

Dymon Group of Companies

3855 Dundas Street West



**Transportation
Impact
Study**



Dymon 3855 Dundas Street West

Transportation Impact Study

Prepared for:

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Executive Summary

CGH Transportation Inc. has been retained by Dymon Group of Companies to undertake a Transportation Impact Study, and an Access Review to support the development application for a proposed mixed-use development at 3855 Dundas Street West in the City of Mississauga.

A Transportation Impact Study (TIS) was previously prepared by others in 2018 for the proposed development at 3855 Dundas Street West. An updated TIS was submitted by Crozier in November 2020. The site design and building Gross Floor Areas (GFAs) have changed since the previous submission. This report provides an updated study with the new site stats and addresses the comments received from the City of Mississauga, Halton Region, and MTO in July 2022.

The enclosed Transportation Impact Study evaluates the impacts of the proposed development on the surrounding transportation network, recommends potential mitigation measures for the anticipated operational concerns, and provides a Transportation Demand Management Plan. The Access Review examines the compliance of the proposed access design with Halton Region's and TAC requirements.

Proposed Development:

The proposed development of 3855 Dundas Street West is located west of the Highway 403 interchange at Dundas Street East. A four-storey mixed-use building is proposed, consisting of 168,091 square feet of self-storage space, 1,048 square feet of wine cellar, 61,941 square feet of Dymon Work Refined office space, 13,255 square feet of industrial condo units, and 15,065 square feet of reception / retail area as ancillary use. A total of 190 vehicle parking spaces will be provided, including 97 at-grade and 93 underground. A total of 12 barrier-free parking spaces will be provided among them. A total of 28 bicycle parking spaces will be provided on site, including 16 short-term and 12 long-term spaces. The development will also include a 1,464 square metre (15,760 square feet) interior drive-through area which serves the self-storage customers by providing loading and overflow parking spaces.

A full-movement access on Ninth Line approximately 110 metres north of Dundas Street East (from curb return to curb return) is proposed for this site. The access will align with the existing Glen Oaks Funeral Home & Cemetery Access (herein referred to as the Glen Oaks Access) on the west side of Ninth Line. The vehicles will circulate the site via a two-way driveway surrounding the building providing access to the surface parking spaces, the drive-through / interior loading area, the exterior loading area, and the ramp to underground parking.

Analysis Process & Key Findings:

Full build-out is estimated to occur in 2026. Traffic analysis for the existing (2023), full build-out (2026), and full build-out plus five years horizons (2031) for weekday AM and PM peak periods was conducted based on City of Mississauga's Transportation Impact Study Guidelines.

Pedestrian, cycling, and transit volumes generated by the proposed development are expected to have a minimal impact on the surrounding active transportation modes and transit facilities due to the low site trip volumes and the significant available capacity in the future with the planned bicycle lanes, sidewalks, and Dundas Street BRT within the Study Area road network. This study has focused on Level of Service (LOS) analysis for auto mode.

The Existing Conditions of the Study Area road network indicates that the Ninth Line at Dundas Street East intersection is operating at capacity during the PM peak hour with several movements having v/c ratios around 1.0. This is consistent with the existing high through volumes along Dundas Street East and considered acceptable

at the intersection of two Regional roads. Signal timing optimization, involving implementing a permissive-overlap phase for northbound right-turn movement, has been proposed to mitigate the operational concern.

Growth rates for Dundas Street and Ninth Line were obtained from the City of Mississauga. The widening of Ninth Line from two lanes to four lanes north of the Ninth Line at Dundas Street East intersection, is anticipated to be completed before the 2031 horizon and will be incorporated into the 2031 Future Background analysis. The vehicle traffic analysis of the Study Area intersections of the Future Background horizons indicates multiple critical movements at the Ninth Line at Dundas Street East intersection triggered by the high through-movement volumes along Dundas Street East added by the background developments to the intersection that is already at-capacity under existing conditions. Signal optimization has been proposed as a mitigation measure for the Ninth Line at Dundas Street East intersection for 2026 and 2031 Future Background conditions. No geometric reconfigurations have been proposed due to the limits on the rights-of-way of the roads and the existing properties within the Study Area.

The proposed development is projected to generate 110 AM and 94 PM two-way vehicle trips in both 2026 and 2031 horizons, based on proxy site rates. Synchro analysis results for the 2026 and 2031 Future Total conditions show that the site-generated traffic will have a negligible impact on the operational conditions at the Ninth Line at Dundas Street East intersection as the v/c ratios and delays are projected to increase slightly from the values in Future Background conditions. Signal optimization has been proposed as a mitigation measure similar to existing and Future Background scenarios. The outbound traffic at the Site Access at Ninth Line intersection is projected to perform within permissible operational thresholds for both 2026 and 2031 Future Total scenarios. The high through volumes projected along Ninth Line have the potential to generate queuing for the site access but it is anticipated that the queue can be accommodated by the driveway on site.

The access onto Ninth Line will operate as a full movement unsignalized access. The access has been reviewed per Mississauga's TIS Guidelines and TAC Geometric Design Guide with no issues identified aside from the access throat length. The deficiency in clear throat length can be accepted for the specific use on this site as Synchro analysis result shows that there would be at most 1 to 2 vehicles queuing in the two driveways approaching the access at 95th percentile. Therefore, blockages to inbound vehicles and impacts to the adjacent street are unlikely.

No conflicts within the site have been noted as a result of the site circulation analysis for garbage and loading trucks. The driveways, curbs, and the loading bays can all accommodate the design vehicles (WB-20 and HSU).

A total of 190 parking spaces are proposed for all uses. The details of the parking and loading evaluations are provided in a separate document, the Parking Justification Letter. The recommended parking space provisions will be based on the proxy site parking demand rates.

As required in Mississauga's Transportation Impact Study Guidelines, a Transportation Demand Management (TDM) statement has been prepared. This statement documents the various TDM measures, including: transit facilities improvement, pedestrian and cycling facilities improvement, and parking reduction.

Given the minor impact of the proposed development on the surrounding Study Area road network, the proposed development application is recommended to proceed from a transportation perspective.

1 Introduction

CGH Transportation has been retained by Dymon Group of Companies to undertake the transportation impact study to support the Zoning By-law Amendment and Site Plan Application of 3855 Dundas Street West in the City of Mississauga. As such, a Transportation Impact Study, On-site Circulation Study, Access Study, and a Transportation Demand Management Plan have been developed.

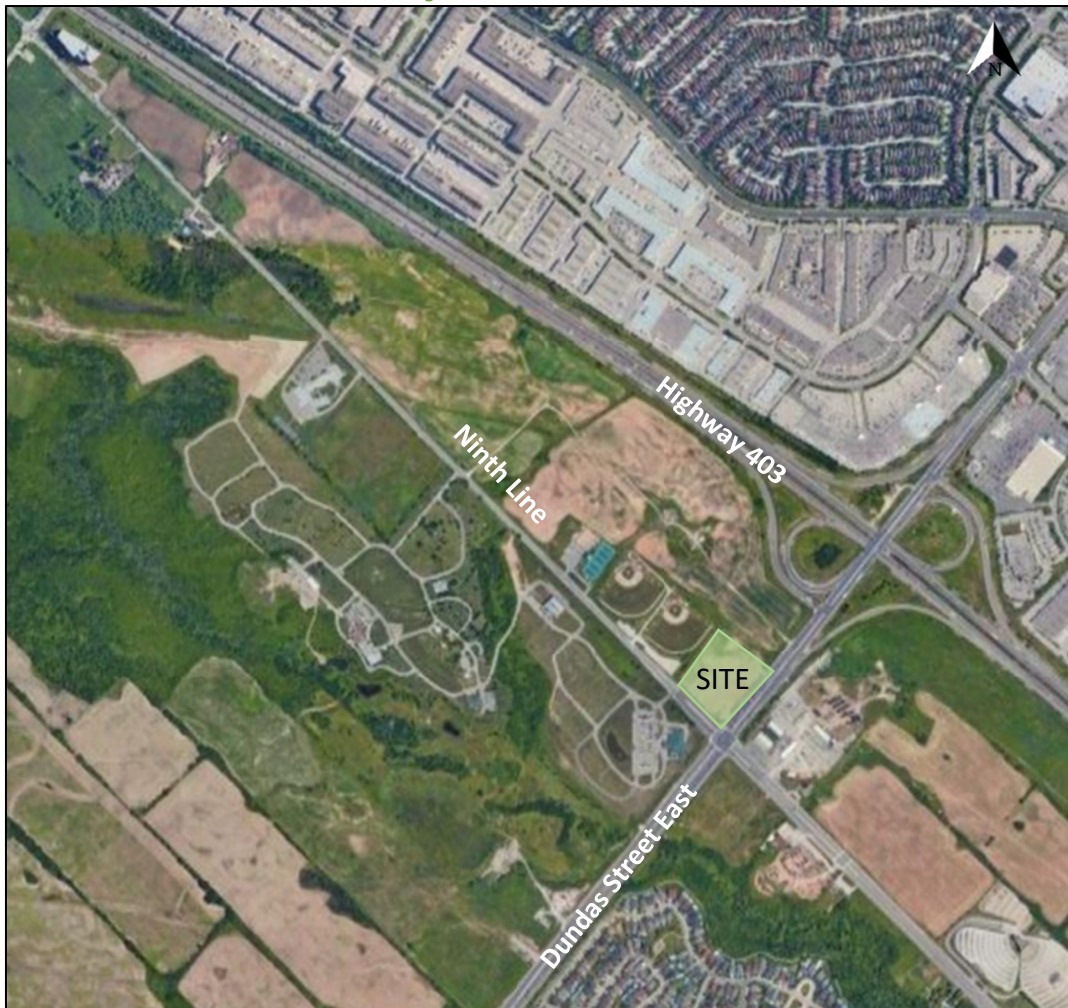
1.1 Summary of Consultation with Agencies

Prior to completion of this study, the pre-study consultation checklist outlining the scope, horizons, assumptions, and Synchro parameters was submitted to the City of Mississauga. The submitted and approved checklist for this development, as well as various email correspondences, can be found in Appendix A.

1.2 Proposed Development

The proposed development is located on the northeast corner of the intersection of Ninth Line and Dundas Street East. The subject land is currently zoned as an Employment Schedule E2-93 zone, with a multitude of permitted land uses related to employment activities, including office and self-storage. The subject site is currently vacant, with a sports park to the north, a funeral home and cemetery to the west, opposite of Ninth Line, and a garden centre to the south, opposite of Dundas Street East. Figure 1 illustrates the Study Area Context.

Figure 1: Area Context Plan



The proposed development consists of a four-storey building containing a mix of Dymon self-storage and office land uses. The four-storey building will include approximately 15,616 m² (168,091 ft²) of self-storage, 97 m² (1,048 ft²) of wine cellar, 5,755 m² (61,941 ft²) of office space, 1,231 m² (13,255 ft²) of industrial condo units, and 1,400 m² (15,065 ft²) of reception and retail area. There is also a 1,464 m² (15,760 ft²) interior loading / parking area that serves the industrial condos and self-storage customers.

One full-movement vehicular site access is proposed on Ninth Line to serve the proposed Dymon development. The proposed site access is located approximately 150 metres north of the intersection of Ninth Line and Dundas Street East and will align with the Glen Oaks Access. Figure 2 illustrates the proposed site plan.

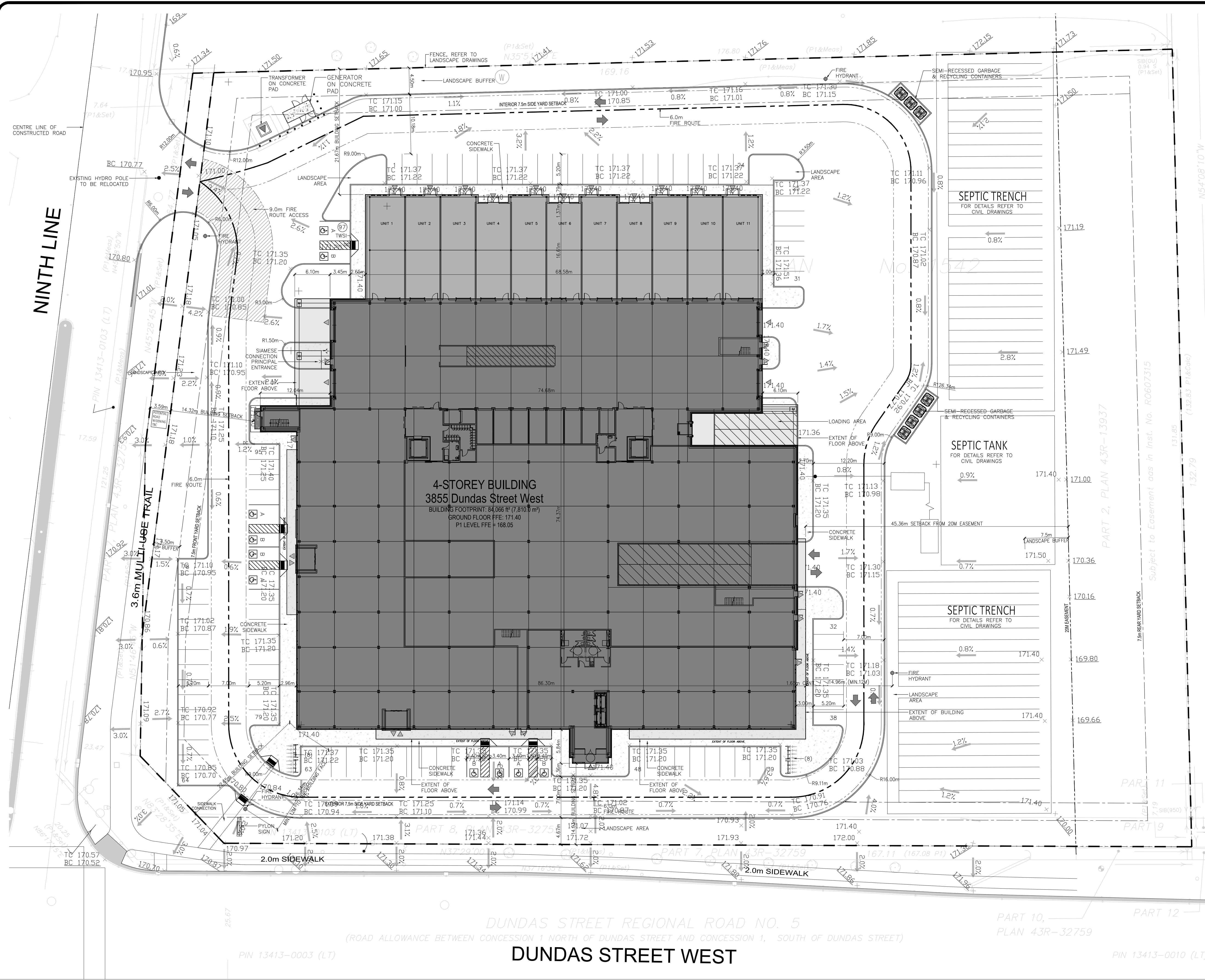
For the purposes of this report, it has been assumed that the proposed development will be built and operational by 2026. Therefore, the analysis horizons will include 2023 existing conditions, a full build-out horizon year of 2026, and a full build-out plus five years horizon year of 2031.

1.3 Study Area

The Study Area will consist of the following intersections:

- Dundas Street East at Ninth Line (Existing)
- Glen Oaks Funeral Homes & Cemetery Access at Ninth Line (Existing)
- Glen Oaks Funeral Homes & Cemetery Access / Dymon Site Access at Ninth Line (Future)

Figure 2: Site Plan



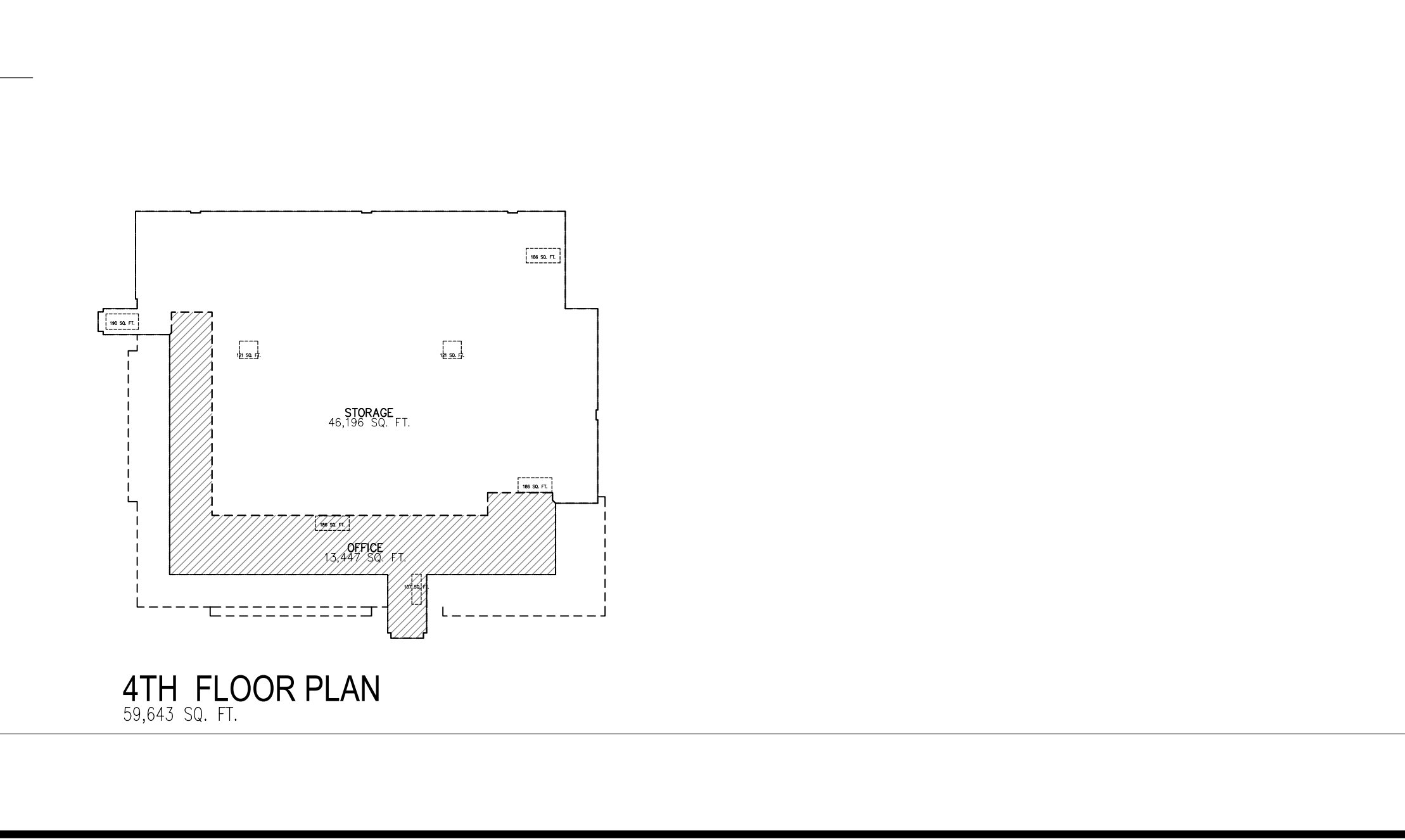
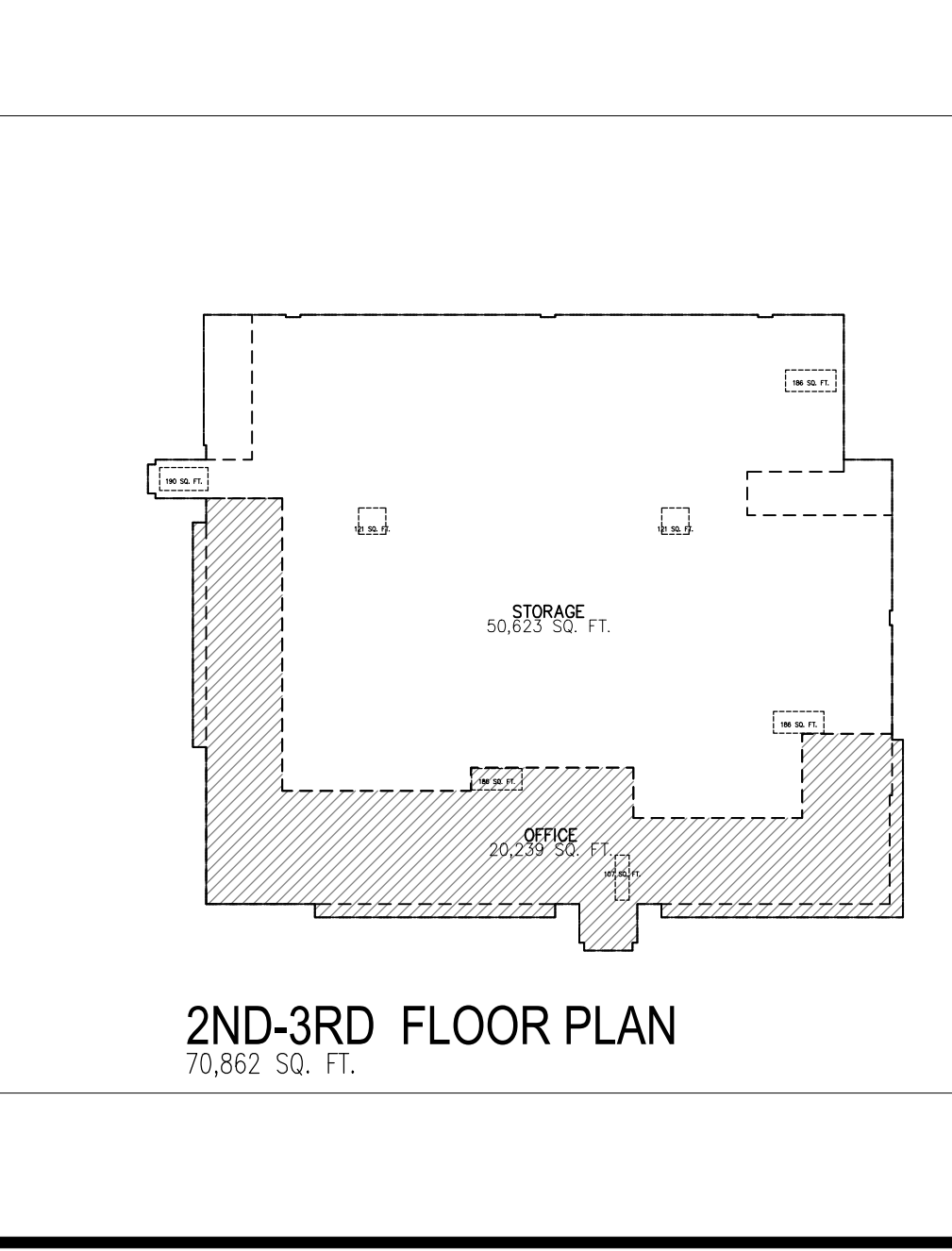
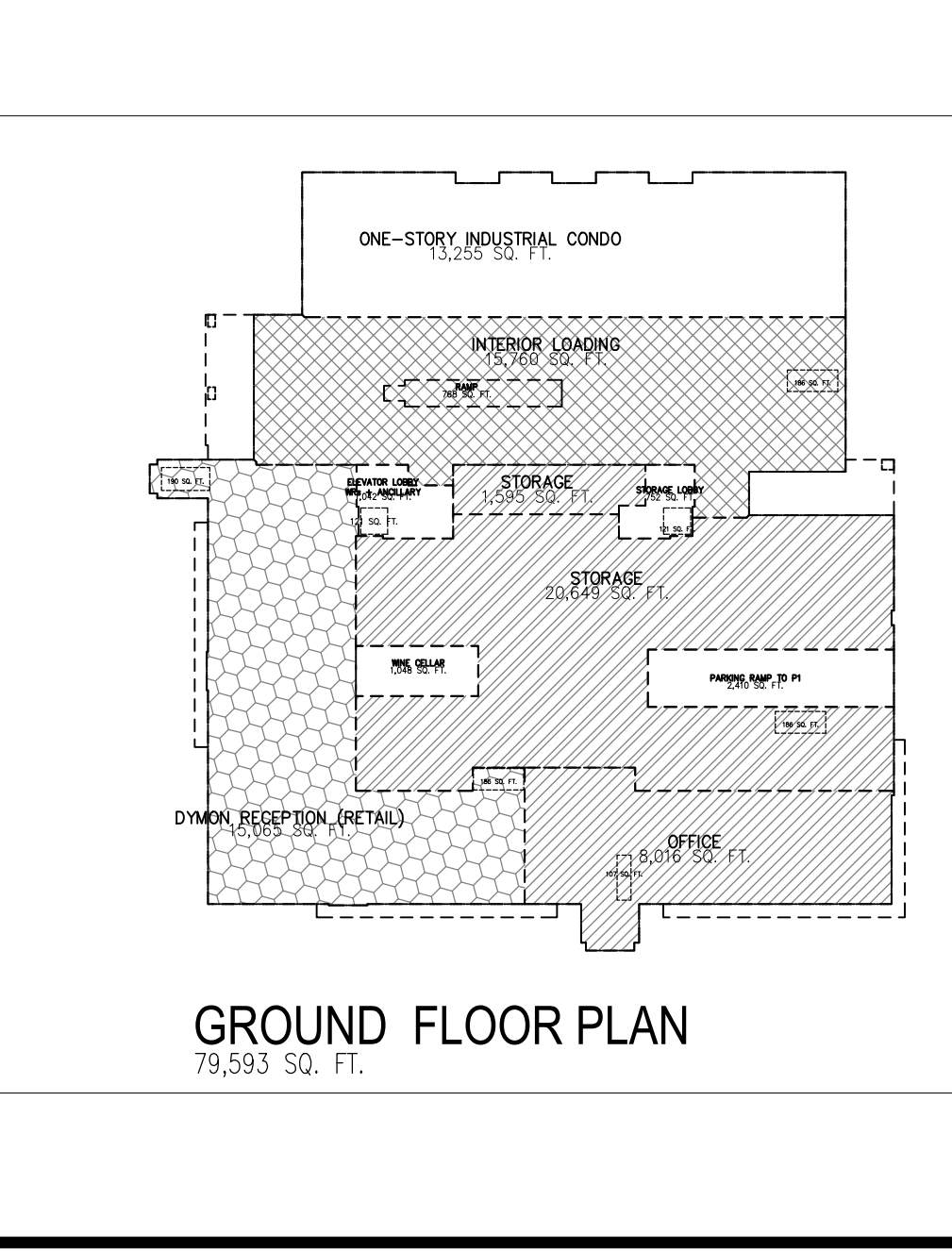
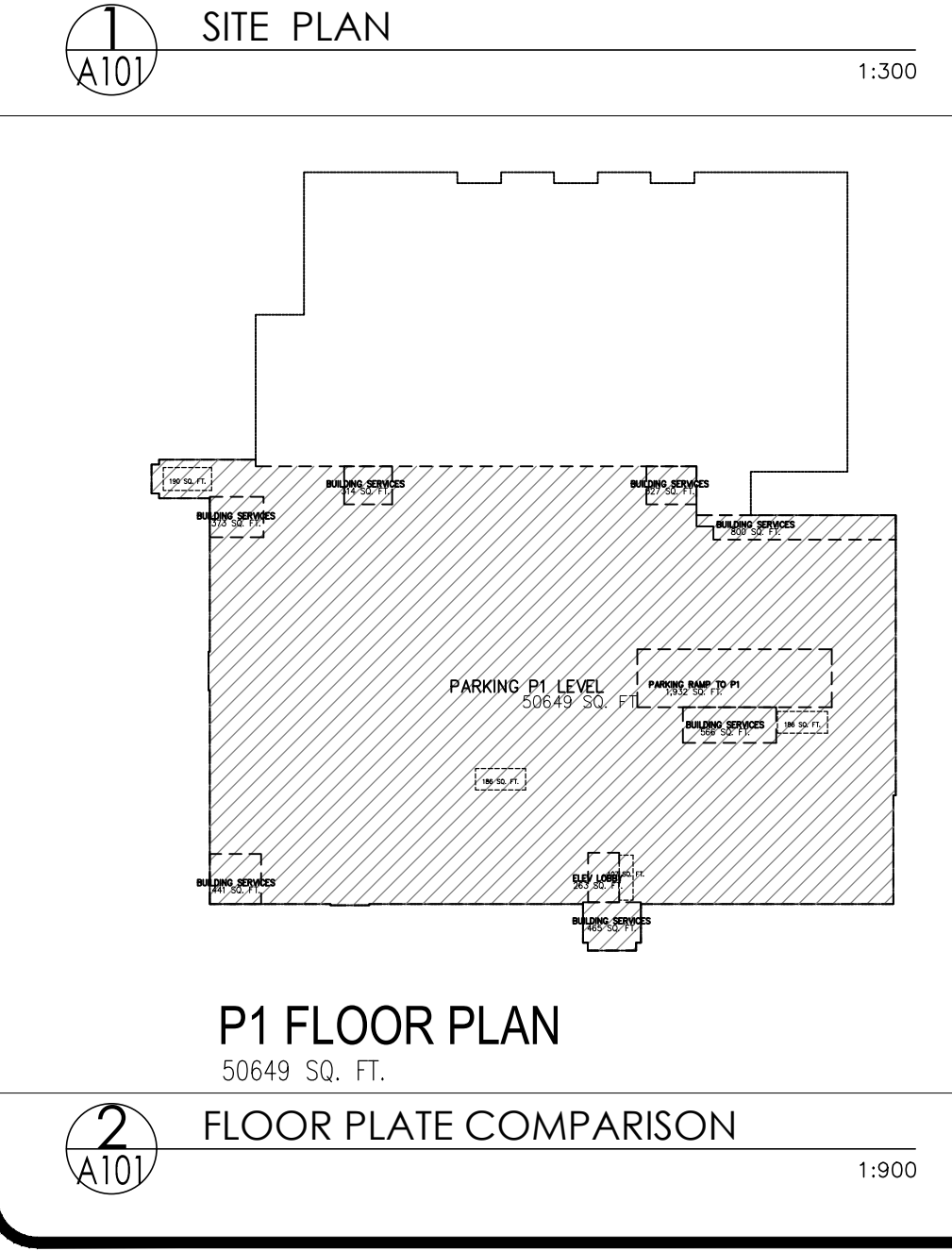
SITE STATISTICS			
LEGAL DESCRIPTION OF PROPERTY LOT 4, REGISTRATION COMPLED PLAN 542 CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF HILL SURVEYED BY SPEIGHT, VAN NOSTRAND & GIBSON LIMITED ONTARIO LAND SURVEYORS 2018			
EXISTING REGISTRATION (By-law S21-2016 (CMB))	PROPOSED	REMOVED	COMPLIANCE
Total Lot Area	23,871.0m ²	(256,962)	N/A
R.O.V. Road Widening (to be confirmed)	291.3m	(1,142)	
Lot Area	23,579.7m ²	(253,820)	
Building Footprint Area	7,850.0m ²	(84,966)	33.3% of lot area
GFA per uses			
Drive-through Loading Area	1,043.2m ²	(11,700)	
Storage Lobby	165.2m ²	(1,796)	
Reception & Retail Area	1,799.6m ²	(15,067)	
Parking Ramp Area	223.0m ²	(2,434)	
Self Storage Ground to 4th Floor	15,436.2m ²	(168,017)	
Self Storage Ground to 4th Floor	15,436.2m ²	(168,017)	
Wine Cellar & Lounge	97.4m ²	(1,048)	
Industrial Goods Self Storage	1,231.4m ²	(13,259)	
Total Building GFA per uses (excluding P1)	25,953.8m²	(279,854)	
Building Setbacks			
Setback from North Line - Front yard	14.6m	7.5m	YES
Setback from Rear yard	45.36m (to 20m easement)	7.5m	YES
Setback from Dundas Street West - Exterior Side yard	12.27m	7.5m	YES
Setback from north property line - Interior Side yard	21.47m	7.5m	YES
Building Height	4 storeys	21.3m (5-storey building)	
Permitted uses			
Retail, Offices & Self Storage Warehouse			
Parking spaces			
As per Parking Classification Report	190 spaces (97 grade & 93 at underground level)	202	NO
Industrial uses (Self Storage Warehouse) - 0.25 per 300m ² net floor area		39	
Retail - 4.3 per 300m ² net floor area		66	
Office - 1.0 per 300m ² net floor area		12	
Industrial Condo - 1.6 per 300m ² net floor area		20	
Accessible Parking Spaces	Total provided: 12 spaces (6 type A & 6 type B) (80% grade & 2 at underground level)	Total required: 8 spaces (4 type A & 4 type B)	YES
Bicycle Parking Spaces	Total provided: 38 spaces (36% grade & 2 at underground level)	Total required: 23 (30 long term & 13 short term)	YES
Landscaping			
Landscaped abutting New Line	7.5m	7.5m	YES
Landscaped abutting Dundas Street West	7.5m	7.5m	YES
Landscaping	7.0m (500m ²)	7.0m (500m ²)	YES
Landscaped Area (not landscaped)	6,554.9m ²	(6,554.9)	N/A
2.0m SIDEWALK			
Ground Floor	7,294.4m ²	(79,504)	
2nd Floor	6,981.3m ²	(76,624)	
4th Floor	6,981.3m ²	(76,624)	
Parking Level 1	6,705.6m ²	(72,489)	
Total Building GFA (including P1)	26,002.6m²	(280,661)	
One Storey Industrial Condo			
1,211.4m ²	(13,259)	5%	
1,581.3m ²	(17,024)	7%	
GFA Breakdown per uses			
Stairs Ground Floor to 4th (Self-Storage)	138.2m ²	(1,488.0)	0.5%
Stairs Ground Floor to 4th (Office)	81.3m ²	(864.0)	0.3%
Elevators Ground Floor to 4th (Self-Storage)	89.5m ²	(954.0)	0.3%
Elevators Ground Floor to 4th (Office)	89.5m ²	(954.0)	0.3%
Stairs & Elevators Underground Level 1	221.8m ²	(2,364.0)	0.9%
Elevators Lobby Underground Level 1	34.4m ²	(364.0)	0.1%
Mechanical & Electrical Services Area	139.3m ²	(1,464.0)	0.5%
Elevator Lobby/Auxiliary Space Ground Floor Self-storage	166.7m ²	(1,764.0)	0.6%
Interior Loading & Parking and Loading Dock	1,464.2m ²	(15,564.0)	5.6%
Dymon Reception & Retail	1,296.6m ²	(13,816.0)	4.8%
Total Self-storage Ground to 4th (***)	15,388.0m ²	(163,674)	58%
Total Office Ground to 4th (***)	5,644.6m ²	(60,108)	21%
Total GFA 4-storey Building	25,953.8m²	(279,854)	99%
Total GFA (****)	26,485.7m²	(283,054)	
Total GFA Underground Level 1 (****)			
	4,099.6m²	(44,138)	

LEGEND

- PROPOSED BUILDING LOCATION
- EXISTING NEIGHBORING BUILDINGS
- LANDSCAPED AREA
- CONCRETE / SIDEWALK
- BARRIER FREE PARKING CLEARANCE
- CURB
- DEPRESSED CURB
- TWS TACTILE WALKING SURFACE INDICATOR
- NEW TREE / VEGETATION (REFER TO LANDSCAPE PLAN FOR TYPE, SIZE AND LOCATION)
- EXISTING TREE (FOR REFERENCE ONLY, REFER TO LANDSCAPE PLAN)
- BARRIER FREE PARKING
- INTERIOR PARKING
- MAN HOLE, CATCH BASIN
- SIAMSESE CONNECTION
- ENTRANCE / EXIT LOCATION
- PRINCIPAL ENTRANCE
- TRANSFORMER
- FENCE & GATE
- UTILITY POLE
- FIRE HYDRANT
- BOLLARD
- HYDRO POLE
- PEDESTRIAN CROSSING DEMARCATION PAINTED
- DENOTES PAINTED LINES
- DENOTES FIRE ROUTE ACCESS
- ONE-WAY SIGN
- NO ENTRY SIGN
- FIRE ROUTE ACCESS / NO PARKING SIGN
- TRAFFIC DIRECTION

BOUNDARY INFORMATION FROM SURVEY BY: SPEIGHT, VAN NOSTRAND & GIBSON LIMITED, ONTARIO LAND SURVEYORS, COMPLETED ON APRIL 22, 2018.

SCALE 1 : 300



GLOBAL architect inc.

6 Leswyn Road Toronto, Ontario, M6A 1K2 tel (416)256-4440 fax (416)256-4449

Design Architect: TACT Architecture Inc. 660R College Street (Rear Lane) Toronto ON, M6G 1B8 tel: (416) 516-1949

Planning, Urban Design & Landscape Architect: MHBC Planning, Urban Design & Landscape Architecture 7050 Weston Road, Suite 230, Woodbridge ON, L4L 8G1 tel: (905) 761-5588

Civil Engineer: C.F. Crozier & Associates Consulting Engineers 211 Yonge Street, Suite 301, Toronto ON, M5B 1M4 tel: (416) 477-3392

NO.	DATE	DESCRIPTION
13	JULY 31, 23	FOR REVIEW & SUBMISSION
12	JULY 25, 23	FOR CIVIL COORDINATION
11	JULY 20, 23	DELETE P2 PARKING/ REVISD SITE PLAN INFO
10	JULY 17, 23	REVISED STAIRS FOR COORDINATION
9	JUN 29, 23	REVISED FOR COORDINATION
8	JUN 14, 23	REVISED SOUTH ENTRANCE
7	JUN 05, 23	FOR COORDINATION
6	MAY 31, 23	SPA PROGRESS FOR COORDINATION
5	APR 13, 23	REVISED CONCEPT PLAN R3
4	DEC 04, 22	REVISED CONCEPT PLAN R2
3	OCT 28, 22	REVISED CONCEPT PLAN R1
2	OCT 19, 22	REVISED TO MTD COMMENTS
1	SEPT 02, 22	ISSUED FOR REVIEW

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME, REPORTING ANY DISCREPANCIES TO THE ARCHITECT BEFORE COMMENCING WORK. ALL DRAWINGS, PRINTS AND SPECIFICATIONS ARE THE PROPERTY OF THE ARCHITECT AND MUST BE RETURNED TO HIM ON COMPLETION OF WORK. LATEST APPROVED DRAWINGS ONLY TO BE USED FOR CONSTRUCTION. PRINTS ARE NOT TO BE SCALED.

DYMON STORAGE

DYMON CAPITAL CORP.
2-1830 WALKLEY ROAD
OTTAWA ON, K1H 8K3

PROJECT NAME: 4 STOREY SELF STORAGE FACILITY & 1 STOREY INDUSTRIAL CONDO, 3855 DUNDAS ST. WEST, MISSISSAUGA ON

DRAWN BY: AT
CHECKED BY: R.P.
DATE: July 25, 2023
SCALE: AS NOTED
DRAWING TITLE: SITE PLAN

PROJECT NO. 22-06
DRAWING NO. A101

2 Existing Transportation Systems

2.1 Existing Study Area Road Network

Dundas Street East

Dundas Street East is a Region of Halton N2 urban arterial road with a six-lane cross-section. No cycling facilities are provided along Dundas Street East within the Study Area. A multi-use path is only provided on the south side, west of Ninth Line. The Halton Region Official Plan (2018) maintains a 50-metre right-of-way for Dundas Street East within the Study Area. A 60 km/h posted speed limit applies east of Ninth Line and a 70 km/h posted speed limit applies west of Ninth Line.

