



Enhancing our communities



196-202 Dunlop Street West

TRAFFIC IMPACT BRIEF

Fresco Enterprises Inc.

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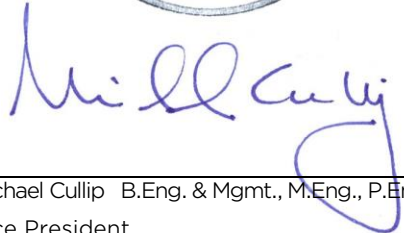
July
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Issue	Date	Description
1	October 2, 2023	Final Report
2	July 19, 2024	Final Report - 2 nd Submission

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1 Introduction

Tatham Engineering Limited was retained by Fresco Enterprises Inc. to prepare a Traffic Impact Brief in support of the proposed mixed-use development to be located at 196, 200 and 202 Dunlop Street West in the City of Barrie. The location of the development site is illustrated in Figure 1.

1.1 STUDY PURPOSE

The purpose of this study is to review the proposed development from a transportation perspective. Recognizing that the trip generation associated with the subject development will not be significant, the scope of this study has been limited to a traffic impact brief with a focus on the following:

- existing conditions, including a description of the study area road network, traffic volumes, operations and planned/proposed improvements;
- details of the proposed development and anticipated trip generation;
- on-site circulation and parking provision; and
- transportation impacts associated with the proposed development.

1.2 REPORT STRUCTURE

The report is structured as follows:

- Chapter 1: introduction and study purpose
- Chapter 2: existing conditions, detailing the road system and corresponding traffic operations;
- Chapter 3: proposed development and associated details including land use, access, traffic volumes and parking;
- Chapter 4: future traffic operations associated with the proposed development; and
- Chapter 5: summary of the report and key findings

1.3 REPORT HISTORY

Tatham Engineering prepared the first version of this report (dated October 2, 2023) in support of the initial development application for the proposed development. This second submission has



addressed minor revisions to the site plan, completed a vehicle turning assessment, and revised discussion on site parking supply.



2 Existing Conditions

This chapter will describe the road network, traffic volumes and operations for the existing conditions.

2.1 ROAD NETWORK

The road network to be addressed by this study consists of Dunlop Street West across the frontage of the site. Aerial imagery and photos of the road system are provided in Figure 2.

Dunlop Street West

Dunlop Street West is oriented east-west through the study area and has a 4-lane urban cross section, providing two lanes of travel per direction and sidewalks on each side of the road. As per the City of Barrie's *Transportation Master Plan*¹ (TMP), Dunlop Street West is classified as a major arterial road with a planning capacity of 750 vehicles per hour per lane (vphpl). Given the 4-lane cross-section, Dunlop Street West has a directional capacity of 1,500 vph (2 lanes x 750 vphpl). The road has a posted speed limit of 50 km/h with an assumed design speed of 70 km/h.

2.2 TRAFFIC VOLUMES

To determine existing traffic volumes within the study area, traffic counts were obtained for the adjacent intersection of Dunlop Street West and Eccles Street, located approximately 150 metres east of the subject site. Given the proximity of the count location to the site, and lack of major trip generators and/or attractors between the two, the counted volumes on Dunlop Street West are considered representative of those across the subject site frontage. The counts were completed on Thursday April 20, 2023, from 7:00 to 9:00, 11:00 to 14:00 and 15:00 to 18:00.

The 2023 AM and PM peak hour volumes are illustrated in Figure 3, the corresponding traffic count details are provided in Appendix A..

2.3 TRAFFIC OPERATIONS

As previously noted, Dunlop Street West has a directional planning capacity of 1,500 vph. The existing road section operations are summarized in Table 1, reflective of the peak directional volumes during each of the noted peak hours.

¹ City of Barrie *Transportation Master Plan*. WSP, June 2019.



Table 1: Road Operations – 2023

ROAD SECTION & DIRECTION			WEEKDAY AM PEAK HOUR		WEEKDAY PM PEAK HOUR	
			Volume	V/C	Volume	V/C
Dunlop Street West	EB	1,500 vph	261	0.17	401	0.27
	WB	1,500 vph	294	0.20	359	0.24

As indicated, Dunlop Street West is operating at 27% capacity or less (i.e. $v/c \leq 0.27$) across the site frontage, thus indicating that the road is operating well within the available capacity. No improvements are required to accommodate the existing traffic volumes.



3 Proposed Development

This section will provide additional details with respect to the proposed development, including its location, parking provision, the projected site generated traffic volumes and the assignment of such to the adjacent road network.

3.1 SITE LOCATION

The subject site encompasses 196, 200 and 202 Dunlop Street West in the City of Barrie (as per Figure 1). The site is bound by residential properties to the north, east, and west, and Dunlop Street West to the south.

3.2 PROPOSED LAND-USE

The proposed development will consist of a 4-storey, 33-unit residential apartment building with 120 m² (1,290 ft²) of ground-floor retail space. A site plan is provided in Figure 4.

3.3 SITE ACCESS & ON-SITE CIRCULATION

The site will be served by a single access on Dunlop Street West, located approximately 125 metres west of the intersection of Dunlop Street West with Eccles Street, and approximately 90 metres east of the intersection of Dunlop Street West with Frances Street (measured centre of access to centre of intersection).

As per the *City of Barrie Urban Design Manual*², a two-lane access (i.e. one inbound lane and one outbound lane) serving a multiple residential development on an arterial road must have a width of 9.0 metres with a curb radius of 8.0 metres. As per the site plan, the access reflects the noted design requirements and thus is considered appropriate.

Internal to the site, the aisles serving the parking areas will provide two-way operations and maintain a minimum width of 6.4 metres, as required by the *City of Barrie Comprehensive Zoning By-law*³ for parking areas with 90° stall angles.

In terms of pedestrian circulation, concrete walkways will be provided between the existing sidewalk on Dunlop Street West and the residential and commercial entrances.

Notwithstanding the above, a vehicle turning assessment was completed to ensure that sufficient manoeuvring space is provided for typical design vehicles within the site, namely a passenger vehicle, medium single-unit truck and light single-unit truck. Completed turning templates are

² *City of Barrie Urban Design Manual*, City of Barrie, April 2007 (revised October 2014).

³ *City of Barrie Comprehensive Zoning By-law 2009-141*. City of Barrie, consolidated January 2023.



provided in Appendix B. As indicated, sufficient manoeuvring space is provided. It is noted that waste collection at the site will be completed by a private contractor who will be responsible for ensuring that an appropriately sized vehicle is provided to manoeuvre within the site.

3.4 SIGHT LINE ASSESSMENT

A sight line assessment was conducted to establish the available sight lines along Dunlop Street West at the proposed site access. The assessment has considered both minimum stopping sight distance and intersection sight distance, as defined below and dictated per TAC standards:

- the minimum stopping sight distance provides sufficient distance for an approaching motorist to observe a stationary hazard in the road and bring their vehicle to a complete stop prior to the hazard; and
- the intersection sight distance allows a vehicle to enter a main road from a side street (or site access) and attain the appropriate operating speed without significantly impacting the operating speed of an approaching vehicle.

The minimum stopping sight and intersection sight distance requirements are provided in Table 2 for a design speed of 70 km/h. The available sight lines along Dunlop Street West at the site access points are also provided in Table 2. As indicated, the available sight distances surpass the minimum stopping and intersection sight distance requirements for the noted design speed. Thus, the available sight distances are sufficient.

Table 2: Sight Line Assessment

LOCATION	DESIGN SPEED	STOPPING SIGHT DISTANCE	INTERSECTION SIGHT DISTANCE		AVAILABLE SIGHTLINES TO/FROM	
			Left Turn	Right Turn	West	East
site access	70 km/h	105 m	150 m	130 m	>250 m	>250 m

3.5 PARKING

As per the City's *Zoning By-law* for a mixed-use development, the site is required to provide 1.0 parking spaces per residential unit ($33 \text{ units} \times 1.0 = 33 \text{ spaces}$) and 1 space per 30 m² GFA of retail space ($120 \text{ m}^2 \div 30 \text{ m}^2 = 4 \text{ spaces}$), for a total parking requirement of 37 spaces. As per the site plan, the site will provide 33 residential spaces (1 space per unit) and 4 commercial/retail spaces (1 space per 30 m² GFA) for a total of 37 spaces, satisfying the City's requirements.



In addition to the noted vehicle parking, outdoor bicycle parking will be provided in front of the building for visitors or commercial patrons, with secure bicycle storage provided within the building for resident use.

3.6 SITE TRAFFIC

3.6.1 Trip Generation

The number of vehicle trips to be generated by the proposed development has been determined based on the type of use, development size, and trip generation rates as per *ITE Trip Generation Manual, 11th Edition*⁴. Based on the proposed development, trip rates for the *multifamily housing – mid-rise* (ITE code 221) and *strip retail plaza* (ITE code 822) land-uses have been applied. The associated trip rates and resulting trip estimates are provided in Table 3 and Table 4, respectively.

