BURNSIDE

48 Grenoble Drive Transportation Study
Toronto, ON

Tenblock

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Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by Tenblock (the Client) to undertake a Transportation Study and Parking and Loading Review for two new apartment buildings that will replace an existing apartment building at 48 Grenoble Drive in the City of Toronto. Existing access is provided by two full movement driveways on Grenoble Drive and a full movement access on Deauville Lane. The driveway on Deauville Lane will be maintained.

The proposed development will include 993 residential units and a four-level underground garage with 471 parking spaces for residents and 51 parking spaces for visitors. There are also 894 long term bicycle spaces and 200 short term bicycle spaces proposed.

The Transportation Study and Parking and Loading Review is part of Zoning By-law Amendment and Site Plan applications.

The following is a summary of our key findings.

Traffic Operations

Under existing and future conditions, during both the weekday AM and PM peak hours, all study intersections are operating and will operate with excess capacity, with a level of service C or better and queue lengths within their respective storage lengths and link distances. No improvements will be required and / or will be triggered by the proposed development.

Site Plan Review

The site is well designed to accommodate all modes of travel. Access and circulation analyses utilizing AutoTurn confirms that the site can accommodate all expected design vehicles.

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:

- Internal secured bicycle storage for residents.
- Outdoor bicycle racks strategically placed at ground level near the main entrance / lobby for visitors.
- Sidewalk connections from building entrances to the existing external sidewalk network along Deauville Lane and Grenoble Drive.

- An information package will be provided to residents, which will include TTC and GO Transit maps and schedules, cycling and trail maps, and information on Smart Commute.
- Transit subsidy for residents via a preloaded PRESTO pass with $25 for first time purchasers and renters.
- Real time transit information displays in building lobbies or encourage residents to download real time transit information via mobile applications.
- Encourage residents to join the Toronto Central Smart Commute Program.
- A bicycle repair station or stations located adjacent to bicycle storage room(s).
- Parking spaces will not be bundled with apartments.
- Recommending parking rate reductions for resident and visitor parking.

The combination of these proposed TDM measures and the addition of significant transit improvements in the area are expected to reduce vehicle trips by more than 30%.

Bicycle Parking Review

The proposed supply will exceed the current requirements of Zoning By-law 569-2013 (ZBL), based on the site falling within the Bicycle Zone 1), and will meet the City's future bicycle parking requirements in the *Draft Zoning By-law Amendment for Bicycle Standards*, dated November 25, 2021 (Draft Bicycle ZBA).

Vehicle Parking Review

City Council recently enacted By-law 89-2022 (ZBL 89-2022), which amended the ZBL and introduced no minimums for resident parking, reduced visitor parking requirements and lowered maximum parking supply limits. The proposed resident and visitor parking supply will comply with the new ZBL's parking requirements.

However, City staff requested that justification be provided for the resident parking supply. It is our opinion that the proposed resident parking supply of 471 spaces (0.47 space / unit) will adequately serve the parking needs of future residents for the following reasons:

- There are many TTC bus routes along Don Mills Road with bus stops located within 2-minute walk of the site. In addition, there will also be frequent, daily transit service provided via the ECLRT and future Ontario Line. The closest ECLRT station will be the Aga Khan and Museum Station, which will be approximately 690 m (or a 700 m / 10-minute walk / 3-minute bike ride) from the site. The closest Ontario Line station will be the Flemingdon Park Station which will be approximately 450 m (or a 480 m / 7-minute walk / 2-minute bike ride).
- The proposed Transportation Demand Management (TDM) measures summarized above will further reduce parking demand.

- There have been several similar developments with similar access to transit that have been approved with reduced parking supply variances lower than the proposed parking supply rate.

In addition, the number of proposed accessible and loading spaces will meet the minimum requirements of the ZBL.

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Abbreviations

The following summarizes abbreviations that are utilized within this report:

- AWSC – All way stop controlled
- Burnside – R.J. Burnside & Associates Limited
- City – City of Toronto
- Directions:
  - EB – Eastbound
  - SB – Southbound
  - NB – Northbound
  - WB – Westbound
- ECLRT – Eglinton Crosstown Light Rail Transit
- ITE – Institute of Transportation Engineers
- LOS – level of service
- LUC – Land Use Code
- PHF – Peak Hour Factor
- TOR – Terms of Reference
- Traffic Movements:
  - LT – shared left-through movement
  - LTR – shared left-through-right movement
  - LR – shared left-right movement
  - TR – shared through-right movement
- v/c – volume to capacity ratio

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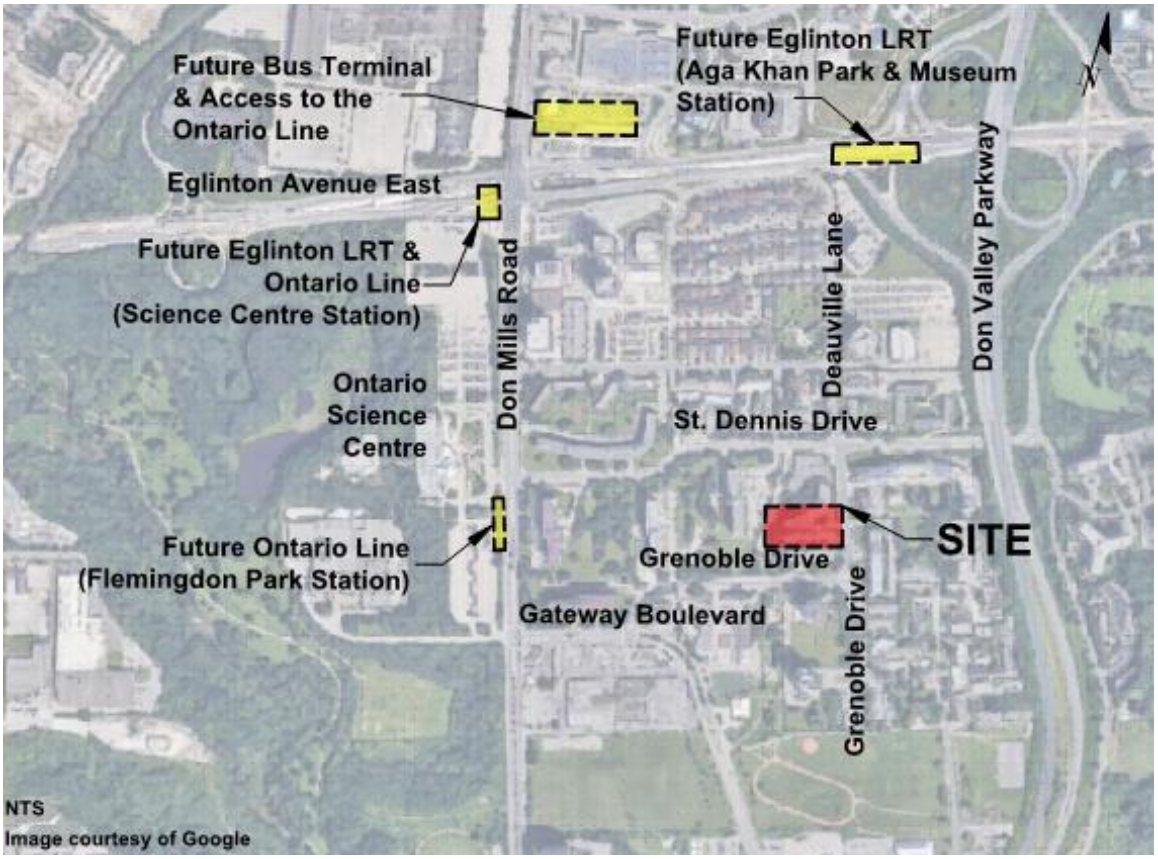
1.0 Introduction

1.1 Background

Tenblock (the Client) is proposing two new apartment buildings with 993 units that will replace the existing apartment building at 48 Grenoble Drive in the City of Toronto. The site is currently occupied by a 9-storey residential building with 109 units. Existing access is provided by two full movement driveways on Grenoble Drive and one full movement driveway on Deauville Lane. The two driveways on Grenoble Drive will be removed. The site location is shown in Figure 1.

Figure 1: Site Location



Zoning By-law Amendment and Site Plan applications are required and R.J. Burnside & Associates Limited (Burnside) was retained to undertake a Transportation Study and Parking and Loading Review as part of the applications.

1.2 Scope of Work

The following scope of work was sent to the City for review, but we did not receive comments before publication.

Analysis Scenarios	• Existing traffic conditions • 2028 background and total traffic conditions
Analysis Time Periods	• Weekday AM peak hour (7:00 AM to 9:00 AM) • Weekday PM peak hour (4:00 PM to 6:00 PM)
Analysis Intersections (Study Area)	• Deauville Lane / St. Dennis Drive • Deauville Lane / Site Driveway • Deauville Lane / Grenoble Drive / Gateway Boulevard • Grenoble Drive / Gateway Boulevard / Flemingdon Park Shopping Centre Driveway
Transportation Demand Management (TDM) Plan	• Recommendations on feasible TDM strategies to discourage single occupant motor vehicle use
Parking / Loading Review	• Vehicle, accessible, bicycle and loading spaces

The City's Traffic Impact Study (TIS) Guidelines, dated July 2013 and Guidelines for using Synchro 11, dated January 2021, 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), 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 for all intersections, except for all-way stop controlled intersections where HCM 6th methodology is utilized (HCM 2000 methodology does not calculate queue lengths for all-way stop controlled intersections). The signalized and stop controlled intersection analysis methodology is provided in Appendix A.

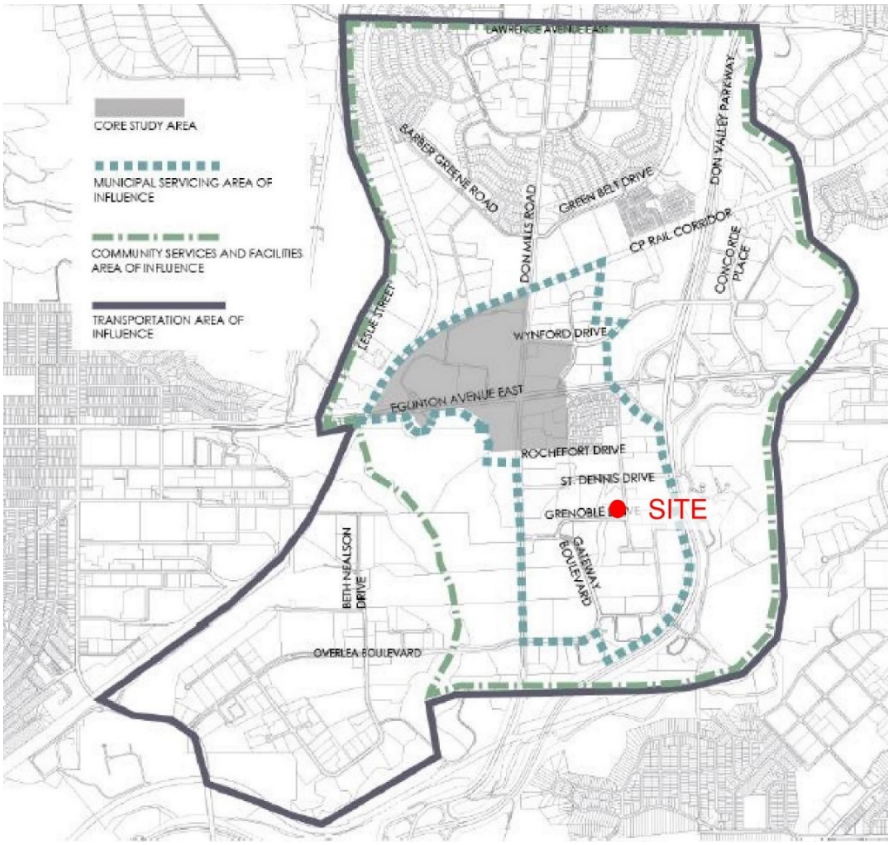
2.0 Existing Conditions

2.1 Site Context

The site is bounded by Grenoble Drive to the south, Deauville Lane to the east, and apartment buildings to the north and to the west. The existing site is occupied by a 9-storey rental apartment building with a total of 109 units.

Based on the *Don Mills Crossing – Mobility Planning Study* (Don Mills Crossing Study), prepared by Steer Davies Gleave, dated February 2019, the site is within the "transportation area of influence" of the Don Mills Secondary Plan area. The site lies outside of the "core study area" of the Don Mills Crossing Study, which has a radius of approximately 800 m from the Eglinton Avenue East / Don Mills Road intersection. The boundaries from this study are shown in Figure 2. The secondary plan was adopted by City council on April 17, 2019 as an initiative by the City to focus and shape anticipated growth around the intersection of Don Mills Road and Eglinton Avenue East due to the development of future transit infrastructure, including the currently under construction Eglinton Crosstown Light Rail Transit (the ECLRT).

Figure 2: Don Mills Crossing Secondary Plan Study Area

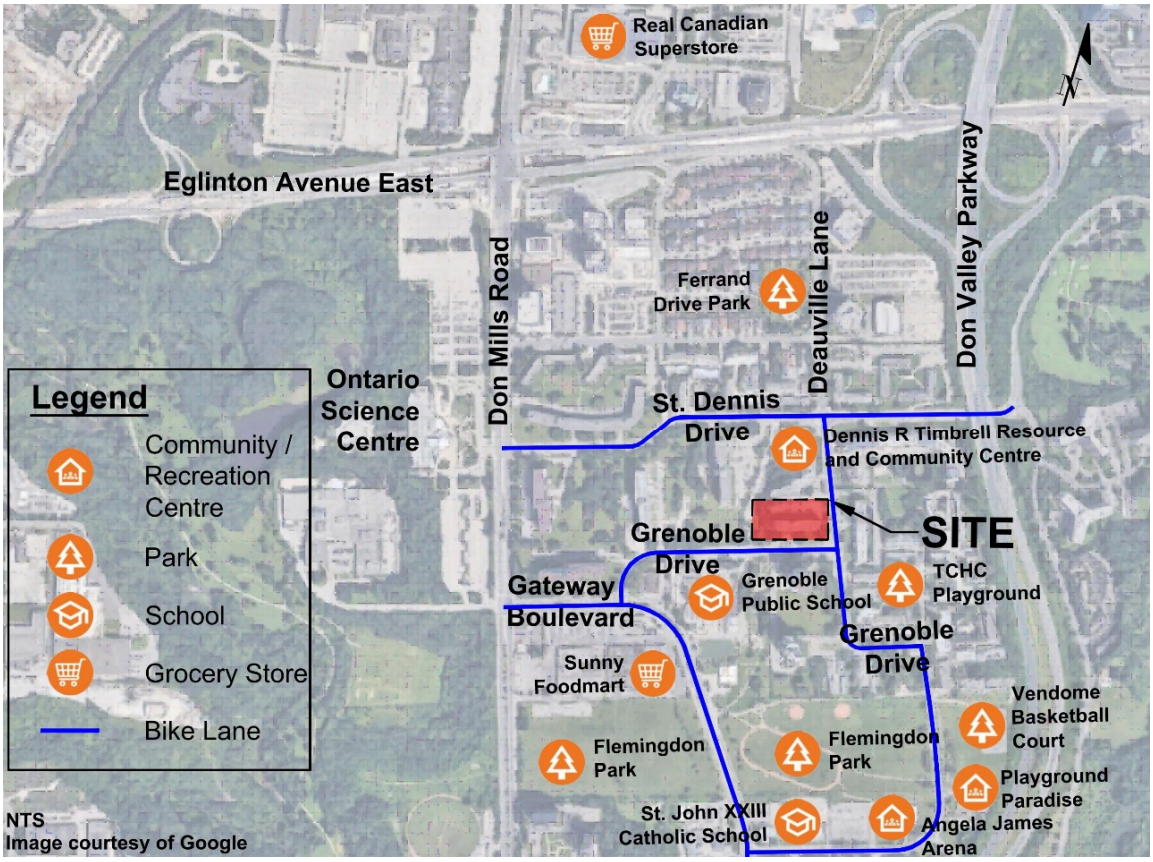


Source: Don Mills Crossing – Mobility Planning Study, prepared by Steer Davies Gleave, dated February 2019

2.2 Existing Road Network

The existing road network is described below and illustrated in Figure 3, including active transportation infrastructure and key pedestrian destinations such as grocery stores, parks, and amenities. All roads are under the jurisdiction of the City. Sidewalks are provided on both sides of all roads.

Figure 3: Existing Cycle Network and Main Pedestrian Destinations



St. Dennis Drive

St. Dennis Drive is an east-west collector road between Don Mills Road and Linkwood Lane. East of the Don Valley Parkway, the roadway becomes a minor arterial. St. Dennis Drive provides access to Eglinton Avenue East, east of the Don Valley Parkway. The roadway has a 2-lane urban cross section, a posted speed limit of 40 km/h and bicycle lanes on both sides. Standing and stopping are prohibited on the south side of the road between Don Mills Road and Deauville Lane and on the north side of the road east of Deauville Lane.

Deauville Lane / Grenoble Drive

Deauville Lane is a north-south collector road between St. Dennis Drive and Grenoble Drive. North of St. Dennis Drive, the roadway is classed as a local road. South of Grenoble Drive, Deauville Lane becomes Grenoble Drive and is also classed as a local road. The roadway has a 2-lane urban cross section, a posted speed limit of 40 km/h and bicycle lanes on both sides. Stopping is prohibited on both sides of the road.

Grenoble Drive

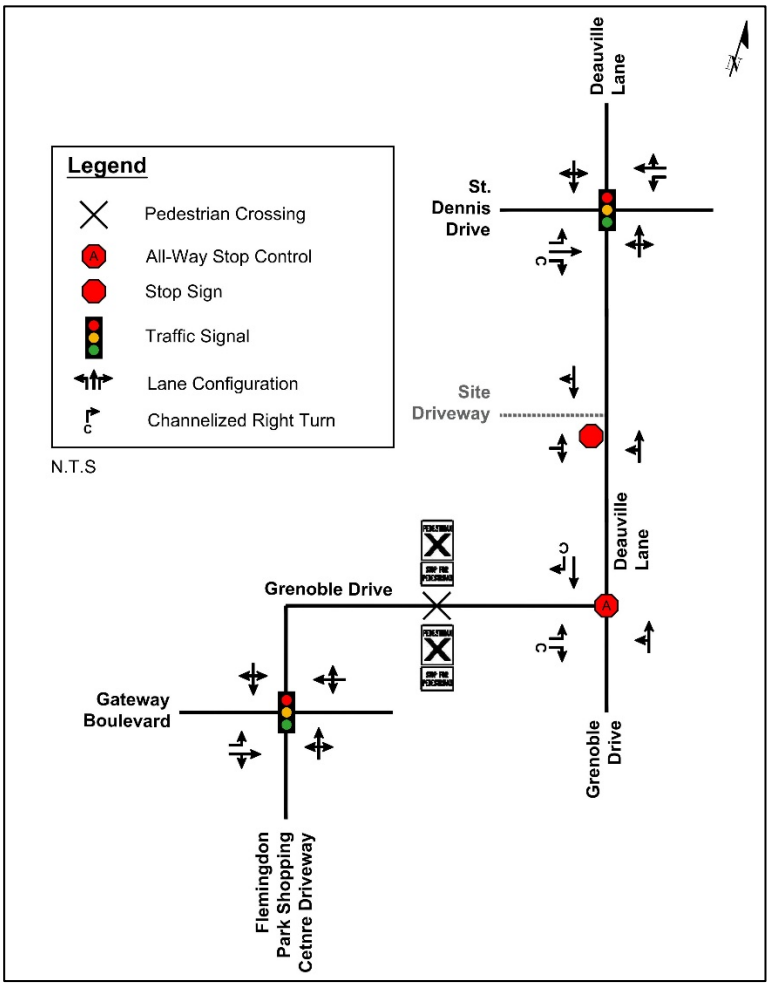
Grenoble Drive is an east-west collector road with a 2-lane urban cross section, a posted speed limit of 40 km/h and bicycle lanes on both sides. Stopping is prohibited on the north side of the road. East of the Grenoble Public School Driveway on Grenoble Drive, there is a mid-block Level 1 Type A pedestrian crossover.

Gateway Boulevard

Gateway Boulevard is a collector road between Don Mills Road and Grenoble Drive. East of Grenoble, the roadway is classed as a minor arterial. The roadway has a 2-lane urban cross section with a posted speed limit of 40 km/h and bicycle lanes on both sides. Stopping is prohibited on the south side of the road.

The existing vehicle traffic control and lane layout is illustrated in Figure 4.

Figure 4: Existing Vehicle Traffic Control and Lane Layout



2.3 Existing Transit Services

The Toronto Transit Commission (TTC) provides frequent bus service within the vicinity of the site, 7 days a week. Bus stops are currently located on both sides of Deauville Lane, just north of the site driveway, within approximately 60 m to 150 m (less than a 2-minute walk), at St. Dennis Drive / Deauville Lane intersection, approximately 155 m (a 2-minute walk) north of the site and at Don Mills Road / Gateway Boulevard intersection, approximately 480 m (a 7-minute walk) west of the site.

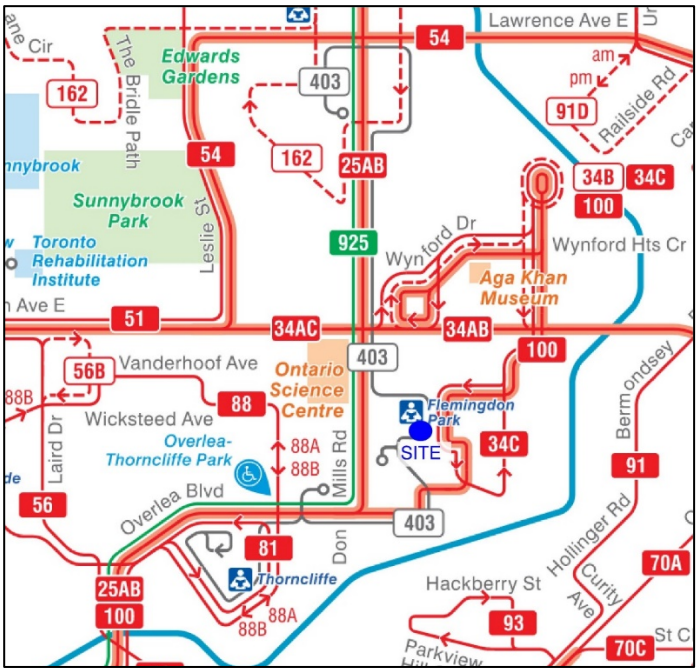
Service frequency and hours of operation of bus routes that service the study area are summarized in Table 1 and illustrated in Figure 5. These schedules are current, and it is our understanding that the frequency and hours of service has been reduced due to the current COVID-19 pandemic.

Table 1: Transit Route Summary

Route	Direction	Peak Period Headways[2]	Days and Hours of Operation[3]
25 (Don Mills)	Northbound & Southbound	AM: 6 mins PM: 5 mins	4:40 AM – 7:08 PM, Monday to Friday 4:40 AM – 1:49 AM, Saturday and Sunday
34C (Eglinton East to Flemingdon Park)	Northbound & Southbound	AM: 15 mins PM:10-15 mins	5:45 AM – 1:44 AM, Monday to Friday 6:29 AM – 1:45 AM, Saturday 7:47 AM – 1:43 AM, Sunday
100 (Flemingdon Park)	Northbound & Southbound	AM: 6 mins PM: 7 mins	5:06 AM – 1:17 AM, Monday to Friday 6:14 AM – 1:32 AM, Saturday 7:20 AM – 1:20 AM, Sunday
925 (Don Mills Express)	Northbound & Southbound	9 mins	5:58 AM – 10:03 PM, Monday to Friday 7:12 AM – 7:05 PM, Saturday 7:16 AM – 7:00 PM, Sunday
325 (Don Mills)	Northbound & Southbound	30 mins	1:24 AM – 4:24 AM, Overnight 7 days a week
403 (South Don Mills Community Bus)	Northbound & Southbound	75 mins	10:08 AM – 4:15 PM, Monday to Friday

Notes: 1. Source: TTC Service Summary, February 13, 2022 to March 26, 2022
2. AM Peak period refers to 6:00 to 9:00 AM and PM Peak period refers to 3:00 to 7:00 PM on weekdays.
3. Hours of operation are approximate and based on route schedules on the TTC website.

Figure 5: Transit Route Map



Source: TTC System Map, February 2022

2.3.1 Transit Pass Ownership

Transit pass ownership trends for residents of the local ward (Transportation Tomorrow Survey Ward 26) was determined from *2011* and *2016 Transportation Tomorrow Survey* (TTS) results published by the Data Management Group at the University of Toronto Transportation Research Institute. The "Possess a Transit Pass" attribute from TTS was utilized and is summarized in Table 2.

Table 2: TTS Ward 26 Transit Pass Ownership

Ownership	2011 TTS	2016 TTS
Possess a Transit Pass	20%	64%
Does Not Possess a Transit Pass	79%	35%
Unknown	1%	1%
Total	**100%**	**100%**

From 2011 to 2016, transit pass ownership tripled with 64% of residents owning a transit pass by 2016. It is expected that ownership has continued and will continue to increase due to better transit services and future transit improvements, as detailed in Section 3.1.

2.4 Existing Traffic Volumes

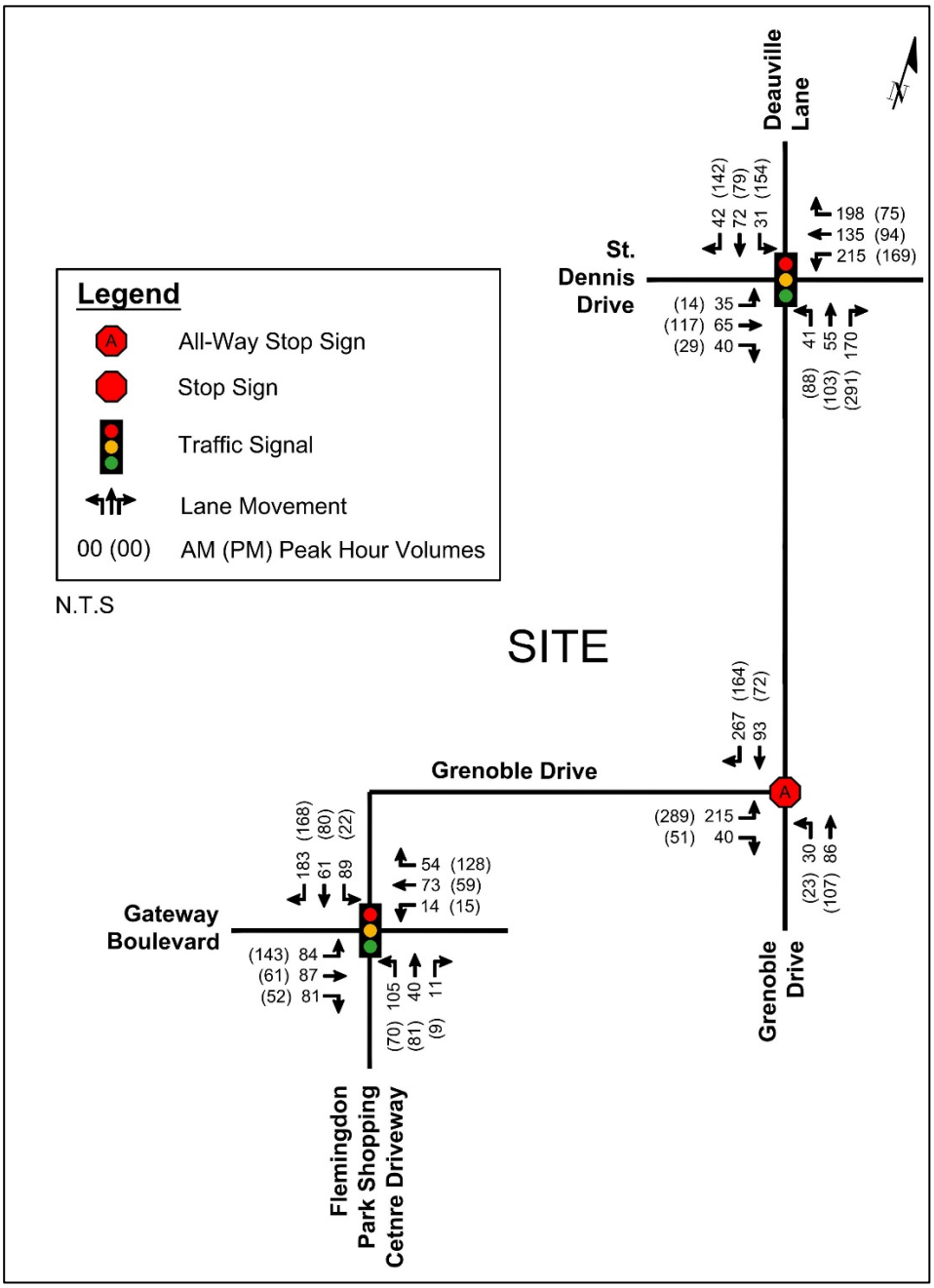
Current traffic volumes have been significantly lower than usual due to the COVID-19 pandemic. Therefore, historical traffic counts were used at all study intersections, where available, to better reflect typical existing conditions. The historical traffic counts at the study intersections identified in Section 1.2 were obtained from the City and Spectrum Traffic's database for the weekday morning AM peak period (7:00 AM to 9:00 AM) and afternoon PM peak period (4:00 PM to 6:00 PM). The weekday AM and PM peak hours were selected as these are typical peak traffic periods for this type of development. Table 3 summarized the counts used for all study intersections, along with their sources.