Ninth Line

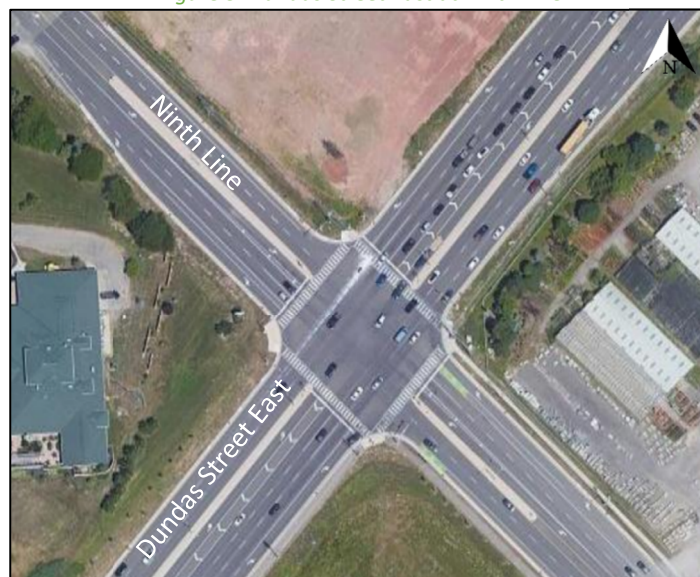
Ninth Line is a Region of Halton C2 arterial road with a two-lane cross-section north of the Glen Oaks Access, and a four-lane rural cross-section south of the site access. No sidewalks are provided along Ninth Line within the Study Area. Bicycle lanes are provided along Ninth Line near the intersection of Ninth Line and Dundas Street East north of Dundas Street East, and south of Dundas Street East. The Region of Halton Region Official Plan (2018) maintains a 35-metre right-of-way for Ninth Line within the Study Area. A 60 km/h posted speed limit applies.

2.2 Existing Intersections

Dundas Street East at Ninth Line

The intersection of Dundas Street East at Ninth Line is a four-legged signalized intersection. The northbound and southbound approaches each consist of one auxiliary left-turn lane, two through lanes, and one auxiliary right-turn lane. A bicycle lane is also present between the eastern-most through lane and the right-turn lane in the northbound approach, and between the western-most through lane and the right-turn lane in the southbound approach. The eastbound and westbound approaches each consist of an auxiliary left-turn lane, three through lanes, and an auxiliary right-turn lane. Pedestrian cross walks, signal heads, and call buttons are located on all four legs of the intersection. No turn restrictions are noted at the intersection. A weight limit of 5 tonnes per axle applies to Ninth Line north of the intersection. Figure 3 illustrates the configuration of this intersection.

Figure 3: Dundas Street East at Ninth Line



Glen Oaks Funeral Home & Cemetery Access at Ninth Line

The intersection of Glen Oaks Access at Ninth Line is a three-legged unsignalized intersection. South of the intersection, the northbound approach consists of two through lanes and one bicycle lane. The eastmost through lane and the bicycle lane starts tapering off north of the intersection and there is only one northbound through lane. The southbound approach consists of one through lane and the left turn storage lane extending from the Dundas Street East at Ninth Line intersection. The eastbound approach consists of one shared left turn / right turn lane. No turn restrictions are noted at the intersection. No pedestrian cross walks are provided. Figure 4 illustrates the configuration of this intersection.

Figure 4: Glen Oaks Funeral Home & Cemetery Access at Ninth Line



2.3 Existing Accesses

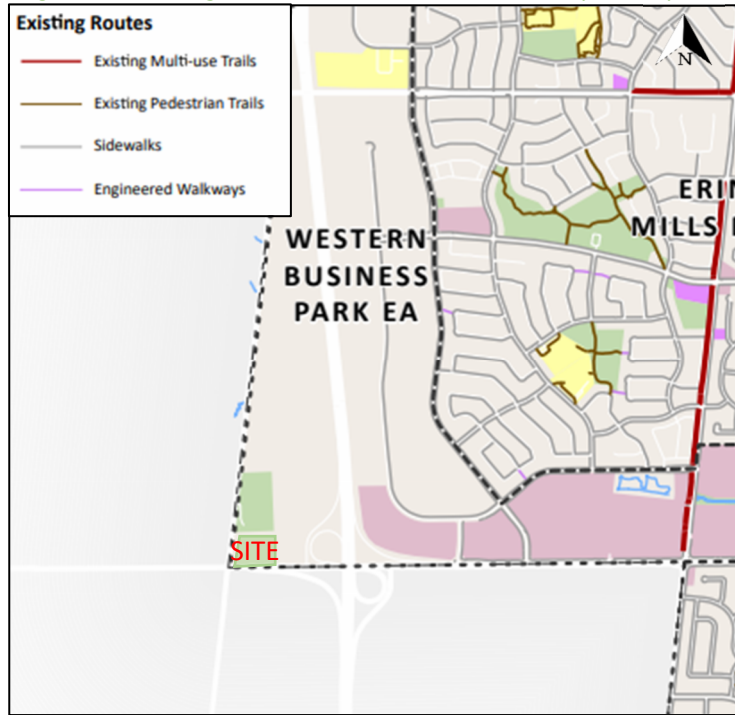
There is an existing full-movement Glen Oaks Access on the west side of Ninth Line approximately 145 metres north of Dundas Street East. Multiple additional existing accesses are present along Ninth Line between the Glen Oaks access and Burnhamthorpe Road, but no access exists along Ninth Line between the Glen Oaks access and the Ninth Line at Dundas Street East intersection. As such, the traffic volumes are balanced between Study Area intersections.

2.4 Existing Pedestrian Facilities

The subjected site is connected to limited existing pedestrian facilities in its immediate surroundings as described in Section 2.1 above. No sidewalks are provided along Ninth Line north of Dundas Street East. Sidewalk is present on the east side of Ninth Line south of Dundas Street East. Multi-use trails are provided on the west side of Ninth Line south of Dundas Street East as well as the south side of Dundas Street East west of Ninth Line. No other pedestrian facilities are available along Dundas Street East within the Study Area.

Additionally, pedestrian signal heads and crosswalks are present at all approaches at the intersection of Ninth Line and Dundas Street East. Figure 5 and Figure 6 are the excerpts from maps showing the existing facilities in the surrounding area, taken from City of Mississauga Pedestrian Master Plan and Town of Oakville Active Transportation Master Plan.

Figure 5: Mississauga Pedestrian Facilities within Proximity to Study Area



Source: Excerpt from City of Mississauga Pedestrian Master Plan (2021)

Figure 6: Oakville Pedestrian Facilities within Proximity to Study Area



Source: Town of Oakville Active Transportation Master Plan (2017)

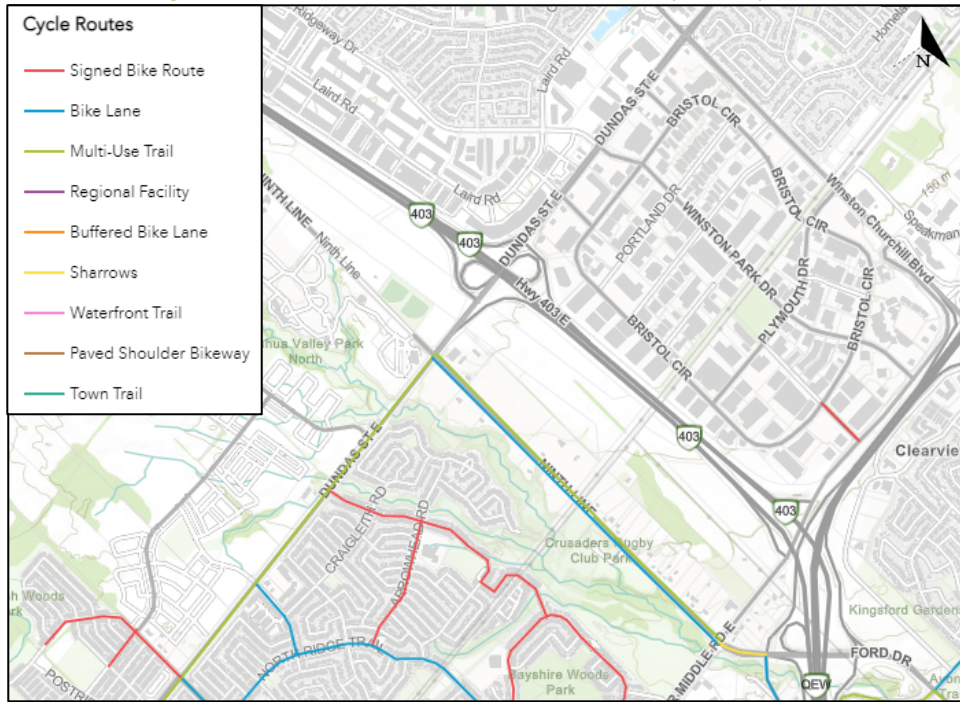
2.5 Existing Cycling Facilities

As described in Section 2.1 above, cycling facilities within the Study Area are provided as dedicated bike lanes on both sides of Ninth Line south of the Glen Oaks Access and multi-use paths on the south side of Dundas Street East west of Ninth Line. No other cycling facilities are provided within the Study Area. Figure 7 and Figure 8 illustrate the excerpts from the 2018 City of Mississauga Cycling Master Plan and Town of Oakville’s online interactive map showing the existing cycling network within and surrounding the Study Area.



Source: Excerpt from City of Mississauga Cycling Master Plan (2018)

Figure 8: Oakville Pedestrian Facilities within Proximity to Study Area



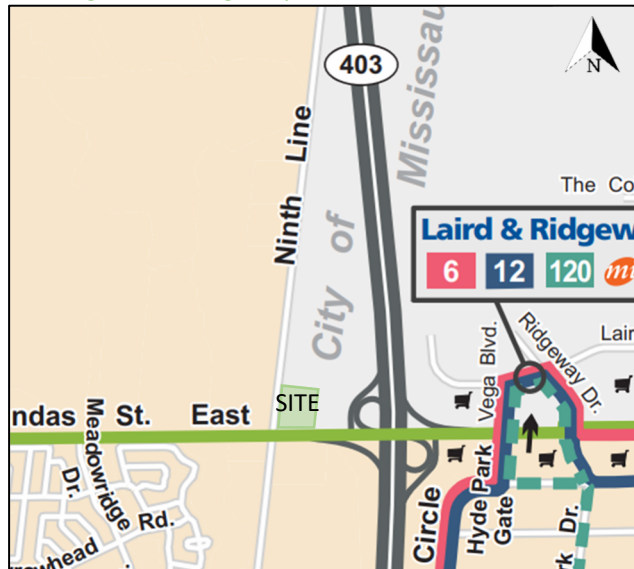
Source: Excerpt from Trails and Cycleways Interactive Map;

Accessed at <https://www.oakville.ca/transportation-roads/traffic-road-safety/cycling-infrastructure/> on June 2, 2023

2.6 Existing Transit

The subject site has access to Oakville public transit routes nearby as shown in Figure 9. Currently, no Mississauga miWay Transit routes are operated within the Study Area.

Figure 9: Existing Study Area Oakville Transit Service



Source: Excerpt from Oakville Transit System Map (September 2021)

The existing Oakville Transit network within the Study Area is described below.

2.6.1 Route 24 – South Common

Oakville Transit Route 24 operates along Dundas Street East within the Study Area. Route 24 operates between Oakville GO Station in the west, and a loop formed by Winston Churchill Boulevard, The Collegeway, Glen Erin Drive, and Burnhamthorpe Road. Within the Study Area, Route 24 has stops located at the intersection of Ninth Line and Dundas Street East in both the eastbound and westbound directions.

Service on Route 24 is provided between 6:10 AM and 12:20 AM on the next day on weekdays, with a headway of 15 minutes. On Saturdays, Route 24 operates between 7:10 AM and 12:20 AM on the next day, with a headway of 30 minutes. Sunday and holiday service along Route 24 is provided between 8:10 AM and 8:00 PM, with a headway of 30 minutes.

2.7 Existing Operational Analysis

2.7.1 Existing Traffic Volumes

The proposed development consists of self-storage, office, and retail land uses. Among these land uses, the trip generation for the office component follows a typical AM and PM peak period pattern, while the self-storage and retail components tend to attract customers during the weekday PM peak period as well as weekend midday peak period. Although Mississauga’s TIS Guidelines recommends weekday AM peak, weekday PM peak, and Weekend as typical peak periods for analysis, only the AM and PM peak periods have been selected as the analysis periods in this study given that trip generation of the office land use dominates that of the other uses at this specific site. Section 4.1.2.2 presents the Dymon proxy site trip generation data and validates this assumption as fewer trips are generated during Saturday midday peak hour than during weekday AM and PM peak hours.

Turning movement count data was collected in May 2023 at the two intersections within the Study Area: Dundas Street East at Ninth Line, and Glen Oaks Access at Ninth Line. The data was collected on the same date and there were only minimal volume imbalances (<1%). The counts were collected in the same horizon year as the 2023 existing conditions and reflect the existing traffic volumes; therefore, no modifications were applied to the counts.

Cyclist and pedestrian volumes are very low at the Study Area intersections (less than 4 pedestrians or 1 cyclist during any peak hour) and they were not included in the operational analysis as they would exert minimal impact on the transportation network.

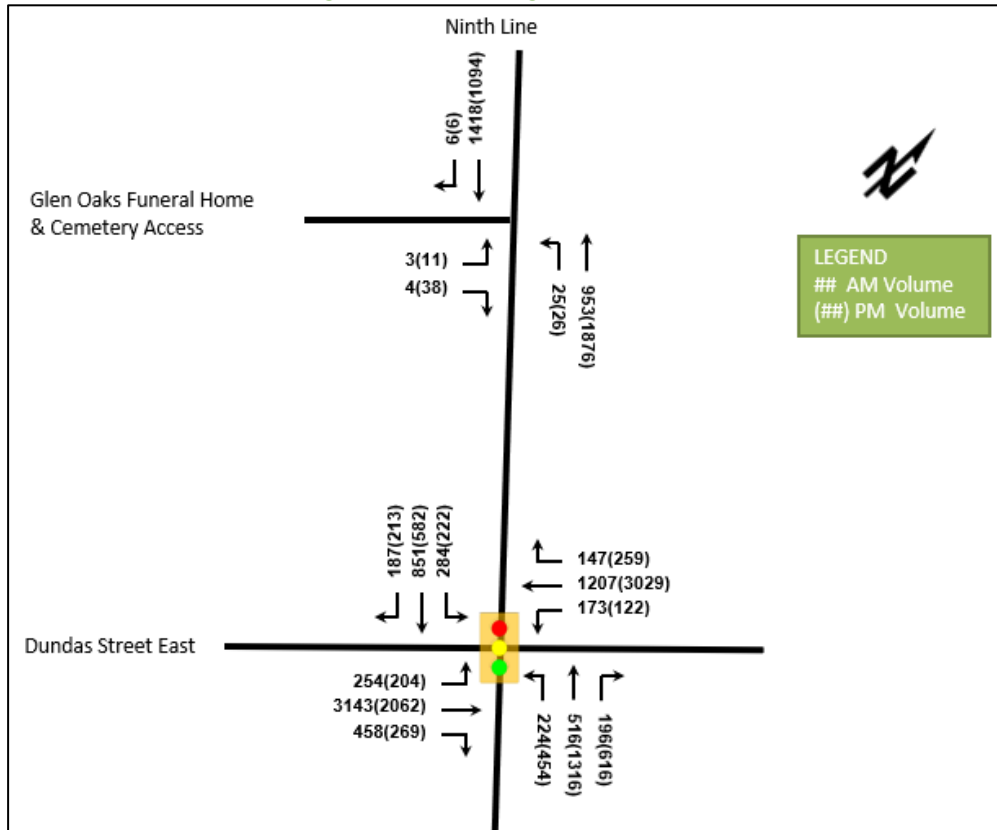
Table 1 summarizes the intersection count dates and data sources. Appendix B includes the detailed traffic count data.

Table 1: Traffic Count Date

Intersection/Location	Data Type	Count Date	Data Source
Dundas Street East at Ninth Line	TMC	Thursday, May 11, 2023	Ontario Traffic Inc.
Glen Oaks Access at Ninth Line	TMC	Thursday, May 11, 2023	Ontario Traffic Inc.

Figure 10 illustrates the 2023 existing horizon traffic volumes at the Study Area intersections. A low volume of U-turns were observed at both intersections, a maximum of 3 in any direction) which would have a negligible impact on the operational analysis. U-turn volumes have been added to the left turn volumes for analysis purpose.

Figure 10: 2023 Existing Vehicle Volumes



Before proceeding the transportation study with the 2023 turning movement counts, a comparison has been made between them and the pre-Covid19 counts from 2018 and 2019 as requested by City staff to confirm the validity of the new counts collected. Table 2 summarizes the intersection count dates and data sources. Appendix C includes the historical turning movement counts and the growth rate calculations.

Table 2: Historical Traffic Count Date

Intersection/Location	Data Type	Count Date	Data Source
Dundas Street East at Ninth Line	TMC	Tuesday, February 19, 2019	Ontario Traffic Inc.
Dundas Street East at Ninth Line	TMC	Thursday, October 25, 2018	Spectrum
Glen Oaks Access at Ninth Line	TMC	Thursday, October 25, 2018	Spectrum

The annual growth rate between the historical traffic volumes and the most recent 2023 counts has been calculated for the Dundas Street East at Ninth Line intersection and the Glen Oaks Access at Ninth Line intersection. The overall growth rate shows that the difference between the total volumes pass through each intersection in 2023 is within 1% of the volume passing through each intersection in the previous counts. Therefore, it is assumed that the Study Area intersection volumes have generally returned to pre-Covid19 travel patterns and the 2023 turning movement counts can be used for this study without further adjustments.

2.7.2 Existing Transportation Network and Modeling Parameters

To understand the automobile operational characteristics of the Study Area intersections, a Synchro model has been created using Trafficware’s Synchro (Version 11). Analysis results from Synchro for signalized intersections are based on Highway Capacity Manual 6th v/c calculations for individual lane movements and Highway Capacity Manual 2000 v/c calculations for the overall intersection. Analysis results from Synchro for unsignalized intersections are based on Highway Capacity Manual 2000 and the average delay is used for calculations.

The configurations of Study Area intersections have been coded based on aerial and ground-level imagery as described in Section 2.2. The Glen Oaks Access is assumed to consist of a shared left-turn / right-turn lane and is stop-controlled on the driveway. Lane widths have been coded as measured from the aerial imagery. Turning-lane storage lengths have been rounded to the closest five metres. The Synchro model has been coded using the existing traffic signal timing plans provided by Halton Region which can be found in Appendix D.

The AM and PM peak hour factors (PHF) for each intersection from the 2023 turning movement counts have been used for the corresponding intersections. The values can be found in the turning movement count summary sheets in Appendix B. A summary of the peak hour factors applied at each intersection can be seen in Table 3. In all future scenarios, a default peak hour factor of 0.92 have been applied to all movements at Study Area intersections.

Table 3: Peak Hour Factors Applied at Study Area Intersections

Intersection	Peak Hour Factor	
	AM	PM
Dundas Street East at Ninth Line	0.89	0.97
Glen Oaks Funeral Home & Cemetery Access at Ninth Line	0.94	0.97

Heavy vehicle percentages (HV%) for the intersections within the Study Area have been calculated based on the 2023 turning movement counts. Appendix E contains the calculations. Pedestrian and cyclist volumes have also been taken from these counts and included in the Synchro model. The bus blockage numbers have been determined based on the existing routes, the location of the bus stops, the intersection configurations (i.e. whether the approach contains a dedicated right turn lane or a shared right / through lane), and the frequencies calculated using the current schedules provided by the transit agencies.

An ideal saturation flow of 1,900 vehicles/hour/lane has been used for all movements at each Study Area intersection in accordance with Mississauga’s TIS Guidelines. The Guidelines have also prescribed the Lost Time for signalized intersections as shown in Table 4. Lost time adjustments were calculated so that the total lost times for the respective phases are equal to the values set out in the City’s guidelines.

Table 4: Lost Time Adjustments

Movement	Total Lost Time (s)	Lost time adjustments (s)
Advanced Green	1.0	NA
Back-to-back Lefts	1.0	EBL, WBL, NBL, SBL: -3.0
Main Phase	5.0	EBTR, WBTR: -1.9 NBTR, SBTR: -2.0

All other parameters have been coded using Mississauga’s TIS Guidelines and Synchro default parameters where applicable.

2.7.3 Threshold Criteria

The performance of signalized and un-signalized intersections within the study area will follow the performance evaluation requirements included in Appendix C of Mississauga’s TIS Guidelines and be assessed based on the following three criteria:

- Volume-to-capacity (V/C) ratio for signalized intersections;
- Level of Service (LOS) for un-signalized intersections; and
- 95th percentile queues, as derived from Highway Capacity Manual (HCM) outputs from Synchro.

The threshold criteria for signalized intersections are:

- V/C ratios for overall intersection operations to reach or exceed 0.85;
- V/C ratios for individual through or turning movements to reach or exceed 1.0;
- Estimated 95th percentile queue lengths for an individual movement to exceed available turning lane storage;
- Estimated 95th percentile queue lengths for through lanes to block vehicles from entering turning lanes.

Table 5 summarizes the level of service criteria for signalized intersections.

Table 5: Level of Service Criteria for Signalized Intersections

Level of Service	Delay (Seconds/Vehicle)	V/C
A	≤10	0 to 0.60
B	>10 – 20	0.61 to 0.70
C	>20 – 35	0.71 to 0.80
D	>35 – 55	0.81 to 0.90
E	>55 – 80	0.91 to 1.00
F	>80	> 1.00

The threshold criteria for unsignalized intersections are:

- Level of service, based on average delay per vehicle, on individual movements to exceed LOS E;
- Estimated 95th percentile queue lengths for an individual movement to exceed available storage.

Table 6 summarizes the level of service criteria for unsignalized intersections.

Table 6: Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (Second/Vehicle)
A	≤10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

2.7.4 2023 Existing Operational Analysis

Table 7 summarizes the resulting operational analysis of the 2023 existing conditions. The critical movements as defined by the Mississauga Transportation Impact Study Guidelines are identified in red. Synchro worksheets for the 2023 existing horizon can be found in Appendix F.

Table 7: 2023 Existing Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Queues	LOS	V/C	Delay	Queues	
Ninth Line & Dundas Street East (Signalized)	EBL	B	0.53	19	35	D	0.72	42	45	
	EBT	D	0.99	55	#274	C	0.58	27	123	
	EBR	C	0.41	27	39	C	0.20	22	12	
	WBL	D	0.77	54	#61	C	0.43	21	22	
	WBT	C	0.47	25	91	D	0.92	42	#249	
	WBR	C	0.20	22	12	C	0.33	25	31	
	NBL	D	0.61	41	42	D	0.63	35	66	
	NBT	D	0.49	50	53	E	0.95	71	#151	
	NBR	D	0.61	53	17	F	1.43	259	#149	
	SBL	D	0.71	41	68	D	0.72	45	55	
	SBT	E	0.80	56	99	D	0.43	46	52	
	SBR	D	0.48	48	16	D	0.46	48	16	
	Overall	D	0.89	45	-	E	0.90	60	-	
	Mitigation Measure: Signal Optimization (incl. changing the turn type of NBR to pm+over)									
	EBL	-	-	-	-	-	E	0.83	68	#66
	EBT	-	-	-	-	-	C	0.62	33	120
	EBR	-	-	-	-	-	C	0.22	26	12
	WBL	-	-	-	-	-	C	0.47	25	24
	WBT	-	-	-	-	-	D	0.97	53	#235
	WBR	-	-	-	-	-	C	0.35	29	28
NBL	-	-	-	-	-	D	0.65	39	66	
NBT	-	-	-	-	-	D	0.77	49	130	
NBR	-	-	-	-	-	E	0.96	72	#166	
SBL	-	-	-	-	-	D	0.74	45	#69	
SBT	-	-	-	-	-	D	0.29	35	47	
SBR	-	-	-	-	-	D	0.31	36	18	
Overall	-	-	-	-	-	D	0.92	46	-	
Ninth Line & Glen Oaks Access (Unsignalized)	EBL/R	C	0.04	24	<1	C	0.16	19	<1	
	NBL/T	B	0.03	11	<1	A	0.03	9	<1	
	NBT	A	-	0.2	-	A	-	0.3	-	
	SBT/R	-	-	-	-	-	-	-	-	
	Overall	C	-	0.3	-	C	-	0.8	-	
Notes:	m indicates that the volume for the 95 th percentile queue is metred by an upstream signal # indicates the volume for the 95 th percentile cycle exceeds capacity									

As shown above, the unsignalized intersection of Glen Oaks Access at Ninth Line experiences no operational constraints in the existing conditions. All movements operate with good overall LOS, low delays, and acceptable queues.

In contrast, the signalized intersection of Ninth Line & Dundas Street East currently operates near capacity with overall v/c ratios above 0.85 for both the AM and PM peak hours. Long delays and queues are present on movements where over the delay exceeds the capacity. The traffic volumes show significantly different directional distributions between AM and PM peak hours. During the AM peak hour, the traffic is primarily eastbound along Dundas Street East and southbound along Ninth Line. During the PM hour the traffic is primarily westbound along Dundas Street East and northbound along Ninth Line. This is reflected in the LOS and v/c ratios. While not exceeding the critical threshold, the eastbound through movement during the AM peak and the westbound through and northbound through movement during the PM peak have v/c ratios close to 1.00. The critical

movement during the AM peak is the westbound left movement which has insufficient lane storage for the queue. The critical movement during the PM peak is the northbound right movement with a v/c ratio of 1.43, caused by the high right turn volumes on the northbound approach. Signal optimization has been employed to reduce the v/c ratios for the PM peak hour. The green time assigned to each movement has been adjusted and the turn type of northbound right has been changed from permitted only to permitted and overlapping with the westbound left movement. This adjustment could reduce all v/c ratios below 1.00 for the intersection, although the overall v/c ratios are critical by the City Guidelines.

Given the fact that both Dundas Street East and Ninth Line are regional roads facilitating local and regional north-south and east-west traffic, high delays for certain movements during the peak hours are expected.

3 Future Background

3.1 Future Analysis Horizons

The subject development is anticipated to be fully built-out and occupied in three years (2026). The proposed development will be constructed in a single phase; thus, the full build-out future horizon of 2026 will be studied with no interim horizons. The full build-out horizon plus five years horizon of 2031 will be evaluated to determine the long-term impact of the development on the Study Area.

3.2 Background Developments in the Area

Due to the location of the subject development being next to the border of Mississauga and Oakville, a review of both the City of Mississauga's City Planning Data Hub and the Town of Oakville's Active Development Applications website has found that the following developments proposed within proximity to 3855 Dundas Street West will contribute to the Future Background volumes in this Study:

- Ninth Line Coptic Church (Mississauga)
- Ivan Franko Homes (Mississauga)
- Mattamy Joshua Creek Phase 3 (Oakville)
- Mattamy Joshua Creek Phase 4 (Oakville)
- Dunoak and Bressa Joshua Creek Development (Oakville)
- ARGO Joshua Creek Development (Oakville)
- Redoak / Capoak Residential Development (Oakville)

These developments are expected to impact the Study Area intersections and road network and the site traffic generated by these developments will be included in the Future Background and Future Total scenarios.

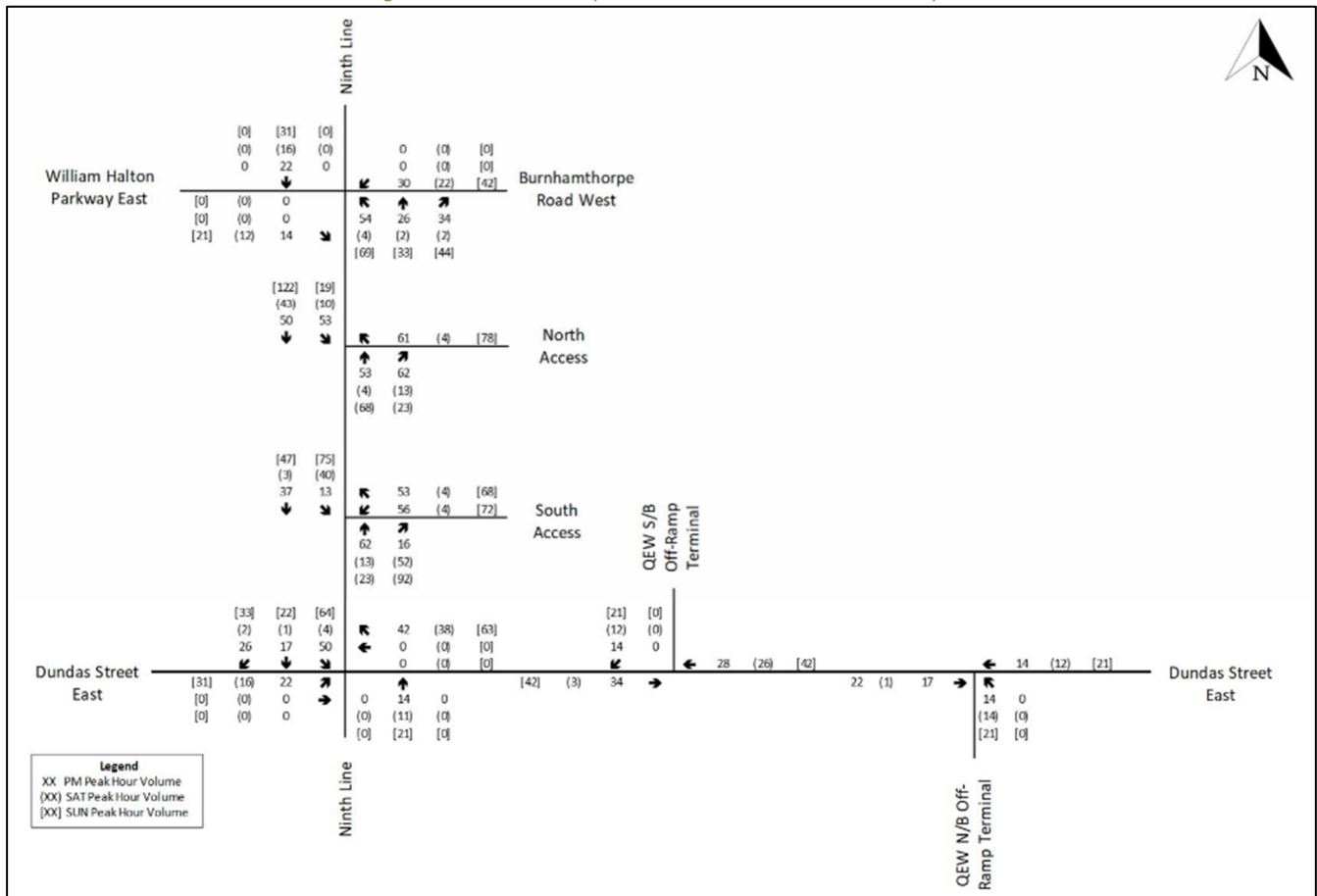
3.2.1 Ninth Line Coptic Church

The Coptic Church development is located on the east side of Ninth Line, south of Burnhamthorpe Road in the City of Mississauga, north of the subject site. The site is currently bound by an existing self-storage development to the north, Highway 403 to the east, vacant land to the south, and Ninth Line to the west. The development is to be constructed in two phases, with a full build-out of Phase 1 anticipated for 2028, and a full build-out of Phase 2 anticipated for 2030. Phase 1 of the development will consist of the Coptic Church and Banquet Hall. One full-movement access will be provided on Ninth Line in Phase 1. Phase 2 of the development will consist of a community service building. Internal connections will be provided in Phase 2 to provide site access. The total site trips generated by this development were added to the 2031 Future Background volumes.

Due to the land use of the development being a church, the peak hours that were analyzed were the weekday PM, the Saturday PM, and Sunday AM, among which only the weekday PM coincides with the peak hours for the

proposed Dymon development in this study. The site is expected to generate 314 two-way trips during the weekday PM peak hour. Figure 11 illustrates the total site generated trips of Ninth Line Coptic Church.

Figure 11: Ninth Line Coptic Church Total Site Generated Trips

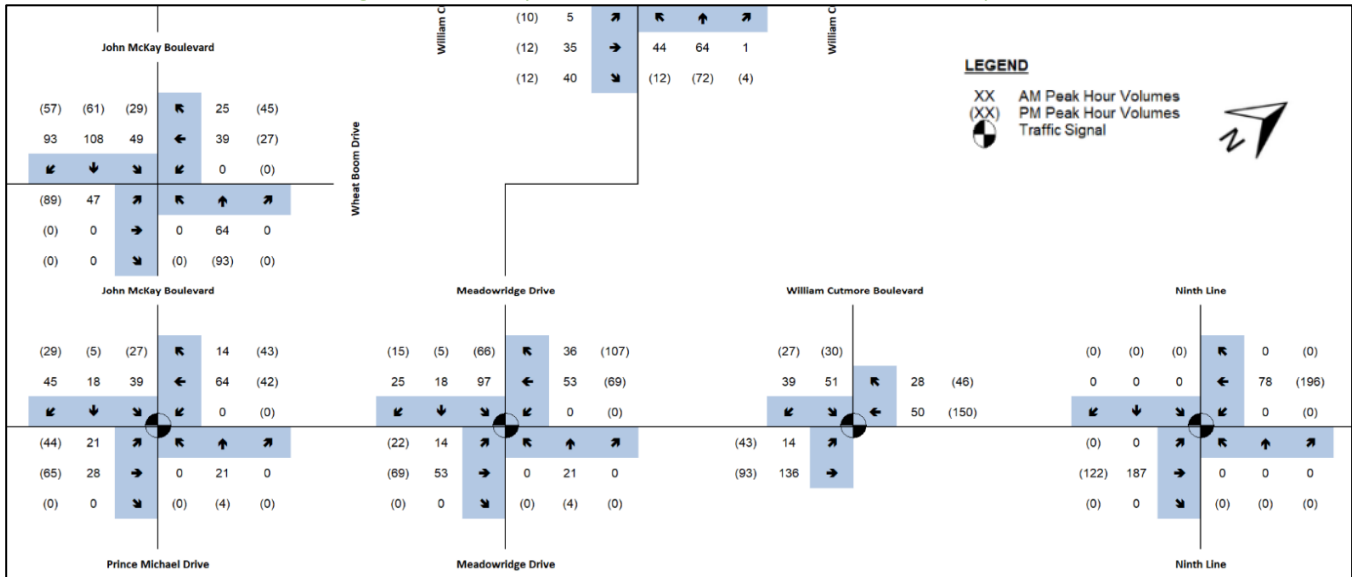


Source: Ninth Line Coptic Church Traffic Impact Study, RVA, 2022

3.2.2 Mattamy Joshua Creek Phase 3

The proposed residential and institutional development is located north of the Dunoak and ARGO developments, consisting of 306 townhouse units, 709 single-detached homes, and an elementary school that will accommodate approximately 700 students. Under the interim traffic scenario, before the full build-out of the Joshua Creek lands and construction of the ultimate planned road network, per the Secondary Plan, access to the proposed residential development from the surrounding road network is provided via Wheat Boom Drive, John McKay Boulevard, Meadowridge Drive and William Cutmore Boulevard. The proposed subdivision is expected to generate a total of 1,050 new two-way trips including 532 for the residential units and 518 for the elementary school during weekday AM peak hour and 806 new two-way trips including 694 for the residential units and 112 for the elementary school during the weekday PM peak hour. Figure 12 illustrates the total site generated trips of Mattamy Joshua Creek Development Phase 3.

Figure 12: Mattamy Joshua Creek Phase 3 Total Site Generated Trips

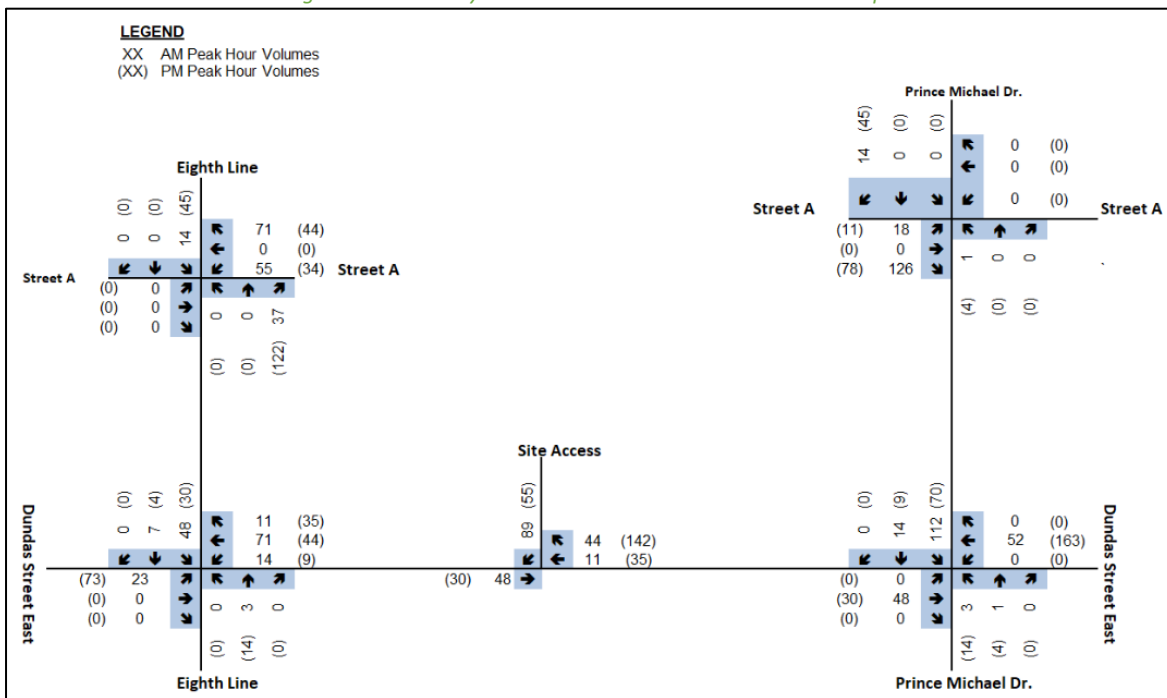


Source: Mattamy (Joshua Creek) Limited Traffic Impact Study Joshua Creek Phase 3; GHD; April 2022

3.2.3 Mattamy Joshua Creek Phase 4 at 1429 Dundas Street East

The subject site is located north of Dundas Street and east of Meadowridge Drive and forms Phase 4 of the Joshua Creek Composite Plan. It is estimated that the proposed development will generate approximately 96 new two-way vehicle trips consisting of 24 inbound and 72 outbound trips during the AM peak hour and 129 new two-way vehicle trips consisting of 81 inbound and 48 outbound trips during the PM peak hour. Figure 13 illustrates the total site generated trips of Mattamy Joshua Creek Development Phase 4.