Table 3: Trip Generation Rates

LAND USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
multifamily housing – mid-rise (ITE 221)	units	0.09	0.28	0.37	0.24	0.15	0.39
strip retail plaza (ITE 822)	1,000 ft ² GFA	1.42	0.94	2.36	3.30	3.30	6.59

Table 4: Trip Estimates – 196-202 Dunlop Street West

LAND USE	SIZE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
apartments	33 units	3	9	12	8	5	13
retail	1,292 ft ²	2	1	3	4	4	8
Total		5	10	15	12	9	21

As indicated, the proposed development is expected to generate 15 trips during the weekday AM peak hour and 21 trips during the weekday PM peak hour.

⁴ *ITE Trip Generation Manual, 11th Edition*. Institute of Transportation Engineers, September 2021.



3.6.2 Trip Distribution & Assignment

The distribution of the new trips generated by the site has been developed based on the location of the site in relation to the built-up area of Barrie, surrounding development, and existing traffic patterns observed along Dunlop Street West. The following distribution has been assumed:

- to/from the east - 50%; and
- to/from the west - 50%;

The resulting site generated traffic volumes assigned to the road network are illustrated in Figure 5.



4 Future Conditions

This chapter will address the resulting impacts of the proposed development on the adjacent road system. The following areas are to be addressed:

- operations of the site access intersection;
- road section operations; and
- potential improvements to the study area road network, if necessary.

For the purposes of this study, a single 5-year horizon (2028) has been assessed and otherwise considered appropriate (in context of the limited trips to be generated by the site) to determine the impact of the proposed development on the surrounding road network.

4.1 ROAD NETWORK

As per the *City of Barrie TMP*, Dunlop Street West is intended to remain a 4-lane road through 2041. While the *TMP* recommends buffered bicycle lanes along the corridor, such will not impact the associated operations of the road network as considered in the assessment below. Therefore, the road network as defined under existing conditions has been maintained through the 2028 horizon.

4.2 TRAFFIC VOLUMES

Based on traffic projections from the City's EMME traffic model, traffic volumes on Dunlop Street West are anticipated to grow by approximately 3.9% per annum between 2016 and 2031. As such, a growth rate of 4% per annum has been applied to the traffic volumes on Dunlop Street West.

The resulting 2028 traffic volumes are illustrated in Figure 6 and Figure 7. Those illustrated in Figure 6 reflect the 2023 volumes adjusted to consider 4% annual growth through 2028 (i.e. 2028 background volumes), whereas those illustrated in Figure 7 also consider the additional volumes added by the subject development (i.e. 2028 total volumes).

4.3 TRAFFIC OPERATIONS

4.3.1 Access Operations

The operations of the site access on Dunlop Street West were investigated at the 2028 horizon to ensure it provides acceptable operations. The access is assumed to consist of a single inbound lane and a single outbound lane operating under stop control. The operational assessment is



based on procedures outlined in the *2000 Highway Capacity Manual*⁵ (using Synchro v.11 software). For unsignalized intersections, the analysis considers:

- the average delay (measured in seconds);
- level of service (LOS); and
- volume to capacity (v/c) for critical movements (i.e. those operating under stop control).

With respect to the noted metrics:

- level of service 'A' corresponds to the best operating condition with minimal delays whereas level of service 'F' corresponds to poor operations resulting from high delays (Level of Service definitions are provided in Appendix C); and
- a v/c ratio of less than 1.0 indicates the intersection movement/approach is operating at less than capacity while v/c of 1.0 indicates capacity has been reached.

The results of the operational assessment are provided in Table 5 whereas detailed worksheets are provided in Appendix D.

Table 5: Access Operations – 2028

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
Dunlop St W & Site Access	SB LR	stop	12	B	0.02	14	B	0.02

L - left T - through R - right LTR - left-through-right LT - left-through TR - through-right LR - left-right

As indicated, the site access will provide excellent operations (LOS B) with low delays through the 2028 horizon.

4.3.2 Road Operations

The capacity of Dunlop Street West was reviewed again considering the 2028 traffic volumes, the results of which are summarized in Table 6, reflective of the peak directional volumes during each of the noted peak hours. As noted, Dunlop Street West will operate at 33% of capacity or less (i.e. $v/c \leq 0.33$) by the 2028 horizon, based on the projected volumes. Thus, the study area road network is expected to continue operating well within its capacity through 2028.

⁵ *Highway Capacity Manual*. Transportation Research Board, Washington DC, 2000.



Table 6: Road Section Operations – 2028

ROAD SECTION & DIRECTION			WEEKDAY AM PEAK HOUR		WEEKDAY PM PEAK HOUR	
			Volume	V/C	Volume	V/C
Dunlop Street West	EB	1,500 vph	320	0.21	494	0.33
	WB	1,500 vph	363	0.24	441	0.29

4.4 TURN LANE REQUIREMENTS

Despite the otherwise excellent operations expected at the site access, the need for exclusive left and right turn lanes at the site access has been reviewed.

As noted in Figure 7, the peak inbound volumes are minimal (6 inbound left turns and 6 inbound right turns) and thus would not warrant or require exclusive left or right turn lanes.



5 Summary

Proposed Development

This study has addressed the transportation impacts associated with the proposed mixed-use development to be located at 196 to 202 Dunlop Street West in the City of Barrie. Overall, the development will consist of 33 residential apartment units and 120 m² of ground-floor retail space which will generate 15 new trips during the weekday AM peak hour and 21 new trips during the weekday PM peak hour.

Transportation Impacts

The capacity of Dunlop Street West across the site frontage was reviewed under existing (2023) and future (2028) conditions. Based on the capacity review, Dunlop Street West was found to operate well below capacity under existing conditions and is expected to continue to operate under capacity through the 2028 horizon.

The operations of the site access were reviewed under future total conditions. The result of the operational analysis indicates that the access will provide excellent operations upon full build out and occupancy of the development.

Overall, no improvements to the study area road network are required to accommodate the proposed development; the impact of the development on the surrounding road network is expected to be minimal.

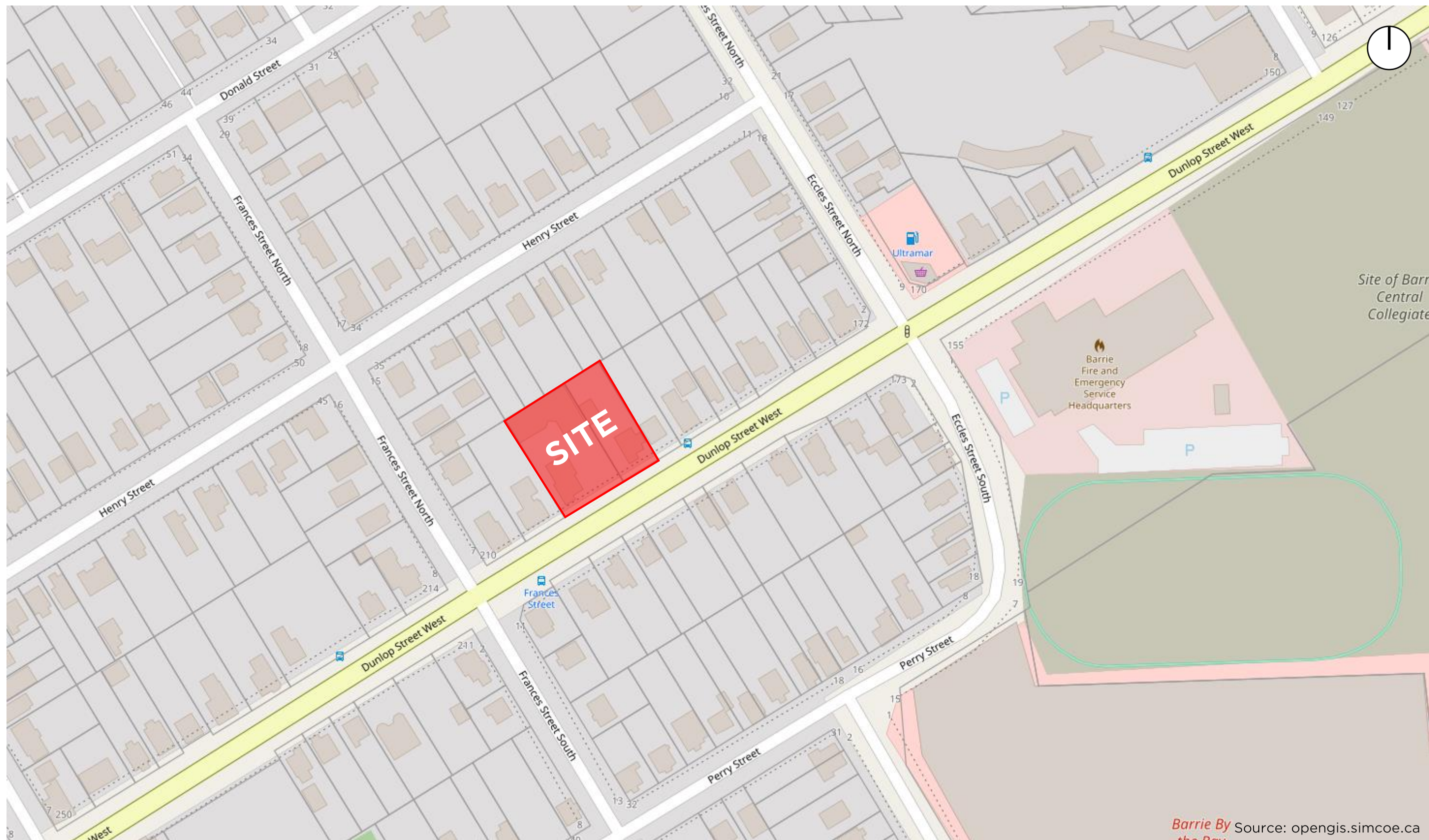
Turn Lane Requirements

Given the limited volumes accessing the site, exclusive left and right turn lanes are not warranted to support the proposed development.