Table 3: Traffic Counts Summary

Intersection	Date of Count	Source
Deauville / St. Dennis	Wednesday, December 12, 2018	City
Deauville / Grenoble	Wednesday, December 5, 2018	City
Gateway / Grenoble / Flemingdon Park Shopping Centre driveway	Thursday, November 5, 2015	Spectrum

In addition, a review of historical traffic counts obtained from the City found that traffic volumes have been decreasing between 2001 to 2018. Therefore, no growth was applied to the traffic counts. The projected 2022 traffic volumes are illustrated in Figure 6. All historical counts are provided in Appendix B.

Figure 6: Projected 2022 Traffic Volumes



3.0 Future 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. Future road network and transit improvements within the study horizon year are also discussed. The horizon year of 2028 was selected for future projections, assuming buildout by 2023.

3.1 Future Transit

The Don Mills and Eglinton Area is identified as a Gateway Hub in Metrolinx's Mobility Hub guidelines and in their study, *The Big Move,* dated November 2008. This Gateway Hub will include two future rapid transit lines. One of these lines is the Eglinton Crosstown Light Rail Transit (ECLRT) line, which will extend between Weston Road and Kennedy Road, connecting the Mount Dennis community to the Kennedy GO and subway stations, with future headways of 3 minutes during the morning and afternoon weekday peak periods. The closest station to the site will be the Aga Khan Park and Museum Station, which is approximately 690 m (or a 700 m /10-minute walk / 3-minute bike ride) away from the site. Another station within close proximity to the site is the Science Centre Station to be located on the southwest corner of the Don Mills Road / Eglinton Avenue intersection, which will be an approximate 750 m (or a 1.0 km / 14-minute walk / 4-minute bike ride) from the site. In addition, a seven bay TTC bus terminal will be located on the northeast corner of this same intersection. All of these works are expected to be completed by September of 2022.

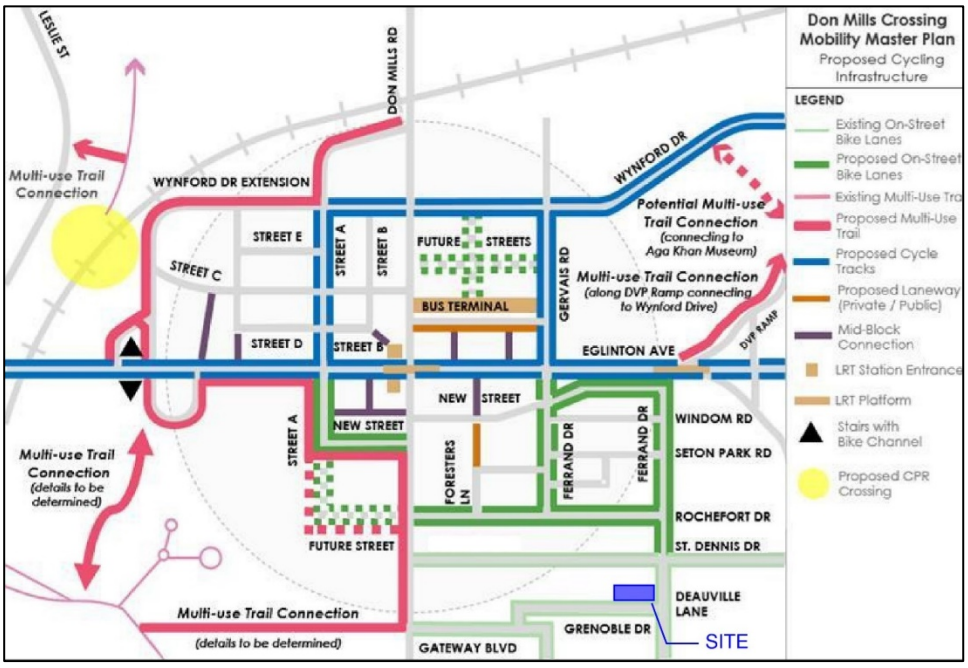
The second line that is planned within the study area is the Ontario subway line. This subway line will provide an alternative route to/from the Downtown core. Within the study area, this route will be located on the west side of Don Mills Road as an elevated line that will connect with the Science Centre Station on the ECLRT line, but the station will be located on the northeast corner of Don Mills Road / Eglinton Avenue intersection adjacent to the future bus terminal. The next closest station on the Ontario line will be the Flemingdon Park Station to the west of the site on Don Mills Road at the north leg of Gateway Boulevard. This will be approximately 450 m (or a 480 m / 7-minute walk / 2-minute bike ride) from the site. Proposed headways will be as low as 1.5 minutes during both peak periods. However, the expected completion year of this line is 2030, which is beyond the study horizon.

In addition, the TTC is continuing to look at ways to increase bus headways. All these future transit improvements will continue to increase the ease of use and attractiveness of transit, which will result in the continuing decrease in vehicle use and parking demand.

3.2 Future Active Transportation

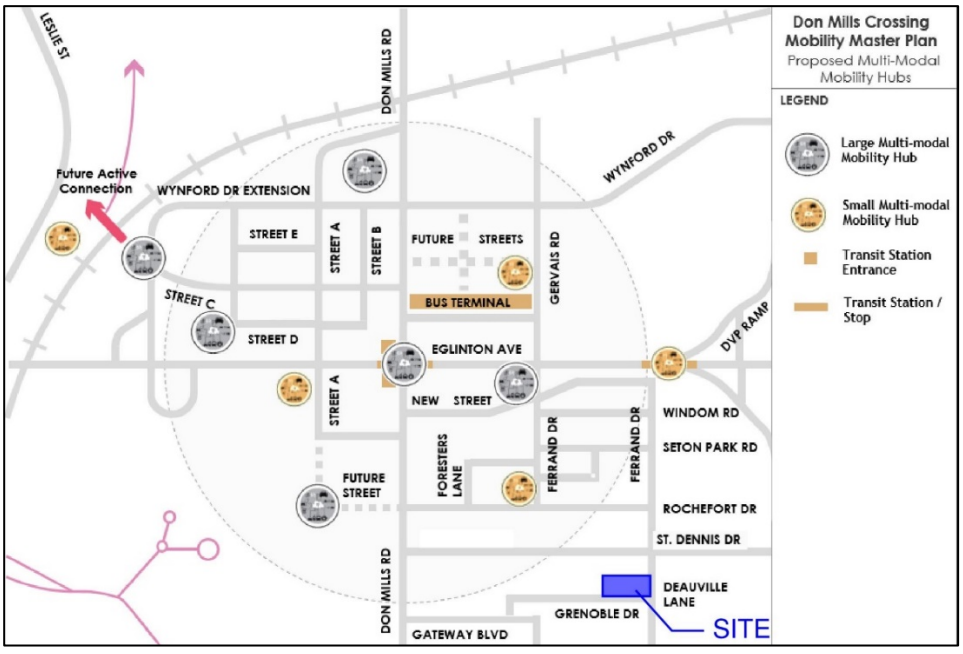
Based on the Don Mills Crossing Study, there are several active transportation improvements proposed within the vicinity of the site. This includes bike lanes on both sides of Deauville Lane, north of St. Dennis Drive, Eglinton Avenue and Rochefort Drive and a multi-use trail along the west side of Don Mills Road. However, the timing of these improvements is unknown with the exception of the bike lanes on Eglinton Avenue. This latter improvement is scheduled to be installed with the completion of the ECLRT line. There will be good pedestrian and cyclist connectivity in vicinity of the area. An excerpt from the study is provided in Figure 7.

Figure 7: Exhibit 9-3 from the Don Mills Crossing Study



In addition, the Don Mills Crossing Study proposes a multi-modal mobility hub on the northwest corner of the Ferrand Drive / Rochefort Drive intersection, approximately 650 m (a 9-minute walk or a 2-minute cycle). The multi-modal mobility hub would potentially include bike share, car share, electric charging and ride share spaces. An excerpt from the study is provided in Figure 8.

Figure 8: Exhibit 9-10 from the Don Mills Crossing Study



3.3 Future Road Network

Under background conditions, there are no planned road network improvements. However, within the vicinity of the site, the completion of the ECLRT line will result in geometric changes at the Eglinton Avenue / Don Mills Road intersection. The previously existing HOV lanes along Eglinton Avenue will be removed, but the HOV lanes on Don Mills Road will be retained. In addition, the Don Mills Crossing Study proposes a realignment of Ferrand Drive at Eglinton Avenue with Gervais Drive, resulting in a four-legged full movement signalized intersection. However, there is no timeline as to when this will occur. If this improvement occurs, it will provide a more direct access to Eglinton Avenue for residents.

3.4 Background Traffic Growth

As mentioned, a review of historical traffic counts obtained from the City found a negative traffic growth trend between the years 2000 to 2018. As a result, no growth was applied to the traffic counts.

3.5 Background Development

Background developments were identified within the proximity of the site based on the City's online development application website. The developments are summarized in Table 4. Trips generated from each development were included in background traffic projections. Excerpts of the site traffic figures from traffic studies for each development are provided in Appendix C.

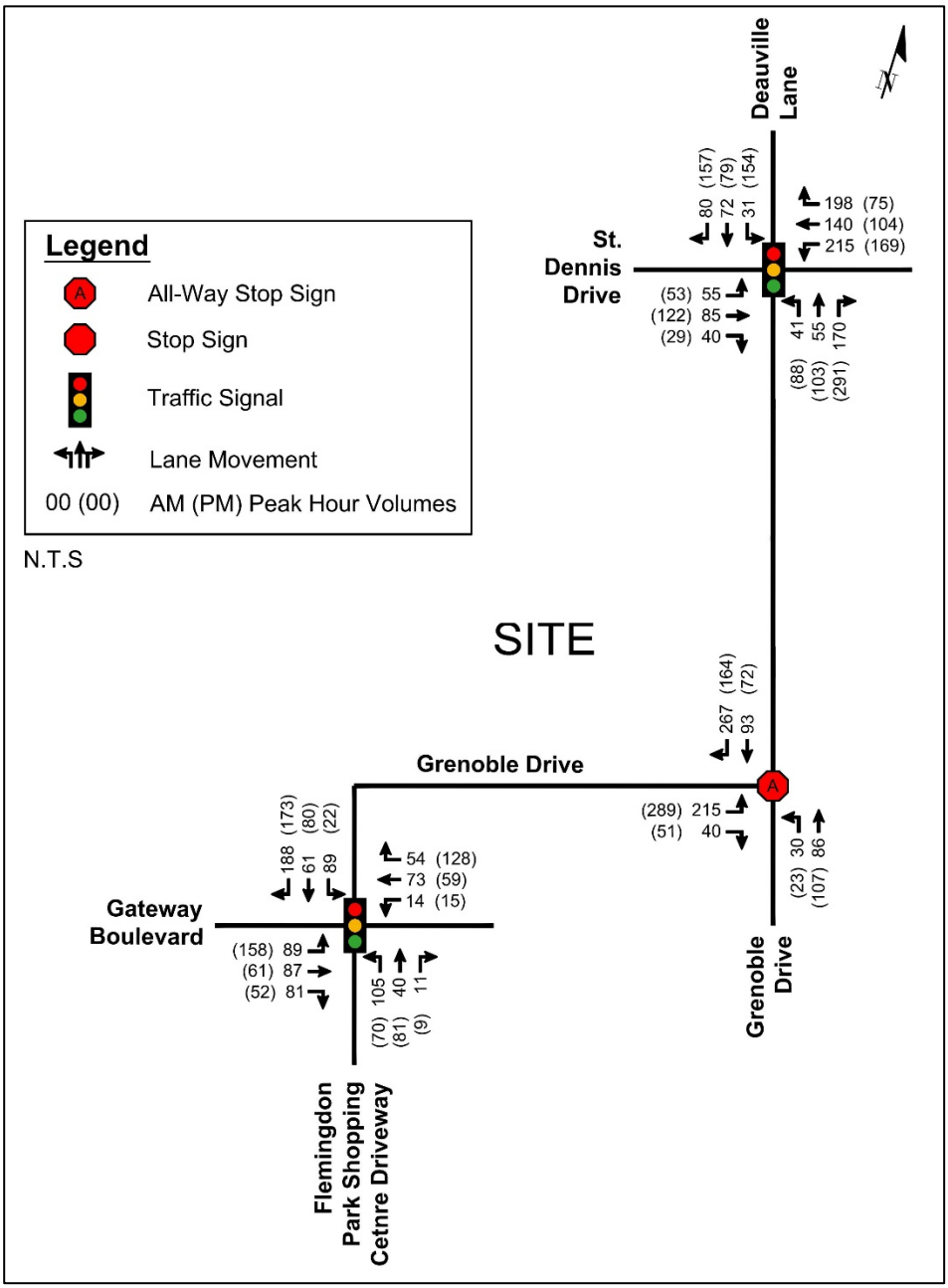
Table 4: Background Development Summary

Address	Development Statistics			Source
	Proposed Use	AM Trips	PM Trips	
25 St. Dennis Drive	724 Apartments, 625 m^2 Daycare, and 600 m^2 Retail	139	111	*25 St. Dennis Drive Updated Urban Transportation Considerations Report,* by BA Group, dated September 8, 2016
7-11 Rochefort Drive	1,322 Apartments and 199 m^2 café	168	125	*7-11 Rochefort Drive Transportation Study,* by Burnside, dated October 2021

3.6 Background Traffic Volumes

Background traffic volumes consist of the application of growth per annum (up to the horizon year of 2028) to the existing traffic volumes shown in Figure 6, along with traffic from background developments. The resulting background 2028 traffic volumes are illustrated in Figure 9.

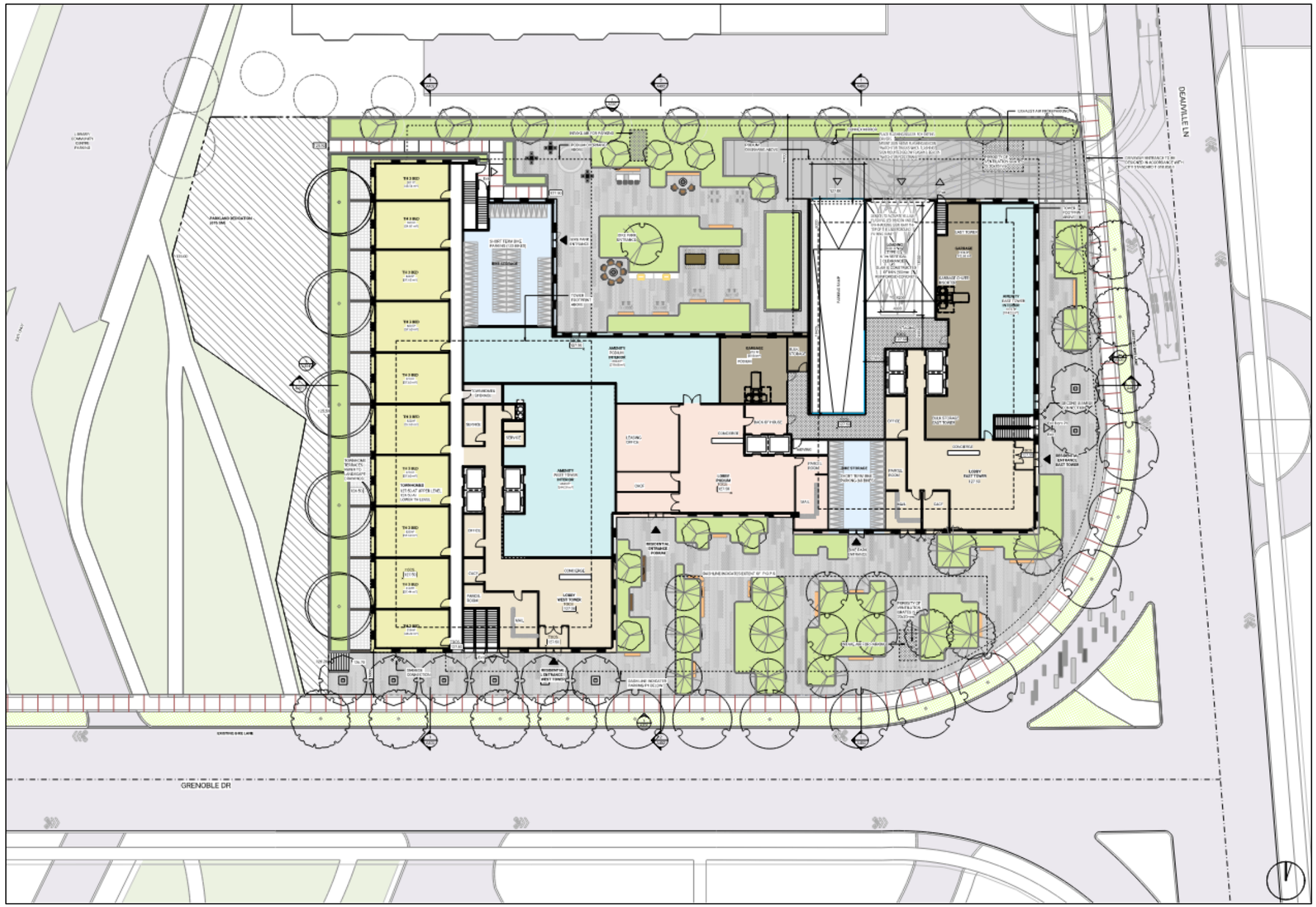
Figure 9: 2028 Background Traffic Volumes



4.0 Proposed Development

According to the site plan by Diamond Schmitt Architects, dated March 2, 2022, the proposed development will include 993 apartments in two towers. Access will be provided by one full movement driveway on Deauville Lane. The site plan is shown in Figure 10.

Figure 10: Site Plan



4.1 Trip Generation

Trip generation for the proposed development was based upon the trip rates contained in the Don Mills Crossing Study utilizing the following trips per resident:

- Weekday AM Peak Hour: 0.204 trips
- Weekday PM Peak Hour: 0.152 trips

As these rates did not include an inbound and outbound split, these splits were determined based on information from the publication *Trip Generation Manual, 11th Edition,* published by the Institute of Transportation Engineers. Land use code (LUC) 222 (High-Rise Multifamily Housing) and a general urban / suburban environment was assumed.

In addition, to account for existing residential trips from the existing buildings, future projected trips were based on the unit number difference between the existing occupied units and the proposed units. This results in 884 net units (993 future units less 109 existing occupied units). These units were then converted to the number of residents based on information from the City's *Housing Occupancy Trends*, 1996 to 2016. For recently built apartment developments, on average there are 1.67 residents / household, which results in a total of 1,476 residents.

Based on the modal split in the Don Mills Crossing Study, auto driver, transit, pedestrian, and cyclist trips were determined. Auto drivers were converted into vehicular trips by assuming one occupant per vehicle for a more conservative analysis and this also is consistent with vehicular occupancy data from 2016 TTS for this local ward (Ward 26). The resulting site trip generation is summarized in Table 5. Excerpts of all relevant information are provided in Appendix D.

Table 5: Site Trip Generation

Trip Type		Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Person Trips (1,476 Residents)		102	199	301	125	99	224
Travel Mode	Auto – 41%	41	82	123	51	41	92
	Transit – 41%	41	82	123	51	41	92
	Cyclists – 4%	6	7	13	6	3	9
	Pedestrians – 14%	14	28	42	17	14	31
Vehicle Trips		**41**	**82**	**123**	**51**	**41**	**92**

With the availability of existing transit and the future ECLRT and bus terminal, it is anticipated that the projected addition of 123 and 92 transit riders during the AM and PM peak hours, respectively, can be accommodated by the future transit system. With the availability of the existing and future sidewalk and bike network in the study area, the

projected addition of 9 to 13 cyclists and 42 and 31 pedestrians during the AM and PM peak hours, respectively, can be adequately accommodated.

4.2 Vehicle Trip Distribution & Assignment

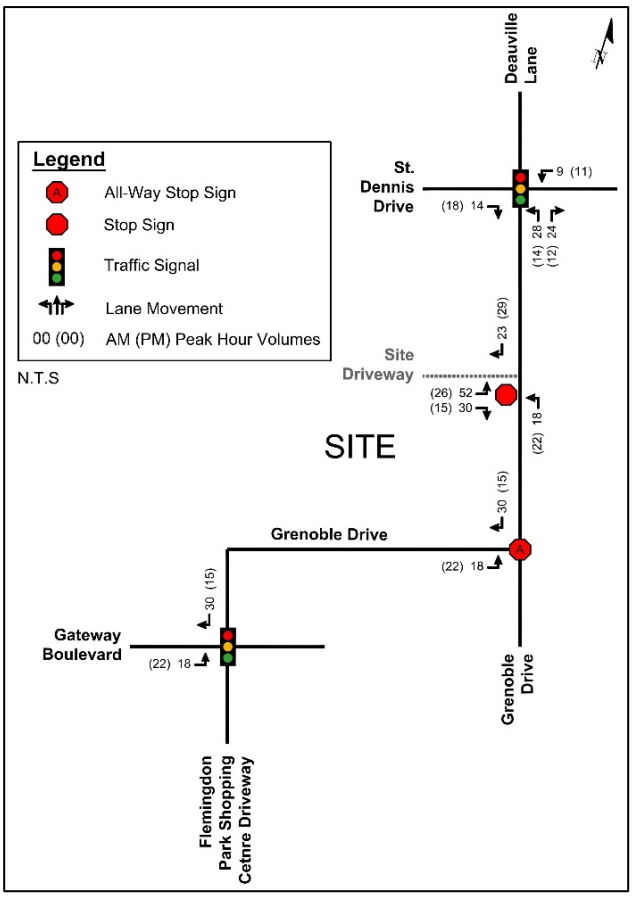
The trip distribution and assignment of new vehicle trips were based upon existing traffic patterns, the available road network, 2016 Transportation Tomorrow Survey data and findings from the Don Mill Crossing Study. The estimated distribution of site trips on the greater road network is shown in Table 6 and the vehicular trip assignment is illustrated in Figure 11.

Table 6: Vehicle Trip Distribution

To/From	Via	Distribution
North	Don Mills Road	25%
South		30%
East	Eglinton Avenue	30%[1]
West		15%
Total		**100%**

Note: 1. With direct access to Eglinton Avenue from St. Dennis, it was assumed that 80% will utilize St. Dennis.

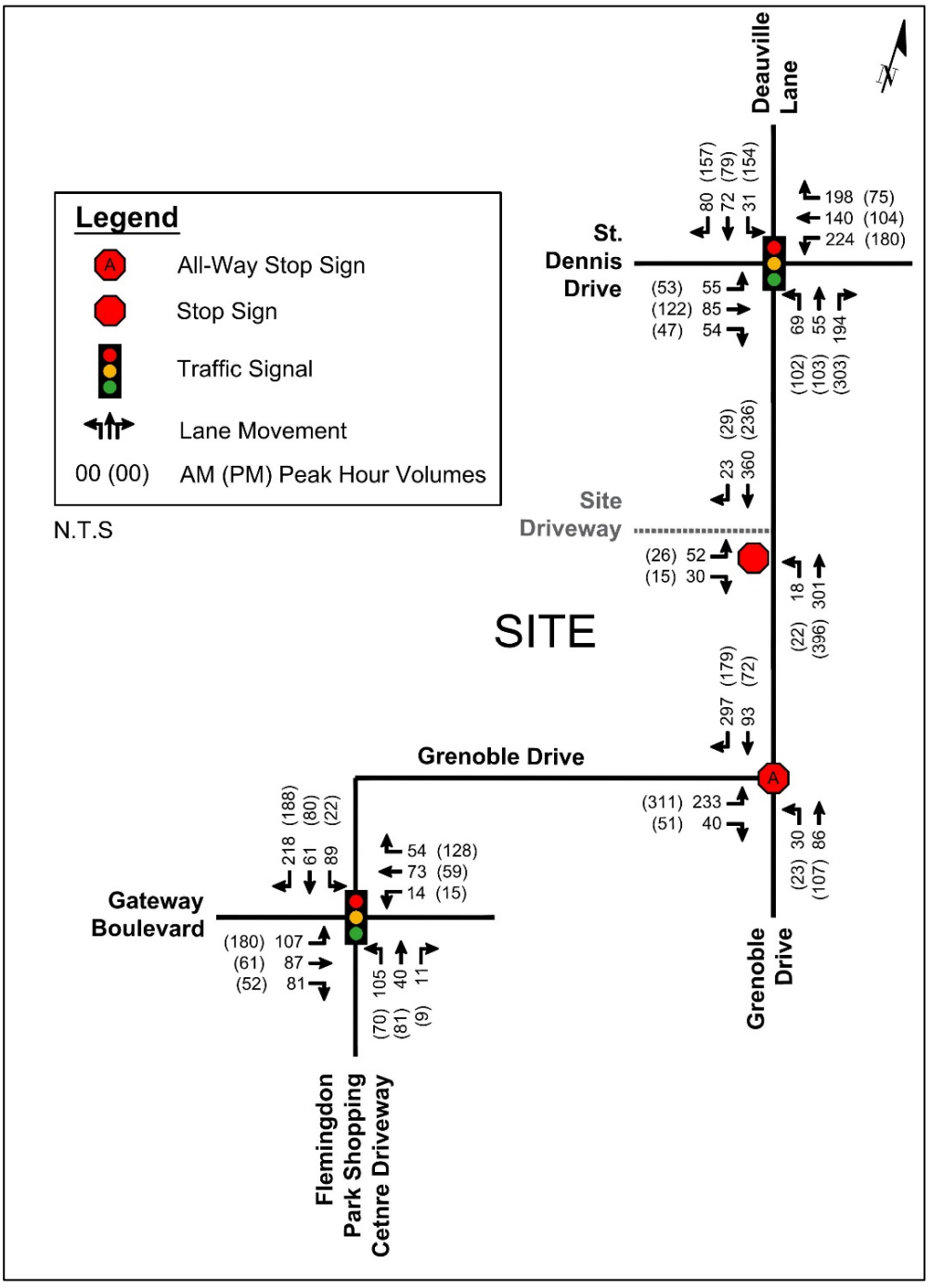
Figure 11: Site Generated Vehicle Traffic



5.0 Total Traffic Conditions

Total traffic volumes consist of background traffic for the horizon year 2028 plus the site traffic illustrated in Figure 11. The resulting 2028 total traffic volumes are shown in Figure 12.

Figure 12: 2028 Total Traffic Volumes



6.0 Traffic Operations

Traffic operations analyses were conducted under existing and future traffic conditions for the weekday AM and PM peak hours at all study intersections. In addition, queueing was reviewed using Synchro's 95th percentile queue. Note that HCM2000 does not report queues of all-way stop control (AWSC); as a result, HCM6 queue results were reported for the Deauville Lane / Grenoble Drive intersection. A comparison of the existing storage / link distances and projected queues are also included. Detailed Synchro and queue reports are provided in Appendices E through G. Existing and future traffic operations are shown in Table 7 and Table 8 for the weekday AM and PM peak hours, respectively.

Table 7: Existing and Future Traffic Operations – AM Peak Hour

Intersection & Movement	Existing Storage / Link Distance (m)	Existing 2022			Background 2028			Total 2028		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Deauville Lane / St. Dennis Drive (Signalized)										
Overall	-	0.56	B	-	0.56	B	-	0.66	B	-
EBL	28	0.14	B	8	0.22	B	11	0.21	B	11
EBT	200+	0.12	B	11	0.15	B	14	0.15	B	14
EBR	10	0.03	B	0	0.03	B	0	0.04	B	0
WBL	32	0.65	B	39	0.66	C	39	0.68	C	41
WBTR	200+	0.53	B	39	0.54	B	40	0.53	B	40
NBLTR	100+	0.35	B	28	0.36	B	28	0.49	B	41
SBLTR	100	0.20	A	20	0.24	B	22	0.24	B	22
Deauville Lane / Grenoble Drive (AWSC) [2]										
EBLR	170[1]	0.34	A	18	0.34	A	18	0.37	B	22
NBLT	200+	0.19	A	7	0.19	A	7	0.20	A	7
SBT	100+	0.16	A	18	0.16	A	18	0.16	A	21
Grenoble Drive / Gateway Boulevard / Commercial Driveway (Signalized)										
Overall	-	0.39	B	-	0.40	B	-	0.44	B	-
EBL	48	0.27	B	19	0.29	B	20	0.34	C	24
EBTR	150	0.23	B	23	0.23	B	23	0.23	B	23
WBLTR	200+	0.26	B	22	0.26	B	22	0.26	B	22
NBLTR	30	0.35	B	28	0.35	B	28	0.37	B	28
SBLTR	150[1]	0.52	B	47	0.53	B	48	0.56	B	52
Deauville Lane / Site Driveway (Stop Control)										
EBLR	20	Not analyzed						0.21	C	6
NBLT	50							0.02	A	1

Note: 1. Measured to the midblock pedestrian crossing.
2. A vehicle length of 7.5 m is assumed.

