36				0.24
v/s Ratio Perm	0.07			c0.16			0.07		0.10	0.05		0.03
v/c Ratio	0.32	0.16		0.69	0.10		0.12	0.58	0.16	0.07	0.38	0.05
Uniform Delay, d1	25.7	24.7		28.2	24.4		6.2	9.0	6.4	6.1	7.6	6.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.2		6.6	0.1		0.4	2.1	0.4	0.4	0.9	0.1
Delay (s)	26.2	24.9		34.8	24.5		6.7	11.2	6.8	6.5	8.5	6.1
Level of Service	C	C		C	C		A	B	A	A	A	A
Approach Delay (s)		25.5			32.3			9.8				8.1
Approach LOS		C			C			A				A

**Intersection Summary**

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
2: Site Driveway/Confederation Drive & Elgin Park Drive

2022 Existing PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕	↕		↕	↕
Traffic Volume (veh/h)	50	234	4	1	183	11	9	2	8	6	0	30
Future Volume (Veh/h)	50	234	4	1	183	11	9	2	8	6	0	30
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	53	246	4	1	193	12	9	2	8	6	0	32
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	205	250			581			561	248	562	557	199
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	205	250			581			561	248	562	557	199
tC, single (s)	4.1	4.1			7.2			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.6			4.0	3.3	3.5	4.0	3.3
p0 queue free %	96	100			98			100	99	99	100	96
cM capacity (veh/h)	1378	1327			383			422	796	422	424	847
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	53	250	1	205	19	38						
Volume Left	53	0	1	0	9	6						
Volume Right	0	4	0	12	8	32						
cSH	1378	1700	1327	1700	496	731						
Volume to Capacity	0.04	0.15	0.00	0.12	0.04	0.05						
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.9	1.2						
Control Delay (s)	7.7	0.0	7.7	0.0	12.5	10.2						
Lane LOS	A	A		B		B						
Approach Delay (s)	1.3	0.0			12.5	10.2						
Approach LOS	B			B								
<b>Intersection Summary</b>												
Average Delay	1.8											
Intersection Capacity Utilization	29.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
3: Concession Road 7 & Elgin Park Drive

2022 Existing PM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	↕
Traffic Volume (veh/h)	192	76	37	96	71	145
Future Volume (Veh/h)	192	76	37	96	71	145
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	202	80	39	101	75	153
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	330	152	228			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	330	152	228			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	69	91	97			
cM capacity (veh/h)	647	900	1334			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	202	80	39	101	228	
Volume Left	202	0	39	0	0	
Volume Right	0	80	0	0	153	
cSH	647	900	1334	1700	1700	
Volume to Capacity	0.31	0.09	0.03	0.06	0.13	
Queue Length 95th (m)	10.1	2.2	0.7	0.0	0.0	
Control Delay (s)	13.1	9.4	7.8	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	12.0	2.2		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	5.7					
Intersection Capacity Utilization	36.6%		ICU Level of Service		A	
Analysis Period (min)	15					



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

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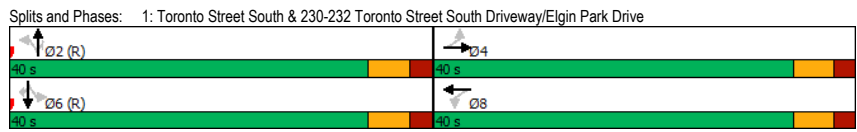
## Appendix C

### 2028 Background Traffic Operations

Timings 2028 Background AM  
1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↖
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	21	5	175	10	22	310	107	17	500	33
Future Volume (vph)	21	5	175	10	22	310	107	17	500	33
Lane Group Flow (vph)	23	29	192	29	24	341	118	19	549	36
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2		2	6	6
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	29.0	29.0	29.0	29.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.08	0.08	0.67	0.08	0.05	0.28	0.11	0.03	0.45	0.03
Control Delay	23.3	11.2	39.7	13.7	7.4	8.0	2.0	7.2	9.7	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	11.2	39.7	13.7	7.4	8.0	2.0	7.2	9.7	2.6
Queue Length 50th (m)	2.9	0.6	27.0	1.3	1.2	19.9	0.0	0.9	36.9	0.0
Queue Length 95th (m)	7.6	6.1	42.7	6.8	4.8	41.7	6.4	4.0	73.6	3.4
Internal Link Dist (m)		34.9		232.2		384.5		284.0		
Turn Bay Length (m)			53.0		67.0		52.0	58.0		50.0
Base Capacity (vph)	602	718	597	742	495	1198	1058	679	1222	1035
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.32	0.04	0.05	0.28	0.11	0.03	0.45	0.03

**Intersection Summary**  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 34.4 (43%), Referenced to phase 2:NBL and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated



HCM Signalized Intersection Capacity Analysis 2028 Background AM  
 1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↖		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	21	5	22	175	10	16	22	310	107	17	500	33
Future Volume (vph)	21	5	22	175	10	16	22	310	107	17	500	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.88		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1819	1652		1804	1717		1820	1865	1582	1823	1902	1590
Fit Permitted	0.74	1.00		0.74	1.00		0.40	1.00	0.55	1.00	1.00	1.00
Satd. Flow (perm)	1414	1652		1402	1717		771	1865	1582	1057	1902	1590
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	23	5	24	192	11	18	24	341	118	19	549	36
RTOR Reduction (vph)	0	19	0	0	14	0	0	0	42	0	0	13
Lane Group Flow (vph)	23	10	0	192	15	0	24	341	76	19	549	23
Confl. Peds. (#/hr)	2		1	1		2	4		1	1		4
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	3%	1%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2		6		6
Permitted Phases	4			8			2		6		6	
Actuated Green, G (s)	16.5	16.5		16.5	16.5		51.4	51.4	51.4	51.4	51.4	51.4
Effective Green, g (s)	16.5	16.5		16.5	16.5		51.4	51.4	51.4	51.4	51.4	51.4
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	291	340		289	354		495	1198	1016	679	1222	1021
v/s Ratio Prot		0.01			0.01			0.18				c0.29
v/s Ratio Perm	0.02			c0.14			0.03		0.05	0.02		0.01
v/c Ratio	0.08	0.03		0.66	0.04		0.05	0.28	0.07	0.03	0.45	0.02
Uniform Delay, d1	25.6	25.4		29.2	25.4		5.3	6.3	5.4	5.2	7.2	5.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		5.7	0.0		0.2	0.6	0.1	0.1	1.2	0.0
Delay (s)	25.7	25.4		34.9	25.5		5.5	6.9	5.5	5.3	8.4	5.2
Level of Service	C	C		C	C		A	A	A	A	A	A
Approach Delay (s)		25.5			33.6			6.5			8.1	
Approach LOS		C			C			A			A	

**Intersection Summary**

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



HCM Unsignalized Intersection Capacity Analysis  
2: Site Driveway/Confederation Drive & Elgin Park Drive

2028 Background AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕	↕		↕	↕
Traffic Volume (veh/h)	11	87	16	10	163	3	2	0	2	7	0	31
Future Volume (Veh/h)	11	87	16	10	163	3	2	0	2	7	0	31
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	96	18	11	179	3	2	0	2	8	0	34
Pedestrians	3											
Lane Width (m)	3.7											
Walking Speed (m/s)	1.1											
Percent Blockage	0											
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	185	114			364			336	105	328	344	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185	114			364			336	105	328	344	184
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	99	99			100			100	100	99	100	96
cM capacity (veh/h)	1398	1488			564			577	955	617	571	862
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	12	114	11	182	4	42						
Volume Left	12	0	11	0	2	8						
Volume Right	0	18	0	3	2	34						
cSH	1398	1700	1488	1700	709	801						
Volume to Capacity	0.01	0.07	0.01	0.11	0.01	0.05						
Queue Length 95th (m)	0.2	0.0	0.2	0.0	0.1	1.3						
Control Delay (s)	7.6	0.0	7.4	0.0	10.1	9.7						
Lane LOS	A	A		B		A						
Approach Delay (s)	0.7	0.4			10.1	9.7						
Approach LOS	B			A								
<b>Intersection Summary</b>												
Average Delay	1.7											
Intersection Capacity Utilization	19.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
3: Concession Road 7 & Elgin Park Drive

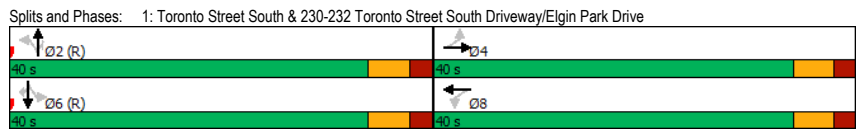
2028 Background AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	↕
Traffic Volume (veh/h)	61	33	44	48	84	138
Future Volume (Veh/h)	61	33	44	48	84	138
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	67	36	48	53	92	152
Pedestrians	3					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	317	168	244			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	317	168	244			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	96	96			
cM capacity (veh/h)	646	881	1334			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	67	36	48	53	244	
Volume Left	67	0	48	0	0	
Volume Right	0	36	0	0	152	
cSH	646	881	1334	1700	1700	
Volume to Capacity	0.10	0.04	0.04	0.03	0.14	
Queue Length 95th (m)	2.6	1.0	0.9	0.0	0.0	
Control Delay (s)	11.2	9.3	7.8	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	10.5	3.7		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	3.3					
Intersection Capacity Utilization	29.6%		ICU Level of Service		A	
Analysis Period (min)	15					