Sight Line Assessment

The available sight lines along Dunlop Street West at the proposed site access point were reviewed in context of TAC guidelines for minimum stopping sight and intersection sight distances. In all instances, the available sight lines satisfy the TAC requirements.





196-202 DUNLOP STREET WEST

Figure 1: Site Location





Source: opengis.simcoe.ca

196-202 DUNLOP STREET WEST

Figure 2A: Road Network





Looking to the east along Dunlop Street West from the site access



Looking to the west along Dunlop Street West from the site access

Source: Google Streetview

196-202 DUNLOP STREET WEST

Figure 2B: Road Network





196 - 202 Dunlop Street West

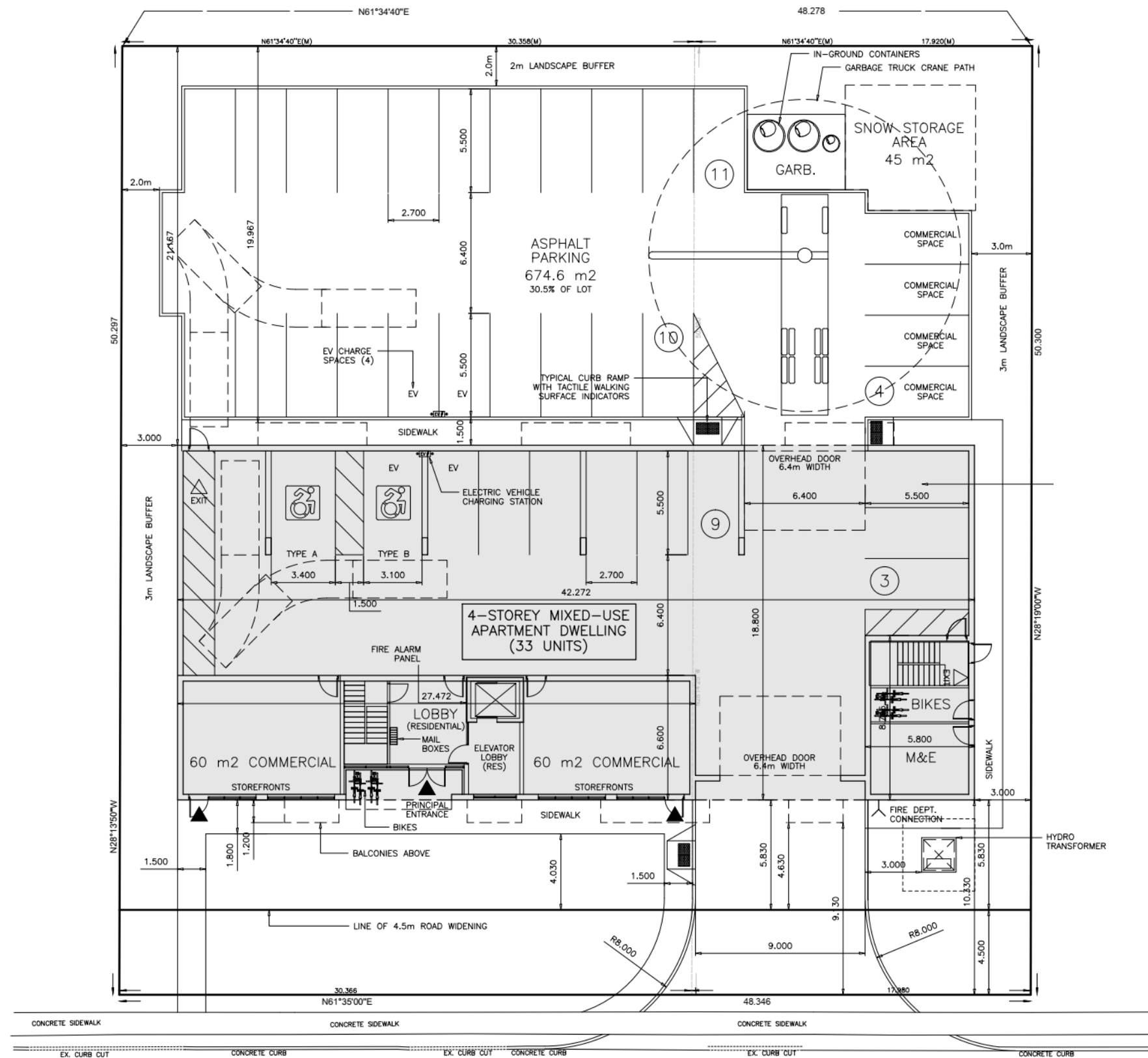
← 294 (359)
(401) 261 →

← 294 (359)
(401) 261 →

100 Weekday AM Peak Hour
(100) Weekday PM Peak Hour

196-202 DUNLOP STREET WEST
Figure 3: Traffic Volumes - 2023

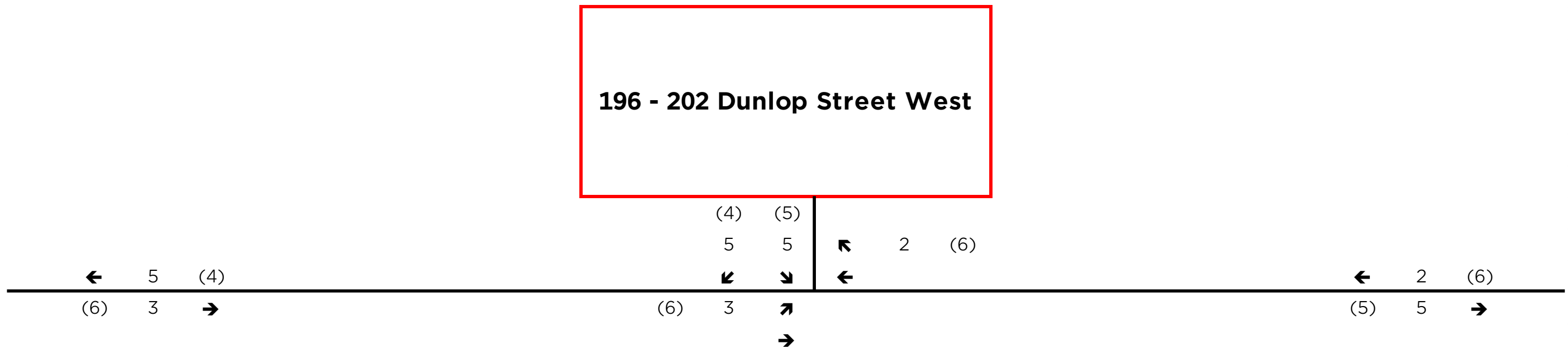




196-202 DUNLOP STREET WEST

Figure 4: Site Plan





100 Weekday AM Peak Hour
(100) Weekday PM Peak Hour

196-202 DUNLOP STREET WEST
Figure 5: Site Generated Traffic





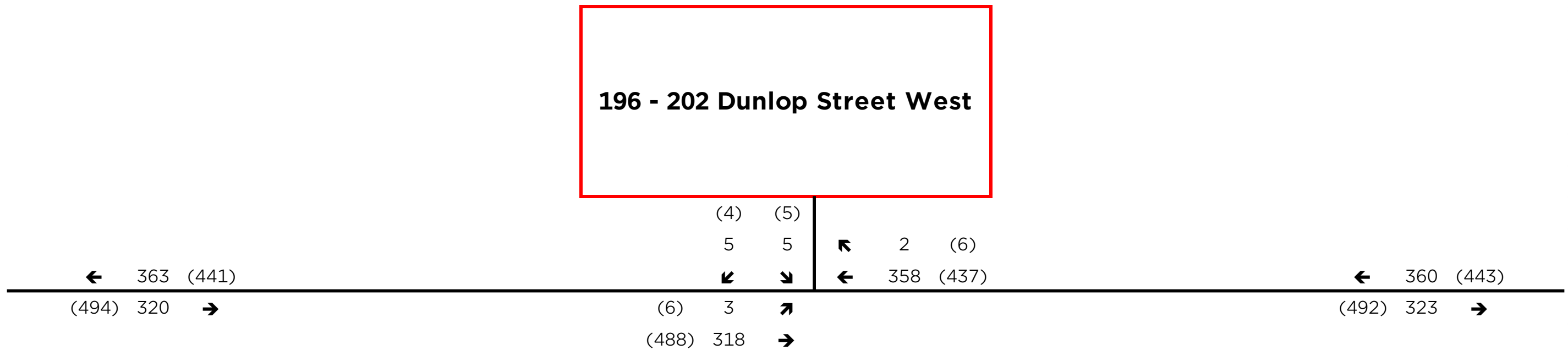
196 - 202 Dunlop Street West

← 358 (437)
(488) 318 →

← 358 (437)
(488) 318 →

100 Weekday AM Peak Hour
(100) Weekday PM Peak Hour





100 Weekday AM Peak Hour
(100) Weekday PM Peak Hour

196-202 DUNLOP STREET WEST
Figure 7: Traffic Volumes – 2028 Total



Appendix A: Traffic Counts

Project #23-037 - City of Barrie

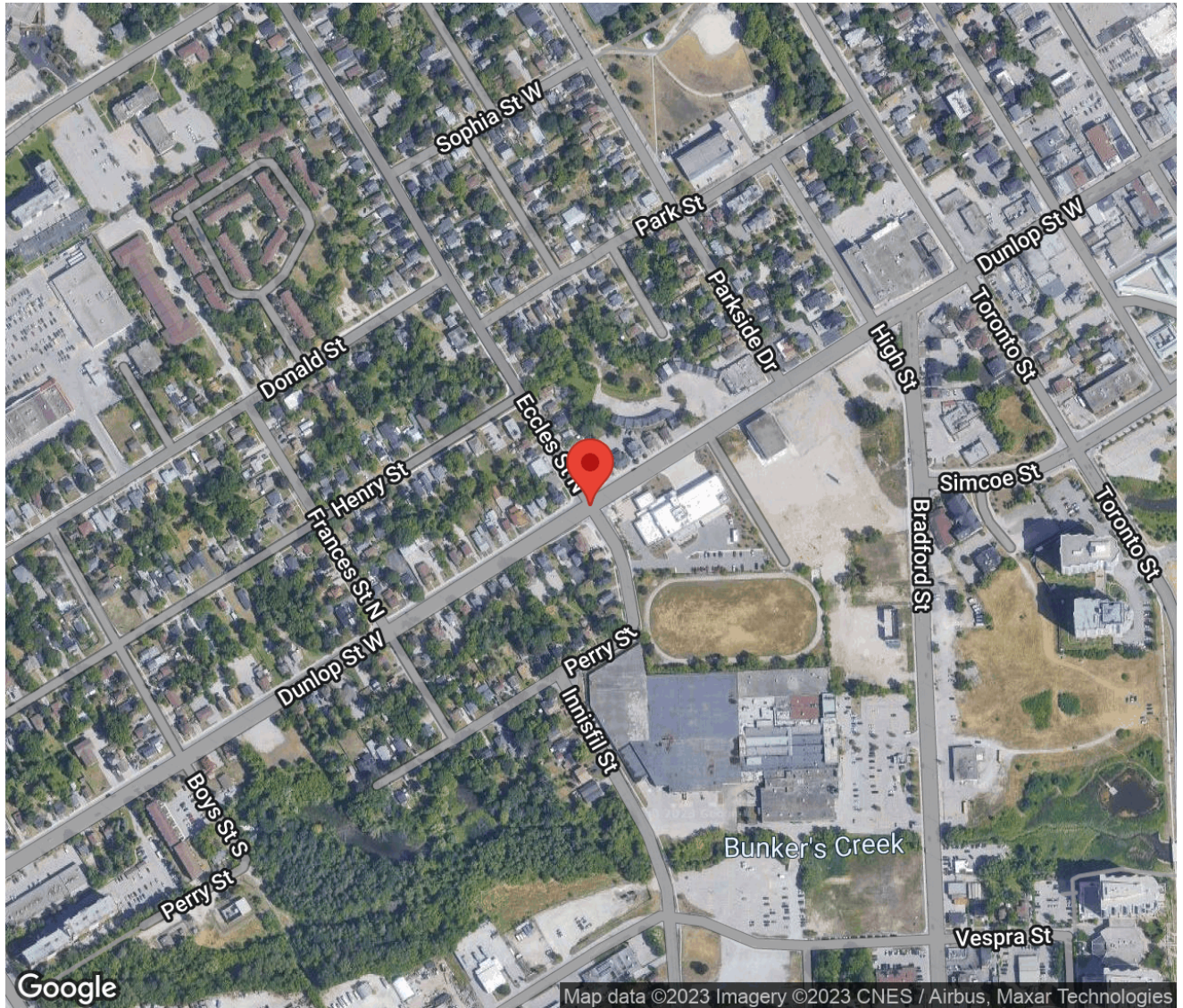
Intersection Count Report

Intersection: Dunlop St & Eccles St
Municipality: Barrie
Count Date: Thursday, Apr 20, 2023
Site Code: 2303700080
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 11:00-14:00, 15:00-18:00
Weather: Clear
Comments:



Traffic Count Map

Intersection:	Dunlop St & Eccles St
Site Code:	2303700080
Municipality:	Barrie
Count Date:	Apr 20, 2023



Traffic Count Summary

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

Eccles St - Traffic Summary

North Approach Totals							South Approach Totals						
Hour	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	4	143	48	0	195	7	12	50	6	1	69	4	264
08:00 - 09:00	10	154	64	0	228	3	14	87	14	0	115	6	343
BREAK													
11:00 - 12:00	21	132	35	0	188	8	19	100	27	0	146	4	334
12:00 - 13:00	28	139	43	0	210	9	17	118	29	0	164	11	374