Figure 13: Mattamy Joshua Creek Phase 4 Site Generated Trips

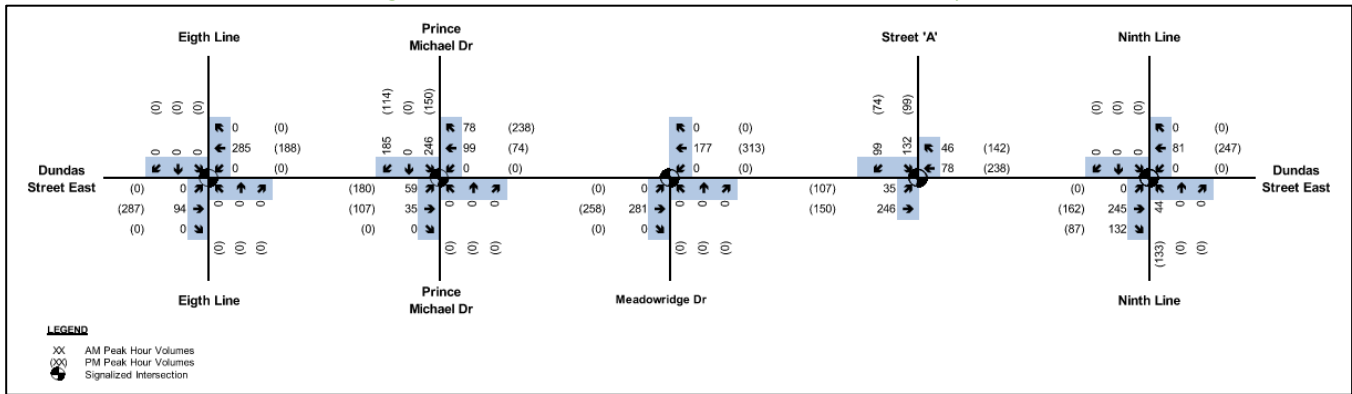


Source: Mattamy (Joshua Creek) Limited Traffic Impact Study Joshua Creek Phase 4; GHD; April 2020

3.2.4 Dunoak and Bressa Development Ltd.

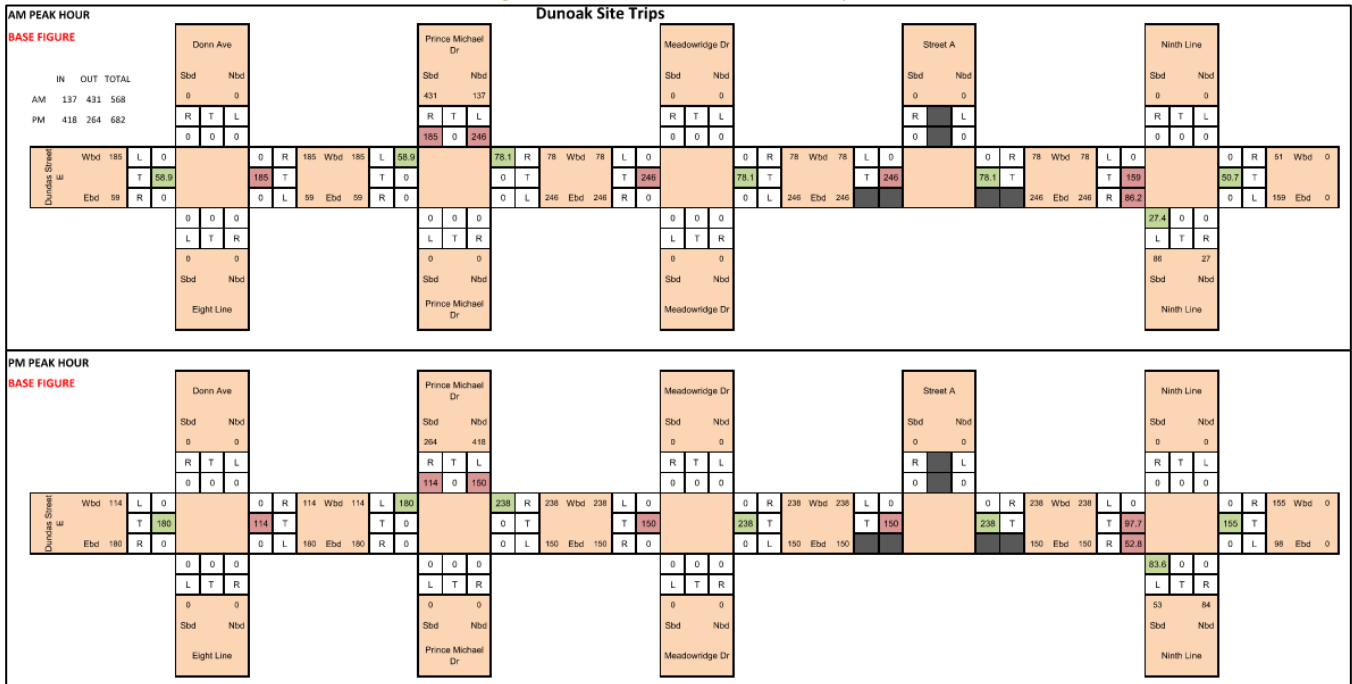
The Dunoak and Bressa residential subdivisions are located north of Dundas Street between Eighth Line and Ninth Line abutting the ARGO Joshua Creek development to the west and east, respectively. This study included an analysis of the 2020 and 2025 planning horizon years. The Bressa Development completed in 2021, so it has been assumed that the site trips from the Bressa Development have been captured in the 2023 turning movement counts, undertaken as part of this study. The Dunoak Residential Development will generate 568 AM and 682 PM two-way peak hour trips. Only the trips generated by the Dunoak portion were added to the 2026 and 2031 Future Background volumes. Figure 14 illustrates the total site generated trips of the Dunoak and Bressa Development. Figure 15 illustrates the total site generated trips of the Dunoak Development.

Figure 14: Dunoak and Bressa Subdivision Site Generated Trips



Source: Dunoak and Bressa Draft Plans Proposed Residential Developments Traffic Impact Study; GHD; July 2020

Figure 15: Dunoak Site Generated Trips



Source: Dunoak and Bressa Draft Plans Proposed Residential Developments Traffic Impact Study; GHD

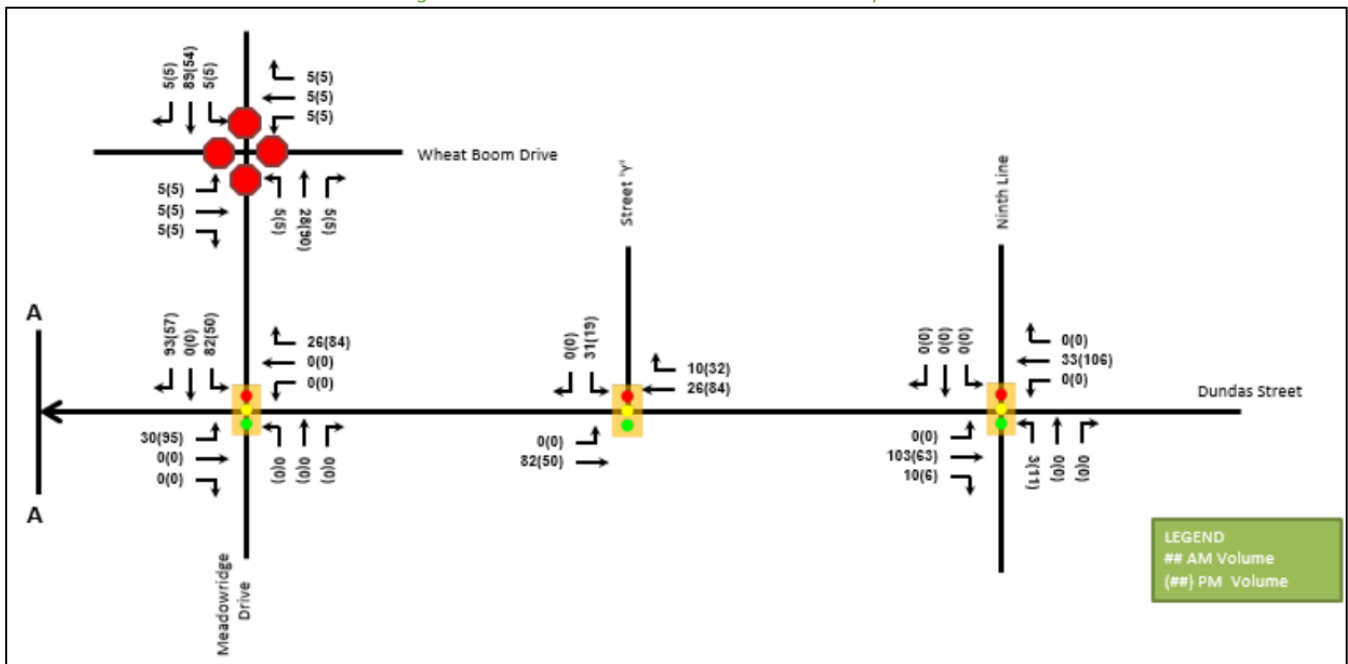
3.2.5 ARGO Joshua Creek

ARGO's Joshua Creek Subdivision is located on Dundas Street west of the Bressa Development and east of the Dunoak Development. The proposed development will include 656 residential units and a Dundas Urban Core (DUC) parcel that will include a further 977 units. Phase 1 of the development includes 160 detached houses, 401 townhouses, and a small condo block with a total of 95 apartment units. Future phases will include 50 detached houses, 22 townhouses, and a small condo block with a total of 905 apartment units.

The proposed development will have a primary access that forms the fourth leg of the intersection of Meadowridge Drive at Dundas Street. Additionally, a right in / right out access is proposed into the Dundas Urban Core portion of the development. This development will also have connections to both adjacent proposed developments (Dunoak to the west and Bressa to the east).

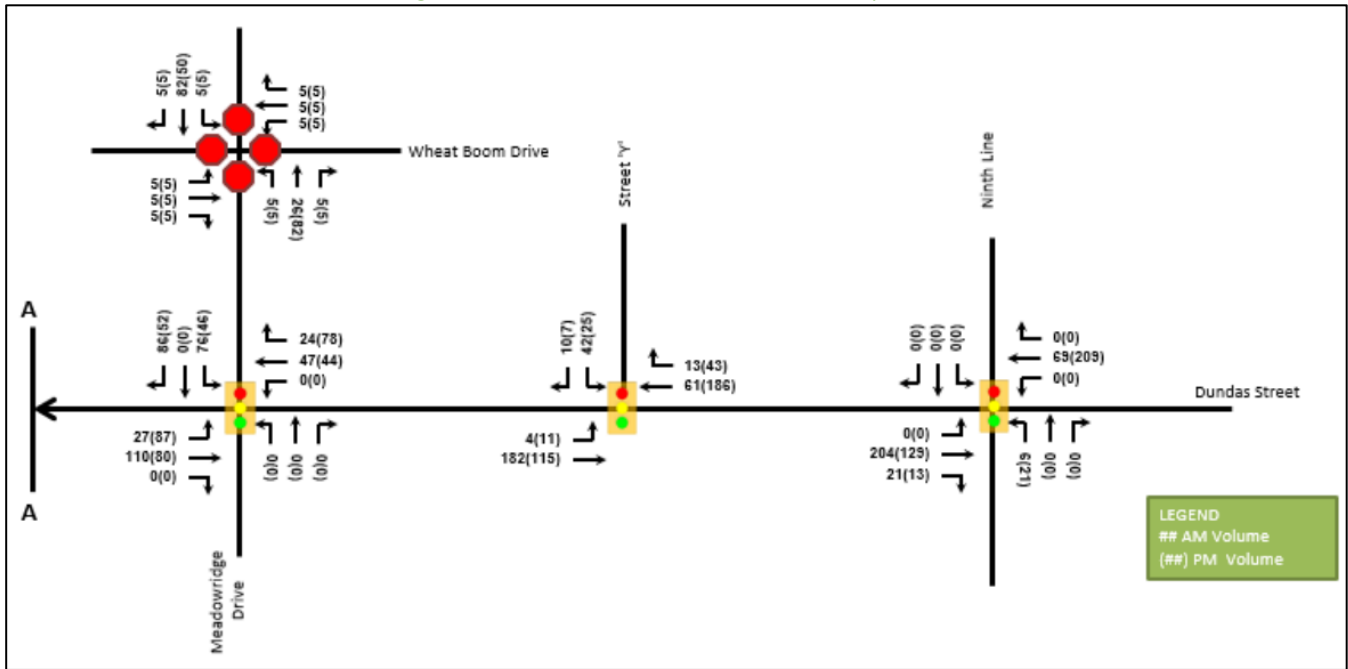
Phase 1 is projected to generate 272 AM and 336 PM peak hour two-way auto trips during the 2024 horizon. As a result of projected changes in mode share, Phase 1 is anticipated to generate 251 AM and 311 PM peak hour vehicle trips in 2029. Future phases, with anticipated build out in 2029, are expected to generate an additional 290 AM and 363 PM peak hour vehicle trips. Figure 16 and Figure 17 illustrate the site generated trips of ARGO Joshua Creek development in 2024 and 2029, respectively.

Figure 16: ARGO Joshua Creek Site Generated Trips 2024



Source: ARGO Joshua Creek TIS; CGH Transportation; 2021

Figure 17: ARGO Joshua Creek Site Generated Trips 2029



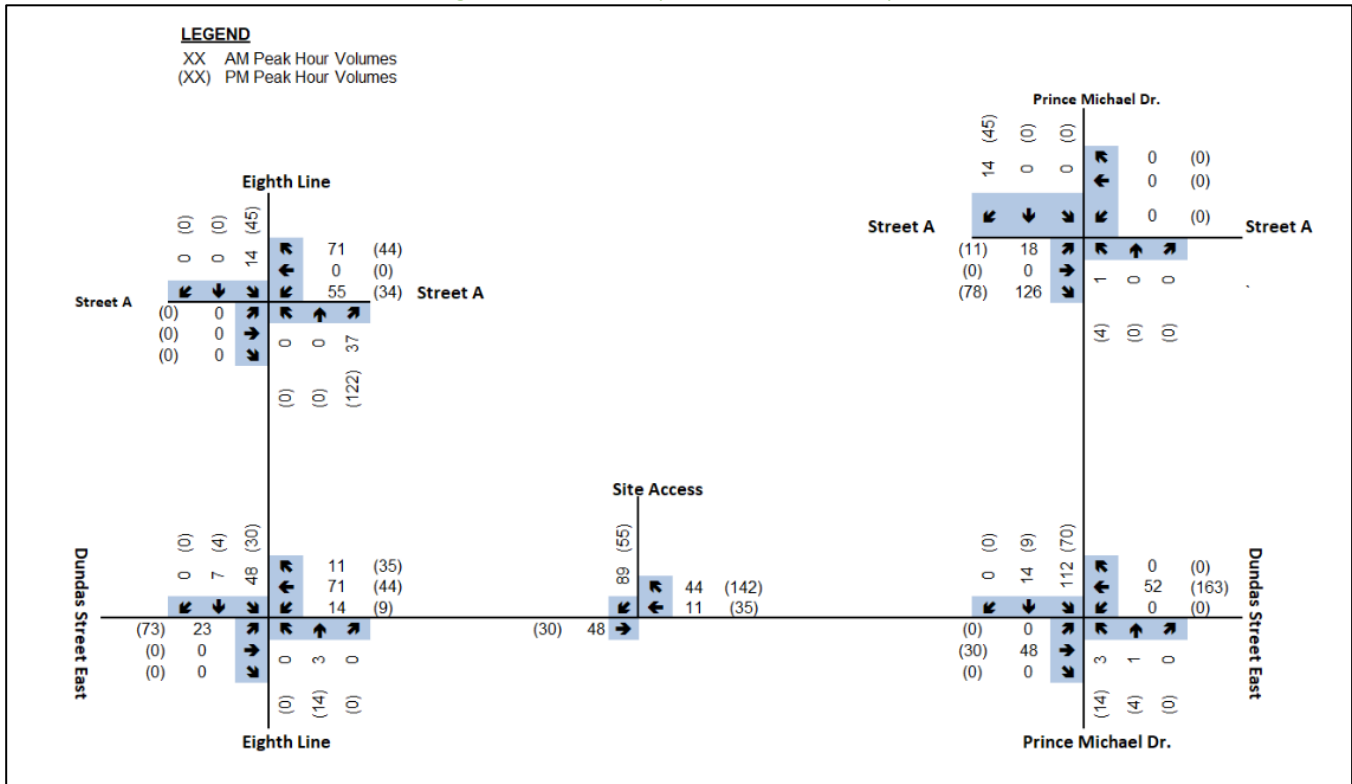
Source: ARGO Joshua Creek TIS; CGH Transportation; 2021

3.2.6 Redoak / Capoak Residential Development

The subject development is located in the northeast quadrant of the intersection of Dundas Street East and Eighth Line Road and west of the Dunoak Development, in the Town of Oakville. Outside the Dundas Street Urban Core blocks, the proposed development consists of 116 single family detached units, and 489 multifamily units which can be broken down to 457 townhouse units, 8 live-work units, and an additional 24 residential units. Within the Dundas Street Urban Core blocks, the proposed development consists of 542 condominium apartment units and 36 back-to-back townhouse units.

Access is proposed to Dundas Street via a right-in/out driveway, and through adjacent draft plans via the future extension of Prince Michael Drive north of Dundas Street to the east and a connection to Eighth Line to the west. The proposed Development Plan is estimated to generate approximately 471 new two-way vehicle trips during the AM peak hour consisting of 356 inbound and 115 outbound trips. During the PM peak hour, it is expected to generate 584 new two-way vehicle trips consisting of 363 inbound and 221 outbound trips. Figure 18 illustrates the total site generated trips of Redoak / Capoak Residential Development.

Figure 18: Redoak / Capoak Site Generated Trips

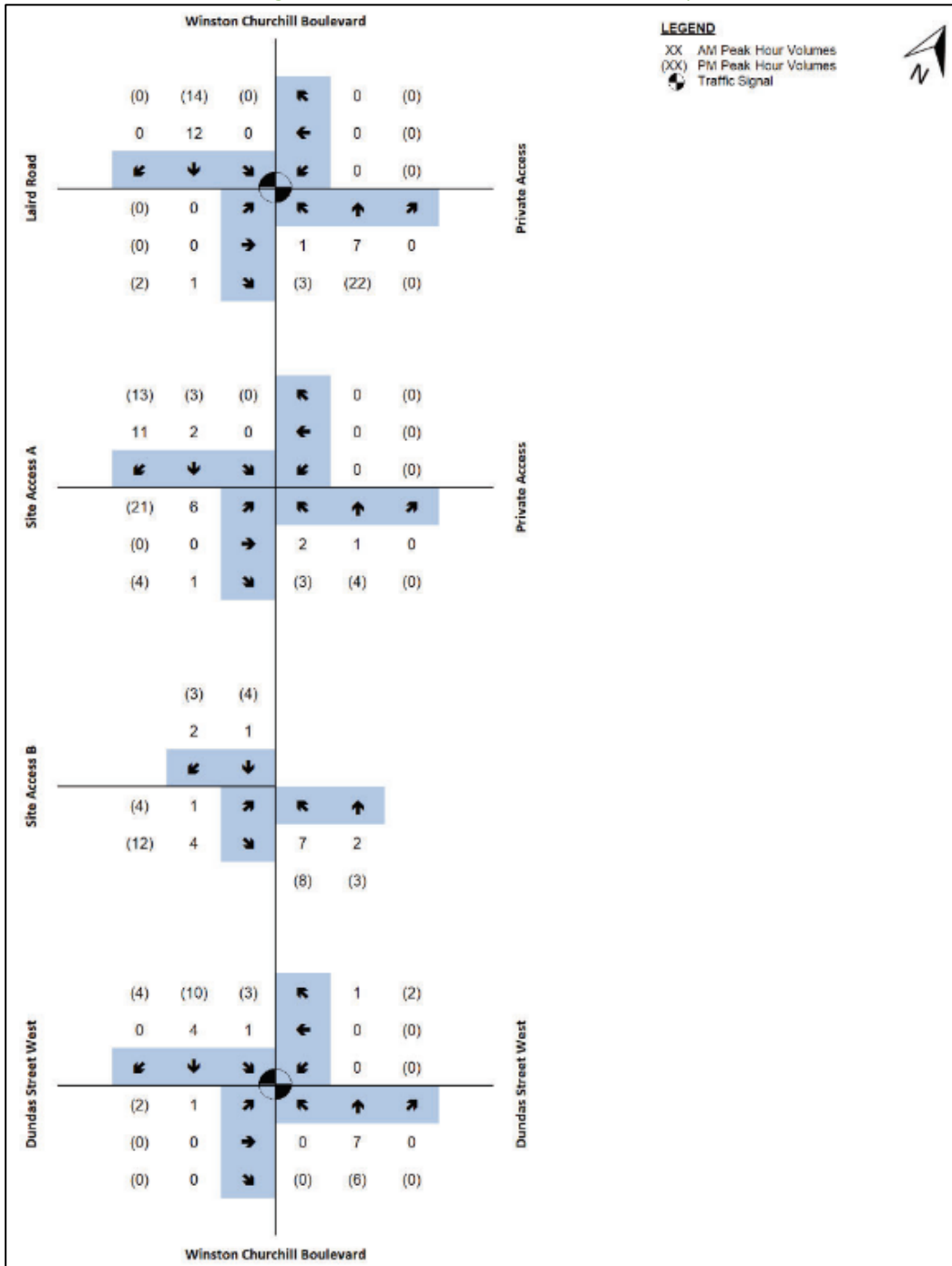


Source: Proposed Redoak/Capoak Residential Development Traffic Impact Study; GHD; April 2021

3.2.7 Ivan Franko Homes – 3058 Winston Churchill Boulevard

There is an assisted living / retirement home “Ivan Franko Homes” located at 3058 Winston Churchill Boulevard. A long-term care facility with 160 beds will be added to the site. The proposed development is expected to generate a total of 34 two-way trips consisting of 22 inbound and 12 outbound during weekday AM peak hour and 67 two-way trips consisting of 26 inbound and 41 outbound during weekday PM peak hour. Figure 19 illustrates the site trip generated by 3058 Winston Churchill Boulevard.

Figure 19: Ivan Franko Homes Site Generated Trips



Source: Ivan Franko Homes 3058 Winston Churchill Boulevard Traffic Impact Study; GHD;

3.2.8 Background Development Trips Summary

The total AM and PM peak hour trips generated by the background developments by the 2026 and 2031 horizons are summarized in Table 8 and Table 9.

Table 8: Background Developments Site Trips By 2026 Summary

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Mattamy Joshua Creek Phase 3	423	627	1,050	481	325	806
Mattamy Joshua Creek Phase 4	24	72	96	81	48	129
Dunoak and Bressa Development	137	431	568	418	264	682
ARGO Joshua Creek	66	206	272	211	126	336
Redoak / Capoak Residential	115	356	471	363	221	584
2026 Total Trips	765	1,692	2,457	1,554	984	2,537

A total of 2,457 AM and 2,537 PM peak hour two-way vehicle trips will be generated by the ten background developments included in this Study by the 2026 horizon.

Table 9: Background Developments Site Trips By 2031 Summary

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Mattamy Joshua Creek Phase 3	423	627	1,050	481	325	806
Mattamy Joshua Creek Phase 4	24	72	96	81	48	129
Dunoak and Bressa Development	137	431	568	418	264	682
ARGO Joshua Creek	136	406	541	416	256	674
Redoak / Capoak Residential	115	356	471	363	221	584
Ninth Line Coptic Church	-	-	-	144	170	314
Ivan Franko Homes	22	12	34	26	41	67
2031 Total Trips	857	1,904	2,760	1,929	1,325	3,256

With the completion of later phases of ARGO Joshua Creek and the two Mississauga sites, a total of 2,760 AM and 3,256 PM peak hour two-way vehicle trips will be generated by all the background developments combined by the 2031 horizon.

3.3 Planned Study Area Improvements

The official plans and transportation master plans from the City of Mississauga, the Town of Oakville, and the Halton Region have been reviewed for planned transportation infrastructure improvements within the Study Area.

The major road network improvement that is anticipated to be complete within the study horizons is the Ninth Line widening north of Dundas Street East. Pedestrian and cycling facilities will be constructed on each side of the regional roads within the Study Area which will strength the connectivity of the site to active transportation modes.

3.3.1 Dundas Bus Rapid Transit

Metrolinx’s 2041 Regional Transportation Plan identifies rapid transit along Dundas Street through Mississauga as a key link in an integrated, multi-modal, and regional transit system. Metrolinx and the City of Mississauga are currently undertaking a Transit Project Assessment Process (TPAP) and the Preliminary Design and Preliminary Design Business Case for the proposed Dundas Bus Rapid Transit Project. If approved, the proposed BRT route would be implemented along Dundas Street from Kipling TTC Station and Transit Hub in the City of Toronto, to Highway 6 in the City of Hamilton, passing through the City of Mississauga, the Town of Oakville, and the City of Burlington. Within the Study Area, the proposed BRT route would be located along Dundas Street East. Along

Dundas Street corridor, the curb lanes include provisions to accommodate potential HOV or bus-only lanes in Halton Region.

Details such as the cross-section design and its impact on the right-of-way of Dundas Street, and proposed transit stop locations for the section of the BRT within the Study Area have not been determined. No anticipated completion date is available. Therefore, the direct impact from the Dundas BRT has not been considered for this study.

3.3.2 City of Mississauga Official Plan (2010)

Schedule 6 of the City of Mississauga Official Plan (2010) outlines Dundas Street, within the Study Area, as an intensification corridor. A copy of Schedule 6 can be found in Appendix G.

3.3.3 City of Mississauga Transportation Master Plan (2019)

The City of Mississauga Transportation Master Plan (2019) has been reviewed, and it has been determined that no improvements or significant changes are planned or proposed for the transportation network surrounding the proposed development.

3.3.4 City of Mississauga Pedestrian Master Plan (2021)

Figure 7 of the City of Mississauga Pedestrian Master Plan (2021) outlines the existing gaps within the Mississauga pedestrian network, in which no sidewalk is present on one or both sides of a street. The gaps within the pedestrian network are proposed to be filled through private development and capital projects. As discussed above in Section 2.4, within the Study Area road network, sidewalks or multi-use paths are missing along both sides of Ninth Line north of Dundas Street East, along both sides of Dundas Street East, east of Ninth Line, and along the north side of Dundas Street East west of Ninth Line.

Figure 7 of the City of Mississauga Pedestrian Master Plan (2021) illustrates a boulevard multi-use path along Ninth Line and Dundas Street within the Study Area. A copy of the figure can be found in Appendix H. Figure 10 of the City of Mississauga Pedestrian Master Plan (2021) outlines the pedestrian network priority level for implementation of pedestrian facilities on City of Mississauga roads. Within the Study Area, Dundas Street has been designated a low prioritization score. The priority level of pedestrian facility implementation is not discussed for Ninth Line south of Dundas Street which is under the jurisdiction of the Region of Halton. A copy of Figure 10 of the City of Mississauga Pedestrian Master Plan (2021) can also be found in Appendix H. No timeline for the implementation of the proposed pedestrian facilities is noted within the plan.

3.3.5 City of Mississauga Cycling Master Plan (2018)

Figure 15 of the City of Mississauga Cycling Master Plan (2018) outlines the proposed cycling facilities for the City of Mississauga. Within the Study Area, cycling facilities are proposed as multi-use paths along Ninth Line and Dundas Street. This remains consistent with the proposed multi-use paths within the Study Area road network discussed above in Section 3.3.4. A copy of Figure 15 of the City of Mississauga Cycling Master Plan (2018) can be found in Appendix I. The City of Mississauga Cycling Master Plan (2018) identifies the proposed cycling facilities within the Study Area road network as part of the “Primary On-Road Network”. No timeline for the proposed cycling facilities within the Study Area is noted within the plan.

3.3.6 Town of Oakville Active Transportation Master Plan (2017)

The Town of Oakville Active Transportation Master Plan (2017) has been reviewed, and it has been determined that no improvements or significant changes are planned or proposed for the active transportation network within the Study Area.

3.3.7 Halton Region Transportation Master Plan 2031 (2011)

Figure 7.2 of the Halton Region Transportation Master Plan 2031 (2011) outlines the 2031 transportation system within the Region of Halton. Within the Study Area, the Halton Region Transportation Master Plan 2031 (2011) proposes widening Ninth Line from the existing two-lane rural cross-section to a four-lane C2 Urban cross-section. The implementation of this widening is expected to begin in 2024 and is anticipated to be complete by 2031. As Ninth Line already has a four-lane cross-section south of Dundas Street East and a localized widening is already in place at the Dundas Street East at Ninth Line intersection, the widening will be applied to the segment of Ninth Line north of the Dundas Street East at Ninth Line intersection in this study. Appendix J includes the preliminary design drawings showing the cross sections of Ninth Line after widening and configurations of intersections along Ninth Line.

Dundas Street is currently a three-lane road in each direction, with all lanes operating as general-purpose traffic lanes with no vehicle restrictions. It has been indicated by Halton Region Staff that it is anticipated that the outer traffic lane on the curbside would be converted to a high occupancy vehicle (HOV) lane, restricting single occupant vehicles from using this lane. There is a potential for the HOV lanes to become transit lanes when the Dundas BRT is constructed. However, the HOV lanes have not been modelled in the Synchro models for this study, as the initial reduction of capacity due to the HOV lanes would not adequately serve projected traffic volumes. Although in the long run the modal split for single-occupant private vehicles will decrease, the current level of traffic, which is already at capacity in the existing conditions, does not support the HOV implementation as examined in the Synchro analysis.

Bike lanes and boulevard multi-use trails are planned to be added along Ninth Line while boulevard multi-use trails are planned to be added along Dundas Street. Halton Region has not provided a detailed timeline for these active transportation improvement projects.

3.4 Background Growth Rate

The background growth rate considers the growth in traffic volumes on streets within the Study Area due to a multitude of factors affected by land use planning and large-scale transportation projects (i.e., the overall population change in the Region and the improvement of the public transit and active transportation systems).

A Transportation Impact Study for 3855 Dundas Street West dated November 2018 was previously completed by others with growth rates on Dundas Street West and Ninth Line derived from City's forecasting models for the weekday AM and PM peak periods provided by the City staff. Appendix K includes the related section from the previous report dated 2018. The City of Mississauga transportation model has been updated since 2018. City staff have provided updated values along Dundas Street and Ninth Line north of Dundas Street for the time horizons of this study.

Table 10 below outlines the compound annual growth rates provided by City staff. The growth rates on Ninth Line are higher than the typical 2%, reflecting the future widening of Ninth Line north of Dundas Street West. Growth on Dundas Street East is lower as some trips will shift to other corridors such as the newly constructed William Halton Parkway and the future widening of Upper Middle Road. Compared to the 2018 report, the growth rates on Dundas Street have increased slightly and the growth rates on Ninth Line have decreased.

Table 10: Compounded Annual Growth Rates

Peak Hour	From Existing to 2026				From 2026 to 2031			
	Dundas Street East		Ninth Line		Dundas Street East		Ninth Line	
	EB	WB	NB	SB	EB	WB	NB	SB
AM	0.5%	1.5%	4.5%	3.5%	0.5%	1.5%	4.5%	3.5%
PM	1.5%	1.5%	3.0%	4.5%	1.5%	1.5%	3.0%	4.5%

The growth rates outlined above were applied to all movements on the respective roadways, with the exception of the turning movements on Ninth Line. The compounded growth rates between 3-4.5% were applied to through movements only on Ninth Line for the corresponding directions. An industry standard compounded annual growth rate of 2% was applied to the turning movements on Ninth Line.

3.5 Future Background Traffic Volumes

Using the background growth rate established above, the 2023 turning movement volumes were grown to reflect the 2026 and 2031 Future Background traffic volumes. Additionally, the six background developments discussed in Section 3.2, have been directly considered in the background conditions. The 2026 Future Background traffic is illustrated in Figure 20 and the 2031 Future Background traffic is illustrated in Figure 21.

Figure 20: 2026 Future Background Traffic Volumes

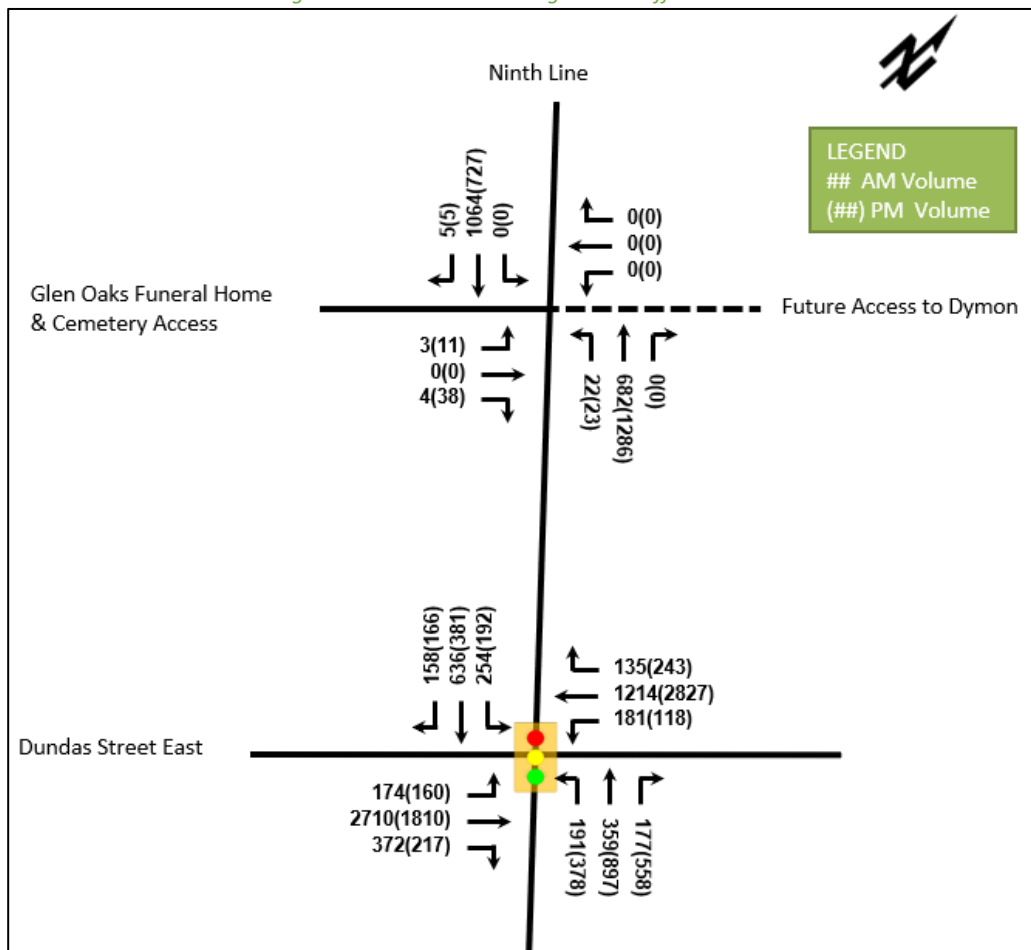
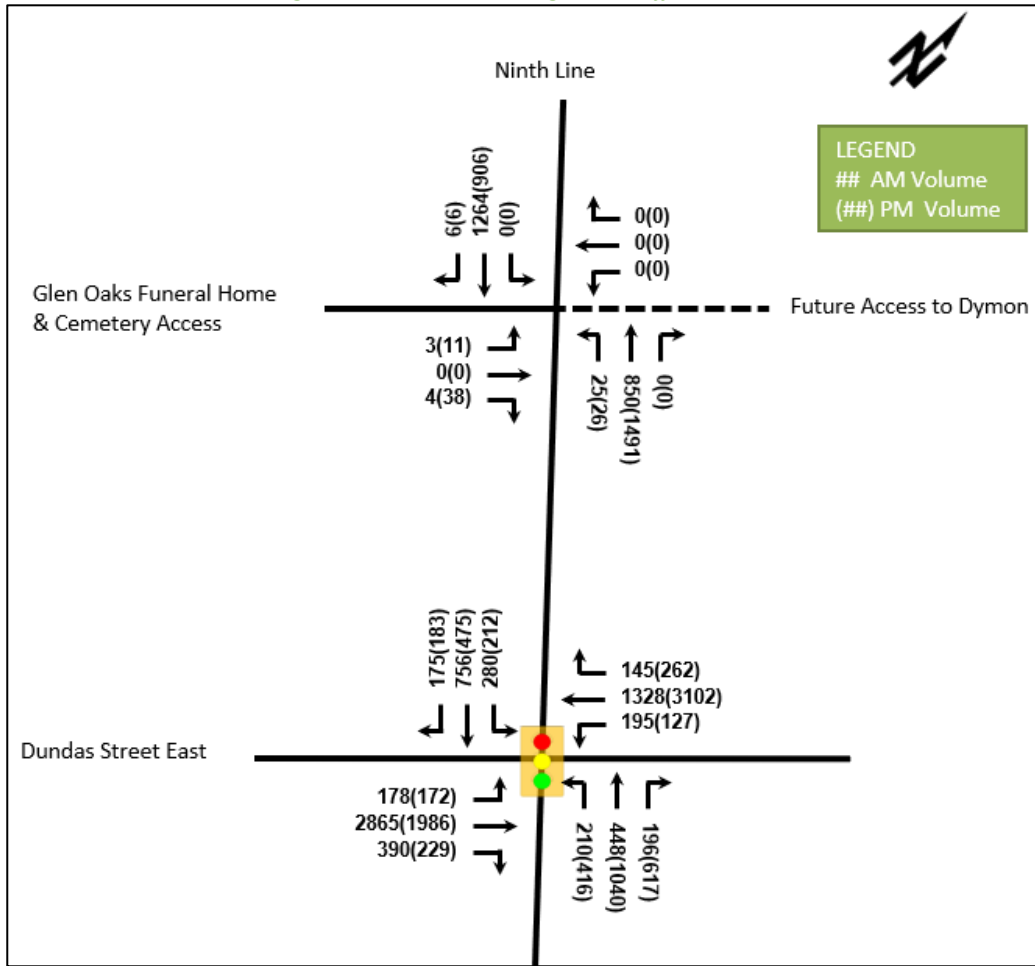


Figure 21: 2031 Future Background Traffic Volumes



3.6 Future Background Operational Analysis

3.6.1 Future Conditions Modeling Parameters

Parameters applied in the Synchro model have followed the suggestions in Appendix D of the Mississauga’s TIS Guidelines. At the signalized intersection of Dundas Street East at Ninth Line, the minimum green time has been set to 10 seconds for through movements and 5 seconds for left-turn phases. The cycle lengths have been determined for each scenario based on the volumes, with the intent to optimize the overall LOS and delay for the intersection, while adhering to the maximum of 160 seconds. The amber and all-red clearance times have been included for every phase and generally kept the values from the existing signal timing plan. The parameters for the pedestrian phases are consistent with the existing signal timing plan. The same saturation flow rates and lost times as those in existing models are also carried forward. A default peak hour factor of 0.92 have been applied to all movements at Study Area intersections.

3.6.2 2026 Future Background Conditions

3.6.2.1 2026 Future Background Intersection Design

As discussed in Section 3.3.7, no changes will be made to the intersections in the 2026 horizon. The transportation network from the 2023 existing conditions has been used for 2026 Future Background conditions.

3.6.2.2 2026 Future Background Operational Analysis

The 2026 Future Background intersection volumes have been analysed to allow for a comparison between the future volumes with and without the proposed development. Table 11 summarizes the operational analysis for the 2026 Future Background conditions.

The parameters used to assess the existing conditions operational analysis discussed in Section 2.7.1 have been applied to future conditions as well. The intersections have been analyzed based on the identified signal control and intersection configurations in Section 3.6.2.1. 2026 Future Background Synchro worksheets are included in Appendix L.

Table 11: 2026 Future Background Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour				
		LOS	V/C	Delay	Queues	LOS	V/C	Delay	Queues	
Ninth Line & Dundas Street East (Signalized)	EBL	C	0.61	24	45	D	0.74	49	51	
	EBT	F	1.34	194	#399	D	0.84	37	#216	
	EBR	C	0.60	35	71	C	0.33	25	28	
	WBL	D	0.78	54	#65	C	0.62	33	35	
	WBT	C	0.61	30	119	F	1.38	212	#423	
	WBR	C	0.21	24	12	C	0.39	28	46	
	NBL	D	0.71	44	#67	F	1.04	95	#121	
	NBT	D	0.49	47	59	F	1.10	113	#188	
	NBR	D	0.57	50	18	F	1.60	334	#192	
	SBL	D	0.70	39	71	D	0.78	49	#69	
	SBT	E	0.84	58	109	D	0.50	47	63	
	SBR	D	0.48	48	17	D	0.50	47	17	
	Overall	F	1.06	104	-	F	1.20	132	-	
	Signal Optimization (incl. pm+over NBR in the PM)									
	EBL	C	0.62	24	45	F	1.29	225	#98	
	EBT	F	1.15	109	#403	D	0.84	42	#223	
	EBR	C	0.52	28	67	C	0.33	29	34	
	WBL	F	1.17	173	#105	D	0.69	40	42	
	WBT	C	0.56	29	129	F	1.25	158	#429	
	WBR	C	0.20	23	13	C	0.35	27	42	
	NBL	E	0.83	61	#78	E	0.95	71	#135	
	NBT	D	0.39	45	58	E	0.95	74	#190	
	NBR	D	0.46	47	32	F	1.41	137	#224	
SBL	E	0.88	75	76	E	0.89	76	#94		
SBT	E	0.80	59	112	E	0.53	55	73		
SBR	D	0.46	51	17	E	0.53	56	32		
Overall	E	1.06	73	-	F	1.18	99	-		
Ninth Line & Glen Oaks Access (Unsignalized)	EBL/R	D	0.05	31	1	C	0.20	22	5	
	NBL	A	0.04	2	<1	A	0.03	1	<1	
	NBT	-	0.29	0	0	-	0.55	0	0	
	SBT/R	-	0.68	0	0	-	0.47	0	0	
	Overall	C	-	0.3	-	B	-	0.7	-	
Notes:	m indicates that the volume for the 95 th percentile queue is metred by an upstream signal # indicates the volume for the 95 th percentile cycle exceeds capacity									

As shown above, with the addition of background growth to reflect the 2026 horizon as well as traffic generated from surrounding developments, the Study Area intersections operate worse than existing conditions during both AM peak hour and PM peak hour. Critical movements are identified in red.