Timings 2028 Background PM  
1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↖
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	93	46	189	31	61	720	228	24	471	76
Future Volume (vph)	93	46	189	31	61	720	228	24	471	76
Lane Group Flow (vph)	99	114	201	67	65	766	243	26	501	81
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2		2	6	6
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	29.0	29.0	29.0	29.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.32	0.26	0.69	0.16	0.13	0.66	0.23	0.09	0.43	0.08
Control Delay	26.4	12.3	39.6	13.4	9.1	15.0	3.0	9.4	10.6	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	12.3	39.6	13.4	9.1	15.0	3.0	9.4	10.6	2.6
Queue Length 50th (m)	12.6	6.0	28.2	4.0	3.6	66.1	2.6	1.4	35.0	0.0
Queue Length 95th (m)	21.9	15.7	42.9	11.4	11.6	136.3	14.0	6.1	72.4	5.9
Internal Link Dist (m)		34.9		232.2		384.5		284.0		
Turn Bay Length (m)			53.0		67.0		52.0	58.0		50.0
Base Capacity (vph)	581	770	546	756	505	1168	1048	288	1168	1008
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.15	0.37	0.09	0.13	0.66	0.23	0.09	0.43	0.08

**Intersection Summary**  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 8.8 (11%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated



HCM Signalized Intersection Capacity Analysis 2028 Background PM  
 1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↖		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	93	46	61	189	31	32	61	720	228	24	471	76
Future Volume (vph)	93	46	61	189	31	32	61	720	228	24	471	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1819	1720		1779	1727		1813	1883	1571	1752	1883	1576
Fit Permitted	0.71	1.00		0.68	1.00		0.43	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)	1366	1720		1280	1727		814	1883	1571	464	1883	1576
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	49	65	201	33	34	65	766	243	26	501	81
RTOR Reduction (vph)	0	50	0	0	26	0	0	0	74	0	0	31
Lane Group Flow (vph)	99	64	0	201	41	0	65	766	169	26	501	50
Confl. Peds. (#/hr)	2		4	4		2	9		5	5		9
Heavy Vehicles (%)	0%	0%	1%	2%	0%	3%	0%	2%	1%	4%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2		6		6
Permitted Phases	4			8			2		6		6	
Actuated Green, G (s)	18.3	18.3		18.3	18.3		49.6	49.6	49.6	49.6	49.6	49.6
Effective Green, g (s)	18.3	18.3		18.3	18.3		49.6	49.6	49.6	49.6	49.6	49.6
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.62	0.62	0.62	0.62	0.62	0.62
Clearance Time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	312	393		292	395		504	1167	974	287	1167	977
v/s Ratio Prot		0.04			0.02			c0.41				0.27
v/s Ratio Perm	0.07			c0.16			0.08		0.11	0.06		0.03
v/c Ratio	0.32	0.16		0.69	0.10		0.13	0.66	0.17	0.09	0.43	0.05
Uniform Delay, d1	25.7	24.7		28.2	24.4		6.3	9.7	6.5	6.1	7.9	6.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.2		6.6	0.1		0.5	2.9	0.4	0.6	1.2	0.1
Delay (s)	26.2	24.9		34.8	24.5		6.8	12.6	6.9	6.7	9.0	6.1
Level of Service	C	C		C	C		A	B	A	A	A	A
Approach Delay (s)		25.5			32.3			11.0			8.5	
Approach LOS		C			C			B			A	

**Intersection Summary**  
 HCM 2000 Control Delay: 14.4 HCM 2000 Level of Service: B  
 HCM 2000 Volume to Capacity ratio: 0.66  
 Actuated Cycle Length (s): 80.0 Sum of lost time (s): 12.1  
 Intersection Capacity Utilization: 78.0% ICU Level of Service: D  
 Analysis Period (min): 15  
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
2: Site Driveway/Confederation Drive & Elgin Park Drive

2028 Background PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕	↕		↕	↕
Traffic Volume (veh/h)	50	234	4	1	183	11	9	2	8	6	0	30
Future Volume (Veh/h)	50	234	4	1	183	11	9	2	8	6	0	30
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	53	246	4	1	193	12	9	2	8	6	0	32
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	205	250			581			561	248	562	557	199
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	205	250			581			561	248	562	557	199
tC, single (s)	4.1	4.1			7.2			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.6			4.0	3.3	3.5	4.0	3.3
p0 queue free %	96	100			98			100	99	99	100	96
cM capacity (veh/h)	1378	1327			383			422	796	422	424	847
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	53	250	1	205	19	38						
Volume Left	53	0	1	0	9	6						
Volume Right	0	4	0	12	8	32						
cSH	1378	1700	1327	1700	496	731						
Volume to Capacity	0.04	0.15	0.00	0.12	0.04	0.05						
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.9	1.2						
Control Delay (s)	7.7	0.0	7.7	0.0	12.5	10.2						
Lane LOS	A	A		B		B						
Approach Delay (s)	1.3	0.0			12.5	10.2						
Approach LOS	B			B								
Intersection Summary												
Average Delay	1.8											
Intersection Capacity Utilization	29.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
3: Concession Road 7 & Elgin Park Drive