13:00 - 14:00	36	172	53	0	261	6	20	140	36	0	196	10	457
BREAK													
15:00 - 16:00	25	186	43	0	254	7	18	185	47	0	250	7	504
16:00 - 17:00	28	180	44	0	252	5	24	172	61	0	257	10	509
17:00 - 18:00	29	162	34	0	225	5	21	205	46	0	272	11	497
GRAND TOTAL	181	1268	364	0	1813	50	145	1057	266	1	1469	63	3282

Traffic Count Summary

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

Dunlop St - Traffic Summary

East Approach Totals							West Approach Totals						
Hour	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	25	143	8	0	176	2	13	126	21	0	160	2	336
08:00 - 09:00	29	218	19	0	266	2	31	212	18	0	261	4	527
BREAK													
11:00 - 12:00	27	264	25	0	316	1	42	261	22	0	325	2	641
12:00 - 13:00	35	284	23	0	342	1	41	283	19	0	343	4	685
13:00 - 14:00	39	241	29	0	309	3	45	288	24	0	357	0	666
BREAK													
15:00 - 16:00	53	311	29	0	393	4	42	277	16	0	335	5	728
16:00 - 17:00	38	300	32	0	370	3	48	341	17	0	406	0	776
17:00 - 18:00	33	276	27	0	336	5	47	302	20	0	369	0	705
GRAND TOTAL	279	2037	192	0	2508	21	309	2090	157	0	2556	17	5064

Traffic Count Data

Intersection: Dunlop St & Eccles St
 Site Code: 2303700080
 Municipality: Barrie
 Count Date: Apr 20, 2023

North Approach - Eccles St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	2	22	11	0	35	0	0	0	0	0	0	0	0	0	0	1
07:15	1	33	15	0	49	0	0	0	0	0	0	0	0	0	0	1
07:30	0	32	10	0	42	0	0	0	0	0	0	0	0	0	0	1
07:45	1	55	12	0	68	0	1	0	0	1	0	0	0	0	0	4
08:00	2	39	25	0	66	0	1	0	0	1	0	0	0	0	0	1
08:15	0	43	13	0	56	0	4	1	0	5	0	0	0	0	0	1
08:30	4	33	10	0	47	0	0	1	0	1	0	0	0	0	0	1
08:45	4	33	14	0	51	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	14	290	110	0	414	0	7	2	0	9	0	0	0	0	0	10

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

North Approach - Eccles St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
11:00	8	34	9	0	51	0	2	0	0	2	0	0	0	0	0	3
11:15	5	32	9	0	46	0	0	1	0	1	0	0	0	0	0	0
11:30	6	31	10	0	47	0	1	0	0	1	0	0	0	0	0	3
11:45	2	31	6	0	39	0	1	0	0	1	0	0	0	0	0	2
12:00	6	33	7	0	46	0	0	0	0	0	0	0	0	0	0	1
12:15	6	41	9	0	56	0	1	0	0	1	0	0	0	0	0	2
12:30	7	29	11	0	47	0	0	2	0	2	0	0	0	0	0	3
12:45	8	35	14	0	57	1	0	0	0	1	0	0	0	0	0	3
13:00	5	50	10	0	65	0	2	0	0	2	0	0	0	0	0	2
13:15	14	36	17	0	67	0	0	1	0	1	0	0	0	0	0	3
13:30	6	37	13	0	56	0	1	0	0	1	0	1	0	0	1	0
13:45	11	44	12	0	67	0	1	0	0	1	0	0	0	0	0	1
SUBTOTAL	84	433	127	0	644	1	9	4	0	14	0	1	0	0	1	23