The Glen Oaks at Ninth Line intersection is projected to operate within possible operational thresholds despite the growth along Ninth Line. However, the Dundas Street East at Ninth Line will likely experience operational constraints with long delays and queues especially in the PM peak hour 2026 Future Background horizon.

At the Dundas Street East at Ninth Line intersection, operational constraints are projected on the eastbound through movement during the AM peak with a v/c ratio of 1.34 and a 400-metre queue, reflecting the high projected volumes on this movement. Optimizing the signal timing plan is projected to reduce the overall delay, but not the v/c ratios. To reduce the v/c ratios and delays on the eastbound through movement, the conflicting movement of westbound left was assigned a shorter green time which caused operational constraints at that movement as a result.

During the PM peak, the volumes are similar to the AM peak pattern with the heaviest direction of flow reversed. The critical movements are westbound through, northbound left, northbound through, and northbound right. The queues on the northbound left and northbound right movements have exceeded the available storage lengths. Signal optimizations have been applied to the PM peak hour signal timings to optimize the overall delays, yet similar to the situation encountered in the AM conditions, the improvements are limited at this intersection. The operational constraints on the northbound left and northbound through movements have been mitigated, but the eastbound left movement opposite to the critical movement of westbound through does not have enough residual capacity to release some of its green time to accommodate the volumes at the critical movements and would become congested. While the delay on the westbound through movement is reduced, the delay on the eastbound left significantly increases. The northbound right movement has been modelled with permissive and overlap phases. As it overlaps with the westbound left movement, the green time assigned to this movement is restricted by that of the westbound left movement, which cannot be further increased without affecting the operational conditions at the eastbound through movement.

Unlike the eastbound through movement during the AM peak hour which has sufficient spacing between the Ninth Line intersection and the next intersection to the west, William Cutmore Boulevard, the 95th percentile queue at westbound through movement is about 423 metres long during the PM peak hour while the Highway 403 southbound off ramp is located approximately 320 metres east of the Dundas Street East at Ninth Line intersection. The queues from the Ninth Line intersection could potentially spill back to the highway off ramp and block vehicles exiting the highway, causing queues on the off ramp.

Given the high projected Future Background volumes along Dundas Street, it is expected that the current configuration of the road cannot efficiently accommodate the traffic at the Dundas Street at Ninth Line intersection. It is unlikely that the projected level of growth will occur along this corridor as the planned completion of the parallel William Halton Parkway is expected to be completed by 2027 and some of this east-west traffic will divert away from Dundas Street which should improve intersection operations.

Additionally, the potential conversion of the curbside lane to an HOV/BRT lane would reduce the capacity along Dundas Street. The HOV lane has not been modelled in this study as the reduction in capacity would further exacerbate existing operational issues. It is recommended that the Region monitor changes in traffic volumes along the corridor and determine the appropriate timing of implementation of the HOV lane. The introduction of the HOV and future BRT service will help increase the modal share for non-auto modes from existing levels and decrease the vehicle volumes along the corridor, which will offset the impact of reduced capacity due to the

HOV/BRT lane and improve the operation of intersections along Dundas Street. No geometric improvements are recommended at this intersection as part of this study, due to property constraints.

3.6.3 2031 Future Background Conditions

3.6.3.1 2031 Future Background Intersection Design

For 2031 Future Background conditions, Ninth Line will be widened to a four-lane road north of the intersection with Dundas Street East. The 2031 Future Background Synchro model is based on the preliminary design, included in Appendix J. The Ninth Line at Glen Oaks Access intersection is assumed to have the following configuration:

- northbound approach consists of an auxiliary left turn lane with a storage length of approximately 15 metres and two through lanes;
- southbound approach consists of a through lane and a shared through / right-turn lane;
- and eastbound approach stays the same as the existing conditions with a shared left turn / right turn lane.

3.6.3.2 2031 Future Background Operational Analysis

The 2031 Future Background intersection volumes have been analysed to allow for a comparison between the future volumes with and without the proposed development. Table 12 summarizes the operational analysis results for the 2031 Future Background conditions.

The parameters used to assess the existing conditions operational analysis are the same as the 2026 Future Background conditions. The signal timing optimization measures have been incorporated into the 2031 Future Background network. 2031 Future Background Synchro worksheets are included in Appendix M.

Table 12: 2031 Future Background Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Queues	LOS	V/C	Delay	Queues
Ninth Line & Dundas Street East (Signalized)	EBL	C	0.71	33	58	F	1.39	264	#107
	EBT	F	1.29	175	#445	D	0.94	51	#263
	EBR	C	0.58	34	75	C	0.36	30	36
	WBL	F	1.30	223	#118	D	0.72	52	47
	WBT	D	0.66	36	153	F	1.37	212	#493
	WBR	C	0.23	27	18	C	0.38	28	48
	NBL	E	0.84	60	#99	F	1.07	102	#190
	NBT	D	0.49	48	79	E	0.98	75	#219
	NBR	D	0.51	49	44	F	1.11	119	#258
	SBL	E	0.90	73	#108	F	1.38	257	#128
	SBT	E	0.93	75	#162	E	0.74	64	95
	SBR	D	0.50	53	31	E	0.65	64	40
	Overall	F	1.14	104	-	F	1.38	126	-
Ninth Line & Glen Oaks Access (Unsignalized)	EBL/R	E	0.06	36	1	C	0.20	22	5
	NBL	B	0.05	13	1	B	0.04	10	<1
	NBT	-	0.27	0	0	-	0.48	0	0
	SBT/R	-	0.54	0	0	-	0.39	0	0
	Overall	A	-	0.3	-	A	-	0.5	-
Notes:	m indicates that the volume for the 95 th percentile queue is metred by an upstream signal # indicates the volume for the 95 th percentile cycle exceeds capacity								

As shown above, with the addition of background growth to reflect the 2031 horizon as well as traffic generated from surrounding developments, the Study Area intersections operate with higher v/c ratios, longer delays, and

longer queues than the 2026 Future Background conditions. Critical movements as defined by Mississauga's TIS Guidelines are identified in red.

The Glen Oaks Access at Ninth Line intersection is anticipated to operate with acceptable LOS in the 2031 Future Background conditions. The shared eastbound left / right movement during the AM peak hour is the only movement that has a relatively long delay of 36 seconds for an unsignalized intersection due to the high volumes projected along Ninth Line, leaving short gaps for vehicles at the access to complete the turn. As the queue lengths at the Glen Oaks Access are much shorter for both the AM and PM peak hours than the driveway length, the delay at the Glen Oaks Access will not impact the operation of the intersection.

The Dundas Street East at Ninth Line is anticipated to experience operational constraints in the same pattern as in the 2026 Future Background horizon, except that the v/c ratios and delays are generally worse. The eastbound through and westbound left movements are constrained with long delays and queues in the AM peak hour. As they are conflicting movements and the v/c ratios at the northbound left and southbound through movements are also approaching 1.0, signal timing optimization cannot be implemented to improve the conditions. During the PM peak hour, the eastbound left, westbound through, northbound left, northbound right, and southbound left movements would have exceeded the critical threshold with v/c ratios above 1.0 and queues exceeding storage lane lengths. Similarly, improvements through signal optimization are not feasible as conflicting movements are either over capacity or at capacity.

Similar to the 2026 Future Background conditions, the major concern at this intersection is the long queues projected for the westbound movements during the PM peak hour which have the potential to spillback to the Highway 403 off ramp approximately 320 metres east of the Dundas Street East at Ninth Line intersection. The queues on these movements are caused by the high projected volumes along Dundas Street which cannot be accommodated by the current configuration of three through lanes per direction. The 1.5% annual growth rate on the corridor worsens the traffic operational conditions that are already at capacity in the existing conditions. The volumes along the corridor will not continue to increase at this growth rate in the future conditions with the alternative E-W corridors to be completed and the reduction in auto volumes due to the projected increase in transit and active modes.

The HOV/BRT curbside lanes have not been included in the analysis as the capacity of the road will not be able to accommodate the projected traffic volumes. The HOV lanes should be implemented when the transit and active mode transportation facilities support the modal shift.

4 Forecasting

4.1 Trip Generation and Mode Shares

This proposed development is mixed-use, containing 15,616 m² (168,091ft²) of self-storage, 97 m² (1,048 ft²) of wine cellar, 5,755 m² (61,941 ft²) of office space, 1,231 m² (13,255 ft²) of industrial condo units, and 1,400 m² (15,065 ft²) of reception and retail spaces that support the self-storage customers. The wine cellar is a specific type of self-storage service that the proposed Dymon facility provides where restaurants or private collectors can rent high-standard wine cellar units to store their wine collections. The GFA of the wine cellar is less than 1% of the entire self-storage component, thus it is appropriate to aggregate it with the self-storage land use for trip generation calculation. Therefore, four land uses are involved in the trip generation of this site: office, self-storage, retail, and industrial condo. The development will be built in a single phase, and the site generated trips will be the same for 2026 and 2031 horizons.

Due to the unique business model, the land use cases identified and surveyed by the ITE to obtain trip generation rates are not always representative of the land uses in the proposed development. The site trip generation of the proposed development will be projected using two different methods – ITE rates and proxy site data rates – which will be compared to determine the most appropriate site-generated trip volumes.

4.1.1 Trip Generation by ITE Rates

The ITE Trip Generation Manual 11th Edition has been reviewed to determine the appropriate rate equations for each land use. Industrial condos can be used for a wide range of industrial activities such as small-scale manufacturing, processing, and warehousing. The General Light Industrial land use was considered to be the most appropriate land use for this type of Table 13 summarizes the vehicle trip rates for the proposed land uses.

Table 13: Trip Generation Vehicle Trip Rates

Land Use	Land Use Code	GFA (1000 ft ²)	Peak Hour	Method	Vehicle Trip Rate	Distribution	
						In	Out
Strip Retail Plaza (<40k)	822	15.1	AM	Weighted Average	2.36	62%	38%
			PM		6.59	49%	51%
Office	710	61.9	AM	Fitted Curve Equation	1.79	88%	12%
			PM		1.80	17%	83%
Mini-Warehouse	151	169.1	AM	Weighted Average	0.09	59%	41%
			PM		0.15	47%	53%
General Light Industrial	110	13.3	AM	Weighted Average	0.74	88%	12%
			PM		0.65	14%	86%

The weighted average rates were applied when there were no fitted curve equations given, a small sample size, or when the curve did not fit the data well. The fitted curve equations were used when the regressions were calculated based on more than 20 studies and the criteria of R² values being greater than 0.75 were met.

Internal capture rates from the ITE Trip Generation Handbook 3rd Edition have not been assigned to any components of the development. Although it is a mixed-use development, there are no strong correlations between each use. A pass-by trip to the retail component on the way to an ultimate destination (i.e., work) is also unlikely due to the type of items sold. The proxy site data in Section 4.1.2 accounted for the on-site interactions as the total external inbound and outbound trips are counted for sites containing similar components.

Using the above person trip rates, the total person trip generation has been estimated. Table 14 below illustrates the total person trip generation by land use category.

Table 14: Total Vehicle Trip Generation

Proposed Land Use	Land Use	GFA (1000 ft ²)	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Retail / Reception	Strip Retail Plaza (<40k)	15.1	22	14	36	49	50	99
Co-working Office	Office	61.9	98	13	111	19	92	111
Self-Storage	Mini-Warehouse	169.1	9	6	15	12	13	25
Industrial Condo	General Light Industrial	13.3	9	1	10	1	8	9
Total Vehicle Trips			138	34	172	81	163	244

As shown above, 172 AM and 244 PM new peak hour two-way vehicle trips are projected as a result of the proposed development. The largest trip generator among all uses is the office component which is anticipated to generate 98 and 99 two-way vehicle trips during the AM and PM peak hours, respectively.

4.1.2 Trip Generation by Proxy Site Rates

4.1.2.1 *Dymon Business Model and Site Context*

Dymon offers a unique customer-centric storage solution unlike anything else in the marketplace. Unlike traditional self-storage operations, Dymon facilities are located along arterial corridors, in very prominent locations within close proximity to its residential and business customers. With its high level of security, total humidity and climate control environment, and relentless focus on customer service, Dymon offers a reliable extension to people's homes and businesses. The primary access to Dymon's facilities is via an interior loading area (with secure access 24 hours a day) that protects customers from the weather while loading/unloading their possessions. By providing this interior area the reliance on surface parking is significantly reduced, as up to 75% of visitors to the site during any period use the interior loading bay, rather than the provided parking lot. In fact, any visit after the initial visit uses the interior loading area as this is the direct access to the storage lockers. Dymon sites include a reception and a retail area that is not used directly for self-storage. This space has several functions, including allowing space for new customers to come in and rent a storage locker or purchase storage supplies (boxes, tape, bubble wrap, etc.). In Spring 2019, Dymon expanded the services available in this space to include home storage solutions including closet organizers, under counter shelving, and storage bins. The subject development also will include a Work Refined co-working space which provides members with 24/7 secure access to fully equipped office facilities and dedicated high speed wi-fi, on flexible terms with no long-term commitments.

Industrial condos proposed on this site are a new addition to Dymon facilities. The industrial condo is a condominium development like residential and office condominiums but dedicated to industrial land uses. Dymon's industrial condos aim at providing quality spaces for small to mid-bay industrial activities. The industrial condos are located in a multi-unit structure and share common driveways, loading areas, parking areas, garbage collection, and sidewalks.

4.1.2.2 *Proxy Site Data*

To better understand the trip generation of the proposed development, a proxy site trip generation survey has been undertaken at five established, comparable Dymon sites in both Ottawa and GTA. These sites have been selected as they are similar in size to the proposed development and have similar features (GFA, land uses, urban environment, arterial road access). The selected sites include the new Dymon retail functions and sell the home storage solutions discussed previously. The most recent survey site of 1460 The Queensway in Etobicoke also includes the co-working office area that will be available at the proposed site at 3855 Dundas Street West. These will operate in the same manner as the proposed site and are appropriate proxy sites for comparison. The Ottawa sites have been selected for review to supplement the lack of data due to the limited number of Dymon sites that have been completed and/or opened in the GTA. This data has been used to support the trip generation projection for a Dymon development located at 3855 Dundas Street West. Table 15 summarizes the site statistics for the surveyed and proposed sites. The number of parking stalls per the approved Site Plan for each proxy site have been documented in Table 15, however the parking provisions will be discussed in a separate document, *3855 Dundas Street Parking and Loading Study*, included in Appendix N.

Table 15: Site Statistics Comparison

Site	Reception / Retail GFA (m ²)	Self-Storage GFA (m ²)	Office GFA (m ²)	Total GFA (m ²)	Parking Stalls (SPA)
1554 Carling Avenue	2,714	18,204	-	21,685	59 Exterior 4 in Loading Area
323 Coventry Road	867	11,484	-	12,351	44 Exterior ¹
300 Greenbank Road	~700	8,495	-	9,195	9 Exterior 4 in Loading Area
1460 The Queensway	1,231	27,568 ²	2,192	30,991	266 Exterior 59 Interior
5 Nevets Road	563	12,448	-	13,012	41 Exterior
3855 Dundas Street West	1,400	15,714 ²	5,755	22,869 ³	97 Exterior 93 Underground

Note 1: some of these parking stalls are restricted due to truck movements. This will be discussed further below.

Note 2: These self-storage GFAs include a Dymon Wine component. The wine cellar at 1460 The Queensway is 854 square metres. The wine cellar at 3855 Dundas Street West is 223 square metres.

Note 3: 3855 Dundas Street West also includes industrial condo land use which is not present in the surveyed proxy sites.

As shown in Table 15, the proposed development at 3855 Dundas Street West contains the same reception/retail and self-storage components as all of the proxy sites, and the same office component with 1460 The Queensway site, therefore, the trip generation for these components on site can be projected using proxy site data. Mode choice of the customers has been implicitly reflected in the proxy site survey data; therefore, no additional mode splits are applied to the trip generation results.

The industrial condos will support various types of activities which may generate trips at different rates. Survey data is unavailable for the industrial condos. Without specific information ITE trip generation rates for the general light industrial land use were applied. An auto driver mode share of 100% has been assumed for this type of use as industrial properties typically have higher auto mode shares.

Table 16 summarizes the surveyed trip generation for the same sites. In the case of 1460 The Queensway, since the parking area is not divided into parts and each designated for a specific land use, there are not well-defined self-storage parking spaces or office parking spaces. Therefore, trip generation data specific to each use is not available from the data collection process. The division between the self-storage and office uses was undertaken using the following methodology:

- The vehicles heading to the office component were assumed to have taken the accesses closest to the location of the office: the southmost access on Vansco Road, and the access on Wickman Road. The vehicles using the other accesses were all assumed to be self-storage users.
- The percentage of inbound and outbound trips at an access for the office use are assumed to be related to the percentage of the parking spaces that are frequently used by the office users (information supplied by Dymon) out of all the parking spaces in the proximity of this access. Although the parking and trip generation are not directly related, considering that the average time length of parking of office users is much longer than that of self-storage users, this is a reasonable approximation as the number of parking spaces provided is related to the maximum demand of incoming vehicles.

Two counts have been collected at 1460 The Queensway specifically for the trip generation for the Work Refined office area to provide a larger data set to help determine the trip generation rates at the co-working office. The weekday AM, weekday PM, and Saturday midday peak hour trip generation for self-storage and office uses have been individually tabulated in

Table 16 and Table 17, respectively. Appendix O includes the trip generation proxy counts and site plans for each surveyed site.

Table 16: Proxy Site Trip Generation – Self-storage

Site	GFA (m ²)	AM Peak Hour Rate (/1000 m ² GFA)			PM Peak Hour Rate (/1000 m ² GFA)			Sat Peak Hour (/1000 m ² GFA)		
		In	Out	Total	In	Out	Total	In	Out	Total
1554 Carling	21,685	6	2	8	13	9	22	-	-	-
323 Coventry (May)	12,351	14	9	23	17	19	36	-	-	-
323 Coventry (June)	12,351	7	5	12	11	15	26	11	15	26
300 Greenbank	9,195	7	4	11	10	10	20	14	18	32
1460 The Queensway (February 2022)	28,799	26	18	44	13	23	36	20	20	40
1460 The Queensway (October 2022)	28,799	45	9	54	24	16	40	-	-	-
5 Nevets Road	13,012	5	3	8	9	8	17	18	13	31

Table 17: Proxy Site Trip Generation – Office

Site	GFA (m ²)	AM Peak Hour			PM Peak Hour			Sat Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
1460 The Queensway (February 2022)	2,192	16	2	17	1	5	6	4	2	6
1460 The Queensway (October 2022)	2,192	16	3	19	10	9	19	-	-	-

The selected sites have a wide range of gross floor areas. To accurately compare these sites to the proposed site, the trip generation rate has been determined for each survey in terms of vehicle trips generated per 1000 square metres. Table 18 and Table 19 summarize the trip generation rates for each site for self-storage and office, respectively.

Table 18: Proxy Site Trip Generation Rates – Self-storage and Retail

Site	GFA (m ²)	AM Peak Hour Rate (/1000 m ² GFA)			PM Peak Hour Rate (/1000 m ² GFA)			Sat Peak Hour (/1000 m ² GFA)		
		In	Out	Total	In	Out	Total	In	Out	Total
1554 Carling	21,685	0.28	0.09	0.37	0.60	0.42	1.01	-	-	-
323 Coventry (May)	12,351	1.13	0.73	1.86	1.38	1.54	2.91	-	-	-
323 Coventry (June)	12,351	0.57	0.40	0.97	0.89	1.21	2.11	0.89	1.21	2.11
300 Greenbank	9,195	0.76	0.44	1.20	1.09	1.09	2.18	1.52	1.96	3.48
1460 The Queensway (February 2022)	28,799	0.90	0.63	1.53	0.45	0.80	1.25	0.69	0.69	1.39
1460 The Queensway (October 2022)	28,799	1.56	0.31	1.88	0.83	0.56	1.39	-	-	-
5 Nevets Road	13,012	0.38	0.23	0.61	0.69	0.61	1.31	1.38	1.00	2.38
Average Rate	-	0.80	0.40	1.20	0.85	0.89	1.74	1.12	1.22	2.34

Table 19: Proxy Site Trip Generation Rates – Office

Site	GFA (m ²)	AM Peak Hour Rate (/1000 m ² GFA)			PM Peak Hour Rate (/1000 m ² GFA)			Sat Peak Hour (/1000 m ² GFA)		
		In	Out	Total	In	Out	Total	In	Out	Total
1460 The Queensway (February 2022)	2,192	7.30	0.91	7.76	0.46	2.28	2.74	1.82	0.91	2.74
1460 The Queensway (October 2022)	2,192	7.30	1.37	8.67	4.56	4.11	8.67	-	-	-
Average Rate		7.30	1.14	8.21	2.51	3.19	5.70	1.82	0.91	2.74

Since the 1460 Queensway is a relatively recent establishment, the site is not expected to have been operating at full capacity during the time the traffic data was obtained. At the 1460 Queensway location as of the February 2022, 59.5% of the lockers were rented (1548 Units) while 40.5% were available or vacant (1055 Units) for the self-storage, and 64.5% of the co-working spaces were rented (129 workstations) while 35.5% (71 workstations) were available. The same occupancy rates have been assumed for the October 2022 count dates as well, to be conservative. The office PM peak trip generation rates in the February count are much lower than those in the October count due to that the actual number of trips is as low as 1 inbound and 5 outbound as shown in Table 17 which caused the rates to be sensitive to small changes in the survey results. Considering the potential growth from more customers, the trip generation at maximum capacity, assuming that the increase in the number of trips generated will be linear to the number of rented units, is calculated for self-storage and office as show in Table 20 and Table 21.

Table 20: Proxy Site Trip Generation Rates – Self-storage and Retail

Site	GFA (m ²)	AM Peak Hour Rate (/1000 m ² gfa)			PM Peak Hour Rate (/1000 m ² gfa)			Sat Peak Hour (/1000 m ² GFA)		
		In	Out	Total	In	Out	Total	In	Out	Total
1554 Carling	21,685	0.28	0.09	0.37	0.60	0.42	1.01	-	-	-
323 Coventry (May)	12,351	1.13	0.73	1.86	1.38	1.54	2.91	-	-	-
323 Coventry (June)	12,351	0.57	0.40	0.97	0.89	1.21	2.11	0.89	1.21	2.11
300 Greenbank	9,195	0.76	0.44	1.20	1.09	1.09	2.18	1.52	1.96	3.48
1460 The Queensway (February 2022)	28,799	1.52	1.05	2.57	0.76	1.34	2.10	1.17	1.17	2.34
1460 The Queensway (October 2022)	28,799	2.63	0.53	3.15	1.40	0.93	2.34	-	-	-
5 Nevets Road	13,012	0.38	0.23	0.61	0.69	0.61	1.31	1.38	1.00	2.38
Average Rate	-	1.04	0.50	1.53	0.97	1.02	1.99	1.24	1.33	2.58

Table 21: Proxy Site Trip Generation Rates – Office

Site	GFA (m ²)	AM Peak Hour Rate (/1000 m ² gfa)			PM Peak Hour Rate (/1000 m ² gfa)			Sat Peak Hour (/1000 m ² GFA)		
		In	Out	Total	In	Out	Total	In	Out	Total
1460 The Queensway (February 2022)	2,192	11.32	1.41	12.02	0.71	3.54	4.24	2.83	1.41	4.24
1460 The Queensway (October 2022)	2,192	11.32	2.12	13.44	7.07	6.37	13.44	-	-	-
Average Rate	-	11.32	1.77	12.73	3.89	4.95	8.84	2.83	1.41	4.24

The trip generation rates above have been examined and these sites do not have a strong correlation between gross floor area and trip generation. Although there is only one survey site for Dymon Work Refined Office, the October 2022 trip generation is likely overestimated as occupancy rates have been applied to scale the trip generation, however, there is not enough data to conclude that the relationship between occupancy and trip generation is linear. Additionally, due to the low magnitude of trips in the survey a small change in the number of trips has a large impact on the trip generation rate. Therefore, the average trip generation rate has been applied to the proposed site to project the anticipated trip generation of the subject development on a typical day.

Table 22 summarizes the projected trip generation for the proposed Dymon development at 3855 Dundas Street West. As discussed previously in Section 2.7.1, the weekday AM and PM peak periods are the critical periods for this site due to the Saturday midday peak period having a lower trip generation from the co-working office use.

Table 22: Projected 3855 Dundas Street West Site Trip Generation by Proxy Site Data

Land Use	GFA (m ²)	AM Peak Hour			PM Peak Hour			Sat Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Dymon Self-Storage, Wine Cellar, & Reception/Retail	17,113	18	8	26	17	17	34	21	23	44
Office	5,755	65	10	73	22	28	51	16	8	24
	Subtotal	83	19	100	39	46	85	38	31	69
Industrial Condo	1,231	9	1	10	1	8	9	4	5	9
	Total	92	20	110	40	54	94	42	36	78

Table 23 summarizes the ITE trip generation results for vehicle trips for comparison.

Table 23: Projected 3855 Dundas Street West Site Trip Generation by ITE Rates

Land Use	Units / GFA (m ²)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Dymon Self-Storage Wine Cellar, & Reception/Retail	17,113	31	20	51	61	63	124
Office	5,755	98	13	111	19	92	111
Industrial Condo	1,231	9	1	10	1	8	9
	Total	138	34	172	81	163	244

The total ITE trip generation results are higher than the proxy site trip generation results during both the weekday AM and PM peak hours.

The General Office Building Land Use in the ITE Manual represents a typical office building with regular working hours. It does not represent the 24/7 co-working space Dymon provides which serves different enterprises at the same time and allows the flexibility of arrival and departure times.

The trips generated by the self-storage portion using proxy data are also lower than those calculated using ITE rates. A typical industrial warehouse has heavy trucks loading and unloading during certain periods of the day (i.e., early morning) while visits to self-storage sites predominantly use passenger vehicles and are more frequent and scattered throughout the day.

Therefore, the proxy site trip generation results are more representative of the specific land uses in this exercise. The proposed development will generate 110 AM and 94 PM new two-way vehicle trips in both 2026 and 2031.

As the proposed development at 3855 Dundas Street West will be built on vacant spaces, the new site generated volumes will be the net site generated volumes and it will be added to the Future Background volumes.

The site traffic generated is much lower than the total site traffic from background developments in the surrounding area considered in the study, which will generate 2,760 AM and 3,256 PM trips. The site traffic is anticipated to have a relatively minor impact on the transportation network, compared to the background traffic.

4.2 Auto Site Trip Distribution

The proposed development primarily consists of self-storage and co-working office land uses; hence the targeted customers are primarily residents or businesses from nearby neighbourhoods. As a result, the trips generated will be primarily local. The trips generated by the proposed development were distributed to the boundary road network based on the locations of estimated residential, industrial, and commercial catchment areas. The potential catchment areas were determined based on the locations of existing self-storage facilities and co-working spaces in Oakville and Mississauga.

A review of existing self-storage facilities shows that there are several east of Highway 403 in Mississauga and south of Highway 403 in Oakville, which are expected to capture the surrounding areas in Mississauga and Oakville. A similar pattern is observed for the co-working spaces in the surrounding areas, except that the proposed Dymon Work Refined will likely have another catchment area located east of the site in the lands south of Highway 407 and east of Highway 403. Therefore, trips are primarily expected to be local, arriving from and departing to the west within Oakville, with a smaller percentage from the other directions. Figure 22 and Figure 23 illustrate existing self-storage facilities and co-working spaces in Mississauga and Oakville and the potential catchment areas of the subject site at 3855 Dundas Street West.

Figure 22: Existing Self-storage Facilities in Mississauga and Oakville

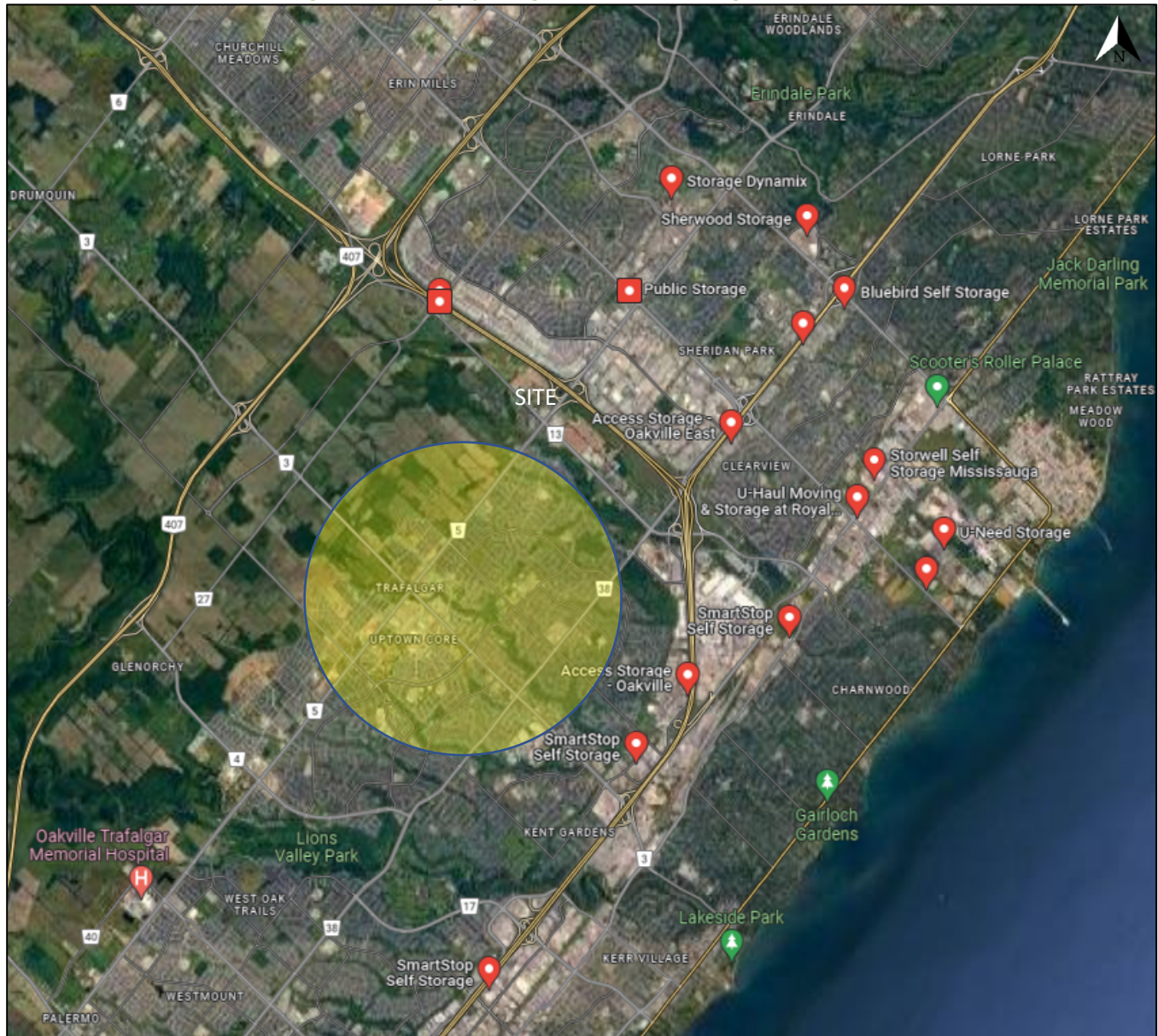


Figure 23: Existing Coworking Offices in Mississauga and Oakville



To determine the travel patterns of the subject development, the 2016 Transportation Tomorrow Survey (TTS) has also been taken into consideration. The OD matrix of the traffic zone containing the proposed development and the surrounding zones that currently have similar land uses (traffic zones 3634, 4024, 4180) have been extracted. Due to the specific land uses of the proposed development, only the local trips, which have origins or destinations in nearby zones in Oakville or Mississauga, have been analyzed. TTS data for these zones can be found in Appendix P. The resulting trip distribution for the three zones aggregated is illustrated in Table 24.

Table 24: Trip Distribution – Traffic Zones

To/From	Percent of Trips
North	25%
South	35%
East	30%
West	10%
Total	100%

The directions in Table 24 are cardinal directions and many trips travelling from the north and south will access the site via Dundas Street East instead of Ninth Line depending on their locations (i.e., northwest of the site) and the connectivity of the road network within Oakville. The shortest routes from major residential and commercial zones to the site have been identified and the trip distribution along the Study Area roads are summarized in Table 25.

Table 25: 2016 TTS Trip Distribution

Arriving From / Departing To	Percentage of Trips
West (via Dundas Street West)	40%
East (via Dundas Street West)	30%
South (via Ninth Line)	20%
North (via Ninth Line)	10%
Total	100%

Compared to the 2016 TTS trip distribution, the percentage of the trips arriving from the west will be higher as substantial residential developments are being proposed and constructed on the north side along Dundas Street west of Ninth Line as noted in Section 3.2. These developments will be within the catchment areas of the proposed self-storage and co-working office. These are not captured in 2016 TTS data but will contribute to the site traffic in 2026 and 2031 future horizons. The TTS trip distribution has been adjusted to the percentages in Table 26 based on future developments in the catchment areas. The trips arriving from the west will increase by 15% while the trips arriving from the east and south will decrease by 10% and 5%, respectively, as competing establishments with similar or the same uses located at the east and south will make it unlikely for a steady increase in customers attracted from these directions. The following trip distribution rates have been applied to the site trips generated by 3855 Dundas Street West.

Table 26: Future Trip Distribution

Arriving From / Departing To	Percentage of Trips
West (via Dundas Street West)	55%
East (via Dundas Street West)	20%
South (via Ninth Line)	15%
North (via Ninth Line)	10%
Total	100%

4.3 Auto Site Trip Assignment

Using the distribution outlined above, turning movement splits, intersection and access turning restrictions, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. The trip assignment exercise was generally based on the principle that the most direct route with the shortest travel distance would be chosen. As the site only has one vehicular access, all inbound trips and

outbound trips will use the access. With full movements allowed at the access, no U-turns are expected from the site trips as they can travel directly towards their destinations. With no access provided on Dundas Street East, trips travelling from the west and east along Dundas Street East will access the site by making westbound right and eastbound left turns onto Ninth Line first, 90% of the total inbound trips take a northbound right turn at the future site access at Ninth Line intersection and the rest 10%, which are trips coming from the North, will take a southbound left turn. The opposite applies to the outbound trips, hence 10% of the trips will leave the site with a westbound right movement and 90% will make a westbound left turn and divert to south, east, and west at the Dundas Street East at Ninth Line intersection. Figure 24, Figure 25, and Figure 26 illustrate the 2026 and 2031 new site traffic generated volumes for the self-storage and retail, the co-working office, and the industrial condos, respectively. Figure 27 illustrates the 2026 and 2031 new site traffic generated volumes for all land uses combined.