2028 Background PM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	↕
Traffic Volume (veh/h)	192	76	37	108	80	145
Future Volume (Veh/h)	192	76	37	108	80	145
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	202	80	39	114	84	153
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	352	160	237			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352	160	237			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	91	97			
cM capacity (veh/h)	628	890	1324			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	202	80	39	114	237	
Volume Left	202	0	39	0	0	
Volume Right	0	80	0	0	153	
cSH	628	890	1324	1700	1700	
Volume to Capacity	0.32	0.09	0.03	0.07	0.14	
Queue Length 95th (m)	10.5	2.2	0.7	0.0	0.0	
Control Delay (s)	13.4	9.4	7.8	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	12.3	2.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	5.6					
Intersection Capacity Utilization	37.1%		ICU Level of Service		A	
Analysis Period (min)	15					



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

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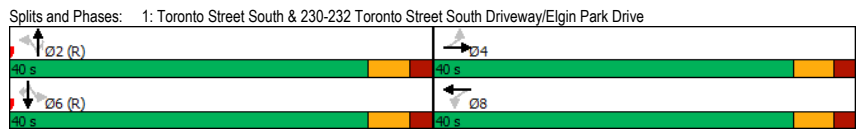
## Appendix D

### 2028 Total Traffic Operations

Timings 2028 Total AM  
 1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	21	5	184	10	22	310	119	19	500	33
Future Volume (vph)	21	5	184	10	22	310	119	19	500	33
Lane Group Flow (vph)	23	29	202	31	24	341	131	21	549	36
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2		2	6	6
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	29.0	29.0	29.0	29.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.08	0.08	0.68	0.08	0.05	0.29	0.12	0.03	0.45	0.04
Control Delay	22.8	10.8	39.5	13.0	7.7	8.4	2.0	7.5	10.1	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	10.8	39.5	13.0	7.7	8.4	2.0	7.5	10.1	2.7
Queue Length 50th (m)	2.8	0.6	28.3	1.3	1.2	20.5	0.0	1.1	37.8	0.0
Queue Length 95th (m)	7.5	6.0	44.0	6.9	5.0	42.9	6.9	4.4	75.6	3.5
Internal Link Dist (m)		34.9		232.2		384.5		284.0		
Turn Bay Length (m)			53.0		67.0		52.0	58.0		50.0
Base Capacity (vph)	601	718	597	739	485	1184	1052	669	1208	1024
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.34	0.04	0.05	0.29	0.12	0.03	0.45	0.04

**Intersection Summary**  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 34.4 (43%), Referenced to phase 2:NBL and 6:SBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated



HCM Signalized Intersection Capacity Analysis 2028 Total AM  
 1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	21	5	22	184	10	18	22	310	119	19	500	33
Future Volume (vph)	21	5	22	184	10	18	22	310	119	19	500	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.88		1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1819	1652		1804	1709		1820	1865	1582	1823	1902	1590
Fit Permitted	0.74	1.00		0.74	1.00		0.40	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	1411	1652		1402	1709		765	1865	1582	1053	1902	1590
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	23	5	24	202	11	20	24	341	131	21	549	36
RTOR Reduction (vph)	0	19	0	0	16	0	0	0	48	0	0	13
Lane Group Flow (vph)	23	10	0	202	15	0	24	341	83	21	549	23
Confl. Peds. (#/hr)	2		1	1		2	4		1	1		4
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	3%	1%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2		6		6
Permitted Phases	4				8			2		6		6
Actuated Green, G (s)	17.1	17.1		17.1	17.1		50.8	50.8	50.8	50.8	50.8	50.8
Effective Green, g (s)	17.1	17.1		17.1	17.1		50.8	50.8	50.8	50.8	50.8	50.8
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.63	0.63	0.63	0.63	0.63	0.63
Clearance Time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	301	353		299	365		485	1184	1004	668	1207	1009
v/s Ratio Prot		0.01			0.01			0.18				c0.29
v/s Ratio Perm	0.02			c0.14			0.03		0.05	0.02		0.01
v/c Ratio	0.08	0.03		0.68	0.04		0.05	0.29	0.08	0.03	0.45	0.02
Uniform Delay, d1	25.1	24.9		28.9	25.0		5.5	6.5	5.6	5.4	7.5	5.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		5.9	0.0		0.2	0.6	0.2	0.1	1.2	0.0
Delay (s)	25.2	24.9		34.8	25.0		5.7	7.1	5.8	5.5	8.7	5.4
Level of Service	C	C		C	C		A	A	A	A	A	A
Approach Delay (s)		25.1			33.5			6.7			8.4	
Approach LOS		C			C			A			A	

**Intersection Summary**

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.1
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
2: Site Driveway/Confederation Drive & Elgin Park Drive