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

North Approach - Eccles St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
15:00	3	36	12	0	51	0	0	0	0	0	0	0	0	0	0	0
15:15	11	43	9	0	63	0	0	1	0	1	0	0	0	0	0	1
15:30	4	51	11	0	66	0	0	0	0	0	0	0	0	0	0	4
15:45	7	56	8	0	71	0	0	2	0	2	0	0	0	0	0	2
16:00	6	46	11	0	63	0	3	0	0	3	0	1	0	0	1	2
16:15	6	30	17	0	53	0	2	1	0	3	0	0	0	0	0	0
16:30	7	49	5	0	61	0	3	1	0	4	0	0	0	0	0	1
16:45	9	46	7	0	62	0	0	2	0	2	0	0	0	0	0	2
17:00	7	49	7	0	63	0	1	0	0	1	0	0	0	0	0	1
17:15	10	39	10	0	59	0	0	0	0	0	0	0	0	0	0	3
17:30	6	38	8	0	52	1	0	0	0	1	0	0	0	0	0	1
17:45	5	35	9	0	49	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	81	518	114	0	713	1	9	7	0	17	0	1	0	0	1	17
GRAND TOTAL	179	1241	351	0	1771	2	25	13	0	40	0	2	0	0	2	50

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

South Approach - Eccles St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	2	9	0	0	11	0	0	0	0	0	0	0	0	0	0	1
07:15	1	17	0	1	19	1	2	0	0	3	0	0	0	0	0	0
07:30	5	10	0	0	15	0	1	0	0	1	0	0	0	0	0	1
07:45	3	11	4	0	18	0	0	2	0	2	0	0	0	0	0	2
08:00	1	20	2	0	23	0	2	0	0	2	0	0	0	0	0	2
08:15	4	18	1	0	23	0	0	1	0	1	0	0	0	0	0	0
08:30	5	19	3	0	27	0	0	1	0	1	0	0	0	0	0	2
08:45	4	27	4	0	35	0	1	2	0	3	0	0	0	0	0	2
SUBTOTAL	25	131	14	1	171	1	6	6	0	13	0	0	0	0	0	10

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

South Approach - Eccles St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
11:00	7	27	4	0	38	0	0	1	0	1	0	0	0	0	0	1
11:15	5	19	8	0	32	0	0	1	0	1	0	0	0	0	0	2
11:30	1	25	7	0	33	0	0	0	0	0	0	0	0	0	0	0
11:45	6	27	5	0	38	0	2	1	0	3	0	0	0	0	0	1
12:00	7	34	8	0	49	0	0	0	0	0	0	0	0	0	0	1
12:15	5	19	6	0	30	0	0	1	0	1	0	0	0	0	0	3
12:30	1	29	8	0	38	1	1	0	0	2	0	0	0	0	0	4
12:45	3	35	4	0	42	0	0	2	0	2	0	0	0	0	0	3
13:00	6	34	8	0	48	1	1	0	0	2	0	0	0	0	0	2
13:15	4	31	5	0	40	1	0	1	0	2	0	0	0	0	0	0
13:30	4	30	11	0	45	0	0	0	0	0	0	0	0	0	0	2
13:45	3	43	10	0	56	1	1	1	0	3	0	0	0	0	0	6
SUBTOTAL	52	353	84	0	489	4	5	8	0	17	0	0	0	0	0	25

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

South Approach - Eccles St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	3	44	11	0	58	0	0	0	0	0	0	0	0	0	0	3
15:15	8	47	13	0	68	0	0	1	0	1	0	0	0	0	0	2
15:30	4	48	7	0	59	0	0	0	0	0	0	0	0	0	0	0
15:45	3	46	13	0	62	0	0	2	0	2	0	0	0	0	0	2
16:00	6	31	16	0	53	0	0	0	0	0	0	0	0	0	0	4
16:15	3	35	11	0	49	2	2	1	0	5	0	0	0	0	0	1
16:30	8	51	10	0	69	0	1	0	0	1	0	0	0	0	0	4
16:45	5	52	21	0	78	0	0	1	0	1	0	0	1	0	1	1
17:00	8	65	10	0	83	1	0	0	0	1	0	0	0	0	0	0
17:15	5	57	14	0	76	0	0	1	0	1	0	0	0	0	0	5
17:30	2	48	10	0	60	0	0	1	0	1	0	0	0	0	0	1
17:45	5	35	9	0	49	0	0	1	0	1	0	0	0	0	0	5
SUBTOTAL	60	559	145	0	764	3	3	8	0	14	0	0	1	0	1	28
GRAND TOTAL	137	1043	243	1	1424	8	14	22	0	44	0	0	1	0	1	63

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

East Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	5	29	0	0	34	1	3	0	0	4	0	0	0	0	0	0
07:15	6	30	0	0	36	0	4	0	0	4	0	0	0	0	0	1
07:30	7	36	0	0	43	1	3	0	0	4	0	0	0	0	0	0
07:45	5	36	8	0	49	0	2	0	0	2	0	0	0	0	0	1
08:00	6	54	7	0	67	1	6	0	0	7	0	0	0	0	0	1
08:15	7	54	5	0	66	0	4	0	0	4	0	0	0	0	0	0
08:30	6	48	3	0	57	2	3	0	0	5	0	0	0	0	0	0
08:45	7	44	4	0	55	0	5	0	0	5	0	0	0	0	0	1
SUBTOTAL	49	331	27	0	407	5	30	0	0	35	0	0	0	0	0	4

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

East Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
11:00	4	42	9	0	55	1	5	0	0	6	0	0	0	0	0	1
11:15	8	68	5	0	81	0	6	0	0	6	0	0	0	0	0	0
11:30	4	67	4	0	75	1	3	0	0	4	0	0	0	0	0	0
11:45	9	70	7	0	86	0	2	0	0	2	0	1	0	0	1	0
12:00	8	68	1	0	77	1	3	0	0	4	0	0	0	0	0	0
12:15	6	72	6	0	84	3	4	0	0	7	0	0	0	0	0	1
12:30	6	66	5	0	77	1	8	0	0	9	0	0	0	0	0	0
12:45	10	62	10	0	82	0	1	1	0	2	0	0	0	0	0	0
13:00	15	48	6	0	69	1	4	0	0	5	0	0	0	0	0	1
13:15	6	61	7	0	74	1	0	0	0	1	0	0	0	0	0	2
13:30	5	54	8	0	67	1	6	1	0	8	0	0	0	0	0	0
13:45	10	68	7	0	85	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	91	746	75	0	912	10	42	2	0	54	0	1	0	0	1	5

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

East Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
15:00	12	74	8	0	94	1	4	1	0	6	0	0	0	0	0	2
15:15	14	73	7	0	94	0	0	0	0	0	0	0	0	0	0	0
15:30	10	82	6	0	98	1	4	0	0	5	0	0	0	0	0	1
15:45	15	71	7	0	93	0	3	0	0	3	0	0	0	0	0	1
16:00	7	59	7	0	73	2	6	0	0	8	0	0	0	0	0	0
16:15	7	82	4	0	93	0	2	0	0	2	0	0	0	0	0	3
16:30	12	77	11	0	100	1	4	1	0	6	0	0	0	0	0	0
16:45	9	64	9	0	82	0	6	0	0	6	0	0	0	0	0	0
17:00	9	62	7	0	78	1	4	0	0	5	0	0	0	0	0	1
17:15	9	79	10	0	98	0	4	0	0	4	0	0	0	0	0	0
17:30	6	77	6	0	89	2	3	0	0	5	0	0	0	0	0	1
17:45	5	47	4	0	56	1	0	0	0	1	0	0	0	0	0	3
SUBTOTAL	115	847	86	0	1048	9	40	2	0	51	0	0	0	0	0	12
GRAND TOTAL	255	1924	188	0	2367	24	112	4	0	140	0	1	0	0	1	21

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

West Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
07:00	3	23	2	0	28	0	3	1	0	4	0	0	0	0	0	0
07:15	1	22	4	0	27	0	6	0	0	6	0	0	0	0	0	2
07:30	2	33	9	0	44	0	2	0	0	2	0	0	0	0	0	0
07:45	7	31	5	0	43	0	6	0	0	6	0	0	0	0	0	0
08:00	8	39	7	0	54	0	5	0	0	5	0	0	0	0	0	0
08:15	6	46	4	0	56	0	2	0	0	2	0	0	0	0	0	0
08:30	9	52	4	0	65	0	6	0	0	6	0	0	0	0	0	1
08:45	8	59	3	0	70	0	3	0	0	3	0	0	0	0	0	3
SUBTOTAL	44	305	38	0	387	0	33	1	0	34	0	0	0	0	0	6

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

West Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
11:00	9	59	5	0	73	0	2	0	0	2	0	0	0	0	0	2
11:15	4	64	3	0	71	1	7	0	0	8	0	0	0	0	0	0
11:30	13	64	7	0	84	0	1	0	0	1	0	0	0	0	0	0
11:45	14	63	7	0	84	1	1	0	0	2	0	0	0	0	0	0
12:00	13	70	2	0	85	0	5	0	0	5	0	0	0	0	0	0
12:15	7	75	4	0	86	1	2	1	0	4	0	0	0	0	0	2
12:30	13	66	6	0	85	0	4	0	0	4	0	1	0	0	1	1
12:45	7	57	6	0	70	0	3	0	0	3	0	0	0	0	0	1
13:00	15	64	9	0	88	0	4	0	0	4	0	0	0	0	0	0
13:15	11	64	7	0	82	0	2	0	0	2	0	0	0	0	0	0
13:30	10	76	4	0	90	0	2	0	0	2	0	0	0	0	0	0
13:45	9	73	4	0	86	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	125	795	64	0	984	3	36	1	0	40	0	1	0	0	1	6