Table 8: Existing and Future Traffic Operations – PM Peak Hour

Intersection & Movement	Existing Storage / Link Distance (m)	Existing 2022			Background 2028			Total 2028		
		v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)	v/c	LOS	95th Queue (m)
Deauville Lane / St. Dennis Drive (Signalized)										
Overall	-	0.74	B	-	0.75	B	-	0.79	B	-
EBL	28	0.05	B	4	0.17	B	10	0.16	B	10
EBT	200+	0.25	B	18	0.26	B	18	0.25	B	18
EBR	10	0.02	B	0	0.02	B	0	0.03	B	0
WBL	32	0.59	B	28	0.59	B	28	0.60	B	30
WBTR	200+	0.29	B	19	0.31	B	21	0.31	B	21
NBLTR	100+	0.65	B	82	0.65	B	82	0.71	B	92
SBLTR	100	0.64	B	71	0.66	B	75	0.68	B	78
Deauville Lane / Grenoble Drive (AWSC)										
EBLR	170[1]	0.41	B	23	0.41	B	23	0.44	B	27
NBLT	200+	0.19	A	6	0.19	A	6	0.19	A	7
SBT	100+	0.11	A	8	0.11	A	8	0.11	A	9
Grenoble Drive / Gateway Boulevard / Commercial Driveway (Signalized)										
Overall	-	0.36	B	-	0.38	B	-	0.42	B	-
EBL	48	0.41	C	32	0.46	C	35	0.52	C	40
EBTR	150	0.15	B	17	0.15	B	17	0.15	B	17
WBLTR	200+	0.26	B	24	0.26	B	24	0.26	B	24
NBLTR	30	0.30	B	28	0.30	B	28	0.30	B	28
SBLTR	150[1]	0.35	B	31	0.36	B	31	0.38	B	32
Deauville Lane / Site Driveway										
EBLR	20	Not analyzed						0.10	B	3
NBLT	50							0.02	A	1

Note: 1. Measured to the midblock pedestrian crossing.

Under existing and future conditions, all movements at study intersections are and will operate with excess capacity and a level of service C or better. The existing and projected queue lengths are and will be within existing storage and link distances. No improvements will be required and / or will be triggered by the proposed development.

7.0 Site Plan Review

A high-level review was conducted of the proposed site plan for multi modal circulation, access, and parking garage layout. The site is well designed to accommodate pedestrians, cyclists, and vehicles. Sidewalks will connect the building entrances to the existing external sidewalk network on Grenoble Drive and Deauville Lane. Cyclists can access the site via the driveway.

An access analysis was conducted for the 4-level underground garage using a PTAC or passenger car design vehicle utilizing AutoTURN. The garage will be able to accommodate the design vehicle at all ramps and on all levels as shown in Appendix H. An access analysis for the proposed refuse pickup / loading space was conducted for a

City refuse truck using AutoTURN and is also shown in Appendix H. The analysis confirms that the proposed geometrics will accommodate a refuse truck, which represents the largest design vehicle that will visit the site.

8.0 Transportation Demand Management (TDM) Plan

The proposed site plan incorporates design elements to support pedestrians, cyclists, and transit users to discourage the dependency on the single-occupant motor vehicle. This complements the City's overall transportation vision to achieve a greater sustainable transportation system by promoting and encouraging alternative modes of travel including walking, cycling and transit.

As noted in Section 2.3 and 3.1, there are several existing and planned Transportation Demand Management (TDM) measures within the study area including:

- Substantial transit service provided immediately near the site via TTC bus routes, a TTC bus terminal, ECLRT and the future Ontario Line.
- Planned bike lanes on both sides of Deauville Lane, Rochefort Drive and Eglinton Avenue East.
- Planned multi-modal mobility hub near the site on the northeast corner of Ferrand Drive / Rochefort Drive. The hub could potentially include bike share, car share, electric charging and ride share spaces.

To further facilitate other modes of travel, several TDM measures are proposed. These measures are expected to reduce not only vehicular trips but also parking demand. Table 9 summarizes the TDM measures proposed for this development along with associated trip reduction estimates. The trip reduction estimates are based on data from the Town of Oakville, the Region of Waterloo, the Vermont Agency of Transportation, City of Berkeley, California, California Air Pollution Control Officers Association, Delaware Department of Transportation, Oregon Department of Environmental Quality, and the City of Sacramento.

Table 9: Proposed TDM Measure

TDM Item Description	Trip Reduction	Comments
Internal secured bicycle storage (long-term)	0.5% to 1%	Internal secured bicycle storage within the building for residents
Outdoor bicycle racks (short-term)	0.5%	Strategically placed at ground level near the main entrance / lobby for visitors
Sidewalk Connections	0.5% to 2%	Sidewalk connections from the building's entrances to the existing external sidewalk network along Deauville Lane and Grenoble Drive.

Table 9: Proposed TDM Measure continued

TDM Item Description	Trip Reduction	Comments
Bicycle lanes	0% to 10%	Existing bicycle lanes along St. Dennis Drive, Deauville Lane, south of St. Dennis and Grenoble Drive. Proposed bike lanes on Deauville Lane, north of St. Dennis and along Rochefort Drive.
TDM information package	0.8% to 4%	The information package provided to residents will include TTC and GO transit maps and schedules, cycling and trail maps, and information on Smart Commute.
Transit subsidy	2.5%	Transit subsidy for residents via a preloaded PRESTO pass with $25 for first time purchasers and renters.
Real time transit information displays	N/A [1]	Real time transit information displays in the building lobby or encourage residents to download real time transit information via mobile applications.
Smart Commute	2% to 15%	Encourage residents to join the Toronto Central Smart Commute Program.
Bicycle repair stations	1%	Located adjacent to bike storage room(s).
Unbundled resident parking	2.6 to 13%	Parking spaces will not be bundled with apartments.
Parking supply reduction	up to 52%	Parking rate reductions for resident and visitor parking are recommended.

Notes: 1. No data available from the reviewed source

The combination of these proposed TDM measures and the addition of significant transit improvements in the area are expected to reduce vehicle trips by more than 30%.

9.0 Parking and Loading Supply Review

9.1 Bicycle Parking

There are 894 long-term bicycle spaces and 200 short-term bicycle spaces proposed. The City's Zoning By law 569-2013 (ZBL) was reviewed to determine bicycle parking requirements for short-term and long-term spaces, which are summarized in Table 10, based on Bicycle Zone 1. Applicable excerpts from the ZBL are provided in Appendix I.

Table 10: ZBL Bicycle Parking Requirements

Proposed Use	ZBL Use	Type	Parking Rate	Required Spaces	Provided Spaces	Surplus / Deficit
High-Rise Residential (993 units)	Apartment Building	Short-Term	0.1 space per unit	100	200	+100
		Long-Term	0.9 space per unit	894	894	0

The proposed short-term bicycle parking supply will exceed the ZBL requirements and long-term bicycle parking supply will meet the ZBL requirements.

The City is in the process of reviewing the ZBL's bicycle parking requirements and recently published the *Draft Zoning By-law Amendment for Bicycle Standards,* dated November 25, 2021 (Draft Bicycle ZBA). The short-term bicycle parking requirement for apartment buildings is proposed to be increased from 0.1 to 0.2 spaces per unit (the long-term rates are not proposed to be changed). Therefore, under the Draft Parking ZBA, a total of 199 short-term spaces are required, and the proposed number of short-term bicycle spaces will exceed the Draft Parking ZBA. Applicable excerpts from the Draft Parking ZBA are provided in Appendix J.

Long-term bicycle parking spaces will be provided for residents in secured rooms in the underground garage. Short-term bicycle parking spaces for visitors will be located at grade and within close proximity to building entrances.

9.2 Vehicle Parking

A total of 522 parking spaces are proposed within a 4-level underground garage. There will be 471 spaces for residents and 51 spaces for the visitors. City Council recently enacted By-law 89-2022 (ZBL 89-2022), which amended the ZBL and introduced no minimums for resident parking, reduced visitor parking requirements and lowered maximum parking supply limits. As part of the amendment, the original parking requirements of the ZBL were to be retained for development applications that are currently in process when the amendment was passed. The results of the ZBL's original parking requirements are summarized in Table 11 with the assumption that the site is located in the "All Other Areas of the City". Applicable excerpts from the ZBL are provided in Appendix I.

Table 11: ZBL Vehicle Parking Requirements

Proposed Use	Zoning By-law Use	Size	Parking Spaces [1]			
			Rate	Required	Supply	Surplus / Deficit
1 Bedroom	One Bedroom Apartment	616 units	0.9 / unit	554	**471**	**-478**
2 Bedrooms	Two Bedroom Apartment	284 units	1.0 / unit	284		
3 Bedrooms	Three or more Bedroom Apartment	93 units	1.2 / unit	111		
	Resident Total	**993**	**0.95 / unit**	**949**		
Visitors	Dwelling Unit in an Apartment Building - Visitors	993 units	0.2 / unit	198	**51**	**-147**
			Site Totals	**1,147**	**522**	**-625**

Note: 1. The number of spaces was rounded down to the nearest whole number as per the ZBL.

According to ZBL, there will be a deficit of 478 resident spaces and 147 visitor spaces for an overall deficit of 625 spaces. However, it is our opinion that the parking demand suggested by ZBL is overestimating future parking demand for the proposed development, based on the availability of transit and the proposed TDM measures discussed in Section 8.0.

Amending by-law 89-2022 removed minimum parking requirements for residents and lowered the minimum visitor parking requirement for apartment buildings to 2 spaces plus 0.05 spaces per unit. This results in a minimum visitor parking requirement of 51 spaces, which is the proposed supply. ZBL 89-2022 also reduced maximum parking requirements, which are summarized in Table 12, assuming the site is located within the "Other Areas of the City". Applicable excerpts are provided in Appendix K.

Table 12: ZBL 89-2022 Maximum Vehicle Parking Requirements

Proposed Use	ZBL Use	Size (units)	Parking Spaces			
			Maximum Rate/Unit	Maximum [2]	Supply	Under / Over
1 Bedroom	One Bedroom	616	0.9	554	471	-478
2 Bedroom	Two Bedroom	284	1.0	284		
3 Bedroom	Three or more Bedrooms	93	1.2	111		
Residential Requirement		**993**	**0.95**	**949**		
Visitor Requirement		**993**	**0.1 [2]**	**103**	**51**	**-52**
			Total	**1,052**	**522**	**-530**

Note: 1. The number of spaces was rounded down to the nearest whole number as per the ZBL.
2. Rate of 1 space per unit for the first five units plus 0.1 spaces per unit for the sixth and subsequent units

The proposed supply will not exceed the maximum parking requirements of ZBL 89 - 2022.

In summary, the proposed resident and visitor parking supply will comply with the requirements of the new amended ZBL. However, City staff requested that justification for the resident supply be provided.

9.2.1 Resident Vehicle Parking Supply

A review was conducted of other developments with similar surrounding land uses and transit access based on submitted applications. In the review we have included examples from the Yonge-Eglinton Secondary Plan area since, in our opinion, the future Don Mills Secondary Plan area will have similar characteristics such as surrounding land uses, density, transit, walkability and cyclist accommodation. Table 13 provides a comparison of these two secondary plan areas.

Table 13: Secondary Plan Comparison

Measure	Don Mills Secondary Plan Area	Yonge-Eglinton Secondary Plan Area
Surrounding Land Use	• Future high density residential uses with ground floor commercial including cafes, retail, and restaurants • High-rise office buildings • Ontario Science Centre with IMAX movie theatre • 2 grocery stores	• High density residential uses with ground floor commercial including restaurants and retail • High-rise office buildings • Movie theatres • Yonge-Eglinton Centre shopping mall • 1 grocery store
Available Transit (including planned future transit)	• 2 TTC regular bus routes with 5-10 mins frequency • 1 TTC express route • 3 TTC nighttime routes • Future bus terminal with 7 bus bays • Future ECLRT • Future Ontario Line • Future small multi-modal mobility hub (bike share, car share, electric charging spaces and ride share spaces)	• 3 TTC regular bus routes with 5-10 mins frequency • 3 TTC nighttime routes • Bus terminal with approximately 5 bus bays • Future ECLRT • Subway Line 1
Pedestrian Accommodation	• Sidewalks on both sides of all arterial, collector and local roads	• Sidewalks on both sides of all arterial, collector and local roads
Cyclist Accommodation	• Existing bike lanes on St. Dennis, Deauville Lane, south of St. Dennis and Grenoble Drive • Planned bike lanes on both sides of Deauville Lane, north of St. Dennis, Rochefort, and Eglinton • Planned multi-use trail on the west side of Don Mills	• Existing bike routes on Duplex, Montgomery, and Broadway Avenue • Planned bike lanes on both sides of Eglinton

These other developments with similar surrounding land use and transit access based on submitted applications are summarized in Table 14.

Table 14: Parking Rates Comparison

Site	Status / Source	Surrounding Land Use	Available Transit	Land Use & Size	Proposed Resident Parking Rate (spaces / unit)
Subject Site 48 Grenoble	**-**	**Residential + Retail + Office**	**TTC Buses + LRT + Subway within 250 m**	**993 units**	**0.47**
Eglinton Avenue East Corridor					
175 Wynford Drive	Under Review	Residential	TTC Buses + LRT within 400 m	2,500 units 125 rooms hotel	0.37
25 St. Dennis	Under Review	Residential + Retail	TTC Buses + LRT within 500 m	849 units 625 m^2 Daycare 600 m^2 Retail	0.42
2131 Yonge + 32 Hillsdale	ZBL 891-2016	Residential + Retail	TTC Buses + LRT within 200 m	624 units 7,802.92 m^2 of non-residential	0.36
183-195 Roehampton + 139-145 Redpath	ZBL 1029-2014	Residential + Retail	TTC Buses + LRT within 650 m	446 units	0.35
18-30 Erskine	ZBL 265-2017	Residential + Retail	TTC Buses + LRT within 500 m	300 units	0.30
Don Mills / Sheppard Area					
1650 Sheppard East	Staff Recommendation	Residential + Retail	Subway + TTC Buses	480 units	0.41

It is our opinion that these proxy sites clearly show a pattern of reduced parking requirements for similar developments with close proximity to transit. Therefore, it is our further opinion that the resident parking supply of 0.47 spaces / unit will meet or exceed future resident parking demand.

9.2.2 Accessible Parking

ZBL 89-2022 also contains revisions to determining accessible parking space requirements, which are based on “effective” parking spaces. The results of the analysis are summarized in Table 15 and the applicable excerpts are provided in Appendix K.

Table 15: ZBL 89-2022 Effective Parking Requirements

Proposed Use	ZBL Use	Size (units)	Parking Spaces	
			Rate [1]	Effective [2]
1 Bedroom	One Bedroom	616	0.9	554
2 Bedroom	Two Bedroom	284	1.0	284
3 Bedroom	Three or more Bedrooms	93	1.2	111
Resident Requirement		**993**	**0.95 / unit**	**949**
Visitor Requirement		**993**	**0.1**	**99**
			Total	**1,048**

Note: 1. Space per unit for residential.
2. The number of spaces is rounded down to the nearest whole number as per the ZBL.

ZBL 89-2022 requires a minimum of 5 accessible parking space plus 1 parking space for every 50 effective parking spaces or part thereof in excess of 100 parking spaces, based on an effective parking requirement of more than 100 spaces. Therefore, 24 accessible parking spaces are required for the development, which is the proposed supply.

9.3 Loading

According to ZBL 569-2013, an apartment building with 400 or more dwelling units requires one Type G and one Type C loading spaces. One Type G and one Type C loading spaces are proposed, which meets the ZBL requirements. The applicable excerpts from ZBL 569-2013 are provided in Appendix I.

10.0 Conclusions

10.1 Traffic Operations

Under existing and future conditions, during both the weekday AM and PM peak hours, all study intersections are operating and will operate with excess capacity, with a level of service C or better and queue lengths within their respective storage lengths and link distances. No improvements will be required and / or will be triggered by the proposed development.

10.2 Site Plan Review

The site is well designed to accommodate all modes of travel. Access and circulation analyses utilizing AutoTurn confirms that the site can accommodate all expected design vehicles.

10.3 Transportation Demand Management (TDM) Plan

Various TDM measures currently exist and are either under construction or are planned that will discourage vehicle use and dependency such as:

- Transit service provided near the site via several TTC bus routes, a TTC bus terminal, the under construction ECLRT and the future Ontario Line.
- Existing bicycle lanes along St. Dennis Drive, Grenoble Drive and Deauville Lane, south of St. Dennis Drive.
- Planned bicycle lanes along Deauville Lane, north of St. Dennis Drive and on Rochefort Drive.
- Planned multi-modal mobility hub just north of the site on the northeast corner of Ferrand Drive / Rochefort Drive. The hub could potentially consist of bike share, car share, electric charging stations and ride share spaces.

To further facilitate other modes of travel, several TDM measures are proposed by the development as follows:

- Internal secured bicycle storage for residents.
- Outdoor bicycle racks strategically placed at ground level near the main entrance / lobby for visitors.
- Sidewalk connections from building entrances to the existing external sidewalk network along Deauville Lane and Grenoble Drive.
- An information package will be provided to residents, which will include TTC and GO Transit maps and schedules, cycling and trail maps, and information on Smart Commute.
- Transit subsidy for residents via a preloaded PRESTO pass with $25 for first time purchasers and renters.
- Real time transit information displays in building lobbies.
- Encourage residents to join the Toronto Central Smart Commute Program.
- A bicycle repair station or stations located adjacent to bicycle storage room(s).
- Parking spaces will not be bundled with apartments.
- Recommending parking rate reductions for resident and visitor parking.

The combination of these proposed TDM measures and the addition of significant transit improvements in the area are expected to reduce vehicle trips by more than 30%.

10.4 Parking Supply

10.4.1 Bicycle Parking

A total of 200 short-term bike spaces will be provided for visitors near the building's entrances and 894 long-term resident bike spaces are planned to be located within the building. The proposed supply will exceed the current requirements of the ZBL (based on the site falling within Bicycle Zone 1) and will meet the City's future bicycle parking requirements in the Draft Bicycle ZBA.

10.4.2 Vehicle Parking

According to the ZBL, the proposed parking supply for residents will have a deficit of 478 spaces and the proposed supply for visitors will have a 147 space deficit.

City Council recently enacted By-Law 89-2022, which amended the ZBL and introduced no minimum parking spaces for residents, lower visitor parking requirements and lower maximum parking limits. The minimum visitor parking requirement for apartment buildings is 51 spaces, which is what is proposed. The proposed supply of 522 resident spaces will not exceed the maximum parking requirements. Therefore, the proposed parking supply will comply with new City requirements.

City staff requested that justification be provided for the resident parking supply. It is our opinion that the proposed resident parking supply of 471 spaces (0.47 space / unit) will adequately serve the parking needs of future residents for the following reasons:

- There are many TTC bus routes along Don Mills Road with bus stops located within 2-minute walk of the site. In addition, there will also be frequent, daily transit service provided via the ECLRT and future Ontario Line. The closest ECLRT station will be the Aga Khan and Museum Station, which will be approximately 690 m (or a 700 m / 10-minute walk / 3-minute bike ride) from the site. The closet Ontario line station will be the Flemingdon Park Station which will be approximately 450 m (or a 480 m / 7-minute walk / 2-minute bike ride) from the site.
- The proposed Transportation Demand Management (TDM) measures summarized in Section 8.0 will further reduce parking demand.
- There have been several similar developments with similar access to transit that have been approved with reduced parking supply variances lower than the proposed parking supply rate.

In addition, the number of proposed accessible and loading spaces will meet the minimum requirements of the ZBL.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Intersection Analysis Methodology

Intersection Analysis Methodology for Motor Vehicles

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

Unsignalized 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 unsignalized 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

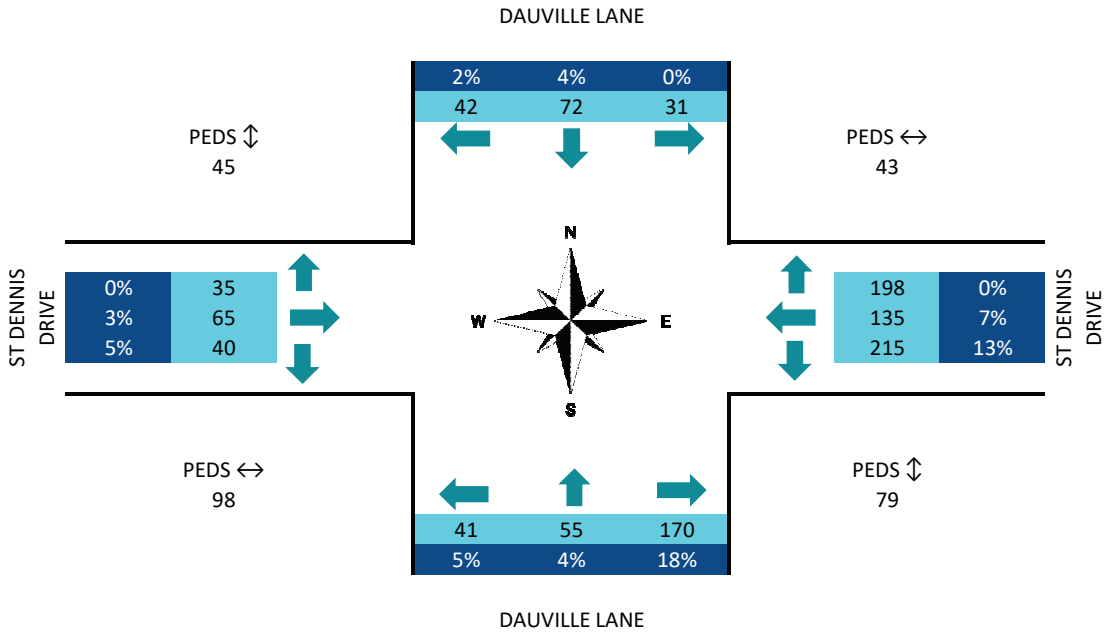
Appendix B

Historical Counts and Signal Timing Plans

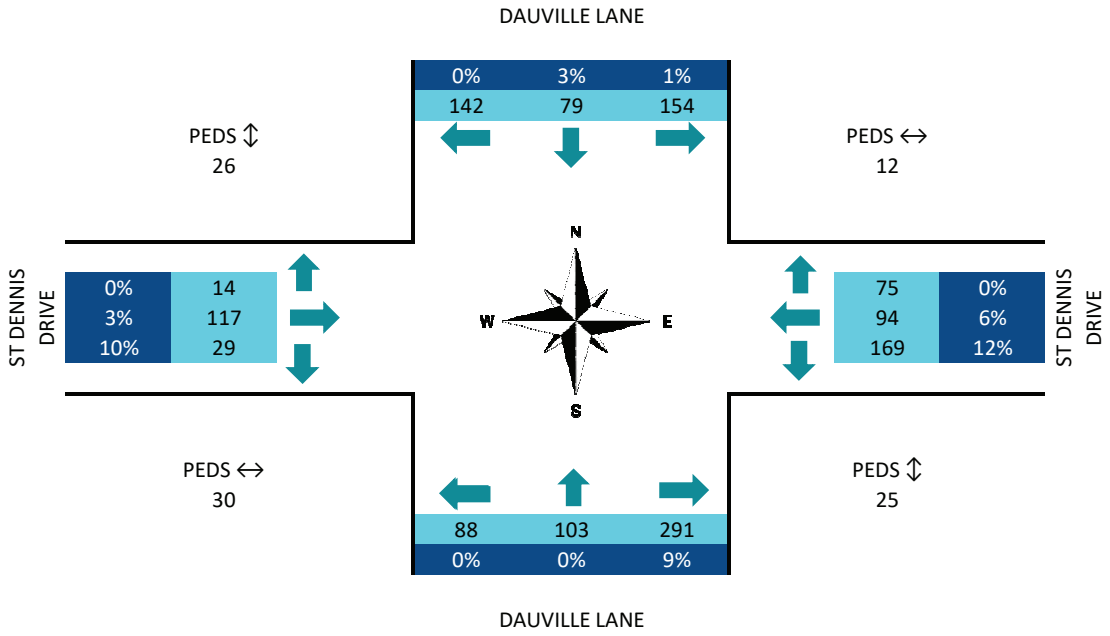
AM AND PM PEAK HOUR DIAGRAMS

SOURCE	CITY OF TORONTO		**AM PEAK HOUR**		**PM PEAK HOUR**
INTERSECTION	DEAUVILLE LANE AT ST DENNIS DR (PX 2522)		FROM	08:00	FROM 16:45
COUNT DATE	Wednesday, December 12, 2018		TO	09:00	TO 17:45
N-S Street	DAUVILLE LANE	**E-W Street**	ST DENNIS DRIVE		TOTAL VEHICLES / HEAVY VEHICLE %

AM PEAK HOUR



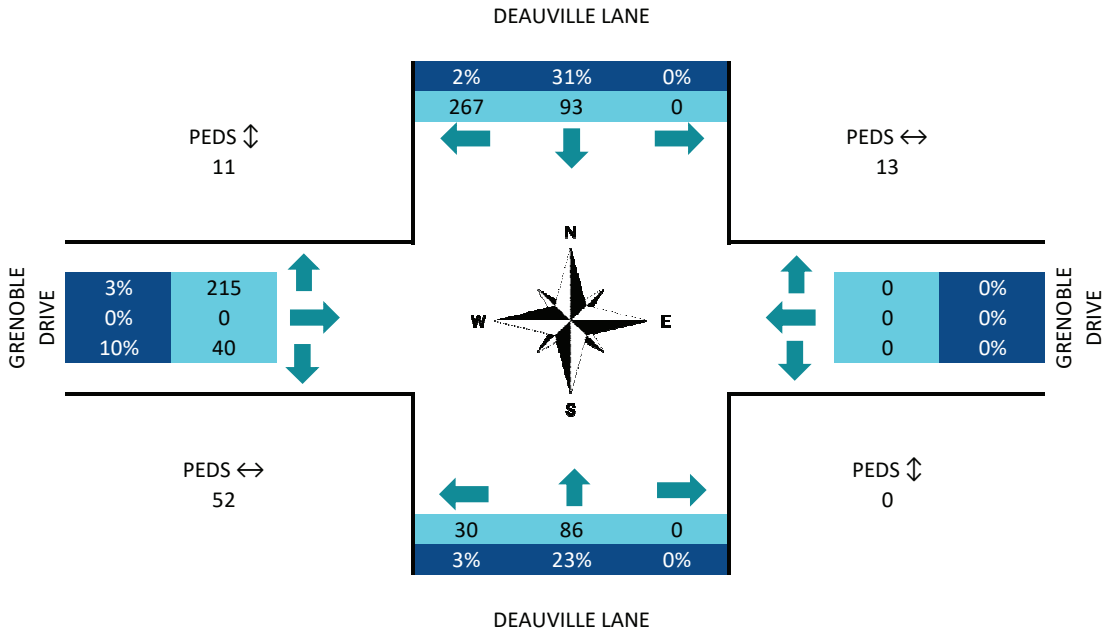
PM PEAK HOUR



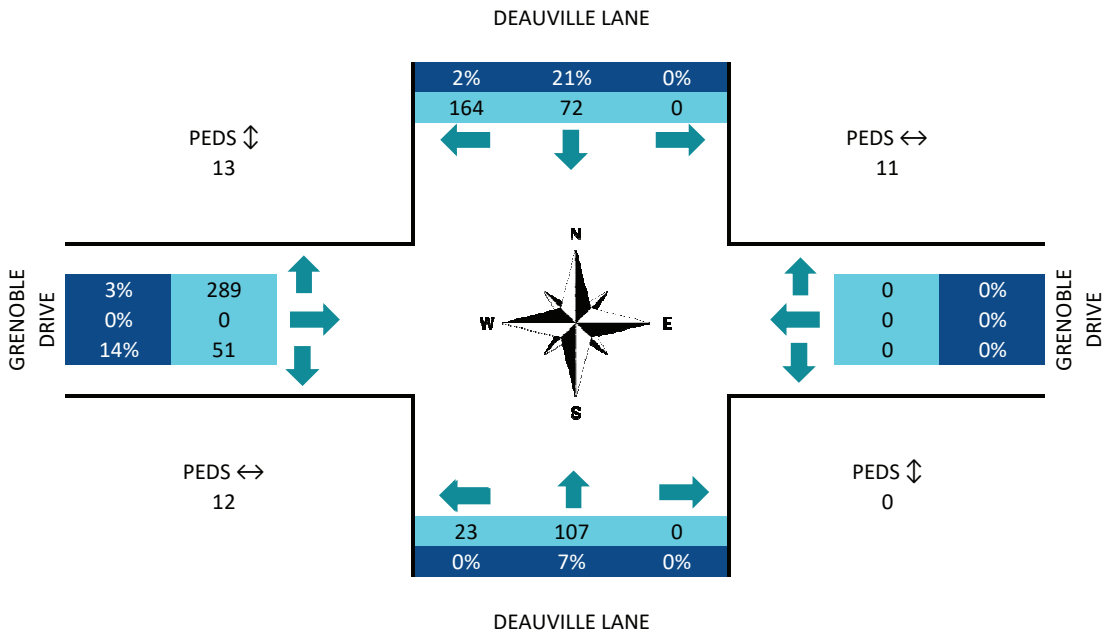
AM AND PM PEAK HOUR DIAGRAMS

SOURCE	CITY OF TORONTO		**AM PEAK HOUR**		**PM PEAK HOUR**
INTERSECTION	DEAUVILLE LANE AT GRENOBLE DR		FROM	08:00	FROM 16:30
COUNT DATE	Wednesday, December 05, 2018		TO	09:00	TO 17:30
N-S Street	DEAUVILLE LANE	**E-W Street**	GRENOBLE DRIVE		TOTAL VEHICLES / HEAVY VEHICLE %