2028 Total AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕	↕		↕	↕
Traffic Volume (veh/h)	11	87	30	16	163	3	13	0	7	7	0	31
Future Volume (Veh/h)	11	87	30	16	163	3	13	0	7	7	0	31
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	96	33	18	179	3	14	0	8	8	0	34
Pedestrians	3											
Lane Width (m)	3.7											
Walking Speed (m/s)	1.1											
Percent Blockage	0											
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	185	129			386			358	112	348	372	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	185	129			386			358	112	348	372	184
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	99	99			97			100	99	99	100	96
cM capacity (veh/h)	1398	1469			544			558	946	593	548	862
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	12	129	18	182	22	42						
Volume Left	12	0	18	0	14	8						
Volume Right	0	33	0	3	8	34						
cSH	1398	1700	1469	1700	643	793						
Volume to Capacity	0.01	0.08	0.01	0.11	0.03	0.05						
Queue Length 95th (m)	0.2	0.0	0.3	0.0	0.8	1.3						
Control Delay (s)	7.6	0.0	7.5	0.0	10.8	9.8						
Lane LOS	A	A		B		A						
Approach Delay (s)	0.6	0.7			10.8		9.8					
Approach LOS	B			A								
Intersection Summary												
Average Delay	2.2											
Intersection Capacity Utilization	19.2%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
3: Concession Road 7 & Elgin Park Drive

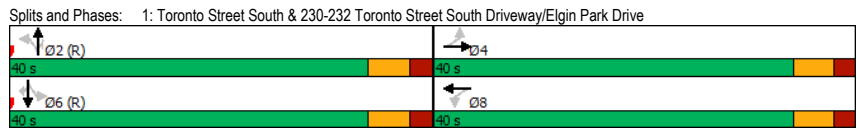
2028 Total AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	↕
Traffic Volume (veh/h)	63	36	48	48	84	140
Future Volume (Veh/h)	63	36	48	48	84	140
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	69	40	53	53	92	154
Pedestrians	3					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	328	169	246			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	328	169	246			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	95	96			
cM capacity (veh/h)	634	880	1332			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	69	40	53	53	246	
Volume Left	69	0	53	0	0	
Volume Right	0	40	0	0	154	
cSH	634	880	1332	1700	1700	
Volume to Capacity	0.11	0.05	0.04	0.03	0.14	
Queue Length 95th (m)	2.8	1.1	0.9	0.0	0.0	
Control Delay (s)	11.4	9.3	7.8	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	10.6	3.9		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	3.4					
Intersection Capacity Utilization	29.8%		ICU Level of Service		A	
Analysis Period (min)	15					

Timings 2028 Total PM  
1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↘
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	93	46	203	31	61	720	243	26	471	76
Future Volume (vph)	93	46	203	31	61	720	243	26	471	76
Lane Group Flow (vph)	99	114	216	69	65	766	259	28	501	81
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2		2	6	6
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	29.0	29.0	29.0	29.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.9	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.30	0.25	0.70	0.16	0.13	0.67	0.25	0.10	0.44	0.08
Control Delay	25.3	11.8	39.4	12.6	9.6	16.0	3.2	10.2	11.2	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	11.8	39.4	12.6	9.6	16.0	3.2	10.2	11.2	2.8
Queue Length 50th (m)	12.4	5.9	30.1	3.9	3.8	68.7	2.9	1.6	36.4	0.0
Queue Length 95th (m)	21.3	15.4	45.3	11.4	12.0	#146.6	15.1	6.6	74.8	6.1
Internal Link Dist (m)		34.9		232.2		384.5		284.0		
Turn Bay Length (m)			53.0		67.0		52.0	58.0		50.0
Base Capacity (vph)	581	770	546	755	490	1146	1037	274	1146	991
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.15	0.40	0.09	0.13	0.67	0.25	0.10	0.44	0.08

**Intersection Summary**  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 8.8 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.



HCM Signalized Intersection Capacity Analysis 2028 Total PM  
 1: Toronto Street South & 230-232 Toronto Street South Driveway/Elgin Park Drive

	↖	→	↗	←	↖	↑	↗	↘	↓	↘		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	93	46	61	203	31	34	61	720	243	26	471	76
Future Volume (vph)	93	46	61	203	31	34	61	720	243	26	471	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.91		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1819	1720		1779	1722		1813	1883	1571	1752	1883	1576
Fit Permitted	0.71	1.00		0.68	1.00		0.42	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	1364	1720		1280	1722		805	1883	1571	450	1883	1576
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	49	65	216	33	36	65	766	259	28	501	81
RTOR Reduction (vph)	0	49	0	0	27	0	0	0	81	0	0	32
Lane Group Flow (vph)	99	65	0	216	42	0	65	766	178	28	501	49
Confl. Peds. (#/hr)	2		4	4		2	9		5	5		9
Heavy Vehicles (%)	0%	0%	1%	2%	0%	3%	0%	2%	1%	4%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	Perm	Perm
Protected Phases		4			8			2		6		6
Permitted Phases	4				8		2		6		6	
Actuated Green, G (s)	19.2	19.2		19.2	19.2		48.7	48.7	48.7	48.7	48.7	48.7
Effective Green, g (s)	19.2	19.2		19.2	19.2		48.7	48.7	48.7	48.7	48.7	48.7
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.61	0.61	0.61	0.61	0.61	0.61
Clearance Time (s)	5.9	5.9		5.9	5.9		6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	327	412		307	413		490	1146	956	273	1146	959
v/s Ratio Prot		0.04			0.02			c0.41				0.27
v/s Ratio Perm	0.07			c0.17			0.08		0.11	0.06		0.03
v/c Ratio	0.30	0.16		0.70	0.10		0.13	0.67	0.19	0.10	0.44	0.05
Uniform Delay, d1	24.9	24.0		27.8	23.7		6.7	10.3	6.9	6.5	8.3	6.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2		7.1	0.1		0.6	3.1	0.4	0.8	1.2	0.1
Delay (s)	25.4	24.2		34.9	23.8		7.2	13.4	7.3	7.3	9.6	6.4
Level of Service	C	C		C	C		A	B	A	A	A	A
Approach Delay (s)		24.8			32.2			11.6			9.0	
Approach LOS		C			C			B			A	