Traffic Count Data

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Municipality: Barrie
Count Date: Apr 20, 2023

West Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
15:00	9	68	5	0	82	0	2	1	0	3	0	0	0	0	0	0
15:15	12	60	3	0	75	0	5	1	0	6	0	0	0	0	0	3
15:30	10	71	4	0	85	0	3	0	0	3	0	0	0	0	0	1
15:45	11	66	2	0	79	0	2	0	0	2	0	0	0	0	0	1
16:00	12	76	4	0	92	0	3	0	0	3	0	0	0	0	0	0
16:15	16	96	1	0	113	1	1	1	0	3	0	0	0	0	0	0
16:30	8	77	7	0	92	0	5	0	0	5	0	0	0	0	0	0
16:45	11	77	4	0	92	0	6	0	0	6	0	0	0	0	0	0
17:00	10	78	7	0	95	0	3	0	0	3	0	0	0	0	0	0
17:15	12	87	7	0	106	0	2	0	0	2	0	0	0	0	0	0
17:30	14	69	1	0	84	0	4	0	0	4	0	0	0	0	0	0
17:45	11	55	4	0	70	0	4	1	0	5	0	0	0	0	0	0
SUBTOTAL	136	880	49	0	1065	1	40	4	0	45	0	0	0	0	0	5
GRAND TOTAL	305	1980	151	0	2436	4	109	6	0	119	0	1	0	0	1	17

Peak Hour Diagram

Specified Period

From: 07:00:00

To: 09:00:00

One Hour Peak

From: 08:00:00

To: 09:00:00

Intersection: Dunlop St & Eccles St

Site Code: 2303700080

Count Date: Apr 20, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dunlop St runs E/W

North Approach

	Out	In	Total
	220	134	354
	8	3	11
	0	0	0
Totals	228	137	365

Eccles St

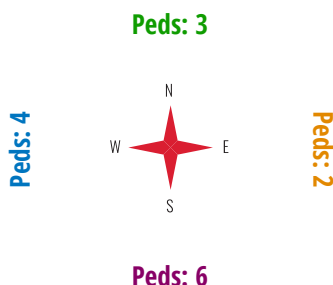
	0	0	0	0
	2	6	0	0
	62	148	10	0
Totals	64	154	10	0

East Approach

	Out	In	Total
	245	216	461
	21	20	41
	0	0	0
Totals	266	236	502

Dunlop St

				Totals
	0	0	0	0
	0	0	31	31
	0	16	196	212
	0	0	18	18



Dunlop St

Totals			
0	0	0	0
19	19	0	0
218	200	18	0
29	26	3	0

West Approach

	Out	In	Total
	245	276	521
	16	20	36
	0	0	0
Totals	261	296	557

Totals				
	14	84	10	0
	0	3	4	0
	0	0	0	0

Eccles St

South Approach

	Out	In	Total
	108	192	300
	7	9	16
	0	0	0
Totals	115	201	316

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Count Date: Apr 20, 2023
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Eccles St						South Approach Eccles St						East Approach Dunlop St						West Approach Dunlop St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	2	40	25	0	1	67	1	22	2	0	2	25	7	60	7	0	1	74	8	44	7	0	0	59	225
08:15	0	47	14	0	1	61	4	18	2	0	0	24	7	58	5	0	0	70	6	48	4	0	0	58	213
08:30	4	33	11	0	1	48	5	19	4	0	2	28	8	51	3	0	0	62	9	58	4	0	1	71	209
08:45	4	34	14	0	0	52	4	28	6	0	2	38	7	49	4	0	1	60	8	62	3	0	3	73	223
Grand Total	10	154	64	0	3	228	14	87	14	0	6	115	29	218	19	0	2	266	31	212	18	0	4	261	870
Approach %	4.4	67.5	28.1	0	-	-	12.2	75.7	12.2	0	-	-	10.9	82	7.1	0	-	-	11.9	81.2	6.9	0	-	-	-
Totals %	1.1	17.7	7.4	0	-	26.2	1.6	10	1.6	0	-	13.2	3.3	25.1	2.2	0	-	30.6	3.6	24.4	2.1	0	-	30	-
PHF	0.63	0.82	0.64	0	-	0.85	0.7	0.78	0.58	0	-	0.76	0.91	0.91	0.68	0	-	0.9	0.86	0.85	0.64	0	-	0.89	0.97
Cars	10	148	62	0	-	220	14	84	10	0	-	108	26	200	19	0	-	245	31	196	18	0	-	245	818
% Cars	100	96.1	96.9	0	-	96.5	100	96.6	71.4	0	-	93.9	89.7	91.7	100	0	-	92.1	100	92.5	100	0	-	93.9	94
Trucks	0	6	2	0	-	8	0	3	4	0	-	7	3	18	0	0	-	21	0	16	0	0	-	16	52
% Trucks	0	3.9	3.1	0	-	3.5	0	3.4	28.6	0	-	6.1	10.3	8.3	0	0	-	7.9	0	7.5	0	0	-	6.1	6
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
Peds	-	-	-	-	3	-	-	-	-	-	6	-	-	-	-	-	2	-	-	-	-	-	4	-	15
% Peds	-	-	-	-	20	-	-	-	-	-	40	-	-	-	-	-	13.3	-	-	-	-	-	26.7	-	-

Peak Hour Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 13:00:00

To: 14:00:00

Intersection: Dunlop St & Eccles St

Site Code: 2303700080

Count Date: Apr 20, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dunlop St runs E/W

North Approach

	Out	In	Total
	255	211	466
	5	3	8
	1	0	1
Totals	261	214	475

Eccles St

	0	1	0	0
	1	4	0	0
	52	167	36	0
Totals	53	172	36	0

East Approach

	Out	In	Total
	295	347	642
	14	13	27
	0	0	0
Totals	309	360	669

Dunlop St

				Totals
	0	0	0	0
	0	0	45	45
	0	11	277	288
	0	0	24	24

Peds: 0

Peds: 6



Peds: 3

Dunlop St

Totals			
	0	0	0
	29	28	1
	241	231	10
	39	36	3

Peds: 10

West Approach

	Out	In	Total
	346	300	646
	11	14	25
	0	0	0
Totals	357	314	671

Totals				
	17	138	34	0
	3	2	2	0
	0	0	0	0

Eccles St

South Approach

	Out	In	Total
	189	227	416
	7	7	14
	0	1	1
Totals	196	235	431

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Count Date: Apr 20, 2023
Period: 11:00 - 14:00

Peak Hour Data (13:00 - 14:00)

Start Time	North Approach Eccles St						South Approach Eccles St						East Approach Dunlop St						West Approach Dunlop St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
13:00	5	52	10	0	2	67	7	35	8	0	2	50	16	52	6	0	1	74	15	68	9	0	0	92	283
13:15	14	36	18	0	3	68	5	31	6	0	0	42	7	61	7	0	2	75	11	66	7	0	0	84	269
13:30	6	39	13	0	0	58	4	30	11	0	2	45	6	60	9	0	0	75	10	78	4	0	0	92	270
13:45	11	45	12	0	1	68	4	44	11	0	6	59	10	68	7	0	0	85	9	76	4	0	0	89	301
Grand Total	36	172	53	0	6	261	20	140	36	0	10	196	39	241	29	0	3	309	45	288	24	0	0	357	1123
Approach %	13.8	65.9	20.3	0	-	-	10.2	71.4	18.4	0	-	-	12.6	78	9.4	0	-	-	12.6	80.7	6.7	0	-	-	-
Totals %	3.2	15.3	4.7	0	-	23.2	1.8	12.5	3.2	0	-	17.5	3.5	21.5	2.6	0	-	27.5	4	25.6	2.1	0	-	31.8	-
PHF	0.64	0.83	0.74	0	-	0.96	0.71	0.8	0.82	0	-	0.83	0.61	0.89	0.81	0	-	0.91	0.75	0.92	0.67	0	-	0.97	0.93
Cars	36	167	52	0	-	255	17	138	34	0	-	189	36	231	28	0	-	295	45	277	24	0	-	346	1085
% Cars	100	97.1	98.1	0	-	97.7	85	98.6	94.4	0	-	96.4	92.3	95.9	96.6	0	-	95.5	100	96.2	100	0	-	96.9	96.6
Trucks	0	4	1	0	-	5	3	2	2	0	-	7	3	10	1	0	-	14	0	11	0	0	-	11	37
% Trucks	0	2.3	1.9	0	-	1.9	15	1.4	5.6	0	-	3.6	7.7	4.1	3.4	0	-	4.5	0	3.8	0	0	-	3.1	3.3
Bicycles	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles	0	0.6	0	0	-	0.4	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0.1
Peds	-	-	-	-	6	-	-	-	-	-	10	-	-	-	-	-	3	-	-	-	-	-	0	-	19
% Peds	-	-	-	-	31.6	-	-	-	-	-	52.6	-	-	-	-	-	15.8	-	-	-	-	-	0	-	-