AM PEAK HOUR



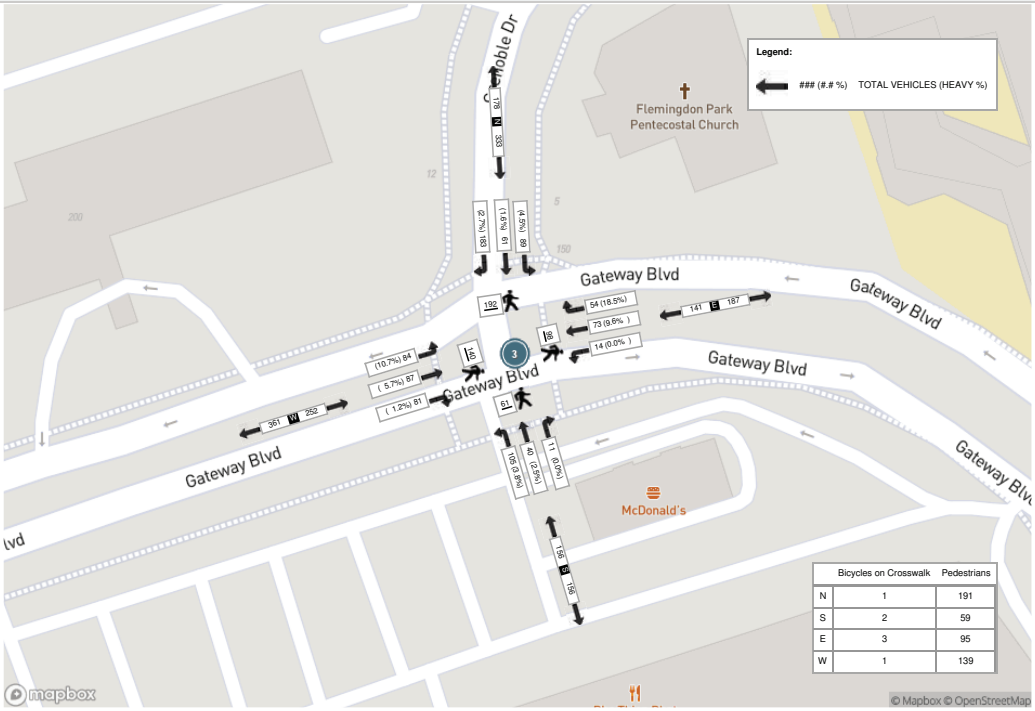
PM PEAK HOUR



Spectrum

Turning Movement Count
Location Name: GATEWAY BLVD & GRENOBLE DR
Date: Thu, Nov 05, 2015 Deployment Lead: Theo Daglis

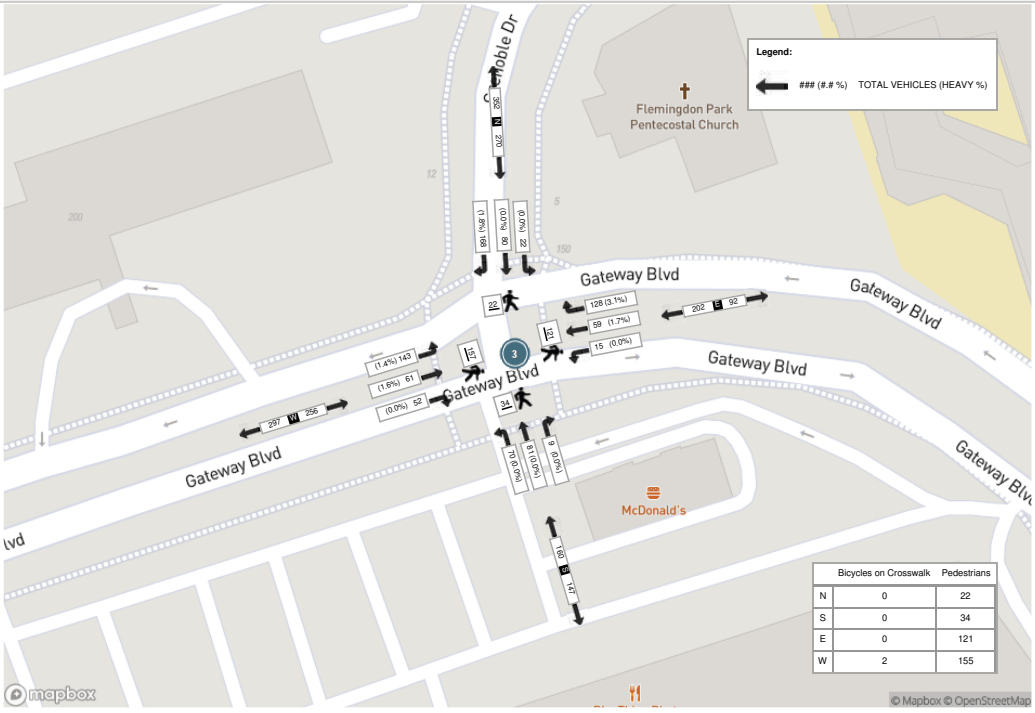
Peak Hour: 08:00 AM - 09:00 AM **Weather:**



	Bicycles on Crosswalk	Pedestrians
N	1	191
S	2	59
E	3	95
W	1	139

Turning Movement Count
Location Name: GATEWAY BLVD & GRENOBLE DR
Date: Thu, Nov 05, 2015 Deployment Lead: Theo Daglis

Peak Hour: 04:45 PM - 05:45 PM **Weather:**



	Bicycles on Crosswalk	Pedestrians
N	0	22
S	0	34
E	0	121
W	2	155

LOCATION:	**St Dennis Dr & Deauville Lane**	*DISTRICT:*	**Toronto and East York**
TCS:	**2522 (Formerly TCS#3002)**	*COMPUTER SYSTEM:*	**TransSuite**
MODE/COMMENT:	**SAP with LPI & WRM**	*CONTROLLER/CABINET TYPE:*	**Econolite ASC/3-2100 / TS2T1**
PREPARED BY/DATE:	**Akshay Salwan / August 4, 2020**	*CONFLICT FLASH:*	**Red & Red**
CHECKED BY/ DATE	**Masoud Ramezani / August 6, 2020**	*DESIGN WALK SPEED:*	**1.0 m/s** (FDW based on full crossing at 1.2 m/s)
IMPLEMENTATION DATE:	**August 10, 2020**	*CHANNEL/DROP:*	**4093/2**

N

NEMA Phase		TP1 Patrn 1-3 & Backup Free	OFF All Other Times	AM 06:30-10:00 M-F	PM 15:00-19:00 M-F	NGHT 22:00-06:30 Daily	WKND 10:00-19:00 Sat & Sun	Phase Mode (Fixed/Demanded/Callable)	Remarks
	Local Plan		Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	System Plan		Plan 1	Plan 2	Plan 3	Plan 4	Plan 5		
1 NOT USED	WLK								Pedestrian Minimums: EWWK = 12 secs; EWFD = 16 secs NSWK = 12 secs; NSFD = 15 secs
	FDW								NS phase is callable by vehicle or pedestrian actuation. If a vehicle and/or pedestrian call is received, the maximum NSG is served. The NSWK & NSFD are displayed on the pedestrian signal heads if a vehicle and/or pedestrian call is received.
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
2 St Dennis Dr	DLY GRN	5						Fixed	
	WLK	12							Side Street Passage Time = 3 sec.
	WLK MAX	14							
	FDW	16						Split shown includes 5 sec of EW LPI	Leading Pedestrian Interval - EWWK and NSWK comes up 5 seconds before vehicle
	MIN	23							
	MAX1	25							
	AMB	3.0							
	ALR	3.0							
	SPLIT		0	0	0	0	0		
3 NOT USED									
4 Deauville Lane	DLY GRN	5						Callable by stopbar loop and/or pushbutton	
	WLK	12							
	FDW	15							
	MIN	22							
	MAX1	22						Split shown includes 5 sec of NS LPI	
	AMB	3.0							
	ALR	3.2							
	SPLIT		0	0	0	0	0		
5 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
6 St Dennis Dr	DLY GRN	5						Fixed	
	WLK	12							
	WLK MAX	14							
	FDW	16						Split shown includes 5 sec of EW LPI	
	MIN	23							
	MAX1	25							
	AMB	3.0							
	ALR	3.0							
	SPLIT		0	0	0	0	0		
7 NOT USED	WLK								
	FDW								
	MIN								
	MAX1								
	AMB								
	ALR								
	SPLIT								
8 Deauville Lane	DLY GRN	5						Callable by stopbar loop and/or pushbutton	
	WLK	12							
	FDW	15							
	MIN	22							
	MAX1	22						Split shown includes 5 sec of NS LPI	
	AMB	3.0							
	ALR	3.2							
	SPLIT		0	0	0	0	0		
	CL		70 (58-70)	70 (58-70)	70 (58-70)	70 (58-70)	70 (58-70)		
	OF		0	0	0				

NOTES: Picked up on TransSuite on Aug 28, 2013 at 9:22

LOCATION:	**Gateway Blvd & Private Acc/Grenoble Dr (N. Access)**	*ATO / DISTRICT / WARD:*	**Area 1 / Toronto and East York / Ward 16**
PX:	**1974**	*COMPUTER SYSTEM:*	**TransSuite**
MODE/COMMENT:	**FT and LPI**	*CONTROLLER/CABINET TYPE:*	**Econolite ASC/3 1000 / TS2T1**
PREPARED BY/DATE:	***CIMA+* /October 2, 2019**	*CONFLICT FLASH:*	**Red & Red**
CHECKED BY/DATE:	**Ranajamil Iftikhar/Ameneh Dialameh/October 15, 2019**	*DESIGN WALK SPEED:*	**1.0 m/s** (FDW based on full crossing at 1.2 m/s)
IMPLEMENTATION DATE:	**October 23, 2019**	*CHANNEL/DROP:*	**4093/1**
		CONTROLLER FIRMWARE:	

N

NEMA Phase		OFF All Other Times	AM 06:45-09:30 M-F	PM 15:15-18:45 M-F	Phase Mode (Fixed/Demanded/Callable)	Remarks
	System Plan	1	2	3		
	Local Plan	Pattern 1	Pattern 2	Pattern 3		
1 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					Pedestrian Minimums: EWWK = 7 secs; EWFD = 16 secs NSWK = 12 secs; NSFD = 22 secs NS Leading Pedestrian Interval - NSWK comes up 5 seconds before NS vehicle green.
2 Gateway Blvd	WLK 7 FDW 16 MIN 23 MAX1 23 AMB 3.0 ALR 3.6 SPLIT	30	30	30	Fixed	
3 NOT USED						
4 Private Acc	DLY GRN 5 WLK 12 FDW 22 MIN 34 MAX1 34 AMB 3.0 ALR 2.7 SPLIT	40	40	40	Fixed Split shown includes 5 sec of NS LPI	
5 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					
6 Gateway Blvd	WLK 7 FDW 16 MIN 23 MAX1 23 AMB 3.0 ALR 3.6 SPLIT	30	30	30	Fixed	
7 NOT USED	WLK FDW MIN MAX1 AMB ALR SPLIT					
8 Grenoble Dr (N. Access)	DLY GRN 5 WLK 12 FDW 22 MIN 34 MAX1 34 AMB 3.0 ALR 2.7 SPLIT	40	40	40	Fixed Split shown includes 5 sec of NS LPI	
	CL OF	70 1	70 1	70 1		

NOTES:

Picked Up on TransSuite on May 27, 2013 at 14:42 p.m

BURNSIDE

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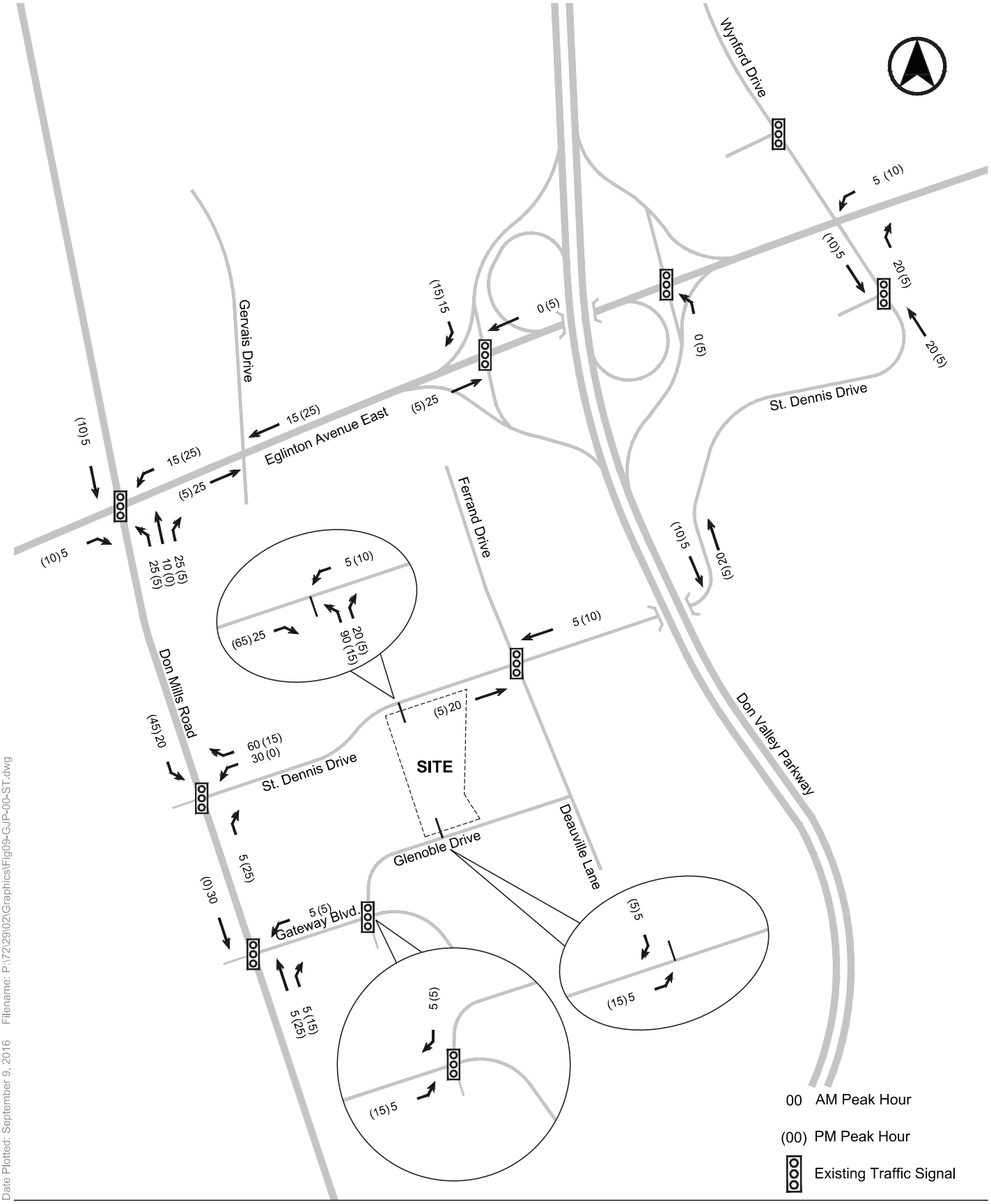
Appendix C

Background Development Traffic



Date Plotted: September 9, 2016 Filename: P:\72\29\02\Graphics\Fig09-GJP-00-ST.dwg

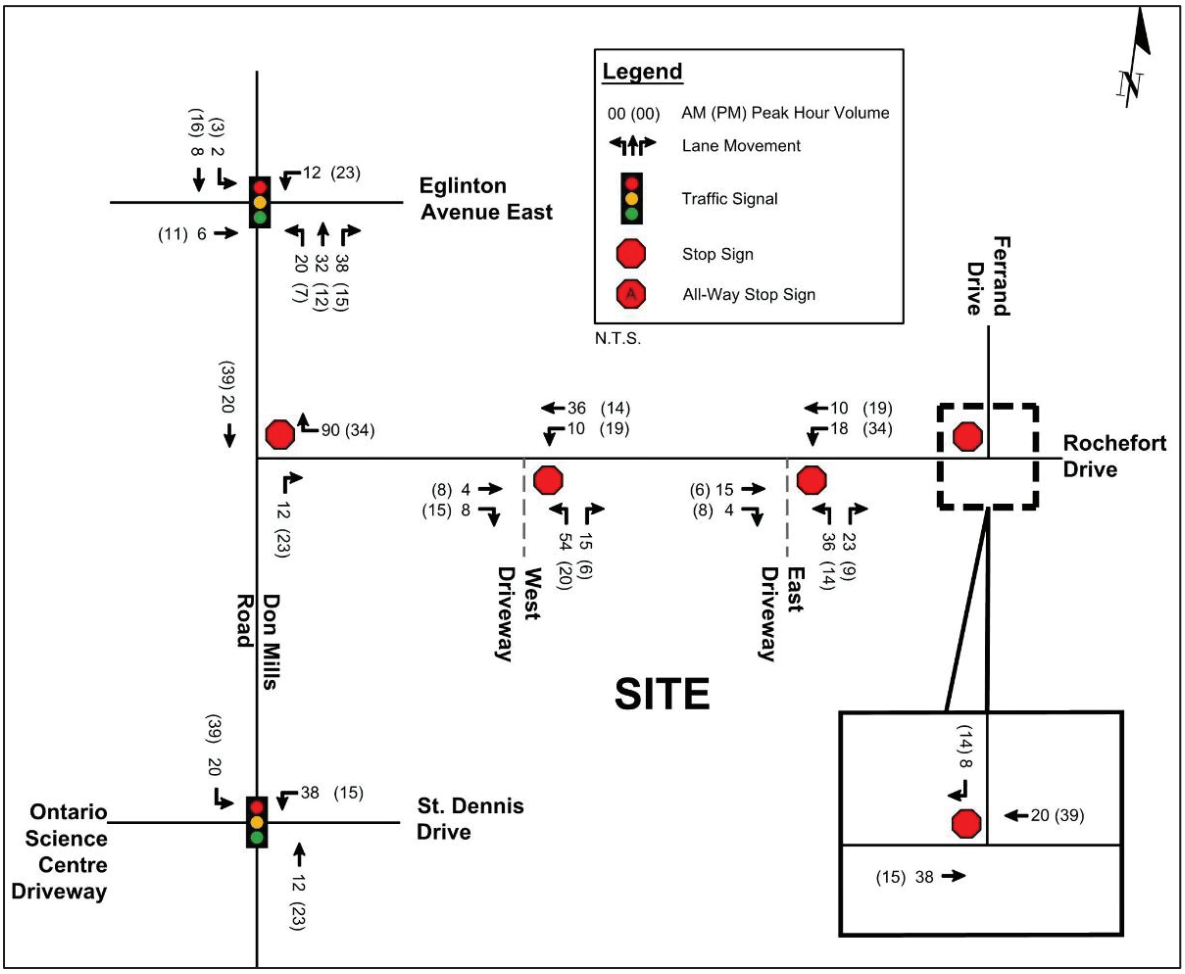
SITE TRAFFIC VOLUMES

BA Group

25 St. Dennis Drive
7229-02 September 2016

Figure 11

Figure 11: Site Generated Vehicle Traffic



5.0 Total Traffic Conditions

Total traffic volumes consist of background traffic for the horizon year 2027 plus the site traffic illustrated in Figure 11. The resulting 2027 total traffic volumes are shown in Figure 12.

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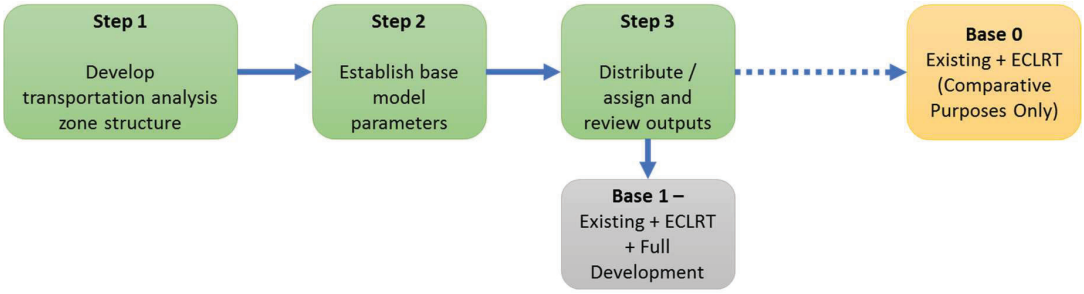
Appendix D

Don Mills Crossing Study Excerpts



1.3 Analysis Process and Multi-Modal Approach

The analysis process followed a similar methodology to a typical 4-step transportation demand model. It includes, 4 basic steps, trip generation, distribution, modal split and trip assignment.

In the localized sub-area context, mode splits would be more based on the development characteristics, including population demographics, facilities available, and directness of travel paths. As a result, modal split behavior would be an input, that could be calculated separately per development block depending on the development layout and characteristics in relation to overall regional characteristics.

Thus, the proposed sub-area analysis follows 3 simple steps as shown in **Exhibit 1-2**.

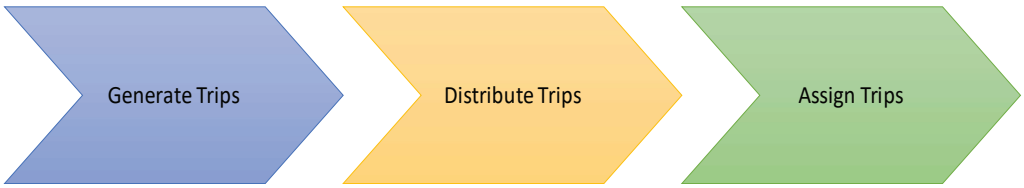


Exhibit 1-2 Analytical Process

1.4 Generate Trips

To remain consistent with other works completed for developments in the area, particularly the Wynford Green Transportation study, the trip generation rates used by their study were reviewed. The first principles approach was considered acceptable in reflecting actual travel demands within the local area and as such, adopted for use in this study.

1.4.1 Residential

Residential trip generation was calculated based on the total number of residents in the TTS zones within the study area, and the total number of trips to and from the zones in AM/PM peak hours. Results and the rate used to develop total trips per resident in the peak hour is shown below. This was used for both existing and future residential developments.

Period	Trips Per Resident
AM Rate	0.204
PM Rate	0.152

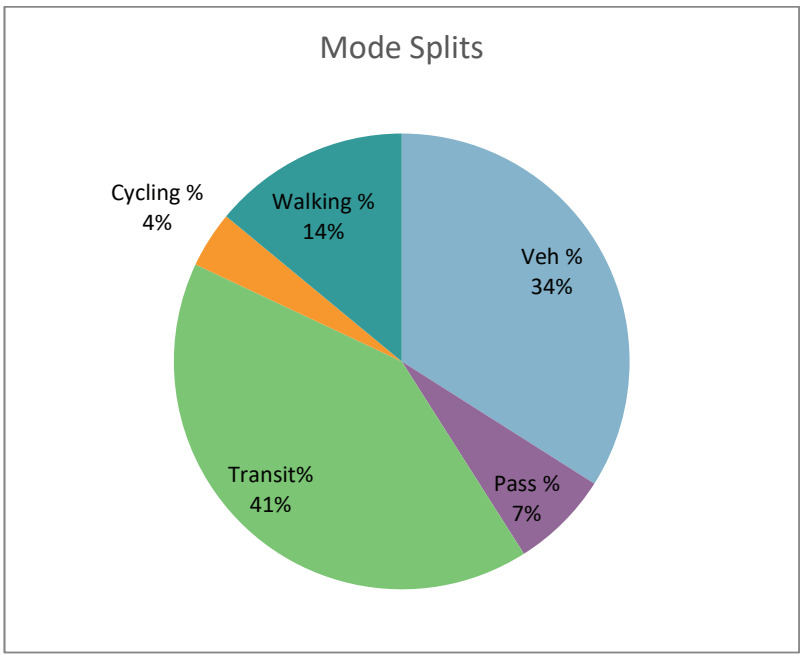


Exhibit 1-3: Eglinton Connects Surveyed Mode Splits

However, given the location of the study area, and nearby attractors and generators, the proposed walking and cycling mode shares are likely different for each development block, as well as for internal short distance trips and longer trips outside of the study area. As such, a comprehensive review of each zone was conducted, and assumptions for the mode split in each block was made based on the following factors:

- Proximity to transit station
- Amenities or proposed amenities to promote active and transit use
- Potential for mode share changes based on travel demand management programs

The proposed mode share for each development block and land-use/purpose is shown in **Attachment 1** to this Appendix. Note that these mode splits show potential scenarios where different mobility strategies are effective in adjusting the development mode shares, however major transit improvements would be required to significantly change it further. Additional testing and calculations of diversions are provided in **Appendix L**.

1.5 Distribute Trips

In a typical demand model, there are four trip origins and destination sets that need to be assessed as shown in **Exhibit 1-4**.

Household size is decreasing less in mid/high-rise units and houses and low-rise units: Households in mid/high-rise apartments declined less (0.16) than in row and townhouses (0.30). Households in houses and low-rise units have declined the least, by 0.10 persons per household. There was no change in the average household size of houses and low-rises between 2011 and 2016 (see Figure 39 on page 35).

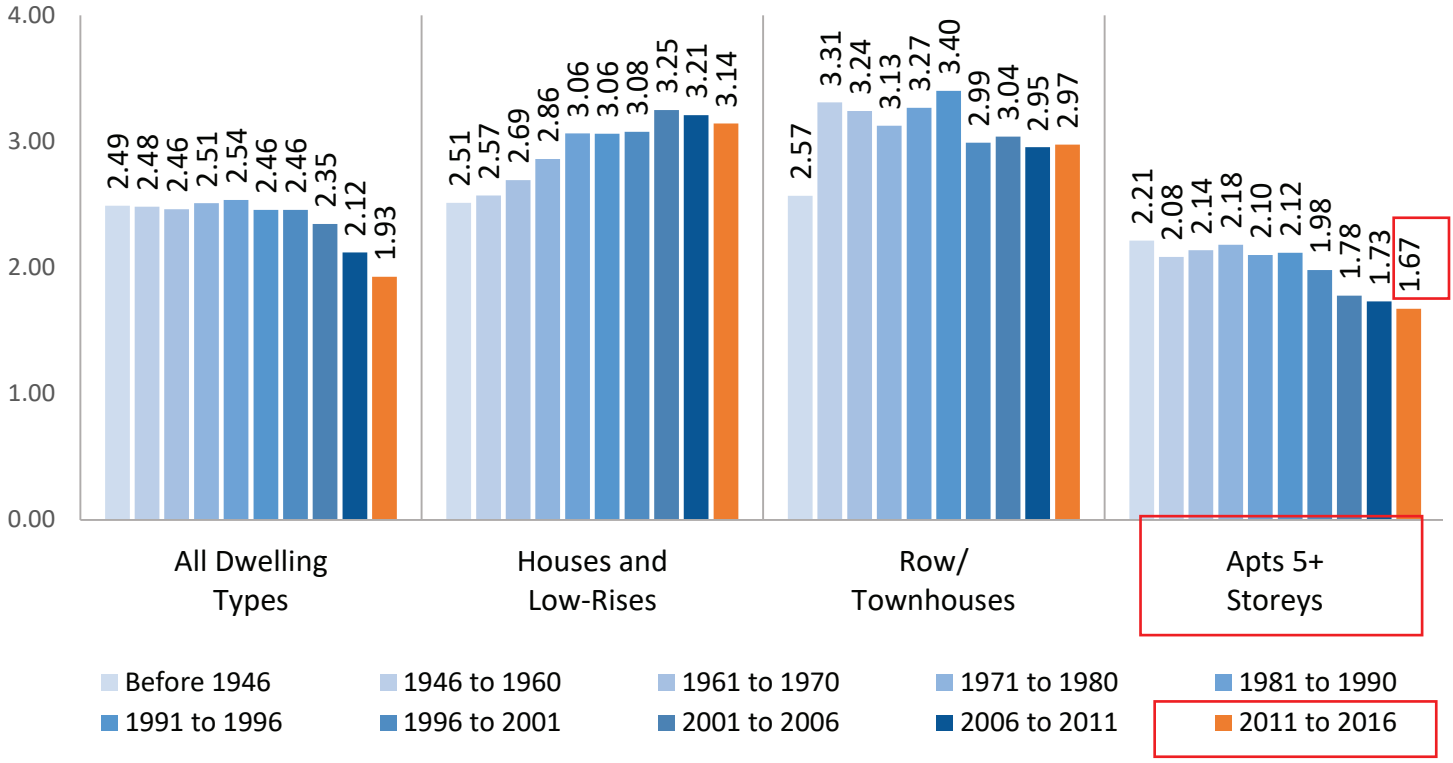
PPH by Period of Construction

The characteristics of those who occupy recently-built units and those who occupy older dwelling units are very different. When a large number of units of a given type are built, any resulting changes in their occupancy rates can have a significant impact on the overall trends. Table 9 in Appendix E: Number of Dwellings by Period of Construction and Dwelling Type shows that large numbers of mid/high-rise units were built between the 1960s and 1980s as well as in recent years, and that large numbers of houses and low-rise units were built between 1946 and 1960. Any trends in PPH for those periods of construction and dwelling types will therefore have a greater impact on the PPH of the city as a whole.