**Intersection Summary**  
 HCM 2000 Control Delay 14.8 HCM 2000 Level of Service B  
 HCM 2000 Volume to Capacity ratio 0.68  
 Actuated Cycle Length (s) 80.0 Sum of lost time (s) 12.1  
 Intersection Capacity Utilization 78.8% ICU Level of Service D  
 Analysis Period (min) 15  
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
2: Site Driveway/Confederation Drive & Elgin Park Drive

2028 Total PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↕	↕		↕	↕
Traffic Volume (veh/h)	50	234	21	8	183	11	25	2	15	6	0	30
Future Volume (Veh/h)	50	234	21	8	183	11	25	2	15	6	0	30
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	53	246	22	8	193	12	26	2	16	6	0	32
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	205	268			604			584	257	584	589	199
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	205	268			604			584	257	584	589	199
tC, single (s)	4.1	4.1			7.2			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.6			4.0	3.3	3.5	4.0	3.3
p0 queue free %	96	99			93			100	98	99	100	96
cM capacity (veh/h)	1378	1307			368			407	787	402	405	847
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	53	268	8	205	44	38						
Volume Left	53	0	8	0	26	6						
Volume Right	0	22	0	12	16	32						
cSH	1378	1700	1307	1700	459	721						
Volume to Capacity	0.04	0.16	0.01	0.12	0.10	0.05						
Queue Length 95th (m)	0.9	0.0	0.1	0.0	2.4	1.3						
Control Delay (s)	7.7	0.0	7.8	0.0	13.7	10.3						
Lane LOS	A	A		B		B						
Approach Delay (s)	1.3	0.3			13.7	10.3						
Approach LOS				B		B						
Intersection Summary												
Average Delay	2.4											
Intersection Capacity Utilization	33.6%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
3: Concession Road 7 & Elgin Park Drive

2028 Total PM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↕	↕	↕
Traffic Volume (veh/h)	194	81	42	108	80	147
Future Volume (Veh/h)	194	81	42	108	80	147
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	204	85	44	114	84	155
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	364	162	239			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364	162	239			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	67	90	97			
cM capacity (veh/h)	617	889	1322			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	204	85	44	114	239	
Volume Left	204	0	44	0	0	
Volume Right	0	85	0	0	155	
cSH	617	889	1322	1700	1700	
Volume to Capacity	0.33	0.10	0.03	0.07	0.14	
Queue Length 95th (m)	11.0	2.4	0.8	0.0	0.0	
Control Delay (s)	13.7	9.5	7.8	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	12.5	2.2		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	5.7					
Intersection Capacity Utilization	37.3%		ICU Level of Service		A	
Analysis Period (min)	15					





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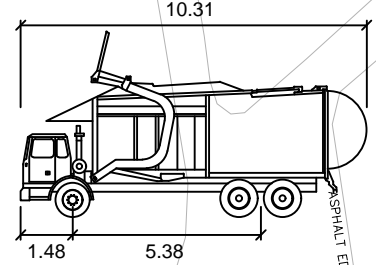
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## Appendix E