Peak Hour Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

Intersection: Dunlop St & Eccles St

Site Code: 2303700080

Count Date: Apr 20, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dunlop St runs E/W

North Approach

	Out	In	Total
	245	303	548
	7	2	9
	0	0	0
Totals	252	305	557

Eccles St

	0	0	0	0
	3	4	0	0
	29	183	33	0
Totals	32	187	33	0

East Approach

	Out	In	Total
	358	407	765
	21	18	39
	0	1	1
Totals	379	426	805

Dunlop St

				Totals
	0	0	0	0
	0	0	41	41
	0	16	319	335
	0	0	25	25

Peds: 0

Peds: 7



Peds: 1

Peds: 10

Dunlop St

Totals			
	0	0	0
	38	37	1
	300	282	18
	41	39	2

West Approach

	Out	In	Total
	385	337	722
	16	22	38
	0	0	0
Totals	401	359	760

Totals				
	26	225	55	0
	1	1	2	0
	0	0	1	0

Eccles St

South Approach

	Out	In	Total
	306	247	553
	4	6	10
	1	0	1
Totals	311	253	564

 - Cars

 - Trucks

 - Bicycles

Comments

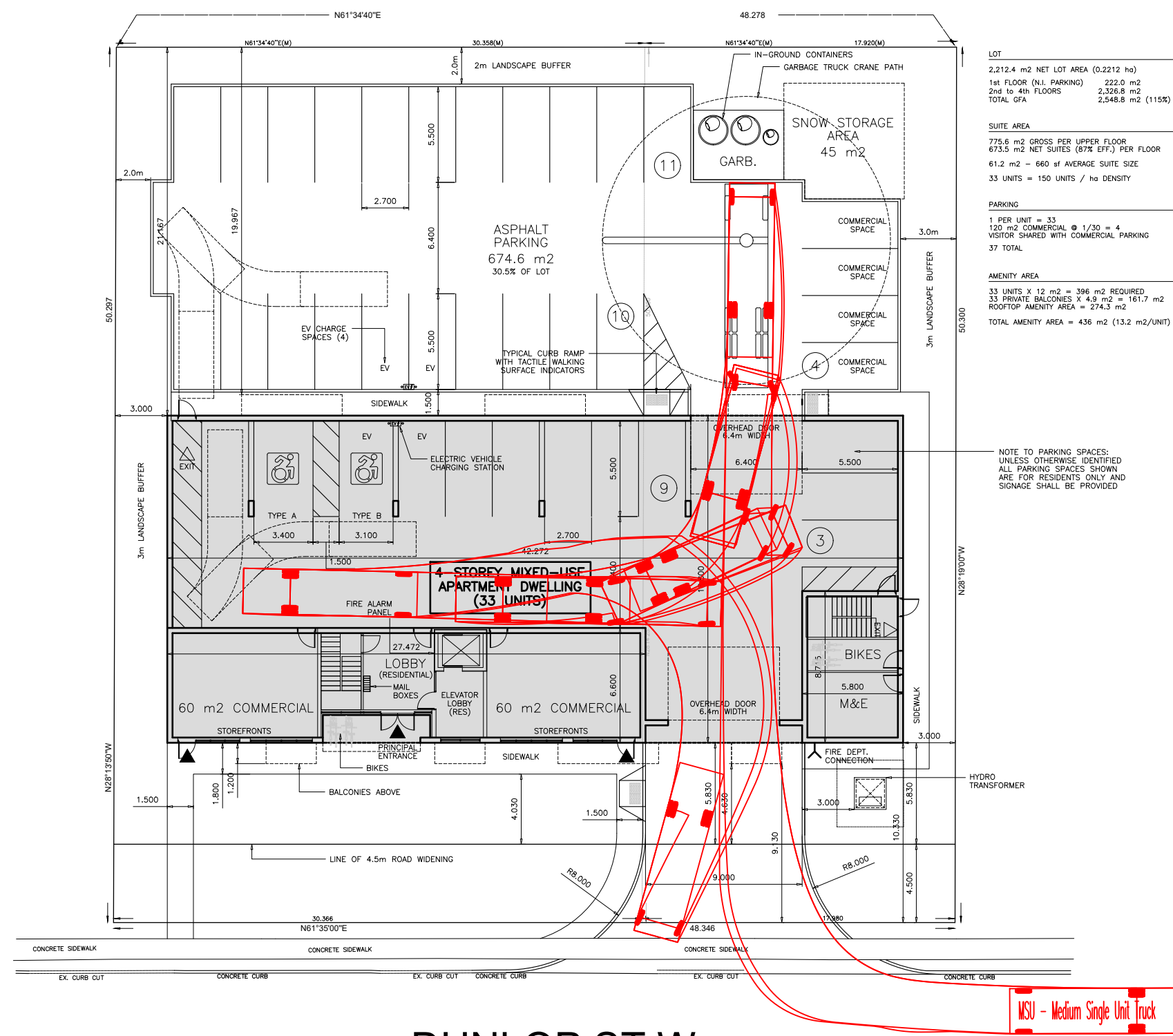
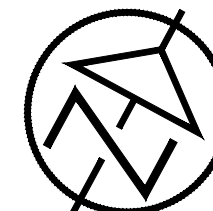
Peak Hour Summary

Intersection: Dunlop St & Eccles St
Site Code: 2303700080
Count Date: Apr 20, 2023
Period: 15:00 - 18:00

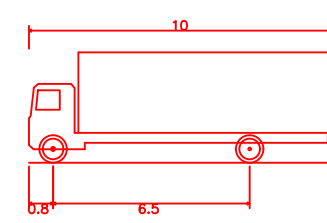
Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Eccles St						South Approach Eccles St						East Approach Dunlop St						West Approach Dunlop St						Total Vehicles
	←	↑	→	↺	Peds	Total	←	↑	→	↺	Peds	Total	←	↑	→	↺	Peds	Total	←	↑	→	↺	Peds	Total	
16:30	7	52	6	0	1	65	8	52	10	0	4	70	13	81	12	0	0	106	8	82	7	0	0	97	338
16:45	9	46	9	0	2	64	5	52	23	0	1	80	9	70	9	0	0	88	11	83	4	0	0	98	330
17:00	7	50	7	0	1	64	9	65	10	0	0	84	10	66	7	0	1	83	10	81	7	0	0	98	329
17:15	10	39	10	0	3	59	5	57	15	0	5	77	9	83	10	0	0	102	12	89	7	0	0	108	346
Grand Total	33	187	32	0	7	252	27	226	58	0	10	311	41	300	38	0	1	379	41	335	25	0	0	401	1343
Approach %	13.1	74.2	12.7	0	-	-	8.7	72.7	18.6	0	-	-	10.8	79.2	10	0	-	-	10.2	83.5	6.2	0	-	-	-
Totals %	2.5	13.9	2.4	0	-	18.8	2	16.8	4.3	0	-	23.2	3.1	22.3	2.8	0	-	28.2	3.1	24.9	1.9	0	-	29.9	-
PHF	0.83	0.9	0.8	0	-	0.97	0.75	0.87	0.63	0	-	0.93	0.79	0.9	0.79	0	-	0.89	0.85	0.94	0.89	0	-	0.93	0.97
Cars	33	183	29	0	-	245	26	225	55	0	-	306	39	282	37	0	-	358	41	319	25	0	-	385	1294
% Cars	100	97.9	90.6	0	-	97.2	96.3	99.6	94.8	0	-	98.4	95.1	94	97.4	0	-	94.5	100	95.2	100	0	-	96	96.4
Trucks	0	4	3	0	-	7	1	1	2	0	-	4	2	18	1	0	-	21	0	16	0	0	-	16	48
% Trucks	0	2.1	9.4	0	-	2.8	3.7	0.4	3.4	0	-	1.3	4.9	6	2.6	0	-	5.5	0	4.8	0	0	-	4	3.6
Bicycles	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles	0	0	0	0	-	0	0	0	1.7	0	-	0.3	0	0	0	0	-	0	0	0	0	0	-	0	0.1
Peds	-	-	-	-	7	-	-	-	-	-	10	-	-	-	-	-	1	-	-	-	-	-	0	-	18
% Peds	-	-	-	-	38.9	-	-	-	-	-	55.6	-	-	-	-	-	5.6	-	-	-	-	-	0	-	-