The following sections analyse the average PPH rates by different periods of construction by dwelling type, household type, and number of bedrooms.

More recently-built dwellings have on average smaller household sizes: The decline in average household size is particularly notable in apartments of five or more storeys where the average person per household rate for dwellings constructed between 2011 and 2016 was 1.67 persons (see Figure 40).

Figure 40: Average Number of Persons per Household by Dwelling Type and Period of Construction, 2016



BURNSIDE

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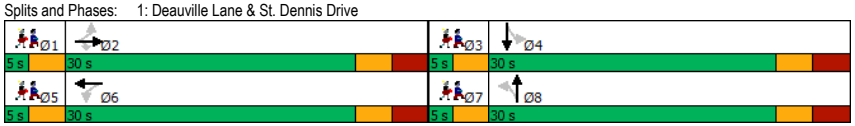
Appendix E

Existing Traffic Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	35	65	40	215	135	41	55	31	72			
Future Volume (vph)	35	65	40	215	135	41	55	31	72			
Lane Group Flow (vph)	38	70	43	231	358	0	286	0	155			
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA			
Protected Phases		2			6		8		4	1	3	5
Permitted Phases	2		2	6		8		4				
Detector Phase	2	2	2	6	6	8	8	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	28.2	28.2	28.2	28.2	5.0	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	7%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.2	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.2		6.2			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	None	None	None
v/c Ratio	0.14	0.12	0.08	0.68	0.59		0.43		0.22			
Control Delay	13.2	12.3	0.3	26.3	14.0		8.9		10.0			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	13.2	12.3	0.3	26.3	14.0		8.9		10.0			
Queue Length 50th (m)	2.5	4.6	0.0	18.8	18.2		8.8		7.0			
Queue Length 95th (m)	7.6	11.0	0.0	38.4	38.1		27.9		19.2			
Internal Link Dist (m)		134.3			138.2		183.9		23.5			
Turn Bay Length (m)	28.0		10.0	32.0								
Base Capacity (vph)	378	838	661	469	790		659		705			
Starvation Cap Reductn	0	0	0	0	0		0		0			
Spillback Cap Reductn	0	0	0	0	0		0		0			
Storage Cap Reductn	0	0	0	0	0		0		0			
Reduced v/c Ratio	0.10	0.08	0.07	0.49	0.45		0.43		0.22			

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 54
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Deauville Lane & St. Dennis Drive



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	2.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Deauville Lane & St. Dennis Drive

Ex. AM
Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	65	40	215	135	198	41	55	170	31	72	42
Future Volume (vph)	35	65	40	215	135	198	41	55	170	31	72	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.87	1.00	0.96			0.93			0.98	
Flpb, ped/bikes	0.97	1.00	1.00	0.90	1.00			0.99			0.99	
Frt	1.00	1.00	0.85	1.00	0.91			0.91			0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1773	1865	1349	1447	1631			1417			1719	
Flt Permitted	0.45	1.00	1.00	0.71	1.00			0.94			0.90	
Satd. Flow (perm)	846	1865	1349	1083	1631			1336			1555	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	70	43	231	145	213	44	59	183	33	77	45
RTOR Reduction (vph)	0	0	29	0	77	0	0	76	0	0	18	0
Lane Group Flow (vph)	38	70	14	231	281	0	0	210	0	0	137	0
Confl. Peds. (#/hr)	43		98	98		43	45		79	79		45
Heavy Vehicles (%)	0%	3%	5%	13%	7%	0%	5%	4%	18%	0%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	17.6	17.6	17.6	17.6	17.6			24.1			24.1	
Effective Green, g (s)	17.6	17.6	17.6	17.6	17.6			24.1			24.1	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33			0.45			0.45	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	276	608	440	353	532			597			695	
v/s Ratio Prot		0.04			0.17							
v/s Ratio Perm	0.04		0.01	c0.21				c0.16			0.09	
v/c Ratio	0.14	0.12	0.03	0.65	0.53			0.35			0.20	
Uniform Delay, d1	12.8	12.7	12.4	15.5	14.8			9.8			9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	0.1	0.0	4.3	0.9			1.6			0.6	
Delay (s)	13.0	12.8	12.4	19.9	15.7			11.4			9.7	
Level of Service	B	B	B	B	B			B			A	
Approach Delay (s)		12.7			17.3			11.4			9.7	
Approach LOS		B			B			B			A	

Intersection Summary				
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	64.2%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Grenoble Drive & Deauville Lane

Ex. AM
Baseline

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	215	40	30	86	93	267
Future Volume (vph)	215	40	30	86	93	267
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	256	48	36	102	111	318

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	256	48	138	111	318
Volume Left (vph)	256	0	36	0	0
Volume Right (vph)	0	48	0	0	318
Hadj (s)	0.25	-0.43	0.35	0.53	-0.57
Departure Headway (s)	4.8	3.2	5.1	5.3	3.2
Degree Utilization, x	0.34	0.04	0.19	0.16	0.28
Capacity (veh/h)	717	1121	670	640	1112
Control Delay (s)	10.3	6.3	9.3	9.3	7.5
Approach Delay (s)	9.7		9.3	7.9	
Approach LOS	A		A	A	

Intersection Summary				
Delay	8.8			
Level of Service	A			
Intersection Capacity Utilization	32.6%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	215	40	30	86	93	267
Future Vol, veh/h	215	40	30	86	93	267
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	10	3	23	31	2
Mvmt Flow	256	48	36	102	111	318
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	13.8	10.7	11.4
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	26%	100%	0%	0%	0%
Vol Thru, %	74%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	215	40	93	267
LT Vol	30	215	0	0	0
Through Vol	86	0	0	93	0
RT Vol	0	0	40	0	267
Lane Flow Rate	138	256	48	111	318
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.228	0.463	0.072	0.192	0.445
Departure Headway (Hd)	5.943	6.516	5.425	6.245	5.039
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	605	553	661	578	718
Service Time	3.974	4.242	3.15	3.945	2.739
HCM Lane V/C Ratio	0.228	0.463	0.073	0.192	0.443
HCM Control Delay	10.7	14.8	8.6	10.4	11.7
HCM Lane LOS	B	B	A	B	B
HCM 95th-tile Q	0.9	2.4	0.2	0.7	2.3

Timings
4: Commercial Driveway/Grenoble Drive & Gateway Boulevard

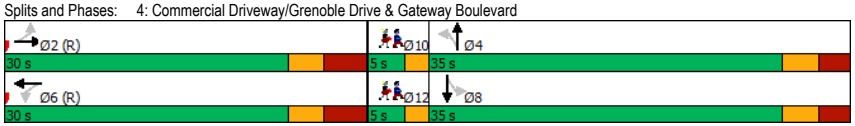
Ex. AM
Baseline

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø10	Ø12
Lane Configurations										
Traffic Volume (vph)	84	87	14	73	105	40	89	61		
Future Volume (vph)	84	87	14	73	105	40	89	61		
Lane Group Flow (vph)	88	175	0	147	0	162	0	348		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		2		6		4		8	10	12
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	4	8	8		
Switch Phase										
Minimum Initial (s)	23.0	23.0	23.0	23.0	5.0	5.0	5.0	5.0	1.0	1.5
Minimum Split (s)	29.6	29.6	29.6	29.6	34.7	34.7	34.7	34.7	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	50.0%	50.0%	50.0%	50.0%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
All-Red Time (s)	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)	6.6	6.6		6.6		5.7		5.7		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.27	0.30		0.30		0.36		0.57		
Control Delay	20.0	12.0		13.8		16.2		14.8		
Queue Delay	0.0	0.0		0.0		0.0		0.0		
Total Delay	20.0	12.0		13.8		16.2		14.8		
Queue Length 50th (m)	8.3	9.5		9.2		13.4		22.1		
Queue Length 95th (m)	18.9	22.7		21.9		27.2		46.2		
Internal Link Dist (m)		135.0		25.7		14.9		38.5		
Turn Bay Length (m)	48.0									
Base Capacity (vph)	322	591		483		453		611		
Starvation Cap Reductn	0	0		0		0		0		
Spillback Cap Reductn	0	0		0		0		0		
Storage Cap Reductn	0	0		0		0		0		
Reduced v/c Ratio	0.27	0.30		0.30		0.36		0.57		

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Pretimed

Splits and Phases: 4: Commercial Driveway/Grenoble Drive & Gateway Boulevard



HCM Signalized Intersection Capacity Analysis
4: Commercial Driveway/Grenoble Drive & Gateway Boulevard

Ex. AM
Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	87	81	14	73	54	105	40	11	89	61	183
Future Volume (vph)	84	87	81	14	73	54	105	40	11	89	61	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.95			0.88			0.99			0.90	
Flpb, ped/bikes	0.76	1.00			0.99			0.94			0.98	
Frt	1.00	0.93			0.95			0.99			0.93	
Flt Protected	0.95	1.00			0.99			0.97			0.99	
Satd. Flow (prot)	1257	1629			1396			1653			1488	
Flt Permitted	0.73	1.00			0.96			0.63			0.87	
Satd. Flow (perm)	966	1629			1350			1075			1310	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	88	91	84	15	76	56	109	42	11	93	64	191
RTOR Reduction (vph)	0	47	0	0	32	0	0	3	0	0	63	0
Lane Group Flow (vph)	88	128	0	0	115	0	0	159	0	0	285	0
Confl. Peds. (#/hr)	192		61	61		192	140		98	98		140
Heavy Vehicles (%)	11%	6%	1%	14%	10%	19%	4%	3%	0%	5%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.4	23.4			23.4			29.3			29.3	
Effective Green, g (s)	23.4	23.4			23.4			29.3			29.3	
Actuated g/C Ratio	0.33	0.33			0.33			0.42			0.42	
Clearance Time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Grp Cap (vph)	322	544			451			449			548	
v/s Ratio Prot		0.08										
v/s Ratio Perm	c0.09				0.09			0.15			c0.22	
v/c Ratio	0.27	0.23			0.26			0.35			0.52	
Uniform Delay, d1	17.1	16.8			17.0			13.9			15.1	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.1	1.0			1.4			2.2			3.5	
Delay (s)	19.2	17.8			18.3			16.1			18.6	
Level of Service	B	B			B			B			B	
Approach Delay (s)		18.3			18.3			16.1			18.6	
Approach LOS		B			B			B			B	

Intersection Summary

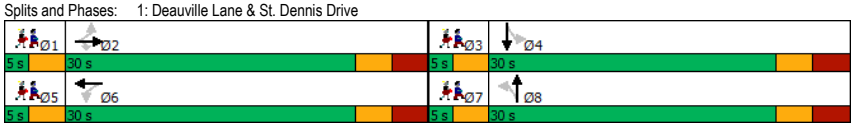
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.3	
Intersection Capacity Utilization	62.5%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	14	117	29	169	94	88	103	154	79			
Future Volume (vph)	14	117	29	169	94	88	103	154	79			
Lane Group Flow (vph)	15	122	30	176	176	0	502	0	390			
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA			
Protected Phases		2			6		8		4	1	3	5
Permitted Phases	2		2	6		8		4				
Detector Phase	2	2	2	6	6	8	8	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	28.2	28.2	28.2	28.2	5.0	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	7%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.2	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.2		6.2			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	None	None	None
v/c Ratio	0.05	0.25	0.06	0.59	0.35		0.68		0.65			
Control Delay	12.6	14.8	0.3	24.3	11.3		15.5		17.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	12.6	14.8	0.3	24.3	11.3		15.5		17.7			
Queue Length 50th (m)	1.0	8.3	0.0	13.2	7.7		21.6		19.5			
Queue Length 95th (m)	3.9	17.3	0.0	27.7	18.8		#81.3		#71.0			
Internal Link Dist (m)		134.3			138.2		183.9		23.5			
Turn Bay Length (m)	28.0		10.0	32.0								
Base Capacity (vph)	583	890	737	534	847		738		596			
Starvation Cap Reductn	0	0	0	0	0		0		0			
Spillback Cap Reductn	0	0	0	0	0		0		0			
Storage Cap Reductn	0	0	0	0	0		0		0			
Reduced v/c Ratio	0.03	0.14	0.04	0.33	0.21		0.68		0.65			

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 50.5
Natural Cycle: 75
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Deauville Lane & St. Dennis Drive



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	2.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: Deauville Lane & St. Dennis Drive

Ex. PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	117	29	169	94	75	88	103	291	154	79	142
Future Volume (vph)	14	117	29	169	94	75	88	103	291	154	79	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99			0.97			0.98	
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00			1.00			0.99	
Frt	1.00	1.00	0.85	1.00	0.93			0.92			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1806	1865	1407	1584	1710			1605			1725	
Flt Permitted	0.65	1.00	1.00	0.68	1.00			0.86			0.66	
Satd. Flow (perm)	1229	1865	1407	1132	1710			1387			1167	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	15	122	30	176	98	78	92	107	303	160	82	148
RTOR Reduction (vph)	0	0	22	0	46	0	0	60	0	0	24	0
Lane Group Flow (vph)	15	122	8	176	130	0	0	442	0	0	366	0
Confl. Peds. (#/hr)	12		30	30		12	26		25	25		26
Heavy Vehicles (%)	0%	3%	10%	12%	6%	0%	0%	0%	9%	1%	3%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	13.4	13.4	13.4	13.4	13.4			24.9			24.9	
Effective Green, g (s)	13.4	13.4	13.4	13.4	13.4			24.9			24.9	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27			0.49			0.49	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	326	494	373	300	453			683			575	
v/s Ratio Prot		0.07			0.08							
v/s Ratio Perm	0.01		0.01	c0.16				c0.32			0.31	
v/c Ratio	0.05	0.25	0.02	0.59	0.29			0.65			0.64	
Uniform Delay, d1	13.8	14.6	13.7	16.1	14.8			9.5			9.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.3	0.0	2.9	0.4			4.7			5.3	
Delay (s)	13.9	14.8	13.7	19.1	15.1			14.2			14.7	
Level of Service	B	B	B	B	B			B			B	
Approach Delay (s)		14.6			17.1			14.2			14.7	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	70.5%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
3: Grenoble Drive & Deauville Lane

Ex. PM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	289	51	23	107	72	164
Future Volume (vph)	289	51	23	107	72	164
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	311	55	25	115	77	176

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	311	55	140	77	176
Volume Left (vph)	311	0	25	0	0
Volume Right (vph)	0	55	0	0	176
Hadj (s)	0.25	-0.36	0.13	0.36	-0.57
Departure Headway (s)	4.7	3.2	4.9	5.2	3.2
Degree Utilization, x	0.41	0.05	0.19	0.11	0.16
Capacity (veh/h)	737	1121	684	637	1121
Control Delay (s)	10.9	6.4	9.1	8.9	6.8
Approach Delay (s)	10.2		9.1	7.4	
Approach LOS	B		A	A	

Intersection Summary			
Delay	9.1		
Level of Service	A		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	289	51	23	107	72	164
Future Vol, veh/h	289	51	23	107	72	164
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	14	0	7	21	2
Mvmt Flow	311	55	25	115	77	176
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	14.2	10.5	9.6
HCM LOS	B	B	A

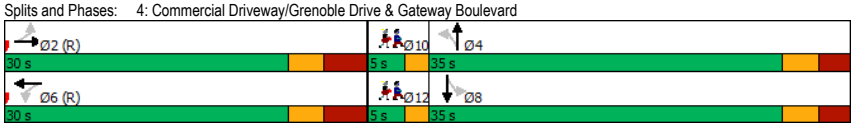
Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	18%	100%	0%	0%	0%
Vol Thru, %	82%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	289	51	72	164
LT Vol	23	289	0	0	0
Through Vol	107	0	0	72	0
RT Vol	0	0	51	0	164
Lane Flow Rate	140	311	55	77	176
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.222	0.521	0.076	0.131	0.248
Departure Headway (Hd)	5.713	6.032	5.012	6.105	5.071
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	622	594	706	583	700
Service Time	3.808	3.828	2.808	3.891	2.856
HCM Lane V/C Ratio	0.225	0.524	0.078	0.132	0.251
HCM Control Delay	10.5	15.3	8.2	9.8	9.5
HCM Lane LOS	B	C	A	A	A
HCM 95th-tile Q	0.8	3	0.2	0.4	1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø10	Ø12
Lane Configurations										
Traffic Volume (vph)	143	61	15	59	70	81	22	80		
Future Volume (vph)	143	61	15	59	70	81	22	80		
Lane Group Flow (vph)	159	126	0	225	0	178	0	300		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		2		6		4		8	10	12
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	4	8	8		
Switch Phase										
Minimum Initial (s)	23.0	23.0	23.0	23.0	5.0	5.0	5.0	5.0	1.0	1.5
Minimum Split (s)	29.6	29.6	29.6	29.6	34.7	34.7	34.7	34.7	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	50.0%	50.0%	50.0%	50.0%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
All-Red Time (s)	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)	6.6	6.6		6.6		5.7		5.7		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.41	0.21		0.36		0.30		0.43		
Control Delay	22.1	10.7		9.5		15.0		9.4		
Queue Delay	0.0	0.0		0.0		0.0		0.0		
Total Delay	22.1	10.7		9.5		15.0		9.4		
Queue Length 50th (m)	15.8	6.1		8.5		14.5		12.6		
Queue Length 95th (m)	31.3	16.6		23.3		27.7		30.1		
Internal Link Dist (m)		135.0		25.7		14.9		38.5		
Turn Bay Length (m)	48.0									
Base Capacity (vph)	384	610		626		587		694		
Starvation Cap Reductn	0	0		0		0		0		
Spillback Cap Reductn	0	0		0		0		0		
Storage Cap Reductn	0	0		0		0		0		
Reduced v/c Ratio	0.41	0.21		0.36		0.30		0.43		

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Pretimed

Splits and Phases: 4: Commercial Driveway/Grenoble Drive & Gateway Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	61	52	15	59	128	70	81	9	22	80	168
Future Volume (vph)	143	61	52	15	59	128	70	81	9	22	80	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.97			0.97			0.99			0.87	
Flpb, ped/bikes	0.98	1.00			1.00			0.95			0.99	
Frt	1.00	0.93			0.91			0.99			0.92	
Flt Protected	0.95	1.00			1.00			0.98			1.00	
Satd. Flow (prot)	1766	1712			1646			1756			1496	
Flt Permitted	0.62	1.00			0.97			0.78			0.97	
Satd. Flow (perm)	1150	1712			1609			1395			1456	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	68	58	17	66	142	78	90	10	24	89	187
RTOR Reduction (vph)	0	39	0	0	88	0	0	3	0	0	85	0
Lane Group Flow (vph)	159	87	0	0	137	0	0	175	0	0	215	0
Confl. Peds. (#/hr)	22		34	34		22	157		121	121		157
Heavy Vehicles (%)	1%	2%	0%	0%	2%	3%	0%	0%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.4	23.4			23.4			29.3			29.3	
Effective Green, g (s)	23.4	23.4			23.4			29.3			29.3	
Actuated g/C Ratio	0.33	0.33			0.33			0.42			0.42	
Clearance Time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Grp Cap (vph)	384	572			537			583			609	
v/s Ratio Prot		0.05										
v/s Ratio Perm	c0.14				0.09			0.13			c0.15	
v/c Ratio	0.41	0.15			0.26			0.30			0.35	
Uniform Delay, d1	18.0	16.3			17.0			13.5			13.9	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	3.3	0.6			1.1			1.3			1.6	
Delay (s)	21.3	16.9			18.1			14.9			15.5	
Level of Service	C	B			B			B			B	
Approach Delay (s)		19.3			18.1			14.9			15.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.3	
Intersection Capacity Utilization	82.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

BURNSIDE

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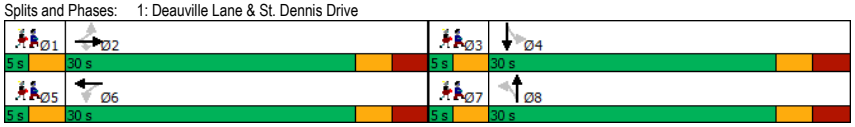
Appendix F

Background 2028 Traffic Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	55	85	40	215	140	41	55	31	72			
Future Volume (vph)	55	85	40	215	140	41	55	31	72			
Lane Group Flow (vph)	59	91	43	231	364	0	286	0	196			
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA			
Protected Phases		2			6		8		4	1	3	5
Permitted Phases	2		2	6		8		4				
Detector Phase	2	2	2	6	6	8	8	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	28.2	28.2	28.2	28.2	5.0	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	7%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.2	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.2		6.2			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	None	None	None
v/c Ratio	0.22	0.15	0.08	0.68	0.60		0.44		0.27			
Control Delay	14.5	12.6	0.3	26.5	14.4		9.0		9.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	14.5	12.6	0.3	26.5	14.4		9.0		9.3			
Queue Length 50th (m)	4.0	6.1	0.0	18.9	19.1		8.9		7.9			
Queue Length 95th (m)	10.8	13.6	0.0	38.6	39.7		28.0		21.6			
Internal Link Dist (m)		134.3			138.2		183.9		23.5			
Turn Bay Length (m)	28.0		10.0	32.0								
Base Capacity (vph)	371	835	659	461	785		653		713			
Starvation Cap Reductn	0	0	0	0	0		0		0			
Spillback Cap Reductn	0	0	0	0	0		0		0			
Storage Cap Reductn	0	0	0	0	0		0		0			
Reduced v/c Ratio	0.16	0.11	0.07	0.50	0.46		0.44		0.27			

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 54.2
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Deauville Lane & St. Dennis Drive



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	2.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis BG AM
1: Deauville Lane & St. Dennis Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	85	40	215	140	198	41	55	170	31	72	80
Future Volume (vph)	55	85	40	215	140	198	41	55	170	31	72	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.87	1.00	0.96			0.93			0.97	
Flpb, ped/bikes	0.97	1.00	1.00	0.90	1.00			0.99			0.99	
Frt	1.00	1.00	0.85	1.00	0.91			0.91			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1773	1865	1348	1451	1634			1417			1675	
Flt Permitted	0.45	1.00	1.00	0.70	1.00			0.93			0.91	
Satd. Flow (perm)	833	1865	1348	1066	1634			1326			1544	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	59	91	43	231	151	213	44	59	183	33	77	86
RTOR Reduction (vph)	0	0	29	0	74	0	0	77	0	0	34	0
Lane Group Flow (vph)	59	91	14	231	290	0	0	209	0	0	162	0
Confl. Peds. (#/hr)	43		98	98		43	45		79	79		45
Heavy Vehicles (%)	0%	3%	5%	13%	7%	0%	5%	4%	18%	0%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	17.8	17.8	17.8	17.8	17.8			24.1			24.1	
Effective Green, g (s)	17.8	17.8	17.8	17.8	17.8			24.1			24.1	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33			0.45			0.45	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	274	613	443	350	537			590			687	
v/s Ratio Prot		0.05			0.18							
v/s Ratio Perm	0.07		0.01	c0.22				c0.16			0.11	
v/c Ratio	0.22	0.15	0.03	0.66	0.54			0.36			0.24	
Uniform Delay, d1	13.1	12.8	12.3	15.6	14.8			9.9			9.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.4	0.1	0.0	4.6	1.1			1.7			0.8	
Delay (s)	13.5	12.9	12.3	20.2	15.9			11.6			10.1	
Level of Service	B	B	B	C	B			B			B	
Approach Delay (s)		13.0			17.6			11.6			10.1	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	69.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis BG AM
3: Grenoble Drive & Deauville Lane

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	215	40	30	86	93	267
Future Volume (vph)	215	40	30	86	93	267
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	256	48	36	102	111	318

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	256	48	138	111	318
Volume Left (vph)	256	0	36	0	0
Volume Right (vph)	0	48	0	0	318
Hadj (s)	0.25	-0.43	0.35	0.53	-0.57
Departure Headway (s)	4.8	3.2	5.1	5.3	3.2
Degree Utilization, x	0.34	0.04	0.19	0.16	0.28
Capacity (veh/h)	717	1121	670	640	1112
Control Delay (s)	10.3	6.3	9.3	9.3	7.5
Approach Delay (s)	9.7		9.3	7.9	
Approach LOS	A		A	A	

Intersection Summary			
Delay	8.8		
Level of Service	A		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	215	40	30	86	93	267
Future Vol, veh/h	215	40	30	86	93	267
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	10	3	23	31	2
Mvmt Flow	256	48	36	102	111	318
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	13.8	10.7	11.4
HCM LOS	B	B	B

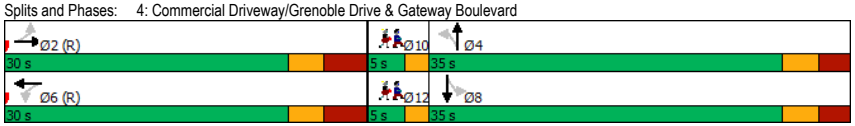
Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	26%	100%	0%	0%	0%
Vol Thru, %	74%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	215	40	93	267
LT Vol	30	215	0	0	0
Through Vol	86	0	0	93	0
RT Vol	0	0	40	0	267
Lane Flow Rate	138	256	48	111	318
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.228	0.463	0.072	0.192	0.445
Departure Headway (Hd)	5.943	6.516	5.425	6.245	5.039
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	605	553	661	578	718
Service Time	3.974	4.242	3.15	3.945	2.739
HCM Lane V/C Ratio	0.228	0.463	0.073	0.192	0.443
HCM Control Delay	10.7	14.8	8.6	10.4	11.7
HCM Lane LOS	B	B	A	B	B
HCM 95th-tile Q	0.9	2.4	0.2	0.7	2.3

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø10	Ø12
Lane Configurations										
Traffic Volume (vph)	89	87	14	73	105	40	89	61		
Future Volume (vph)	89	87	14	73	105	40	89	61		
Lane Group Flow (vph)	93	175	0	147	0	162	0	353		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		2		6		4		8	10	12
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	4	8	8		
Switch Phase										
Minimum Initial (s)	23.0	23.0	23.0	23.0	5.0	5.0	5.0	5.0	1.0	1.5
Minimum Split (s)	29.6	29.6	29.6	29.6	34.7	34.7	34.7	34.7	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	50.0%	50.0%	50.0%	50.0%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
All-Red Time (s)	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)	6.6	6.6		6.6		5.7		5.7		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.29	0.30		0.30		0.36		0.58		
Control Delay	20.2	12.0		13.8		16.2		15.0		
Queue Delay	0.0	0.0		0.0		0.0		0.0		
Total Delay	20.2	12.0		13.8		16.2		15.0		
Queue Length 50th (m)	8.8	9.5		9.2		13.4		22.5		
Queue Length 95th (m)	19.7	22.7		21.9		27.2		47.1		
Internal Link Dist (m)		135.0		25.7		14.9		38.5		
Turn Bay Length (m)	48.0									
Base Capacity (vph)	325	591		483		452		611		
Starvation Cap Reductn	0	0		0		0		0		
Spillback Cap Reductn	0	0		0		0		0		
Storage Cap Reductn	0	0		0		0		0		
Reduced v/c Ratio	0.29	0.30		0.30		0.36		0.58		

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Pretimed

Splits and Phases: 4: Commercial Driveway/Grenoble Drive & Gateway Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	87	81	14	73	54	105	40	11	89	61	188
Future Volume (vph)	89	87	81	14	73	54	105	40	11	89	61	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.95			0.88			0.99			0.90	
Flpb, ped/bikes	0.76	1.00			0.99			0.94			0.98	
Frt	1.00	0.93			0.95			0.99			0.93	
Flt Protected	0.95	1.00			0.99			0.97			0.99	
Satd. Flow (prot)	1257	1629			1396			1654			1485	
Flt Permitted	0.73	1.00			0.96			0.63			0.87	
Satd. Flow (perm)	966	1629			1350			1070			1310	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	93	91	84	15	76	56	109	42	11	93	64	196
RTOR Reduction (vph)	0	47	0	0	32	0	0	3	0	0	64	0
Lane Group Flow (vph)	93	128	0	0	115	0	0	159	0	0	289	0
Confl. Peds. (#/hr)	192		61	61		192	140		98	98		140
Heavy Vehicles (%)	11%	6%	1%	14%	10%	19%	4%	3%	0%	5%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.4	23.4			23.4			29.3			29.3	
Effective Green, g (s)	23.4	23.4			23.4			29.3			29.3	
Actuated g/C Ratio	0.33	0.33			0.33			0.42			0.42	
Clearance Time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Grp Cap (vph)	322	544			451			447			548	
v/s Ratio Prot		0.08										
v/s Ratio Perm	c0.10				0.09			0.15			c0.22	
v/c Ratio	0.29	0.23			0.26			0.35			0.53	
Uniform Delay, d1	17.2	16.8			17.0			13.9			15.2	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.3	1.0			1.4			2.2			3.6	
Delay (s)	19.4	17.8			18.3			16.1			18.8	
Level of Service	B	B			B			B			B	
Approach Delay (s)		18.4			18.3			16.1			18.8	
Approach LOS		B			B			B			B	