Figure 24: 2026 and 2031 New Site Generation Auto Volumes – Self-Storage and Retail

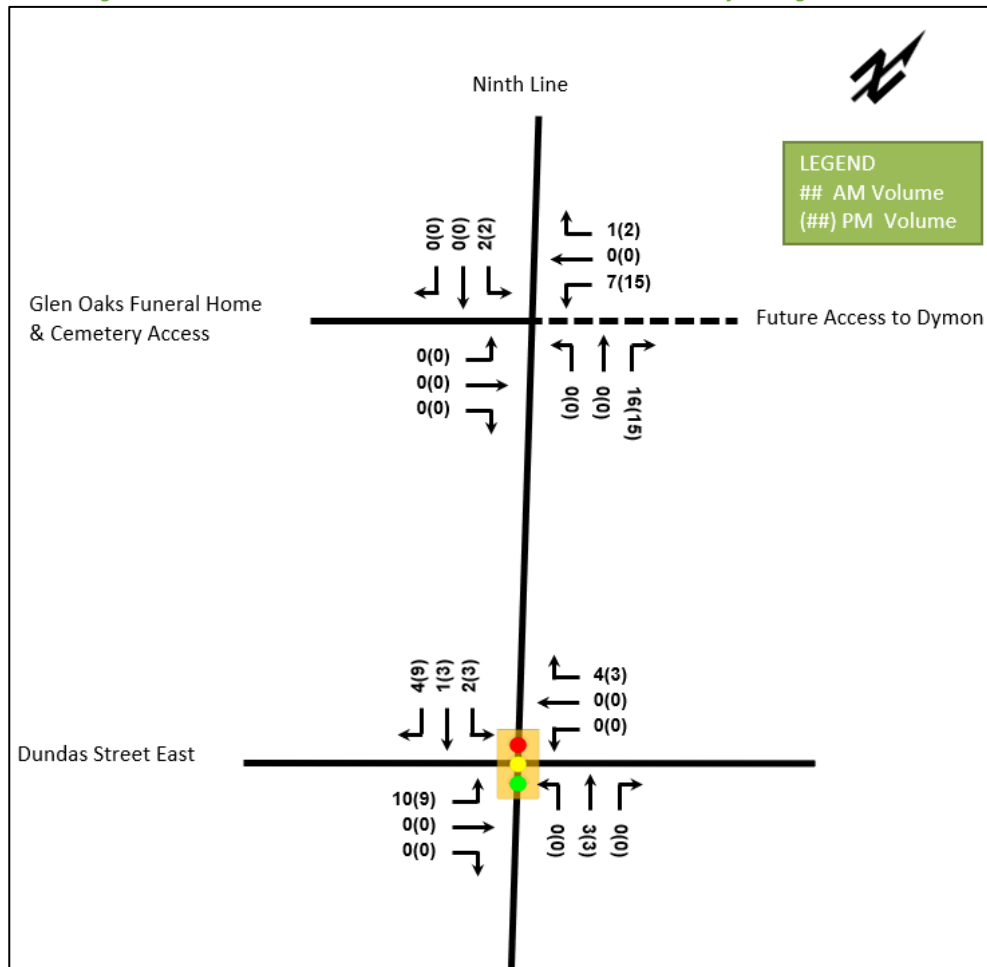


Figure 25: 2026 and 2031 New Site Generation Auto Volumes – Office

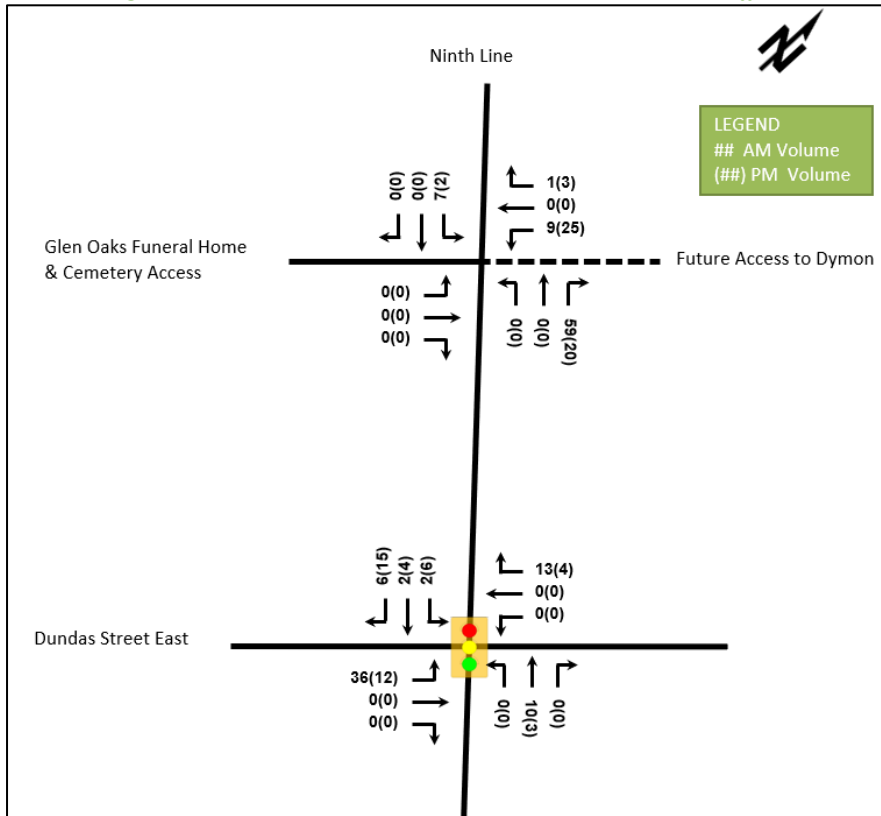


Figure 26: 2026 and 2031 New Site Generation Auto Volumes – Industrial Condos

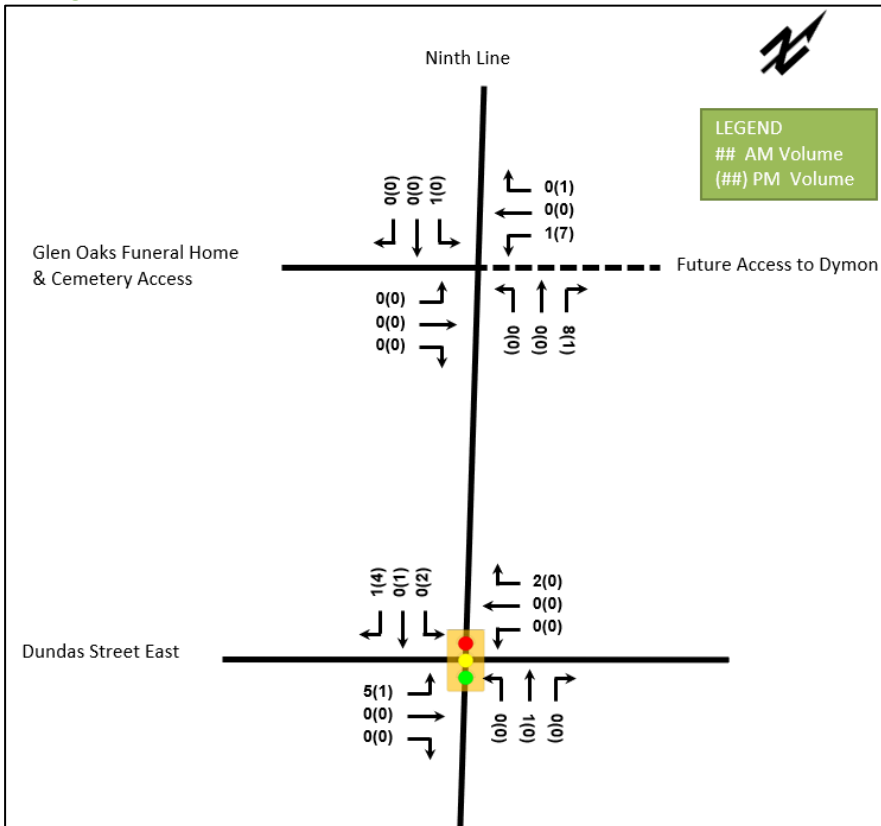
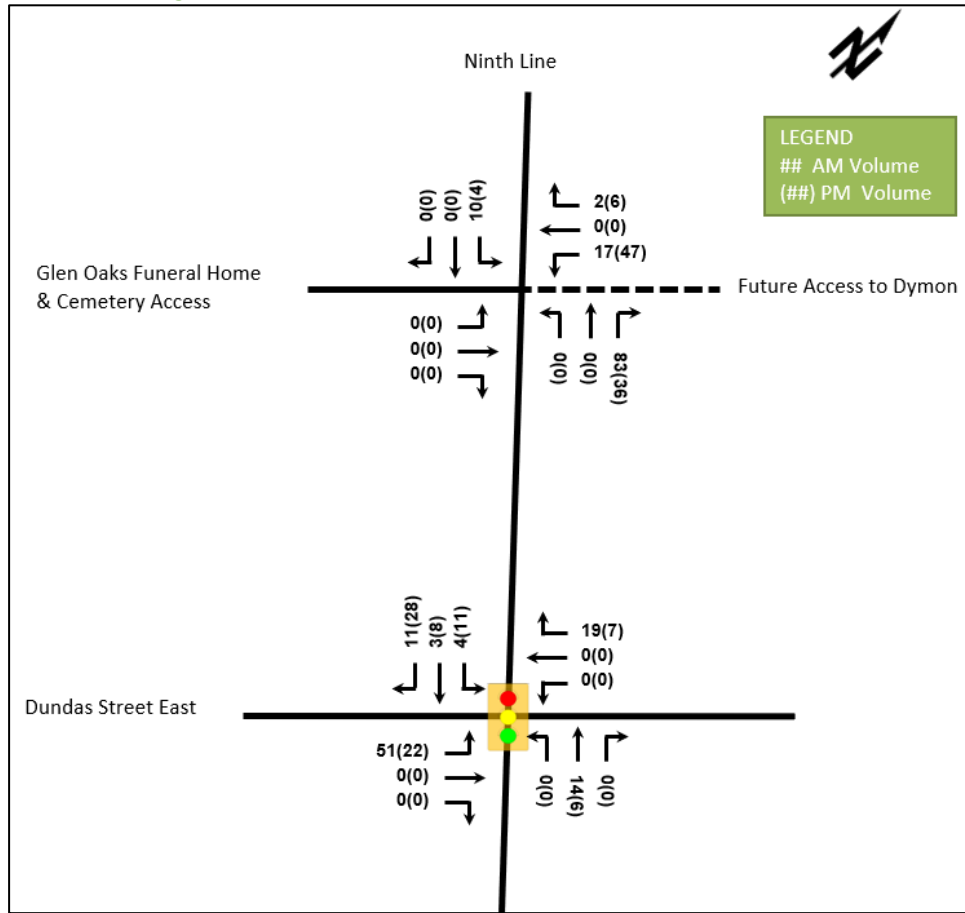


Figure 27: 2026 and 2031 New Site Generation Auto Volumes – Total



5 Future Total

5.1 Future Total Traffic Volumes

The site generated traffic has been combined with the 2026 and 2031 Future Background traffic volumes to estimate the Future Total traffic volumes. The 2026 Future Total traffic volumes are illustrated in Figure 28 and the 2031 Future Total traffic volumes are illustrated in Figure 29.

Figure 28: 2026 Future Total Traffic Volumes

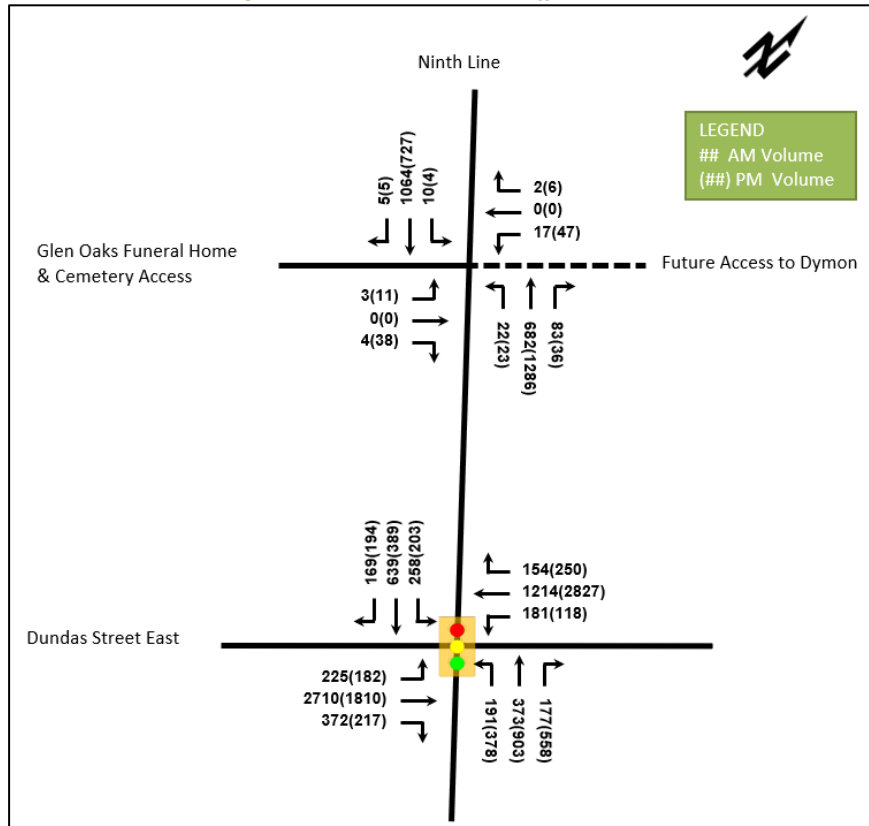
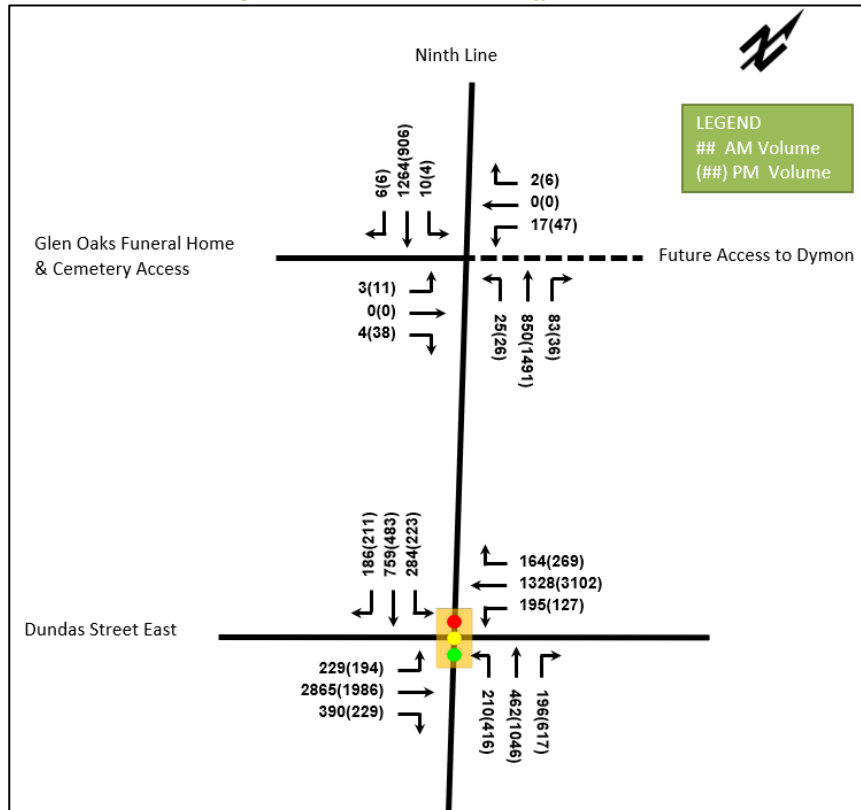


Figure 29: 2031 Future Total Traffic Volumes



5.2 Future Total Operational Analysis

5.2.1 Future Total Intersection Design

The Ninth Line at Dundas Street East intersection has been designed with the same geometry as was considered in the Future Background analysis.

The Glen Oaks Access at Ninth Line intersection has been modified into a four-legged intersection, with the addition of the site access of the proposed Dymon development as the westbound approach of the intersection. The intersection is assumed to be stop-controlled on the minor streets, in this case the accesses. Both the Glen Oaks Access and proposed Dymon site access are assumed to be full movement.

Left turn lane warrants have been assessed for the Glen Oaks Access / Future Dymon Access at Ninth Line based on the projected volumes for 2026 Future Total and 2031 Future Total scenarios. Both the northbound left turn and southbound left turn lanes are warranted due to the high advancing and opposing volumes with a storage length of 25 metres. Appendix Q includes the left turn warrant graphs.

For the 2026 horizon, the Glen Oaks Access / Future Dymon Access at Ninth Line will have a shared left turn / through / right turn lane at the eastbound and westbound approaches, a shared left turn / through lane and a shared through / right turn lane on the northbound approach, and a dedicated left turn and a shared through / right turn lane on the southbound approach. A dedicated northbound left turn is warranted but has not been modelled for the 2026 horizon as it is not certain whether the reconstruction of Ninth Line will be completed by then. The median along Ninth Line in front of the accesses has been coded as a TWLTL (two-way left turn lane) in Synchro.

For the 2031 horizon, the eastbound approach (the Glen Oaks Access) and westbound approach (Dymon access) both consist of a shared left-turn / through / right-turn lane. The northbound approach has been modelled with a dedicated left-turn lane, a through lane, and a shared through / right-turn lane. Along the side there is also a 1.8-metre bike lane and a 3.0-metre multi-use path. The southbound approach is assumed to consist of a dedicated left-turn lane, a through lane, and a shared through / right-turn lane. The bike lane and the multi-use path are planned to be constructed to mirror the existing east side of Ninth Line. The median along Ninth Line is coded as a TWLTL (two-way left turn lane) in Synchro. The left-turn lane of the southbound left movement at the Ninth Line at Dundas Street East intersection currently extends all the way up to the Glen Oaks Access, therefore sufficient space is available to construct a southbound left turn lane for the inbound vehicles to Dymon. This configuration is based on the preliminary design of Ninth Line from the EA completed by Halton Region.

5.2.2 2026 Future Total Operational Analysis

The proposed development's trip generation has been added to the 2026 Future Background traffic volumes to project the impact of the site traffic on the Study Area road network. Table 27 summarizes the operational analysis for the 2026 Future Total conditions. The parameters used to assess the Future Background conditions operational analysis, discussed in Section 3.6.1, have been applied to Future Total conditions as well. The intersections have been analyzed based on the identified signal control and intersection configurations in Section 6.2.1. 2026 Future Total Synchro worksheets are included in Appendix R.

Table 27: 2026 Future Total Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Queues	LOS	V/C	Delay	Queues
Ninth Line & Dundas Street East (Signalized)	EBL	C	0.75	30	68	F	1.36	250	#112
	EBT	F	1.16	116	#402	D	0.85	43	#235
	EBR	C	0.52	30	65	C	0.34	29	35
	WBL	F	1.13	161	#107	D	0.69	40	41
	WBT	C	0.59	32	141	F	1.28	174	#436
	WBR	C	0.23	26	17	C	0.37	29	45
	NBL	E	0.79	56	#86	E	0.92	64	#135
	NBT	D	0.46	51	67	E	0.96	76	#192
	NBR	D	0.52	53	34	F	1.14	136	#224
	SBL	E	0.82	62	#89	E	0.91	78	#99
	SBT	E	0.85	66	124	E	0.55	57	75
	SBR	D	0.52	55	23	E	0.63	61	43
	Overall	E	1.04	77	-	F	1.21	106	-
Ninth Line & Glen Oaks Access / Site Access (Unsignalized)	EBL/T/R	C	0.04	25	<1	C	0.16	18	4
	WBL/T/R	D	0.12	29	3	E	0.33	35	10
	NBL/T	A	0.04	1	<1	A	0.03	1	<1
	NBT/R	-	0.27	0	0	-	0.43	0	0
	SBL	A	0.01	9	<1	B	0.01	11	<1
	SBT/R	-	0.68	0	0	-	0.47	0	0
		Overall	C	-	0.7	-	C	-	1.5
Notes:	m indicates that the volume for the 95 th percentile queue is metred by an upstream signal # indicates the volume for the 95 th percentile cycle exceeds capacity \$ indicates the delay exceeds 300s								

With the addition of the site-generated traffic to the 2026 Future Background traffic, the Study Area intersections operate in similar manner to the Study Area intersections for Ninth Line but slightly worse than the 2026 Future Background conditions. Critical movements have been highlighted in red.

The operational conditions at the Dundas Street at Ninth Line intersection indicate that the site traffic has little impact on the traffic conditions. Compared to the 2026 Future Background conditions, the v/c ratios for the 2026 Future Total conditions are similar and the delays increased slightly. The overall delay has increase from 73 seconds to 77 seconds during the AM peak hour and from 99 seconds to 106 seconds during the PM peak hour, which are minimal and do not change the nature of the operational conditions.

The four-legged unsignalized intersection formed with the site access operates well. The two-way left turn lane, included in the preliminary design for Ninth line, in front of the two accesses provides sufficient capacity for left turning vehicles exiting the accesses. The LOS and delays are acceptable at all movements, and the queues can be accommodated by the driveways on both sites.

The operational characteristics of this study area intersections are not significantly impacted by the addition of the site traffic to the road network. The increase in v/c ratios and delays are minor. Alternative routes and modal shifts are expected to decrease the Future Background volumes to improve the Future Background conditions. As the site trips do not impact the traffic conditions at nearby intersections, no geometric improvements are recommended.

5.2.3 2031 Future Total Operational Analysis

The proposed development's trip generation has been added to the 2031 Future Background traffic volumes to project the impact of the new traffic on the Study Area road network five years beyond the anticipated full build-out date.

The parameters used to assess the existing conditions operational analysis discussed in Section 2.7.3, have been applied to future conditions as well. The intersections have been analyzed based on the identified signal control and intersection configurations in Section 5.2.1.

Table 28 summarizes the operational analysis for the 2031 Future Total conditions. 2031 Future Total Synchro worksheets are included in Appendix S.

Table 28: 2031 Future Total Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Queues	LOS	V/C	Delay	Queues
Ninth Line & Dundas Street East (Signalized)	EBL	D	0.82	43	83	F	1.57	338	#123
	EBT	F	1.28	173	#445	E	0.98	60	#271
	EBR	C	0.58	34	75	C	0.36	32	38
	WBL	F	1.39	259	#122	E	0.86	74	#55
	WBT	D	0.71	40	162	F	1.49	266	#514
	WBR	C	0.28	31	23	C	0.41	32	55
	NBL	E	0.85	62	#105	F	1.19	150	#203
	NBT	D	0.52	50	83	F	1.09	112	#238
	NBR	D	0.53	51	47	F	1.23	172	#271
	SBL	E	0.89	67	#86	F	1.40	262	#133
	SBT	E	0.89	67	#153	E	0.76	66	97
	SBR	D	0.51	51	31	E	0.78	74	51
Overall	F	1.16	104	-	-	F	1.48	160	-
Ninth Line & Glen Oaks Access / Site Access (Unsignalized)	EBL/T/R	C	0.03	22	<1	C	0.13	15	3
	WBL/T/R	C	0.08	21	2	E	0.40	46	12
	NBL	B	0.05	13	1	B	0.04	10	<1
	NBT/R	-	0.36	0	0	-	0.64	0	0
	SBL	A	0.01	10	<1	B	0.01	13	<1
	SBT/R	-	0.54	0	0	-	0.39	0	0
Overall	A	-	0.4	-	-	B	-	1.4	-
Notes:	m indicates that the volume for the 95 th percentile queue is metred by an upstream signal # indicates the volume for the 95 th percentile cycle exceeds capacity \$ indicates the delay exceeds 300s								

With the addition of the site-generated traffic to the 2031 Future Background traffic, the Study Area intersections operate in similar manner to the 2031 Future Background conditions. Critical movements as defined by City of Mississauga TIS Guidelines are identified in red.

The site-generated trips remained the same from 2026 to 2031, but the background trips for 2031 increases significantly from the 2026 conditions with an annual growth rate up to 1.5% along Dundas Street and an annual growth rate up to 4.5% along Ninth Line. Overall, the higher volumes in the transportation system in the 2031 Future Total scenarios increase the v/c ratios and delays significantly from the 2026 Future Total scenarios, especially during the PM peak hour.

Comparing the 2031 Future Background operational analysis to the 2031 Future Total analysis illustrates that the site-generated traffic is projected to have a minimal impact on the Study Area road network. The v/c ratios and delays on individual movements are similar to the 2031 Future Background results, with only small increases that do not change the level of service on individual movements or the overall intersections. The eastbound left, westbound through, and southbound left movements have larger increases in v/c ratios. It is understood that the intersection of Dundas Street at Ninth Line is already over capacity in the 2031 Future Background scenarios, therefore, small volume increases result in disproportionately higher delays.

The Site Access / Glen Oaks Access on Ninth Line operates well. The only movement with relatively long delay is the outbound movement at the Site Access during the PM peak hour which exhibits an LOS of E, but the 95th percentile queue of 12 metres can be accommodated by the site driveways without impacting the traffic along Ninth Line. The site access will be further examined in the Section 6.2.

As the operational constraints at the study area intersections are projected to be caused by the Future Background volumes and the site trips have a minimal impact, no geometric improvements are recommended at this intersection.

5.2.4 Mitigation Measures for Auto Mode

Signal optimization has been proposed for both 2026 and 2031 Future Background and Future Total scenarios, including assigning a permissive and overlap phase to the northbound right movement during the PM peak hour. It is suggested that the City should monitor the Dundas Street East at Ninth Line intersection and optimize the signal timing plan as the volume pattern changes. No intersection reconfiguration has been proposed due to property constraints. East-west volumes along the Dundas Street corridor are projected to exceed the theoretical capacity. Volume reductions, through rerouting to other intersection and transportation demand management strategies including providing more transit and active transportation facilities, are anticipated to be the most effective strategies for addressing the projected deficiencies. The timing of implementing the HOV / transit lane for each direction along Dundas Street planned should be reconsidered by Halton Region regarding the balance between reduced capacity due to the converted lane and the reduced demand in the future.

6 Concept Plan Review

6.1 Site Circulation

A site circulation assessment was completed using AutoTURN 11.0 to develop turning templates for garbage trucks and loading trucks. WB-20 and HSU design vehicles were used to simulate the movements of vehicles as they manoeuvre throughout the site. Key areas of assessment include the Ninth Line full-moves site access, the garbage loading space, the drive-in loading area, and site circulation.

WB-20 tractor trailers are shown to be able to access the site via the full-movement access on Ninth Line and exit via the same access. On site, WB-20s will use the driveway in the northern half of the site which are wider. They will exit by taking a left turn at the northeast corner of the site after using the loading docks. They are able to access the interior loading dock in the interior loading / drive-through as well as the loading dock on the exterior south of the drive-through. Both the north and south loading bays can accommodate the WB-20s turning in from the access north of the interior loading area. All turning paths to and from the site are accommodated by the proposed curbs.

HSUs are demonstrated to be able to perform the same maneuvers as the WB-20s. Additionally, HSUs can access the entire driveway. HSUs are used for testing the garbage collection located in the northeast corner of the site.

An HSU is shown to take a right turn upon entering the site and take two left turns at the southwest and southeast corners and arrive in front of the garbage bins. After picking up the garbage, the vehicle is shown to be able to reverse onto the driveway and make a left turn to exit via the site access on Ninth Line. All turning paths to and from the site are accommodated by the proposed curbs.

The provided fire route has been reviewed with a fire truck. The fire truck can enter the site via the access on Ninth Line, make a right turn to go around the driveway in a counterclockwise direction, and exit the site via the same access without obstructions. All turning paths to and from the site are accommodated by the proposed curbs.

Other design vehicles such as MSUs and passenger vehicles are not deemed to cause critical conditions compared to larger vehicles tested. The turning templates showing these movements can be found in Appendix T.

6.2 Access Review

One vehicular access point has been proposed on Ninth Line. Access onto Dundas Street from the previous design (as shown in the previous 2018 TIS) has been removed in response to MTO's comments to reduce the potential impact on the Highway 403 off-ramps east of the site. Removal of this access would also reduce the impact on traffic flow on Dundas Street which is projected to carry high volumes of traffic.

The proposed site access is a full-movement access providing a direct connection to Ninth Line aligning with the existing Glen Oaks Access. The segment of Ninth Line north of Dundas Street belongs to the City of Mississauga; therefore, it is reviewed using the relevant sections in Mississauga's TIS Guidelines and TAC'S Geometric Design Guide for Canadian Roads.

6.2.1 Access Control and Spacing

The Transportation Association of Canada Geometric Design Guide for Canadian Roads (TAC GDG) Section 8.3.3 notes that accesses to major commercial, industrial or residential properties, where volumes can be relatively high, should be treated as intersections. However, the proposed access to the subject site would only serve the proposed building and would not provide future connections to additional properties. As shown in Section 4.1.2.2 the proposed development is anticipated to generate a relatively low volume of traffic. Therefore, this access, aligning with the existing access to Glen Oaks, should be treated as driveways, not as an intersection. Sections 8.8 of the TAC GDG discusses the geometric and spacing requirements for driveways.

Section 8.8 illustrates the suggested minimum corner clearance dimensions. Figure 8.8.2. item A (included in Appendix U) suggests that the minimum corner clearance along an arterial road, with a traffic control signal at the crossroad, is 70 metres. The proposed access has been located 120 metres north of the intersection of Ninth Line and Dundas Street, such that it aligns with the existing Glen Oaks Access, and maximizes the distance from the access to the signalized intersection. Therefore, the spacing between the proposed access and the intersection of Ninth Line at Dundas Street exceeds the minimum recommended spacing in TAC GDG Section 8.8, and the proposed driveway is acceptable.

The subject site has limited access options. It has been previously indicated that MTO will not allow an access to this site via an access on Dundas Street. As a result, access to the site is only possible on the Ninth Line frontage. The proposed access has been aligned with the Glen Oaks access (the site directly to the west of the subject site) and has been positioned at the northern end of the property, maximizing the distance between the signalized intersection of Ninth Line at Dundas Street and the proposed driveway.

6.2.2 Medians

There is currently a concrete median extending 92 metres north of the Dundas Street at Ninth Line intersection. This concrete median will be kept for the future horizons. North of the concrete median, where the Glen Oaks Access and proposed site access are located, will be a two-way left turn lane that will facilitate left-turn inbound vehicles to the two sites.

6.2.3 Intersection Alignment

The City of Mississauga's TIS Guidelines have stated that the locations of access points must align with existing intersections and/or opposing access points wherever possible. The site access location satisfies this by aligning with the existing Glen Oaks Access. Glen Oaks Access is also a full-movement access. Since the existing Glen Oaks Access is full-moves, and with the two-way left turn to provided, the site access is also proposed to be a full-movement. Having a right-in / right-out at this location may encourage U-turns. It will also be difficult to enforce the turning restrictions considering the opposite access to which the site access is aligned allows full movements and such restrictions are not compatible with the two-way left turn lane included on the preliminary drawings.

6.2.4 Sightline Requirements

In addition to providing adequate spacing between intersections and driveways, it is necessary to ensure that proper sight distances are achieved utilizing the TAC GDG and confirmed by field measurements. However, as the segment of Ninth Line near the access is a flat and straight road without horizontal or vertical curves. A sightline analysis is not necessary as the geometry of the road does not create impediments to obstruct visibility from the access point to cars approaching on Ninth Line in either the northbound or the southbound direction.

6.2.5 Access Design

The Dymon access forms a westbound approach at the existing Glen Oaks Access at Ninth Line intersection, consisting of a shared left-turn / through / right-turn lane. The eastbound approach Glen Oaks Access has the same configuration. The northbound and southbound approaches are not controlled, and no turn restrictions are present, each of which will consist of a dedicated left-turn, a through lane, and a shared through / right-turn lane by 2031. The operational analysis in Synchro has demonstrated that the longest 95th percentile queue on site is 12 metres.

The TAC Geometric Guide for Canadian Roads indicates that a minimum of 30 metres of clear throat length is required for a light industrial development with a size between 10,000 and 45,000 square metres accessing an arterial road. The measured clear throat distance at the proposed site access on Ninth Line is the distance measured from the edge of asphalt to the first point of on-site vehicular conflict. As the segment of the driveway running in the N-S direction south of the access provides the first point of on-site conflict, the throat length provided will not satisfy the minimum value of 30 metres indicated in the TAC Guidelines.

As the TAC Guidelines requirement will not be met, this driveway has been examined using a first principles approach. As demonstrated in the turning templates, the heavy vehicles will exit the site using the aisle on the north side in the westbound through direction while the N-S driveway will mostly be used by passenger vehicles. The separation of types of vehicles helps improve the site safety as well as the efficiency at the access. The queue lengths imply that there would rarely be more than three passenger vehicles waiting in the queue. As the access and the site driveway are designed to accommodate two-way traffic, the only condition when there is the potential for outbound vehicles to block the access is when vehicles are approaching from both internal driveways and the northbound left-turn vehicles need to wait for westbound through vehicles to clear. As the queue result from Synchro analysis shows that there are only 1 to 2 vehicles on each side, given the frequency of the inbound vehicles, this condition is unlikely to occur.

The access is adequate to accommodate HSUs and passenger vehicles as design vehicles within the site without blocking an adjacent lane of traffic. The HSU will be the most frequent truck type. While the site is designed to accommodate WB-20 trucks, the frequency of these trucks is low. As a result, these trucks are unlikely to encounter other vehicles and are not anticipated to stack in the throat of the access.

The access locations and designs have been evaluated against several criteria. The access has been placed at the only possible location for an access for this site as it fronts two arterial roads. MTO will not permit access from Dundas Street within their permit control area, so the access can only be provided on Ninth Line. As Mississauga specifically requests the newly proposed accesses to align with the existing ones, the only feasible access location on Ninth Line is aligning with the Glen Oaks Access.

7 Transportation Demand Management Plan

Transportation Demand Management (TDM) is a set of measures and procedures implemented to make more efficient use of the transportation system. TDM manages the demands placed on transportation infrastructure using policies, programs, infrastructure improvements, and/or services to influence travel behaviour by modes, time of day, frequency, trip length, cost, etc. Aiming at reducing the reliance on single-occupant vehicle trips, TDM encourages sustainable travel choices by supporting alternatives to driving alone.

This development is forecasted to generate 110 new peak hour person trips or less during the worst peak hour. As the size of the development is small, a TDM Statement with a reduced scope has been prepared below. The TDM statement outlines the TDM measures that will be incorporated into the proposed development.

The proposed development includes a self-storage facility, a co-working office, and industrial condos. Different TDM measures are applicable to different land uses. For the co-working office component, one of the most effective Transportation Demand Management (TDM) measures are access and usability of transit, cycling, and pedestrian facilities.

7.1 Transit Measures

The proposed development is serviced by Oakville Transit along Dundas Street with frequent services on weekdays and during the weekend. The closest stop is within 120 metres' and 200 metres' walking distance for the westbound and eastbound buses, respectively. Currently the service is limited to one local bus route which connects to Oakville GO for access to regional transit. In the future the transit services will be improved as the Dundas BRT will pass through the Study Area. At that time, one of the through lanes in each direction along Dundas Street will be converted to a transit lane. The closest BRT stops are assumed to be located at the Dundas Street at Ninth Line intersection, where the current local bus stops are. With the addition of rapid transit, the site will be provided with a more direct access to long-range regional transit service, enhancing mobility and transit experience along Dundas Street corridor. The combination of regional and local transit will be able to satisfy the transit needs of travelers with different destinations and purposes. The improved transit experience could encourage modal split for transit to increase and modal split for auto drivers decrease.

7.2 Active Mode Measures

The site is currently situated in an area with limited pedestrian and cycling facilities. However, the gaps that are present in sidewalks and cycle lanes are planned to be filled in future horizons as discussed in Section 3.3. Active mode facilities are proposed within the site and connect to existing pedestrian and cycling facilities on Ninth Line. In order to further encourage cycling trips to and from the site, surface and underground bicycle parking has been provided, regardless of land use. As discussed in the parking justification letter, 28 bicycle parking spaces including 16 short-term and 12 long-term spaces will be provided which is more than the minimum required number of

spaces. By providing more bicycle spaces than is required, a reduction in auto dependence will be further encouraged. Bicycle repair stations are also recommended to support the high number of provided bicycle parking spaces and to encourage residents to use a bicycle.

7.3 Parking Measures

As discussed in the parking justification letter, fewer vehicle parking spaces will be provided at the proposed development than what is required by Mississauga's Zoning By-law 0225-2007. The By-law has accounted for some of the site context and existing transit infrastructure, but the rates are too general for the co-working office land uses. The parking provision rates are calculated based on multiple surveys on parking demand and supply at Dymon-operated sites consisting of identical land uses, similar GFAs, and situated within comparable urban environments. Therefore, although the on-site vehicular parking provisions will be less than the zoning by-law requirement, they will be sufficient to meet the projected demand. Lower parking requirements can lower development costs and yield significant cost savings that can be used to implement TDM programs and install TDM supportive infrastructure. Meanwhile, reduced on-site parking will work to reduce auto dependence.

7.4 Mixed-Use and Increased Density

The proposed development is mixed-use, containing self-storage, office, and industrial condos that will be used for various small-scale industrial activities. Compared to the sites with single land uses, the traffic patterns at a mixed-used site are more scattered as different uses have different peak hours. Compared to the single-storey self-storage facilities, Dymon's self-storage allows density intensification on site which increases the leasable and saleable space to serve more customers while keeping the trip generation rate per unit lower than the ITE rates. Mississauga's TIS Guidelines recognize that density intensification is encouraged as revenue generated by the increase in leasable or saleable space can be used to implement TDM programs and install TDM supportive infrastructure.

7.5 Short Trips

Dymon self-storage and co-working office business model requires for them to be located in close proximity to its target market. This means that although the low number of self-storage customer trips are mostly constrained to the auto mode because of the need to transport personal or business belongings, these trips will be made by local residents and business owners, producing minimal vehicle kilometers traveled. This is important to note, as short-distance trips should be treated differently in context of TDM when compared to longer trips, which result in more vehicle kilometers traveled, and oftentimes utilize already constrained inter-city roadways or highways, contributing to congestion, and impacting a larger number of road users. The proximity of Dymon self-storage facilities to the user's homes and businesses also allows for pass-by trips during the peak hours, which has an even lower impact on the overall transportation network efficiency.

8 Conclusions and Recommendations

Introduction and Proposed Site:

- The proposed development of 3855 Dundas Street West is a mixed-use development that consists of a 15,616 m² (168,091 ft²) of self-storage, 97 m² (1,048 ft²) of wine cellar, 5,755 m² (61,941 ft²) of office space, 1,231 m² (13,255 ft²) of industrial condo units, and 1,400 m² (15,065 ft²) of reception and retail spaces that support the self-storage customers. In addition, a 1,464 m² (15,760 ft²) interior parking and loading area provided for industrial condos and self-storage customers.
- A total of 190 vehicle parking spaces will be provided, including 12 barrier-free parking spaces.

- A total of 28 bicycle parking spaces will be provided on site for all uses combined, including 16 short-term and 12 long-term parking spaces.
- The development will also include one loading space in the interior parking / loading area and another on the exterior south of the interior loading area.
- Garbage collection areas are located at the northeast corner of the site and by the curbside across from the exit bay doors of the interior loading area.
- The proposed development will be built and operational by 2026.
- One vehicular access point has been proposed on Ninth Line allowing full movements approximately 145 metres north of Dundas Street East.
- The application for the proposed site is for a Zoning By-Law Amendment.

Existing Conditions:

- Sidewalks or multi-paths are noted on both sides of Ninth Line south of Dundas Street East as well as the south side of Dundas Street East west of Ninth Line within the Study Area.
- Dedicated bike lanes with pavement markings are noted on both sides of Ninth Line south of the Glen Oaks Access and multi-use paths on the south side of Dundas Street East west of Ninth Line.
- Existing Oakville Transit route #24 has service within the Study Area and the closest stops are located at the Dundas Street at Ninth Line intersection.
- Operational analysis on the existing 2023 horizon is based on the 2023 turning movement counts at the Study Area intersections. Model parameters are based on Mississauga's TIS Guidelines and Synchro defaults.
- The existing automobile operational analysis indicates that the Glen Oaks Access at Ninth Line intersection operates with good LOS and short delays while the Dundas Street at Ninth Line intersection is at capacity. The northbound right movement at the Dundas Street at Ninth Line intersection experiences operational constraints during the PM peak hour, reflecting the high volume. Signal optimization, including changing the northbound right movement to a permissive and overlap type, is proposed to improve the LOS and delays at this movement and the intersection overall.

Future Background Conditions:

- Both the full build-out future horizon of 2026 and the full build-out horizon plus 5 years horizon of 2031 were evaluated.
- The trips generated by the background developments of Ninth Line Coptic Church and Ivan Franko Homes in Mississauga, and the residential developments in Joshua Creek Subdivisions in Oakville including Mattamy Joshua Creek Phase 3 and Phase 4, Dunoak Residential Development, ARGO Joshua Creek Development, and Redoak / Capoak Residential Development have been included within the 2026 and 2031 Future Background volumes. The background development traffic volumes are high and contribute to a significant portion of the Future Background traffic volumes.
- New rates were provided by staff from the City of Mississauga as the City's transportation model has been updated since 2018. Compound annual growth rates between 0.5% and 1.5% were applied to all movements along and compounded annual growth rates between 3.0% and 4.5% were applied to Ninth Line through movements. An industry standard 2% growth rate has been applied to Ninth Line turning movements.

- The road network in the 2026 Future Background scenarios will be the same as the Existing. In 2031 Future Background scenarios, Ninth Line north of the Dundas Street East at Ninth Line intersection will be widened from a two-lane road to a four-lane road.
- The automobile operational analysis for both Future Background horizons indicate that the traffic operational performance is much worse than that of the existing horizon during the PM peak hour with the increase in westbound through volumes resulting primarily from the proposed residential developments located along the north side of Dundas Street between Eighth Line and Ninth Line. Multiple overcapacity and critical movements are present at the Dundas Street East at Ninth Line intersection.
- Signal optimization is proposed as a mitigation strategy to be carried out by the Region when reviewing the signals to settle for the best configuration and coordination. However, it will not be efficient enough to improve the LOS for all movements.
- After the planned extension of William Halton Parkway is completed, some of the through traffic along Dundas Street will be diverted and the decrease in travel demand will improve the operational conditions of the Study Area road network.

Site Trip Forecasting:

- Proxy Site Data have been used to determine the trip generation rates at the subject site. These rates are applied to the self-storage, office, and retail components of the proposed development. ITE trip generation rates of general industrial land use have been applied to the industrial condos.
- The proposed development is forecast to generate 110 AM and 94 PM net new two-way vehicle trips in 2026 and 2031. The self-storage and retail / reception component is projected to generate 26 AM and 34 PM net new two-way vehicle trips, and the office component 73 AM and 51 PM trips. The industrial condo is projected to generate 10 AM and 9 PM trips using ITE trip generation rates.
- Existing self-storage facilities and co-working office spaces have been reviewed to determine that the catchment area of the proposed Dymon 3855 Dundas Street development will primarily be the residents and businesses from Oakville north of Highway 403, which means the trips will primarily be local trips from the west. Combined with the existing distribution of local trips from the nearby zones with similar land uses in 2016 TTS, the site trip distribution is estimated to be 10% to the north, 15% to the south, 20% to the east, and 55% to the west.