### Truck Access Analysis



PART  
PLAN



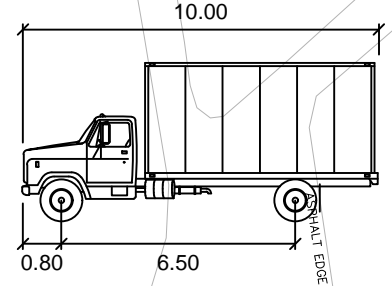
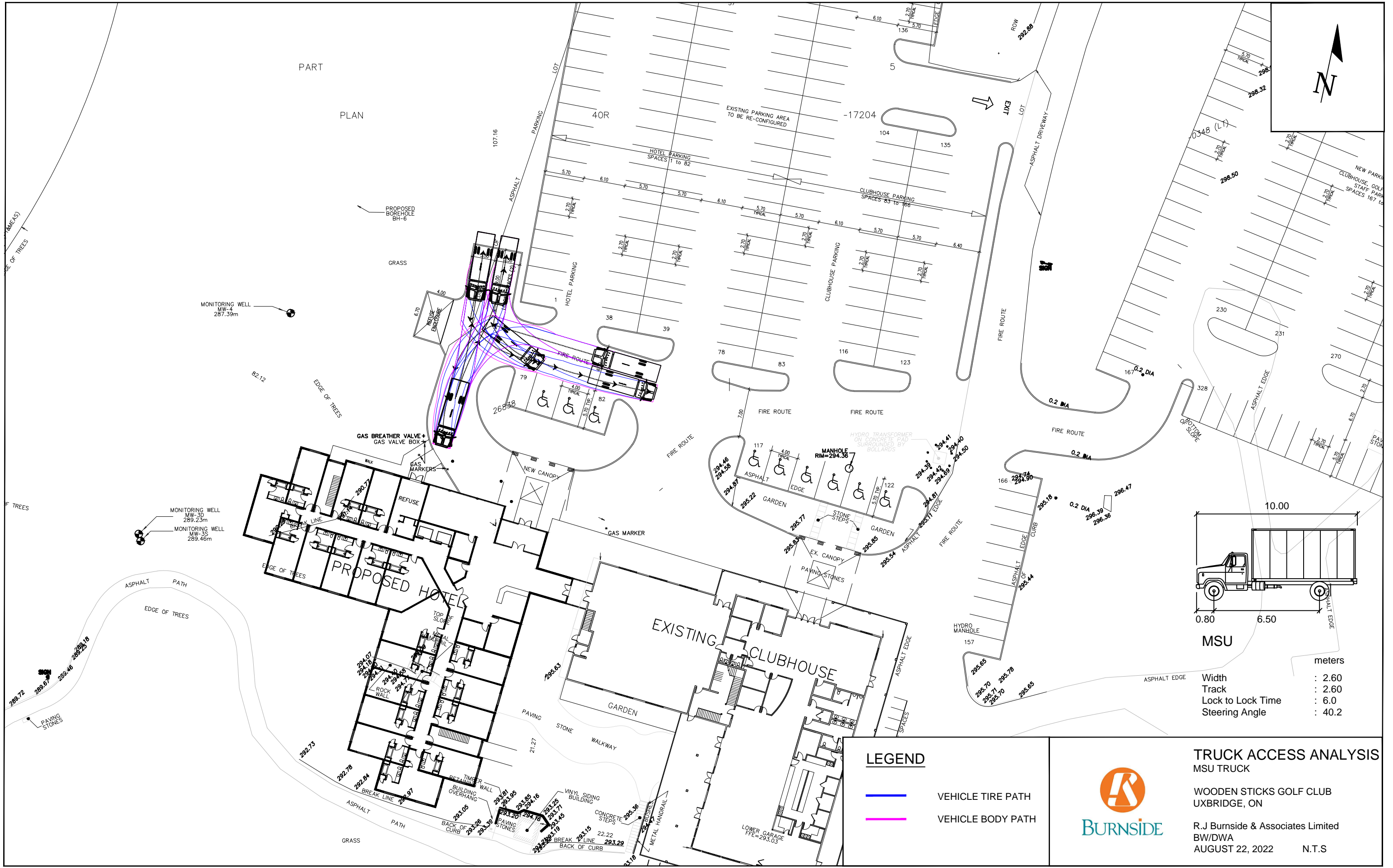
Wayne Titan

	meters
Width	: 2.58
Track	: 2.44
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

- LEGEND**
- VEHICLE TIRE PATH
  - VEHICLE BODY PATH



**TRUCK ACCESS ANALYSIS**  
 FRONT LOAD REFUSE TRUCK  
 WOODEN STICKS GOLF CLUB  
 UXBRIDGE, ON  
 R.J Burnside & Associates Limited  
 BW/DWA  
 AUGUST 22, 2022 N.T.S