Intersection Summary

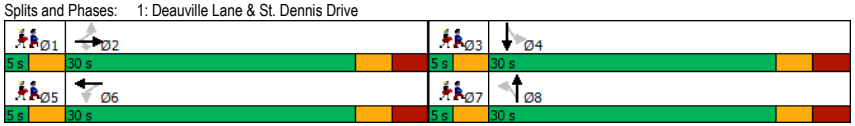
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.3	
Intersection Capacity Utilization	64.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	53	122	29	169	104	88	103	154	79			
Future Volume (vph)	53	122	29	169	104	88	103	154	79			
Lane Group Flow (vph)	55	127	30	176	186	0	502	0	406			
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA			
Protected Phases		2			6		8		4	1	3	5
Permitted Phases	2		2	6		8		4				
Detector Phase	2	2	2	6	6	8	8	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	28.2	28.2	28.2	28.2	5.0	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	7%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.2	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.2		6.2			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	None	None	None
v/c Ratio	0.17	0.26	0.06	0.59	0.37		0.69		0.68			
Control Delay	14.3	14.9	0.2	24.2	12.1		15.8		18.4			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	14.3	14.9	0.2	24.2	12.1		15.8		18.4			
Queue Length 50th (m)	3.7	8.7	0.0	13.2	8.8		21.8		20.6			
Queue Length 95th (m)	9.8	18.0	0.0	27.7	20.4		#81.7		#74.5			
Internal Link Dist (m)		134.3			138.2		183.9		23.5			
Turn Bay Length (m)	28.0		10.0	32.0								
Base Capacity (vph)	582	895	740	535	851		732		600			
Starvation Cap Reductn	0	0	0	0	0		0		0			
Spillback Cap Reductn	0	0	0	0	0		0		0			
Storage Cap Reductn	0	0	0	0	0		0		0			
Reduced v/c Ratio	0.09	0.14	0.04	0.33	0.22		0.69		0.68			

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 50.3
Natural Cycle: 80
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Deauville Lane & St. Dennis Drive



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	2.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis BG PM
1: Deauville Lane & St. Dennis Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	122	29	169	104	75	88	103	291	154	79	157
Future Volume (vph)	53	122	29	169	104	75	88	103	291	154	79	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99			0.97			0.98	
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00			1.00			0.99	
Frt	1.00	1.00	0.85	1.00	0.94			0.92			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1807	1865	1407	1585	1716			1606			1720	
Flt Permitted	0.64	1.00	1.00	0.68	1.00			0.85			0.67	
Satd. Flow (perm)	1218	1865	1407	1127	1716			1382			1178	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	55	127	30	176	108	78	92	107	303	160	82	164
RTOR Reduction (vph)	0	0	22	0	42	0	0	61	0	0	27	0
Lane Group Flow (vph)	55	127	8	176	144	0	0	441	0	0	379	0
Confl. Peds. (#/hr)	12		30	30		12	26		25	25		26
Heavy Vehicles (%)	0%	3%	10%	12%	6%	0%	0%	0%	9%	1%	3%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	13.4	13.4	13.4	13.4	13.4			24.6			24.6	
Effective Green, g (s)	13.4	13.4	13.4	13.4	13.4			24.6			24.6	
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27			0.49			0.49	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	325	497	375	300	458			677			577	
v/s Ratio Prot		0.07			0.08							
v/s Ratio Perm	0.05		0.01	c0.16				0.32			c0.32	
v/c Ratio	0.17	0.26	0.02	0.59	0.31			0.65			0.66	
Uniform Delay, d1	14.1	14.5	13.6	16.0	14.7			9.6			9.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	0.3	0.0	2.9	0.4			4.8			5.8	
Delay (s)	14.4	14.7	13.6	18.9	15.1			14.4			15.4	
Level of Service	B	B	B	B	B			B			B	
Approach Delay (s)		14.5			17.0			14.4			15.4	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	83.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis BG PM
3: Grenoble Drive & Deauville Lane

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	289	51	23	107	72	164
Future Volume (vph)	289	51	23	107	72	164
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	311	55	25	115	77	176

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	311	55	140	77	176
Volume Left (vph)	311	0	25	0	0
Volume Right (vph)	0	55	0	0	176
Hadj (s)	0.25	-0.36	0.13	0.36	-0.57
Departure Headway (s)	4.7	3.2	4.9	5.2	3.2
Degree Utilization, x	0.41	0.05	0.19	0.11	0.16
Capacity (veh/h)	737	1121	684	637	1121
Control Delay (s)	10.9	6.4	9.1	8.9	6.8
Approach Delay (s)	10.2		9.1	7.4	
Approach LOS	B		A	A	

Intersection Summary			
Delay	9.1		
Level of Service	A		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	289	51	23	107	72	164
Future Vol, veh/h	289	51	23	107	72	164
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	14	0	7	21	2
Mvmt Flow	311	55	25	115	77	176
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	14.2	10.5	9.6
HCM LOS	B	B	A

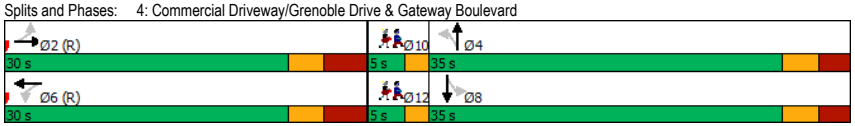
Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	18%	100%	0%	0%	0%
Vol Thru, %	82%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	289	51	72	164
LT Vol	23	289	0	0	0
Through Vol	107	0	0	72	0
RT Vol	0	0	51	0	164
Lane Flow Rate	140	311	55	77	176
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.222	0.521	0.076	0.131	0.248
Departure Headway (Hd)	5.713	6.032	5.012	6.105	5.071
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	622	594	706	583	700
Service Time	3.808	3.828	2.808	3.891	2.856
HCM Lane V/C Ratio	0.225	0.524	0.078	0.132	0.251
HCM Control Delay	10.5	15.3	8.2	9.8	9.5
HCM Lane LOS	B	C	A	A	A
HCM 95th-tile Q	0.8	3	0.2	0.4	1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø10	Ø12
Lane Configurations										
Traffic Volume (vph)	158	61	15	59	70	81	22	80		
Future Volume (vph)	158	61	15	59	70	81	22	80		
Lane Group Flow (vph)	176	126	0	225	0	178	0	305		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		2		6		4		8	10	12
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	4	8	8		
Switch Phase										
Minimum Initial (s)	23.0	23.0	23.0	23.0	5.0	5.0	5.0	5.0	1.0	1.5
Minimum Split (s)	29.6	29.6	29.6	29.6	34.7	34.7	34.7	34.7	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	50.0%	50.0%	50.0%	50.0%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
All-Red Time (s)	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)	6.6	6.6		6.6		5.7		5.7		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.46	0.21		0.36		0.30		0.44		
Control Delay	23.1	10.7		9.5		15.0		9.4		
Queue Delay	0.0	0.0		0.0		0.0		0.0		
Total Delay	23.1	10.7		9.5		15.0		9.4		
Queue Length 50th (m)	17.8	6.1		8.5		14.5		12.7		
Queue Length 95th (m)	34.8	16.6		23.3		27.7		30.5		
Internal Link Dist (m)		135.0		25.7		14.9		38.5		
Turn Bay Length (m)	48.0									
Base Capacity (vph)	384	610		626		586		695		
Starvation Cap Reductn	0	0		0		0		0		
Spillback Cap Reductn	0	0		0		0		0		
Storage Cap Reductn	0	0		0		0		0		
Reduced v/c Ratio	0.46	0.21		0.36		0.30		0.44		

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Pretimed

Splits and Phases: 4: Commercial Driveway/Grenoble Drive & Gateway Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	61	52	15	59	128	70	81	9	22	80	173
Future Volume (vph)	158	61	52	15	59	128	70	81	9	22	80	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.97			0.97			0.99			0.87	
Flpb, ped/bikes	0.98	1.00			1.00			0.95			0.99	
Frt	1.00	0.93			0.91			0.99			0.92	
Flt Protected	0.95	1.00			1.00			0.98			1.00	
Satd. Flow (prot)	1766	1712			1646			1757			1492	
Flt Permitted	0.62	1.00			0.97			0.78			0.97	
Satd. Flow (perm)	1150	1712			1609			1394			1453	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	176	68	58	17	66	142	78	90	10	24	89	192
RTOR Reduction (vph)	0	39	0	0	88	0	0	3	0	0	87	0
Lane Group Flow (vph)	176	87	0	0	137	0	0	175	0	0	218	0
Confl. Peds. (#/hr)	22		34	34		22	157		121	121		157
Heavy Vehicles (%)	1%	2%	0%	0%	2%	3%	0%	0%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.4	23.4			23.4			29.3			29.3	
Effective Green, g (s)	23.4	23.4			23.4			29.3			29.3	
Actuated g/C Ratio	0.33	0.33			0.33			0.42			0.42	
Clearance Time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Grp Cap (vph)	384	572			537			583			608	
v/s Ratio Prot		0.05										
v/s Ratio Perm	c0.15				0.09			0.13			c0.15	
v/c Ratio	0.46	0.15			0.26			0.30			0.36	
Uniform Delay, d1	18.3	16.3			17.0			13.5			13.9	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	3.9	0.6			1.1			1.3			1.6	
Delay (s)	22.2	16.9			18.1			14.9			15.6	
Level of Service	C	B			B			B			B	
Approach Delay (s)		20.0			18.1			14.9			15.6	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.3	
Intersection Capacity Utilization	82.9%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

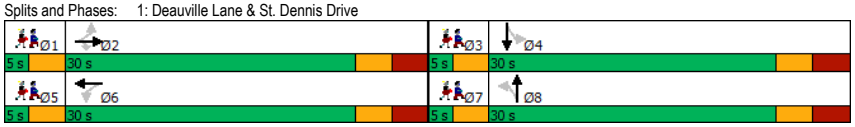
Appendix G

Total 2028 Traffic Operations

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	55	85	54	224	140	69	55	31	72			
Future Volume (vph)	55	85	54	224	140	69	55	31	72			
Lane Group Flow (vph)	59	91	58	241	364	0	342	0	196			
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA			
Protected Phases		2			6		8		4	1	3	5
Permitted Phases	2		2	6		8		4				
Detector Phase	2	2	2	6	6	8	8	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	28.2	28.2	28.2	28.2	5.0	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	7%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.2	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.2		6.2			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	None	None	None
v/c Ratio	0.21	0.15	0.11	0.70	0.59		0.55		0.28			
Control Delay	14.3	12.5	0.4	27.1	14.1		12.5		9.4			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	14.3	12.5	0.4	27.1	14.1		12.5		9.4			
Queue Length 50th (m)	4.0	6.1	0.0	19.9	19.1		14.7		8.2			
Queue Length 95th (m)	10.7	13.6	0.0	40.6	39.7		40.9		21.6			
Internal Link Dist (m)		134.3			138.2		123.7		23.5			
Turn Bay Length (m)	28.0		10.0	32.0								
Base Capacity (vph)	370	826	654	457	778		618		700			
Starvation Cap Reductn	0	0	0	0	0		0		0			
Spillback Cap Reductn	0	0	0	0	0		0		0			
Storage Cap Reductn	0	0	0	0	0		0		0			
Reduced v/c Ratio	0.16	0.11	0.09	0.53	0.47		0.55		0.28			

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 54.7
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: Deauville Lane & St. Dennis Drive



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	2.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis — Tot AM
1: Deauville Lane & St. Dennis Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	85	54	224	140	198	69	55	194	31	72	80
Future Volume (vph)	55	85	54	224	140	198	69	55	194	31	72	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.87	1.00	0.96			0.93			0.97	
Flpb, ped/bikes	0.97	1.00	1.00	0.90	1.00			0.99			0.99	
Frt	1.00	1.00	0.85	1.00	0.91			0.92			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1773	1865	1347	1450	1633			1424			1676	
Flt Permitted	0.45	1.00	1.00	0.70	1.00			0.89			0.90	
Satd. Flow (perm)	839	1865	1347	1065	1633			1278			1529	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	59	91	58	241	151	213	74	59	209	33	77	86
RTOR Reduction (vph)	0	0	39	0	73	0	0	68	0	0	34	0
Lane Group Flow (vph)	59	91	19	241	291	0	0	274	0	0	162	0
Confl. Peds. (#/hr)	43		98	98		43	45		79	79		45
Heavy Vehicles (%)	0%	3%	5%	13%	7%	0%	5%	4%	18%	0%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	18.3	18.3	18.3	18.3	18.3			24.0			24.0	
Effective Green, g (s)	18.3	18.3	18.3	18.3	18.3			24.0			24.0	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34			0.44			0.44	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	281	626	452	357	548			562			673	
v/s Ratio Prot		0.05			0.18							
v/s Ratio Perm	0.07		0.01	c0.23				c0.21			0.11	
v/c Ratio	0.21	0.15	0.04	0.68	0.53			0.49			0.24	
Uniform Delay, d1	12.9	12.6	12.2	15.5	14.6			10.9			9.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.4	0.1	0.0	5.0	1.0			3.0			0.8	
Delay (s)	13.3	12.7	12.2	20.5	15.6			13.9			10.4	
Level of Service	B	B	B	C	B			B			B	
Approach Delay (s)		12.8			17.6			13.9			10.4	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	76.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis — Tot AM
2: Deauville Lane & Site Driveway

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	30	18	301	360	23
Future Volume (Veh/h)	52	30	18	301	360	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	57	33	20	327	391	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					148	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	770	404	416			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	330	343			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	95	98			
cM capacity (veh/h)	365	671	1150			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	90	347	416
Volume Left	57	20	0
Volume Right	33	0	25
cSH	439	1150	1700
Volume to Capacity	0.21	0.02	0.24
Queue Length 95th (m)	5.8	0.4	0.0
Control Delay (s)	15.3	0.6	0.0
Lane LOS	C	A	
Approach Delay (s)	15.3	0.6	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	233	40	30	86	93	297
Future Vol, veh/h	233	40	30	86	93	297
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	10	3	23	31	2
Mvmt Flow	277	48	36	102	111	354
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	15	11	12.4
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	26%	100%	0%	0%	0%
Vol Thru, %	74%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	233	40	93	297
LT Vol	30	233	0	0	0
Through Vol	86	0	0	93	0
RT Vol	0	0	40	0	297
Lane Flow Rate	138	277	48	111	354
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.234	0.51	0.073	0.194	0.502
Departure Headway (Hd)	6.088	6.615	5.523	6.317	5.11
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	590	546	649	569	707
Service Time	4.124	4.344	3.251	4.047	2.841
HCM Lane V/C Ratio	0.234	0.507	0.074	0.195	0.501
HCM Control Delay	11	16.1	8.7	10.6	12.9
HCM Lane LOS	B	C	A	B	B
HCM 95th-tile Q	0.9	2.9	0.2	0.7	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	233	40	30	86	93	297
Future Volume (vph)	233	40	30	86	93	297
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	277	48	36	102	111	354

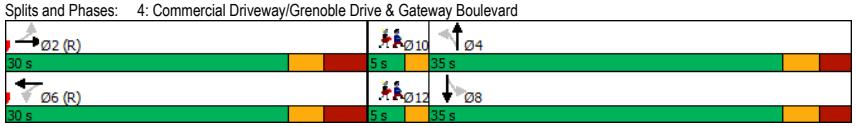
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	277	48	138	111	354
Volume Left (vph)	277	0	36	0	0
Volume Right (vph)	0	48	0	0	354
Hadj (s)	0.25	-0.43	0.35	0.53	-0.57
Departure Headway (s)	4.8	3.2	5.1	5.3	3.2
Degree Utilization, x	0.37	0.04	0.20	0.16	0.31
Capacity (veh/h)	717	1121	661	631	1113
Control Delay (s)	10.6	6.3	9.4	9.4	7.7
Approach Delay (s)	10.0		9.4	8.1	
Approach LOS	B		A	A	

Intersection Summary			
Delay	8.9		
Level of Service	A		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø10	Ø12
Lane Configurations										
Traffic Volume (vph)	107	87	14	73	105	40	89	61		
Future Volume (vph)	107	87	14	73	105	40	89	61		
Lane Group Flow (vph)	111	175	0	147	0	162	0	384		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		2		6		4		8	10	12
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	4	8	8		
Switch Phase										
Minimum Initial (s)	23.0	23.0	23.0	23.0	5.0	5.0	5.0	5.0	1.0	1.5
Minimum Split (s)	29.6	29.6	29.6	29.6	34.7	34.7	34.7	34.7	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	50.0%	50.0%	50.0%	50.0%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
All-Red Time (s)	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)	6.6	6.6		6.6		5.7		5.7		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.34	0.30		0.30		0.37		0.62		
Control Delay	21.3	12.0		13.8		16.6		15.5		
Queue Delay	0.0	0.0		0.0		0.0		0.0		
Total Delay	21.3	12.0		13.8		16.6		15.5		
Queue Length 50th (m)	10.8	9.5		9.2		13.5		24.3		
Queue Length 95th (m)	23.2	22.7		21.9		27.5		51.4		
Internal Link Dist (m)		135.0		25.7		14.9		38.5		
Turn Bay Length (m)	48.0									
Base Capacity (vph)	325	591		483		438		622		
Starvation Cap Reductn	0	0		0		0		0		
Spillback Cap Reductn	0	0		0		0		0		
Storage Cap Reductn	0	0		0		0		0		
Reduced v/c Ratio	0.34	0.30		0.30		0.37		0.62		

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Pretimed

Splits and Phases: 4: Commercial Driveway/Grenoble Drive & Gateway Boulevard



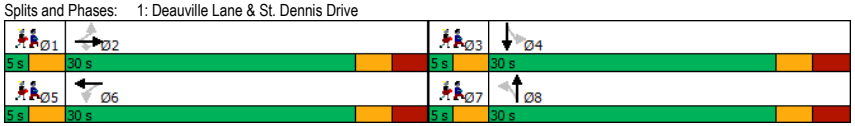
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	87	81	14	73	54	105	40	11	89	61	218
Future Volume (vph)	107	87	81	14	73	54	105	40	11	89	61	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.95			0.88			0.99			0.89	
Flpb, ped/bikes	0.76	1.00			0.99			0.94			0.98	
Frt	1.00	0.93			0.95			0.99			0.92	
Flt Protected	0.95	1.00			0.99			0.97			0.99	
Satd. Flow (prot)	1257	1629			1396			1660			1471	
Flt Permitted	0.73	1.00			0.96			0.60			0.88	
Satd. Flow (perm)	966	1629			1350			1036			1310	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	111	91	84	15	76	56	109	42	11	93	64	227
RTOR Reduction (vph)	0	47	0	0	32	0	0	3	0	0	74	0
Lane Group Flow (vph)	111	128	0	0	115	0	0	159	0	0	310	0
Confl. Peds. (#/hr)	192		61	61		192	140		98	98		140
Heavy Vehicles (%)	11%	6%	1%	14%	10%	19%	4%	3%	0%	5%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.4	23.4			23.4			29.3			29.3	
Effective Green, g (s)	23.4	23.4			23.4			29.3			29.3	
Actuated g/C Ratio	0.33	0.33			0.33			0.42			0.42	
Clearance Time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Grp Cap (vph)	322	544			451			433			548	
v/s Ratio Prot		0.08										
v/s Ratio Perm	c0.11				0.09			0.15			c0.24	
v/c Ratio	0.34	0.23			0.26			0.37			0.56	
Uniform Delay, d1	17.5	16.8			17.0			14.0			15.5	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	2.9	1.0			1.4			2.4			4.2	
Delay (s)	20.4	17.8			18.3			16.4			19.7	
Level of Service	C	B			B			B			B	
Approach Delay (s)		18.9			18.3			16.4			19.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	Ø1	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	53	122	47	180	104	102	103	154	79			
Future Volume (vph)	53	122	47	180	104	102	103	154	79			
Lane Group Flow (vph)	55	127	49	188	186	0	529	0	406			
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA			
Protected Phases		2			6		8		4	1	3	5
Permitted Phases	2		2	6		8		4				
Detector Phase	2	2	2	6	6	8	8	4	4			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	28.2	28.2	28.2	28.2	5.0	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	5.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	7%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.2	3.2	3.2	3.2	0.0	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.2		6.2			
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	None	None	None
v/c Ratio	0.17	0.25	0.10	0.61	0.36		0.74		0.70			
Control Delay	14.1	14.6	0.4	24.6	11.8		18.6		20.1			
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0		0.0			
Total Delay	14.1	14.6	0.4	24.6	11.8		18.6		20.1			
Queue Length 50th (m)	3.7	8.7	0.0	14.4	8.8		25.4		21.5			
Queue Length 95th (m)	9.7	17.9	0.0	29.6	20.2		#91.9		#77.6			
Internal Link Dist (m)		134.3			138.2		123.7		23.5			
Turn Bay Length (m)	28.0		10.0	32.0								
Base Capacity (vph)	578	889	736	531	846		717		580			
Starvation Cap Reductn	0	0	0	0	0		0		0			
Spillback Cap Reductn	0	0	0	0	0		0		0			
Storage Cap Reductn	0	0	0	0	0		0		0			
Reduced v/c Ratio	0.10	0.14	0.07	0.35	0.22		0.74		0.70			

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 50.7
Natural Cycle: 80
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Deauville Lane & St. Dennis Drive



Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	2.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	7%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis — Tot PM
1: Deauville Lane & St. Dennis Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	122	47	180	104	75	102	103	303	154	79	157
Future Volume (vph)	53	122	47	180	104	75	102	103	303	154	79	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99			0.97			0.98	
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.94			0.92			0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1806	1865	1407	1584	1716			1607			1720	
Flt Permitted	0.64	1.00	1.00	0.68	1.00			0.85			0.66	
Satd. Flow (perm)	1218	1865	1407	1127	1716			1373			1152	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	55	127	49	188	108	78	106	107	316	160	82	164
RTOR Reduction (vph)	0	0	35	0	41	0	0	60	0	0	27	0
Lane Group Flow (vph)	55	127	14	188	145	0	0	469	0	0	379	0
Confl. Peds. (#/hr)	12		30	30		12	26		25	25		26
Heavy Vehicles (%)	0%	3%	10%	12%	6%	0%	0%	0%	9%	1%	3%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	14.0	14.0	14.0	14.0	14.0			24.5			24.5	
Effective Green, g (s)	14.0	14.0	14.0	14.0	14.0			24.5			24.5	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28			0.48			0.48	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0			6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	336	514	388	311	473			663			556	
v/s Ratio Prot		0.07			0.08							
v/s Ratio Perm	0.05		0.01	c0.17				c0.34			0.33	
v/c Ratio	0.16	0.25	0.03	0.60	0.31			0.71			0.68	
Uniform Delay, d1	13.9	14.3	13.4	15.9	14.5			10.3			10.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.2	0.3	0.0	3.3	0.4			6.3			6.6	
Delay (s)	14.1	14.5	13.4	19.2	14.9			16.6			16.7	
Level of Service	B	B	B	B	B			B			B	
Approach Delay (s)		14.2			17.1			16.6			16.7	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	18.2	
Intersection Capacity Utilization	81.4%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis — Tot PM
2: Deauville Lane & Site Driveway

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	15	22	396	236	29
Future Volume (Veh/h)	26	15	22	396	236	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	16	24	430	257	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)					148	
pX, platoon unblocked						
vC, conflicting volume	751	273	289			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	751	273	289			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	98			
cM capacity (veh/h)	374	771	1284			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	44	454	289
Volume Left	28	24	0
Volume Right	16	0	32
cSH	460	1284	1700
Volume to Capacity	0.10	0.02	0.17
Queue Length 95th (m)	2.4	0.4	0.0
Control Delay (s)	13.6	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	13.6	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	311	51	23	107	72	179
Future Vol, veh/h	311	51	23	107	72	179
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	14	0	7	21	2
Mvmt Flow	334	55	25	115	77	192
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	15.7	10.7	10
HCM LOS	C	B	A

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	18%	100%	0%	0%	0%
Vol Thru, %	82%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	311	51	72	179
LT Vol	23	311	0	0	0
Through Vol	107	0	0	72	0
RT Vol	0	0	51	0	179
Lane Flow Rate	140	334	55	77	192
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.23	0.574	0.079	0.136	0.282
Departure Headway (Hd)	5.922	6.184	5.163	6.309	5.273
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	607	585	695	572	685
Service Time	3.952	3.905	2.884	4.009	2.973
HCM Lane V/C Ratio	0.231	0.571	0.079	0.135	0.28
HCM Control Delay	10.7	16.9	8.3	10	10
HCM Lane LOS	B	C	A	A	A
HCM 95th-tile Q	0.9	3.6	0.3	0.5	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	311	51	23	107	72	179
Future Volume (vph)	311	51	23	107	72	179
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	334	55	25	115	77	192

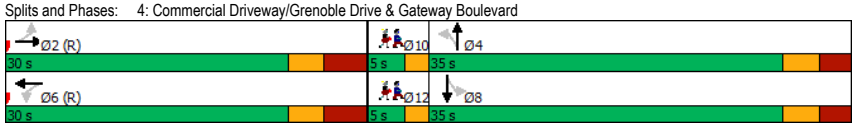
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total (vph)	334	55	140	77	192
Volume Left (vph)	334	0	25	0	0
Volume Right (vph)	0	55	0	0	192
Hadj (s)	0.25	-0.36	0.13	0.36	-0.57
Departure Headway (s)	4.7	3.2	5.0	5.3	3.2
Degree Utilization, x	0.44	0.05	0.19	0.11	0.17
Capacity (veh/h)	737	1121	674	627	1121
Control Delay (s)	11.4	6.4	9.2	9.0	6.9
Approach Delay (s)	10.7		9.2	7.5	
Approach LOS	B		A	A	

Intersection Summary				
Delay		9.3		
Level of Service		A		
Intersection Capacity Utilization		37.5%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø10	Ø12
Lane Configurations										
Traffic Volume (vph)	180	61	15	59	70	81	22	80		
Future Volume (vph)	180	61	15	59	70	81	22	80		
Lane Group Flow (vph)	200	126	0	225	0	178	0	322		
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA		
Protected Phases		2		6		4		8	10	12
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	4	8	8		
Switch Phase										
Minimum Initial (s)	23.0	23.0	23.0	23.0	5.0	5.0	5.0	5.0	1.0	1.5
Minimum Split (s)	29.6	29.6	29.6	29.6	34.7	34.7	34.7	34.7	5.0	5.0
Total Split (s)	30.0	30.0	30.0	30.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	50.0%	50.0%	50.0%	50.0%	7%	7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
All-Red Time (s)	3.6	3.6	3.6	3.6	2.7	2.7	2.7	2.7	0.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)	6.6	6.6		6.6		5.7		5.7		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.52	0.21		0.36		0.31		0.46		
Control Delay	24.7	10.7		9.5		15.0		9.4		
Queue Delay	0.0	0.0		0.0		0.0		0.0		
Total Delay	24.7	10.7		9.5		15.0		9.4		
Queue Length 50th (m)	20.8	6.1		8.5		14.5		13.0		
Queue Length 95th (m)	39.7	16.6		23.3		27.7		31.7		
Internal Link Dist (m)		135.0		25.7		14.9		38.5		
Turn Bay Length (m)	48.0									
Base Capacity (vph)	384	610		626		583		700		
Starvation Cap Reductn	0	0		0		0		0		
Spillback Cap Reductn	0	0		0		0		0		
Storage Cap Reductn	0	0		0		0		0		
Reduced v/c Ratio	0.52	0.21		0.36		0.31		0.46		

Intersection Summary
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Pretimed

Splits and Phases: 4: Commercial Driveway/Grenoble Drive & Gateway Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	61	52	15	59	128	70	81	9	22	80	188
Future Volume (vph)	180	61	52	15	59	128	70	81	9	22	80	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frpb, ped/bikes	1.00	0.97			0.97			0.99			0.87	
Flpb, ped/bikes	0.98	1.00			1.00			0.95			0.99	
Frt	1.00	0.93			0.91			0.99			0.91	
Flt Protected	0.95	1.00			1.00			0.98			1.00	
Satd. Flow (prot)	1766	1712			1646			1760			1481	
Flt Permitted	0.62	1.00			0.97			0.77			0.97	
Satd. Flow (perm)	1150	1712			1609			1386			1445	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	200	68	58	17	66	142	78	90	10	24	89	209
RTOR Reduction (vph)	0	39	0	0	88	0	0	3	0	0	95	0
Lane Group Flow (vph)	200	87	0	0	137	0	0	175	0	0	227	0
Confl. Peds. (#/hr)	22		34	34		22	157		121	121		157
Heavy Vehicles (%)	1%	2%	0%	0%	2%	3%	0%	0%	0%	0%	0%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.4	23.4			23.4			29.3			29.3	
Effective Green, g (s)	23.4	23.4			23.4			29.3			29.3	
Actuated g/C Ratio	0.33	0.33			0.33			0.42			0.42	
Clearance Time (s)	6.6	6.6			6.6			5.7			5.7	
Lane Grp Cap (vph)	384	572			537			580			604	
v/s Ratio Prot		0.05										
v/s Ratio Perm	c0.17				0.09			0.13			c0.16	
v/c Ratio	0.52	0.15			0.26			0.30			0.38	
Uniform Delay, d1	18.8	16.3			17.0			13.5			14.0	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	5.0	0.6			1.1			1.3			1.8	
Delay (s)	23.8	16.9			18.1			14.9			15.8	
Level of Service	C	B			B			B			B	
Approach Delay (s)		21.1			18.1			14.9			15.8	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