Future Total Conditions:

- Both accesses were modelled as stop-controlled and consisting of one shared left / through / right lane, although no through traffic were projected for the developments.
- The automobile operational analysis of 2026 and 2031 Future Total horizons indicates the presence of multiple over capacity and critical movements within the Study Area which is consistent with anticipated Future Background conditions.
- Site-generated trips only cause minor increase in the v/c ratios and delays, but they do not change the conditions. Addition of the site generated traffic was observed to have a negligible impact on the operation of the surrounding road network.
- Signal optimization that has been proposed at the Dundas Street at Ninth Line intersection is incorporated. No mitigation measures are proposed to alleviate the traffic conditions except for optimizing the signals. Most of the potential improvements are already planned by the governing authorities.
- The operational conditions at the Site Access / Glen Oaks Access at Ninth Line are projected to have good LOS and delays at individual movements and all queues can be accommodated by the storage lengths.

Site Circulation:

- The site includes a two-way driveway that surrounds the building along the property boundary. The driveway provides access to the interior loading area, the exterior loading dock, the garbage pick-up area, the access ramp to underground parking level, and surface parking spaces.
- AutoTURN 11.0 was used to develop turning templates for garbage trucks and loading trucks. WB-20s and HSUs were tested as design vehicles.
- The accesses, driveways, garbage loading area and drive-in loading area can accommodate the WB-20s and HSUs. All turning paths to and from the site are accommodated by the proposed curbs.

Access Study:

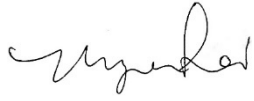
- Only one access is proposed for Dymon 3855 Dundas Street West and is located on Ninth Line and aligned with the existing Glen Oaks Access. It is assumed to operate as an unsignalized full-movement intersection.
- This access is subject to Mississauga's TIS Guidelines and TAC's Geometric Design Guide for Canadian Road.
- This access is approximately 110 metres north of the curb return at the Dundas Street at Ninth Line intersection, shorter than the typical distance required for a full-moves access.
- The originally proposed Dundas Street Access has been removed to minimize the impact on the Highway 403 off ramp.
- The current location is the only possible location for the site access. It is aligned with the Glen Oaks Access on the opposite side of Ninth Line in accordance with Mississauga's Guidelines.
- The measured clear throat distance falls short of the minimum value of 30 metres indicated in the TAC Guidelines, but it will be adequate to accommodate the outbound queue of the vehicles without blocking the inbound vehicles on an adjacent lane of traffic on Ninth Line. The frequency of WB-20s will be low, thus they are unlikely to encounter other vehicles and stack in the throat of the access.

Transportation Demand Management Plan:

- Transit, active mode, and parking transportation demand management plan measures were recommended in order to reduce reliance on single occupant vehicle trips.

The proposed development will have a minor impact on the Study Area road network. Given its location, design, and recommended TDM measures, the proposed development will encourage a movement away from single-occupant vehicles and will therefore seamlessly integrate with the future vision for the surrounding area. It is recommended that, from a transportation perspective, the proposed development application proceeds.

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Appendix A

Terms of Reference

Appendix B

Pre-Study Consultation Checklist

Description	Information	Section Reference
Development Information		
Development Description (land use, size, and number of phases of development)	<ul style="list-style-type: none"> Phase 1: a four-storey building including approximately 175,250 square feet of self-storage, 68,600 square feet of office space, and 10,800 square feet of reception / retail space. The development will be completed in a single phase. 	2.3.6
Transportation Impact Assessment		
Step 1 – Screening		
Type of Application (attach a drawing)	<input type="checkbox"/> Official Plan Amendment <input checked="" type="checkbox"/> Zoning Amendment <input type="checkbox"/> Site Plan Control Application <input type="checkbox"/> Plan of Subdivision <input type="checkbox"/> Other _____	2.3.5
Screening Criteria	<input checked="" type="checkbox"/> Trip Generation Trigger Satisfied <input type="checkbox"/> Location Trigger Satisfied <input type="checkbox"/> Operational/Safety Trigger Satisfied	2.2.1
Type of Study	<input checked="" type="checkbox"/> Transportation Impact Study <input checked="" type="checkbox"/> Access Review <input type="checkbox"/> No Additional Study Required	2.2.1
Step 2 – Scoping		
Study Area (intersections to be analyzed) Note: The Transportation Consultant is responsible to identify any further intersections impacted as the study progresses.	<ul style="list-style-type: none"> Ninth Line at Dundas Street East (Existing) Glen Oaks Funeral Homes Access at Ninth Line (Existing) Site Access at Ninth Line (Future, may align with the existing Glen Oaks Funeral Homes Access at Ninth Line) 	2.3.8
Horizon Years	<input type="checkbox"/> 5 years from date of TIS <input type="checkbox"/> Interim years _____ <input checked="" type="checkbox"/> Other: <u>Build-out year 2026 and Build-out plus 5 years 2031</u>	2.3.9
Analysis Periods	<input checked="" type="checkbox"/> AM weekday peak hour of adjacent roadway <input checked="" type="checkbox"/> PM weekday peak hour of adjacent roadway <input type="checkbox"/> Saturday peak hour of adjacent roadway <input type="checkbox"/> AM weekday peak hour of development	2.3.10

Description	Information	Section Reference
	<input type="checkbox"/> PM weekday peak hour of development <input type="checkbox"/> Saturday peak hour of development <input type="checkbox"/> Other _____	
Input Parameters and Assumptions (potential deviations)	<ul style="list-style-type: none"> Saturation flow, Peak Hour Factors, Lost Time, Lane Utilization Factor, Analysis Period, Cycle Length, Minimum Green Time, etc. will follow Appendix D of the Mississauga Transportation Impact Study Guidelines Parameters not mentioned in the Guidelines will use the Synchro defaults 	2.3.13
Existing Transportation Conditions	<input type="checkbox"/> City data sources <input checked="" type="checkbox"/> New data collection: <u>TMCs at Ninth Line at Dundas Street East and Glen Oaks Funeral Homes Access at Ninth Line</u> <input type="checkbox"/> Other _____	2.3.14
Planned Network Improvements (with timing)	<ul style="list-style-type: none"> Ninth Line to be widened from the existing two-lane cross-section to a four-lane C2 Urban cross-section according to Halton Region TMP (expect to begin in 2025 and be complete by 2031) Dundas Bus Rapid Transit along Dundas Street (construction of Mississauga East expected to begin in 2025, timing of the segment within the Study Area TBD) Bike lanes and boulevard multi-use trails to be added along Ninth Line; boulevard multi-use trails to be added along Dundas Street (start date not available, presumably will be done by 2031) 	2.3.16
Other Planned Developments (per City's Website)	<ul style="list-style-type: none"> 3033 Dundas Street West Ninth Line Coptic Church 1429 Dundas St E (Oakville) Bressa Residential Development (Oakville) ARGO Joshua Creek (Oakville) Redoak/Capoak Residential Development (Oakville) 	2.3.17
Identification of Mitigation Improvement Measures	<input checked="" type="checkbox"/> Neighbourhood Traffic Management Plan <input checked="" type="checkbox"/> Other: <u>Signal Optimization and Intersection Reconfiguration (if applicable)</u>	2.3.23
Safety Analysis (any special issues)	<ul style="list-style-type: none"> No special issues 	2.3.25
Site Access and Circulation (design vehicles)	<input type="checkbox"/> Passenger Car (P) <input type="checkbox"/> Light Single Unit Truck (LSU) <input type="checkbox"/> Medium Single Unit Truck (MSU) <input checked="" type="checkbox"/> Heavy Single Unit Truck (HSU) <input type="checkbox"/> Pumper Fire Truck <input checked="" type="checkbox"/> WB-20 Tractor Semi-Trailer Truck	2.3.26

Description	Information	Section Reference
	<input type="checkbox"/> Other _____	
Impacts During Construction (any special issues)	<ul style="list-style-type: none"> • No special issues 	2.3.27
Step 3 – Forecasting		
Growth Rate	<input type="checkbox"/> Obtained from City <input checked="" type="checkbox"/> Historical traffic counts <input checked="" type="checkbox"/> Travel demand forecasts <input type="checkbox"/> Proposed Growth Rate: _____	2.3.15
Site Trip Generation	<input type="checkbox"/> ITE Trip Generation Manual <input type="checkbox"/> "First Principles" <input checked="" type="checkbox"/> Observed rates for similar developments in area <input checked="" type="checkbox"/> Other: <u>Observed rates for similar developments also operated by Dymon</u>	2.3.19
Trip Reductions	<input type="checkbox"/> Internal capture reductions for mixed-use developments <input type="checkbox"/> Pass-by reductions <input checked="" type="checkbox"/> Other: <u>reductions for mixed-use developments already captured by the proxy site trip generation rates, no additional trip reduction applied.</u>	2.3.19
Trip Distribution	<input checked="" type="checkbox"/> Local traffic patterns <input checked="" type="checkbox"/> TTS <input type="checkbox"/> Travel demand model <input type="checkbox"/> Population and employment distribution <input type="checkbox"/> Market analysis of catchment area <input type="checkbox"/> Other _____	2.3.20
Trip Assignment	<input checked="" type="checkbox"/> Local traffic patterns <input type="checkbox"/> Shortest distance <input checked="" type="checkbox"/> Site layout, access design and logical routing <input checked="" type="checkbox"/> Existing turning movements <input type="checkbox"/> Other _____	2.3.21
Transportation Demand Management Plan		
Format	<input checked="" type="checkbox"/> Within a TIA Report <input type="checkbox"/> Standalone	3.2.1
Type of Transportation Demand Management Plan	<input checked="" type="checkbox"/> TDM Statement <input type="checkbox"/> TDM Scheme	3.2.2
Pedestrian Circulation Plan		
Format	<input checked="" type="checkbox"/> Within a TIA Report <input type="checkbox"/> Standalone	4.2.1
Additional Comments		

Description	Information	Section Reference

Appendix B

2023 Turning Movement Counts

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 10:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Ninth Line & Dundas St E
Site Code: 2314400001
Count Date: May 11, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
	936	589	1525
	22	19	41
	4	7	11
	0	0	0
Totals	962	615	1577

Ninth Line

	0	0	0	0
	0	3	1	0
	0	17	5	0
	149	554	233	0
Totals	149	574	239	0

East Approach

	Out	In	Total
	1152	2414	3566
	105	38	143
	6	10	16
	0	0	0
Totals	1263	2462	3725

Dundas St E

				Totals
0	0	0	0	0
0	1	3	167	171
0	8	24	2023	2055
0	0	7	251	258

Peds: 0



Peds: 0

Peds: 0

Peds: 0

Dundas St E

Totals				
1	1	0	0	0
129	121	7	1	0
961	869	88	4	0
172	161	10	1	0

West Approach

	Out	In	Total
	2441	1150	3591
	34	101	135
	9	6	15
	0	0	0
Totals	2484	1257	3741

Totals				
147	132	301	157	0
	13	9	9	0
	2	5	1	0
	0	0	0	0

Ninth Line

South Approach

	Out	In	Total
	590	966	1556
	31	34	65
	8	4	12
	0	0	0
Totals	629	1004	1633

- Cars

- Trucks

- Buses

- Bicycles

Comments



Peak Hour Summary

Intersection: Ninth Line & Dundas St E
 Site Code: 2314400001
 Count Date: May 11, 2023
 Period: 07:00 - 10:00

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

Start Time	North Approach Ninth Line						South Approach Ninth Line						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	73	131	36	0	0	240	27	81	33	0	0	141	42	211	40	1	0	294	60	458	63	0	0	581	1256
08:15	60	167	50	0	0	277	32	66	42	0	0	140	39	270	34	0	0	343	32	639	71	0	0	742	1502
08:30	53	131	29	0	0	213	41	85	44	0	0	170	45	225	24	0	0	294	37	454	56	0	0	547	1224
08:45	53	145	34	0	0	232	47	83	48	0	0	178	46	255	31	0	0	332	42	504	68	0	0	614	1356
Grand Total	239	574	149	0	0	962	147	315	167	0	0	629	172	961	129	1	0	1263	171	2055	258	0	0	2484	5338
Approach %	24.8	59.7	15.5	0	-	-	23.4	50.1	26.6	0	-	-	13.6	76.1	10.2	0.1	-	-	6.9	82.7	10.4	0	-	-	-
Totals %	4.5	10.8	2.8	0	18	11.8	2.8	5.9	3.1	0	11.8	3.2	18	2.4	0	23.7	3.2	38.5	4.8	0	46.5	46.5			
PHF	0.82	0.86	0.75	0	0.87	0.88	0.78	0.93	0.87	0	0.88	0.93	0.89	0.81	0.25	0.92	0.71	0.8	0.91	0	0.84	0.89	0.89		
Cars	233	554	149	0	936	590	132	301	157	0	590	161	869	121	1	1152	167	2023	251	0	2441	5119			
% Cars	97.5	96.5	100	0	97.3	93.8	89.8	95.6	94	0	93.8	93.6	90.4	93.8	100	91.2	97.7	98.4	97.3	0	98.3	95.9			
Trucks	5	17	0	0	22	31	13	9	9	0	31	10	88	7	0	105	3	24	7	0	34	192			
% Trucks	2.1	3	0	0	2.3	4.9	8.8	2.9	5.4	0	4.9	5.8	9.2	5.4	0	8.3	1.8	1.2	2.7	0	1.4	3.6			
Buses	1	3	0	0	4	8	2	5	1	0	8	1	4	1	0	6	1	8	0	0	9	27			
% Buses	0.4	0.5	0	0	0.4	1.3	1.4	1.6	0.6	0	1.3	0.6	0.4	0.8	0	0.5	0.6	0.4	0	0	0.4	0.5			
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Peds					0	-					0	-					0	-					0	-	
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

From: 16:45:00
To: 17:45:00

Intersection: Ninth Line & Dundas St E
Site Code: 2314400001
Count Date: May 11, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
	654	1186	1840
	17	18	35
	0	0	0
	0	0	0
Totals	671	1204	1875

Ninth Line

	0	0	0	0
	0	0	0	0
	0	15	2	0
	156	319	179	0
Totals	156	334	181	0

East Approach

	Out	In	Total
	2404	2005	4409
	19	49	68
	7	6	13
	0	0	0
Totals	2430	2060	4490

Dundas St E

				Totals
0	0	0	2	2
0	0	1	150	151
0	6	34	1310	1350
0	1	4	137	142

Peds: 0



Peds: 1

Peds: 0

Peds: 3

Dundas St E

Totals				
3	3	0	0	0
232	228	4	0	0
2085	2066	12	7	0
110	107	3	0	0

West Approach

	Out	In	Total
	1599	2470	4069
	39	18	57
	7	7	14
	0	0	0
Totals	1645	2495	4140

Totals				
252	246	808	513	0
	6	13	13	0
	0	0	0	0
	0	0	0	0

Ninth Line

South Approach

	Out	In	Total
	1567	563	2130
	32	22	54
	0	1	1
	0	0	0
Totals	1599	586	2185

- Cars

- Trucks

- Buses

- Bicycles

Comments



Peak Hour Summary

Intersection: Ninth Line & Dundas St E
 Site Code: 2314400001
 Count Date: May 11, 2023
 Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Ninth Line						South Approach Ninth Line						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:45	33	101	35	0	0	169	53	192	136	0	0	381	29	505	55	0	0	589	38	410	54	0	0	502	1641
17:00	49	82	40	0	0	171	65	214	146	0	2	425	23	490	55	1	0	569	43	355	35	1	0	434	1599
17:15	52	65	39	0	0	156	67	218	115	0	0	400	29	545	55	2	0	631	36	322	34	1	1	393	1580
17:30	47	86	42	0	0	175	67	197	129	0	1	393	29	545	67	0	0	641	34	263	19	0	0	316	1525
Grand Total	181	334	156	0	0	671	252	821	526	0	3	1599	110	2085	232	3	0	2430	151	1350	142	2	1	1645	6345
Approach %	27	49.8	23.2	0	-	-	15.8	51.3	32.9	0	-	-	4.5	85.8	9.5	0.1	-	-	9.2	82.1	8.6	0.1	-	-	-
Totals %	2.9	5.3	2.5	0	10.6	-	4	12.9	8.3	0	25.2	-	1.7	32.9	3.7	0	38.3	-	2.4	21.3	2.2	0	25.9	-	-
PHF	0.87	0.83	0.93	0	0.96	0.94	0.94	0.94	0.9	0	0.94	0.95	0.95	0.96	0.87	0.38	0.95	0.88	0.82	0.66	0.5	0.82	0.97	0.97	0.97
Cars	179	319	156	0	654	1567	246	808	513	0	1567	107	2066	228	3	2404	150	1310	137	2	1599	6224			
% Cars	98.9	95.5	100	0	97.5	98	97.6	98.4	97.5	0	98	97.3	99.1	98.3	100	98.9	99.3	97	96.5	100	97.2	98.1	98.1		
Trucks	2	15	0	0	17	32	6	13	13	0	32	3	12	4	0	19	1	34	4	0	39	107			
% Trucks	1.1	4.5	0	0	2.5	2	2.4	1.6	2.5	0	2	2.7	0.6	1.7	0	0.8	0.7	2.5	2.8	0	2.4	1.7	1.7		
Buses	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	6	1	0	7	14			
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0.3	0	0.4	0.7	0	0.4	0.2	0.2		
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Peds					0	-					3	-					0	-					1	-	4
% Peds					0	-					75	-					0	-					25	-	-

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 10:00:00

One Hour Peak

From: 07:45:00
To: 08:45:00

Intersection: Ninth Line & Glen Oaks Funeral Home Access
Site Code: 2314400002
Count Date: May 11, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ninth Line runs N/S

North Approach

	Out	In	Total
	935	575	1510
	24	20	44
	5	6	11
	1	0	1
Totals	965	601	1566

Ninth Line

	0	1	0
	0	5	0
	0	24	0
	5	930	0
Totals	5	960	0



Peds: 0

Glen Oaks Funeral Home Access

				Totals	
0	0	0	0	0	
0	0	0	3	3	
0	0	0	4	4	

Peds: 0



Peds: 0

Peds: 0

West Approach

	Out	In	Total
	7	25	32
	0	0	0
	0	0	0
	0	0	0
Totals	7	25	32

Totals	20	598	1
	20	572	1
	0	20	0
	0	6	0
	0	0	0

Ninth Line

South Approach

	Out	In	Total
	593	935	1528
	20	24	44
	6	5	11
	0	1	1
Totals	619	965	1584

- Cars

- Trucks

- Buses

- Bicycles

Comments

Peak Hour Summary

Intersection: Ninth Line & Glen Oaks Funeral Home Access
 Site Code: 2314400002
 Count Date: May 11, 2023
 Period: 07:00 - 10:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Ninth Line						South Approach Ninth Line						East Approach						West Approach Glen Oaks Funeral Home Access						Total Vehi es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45		230	1	0	0	231	3	157		1	0	161					0		1		0	0	0	1	393
08:00		241	0	0	0	241	5	176		0	0	181					0		0		0	0	0	0	422
08:15		283	2	0	0	285	6	124		0	0	130					0		0		1	0	0	1	416
08:30		206	2	0	0	208	6	141		0	0	147					2		3		0	0	0	5	360
Grand Total		960	5	0	0	965	20	598		1	0	619					0	0	3		4	0	0	7	1591
Approach %		99.5	0.5	0	-	-	3.2	96.6		0.2	-	-					-	-	42.9		57.1	0	-	-	
Totals %		60.3	0.3	0	-	60.7	1.3	37.6		0.1	-	38.9					0	0	0.2		0.3	0	-	0.4	
PHF		0.85	0.63	0	0	0.85	0.83	0.85		0.25	0	0.85					0	0	0.38		0.33	0	0	0.35	0.94
Cars		930	5	0	-	935	20	572		1	-	593					0	0	3		4	0	-	7	1535
% Cars		96.9	100	0	-	96.9	100	95.7		100	-	95.8					0	0	100		100	0	-	100	96.5
Trucks		24	0	0	-	24	0	20		0	-	20					0	0	0		0	0	-	0	44
% Trucks		2.5	0	0	-	2.5	0	3.3		0	-	3.2					0	0	0		0	0	-	0	2.8
Buses		5	0	0	-	5	0	6		0	-	6					0	0	0		0	0	-	0	11
% Buses		0.5	0	0	-	0.5	0	1		0	-	1					0	0	0		0	0	-	0	0.7
Bicycles		1	0	0	-	1	0	0		0	-	0					0	0	0		0	0	-	0	1
% Bicycles		0.1	0	0	-	0.1	0	0		0	-	0					0	0	0		0	0	-	0	0.1
Peds					0	-				0	-	-					0	-			0	-	-	0	0
% Peds					0	-				0	-	-					0	-			0	-	-	0	-

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 19:00:00

One Hour Peak

From: 16:45:00
To: 17:45:00

Intersection: Ninth Line & Glen Oaks Funeral Home Access
Site Code: 2314400002
Count Date: May 11, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ninth Line runs N/S

North Approach

	Out	In	Total
	627	1170	1797
	15	18	33
	0	0	0
	0	0	0
Totals	642	1188	1830

Ninth Line

	0	0	0
	0	0	0
	0	15	0
	5	622	0
Totals	5	637	0

Peds: 0



Peds: 2

Glen Oaks Funeral Home Access

				Totals
0	0	0	0	0
0	0	0	11	11
0	0	0	38	38

Peds: 0

Peds: 0

West Approach

	Out	In	Total
	49	23	72
	0	0	0
	0	0	0
	0	0	0
Totals	49	23	72

Totals	18	1177	4
	18	1159	4
	0	18	0
	0	0	0
	0	0	0

Ninth Line

South Approach

	Out	In	Total
	1181	664	1845
	18	15	33
	0	0	0
	0	0	0
Totals	1199	679	1878

- Cars

- Trucks

- Buses

- Bicycles

Comments



Peak Hour Summary

Intersection: Ninth Line & Glen Oaks Funeral Home Access
 Site Code: 2314400002
 Count Date: May 11, 2023
 Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Ninth Line					South Approach Ninth Line					East Approach					West Approach Glen Oaks Funeral Home Access					Total Vehi cles				
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑		→	↻	Peds	Total
16:45		152	2	0	0	154	3	280		1	0	284					0		3		11	0	0	14	452
17:00		162	1	0	0	163	2	309		3	0	314					0		2		6	0	0	8	485
17:15		146	1	0	0	147	4	303		0	0	307					0		3		15	0	0	18	472
17:30		177	1	0	0	178	9	285		0	2	294					0		3		6	0	0	9	481
Grand Total		637	5	0	0	642	18	1177		4	2	1199					0	0	11		38	0	0	49	1890
Approach %		99.2	0.8	0	-	-	1.5	98.2		0.3	-	-					-	-	22.4		77.6	0	-	-	
Totals %		33.7	0.3	0	-	34	1	62.3		0.2	-	63.4					0	-	0.6		2	0	-	2.6	
PHF		0.9	0.63	0	0	0.9	0.5	0.95		0.33	0	0.95					0	0	0.92		0.63	0	0	0.68	0.97
Cars		622	5	0	-	627	18	1159		4	-	1181					0	-	11		38	0	-	49	1857
% Cars		97.6	100	0	-	97.7	100	98.5		100	-	98.5					0	-	100		100	0	-	100	98.3
Trucks		15	0	0	-	15	0	18		0	-	18					0	-	0		0	0	-	0	33
% Trucks		2.4	0	0	-	2.3	0	1.5		0	-	1.5					0	-	0		0	0	-	0	1.7
Buses		0	0	0	-	0	0	0		0	-	0					0	-	0		0	0	-	0	0
% Buses		0	0	0	-	0	0	0		0	-	0					0	-	0		0	0	-	0	0
Bicycles		0	0	0	-	0	0	0		0	-	0					0	-	0		0	0	-	0	0
% Bicycles		0	0	0	-	0	0	0		0	-	0					0	-	0		0	0	-	0	0
Peds					0	-				2	-						0	-			0	0	-		2
% Peds					0	-				100	-						0	-			0	0	-		

Appendix C

Historical Turning Movement Counts



Turning Movement Count (1 . DUNDAS ST E & NINTH LINE)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST W						S Approach NINTH LINE						W Approach DUNDAS ST W						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
06:00:00	4	27	21	0	0	52	4	62	5	0	0	71	2	7	6	0	0	15	41	238	6	0	0	285	423	
06:15:00	4	50	28	0	0	82	8	101	7	1	0	117	11	15	19	0	0	45	43	300	12	0	0	355	599	
06:30:00	9	50	45	0	0	104	5	136	9	1	0	151	11	27	13	0	0	51	59	371	13	0	0	443	749	
06:45:00	8	78	41	0	0	127	13	180	10	0	0	203	17	15	23	0	0	55	59	449	23	0	0	531	916	2687
07:00:00	9	70	35	0	0	114	11	163	7	1	0	182	17	48	28	0	1	93	50	405	29	0	0	484	873	3137
07:15:00	8	89	47	0	0	144	13	177	11	0	0	201	25	66	22	0	0	113	71	615	44	0	0	730	1188	3726
07:30:00	13	131	54	0	0	198	32	210	24	0	0	266	43	68	30	0	0	141	59	562	67	0	0	688	1293	4270
07:45:00	19	159	71	0	0	249	13	227	42	0	0	282	43	99	31	0	0	173	86	584	51	0	0	721	1425	4779
08:00:00	21	132	55	0	0	208	41	218	47	0	0	306	30	66	37	0	0	133	74	601	59	0	0	734	1381	5287
08:15:00	36	140	56	0	0	232	48	230	37	0	0	315	36	82	43	0	0	161	92	523	65	0	0	680	1388	5487
08:30:00	40	117	61	0	0	218	26	173	28	0	0	227	39	64	53	0	0	156	95	561	57	1	0	714	1315	5509
08:45:00	32	112	49	0	0	193	20	221	17	1	0	259	30	57	40	0	0	127	84	507	47	0	0	638	1217	5301
BREAK																										
15:00:00	31	47	26	0	0	104	49	474	36	4	0	563	44	95	75	0	0	214	33	266	27	0	0	326	1207	
15:15:00	40	60	30	0	0	130	34	414	33	2	0	483	63	113	80	0	0	256	44	306	33	0	0	383	1252	
15:30:00	47	79	30	0	1	156	46	477	26	1	0	550	76	111	71	0	0	258	44	314	34	0	0	392	1356	
15:45:00	51	66	23	0	0	140	44	468	31	2	0	545	115	149	79	0	0	343	35	275	42	0	0	352	1380	5195
16:00:00	63	67	37	0	0	167	43	548	33	2	1	626	156	147	68	0	2	371	38	310	26	0	0	374	1538	5526
16:15:00	54	65	27	0	0	146	29	558	24	1	1	612	164	140	100	0	1	404	38	301	28	0	0	367	1529	5803
16:30:00	52	74	35	0	0	161	28	450	36	0	0	514	178	177	87	0	0	442	35	284	24	0	0	343	1460	5907
16:45:00	57	78	30	0	0	165	31	574	28	0	0	633	194	157	61	0	1	412	47	374	31	0	0	452	1662	6189
17:00:00	62	76	33	0	0	171	38	689	30	0	1	757	170	171	88	0	0	429	29	346	32	1	0	408	1765	6416
17:15:00	70	68	36	0	0	174	33	613	29	1	0	676	174	199	66	0	1	439	45	378	39	0	0	462	1751	6638
17:30:00	44	78	39	0	0	161	40	697	27	1	0	765	153	156	84	0	0	393	38	392	35	0	0	465	1784	6962
17:45:00	54	74	22	0	0	150	33	601	35	0	0	669	174	190	92	0	0	456	40	323	42	0	0	405	1680	6980
18:00:00	57	62	45	0	0	164	36	539	28	2	0	605	110	123	69	0	0	302	43	304	31	0	0	378	1449	6664
18:15:00	41	61	21	0	0	123	38	578	35	4	1	655	102	86	64	0	0	252	47	345	22	1	0	415	1445	6358
18:30:00	38	53	30	0	0	121	34	485	28	1	0	548	78	98	70	0	1	246	39	310	18	1	0	368	1283	5857
18:45:00	14	44	25	0	0	83	42	442	37	1	0	522	50	86	62	0	0	198	32	323	30	0	0	385	1188	5365
Grand Total	978	2207	1052	0	1	4237	832	10705	740	26	4	12303	2305	2812	1561	0	7	6678	1440	10867	967	4	0	13278	36496	-
Approach%	23.1%	52.1%	24.8%	0%	-	-	6.8%	87%	6%	0.2%	-	-	34.5%	42.1%	23.4%	0%	-	-	10.8%	81.8%	7.3%	0%	-	-	-	-



Turning Movement Count
 Location Name: DUNDAS ST E & NINTH LINE
 Date: Thu, Oct 25, 2018 Deployment Lead: Walter Fugaj

Crozier & Associates

Totals %	2.7%	6%	2.9%	0%	11.6%	2.3%	29.3%	2%	0.1%	33.7%	6.3%	7.7%	4.3%	0%	18.3%	3.9%	29.8%	2.6%	0%	36.4%	-	-
Heavy	20	54	18	0	-	27	333	25	0	-	124	73	63	0	-	58	273	13	0	-	-	-
Heavy %	2%	2.4%	1.7%	0%	-	3.2%	3.1%	3.4%	0%	-	5.4%	2.6%	4%	0%	-	4%	2.5%	1.3%	0%	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)

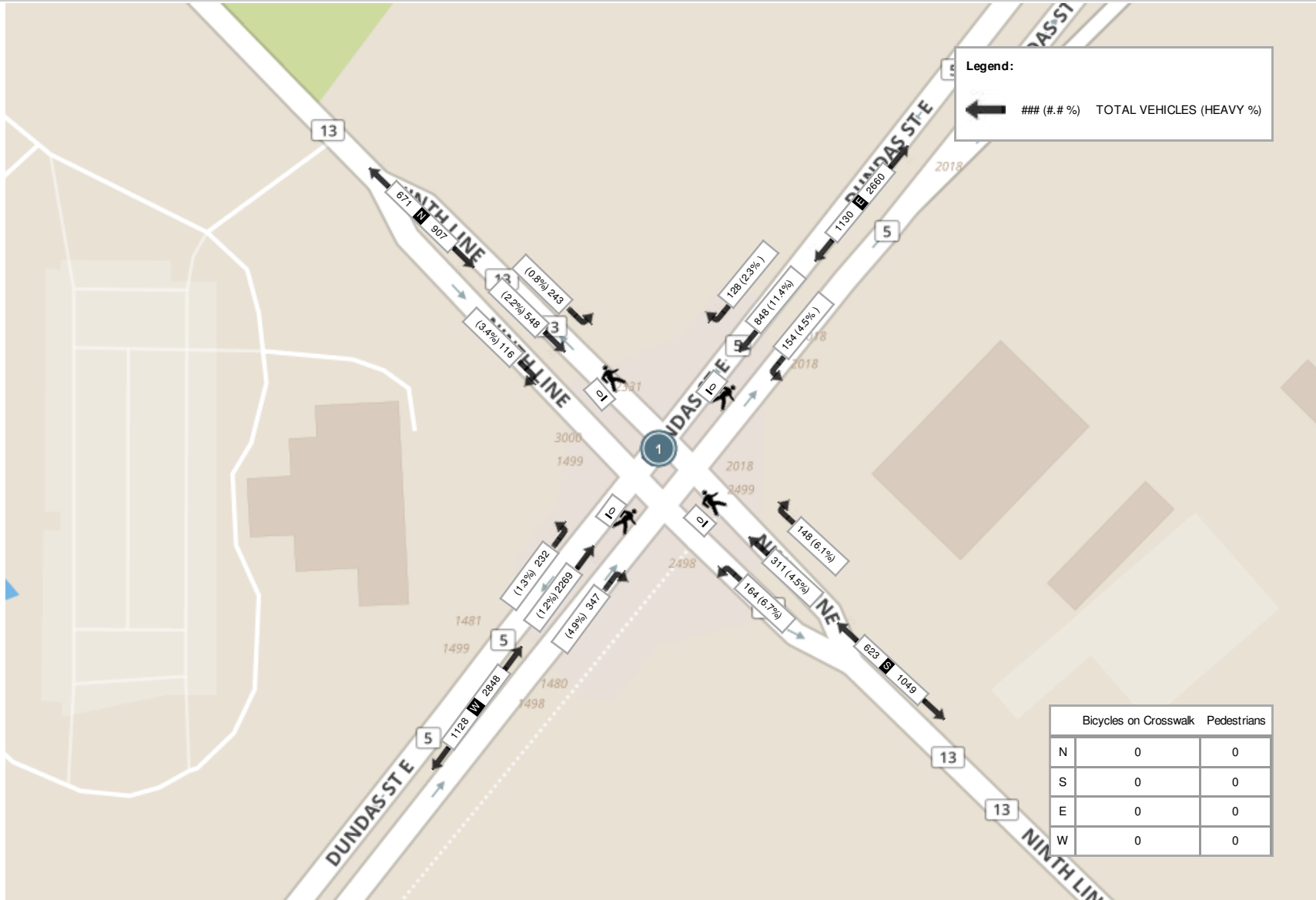
Start Time	N Approach NINTH LINE						E Approach DUNDAS ST W						S Approach NINTH LINE						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	19	159	71	0	0	249	13	227	42	0	0	282	43	99	31	0	0	173	86	584	51	0	0	721	1425
08:00:00	21	132	55	0	0	208	41	218	47	0	0	306	30	66	37	0	0	133	74	601	59	0	0	734	1381
08:15:00	36	140	56	0	0	232	48	230	37	0	0	315	36	82	43	0	0	161	92	523	65	0	0	680	1388
08:30:00	40	117	61	0	0	218	26	173	28	0	0	227	39	64	53	0	0	156	95	561	57	1	0	714	1315
Grand Total	116	548	243	0	0	907	128	848	154	0	0	1130	148	311	164	0	0	623	347	2269	232	1	0	2849	5509
Approach%	12.8%	60.4%	26.8%	0%	-	-	11.3%	75%	13.6%	0%	-	-	23.8%	49.9%	26.3%	0%	-	-	12.2%	79.6%	8.1%	0%	-	-	-
Totals %	2.1%	9.9%	4.4%	0%	16.5%	2.3%	15.4%	2.8%	0%	20.5%	2.7%	5.6%	3%	0%	11.3%	6.3%	41.2%	4.2%	0%	51.7%	-	-			
PHF	0.73	0.86	0.86	0	0.91	0.67	0.92	0.82	0	0.9	0.86	0.79	0.77	0	0.9	0.91	0.94	0.89	0.25	0.97	-	-			
Heavy	4	12	2	0	18	3	97	7	0	107	9	14	11	0	34	17	27	3	0	47	-	-			
Heavy %	3.4%	2.2%	0.8%	0%	2%	2.3%	11.4%	4.5%	0%	9.5%	6.1%	4.5%	6.7%	0%	5.5%	4.9%	1.2%	1.3%	0%	1.6%	-	-			
Lights	112	535	241	0	888	125	751	147	0	1023	139	297	153	0	589	330	2242	229	1	2802	-	-			
Lights %	96.6%	97.6%	99.2%	0%	97.9%	97.7%	88.6%	95.5%	0%	90.5%	93.9%	95.5%	93.3%	0%	94.5%	95.1%	98.8%	98.7%	100%	98.4%	-	-			
Single-Unit Trucks	1	8	1	0	10	3	52	6	0	61	3	6	7	0	16	4	14	0	0	18	-	-			
Single-Unit Trucks %	0.9%	1.5%	0.4%	0%	1.1%	2.3%	6.1%	3.9%	0%	5.4%	2%	1.9%	4.3%	0%	2.6%	1.2%	0.6%	0%	0%	0.6%	-	-			
Buses	3	3	0	0	6	0	5	0	0	5	2	3	1	0	6	3	5	2	0	10	-	-			
Buses %	2.6%	0.5%	0%	0%	0.7%	0%	0.6%	0%	0%	0.4%	1.4%	1%	0.6%	0%	1%	0.9%	0.2%	0.9%	0%	0.4%	-	-			
Articulated Trucks	0	1	1	0	2	0	40	1	0	41	4	5	3	0	12	10	8	1	0	19	-	-			
Articulated Trucks %	0%	0.2%	0.4%	0%	0.2%	0%	4.7%	0.6%	0%	3.6%	2.7%	1.6%	1.8%	0%	1.9%	2.9%	0.4%	0.4%	0%	0.7%	-	-			
Bicycles on Road	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-			
Bicycles on Road %	0%	0.2%	0%	0%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-			
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-			
Pedestrians%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-			
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-			
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-			



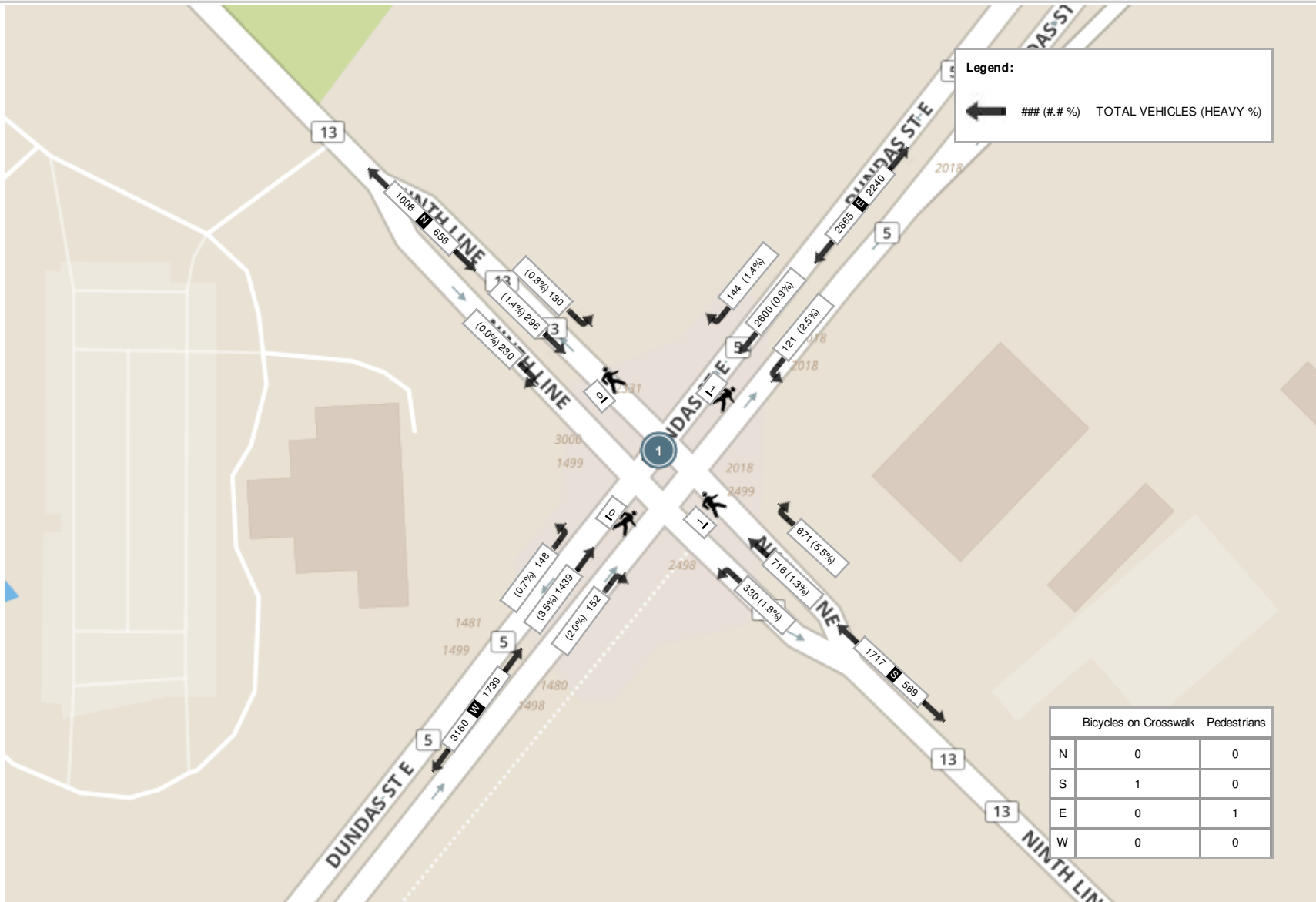
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (7.4 °C)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST W						S Approach NINTH LINE						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	62	76	33	0	0	171	38	689	30	0	1	757	170	171	88	0	0	429	29	346	32	1	0	408	1765
17:15:00	70	68	36	0	0	174	33	613	29	1	0	676	174	199	66	0	1	439	45	378	39	0	0	462	1751
17:30:00	44	78	39	0	0	161	40	697	27	1	0	765	153	156	84	0	0	393	38	392	35	0	0	465	1784
17:45:00	54	74	22	0	0	150	33	601	35	0	0	669	174	190	92	0	0	456	40	323	42	0	0	405	1680
Grand Total	230	296	130	0	0	656	144	2600	121	2	1	2867	671	716	330	0	1	1717	152	1439	148	1	0	1740	6980
Approach%	35.1%	45.1%	19.8%	0%	-	-	5%	90.7%	4.2%	0.1%	-	-	39.1%	41.7%	19.2%	0%	-	8.7%	82.7%	8.5%	0.1%	-	-	-	-
Totals %	3.3%	4.2%	1.9%	0%	9.4%	2.1%	37.2%	1.7%	0%	41.1%	9.6%	10.3%	4.7%	0%	24.6%	2.2%	20.6%	2.1%	0%	24.9%	-	-	-	-	
PHF	0.82	0.95	0.83	0	0.94	0.9	0.93	0.86	0.5	0.94	0.96	0.9	0.9	0	0.94	0.84	0.92	0.88	0.25	0.94	-	-	-	-	
Heavy	0	4	1	0	5	2	24	3	0	29	37	9	6	0	52	3	50	1	0	54	-	-	-	-	
Heavy %	0%	1.4%	0.8%	0%	0.8%	1.4%	0.9%	2.5%	0%	1%	5.5%	1.3%	1.8%	0%	3%	2%	3.5%	0.7%	0%	3.1%	-	-	-	-	
Lights	230	292	129	0	651	142	2576	118	2	2838	634	707	324	0	1665	149	1389	147	1	1686	-	-	-	-	
Lights %	100%	98.6%	99.2%	0%	99.2%	98.6%	99.1%	97.5%	100%	99%	94.5%	98.7%	98.2%	0%	97%	98%	96.5%	99.3%	100%	96.9%	-	-	-	-	
Single-Unit Trucks	0	4	0	0	4	1	9	0	0	10	17	6	4	0	27	1	26	1	0	28	-	-	-	-	
Single-Unit Trucks %	0%	1.4%	0%	0%	0.6%	0.7%	0.3%	0%	0%	0.3%	2.5%	0.8%	1.2%	0%	1.6%	0.7%	1.8%	0.7%	0%	1.6%	-	-	-	-	
Buses	0	0	0	0	0	0	6	0	0	6	1	1	0	0	2	0	5	0	0	5	-	-	-	-	
Buses %	0%	0%	0%	0%	0%	0%	0.2%	0%	0%	0.2%	0.1%	0.1%	0%	0%	0.1%	0%	0.3%	0%	0%	0.3%	-	-	-	-	
Articulated Trucks	0	0	1	0	1	1	9	3	0	13	19	2	2	0	23	2	19	0	0	21	-	-	-	-	
Articulated Trucks %	0%	0%	0.8%	0%	0.2%	0.7%	0.3%	2.5%	0%	0.5%	2.8%	0.3%	0.6%	0%	1.3%	1.3%	1.3%	0%	0%	1.2%	-	-	-	-	
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
Bicycles on Road %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-	
Pedestrians	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	
Pedestrians%	-	-	-	-	0%	-	-	-	-	50%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	50%	-	-	-	-	0%	-	-	-	-	

Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (7.4 °C)





Turning Movement Count (1 . DUNDAS ST E & NINTH LINE)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST E						S Approach NINTH LINE						W Approach DUNDAS ST E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
10:00:00	32	44	43	1	0	120	33	227	10	1	1	271	27	36	30	0	1	93	45	350	20	0	0	415	899	
10:15:00	24	37	29	0	0	90	19	244	15	0	0	278	18	29	25	0	0	72	34	402	22	0	0	458	898	
10:30:00	16	36	32	0	0	84	33	275	17	0	0	325	37	41	25	0	0	103	46	362	25	0	0	433	945	
10:45:00	16	45	46	0	0	107	23	272	26	1	0	322	26	55	37	0	0	118	36	397	32	0	0	465	1012	3754
11:00:00	23	35	40	0	0	98	31	310	25	0	0	366	32	34	36	0	0	102	62	418	28	0	0	508	1074	3929
11:15:00	19	30	27	0	0	76	26	394	21	1	0	442	30	43	31	0	0	104	44	397	26	1	0	468	1090	4121
11:30:00	25	41	45	0	0	111	31	341	20	5	0	397	34	63	25	0	0	122	34	408	25	0	0	467	1097	4273
11:45:00	26	41	27	0	0	94	55	379	28	1	0	463	26	48	36	0	0	110	42	428	34	0	0	504	1171	4432
12:00:00	39	53	42	0	0	134	58	338	36	1	0	433	33	57	33	1	0	124	47	370	32	0	0	449	1140	4498
12:15:00	25	47	48	0	0	120	60	350	26	2	0	438	30	71	26	0	0	127	48	460	28	0	0	536	1221	4629
12:30:00	40	46	33	0	0	119	63	436	34	0	0	533	31	67	30	0	0	128	57	427	40	0	0	524	1304	4836
12:45:00	44	50	45	0	0	139	66	352	43	2	0	463	34	73	40	0	0	147	48	418	43	0	0	509	1258	4923
13:00:00	52	45	45	0	0	142	58	413	29	5	0	505	30	53	50	0	0	133	56	407	31	0	0	494	1274	5057
13:15:00	30	52	39	0	0	121	25	424	24	3	0	476	20	38	35	0	0	93	51	386	37	1	0	475	1165	5001
13:30:00	20	42	45	0	0	107	36	353	25	4	0	418	32	58	22	0	0	112	48	404	26	1	0	479	1116	4813
13:45:00	23	37	39	0	0	99	39	427	34	1	0	501	40	40	33	1	0	114	55	410	23	0	0	488	1202	4757
14:00:00	39	52	56	0	0	147	56	368	36	3	0	463	37	83	32	0	0	152	33	345	23	0	0	401	1163	4646
14:15:00	61	50	46	0	0	157	57	385	35	3	0	480	32	46	36	0	0	114	46	442	35	0	0	523	1274	4755
14:30:00	40	64	53	0	0	157	34	470	29	1	0	534	30	47	39	0	0	116	45	386	26	0	0	457	1264	4903
14:45:00	41	39	62	0	0	142	41	406	24	1	0	472	35	60	45	0	0	140	56	391	35	0	0	482	1236	4937
15:00:00	26	50	45	0	0	121	45	455	35	1	0	536	45	59	39	0	0	143	50	398	30	0	0	478	1278	5052
15:15:00	39	49	41	0	0	129	42	490	20	1	0	553	29	62	30	0	0	121	49	379	26	0	0	454	1257	5035
15:30:00	28	31	33	0	0	92	34	430	26	2	0	492	32	65	30	0	0	127	48	378	33	0	0	459	1170	4941
15:45:00	20	43	42	0	0	105	33	505	31	2	0	571	27	58	35	0	0	120	40	350	27	0	0	417	1213	4918
16:00:00	27	36	24	0	0	87	43	454	20	1	0	518	29	58	35	0	0	122	37	368	29	0	0	434	1161	4801
16:15:00	30	51	41	0	0	122	33	406	29	3	0	471	31	87	31	0	0	149	40	422	30	0	0	492	1234	4778
16:30:00	29	50	30	0	0	109	51	505	23	1	0	580	23	59	37	0	0	119	37	368	31	0	0	436	1244	4852
16:45:00	19	64	31	0	0	114	39	413	31	1	0	484	24	61	40	0	0	125	47	310	45	0	0	402	1125	4764
Grand Total	853	1260	1129	1	0	3243	1164	10822	752	47	1	12785	854	1551	943	2	1	3350	1281	10981	842	3	0	13107	32485	-

Approach %	26.3%	38.9%	34.8%	0%	-	9.1%	84.6%	5.9%	0.4%	-	25.5%	46.3%	28.1%	0.1%	-	9.8%	83.8%	6.4%	0%	-	-	-
Totals %	2.6%	3.9%	3.5%	0%	10%	3.6%	33.3%	2.3%	0.1%	39.4%	2.6%	4.8%	2.9%	0%	10.3%	3.9%	33.8%	2.6%	0%	40.3%	-	-



Turning Movement Count
 Location Name: DUNDAS ST E & NINTH LINE
 Date: Sat, Oct 27, 2018 Deployment Lead: Walter Fugaj

Crozier & Associates

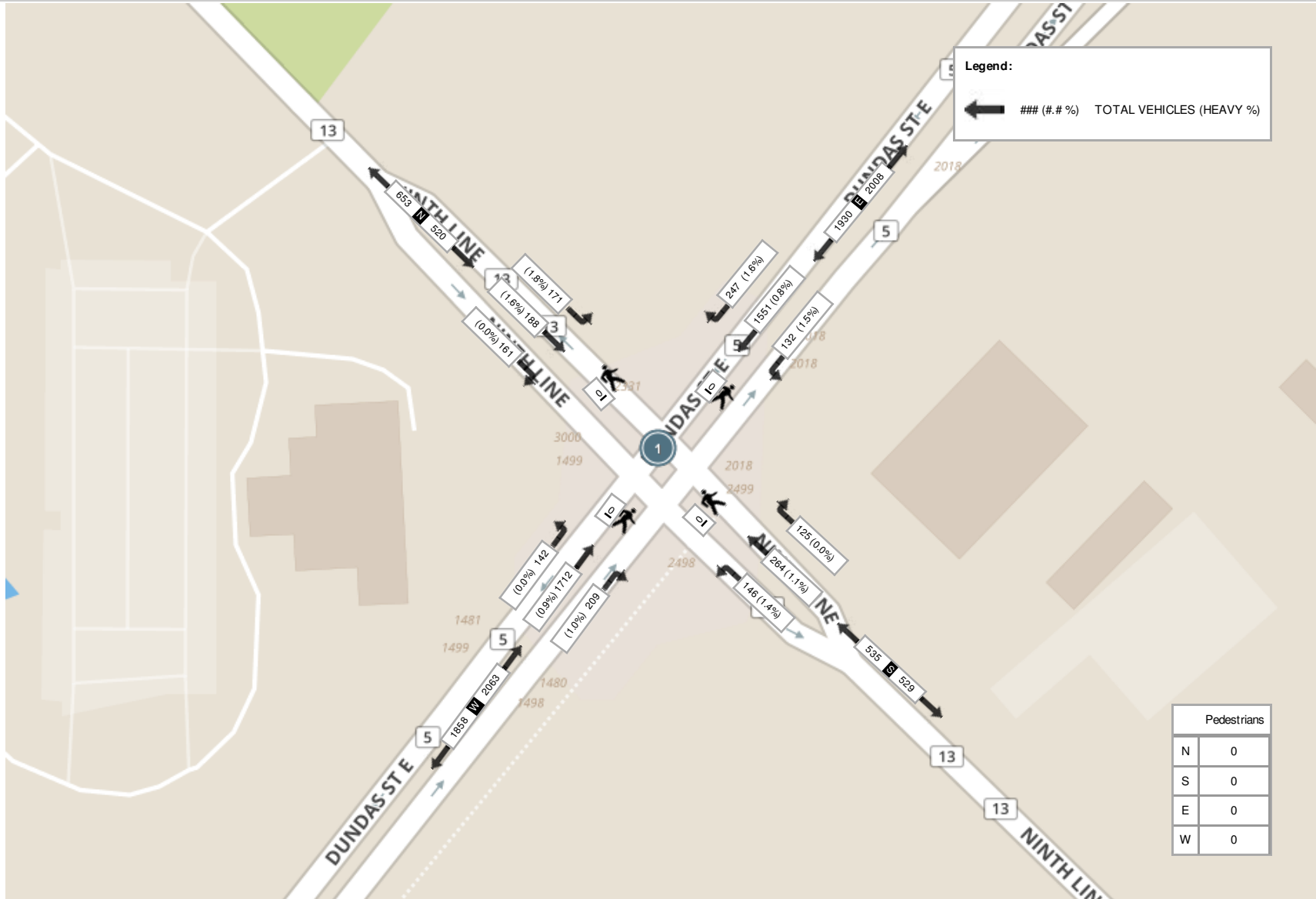
Heavy	6	11	11	0	-	15	74	7	0	-	6	16	15	0	-	14	99	6	0	-	-	-
Heavy %	0.7%	0.9%	1%	0%	-	1.3%	0.7%	0.9%	0%	-	0.7%	1%	1.6%	0%	-	1.1%	0.9%	0.7%	0%	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST E						S Approach NINTH LINE						W Approach DUNDAS ST E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
12:15:00	25	47	48	0	0	120	60	350	26	2	0	438	30	71	26	0	0	127	48	460	28	0	0	536	1221
12:30:00	40	46	33	0	0	119	63	436	34	0	0	533	31	67	30	0	0	128	57	427	40	0	0	524	1304
12:45:00	44	50	45	0	0	139	66	352	43	2	0	463	34	73	40	0	0	147	48	418	43	0	0	509	1258
13:00:00	52	45	45	0	0	142	58	413	29	5	0	505	30	53	50	0	0	133	56	407	31	0	0	494	1274
Grand Total	161	188	171	0	0	520	247	1551	132	9	0	1939	125	264	146	0	0	535	209	1712	142	0	0	2063	5057
Approach%	31%	36.2%	32.9%	0%		-	12.7%	80%	6.8%	0.5%		-	23.4%	49.3%	27.3%	0%		-	10.1%	83%	6.9%	0%		-	-
Totals %	3.2%	3.7%	3.4%	0%		10.3%	4.9%	30.7%	2.6%	0.2%		38.3%	2.5%	5.2%	2.9%	0%		10.6%	4.1%	33.9%	2.8%	0%		40.8%	-
PHF	0.77	0.94	0.89	0		0.92	0.94	0.89	0.77	0.45		0.91	0.92	0.9	0.73	0		0.91	0.92	0.93	0.83	0		0.96	-
Heavy	0	3	3	0		6	4	12	2	0		18	0	3	2	0		5	2	15	0	0		17	-
Heavy %	0%	1.6%	1.8%	0%		1.2%	1.6%	0.8%	1.5%	0%		0.9%	0%	1.1%	1.4%	0%		0.9%	1%	0.9%	0%	0%		0.8%	-
Lights	161	185	168	0		514	243	1539	130	9		1921	125	261	144	0		530	207	1697	142	0		2046	-
Lights %	100%	98.4%	98.2%	0%		98.8%	98.4%	99.2%	98.5%	100%		99.1%	100%	98.9%	98.6%	0%		99.1%	99%	99.1%	100%	0%		99.2%	-
Single-Unit Trucks	0	3	3	0		6	3	7	1	0		11	0	3	1	0		4	1	8	0	0		9	-
Single-Unit Trucks %	0%	1.6%	1.8%	0%		1.2%	1.2%	0.5%	0.8%	0%		0.6%	0%	1.1%	0.7%	0%		0.7%	0.5%	0.5%	0%	0%		0.4%	-
Buses	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	2	0	0		2	-
Buses %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	-
Articulated Trucks	0	0	0	0		0	1	2	1	0		4	0	0	1	0		1	1	5	0	0		6	-
Articulated Trucks %	0%	0%	0%	0%		0%	0.4%	0.1%	0.8%	0%		0.2%	0%	0%	0.7%	0%		0.2%	0.5%	0.3%	0%	0%		0.3%	-
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)





Turning Movement Count (4 . NINTH LINE & GLEN OAKS FUNERAL HOME ACCESS)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	U-Turn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Left W:N	U-Turn W:W	Peds W:	Approach Total		
06:00:00	0	57	0	0	57	21	0	0	0	21	0	0	0	0	0	78	
06:15:00	0	80	0	0	80	33	0	0	0	33	0	0	0	0	0	113	
06:30:00	0	114	0	0	114	41	0	0	0	41	1	0	0	0	1	156	
06:45:00	0	111	0	0	111	54	1	0	0	55	0	0	0	0	0	166	513
07:00:00	0	123	0	0	123	77	0	0	0	77	0	0	0	0	0	200	635
07:15:00	1	150	0	0	151	114	4	0	0	118	0	0	0	0	0	269	791
07:30:00	0	209	0	0	209	162	6	0	0	168	1	0	0	0	1	378	1013
07:45:00	1	233	0	0	234	157	6	0	0	163	0	0	0	0	0	397	1244
08:00:00	0	215	0	0	215	153	2	1	0	156	1	0	0	0	1	372	1416
08:15:00	0	225	0	0	225	208	1	0	0	209	1	0	0	0	1	435	1582
08:30:00	0	225	0	0	225	134	8	1	0	143	1	0	0	0	1	369	1573
08:45:00	3	189	0	0	192	124	9	0	0	133	5	1	0	0	6	331	1507
BREAK																	
15:00:00	2	100	0	0	102	184	8	0	0	192	8	3	0	0	11	305	
15:15:00	2	134	0	0	136	162	4	1	0	167	11	1	0	0	12	315	
15:30:00	0	139	0	0	139	199	5	0	0	204	6	1	0	0	7	350	
15:45:00	1	128	0	0	129	219	4	1	0	224	3	1	0	0	4	357	1327
16:00:00	0	169	0	0	169	202	6	0	0	208	7	3	0	0	10	387	1409
16:15:00	2	136	0	0	138	224	3	0	0	227	7	3	0	0	10	375	1469
16:30:00	2	145	0	0	147	192	2	1	0	195	16	0	0	0	16	358	1477
16:45:00	1	168	0	0	169	236	1	0	0	237	5	1	0	0	6	412	1532
17:00:00	1	160	0	0	161	228	5	1	0	234	2	0	0	0	2	397	1542
17:15:00	0	186	0	0	186	255	2	1	0	258	0	0	0	0	0	444	1611
17:30:00	0	143	0	0	143	246	7	1	0	254	5	0	0	0	5	402	1655



17:45:00	5	149	0	0	154	226	4	0	0	230	2	0	0	0	2	386	1629
18:00:00	0	155	0	0	155	202	6	0	0	208	10	2	0	0	12	375	1607
18:15:00	4	121	0	0	125	151	6	0	0	157	2	0	0	0	2	284	1447
18:30:00	3	112	0	0	115	140	4	0	0	144	5	0	0	0	5	264	1309
18:45:00	6	88	0	0	94	144	10	1	0	155	5	1	0	0	6	255	1178
Grand Total	34	4164	0	0	4198	4488	114	9	0	4611	104	17	0	0	121	8930	-
Approach%	0.8%	99.2%	0%	-	-	97.3%	2.5%	0.2%	-	-	86%	14%	0%	-	-	-	-
Totals %	0.4%	46.6%	0%	47%	50.3%	1.3%	0.1%	51.6%	1.2%	0.2%	0%	1.4%	-	-	-	-	-
Heavy	0	95	0	-	111	2	0	-	3	0	0	-	-	-	-	-	-
Heavy %	0%	2.3%	0%	-	2.5%	1.8%	0%	-	2.9%	0%	0%	-	-	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (2.8 °C)

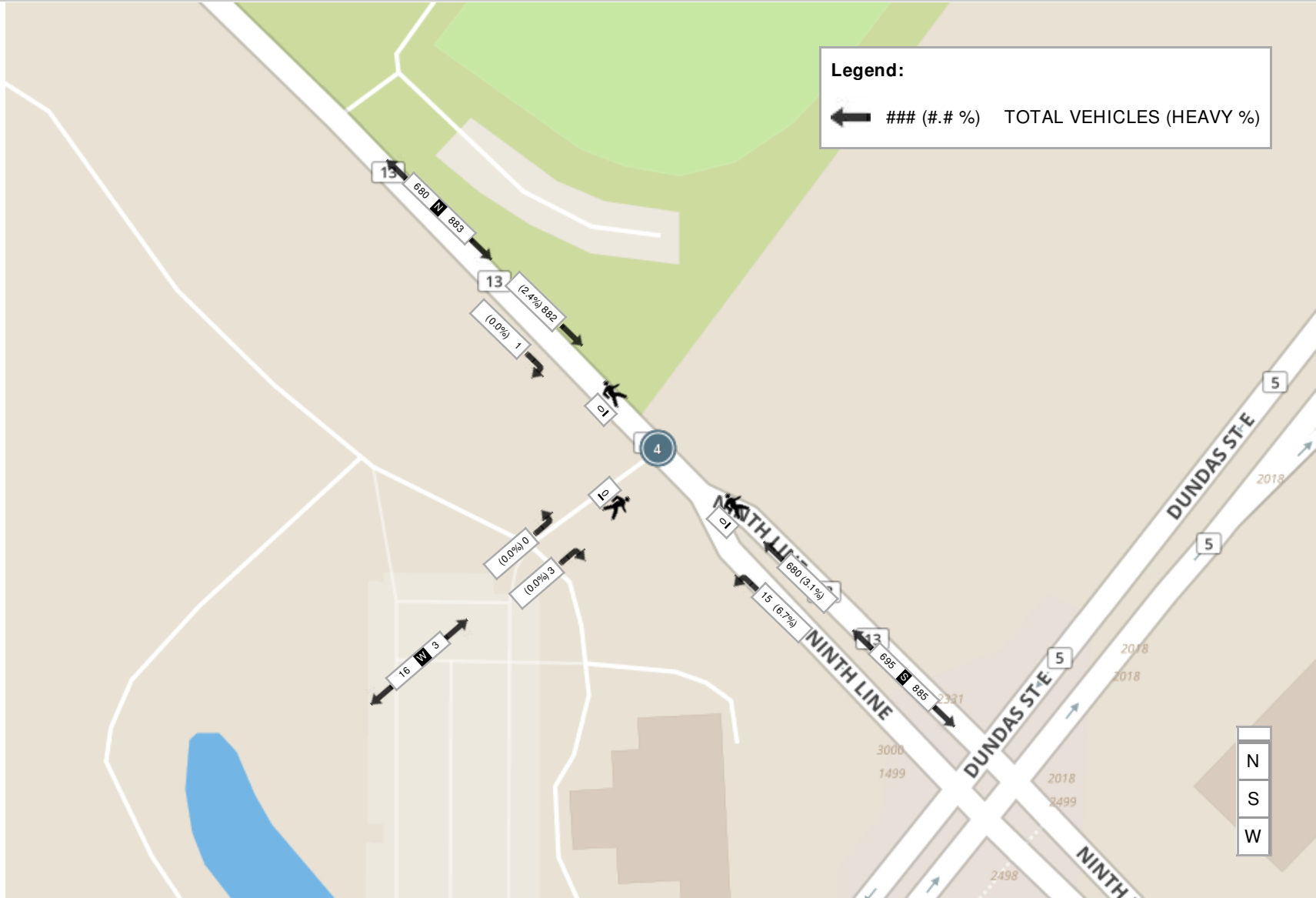
Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
07:30:00	0	209	0	0	209	162	6	0	0	168	1	0	0	0	1	378
07:45:00	1	233	0	0	234	157	6	0	0	163	0	0	0	0	0	397
08:00:00	0	215	0	0	215	153	2	1	0	156	1	0	0	0	1	372
08:15:00	0	225	0	0	225	208	1	0	0	209	1	0	0	0	1	435
Grand Total	1	882	0	0	883	680	15	1	0	696	3	0	0	0	3	1582
Approach%	0.1%	99.9%	0%		-	97.7%	2.2%	0.1%		-	100%	0%	0%		-	-
Totals %	0.1%	55.8%	0%		55.8%	43%	0.9%	0.1%		44%	0.2%	0%	0%		0.2%	-
PHF	0.25	0.95	0		0.94	0.82	0.63	0.25		0.83	0.75	0	0		0.75	-
Heavy	0	21	0		21	21	1	0		22	0	0	0		0	-
Heavy %	0%	2.4%	0%		2.4%	3.1%	6.7%	0%		3.2%	0%	0%	0%		0%	-
Lights	1	860	0		861	659	14	1		674	3	0	0		3	-
Lights %	100%	97.5%	0%		97.5%	96.9%	93.3%	100%		96.8%	100%	0%	0%		100%	-
Single-Unit Trucks	0	10	0		10	10	1	0		11	0	0	0		0	-
Single-Unit Trucks %	0%	1.1%	0%		1.1%	1.5%	6.7%	0%		1.6%	0%	0%	0%		0%	-
Buses	0	7	0		7	5	0	0		5	0	0	0		0	-
Buses %	0%	0.8%	0%		0.8%	0.7%	0%	0%		0.7%	0%	0%	0%		0%	-
Articulated Trucks	0	4	0		4	6	0	0		6	0	0	0		0	-
Articulated Trucks %	0%	0.5%	0%		0.5%	0.9%	0%	0%		0.9%	0%	0%	0%		0%	-
Bicycles on Road	0	1	0		1	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0.1%	0%		0.1%	0%	0%	0%		0%	0%	0%	0%		0%	-



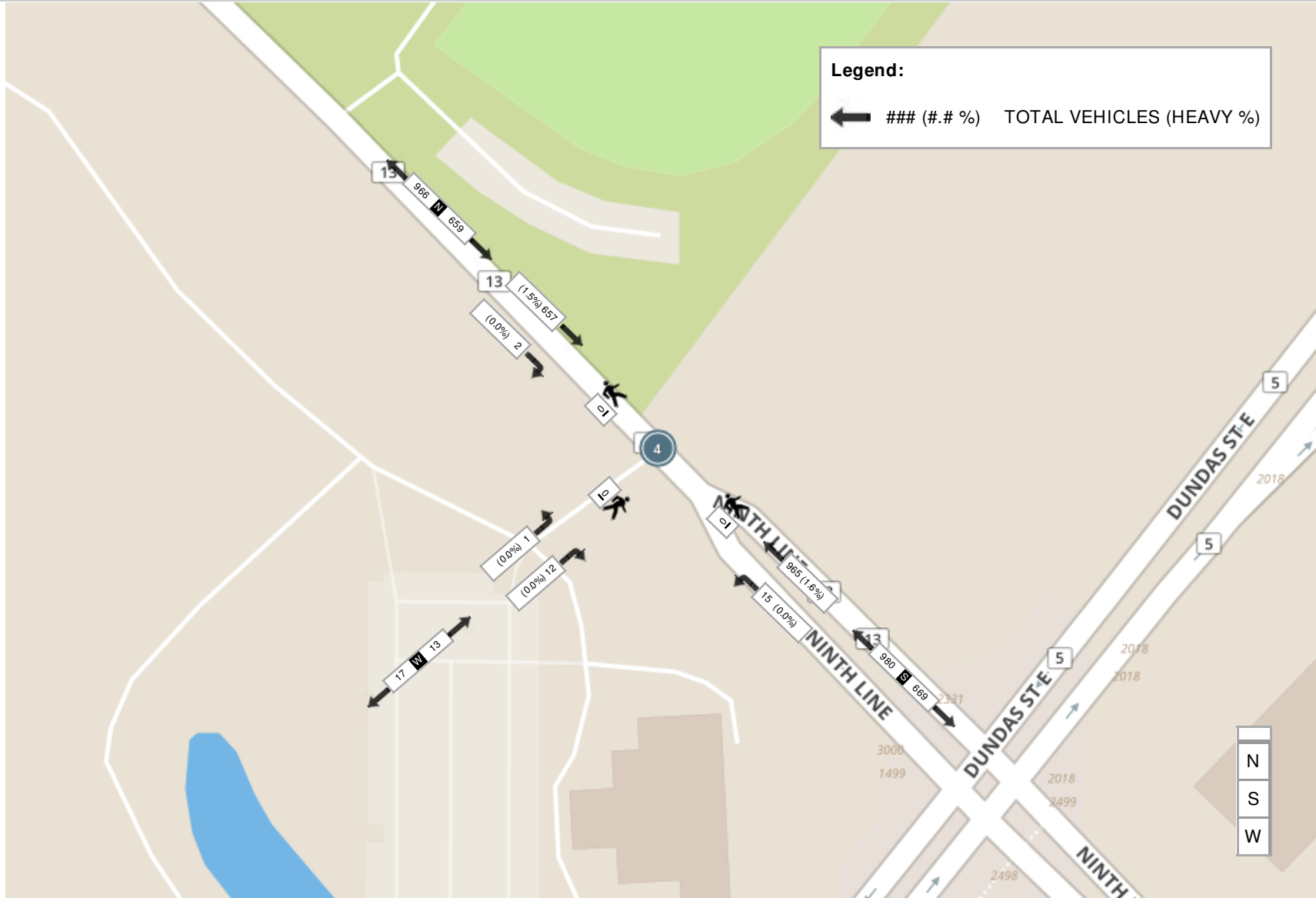
Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast (7.4 °C)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
16:45:00	1	168	0	0	169	236	1	0	0	237	5	1	0	0	6	412
17:00:00	1	160	0	0	161	228	5	1	0	234	2	0	0	0	2	397
17:15:00	0	186	0	0	186	255	2	1	0	258	0	0	0	0	0	444
17:30:00	0	143	0	0	143	246	7	1	0	254	5	0	0	0	5	402
Grand Total	2	657	0	0	659	965	15	3	0	983	12	1	0	0	13	1655
Approach%	0.3%	99.7%	0%		-	98.2%	1.5%	0.3%		-	92.3%	7.7%	0%		-	-
Totals %	0.1%	39.7%	0%		39.8%	58.3%	0.9%	0.2%		59.4%	0.7%	0.1%	0%		0.8%	-
PHF	0.5	0.88	0		0.89	0.95	0.54	0.75		0.95	0.6	0.25	0		0.54	-
Heavy	0	10	0		10	15	0	0		15	0	0	0		0	-
Heavy %	0%	1.5%	0%		1.5%	1.6%	0%	0%		1.5%	0%	0%	0%		0%	-
Lights	2	647	0		649	950	15	3		968	12	1	0		13	-
Lights %	100%	98.5%	0%		98.5%	98.4%	100%	100%		98.5%	100%	100%	0%		100%	-
Single-Unit Trucks	0	7	0		7	10	0	0		10	0	0	0		0	-
Single-Unit Trucks %	0%	1.1%	0%		1.1%	1%	0%	0%		1%	0%	0%	0%		0%	-
Buses	0	1	0		1	0	0	0		0	0	0	0		0	-
Buses %	0%	0.2%	0%		0.2%	0%	0%	0%		0%	0%	0%	0%		0%	-
Articulated Trucks	0	2	0		2	5	0	0		5	0	0	0		0	-
Articulated Trucks %	0%	0.3%	0%		0.3%	0.5%	0%	0%		0.5%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-

Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (2.8 °C)



Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast (7.4 °C)





Turning Movement Count (4 . NINTH LINE & GLEN OAKS FUNERAL HOME ACCESS)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	U-Turn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Left W:N	U-Turn W:W	Peds W:	Approach Total		
10:00:00	0	117	0	0	117	83	5	1	0	89	2	1	0	0	3	209	
10:15:00	1	85	0	0	86	64	6	0	0	70	4	1	0	0	5	161	
10:30:00	1	88	0	0	89	92	4	0	0	96	0	1	0	0	1	186	
10:45:00	3	94	0	0	97	101	7	0	0	108	7	1	0	0	8	213	769
11:00:00	0	102	0	0	102	90	2	0	0	92	0	1	0	0	1	195	755
11:15:00	1	77	0	0	78	99	1	0	0	100	3	0	0	0	3	181	775
11:30:00	1	106	0	0	107	97	4	2	0	103	4	0	0	0	4	214	803
11:45:00	2	99	0	0	101	134	9	0	0	143	2	0	0	0	2	246	836
12:00:00	4	124	0	0	128	116	36	1	0	153	3	0	0	0	3	284	925
12:15:00	2	110	0	0	112	121	31	0	0	152	5	0	0	0	5	269	1013
12:30:00	8	114	0	0	122	132	47	1	0	180	7	1	0	0	8	310	1109
12:45:00	5	112	0	0	117	138	40	0	0	178	15	0	0	0	15	310	1173
13:00:00	4	124	0	0	128	117	13	0	0	130	37	6	0	0	43	301	1190
13:15:00	1	99	0	0	100	110	7	0	0	117	3	1	0	0	4	221	1142
13:30:00	2	106	0	0	108	102	2	0	0	104	5	1	0	0	6	218	1050
13:45:00	3	94	0	0	97	110	6	0	0	116	7	3	0	0	10	223	963
14:00:00	9	129	0	0	138	139	9	0	0	148	13	3	0	0	16	302	964
14:15:00	2	100	0	0	102	134	9	0	0	143	71	0	0	0	71	316	1059
14:30:00	1	103	0	0	104	111	5	1	0	117	42	4	0	0	46	267	1108
14:45:00	1	103	0	0	104	114	9	0	0	123	31	4	0	0	35	262	1147
15:00:00	1	106	0	0	107	130	9	0	0	139	25	5	0	0	30	276	1121
15:15:00	0	101	0	0	101	135	2	0	0	137	21	2	0	0	23	261	1066
15:30:00	0	83	0	0	83	114	4	0	0	118	12	1	0	0	13	214	1013



15:45:00	1	104	0	0	105	124	6	0	0	130	4	0	0	0	4	239	990
16:00:00	0	76	0	0	76	124	5	0	0	129	4	0	0	0	4	209	923
16:15:00	0	112	0	0	112	134	2	0	0	136	10	0	0	0	10	258	920
16:30:00	0	108	0	0	108	151	1	0	0	152	11	1	0	0	12	272	978
16:45:00	2	99	0	0	101	129	4	0	0	133	5	3	0	0	8	242	981
Grand Total	55	2875	0	0	2930	3245	285	6	0	3536	353	40	0	0	393	6859	-

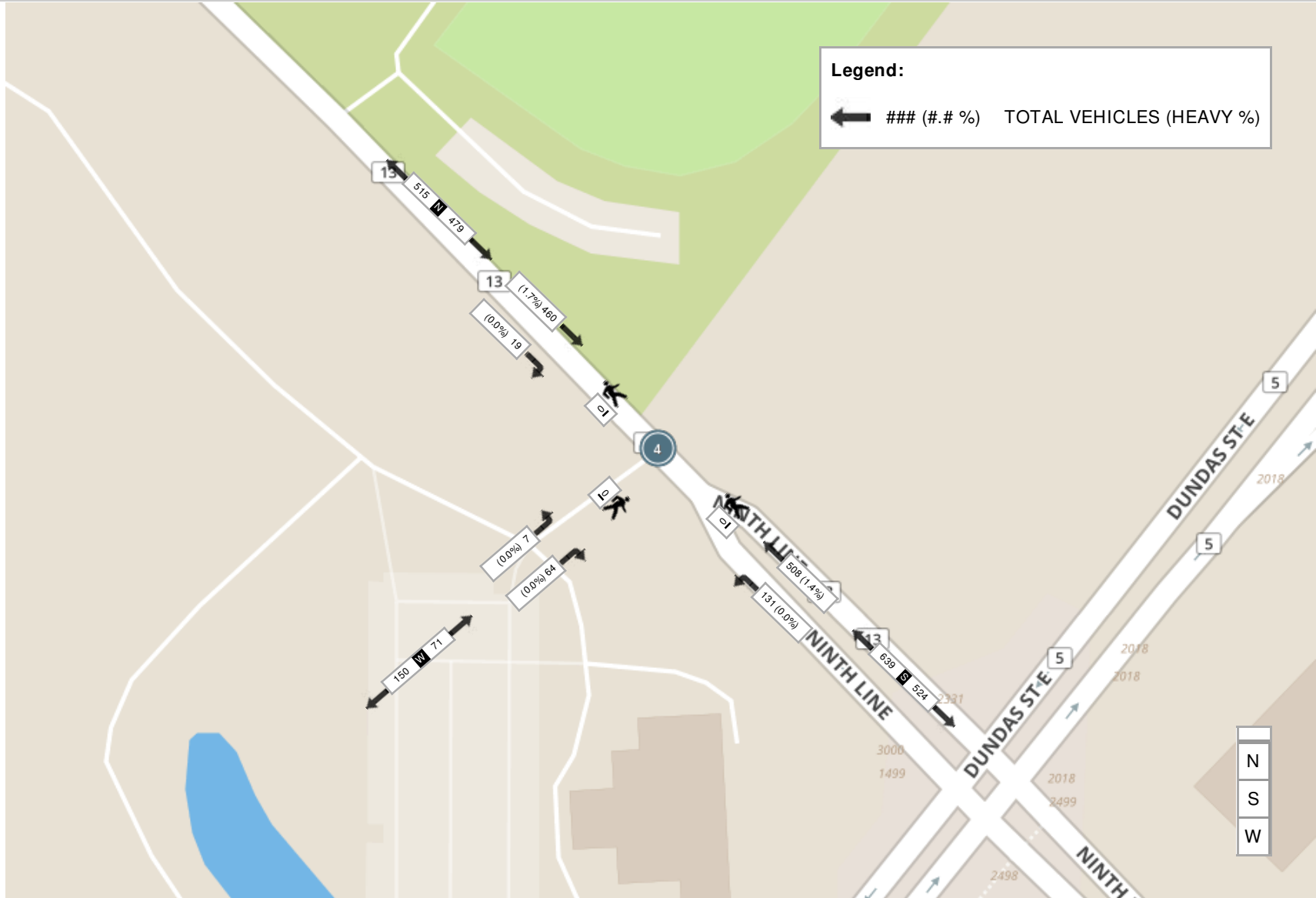
Approach%	1.9%	98.1%	0%	-	91.8%	8.1%	0.2%	-	89.8%	10.2%	0%	-	-	-
Totals %	0.8%	41.9%	0%	42.7%	47.3%	4.2%	0.1%	51.6%	5.1%	0.6%	0%	5.7%	-	-
Heavy	1	25	0	-	32	5	0	-	5	0	0	-	-	-
Heavy %	1.8%	0.9%	0%	-	1%	1.8%	0%	-	1.4%	0%	0%	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
12:15:00	2	110	0	0	112	121	31	0	0	152	5	0	0	0	5	269
12:30:00	8	114	0	0	122	132	47	1	0	180	7	1	0	0	8	310
12:45:00	5	112	0	0	117	138	40	0	0	178	15	0	0	0	15	310
13:00:00	4	124	0	0	128	117	13	0	0	130	37	6	0	0	43	301
Grand Total	19	460	0	0	479	508	131	1	0	640	64	7	0	0	71	1190
Approach%	4%	96%	0%	-	-	79.4%	20.5%	0.2%	-	-	90.1%	9.9%	0%	-	-	-
Totals %	1.6%	38.7%	0%	40.3%	40.3%	42.7%	11%	0.1%	53.8%	53.8%	5.4%	0.6%	0%	6%	6%	-
PHF	0.59	0.93	0	0.94	0.94	0.92	0.7	0.25	0.89	0.89	0.43	0.29	0	0.41	0.41	-
Heavy	0	8	0	8	8	7	0	0	7	7	0	0	0	0	0	-
Heavy %	0%	1.7%	0%	1.7%	1.7%	1.4%	0%	0%	1.1%	1.1%	0%	0%	0%	0%	0%	-
Lights	19	452	0	471	471	501	131	1	633	633	64	7	0	71	71	-
Lights %	100%	98.3%	0%	98.3%	98.3%	98.6%	100%	100%	98.9%	98.9%	100%	100%	0%	100%	100%	-
Single-Unit Trucks	0	8	0	8	8	6	0	0	6	6	0	0	0	0	0	-
Single-Unit Trucks %	0%	1.7%	0%	1.7%	1.7%	1.2%	0%	0%	0.9%	0.9%	0%	0%	0%	0%	0%	-
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Buses %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Articulated Trucks	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	-
Articulated Trucks %	0%	0%	0%	0%	0%	0.2%	0%	0%	0.2%	0.2%	0%	0%	0%	0%	0%	-