**MSU**

meters

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

- LEGEND**
- VEHICLE TIRE PATH
  - VEHICLE BODY PATH



**TRUCK ACCESS ANALYSIS**  
MSU TRUCK

WOODEN STICKS GOLF CLUB  
UXBRIDGE, ON

R.J Burnside & Associates Limited  
BW/DWA  
AUGUST 22, 2022 N.T.S



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## Appendix F

### Zoning By-law 81-19 Excerpts

## 5. GENERAL PROVISIONS

## LOADING SPACE REQUIREMENT TABLES

(B/L No. 2008-063)	GROSS FLOOR AREA OF BUILDING INCLUDING AN EDUCATIONAL INSTITUTION BUILDING with the exception of buildings which are specifically built as office buildings, including a financial establishment, any apartment dwelling houses, nursing homes, homes for the aged, retirement homes or senior citizens' housing and institutional buildings, other than educational institution buildings	LOADING SPACE
	280 square metres or less	0 space
	Exceeding 280 square metres but not 2,300 square metres	1 spaces
	Exceeding 2,300 square metres but not 7,500 square metres	2 spaces
	Exceeding 7,500 square metres	3 spaces plus 1 additional space for each additional 9,200 square metres or fractional part thereof in excess of 7,500 square metres
(B/L No. 2008-063)	GROSS FLOOR AREA OF BUILDINGS WHICH ARE SPECIFICALLY BUILT AS OFFICE, FINANCIAL ESTABLISHMENT OR INSTITUTIONAL BUILDINGS, WITH THE EXCEPTION OF EDUCATIONAL INSTITUTION BUILDINGS	LOADING SPACE
	2,300 square metres or less	0 spaces
	Exceeding 2,300 metres, but not 11,600 square metres	1 space
	Exceeding 11,600 square metres	2 spaces
	APARTMENT DWELLING HOUSE, NURSING HOME, HOME FOR THE AGED, RETIREMENT HOME OR SENIOR CITIZEN HOUSING	0 spaces

## b. ACCESS

Access to loading or unloading spaces shall be by means of a driveway at least 6 metres in width contained on the lot on which the spaces are located and leading to an improved public road.

## c. LOADING SPACE SURFACE

Driveways, loading and unloading spaces, and related aisles and turning areas shall be maintained with a stable surface which is treated so as to prevent the raising of dust. Such loading and unloading facilities shall, before being used, be constructed of crushed stone, gravel, asphalt, concrete or similar material and shall include provisions for drainage facilities.

## 5. GENERAL PROVISIONS

## PARKING SPACE REQUIREMENT TABLE

TYPE OR NATURE OF USE	MINIMUM OFF STREET PARKING REQUIREMENTS
Assembly Hall, Auditorium, Arena, Community Centre, Place of Entertainment, Place of Worship, Private Club or other similar places of assembly not otherwise specified herein.	1 parking space for each four persons that may be legally accommodated at any one time.
Bowling Alley	3 parking spaces for each bowling lane.
Business and/or Professional Office, Financial Establishment, Retail Commercial Establishment, Personal Service Shop including a Home Occupation.	1 parking space for each 20 square metres of gross floor area of the building directly related to the specified permitted use.
Curling Rink	4 parking spaces for each curling sheet plus such additional parking as is required for a lounge licensed in accordance with The Liquor Licence Act of Ontario.
Dry Cleaners Establishment	1 parking space for each 9 square metres or fraction thereof of gross floor area, with a minimum requirement of 4 parking spaces.
Eating Establishment, Tavern	1 parking space for each 9 square metres or fraction thereof of gross floor area, or 1 parking space for each 4 person or fraction thereof, legal capacity, whichever is greater.
Golf Course	24 parking spaces for each 9 holes of golfing facilities.
Home For the Aged, Nursing Home	1 parking space for each four beds or fraction thereof.
Hospital	1 parking space for each 2 beds or fraction thereof, or 38 square metres of gross floor area whichever is the greater.
Hotel, Motel	1 parking space for each guest room, cottage or cabin plus such parking facilities as are required for an eating



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## Appendix G

### Traffic By-law 2013-184 Excerpts



**Section 7- Accessible Permit Only Parking Spaces**

- 7.1 An accessible parking permit issued to an individual is not valid when displayed on a vehicle and the vehicle is not being used to pick up or transport the holder of the accessible parking permit.
- 7.2 An accessible parking permit issued to a corporation or organization is not valid when displayed on a vehicle and the vehicle is not being used to pick up or transport a person with a disability.
- 7.3 An accessible parking permit shall be displayed on the sun visor or on the dashboard of a vehicle so that the international symbol of access for the disabled, the permit number and the expiry date of the permit are clearly visible from the outside of the vehicle.

7.4 Every owner and operator of a parking lot shall provide a minimum number of designated parking spaces therein in accordance with the following table:

Total Number of Designated Parking Spaces	Minimum Number of Designated Parking Spaces
1 - 50	1
51 - 100	2
101 - 150	3
151 - 200	4
201 - 400	5
401 - 800	8
Over 800	8 plus 1 for each additional 200 parking spaces in parking lot

- 7.5 For the purpose of calculating the required minimum number of designated parking spaces for multi-unit residential developments consisting of 10 or more dwelling units, the requirements of subsection 6.4 shall be applied only to the visitor parking provided for the development.
- 7.6 Section 6.5 shall not apply to residential developments consisting of less than 10 dwelling units.

7.7 Each designated parking space shall be,

- a) level with a maximum of 1.5% running slope for drainage;
- b) a minimum width of four metres;
- c) a minimum length of 5.3 metres;
- d) a minimum vertical clearance of 2.75 metres;
- e) located so sidewalks, paths or walkways will be accessible to disabled persons whether via ramps, aisles, depressed curbs, or other appropriate means without requiring a person to pass behind parked cars or cross a traffic lane;
- f) located with sufficient clearance around the vehicle in terms of other vehicles or obstacles such as light standards and waste receptacles to permit free access by a wheelchair;
- g) identified by the official sign be mounted with the base of the sign no less than 1.7 metres and no more than 2.0 metres above grade; and
- h) located in a place approved by the Township of Uxbridge.