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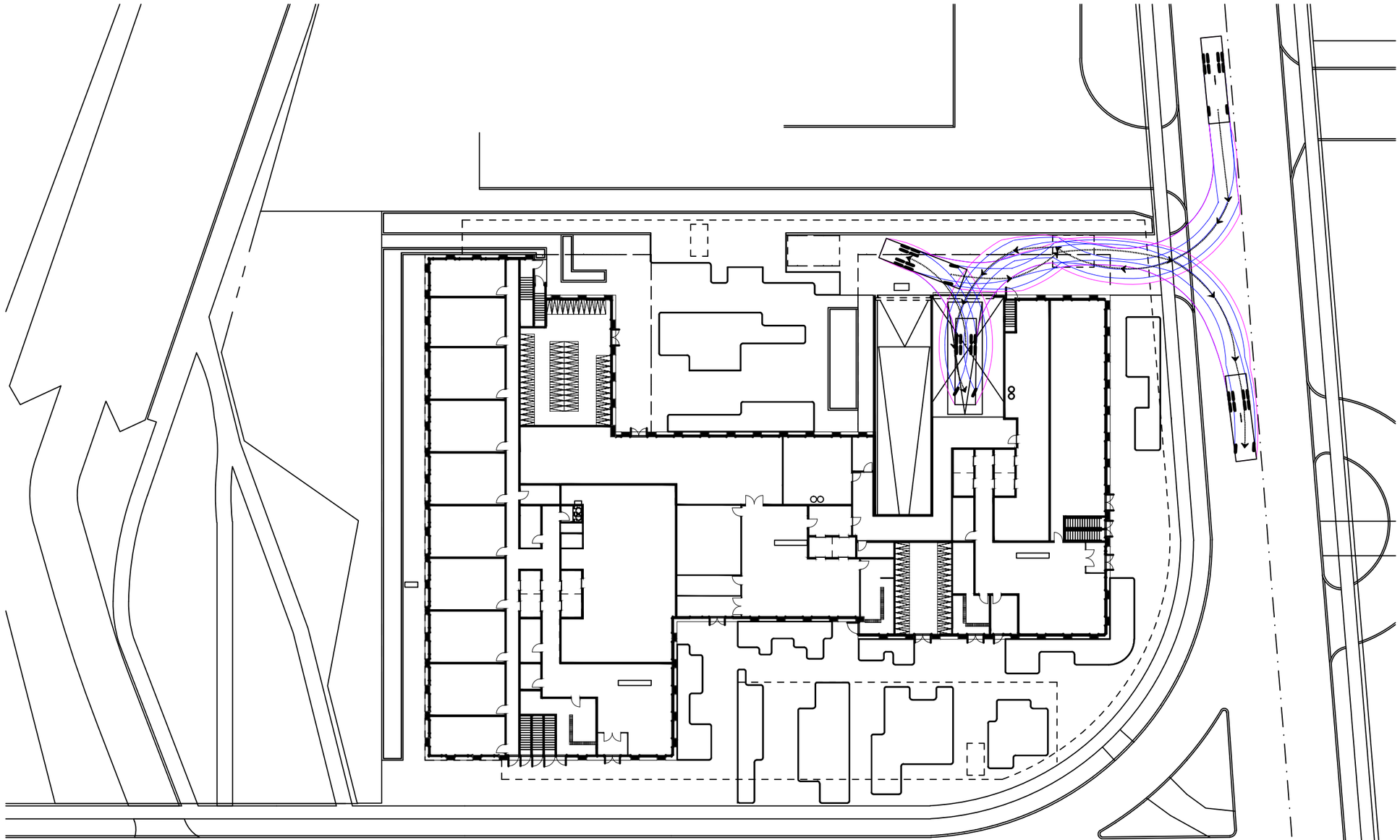
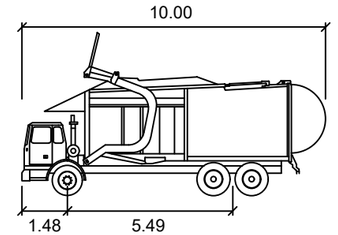
Appendix H

Swept Path Analysis





Toronto - FL Refuse Truck 10m

	meters
Width	: 2.40
Track	: 2.44
Lock to Lock Time	: 6.0
Steering Angle	: 27.2

LEGEND

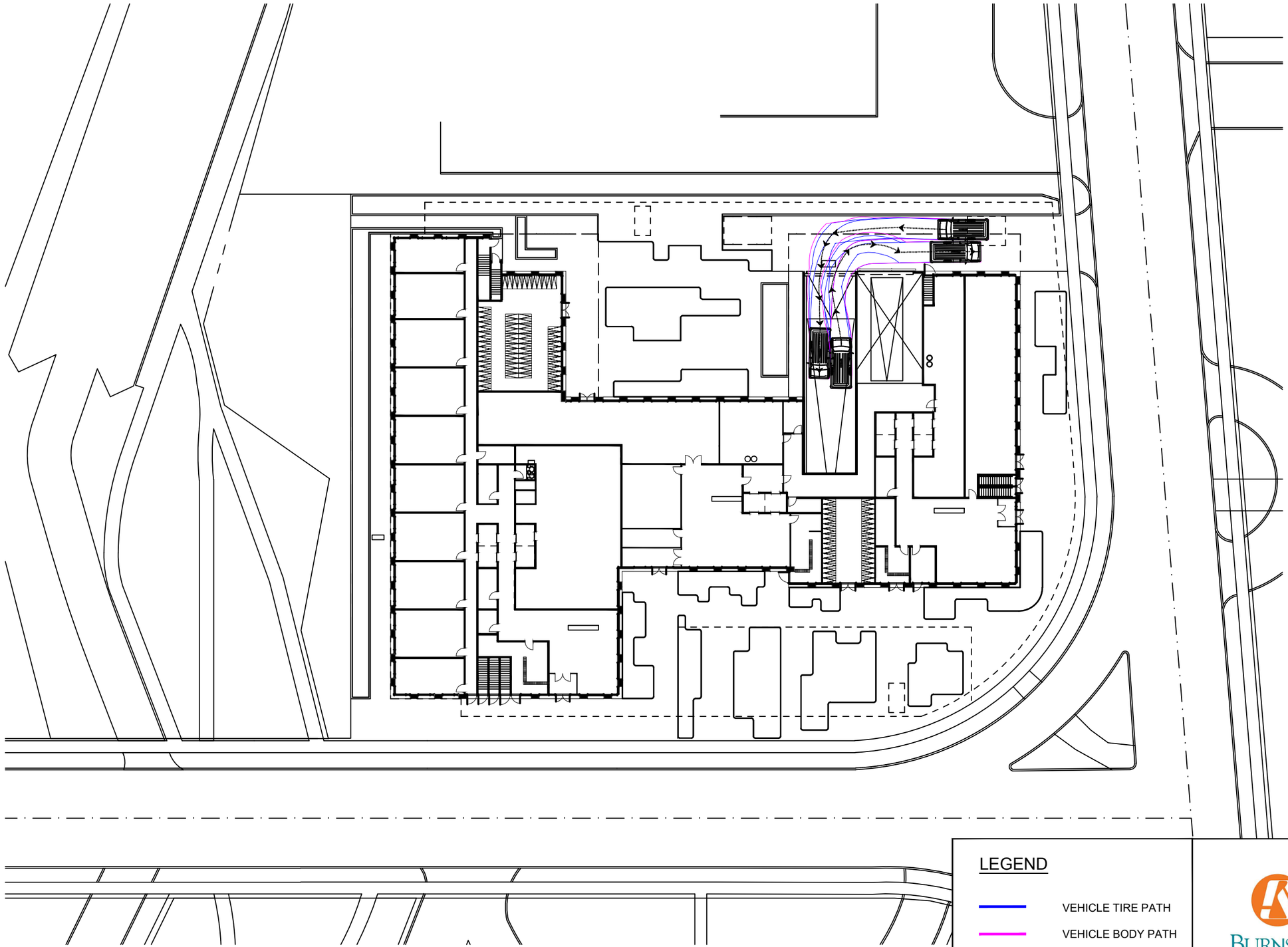
VEHICLE TIRE PATH

VEHICLE BODY PATH

48 GRENOBLE DRIVE

REFUSE TRUCK SWEPT PATH
ANALYSIS
LEVEL 1

R.J Burnside & Associates Limited
RR / CC / DWA
MARCH 11, 2022 N.T.S



LSU

		meters
Width	:	2.60
Track	:	2.60
Lock to Lock Time	:	6.0
Steering Angle	:	40.3

LEGEND

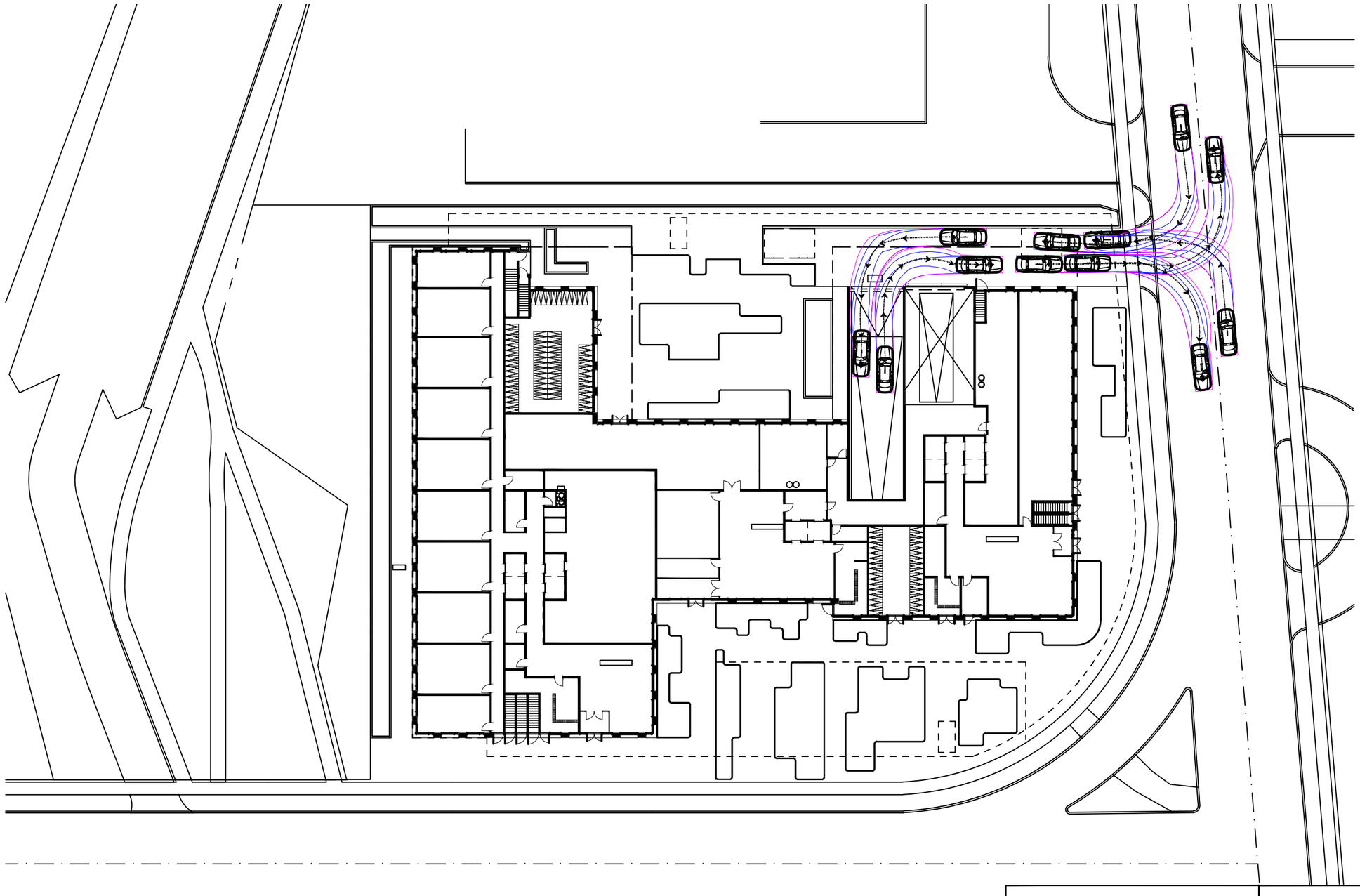
VEHICLE TIRE PATH

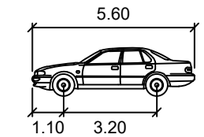
VEHICLE BODY PATH

48 GRENOBLE DRIVE

LSU TRUCK SWEPT PATH ANALYSIS
LEVEL 1

R.J Burnside & Associates Limited
RR / CC / DWA
MARCH 11, 2022 N.T.S





P

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

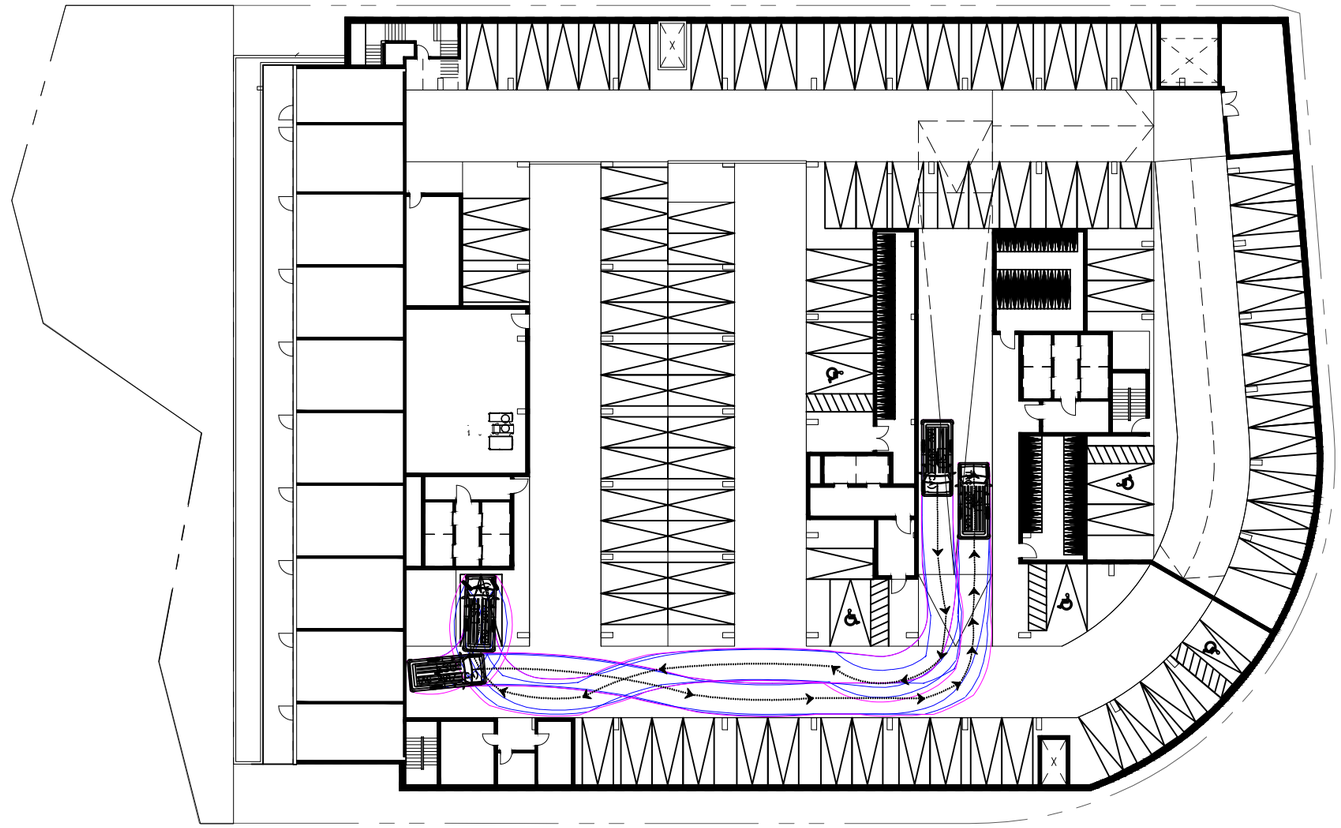
LEGEND

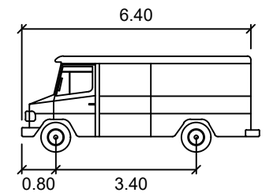
- VEHICLE TIRE PATH
- VEHICLE BODY PATH

48 GRENOBLE DRIVE

PASSENGER CAR SWEPT PATH ANALYSIS
LEVEL 1

R.J Burnside & Associates Limited
RR / CC / DWA
MARCH 11, 2022 N.T.S





LSU

		meters
Width	:	2.60
Track	:	2.60
Lock to Lock Time	:	6.0
Steering Angle	:	40.3

LEGEND

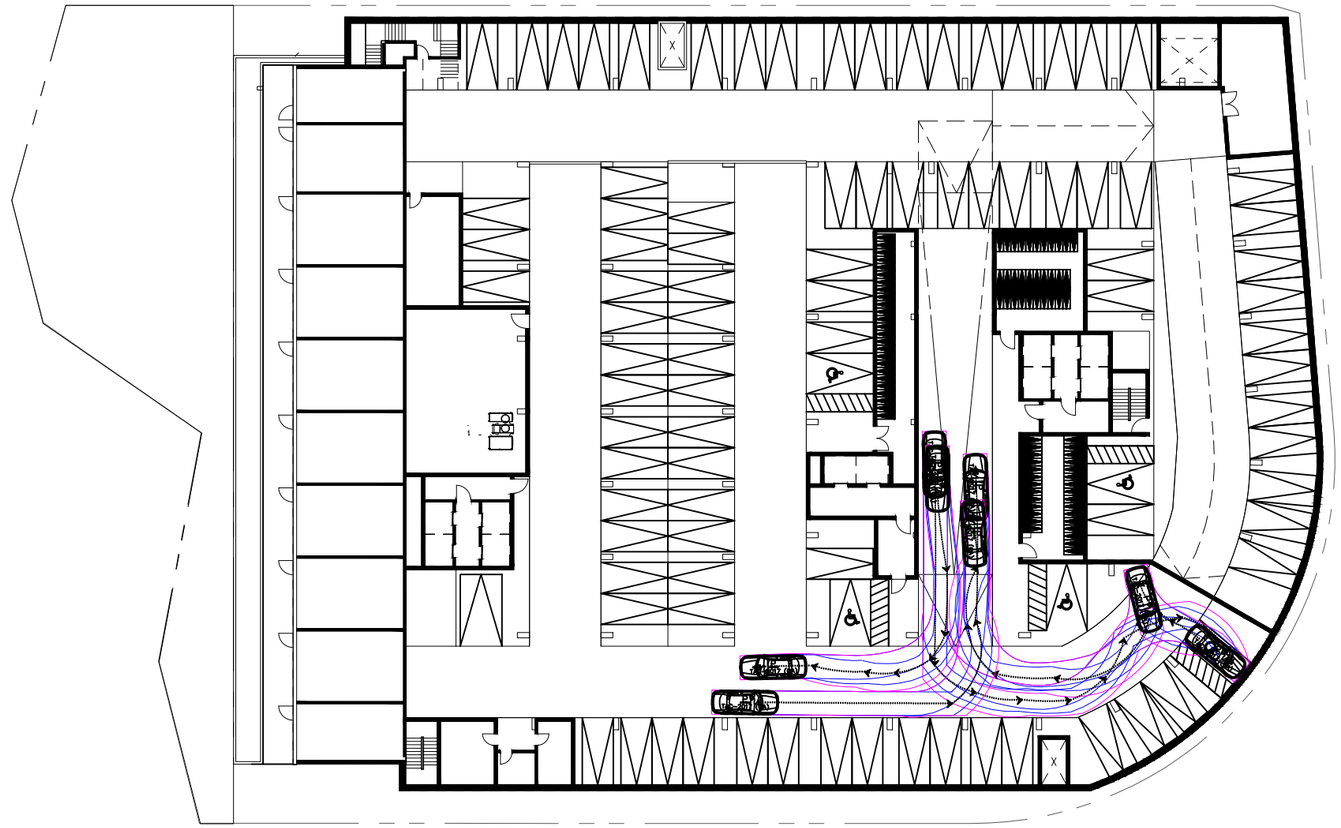
VEHICLE TIRE PATH

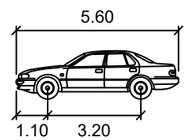
VEHICLE BODY PATH

48 GRENOBLE DRIVE

LSU TRUCK SWEPT PATH
ANALYSIS
LEVEL P1

R.J Burnside & Associates Limited
RR / CC / DWA
MARCH 11, 2022 N.T.S





P

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

LEGEND

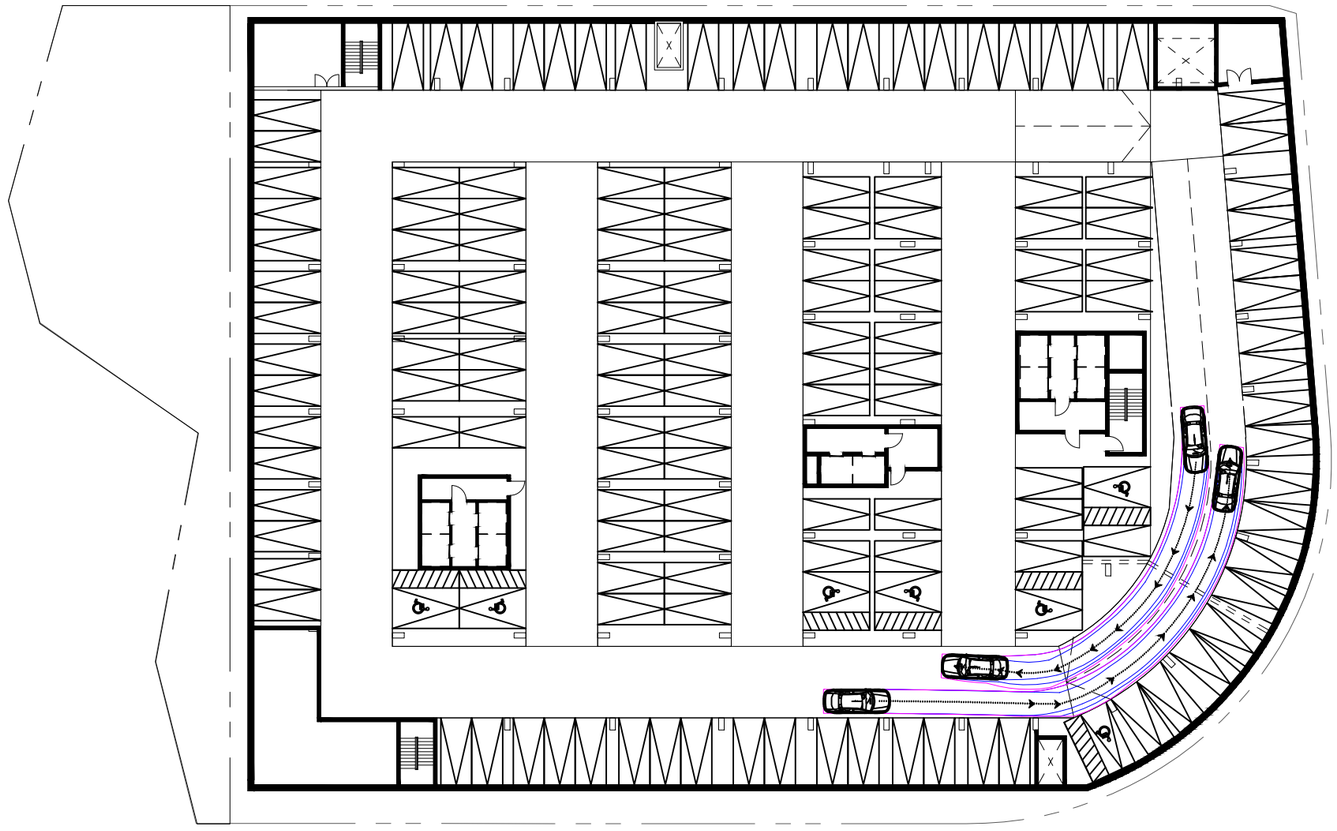
VEHICLE TIRE PATH

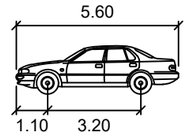
VEHICLE BODY PATH

48 GRENOBLE DRIVE

PASSENGER CAR SWEPT PATH ANALYSIS
LEVEL P1

R.J Burnside & Associates Limited
RR / CC / DWA
MARCH 11, 2022 N.T.S





P

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

LEGEND

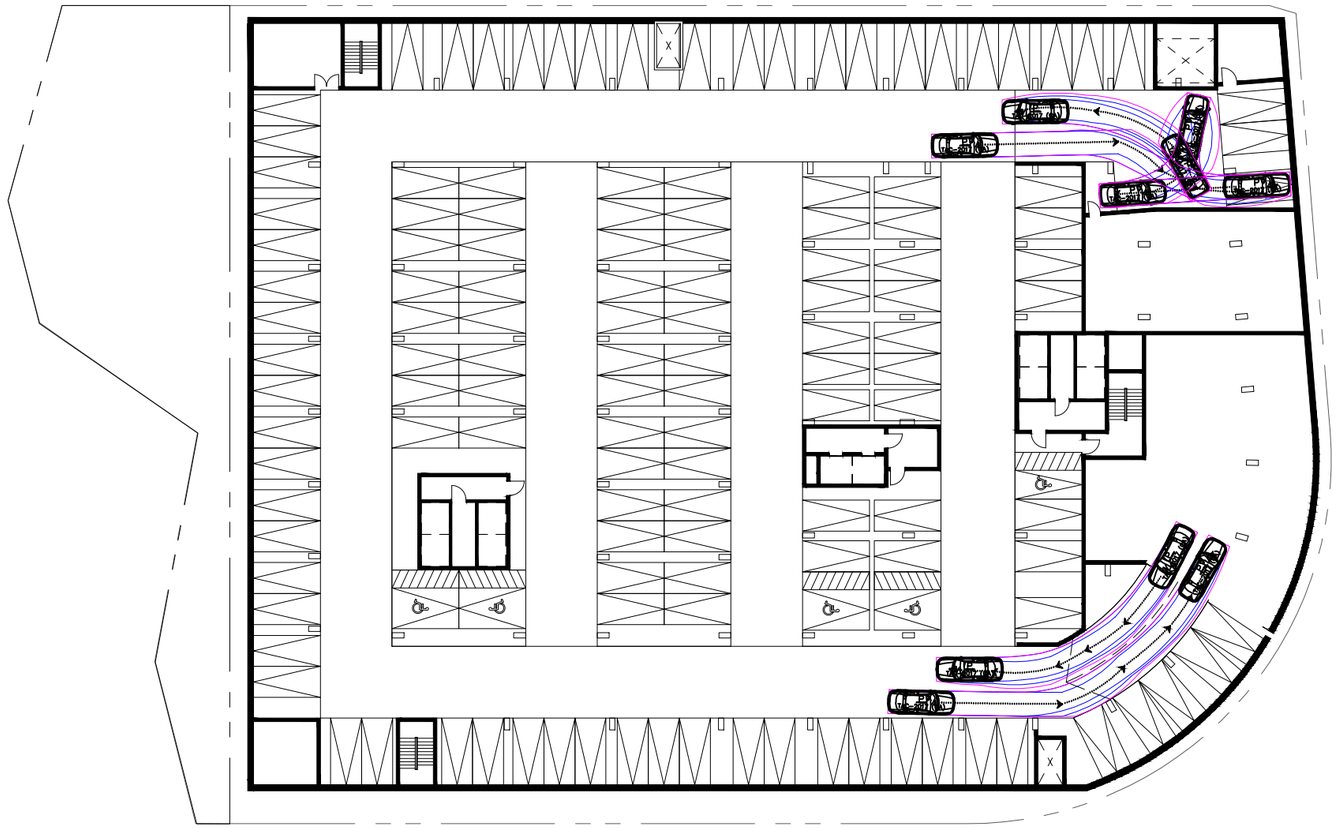
VEHICLE TIRE PATH

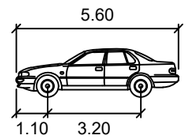
VEHICLE BODY PATH

48 GRENOBLE DRIVE

PASSENGER CAR SWEPT PATH ANALYSIS
LEVEL P2/P3

R.J Burnside & Associates Limited
RR / CC / DWA
MARCH 11, 2022 N.T.S





P

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

LEGEND

VEHICLE TIRE PATH

VEHICLE BODY PATH

BURNSIDE

48 GRENOBLE DRIVE

PASSENGER CAR SWEPT PATH ANALYSIS
LEVEL P4

R.J Burnside & Associates Limited
RR / CC / DWA
MARCH 11, 2022 N.T.S

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Appendix I

Draft Bicycle Zoning By-law Amendment

(E) shower and change facilities and **bicycle maintenance facilities** required by this By-law for required **bicycle parking spaces**;

15. Zoning By-law 569-2013, as amended, is further amended by adding the words "**bicycle maintenance facilities**" to Regulation 80.5.40.40(1)(D), so that it reads:

(D) shower and change facilities and **bicycle maintenance facilities** required by this By-law for required **bicycle parking spaces**;

16. Zoning By-law 569-2013, as amended, is further amended by adding to Clause 230.5.1.10 a new regulation (12), so that it reads:

(12) Bicycle Maintenance Facilities

If a **building** has uses for which 5 or more "long-term" **bicycle parking spaces** are required, **bicycle maintenance facilities** must be provided in the **building** with the following minimum dimensions:

(A) minimum length of 1.8 metres;
(B) minimum width of 2.6 metres; and
(C) minimum vertical clearance from the ground of of 1.9 metres.