Appendix B: Vehicle Turning Templates

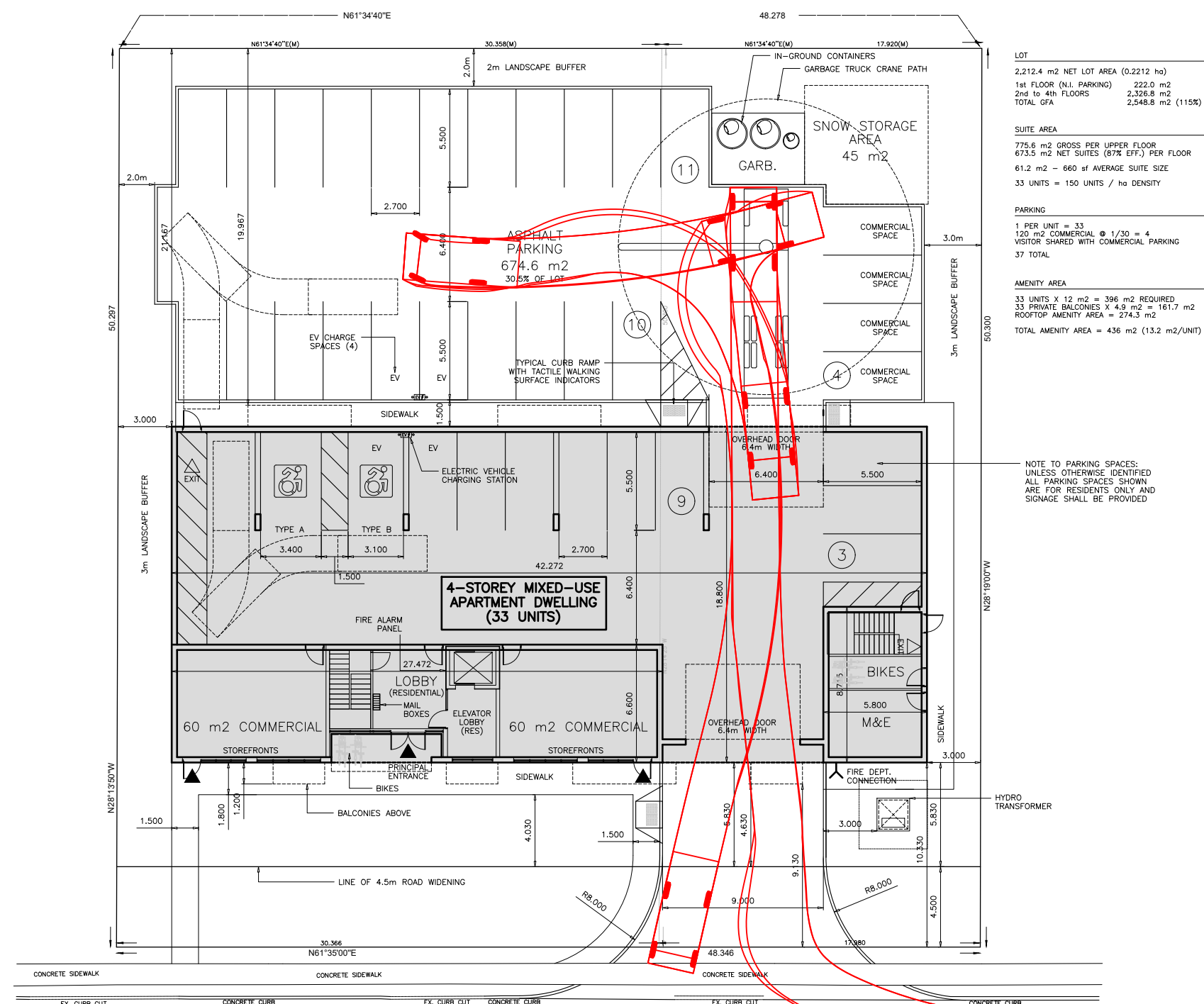
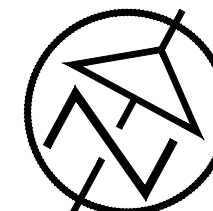


LOT	
2,212.4 m2 NET LOT AREA (0.2212 ha)	
1st FLOOR (N.I. PARKING)	222.0 m2
2nd to 4th FLOORS	2,326.8 m2
TOTAL GFA	2,548.8 m2 (115%)
SUITE AREA	
775.6 m2 GROSS PER UPPER FLOOR	
673.5 m2 NET SUITES (87% EFF.) PER FLOOR	
61.2 m2 - 660 sf AVERAGE SUITE SIZE	
33 UNITS = 150 UNITS / ha DENSITY	
PARKING	
1 PER UNIT = 33	
120 m2 COMMERCIAL @ 1/30 = 4	
VISITOR SHARED WITH COMMERCIAL PARKING	
37 TOTAL	
AMENITY AREA	
33 UNITS X 12 m2 = 396 m2 REQUIRED	
33 PRIVATE BALCONIES X 4.9 m2 = 161.7 m2	
ROOFTOP AMENITY AREA = 274.3 m2	
TOTAL AMENITY AREA = 436 m2 (13.2 m2/UNIT)	



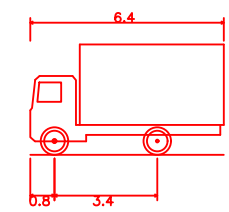
MSU - Medium Single Unit Truck
Overall Length 10.000m
Overall Width 2.600m
Overall Body Height 3.650m
Min Body Ground Clearance 0.445m
Track Width 2.600m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 11.100m

DUNLOP ST W



LOT	
2,212.4 m2 NET LOT AREA (0.2212 ha)	
1st FLOOR (N.I. PARKING)	222.0 m2
2nd to 4th FLOORS	2,326.8 m2
TOTAL GFA	2,548.8 m2 (115%)
SUITE AREA	
775.6 m2 GROSS PER UPPER FLOOR	
673.5 m2 NET SUITES (87% EFF.) PER FLOOR	
61.2 m2 - 660 sf AVERAGE SUITE SIZE	
33 UNITS = 150 UNITS / ha DENSITY	
PARKING	
1 PER UNIT = 33	
120 m2 COMMERCIAL @ 1/30 = 4	
VISITOR SHARED WITH COMMERCIAL PARKING	
37 TOTAL	
AMENITY AREA	
33 UNITS X 12 m2 = 396 m2 REQUIRED	
33 PRIVATE BALCONIES X 4.9 m2 = 161.7 m2	
ROOFTOP AMENITY AREA = 274.3 m2	
TOTAL AMENITY AREA = 436 m2 (13.2 m2/UNIT)	

NOTE TO PARKING SPACES:
UNLESS OTHERWISE IDENTIFIED
ALL PARKING SPACES SHOWN
ARE FOR RESIDENTS ONLY AND
SIGNAGE SHALL BE PROVIDED



LSU - Light Single Unit Truck
Overall Length 6.400m
Overall Width 2.600m
Overall Body Height 3.650m
Min Body Ground Clearance 0.445m
Track Width 2.600m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6.300m

DUNLOP ST W

	202 & 196 DUNLOP STREET WEST AUTOTURN ASSESSMENT		DWG. No. FIG. 3
	SCALE: 1:300	DRAWN: HDY DATE: JULY/24	

Appendix C: Level of Service Definitions

CAPACITY ANALYSIS AT UNSIGNALIZED INTERSECTIONS

Highway Capacity Manual Methodology

The level of service at an unsignalized intersection is determined on the basis of control delay for each critical lane. This method of analysis is taken from the Highway Capacity Manual, Special Report 209, by the Transportation Research Board.

The average control delay for any particular critical movement (control delay includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay) is a function of the service rate or capacity of the approach and degree of saturation. The level of service criteria for unsignalized intersections is outlined below and is related to ranges in vehicle delay.

Level of Service	Expected Delay to Street Traffic	Average Control Delay 'd' (sec/veh)
A	Little or no delays	$d \leq 10$
B	Short traffic delays	$10 \leq d \leq 15$
C	Average traffic delays	$15 \leq d \leq 25$
D	Long traffic delays	$25 \leq d \leq 35$
E	Very long traffic delays	$35 \leq d \leq 50$
F	Extreme delays with queuing which may cause congestion affecting other traffic movements in the intersection	$d > 50$

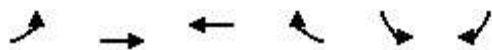
Appendix D: 2028 Operations

HCM Unsignalized Intersection Capacity Analysis

1: Dunlop St W & Site Access

2028 Future Conditions

AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (veh/h)	3	318	358	2	5	5
Future Volume (Veh/h)	3	318	358	2	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	346	389	2	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	391				569	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	391				569	196
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1164				451	813
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	118	231	259	132	10	
Volume Left	3	0	0	0	5	
Volume Right	0	0	0	2	5	
cSH	1164	1700	1700	1700	580	
Volume to Capacity	0.00	0.14	0.15	0.08	0.02	
Queue Length 95th (ft)	0	0	0	0	1	
Control Delay (s)	0.2	0.0	0.0	0.0	11.3	
Lane LOS	A				B	
Approach Delay (s)	0.1		0.0		11.3	
Approach LOS					B	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			20.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

1: Dunlop St W & Site Access

2028 Future Conditions

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (veh/h)	6	488	437	6	5	4
Future Volume (Veh/h)	6	488	437	6	5	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	530	475	7	5	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	482				758	241
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	482				758	241
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	1077				341	760
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	184	353	317	165	9	
Volume Left	7	0	0	0	5	
Volume Right	0	0	0	7	4	
cSH	1077	1700	1700	1700	452	
Volume to Capacity	0.01	0.21	0.19	0.10	0.02	
Queue Length 95th (ft)	0	0	0	0	2	
Control Delay (s)	0.4	0.0	0.0	0.0	13.1	
Lane LOS	A				B	
Approach Delay (s)	0.1		0.0		13.1	
Approach LOS					B	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			27.7%		ICU Level of Service	A
Analysis Period (min)			15			