17. Zoning By-law 569-2013, as amended, is further amended by amending regulation 230.5.10.1(5)(A) so that it reads:

(A) in Bicycle Zone 1, a minimum of 1.1 **bicycle parking spaces** for each **dwelling unit**, allocated as 0.9 "long-term" **bicycle parking space** per **dwelling unit** and 0.2 "short-term" **bicycle parking space** per **dwelling unit**; and

18. Zoning By-law 569-2013, as amended, is further amended by adding the words "**bicycle maintenance facilities**" to Regulation 230.5.10.1(6)(D), so that it reads:

(D) shower and change facilities and **bicycle maintenance facilities** required by this By-law for required **bicycle parking spaces**;

19. Zoning By-law 569-2013, as amended, is further amended by adding to Regulation 230.5.10.11(4) a new subsection (C), so that it reads:

(C) the **bicycle maintenance facility** requirements or be authorized by a Section 45 Planning Act minor variance.

20. Zoning By-law 569-2013, as amended, is further amended by adding to Clause 230.5.10.11 a new regulation (7), so that it reads:

(7) Lawfully Existing Building – Bicycle Maintenance Facility Exemption

Regulation 230.5.1.10(12) does not apply to a **lawfully existing building** that was not required to provide **bicycle maintenance facilities**.

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Appendix J

Zoning By-law 569-2013 Excerpts

	(A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 1.3 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 3.0 for each 100 square metres of **gross floor area**.			
Contractor's Establishment	**Parking spaces** must be provided at a minimum rate of 0.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Court of Law	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4) at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	0%
Crisis Care Shelter	**Parking spaces** must be provided: (A) at a minimum rate of 0.22 for each 100 square metres of **gross floor area**; and (B) at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.	100%	100%	100%
Day Nursery	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1), Policy Area 2 (PA2), Policy Area 3 (PA3) and Policy Area 4 (PA4): (i) at a minimum rate of 0.4 for each 100 square metres of **gross floor area**; and (ii) at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; and (B) in all other areas of the City at a minimum rate of 1.0 for each 100 square metres of **gross floor area**.	100%	100%	50%
Dwelling Unit in a **Detached House**, **Semi-detached House**, **Townhouse**, **Duplex**, **Triplex or Fourplex**	**Parking spaces** must be provided at a minimum rate of 1.0 for each **dwelling unit**.	100%	100%	100%
Dwelling unit in a Multiple Dwelling Unit Buildings - Resident **Parking Space**	**Parking spaces** must be provided at a minimum rate of 1.0 for each **dwelling unit**.	100%	100%	100%
Dwelling unit in a Multiple Dwelling Unit Buildings – Visitor **Parking Space**	**Parking spaces** must be provided at a minimum rate of 0.2 for each **dwelling unit**. [1676-2013]	100%	100%	100%
Dwelling unit in an **Apartment Building** (Resident requirement)	For a **dwelling unit** in an **apartment building**, **parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum rate of : (a) 0.3 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.5 for each one bedroom **dwelling unit**; (c) 0.8 for each two bedroom **dwelling unit**; and (d) 1.0 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of:	100%	100%	100%

	(a) 0.4 for each bachelor **dwelling unit** up to 45 square metres and 1.2 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.7 for each one bedroom **dwelling unit**; (c) 1.2 for each two bedroom **dwelling unit**; and (d) 1.5 for each three or more bedroom **dwelling unit**; and (B) in Policy Area 2 (PA2) and Policy Area 3 (PA3): (i) at a minimum rate of : (a) 0.6 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.7 for each one bedroom **dwelling unit**; (c) 0.9 for each two bedroom **dwelling unit**; and (d) 1.0 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of: (a) 0.9 for each bachelor **dwelling unit** up to 45 square metres and 1.3 for each bachelor **dwelling unit** greater than 45 square metres; (b) 1.0 for each one bedroom **dwelling unit**; (c) 1.3 for each two bedroom **dwelling unit**; and (d) 1.5 for each three or more bedroom **dwelling unit**; and (C) in Policy Area 4 (PA4): (i) at a minimum rate of : (a) 0.7 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.8 for each one bedroom **dwelling unit**; (c) 0.9 for each two bedroom **dwelling unit**; and (d) 1.1 for each three or more bedroom **dwelling unit**; and (ii) at a maximum rate of: (a) 1.0 for each bachelor **dwelling unit** up to 45 square metres and 1.3 for each bachelor **dwelling unit** greater than 45 square metres; (b) 1.2 for each one bedroom **dwelling unit**; (c) 1.3 for each two bedroom **dwelling unit**; and (d) 1.6 for each three or more bedroom **dwelling unit**; and (D) in all other areas of the City: (i) at a minimum rate of : (a) 0.8 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; (b) 0.9 for each one bedroom **dwelling unit**; (c) 1.0 for each two bedroom **dwelling unit**; and (d) 1.2 for each three or more bedroom **dwelling unit**.			
Dwelling unit in an **Apartment Building** – (Visitor requirement)	For a **dwelling unit** in an **Apartment Building**, **parking spaces** for visitors must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each **dwelling unit**; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each **dwelling unit**;	10%	35%	100%

	(C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each **dwelling unit**; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each **dwelling unit**; and (E) in all other areas of the City at a minimum rate of 0.2 for each **dwelling unit**.			
Dwelling unit in a **Mixed Use Building**	**Parking spaces** are to be provided at the same rate as a **Dwelling unit** in an **Apartment Building**. [1675-2013]	100%	100%	100%
Dwelling unit in a **Mixed Use Building Visitor Parking**	For a **dwelling unit** in an **Mixed Use Building**, **parking spaces** for visitors must be provided: (A) in Policy Area 1 (PA1) at a minimum rate of 0.1 for each **dwelling unit**; (B) in Policy Area 2 (PA2) at a minimum rate of 0.1 for each **dwelling unit**; (C) in Policy Area 3 (PA3) at a minimum rate of 0.1 for each **dwelling unit**; (D) in Policy Area 4 (PA4) at a minimum rate of 0.15 for each **dwelling unit**; and (E) in all other areas of the City at a minimum rate of 0.2 for each **dwelling unit**. [1676-2013]	10%	35%	100%
Eating Establishment	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1): (i) at a minimum of 0; and (ii) at a maximum rate of 3.5 for each 100 square metres of **gross floor area**; and (B) in Policy Area 2 (PA2): (i) at a minimum of 0; and (ii) at a maximum rate of 4.0 for each 100 square metres of **gross floor area**; and (C) in Policy Areas and 3 (PA3) and 4 (PA4) : (i) at a minimum of 0; and (ii) at a maximum rate of 5.0 for each 100 square metres of **gross floor area**; and (D) in all other areas of the City: (i) where the **gross floor area** used for **eating establishments** in a building is less than 200 square metres no **parking space** is required; (ii) where the **gross floor area** used for **eating establishments** in a building is 200 square metres or more but less than 500 square metres, **parking spaces** must be provided at a minimum rate of 3.0 for each 100 square metres of **gross floor area**; and (iii) where the **gross floor area** used for **eating establishments** in a building is 500 square metres or more, **parking spaces** must be provided at a minimum rate of 5.0 for each 100 square metres of **gross floor area**.	100%	100%	100%
Education Use	**Parking spaces** must be provided: (A) in Policy Area 1 (PA1) and Policy Area 2 (PA2), at a minimum rate of 0.5 for each 100 square metres of **gross floor area**; (B) in Policy Area 3 (PA3) at a minimum rate of 1.5 for each 100 square metres of **gross floor area**;	100%	100%	50%

(iii) minimum vertical clearance of 4.0 metres; and

(C) a Type "C" **loading space** must have a:

(i) minimum length of 6.0 metres;
(ii) minimum width of 3.5 metres; and
(iii) minimum vertical clearance of 3.0 metres; and

(D) a Type "G" **loading space** must have a:

(i) minimum length of 13.0 metres;
(ii) minimum width of 4.0 metres; and
(iii) minimum vertical clearance of 6.1 metres.

220.5.10 Loading Space Rates

220.5.10.1 General

(1) Loading Space Requirements

Loading spaces must be provided in compliance with regulations 220.5.10.1(2) to (9).

(2) Loading Space Requirements - Building Containing Dwelling Units

A **building** with **dwelling units** must provide **loading spaces** as follows:

Number of Units	Minimum Number of **Loading Spaces** Required
0 to 30 **dwelling units**	None required
31 to 399 **dwelling units**	1 Type "G"
400 **dwelling units** or more	1 Type "G" and 1 - Type "C"

(3) Loading Space Requirements - Retail Store, Eating Establishment, or Personal Service Shop

A **building** with a **retail store**, **eating establishment**, or **personal service shop** must provide **loading spaces** as follows:

Gross Floor Area	Minimum Number of **Loading Spaces** Required
0 to 499 square metres	None required
500 to 1,999 square metres	1 Type "B"
2,000 to 4,999 square metres	2 Type "B"
5,000 to 9,999 square metres	3 Type "B"
10,000 to 19,999 square metres	1 Type "A" and 3 Type "B"
20,000 to 29,999 square metres	1 Type "A", 3 Type "B" and 1 Type "C"
30,000 square metres or greater	1 Type "A", 3 Type "B" and 1 Type "C"

(4) Loading Space Requirements - Grocery stores/supermarket

A **building** with a grocery stores or supermarket must provide **loading spaces** as follows:

Gross Floor Area	Minimum Number of **Loading Spaces** Required
0 to 499 square metres	None required
500 to 999 square metres	1 Type "B"
1,000 to 1,999 square metres	1 Type "A"

(C) 2 for 61 to 120 required "long-term" **bicycle parking spaces**;

(D) 3 for 121 to 180 required "long-term" **bicycle parking spaces**; and

(E) 4 for more than 180 required "long-term" **bicycle parking spaces**.

(8) Bicycle Parking Space Located with Use

A **bicycle parking space** must be on the same **lot** as the use for which it is required.

(9) Long Term Bicycle Parking Space Location

If a **lot** is located in:

(A) the Commercial Zone category, Commercial Residential Zone category, Commercial Residential Employment Zone category, Institutional Zone category or Employment Zone category then a required "long-term" **bicycle parking space** for uses other than **dwelling units** may be located:

(i) on the first **storey** of the **building**;

(ii) on the second **storey** of the **building**;

(iii) on levels of the **building** below-ground commencing with the first level below-ground and moving down, in one level increments when at least 50% of the area of that level is occupied by **bicycle parking spaces**, until all required **bicycle parking spaces** have been provided; and

(B) the Residential zone category, Apartment Zone Category; Commercial Residential Zone category, Commercial Residential Employment Zone category, then a required "long-term" **bicycle parking space** for a **dwelling unit** in an **apartment building** or **mixed-use building** may be located:

(i) on the first **storey** of the **building**;

(ii) on the second **storey** of the **building**;

(iii) on levels of the **building** below-ground commencing with the first level below-ground and moving down, in one level increments when at least 50% of the area of that level is occupied by **bicycle parking spaces**, until all required **bicycle parking spaces** have been provided; and

(10) Stacked Bicycle Parking Spaces

A "long-term" **bicycle parking space** may be located in a **stacked bicycle parking space**.

(11) Bicycle Zones

Bicycle Zones in the City are:

(A) Bicycle Zone 1, is the area of the City bounded by the Humber River on the west, Lawrence Ave. on the north, Victoria Park Ave. on the east and Lake Ontario on the south; and

(B) Bicycle Zone 2, includes all areas of the City not included in Bicycle Zone 1.

230.5.10 Bicycle Parking Rates All Zones

230.5.10.1 General

(1) Bicycle Parking Space Rates

For a **building** or portion of a **building** constructed pursuant to a building permit issued more than three years after May 9, 2013, **bicycle parking spaces** must comply with Table 230.5.10.1(1).

Table 230.5.10.1(1)

	(B) in Bicycle Zone 2 is 3 plus 0.06 **bicycle parking spaces** for each 100 square metres of **interior floor area** used for a **public school** or **private school**.	used for a **public school** or **private school**.
Public School	the minimum number of short-term **bicycle parking spaces** to be provided: (A) in Bicycle Zone 1 is 3 plus 0.1 **bicycle parking spaces** for each 100 square metres of **interior floor area** used for a **public school** or **private school**; and (B) in Bicycle Zone 2 is 3 plus 0.06 **bicycle parking spaces** for each 100 square metres of **interior floor area** used for a **public school** or **private school**.	the minimum number of long-term **bicycle parking spaces** to be provided: (A) in Bicycle Zone 1 is 0.1 for each 100 square metres of **interior floor area** used for a **public school** or **private school**; and (B) in Bicycle Zone 2 is 0.06 for each 100 square metres of **interior floor area** used for a **public school** or **private school**.
Retail Store	the minimum number of short-term **bicycle parking spaces** to be provided: (A) in Bicycle Zone 1 is 3 plus 0.3 **bicycle parking spaces** for each 100 square metres of **interior floor area** used for a **retail store**; and (B) in Bicycle Zone 2 is 3 plus 0.25 **bicycle parking spaces** for each 100 square metres of **interior floor area** used for a **retail store**.	the minimum number of long-term **bicycle parking spaces** to be provided: (A) in Bicycle Zone 1 is 0.2 for each 100 square metres of **interior floor area** used for a **retail store;** and (B) in Bicycle Zone 2 is 0.13 for each 100 square metres of **interior floor area** used for a **retail store**.

(3) Use With Interior Floor Area of 2000 Square Metres or Less

Despite the **bicycle parking space** rates set out in regulations 230.5.10.1(1) and 230.5.10.1(5) and (6), if a **bicycle parking space** is required for uses on a **lot**, other than a **dwelling unit**, and the total **interior floor area** of all such uses on the **lot** is 2000 square metres or less, then no **bicycle parking space** is required.

(4) Multiple uses on a lot

If Table 230.5 10.1(1) Bicycle Parking Space Rates, requires a **bicycle parking space** for one or more uses on a **lot**, the total number of **bicycle parking spaces** required is equal to the cumulative total of all **bicycle parking spaces** required for each use on the **lot**.

(5) Bicycle Parking Space Requirements for Dwelling Units

Bicycle parking space requirements for **dwelling units** in an **apartment building** or a **mixed use building** are:

(A) in Bicycle Zone 1, a minimum of 1.0 **bicycle parking spaces** for each **dwelling unit**, allocated as 0.9 "long-term" **bicycle parking space** per **dwelling unit** and 0.1 "short-term" **bicycle parking space** per **dwelling unit**; and

(B) in Bicycle Zone 2, a minimum of 0.75 **bicycle parking spaces** for each **dwelling unit**, allocated as 0.68 "long-term" **bicycle parking space** per **dwelling unit** and 0.07 "short-term" **bicycle parking space** per **dwelling unit**.

(6) Interior Floor Area Exclusions for Bicycle Parking Space Calculations

To calculate **bicycle parking space** requirements for other than **dwelling units**, the **interior floor area** of a **building** is reduced by the area in the **building** used for:

(A) parking, loading and bicycle parking below-ground;

(B) required **loading spaces** at the ground level and required **bicycle parking spaces** at or above-ground;

BURNSIDE

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Appendix K

Zoning By-law 89-2022 Excerpts

Table 200.5.10.1

PARKING SPACE RATES

Land Use Category	**Parking Rate**
Resident Requirement for a **Dwelling unit** in an: **Apartment Building**, Assisted Housing or a **Mixed Use Building**	**Parking spaces** must be provided: (A) in Parking Zone A (PZA) at a maximum rate of: (i) 0.3 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; and (ii) 0.5 for each one bedroom **dwelling unit**; and (iii) 0.8 for each two bedroom **dwelling unit**; and (iv) 1.0 for each three or more bedroom **dwelling unit**; and (B) in Parking Zone B (PZB) at a maximum rate of: (i) 0.7 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; and (ii) 0.8 for each one bedroom **dwelling unit**; and (iii) 0.9 for each two bedroom **dwelling unit**; and (iv) 1.1 for each three or more bedroom **dwelling unit**; and (C) in all other areas of the City, at a maximum rate of: (i) 0.8 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; and (ii) 0.9 for each one bedroom **dwelling unit**; and (iii) 1.0 for each two bedroom **dwelling unit**; and (iv) 1.2 for each three or more bedroom **dwelling unit**.
Resident Requirement for a **Dwelling Unit** in a: **Detached House**, **Semi-detached House**, **Townhouse**, **Duplex**, **Triplex** or **Fourplex**	None
Resident Requirement for a **Dwelling Unit** in a Multiple Dwelling Unit Buildings	**Parking spaces** must be provided at a maximum rate of 1.0 for each **dwelling unit**.
Secondary Suite	None

Land Use Category	**Parking Rate**
Visitor Requirement: For a **dwelling unit** in an **Apartment Building**, a **Mixed Use Building**, and/or a Multiple Dwelling Unit Building	**Parking spaces** must be provided: (A) in Parking Zone A (PZA) at a minimum rate of 2.0 plus 0.01 per **dwelling unit**; (B) in Parking Zone B (PZB) and in all other areas of the City, at a minimum rate of 2.0 plus 0.05 per **dwelling unit** and (C) at a maximum rate of 1.0 per **dwelling unit** for the first five (5) **dwelling units**; and (D) at a maximum rate of 0.1 per **dwelling unit** for the sixth and subsequent **dwelling units**.
Tier 1: Alternative Housing, **Group Home**, **Hospice Care Home**, **Nursing Home**, **Religious Residence**, **Retirement Home**, **Respite Care Facility** and **Seniors Community House**	**Parking spaces** must be provided at a maximum rate of 0.5 for each **bed-sitting room** or **dwelling unit**.
Tier 2: Adult Education School, **Animal Shelter**, **Art Gallery**, Clinic (medical), **Community Centre**, Court of Law, **Day Nursery**, **Education Use**, Hospital, **Hotel**, **Kennel**, **Laboratory**, Motel, **Museum**, Office (Excluding Medical Office), **Performing Arts Studio**, **Post-Secondary School**, **Private School**, **Production Studio**, **Public School**, **Recreation Use**, **Religious Educational Use**, **Self-Storage Warehouse**, **Software Development and Processing**, **Vehicle Dealership**, **Veterinary Hospital**	**Parking spaces** must be provided: (A) in Parking Zone A (PZA) at a maximum rate of 0.8 for each 100 square metres of **gross floor area**; (B) in Parking Zone B (PZB) at a maximum rate of 1.0 for each 100 square metres of **gross floor area**; and (C) in all other areas of the City, at a maximum rate of 3.5 for each 100 square metres of **gross floor area**.
Tier 3: **Crisis Care Shelter**, **Municipal Shelter**, **Residential Care Home**	**Parking spaces** must be provided at a maximum rate of 1.5 for each 100 square metres of **gross floor area**.

Table 200.15.10.5

Parking Space Rates for Effective Parking Spaces

Land Use Category	**Rate for Calculating Effective Parking Spaces**
Resident Requirement for a **Dwelling unit** in an: **Apartment Building**, Assisted Housing or a **Mixed Use Building**	The rate for calculating effective **parking spaces** is: (A) in Parking Zone A (PZA) at a rate of: (i) 0.3 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; and (ii) 0.5 for each one bedroom **dwelling unit**; and (iii) 0.8 for each two bedroom **dwelling unit**; and (iv) 1.0 for each three or more bedroom **dwelling unit**; and (B) in Parking Zone B (PZB) at a rate of: (i) 0.7 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; and (ii) 0.8 for each one bedroom **dwelling unit**; and (iii) 0.9 for each two bedroom **dwelling unit**; and (iv) 1.1 for each three or more bedroom **dwelling unit**; and (C) in all other areas of the City, at a rate of: (i) 0.8 for each bachelor **dwelling unit** up to 45 square metres and 1.0 for each bachelor **dwelling unit** greater than 45 square metres; and (ii) 0.9 for each one bedroom **dwelling unit**; and (iii) 1.0 for each two bedroom **dwelling unit**; and (iv) 1.2 for each three or more bedroom **dwelling unit**.

Land Use Category	**Rate for Calculating Effective Parking Spaces**
Resident Requirement for a **Dwelling Unit** in a: **Detached House**, **Semi-detached House**, **Townhouse**, **Duplex**, **Triplex** or **Fourplex**	None
Resident Requirement for a **Dwelling Unit** in a Multiple Dwelling Unit Buildings	The rate for calculating effective **parking spaces** is 1.0 for each **dwelling unit**.
Secondary Suite	None
Visitor Requirement for a **dwelling unit** in an **Apartment Building**, a **Mixed Use Building**, and/or a Multiple Dwelling Unit Building	The rate for calculating effective **parking spaces** is 0.1 per **dwelling unit**.
Tier 1: Alternative Housing, **Group Home**, **Hospice Care Home**, **Nursing Home**, **Religious Residence**, **Retirement Home**, **Respite Care Facility** and **Seniors Community House**	The rate for calculating effective **parking spaces** is 0.2 **parking spaces** for each **bed-sitting room** or **dwelling unit**
Tier 2: Adult Education School, **Animal Shelter**, **Art Gallery**, Clinic (medical), **Community Centre**, Court of Law, **Day Nursery**, **Education Use**, Hospital, **Hotel**, **Kennel**, **Laboratory**, Motel, **Museum**, Office (Excluding Medical Office), **Performing Arts Studio**, **Post-Secondary School**, **Private School**, **Production Studio**, **Public School**, **Recreation Use**, **Religious Educational Use**, **Self-Storage Warehouse**, **Software Development and Processing**, **Vehicle Dealership**, **Veterinary Hospital**	The rate for calculating effective **parking spaces** is: (A) in Parking Zone A (PZA) and Parking Zone B (PZB), 0.4 **parking spaces** for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, 1.0 **parking spaces** for each 100 square metres of **gross floor area.**
Tier 3: **Crisis Care Shelter**, **Municipal Shelter**, **Residential Care Home**	The rate for calculating effective **parking spaces** is 0.2 **parking spaces** for each 100 square metres of **gross floor area**

Land Use Category	**Rate for Calculating Effective Parking Spaces**
Tier 4: **Adult Entertainment**, Ambulance Depot, **Amusement Arcade**, **Artist Studio**, Billiard Hall, Bowling Alley, Bus Station, **Cabaret**, **Cemetery**, **Club**, **Contractor's Establishment**, **Eating Establishment**, **Entertainment Place of Assembly**, **Financial Institution**, Fire Hall, **Funeral Home**, **Gaming Establishment**, Golf Course, Grocery Store, **Industrial Sales and Service**, Industrial Skills Training, Library, **Manufacturing Uses**, Medical Office, **Nightclub**, **Park**, **Personal Service Shop**, **Pet Services**, **Place of Assembly**, **Place of Worship**, Police Station, Pool Hall, Railway Service and Repair Yard; Railway Station, **Retail Service**, **Retail Store**, **Service Shop**, **Vehicle Depot**, **Vehicle Fuel Station**, **Vehicle Repair Shop**, **Vehicle Service Shop**, **Visitation Centre**, **Warehouse, Wholesaling Use**	The rate for calculating effective **parking spaces** is: (A) in Parking Zone A (PZA) and Parking Zone B (PZB), 1.0 **parking spaces** for each 100 square metres of **gross floor area**; and (B) in all other areas of the City, 2.0 **parking spaces** for each 100 square metres of **gross floor area.**

200.15.10.10 Parking Rate – Accessible Parking Spaces

(1) Accessible Parking Rates – General

In accordance with Table 200.15.10.5, if the number of effective **parking spaces** associated with **dwelling units** is 5 or more, or if the number of effective **parking spaces** associated with uses in Tiers 1, 2, 3, or 4, excluding medical offices and clinics, is 1 or more, clearly identified off **street** accessible **parking spaces** must be provided on the same **lot** as every **building** or **structure** erected or enlarged, as follows:

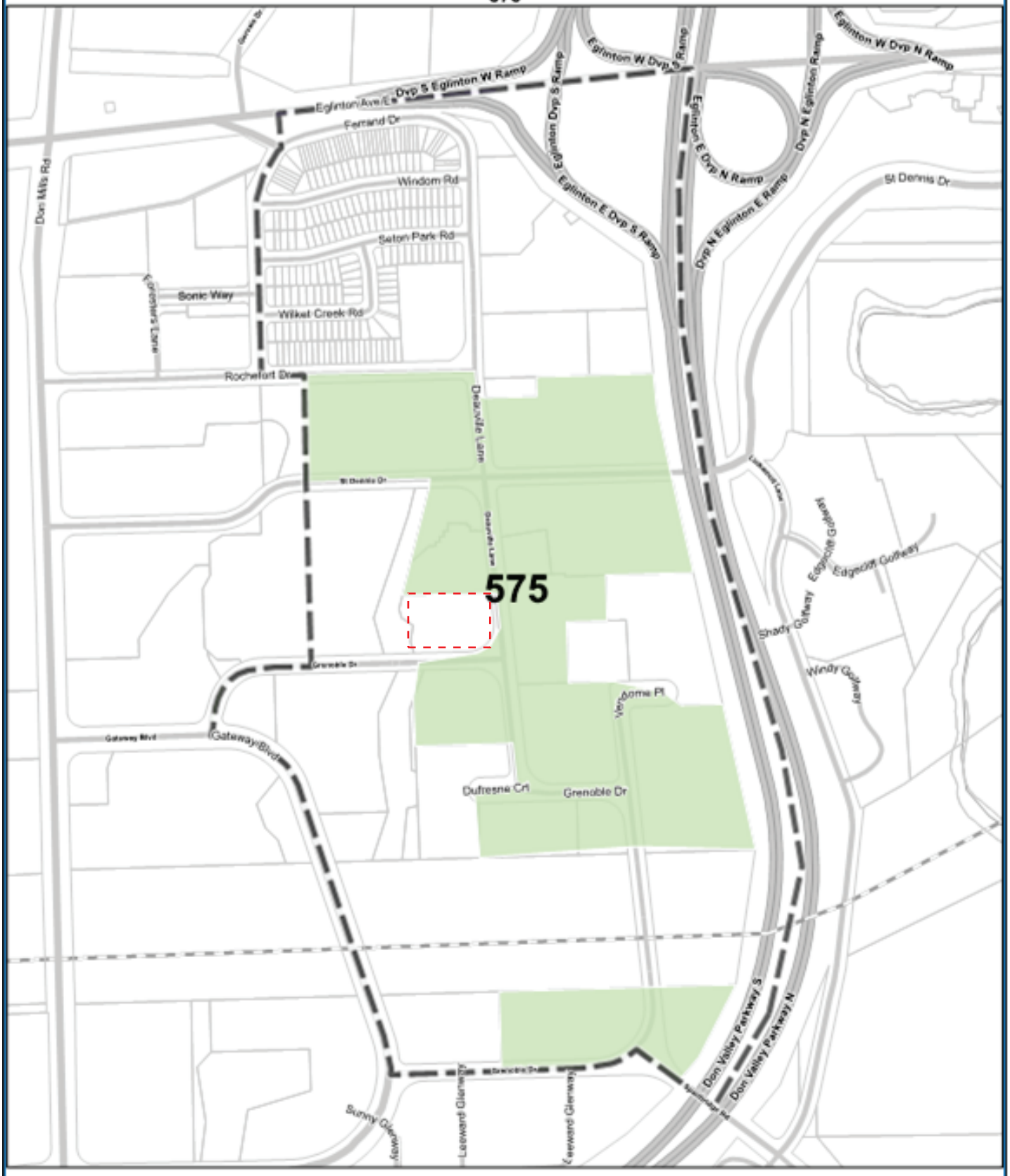
(A) if the number of effective **parking spaces** is less than 13, a minimum of 1 accessible **parking space** must comply with all regulations for an accessible **parking space** in Section 200.15;

(B) if the number of effective **parking spaces** is 13 to 100, a minimum of 1 accessible **parking space** for every 25 effective **parking spaces** or part thereof must comply with all regulations for an accessible **parking space** in Section 200.15; and

(C) if the number of effective **parking spaces** is more than 100, a minimum of 5 accessible **parking spaces** plus 1 accessible **parking space** for every 50 effective **parking spaces** or part thereof in excess of 100 **parking spaces** must comply with all regulations for an accessible **parking space** in Section 200.15.

(2) Accessible Parking Rates – Medical Offices and Clinics

In accordance with Table 200.15.10.5, if the number of effective **parking spaces** associated with medical offices and clinics is 1 or more, accessible **parking spaces** which comply with all regulations for an accessible **parking space** in Section 200.15 must be provided, as follows:

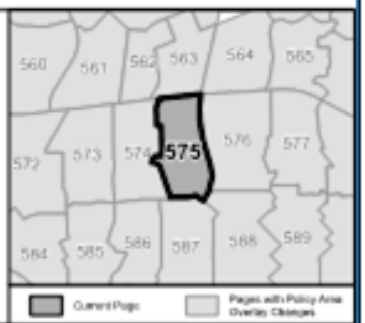


TORONTO City Planning

Parking Zone Overlay

February 1st, 2022

- Parking Zone A
- Parking Zone B
- Lot Boundary
- Rail Line, Spur or Yard
- Hydro Line
- River
- Map Sheet Boundary



R.J. Burnside & Associates Limited