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)



Ontario Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:45:00

To: 8:45:00

Municipality: Oakville
Site #: 1902900001
Intersection: Dundas St E & Ninth Line
TFR File #: 1
Count date: 19-Feb-19

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dundas St E runs W/E

North Leg Total: 1452
 North Entering: 800
 North Peds: 0
 Peds Cross: \bowtie

Heavys	0	0	0	0
Trucks	0	2	0	2
Cars	98	518	182	798
Totals	98	520	182	



Heavys	0
Trucks	5
Cars	647
Totals	652

East Leg Total: 3571
 East Entering: 1102
 East Peds: 0
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
0	95	1036	1131

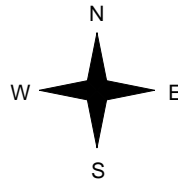


Ninth Line

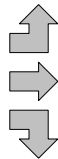
Cars	Trucks	Heavys	Totals
122	0	0	122
786	74	0	860
118	2	0	120
1026	76	0	



Dundas St E



Heavys	Trucks	Cars	Totals
0	0	217	217
0	25	2109	2134
0	1	312	313
0	26	2638	



Dundas St E



Peds Cross: \bowtie
 West Peds: 0
 West Entering: 2664
 West Leg Total: 3795

Cars	948	Cars	152	308	148	608
Trucks	5	Trucks	21	5	5	31
Heavys	0	Heavys	0	0	0	0
Totals	953	Totals	173	313	153	



Ninth Line



Peds Cross: \bowtie
 South Peds: 0
 South Entering: 639
 South Leg Total: 1592

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:45:00
To: 17:45:00

Municipality: Oakville
Site #: 1902900001
Intersection: Dundas St E & Ninth Line
TFR File #: 1
Count date: 19-Feb-19

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dundas St E runs W/E

North Leg Total: 1558
North Entering: 598
North Peds: 0
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	2	2	4
Cars	195	297	102	594
Totals	195	299	104	



Heavys	0
Trucks	6
Cars	954
Totals	960

East Leg Total: 4476
East Entering: 2687
East Peds: 0
Peds Cross: \times

Heavys	0
Trucks	25
Cars	2896
Totals	2921

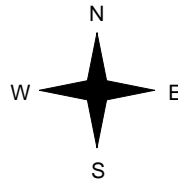


Ninth Line

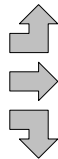
Cars	133	0	0	133
Trucks	2393	20	0	2413
Heavys	138	3	0	141
Totals	2664	23	0	



Dundas St E



Heavys	0
Trucks	0
Cars	129
Totals	129
Heavys	0
Trucks	35
Cars	1120
Totals	1155
Heavys	0
Trucks	4
Cars	159
Totals	163
Heavys	0
Trucks	39
Cars	1408
Totals	



Dundas St E



Cars	1726	63	0	1789
Trucks				
Heavys				
Totals				

Peds Cross: \times
West Peds: 0
West Entering: 1447
West Leg Total: 4368

Cars	594	308	692	504	1504
Trucks	9	5	6	26	37
Heavys	0	0	0	0	0
Totals	603	313	698	530	



Peds Cross: \times
South Peds: 0
South Entering: 1541
South Leg Total: 2144

Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Oakville
Site #: 1902900001
Intersection: Dundas St E & Ninth Line
TFR File #: 1
Count date: 19-Feb-19

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dundas St E runs W/E

North Leg Total: 5571
 North Entering: 2631
 North Peds: 1
 Peds Cross: \times

Heavys	0	0	0	0
Trucks	1	9	5	15
Cars	548	1505	563	2616
Totals	549	1514	568	



Heavys	0
Trucks	24
Cars	2916
Totals	2940

East Leg Total: 15364
 East Entering: 7140
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
0	262	7476	7738

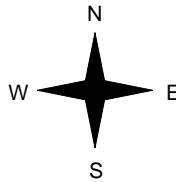


Ninth Line

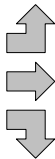
Cars	Trucks	Heavys	Totals
440	2	0	442
6020	205	0	6225
463	10	0	473
6923	217	0	



Dundas St E



Heavys	Trucks	Cars	Totals
0	1	610	611
0	145	6276	6421
0	20	830	850
0	166	7716	



Dundas St E



Cars	Trucks	Heavys	Totals
8016	208	0	8224

Peds Cross: \times
 West Peds: 0
 West Entering: 7882
 West Leg Total: 15620

Cars	2798
Trucks	39
Heavys	0
Totals	2837



Cars	908	1866	1177	3951
Trucks	56	21	58	135
Heavys	0	0	0	0
Totals	964	1887	1235	

Peds Cross: \times
 South Peds: 1
 South Entering: 4086
 South Leg Total: 6923

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: Dundas St E & Ninth Line

Count Date: 19-Feb-19

Municipality: Oakville

North Approach Totals						South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	North/South Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	194	414	43	651	1	1193	8:00:00	136	268	138	542	0
9:00:00	177	510	107	794	0	1413	9:00:00	188	289	142	619	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	82	283	207	572	0	1982	17:00:00	305	654	451	1410	1
18:00:00	115	307	192	614	0	2129	18:00:00	335	676	504	1515	0
Totals:	568	1514	549	2631	1	6717		964	1887	1235	4086	1
East Approach Totals						West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	East/West Total Approaches	Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	94	718	86	898	0	3452	8:00:00	181	2131	242	2554	0
9:00:00	103	817	106	1026	0	3527	9:00:00	204	2007	290	2501	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	134	2350	111	2595	0	3998	17:00:00	99	1147	157	1403	0
18:00:00	142	2340	139	2621	0	4045	18:00:00	127	1136	161	1424	0
Totals:	473	6225	442	7140	0	15022		611	6421	850	7882	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	16:00	17:00	18:00	18:00	18:00	18:00			
Crossing Values:	0	744	875	0	1041	2609	1126	2609				

Appendix D

Signal Timing Plan

18. APPENDIX D: PROGRAM REFERENCE CARD

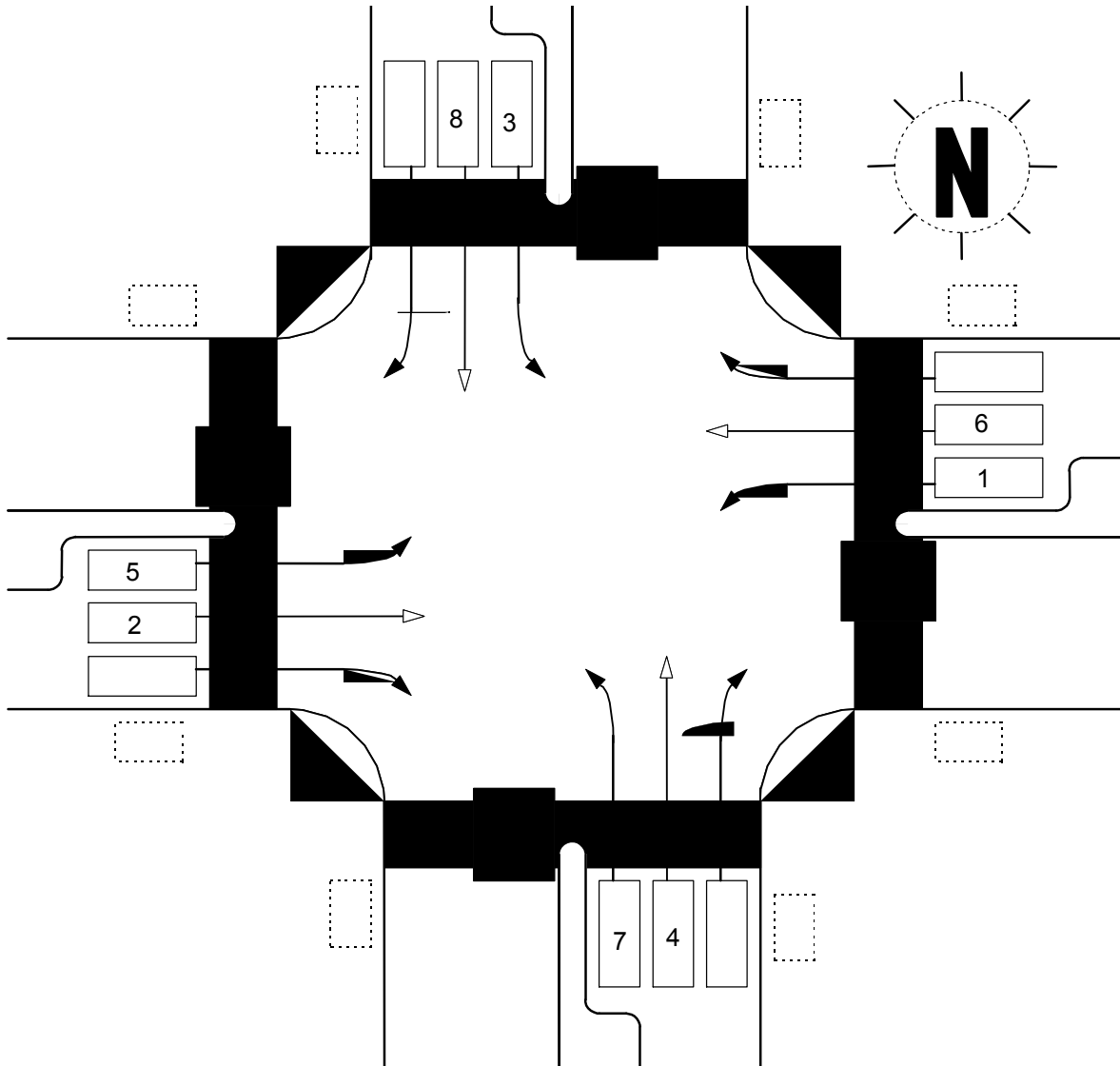
ASC/3

PROGRAM REFERENCE CARD

INTERSECTION Dundas Street & Ninth Line

CONTROLLER NUMBER _____ ENTERED BY: _____ DATE 03 / 13 / 17

BOOT: _____ MAIN: _____ HELP: _____ DATA BASE _____



CONFIGURATION SUBMENU

1-1-1. PHASE RING ASSIGNMENT

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
RING																

1-1-2. PHASE COMPATIBILITY

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

1-2. PHASES IN USE / EXCLUSIVE PED

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASES IN USE																
EXCLUSIVE PED																

1-1-4. BACKUP PREVENT PHASES

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

1-1-5 SIMULTANEOUS GAP

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

1-1-3. PHASE RING SEQUENCE

CONTROLLER 1			SEQUENCE 1																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 2																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 3																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 4																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 5																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 6																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 7																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1			SEQUENCE 8																	
RING 1																				
RING 2																				
RING 3																				
RING 4																				

1-1-3. PHASE RING SEQUENCE (CONT)

CONTROLLER 1		SEQUENCE 9																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 10																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 11																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 12																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 13																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 14																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 15																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				
CONTROLLER 1		SEQUENCE 16																		
RING 1																				
RING 2																				
RING 3																				
RING 4																				

1-3. PHASE TO LOAD SWITCH (MMU) ASSIGNMENT

LOAD SWITCH	PHASE / OVERLAP	TYPE	DIMMING				AUTO FLASH	
			RED	YELLOW	GREEN	PHASE	COLOR	TOGETHER
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

1-4-2. MMU PROGRAM

PHASE	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															

1-4-1. SDLC OPTIONS

TERM & FACIL	BIU NUMBER							
	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
DETECTOR RACK	1	2	3	4	5	6	7	8
ENABLE								
PEER-PEER EN								
MMU ENABLE								
MMU STOP TIME								
DIAGNOSTIC ENABLE (TEST FIXTURE)								
CONTROLLER PEER TO PEER ENABLE								
DISABLE 3 CRITICAL RFEs LOCKUP								

1-4-3. COLOR CHECK DISABLE

DISABLE ALL COLOR CHECKS																
MMU CHANNEL	1	2	3	4	5	6	7	8								
GREEN / WALK																
YELLOW / PC																
RED / DW																
MMU CHANNEL	9	10	11	12	13	14	15	16								
GREEN / WALK																
YELLOW / PC																
RED / DW																

1-5-1 GLOBAL PORT PARAMETERS

NTCIP BACKUP TIME (SECONDS)	
PORT 2 PRIORITY	
PORT 3A PRIORITY	
PORT 3B PRIORITY	
ETHERNET PRIORITY	

1-5-1 PORT 2 (TERMINAL)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

1-5-3 PORT 3A (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
ELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

1-7-1 ADMINISTRATION

SUPERVISOR ACCESS CODE	
ENABLE CRC CHECK OF DATA BASE	
CRC OF PROGRAM DATA BASE	
REQUEST DOWNLOAD OF PROGRAMMED DATA	

1-7-2 DISPLAY OPTIONS

KEY CLICK ENABLE	
BACKLIGHT ENABLE	

1-5-4. PORT 3B (TELEMETRY)

PROTOCOL	
ENABLE	
DATA RATE (BPS)	
DATA, PARITY, STOP	
MODEM SETUP STRING	
USER STRING	
COMM. PORT ADDRESS	
SYSTEM DETECTOR 9 - 16 ADDRESS	
TELEMETRY RESPONSE DELAY	
DUPLEX HALF - FULL	
AB3418 / NTCIP GROUP ADDRESS	
AB3418 / NTCIP SINGLE FLAG ENABLE	
NTCIP PROTOCOL	
RTS TO CTS DELAY	
RTS TURN OFF DELAY	
DROP OUT TIME (in seconds)	
EARLY RTS	

1-5-5 ETHERNET PORT CONFIGURATION

IP ADDRESS					
ADDRESS MASK					
FTP SERVER ADDRESS					
DEFAULT GATEWAY ADDRESS					

1-6-1 ENABLE EVENT LOGS

CRITICAL RFE'S (MMU/TE)	
3 CRITICAL RFE ERRORS IN 24 HOURS	
NON-CRITICAL RFE'S (DET/TEST)	
DETECTOR ERRORS	
COORDINATION ERRORS	
MMU FLASH FAULTS	
LOCAL FLASH FAULTS	
PREEMPT	
POWER ON/OFF	
LOW BATTERY	
ACCESS	
DATA CHANGE	
CONTROLLER DOWNLOAD	
ALARM 1	
ALARM 2	
ALARM 3	
ALARM 4	
ALARM 5	
ALARM 6	
ALARM 7	
ALARM 8	
ALARM 9	
ALARM 10	
ALARM 11	
ALARM 12	
ALARM 13	
ALARM 14	
ALARM 15	
ALARM 16	

1-8-1 LOGIC STATEMENT CONTROL

	1	2	3	4	5	6	7	8	9	10
LP 1-										
10										
LP 11-20										
LP 21-30										
LP 31-40										
LP 41-50										
LP 51-60										
LP 61-70										
LP 71-80										
LP 81-90										
LP 91-10										

THEN				
ELSE				

1-8-1 LOGIC STATEMENT CONTROL

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR STATEMENTS

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				

LOGIC GATE NUMBER				
IF				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				

IF				
THEN				
ELSE				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

1-8-2 LOGIC PROCESSOR (CONTINUED)

LOGIC GATE NUMBER				
IF				

LOGIC GATE NUMBER				
IF				

THEN				
ELSE				

LOGIC GATE NUMBER				
IF				
THEN				
ELSE				

CONTROLLER SUBMENU

2-1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN	7	20	7	10	7	20	7	10								
BICYCLE MINIMUM GREEN																
CONDITIONAL SERVICE MINIMUM GREEN																
DELAYED GREEN																
WALK		7		7		7		7								
WALK 2																
WALK MAX																
PEDESTRIAN CLEARANCE		32		34		32		34								
PEDESTRIAN CLEARANCE 2																
PEDESTRIAN CLEARANCE MAX																
PEDESTRIAN CARRY OVER																
VEHICLE EXTENSION	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5								
VEHICLE EXTENSION 2																
MAX1	20	55	20	35	20	55	20	35								
MAX2	20	60	20	40	20	60	20	40								
MAX3																
DYNAMIC MAX																
DYNAMIC MAX STEP																
YELLOW CHANGE	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7								
RED CLRANCE	1.0	2.6	1.0	2.8	2.0	2.6	1.0	2.8								
RED MAX																
RED REVERT																
ACTUATIONS BEFORE GAP REDUCTION																
SECONDS PER ACTIONS ADDED TO INITIAL																
MAXIMUM ADDED INITIAL GREEN																
TIME BEFORE GAP REDUCTION																
CARS WAITING BEFORE GAP REDUCTION																
STEP TO REDUCE																
TIME TO REDUCE TO MINIMUM																
MINIMUM GAP																

2-2 VEHICLE OVERLAP

OVERLAP A PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP C PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP B PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP D PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT																	
NOT OVERLAP																	
TRAILING GREEN				TRAILING YELLOW						TRAILING RED							
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP E PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP G PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP F PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP H PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP I PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES TRAILING LEADING	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
ADVANCE GREEN																	
PHASES FLASH GREEN	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1

OVERLAP K PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES TRAILING LEADING	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
ADVANCE GREEN																	
PHASES FLASH GREEN	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1

OVERLAP J PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES TRAILING LEADING	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
ADVANCE GREEN																	
PHASES FLASH GREEN	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1

OVERLAP L PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES TRAILING LEADING	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
ADVANCE GREEN																	
PHASES FLASH GREEN	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1

2-2 VEHICLE OVERLAP (CONTINUED)

OVERLAP M PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP O PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP N PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

OVERLAP P PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
INCLUDED																	
PROTECTED																	
MODIFIER																	
PEDESTRIAN PROTECT NOT OVERLAP																	
TRAILING GREEN																	
TRAILING YELLOW																	
TRAILING RED																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRAILING LEADING																	
ADVANCE GREEN																	
PHASES	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
FLASH GREEN																	

2-3 PEDESTRIAN OVERLAP

PEDESTRIAN OVERLAP CONSISTS OF PHASES																
PEDESTRIAN OVERLAP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																

2-4 GUARANTEED MINIMUM TIMES

PHASE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MINIMUM GREEN																
WALK																
PEDESTRIAN CLEARANCE																
YELLOW CHANGE																
RED CLEARANCE																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
MINIMUM GREEN																

2-5 START / FLASH DATA

POWER START																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
OVERLAP																
POWER START RED									FLASH TIME							
REMOTE (AUTOMATIC) FLASH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ENTRY																
EXIT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
EXIT																
EXIT REMOTE FLASH									MINIMUM AUTOMATIC FLASH							
MINIMUM RECALL									CYCLE THROUGH PHASES							

2-6-1 CONTROLLER OPTIONS

PEDESTRIAN CLEARANCE PROTECT																
UNIT RED REVERT																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
GUARANTEE D PASSAGE																
NON-ACT I																
NON ACT II																
DUAL ENTRY																
PED RESERVICE																
REST IN WALK																
FLASHING WALK																
PED CLEAR > YELLOW																
PED CLEAR > ALL RED																
INIT GREEN + VEHICLE EXIT																

2-7 ACTUATED / PRE-TIMED MODE PHASES

ENABLE PRE-TIMED OPERATION																
FREE INPUT DISABLED PRE-TIMED																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PHASE																
PRE - TIMED																

COORDINATOR SUBMENU

3-1 COORDINATOR OPTIONS

MANUAL PATTERN	Auto		
INTERCONNECT SOURCE	TBC	INTERCONNECT FORMAT	
TRANSITION	Smooth	ECPI COORDINATION	Yes
OFFSET REFERENCE	Lead	DWELL / ADD TIME	
DELAY COORD WALK TO LOCAL ZERO	No	FORCE OFF	Float
FORCE OFF ADDED INITIAL GREEN	No	USE PED TIME FOR SMOOTH TRANSITION	No
PEDESTRIAN RECALL	No	PEDESTRIAN RESERVICE	Yes
ENABLE MANUAL SYNC INPUT		LOCAL ZERO OVERRIDE	Yes
RE-SYNC COUNT	No	MAX SELECT	MaxInh
MULTISYNC	No		

3-2 COORDINATOR PATTERN

COORDINATOR PATTERN	1	SPLIT PATTERN											
CYCLE LENGTH (SECONDS)	130	SEQUENCE											
OFFSET VALUE	12	OFFSETS IN ...	Per										
SPLITS IN	Per												
CROSSING ARTERY PATTERN													
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH											
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	1										
ACTUATED COORDINATION	Yes	TIMING PLAN											
ACTUATED REST IN WALK		PHASE RESERVICE											
1 2 3 4													
RING SPLIT EXTENSION (SECONDS)													
SPLIT DEMAND PATTERN													
RING DISPLACEMENT													
	1	2	3	4	5	8	9	1	1	1	1	1	1
PREFERENCE 1 PHASES								0	1		3		5
PREFERENCE 2 PHASES													
SPECIAL FUNCTION													
	1	2	3	4	5	8							

COORDINATOR PATTERN	2	SPLIT PATTERN											
CYCLE LENGTH (SECONDS)	120	SEQUENCE											
OFFSET VALUE	49	OFFSETS IN	Per										
SPLITS IN	Per												
CROSSING ARTERY PATTERN													
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH											
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	2										
ACTUATED COORDINATION	Yes	TIMING PLAN											
ACTUATED REST IN WALK		PHASE RESERVICE											
1 2 3 4													
RING SPLIT EXTENSION (SECONDS)													
SPLIT DEMAND PATTERN													
RING DISPLACEMENT													
	1	2	3	4	5	8	9	1	1	1	1	1	1
PREFERENCE 1 PHASES								0	1		3		5
PREFERENCE 2 PHASES													

COORDINATOR PATTERN	3	SPLIT PATTERN											
CYCLE LENGTH (SECONDS)	130	SEQUENCE											
OFFSET VALUE	12	OFFSETS IN	Per										
SPLITS IN	Per												
CROSSING ARTERY PATTERN													
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH											
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	3										
ACTUATED COORDINATION	Yes	TIMING PLAN											
ACTUATED REST IN WALK		PHASE RESERVICE											
1 2 3 4													
RING SPLIT EXTENSION (SECONDS)													
SPLIT DEMAND PATTERN													
RING DISPLACEMENT													
	1	2	3	4	5	8	9	1	1	1	1	1	1
PREFERENCE 1 PHASES								0	1		3		5
PREFERENCE 2 PHASES													

3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN	4		
CYCLE LENGTH (SECONDS)	100	SPLIT PATTERN	
OFFSET VALUE	59		
SPLITS IN	Per	OFFSETS IN	Per
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	4
ACTUATED COORDINATION	Yes	TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

COORDINATOR PATTERN	5		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	5
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1	2	3
	1	2	3
PREFER ENCE 1 PHASES			
PREFER ENCE 2 PHASES			

Per
Per

3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN			
CYCLE LENGTH (SECONDS)		SPLIT PATTERN	
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
RING SPLIT EXTENSION (SECONDS)		1	2
SPLIT DEMAND PATTERN			
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

3-2 COORDINATOR PATTERN (CONTINUED)

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN		SPLIT PATTERN	
CYCLE LENGTH (SECONDS)			
OFFSET VALUE		SEQUENCE	
SPLITS IN		OFFSETS IN	
CROSSING ARTERY PATTERN			
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH	
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN	
ACTUATED COORDINATION		TIMING PLAN	
ACTUATED REST IN WALK		PHASE RESERVICE	
		1	2
RING SPLIT EXTENSION (SECONDS)			
SPLIT DEMAND PATTERN			
		3	4
RING DISPLACEMENT			
	1 2 3 4 5	8 9	1 1 1 1
		0 1	3 5
PREFERENCE 1 PHASES			
PREFERENCE 2 PHASES			

COORDINATOR PATTERN																		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																
OFFSET VALUE		SEQUENCE																
SPLITS IN		OFFSETS IN																
CROSSING ARTERY PATTERN																		
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																
ACTUATED COORDINATION		TIMING PLAN																
ACTUATED REST IN WALK		PHASE RESERVICE																
RING SPLIT EXTENSION (SECONDS)		1	2	3	4													
SPLIT DEMAND PATTERN																		
RING DISPLACEMENT																		
		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	
PREFERENCE 1 PHASES																		
PREFERENCE 2 PHASES																		

COORDINATOR PATTERN																		
CYCLE LENGTH (SECONDS)		SPLIT PATTERN																
OFFSET VALUE		SEQUENCE																
SPLITS IN		OFFSETS IN																
CROSSING ARTERY PATTERN																		
VEHICLE PERMISSIVE 1 LENGTH		VEHICLE PERMISSIVE 2 LENGTH																
VEHICLE PERMISSIVE 2 DISPLACEMENT		ACTION PLAN																
ACTUATED COORDINATION		TIMING PLAN																
ACTUATED REST IN WALK		PHASE RESERVICE																
RING SPLIT EXTENSION (SECONDS)		1	2	3	4													
SPLIT DEMAND PATTERN																		
RING DISPLACEMENT																		
		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	
PREFERENCE 1 PHASES																		
PREFERENCE 2 PHASES																		

3-3 SPLIT PATTERN

SPLIT PATTERN NUMBER		1																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		9	53	11	27	15	47	11	27											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		2																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		12	51	12	25	12	51	12	25											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		3																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		10	53	17	20	10	53	10	27											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER		4																		
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)			X				X													
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE		12	48	12	28	12	48	12	28											
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

SPLIT PATTERN NUMBER																				
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1
COORDINATED PHASE(S)																				
PHASE		1	2	3	4	5	6	7	8											
SPLIT VALUE																				
MODE																				
PHASE		9	10	11	12	13	14	15	16											
SPLIT VALUE																				
MODE																				

3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6																
	COORDINATED PHASE(S)																
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

3-3 SPLIT PATTERN (CONTINUED)

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

SPLIT PATTERN NUMBER																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
COORDINATED PHASE(S)																	
PHASE	1	2	3	4	5	6	7	8									
SPLIT VALUE																	
MODE																	
PHASE	9	10	11	12	13	14	15	16									
SPLIT VALUE																	
MODE																	

3-4 AUTO PERMISSIVE MINIMUM GREEN TIME

PHASE	1	2	3	4	5	6	7	8								
MINIMUM GREEN																
PHASE	9	10	11	12	13	14	15	16								
MINIMUM GREEN																

3-5 SPLIT DEMAND

PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
DEMAND 1																	
DEMAND 2																	
DEMAND		1	2														
DETECTOR																	
CALL TIME (SECONDS)																	
CYCLE COUNT																	

PREEMPTOR SUBMENU

4-1 PREEMPTOR

PREEMPTOR NUMBER	1																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/ EXIT YELLOW /RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION	EXIT TIMING PLAN																			
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT	PREEMPTOR ACTIVE OUT IN DWELL																			
OTHER PRIORITY PREEMPTOR OUT	NON-PRIORITY PREEMPTOR OUT																			
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

PREEMPTOR NUMBER	2																			
ACTIVE	NON-LOCK INPUT																			
PREEMPTION OVERRIDE	INTERLOCK ENABLE																			
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																			
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																			
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																			
PED DARK	RESERVICE TIME																			
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																			
TERMINATE OVERLAPS ASAP	PED CLEAR THROUGH YELLOW																			
RING	1				2				3				4							
FREE DURING PREEMPTION																				
	WALK				PED CLEAR				GREEN				YELLOW				RED			
ENTERING MINIMUM TIME																				
TRACK CLEARANCE TIME																				
MIN DWELL – CYCLE GREEN/EXIT YELLOW/RED																				
DWELL FLASH	FLASH EXIT COLOR																			
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																				
DWELL PHASE																				
DWELL PEDESTRIAN																				
CYCLING PHASE																				
CYCLING PEDESTRIAN																				
EXIT PHASE																				
EXIT CALLS																				
SPECIAL FUNCTION																				
PREEMPTION TO COORDINATION	EXIT TIMING PLAN																			
LINKED PREEMPTOR																				
PREEMPTOR ACTIVE OUTPUTS																				
PREEMPTOR ACTIVE OUT	PREEMPTOR ACTIVE OUT IN DWELL																			
OTHER PRIORITY PREEMPTOR OUT	NON-PRIORITY PREEMPTOR OUT																			
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P				
TRACK CLEAR OVERLAP																				
DWELL OVERLAP																				
CYCLING OVERLAP																				

4-2 LOW PRIORITY PREEMPTOR SELECTION

FILTERED INPUT	SOLID	PULSING
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		3																
ACTIVE	NON-LOCK INPUT																	
PREEMPTION OVERRIDE	INTERLOCK ENABLE																	
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																	
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																	
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																	
PED DARK	RESERVICE TIME																	
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																	
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																	
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

PREEMPTOR NUMBER		4																
ACTIVE	NON-LOCK INPUT																	
PREEMPTION OVERRIDE	INTERLOCK ENABLE																	
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																	
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																	
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																	
PED DARK	RESERVICE TIME																	
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																	
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																	
RING	1	2	3	4														
FREE DURING PREEMPTION																		
	WALK	PED CLEAR	GREEN	YELLOW	RED													
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		5															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		6															
ACTIVE	NON-LOCK INPUT																
PREEMPTION OVERRIDE	INTERLOCK ENABLE																
DELAY TIME (SECONDS)	INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)	MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)	TRACK CLEARANCE RESERVICE																
PED DARK	RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY	RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP	PC THROUGH YELLOW																
RING	1	2	3	4													
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		7															
ACTIVE		NON-LOCK INPUT															
PREEMPTION OVERRIDE		INTERLOCK ENABLE															
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)															
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)															
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE															
PED DARK		RESERVICE TIME															
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN															
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW															
RING	1	2	3														
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN														
			YELLOW														
			RED														
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

PREEMPTOR NUMBER		8															
ACTIVE		NON-LOCK INPUT															
PREEMPTION OVERRIDE		INTERLOCK ENABLE															
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)															
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)															
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE															
PED DARK		RESERVICE TIME															
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN															
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW															
RING	1	2	3														
FREE DURING PREEMPTION																	
	WALK	PED CLEAR	GREEN														
			YELLOW														
			RED														
ENTERING MINIMUM TIME																	
TRACK CLEARANCE TIME																	
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																	
DWELL FLASH		FLASH EXIT COLOR															
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																	
DWELL PHASE																	
DWELL PEDESTRIAN																	
CYCLING PHASE																	
CYCLING PEDESTRIAN																	
EXIT PHASE																	
EXIT CALLS																	
SPECIAL FUNCTION																	
PREEMPTION TO COORDINATION		EXIT TIMING PLAN															
LINKED PREEMPTOR																	
PREEMPTOR ACTIVE OUTPUTS																	
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL															
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT															
OVERLAP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																	
DWELL OVERLAP																	
CYCLING OVERLAP																	

4-1 PREEMPTOR (CONTINUED)

PREEMPTOR NUMBER		9																
ACTIVE		NON-LOCK INPUT																
PREEMPTION OVERRIDE		INTERLOCK ENABLE																
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																
PED DARK		RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																
RING		1	2	3	4													
FREE DURING PREEMPTION																		
		WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

PREEMPTOR NUMBER		10																
ACTIVE		NON-LOCK INPUT																
PREEMPTION OVERRIDE		INTERLOCK ENABLE																
DELAY TIME (SECONDS)		INHIBIT TIME (SECONDS)																
EXTEND INPUT (SECONDS)		MAX PRESENCE TIME (SECONDS)																
DURATION TIME (SECONDS)		TRACK CLEARANCE RESERVICE																
PED DARK		RESERVICE TIME																
AUTOMATIC FLASH HAS PRIORITY		RED CLEAR GOES GREEN																
TERMINATE OVERLAPS ASAP		PC THROUGH YELLOW																
RING		1	2	3	4													
FREE DURING PREEMPTION																		
		WALK	PED CLEAR	GREEN	YELLOW	RED												
ENTERING MINIMUM TIME																		
TRACK CLEARANCE TIME																		
MIN DWELL - CYCLE GREEN/ EXIT YELLOW /RED																		
DWELL FLASH		FLASH EXIT COLOR																
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
TRACK CLEAR PHASE																		
DWELL PHASE																		
DWELL PEDESTRIAN																		
CYCLING PHASE																		
CYCLING PEDESTRIAN																		
EXIT PHASE																		
EXIT CALLS																		
SPECIAL FUNCTION																		
PREEMPTION TO COORDINATION		EXIT TIMING PLAN																
LINKED PREEMPTOR																		
PREEMPTOR ACTIVE OUTPUTS																		
PREEMPTOR ACTIVE OUT		PREEMPTOR ACTIVE OUT IN DWELL																
OTHER PRIORITY PREEMPTOR OUT		NON-PRIORITY PREEMPTOR OUT																
OVERLAP		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
TRACK CLEAR OVERLAP																		
DWELL OVERLAP																		
CYCLING OVERLAP																		

TIME BASE SUBMENU

5-1 CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL ACTION PLAN	
SYNC REFERENCE TIME	
SYNC REFERENCE	
DAYLIGHT SAVINGS	
TIME RESET INPUT TIME SET	
STANDARD TIME FROM GMT	

5-2 SCHEDULE

SCHEDULE NUMBER	1
DAY PLAN NUMBER	1

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
		x	x	x	x	x				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	1
DAY PLAN NUMBER	2

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
	x						x			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER	
DAY PLAN NUMBER	

MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE				
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER				
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT			
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31									

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

SCHEDULE NUMBER											
DAY PLAN NUMBER											
MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE					
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER					
DAY OF WEEK (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT				
DAY OF MONTH (DOM)	1	2	3	4	5	6	7	8	9	10	
	11	12	13	14	15	16	17	18	19	20	
	21	22	23	24	25	26	27	28	29	30	
	31										

PATTERN		1		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION																		(1-3)
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN		3		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION																		(1-3)
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN		2		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION																		(1-3)
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN		4		SYSTEM OVERRIDE														
VEHICLE DETECTOR PLAN				DETECTOR LOG														
FLASH																		
RED REST				VEHICLE DET DIAGNOSTIC PLAN														
CONTROLLER SEQUENCE				PED DET DIAGNOSTIC PLAN														
TIMING PLAN				DIMMING ENABLE														
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION																		(1-3)
		1	2	3	4	5	6	7	8	9	10							
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN		5																
PATTERN	5										SYSTEM OVERRIDE							
VEHICLE DETECTOR PLAN											DETECTOR LOG							
FLASH																		
RED REST											VEHICLE DET DIAGNOSTIC PLAN							
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN							
TIMING PLAN											DIMMING ENABLE							
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION				(1-3)														
	1	2	3	4	5	6	7	8	9	10								
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN																		
PATTERN											SYSTEM OVERRIDE							
VEHICLE DETECTOR PLAN											DETECTOR LOG							
FLASH																		
RED REST											VEHICLE DET DIAGNOSTIC PLAN							
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN							
TIMING PLAN											DIMMING ENABLE							
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION				(1-3)														
	1	2	3	4	5	6	7	8	9	10								
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN																		
PATTERN											SYSTEM OVERRIDE							
VEHICLE DETECTOR PLAN											DETECTOR LOG							
FLASH																		
RED REST											VEHICLE DET DIAGNOSTIC PLAN							
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN							
TIMING PLAN											DIMMING ENABLE							
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION				(1-3)														
	1	2	3	4	5	6	7	8	9	10								
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

ACTION PLAN																		
PATTERN											SYSTEM OVERRIDE							
VEHICLE DETECTOR PLAN											DETECTOR LOG							
FLASH																		
RED REST											VEHICLE DET DIAGNOSTIC PLAN							
CONTROLLER SEQUENCE											PED DET DIAGNOSTIC PLAN							
TIMING PLAN											DIMMING ENABLE							
PHASE	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
PED RECALL																		
WALK 2																		
VEH EXT 2																		
VEH RECALL																		
MAX RECALL																		
MAX 2																		
MAX 3																		
CS INHIBIT																		
PHASE OMIT																		
SPEC FUNCTION																		(1-8)
AUX FUNCTION				(1-3)														
	1	2	3	4	5	6	7	8	9	10								
LP 1-10																		
LP 11-20																		
LP 21-30																		
LP 31-40																		
LP 41-50																		
LP 51-60																		
LP 61-70																		
LP 71-80																		
LP 81-90																		
LP 91-100																		

5-5 EXCEPTION DAY PROGRAM

EXCEPTION DAY	FLOAT / FIXED	MON / MON	DOW / DOM	WOM / YEAR	DAY PLAN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
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22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

DETECTORS

6-1. DETECTOR TYPE AND TS SELECT

DET	TYPE	TS1 DETECTOR
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		

DET	TYPE	TS1 DETECTOR
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
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61		
62		
63		
64		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

6-2 VEHICLE DETECTOR SETUP

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER		
DETECTOR NUMBER		
ASSIGNED PHASE		ADDED INITIAL OPTION
SWITCH PHASE		CALL DETECTOR OPTION
EXTEND TIME		PASSAGE DETECTOR OPTION
DELAY TIME		QUEUE DETECTOR OPTION
QUEUE LIMIT		NTCIP OCCUPANCY LOG
FAIL TIME		NTCIP VOLUME LOG
FAIL CALL DELAY		ECPI LOG
YELLOW LOCK		RED LOCK
PHASE	1 2 3 4 5 6 7 8 9 0 1 1 1 1 1 1 1	
CALLED		

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

VEHICLE PLAN NUMBER																			
DETECTOR NUMBER																			
ASSIGNED PHASE		ADDED INITIAL OPTION																	
SWITCH PHASE		CALL DETECTOR OPTION																	
EXTEND TIME		PASSAGE DETECTOR OPTION																	
DELAY TIME		QUEUE DETECTOR OPTION																	
QUEUE LIMIT		NTCIP OCCUPANCY LOG																	
FAIL TIME		NTCIP VOLUME LOG																	
FAIL CALL DELAY		ECPI LOG																	
YELLOW LOCK		RED LOCK																	
PHASE		1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	1
CALLED																			

6-3 PHASE DETECTOR OPTIONS

PHASE DETECTOR OPTION PLAN NUMBER										1						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										2						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										3						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

PHASE DETECTOR OPTION PLAN NUMBER										4						
PHASE	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1
DETECTOR LOCK																
VEH RECALL																
PED RECALL																
MAX RECALL																
SOFT RECALL																
NO REST																
ADD INIT CALC																

6-4 PEDESTRIAN AND SYSTEM DETECTOR OPTIONS

PHASE PEDESTRIAN DETECTOR								
	1	2	3	4	5	6	7	8
PED DET INPUT								
	9	10	11	12	13	14	15	16
PED DET INPUT								
LOCAL SYSTEM DETECTOR								
	1	2	3	4	5	6	7	8
VEH DET INPUT								
	9	10	11	12	13	14	15	16
VEH DET INPUT								

6-5 LOG – SPEED DETECTOR SET UP

NTCIP LOG PERIOD								
ECPI LOG PERIOD								
LENGTH UNIT								
SPEED DETECTOR	1	2	3	4	5	6	7	8
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								
SPEED DETECTOR	9	10	11	12	13	14	15	16
LOCAL DETECTOR								
ONE / TWO DET								
VEH LENGTH								
TRAP LENGTH								
ENABLE LOG								

6-6 VEHICLE DETECTOR DIAGNOSTICS

VEHICLE DIAGNOSTIC PLAN NUMBER					1
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					2
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

**6-6 VEHICLE DETECTOR DIAGNOSTICS
(CONTINUED)**

VEHICLE DIAGNOSTIC PLAN NUMBER					3
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

VEHICLE DIAGNOSTIC PLAN NUMBER					4
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	
1					33
2					34
3					35
4					36
5					37
6					38
7					39
8					40
9					41
10					42
11					43
12					44
13					45
14					46
15					47
16					48
17					49
18					50
19					51
20					52
21					53
22					54
23					55
24					56
25					57
26					58
27					59
28					60
29					61
30					62
31					63
32					64

6-7 PEDESTRIAN DETECTOR DIAGNOSTICS

PED DIAGNOSTIC PLAN NUMBER 1					PED DIAGNOSTIC PLAN NUMBER 2				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					1				
2					2				
3					3				
4					4				
5					5				
6					6				
7					7				
8					8				
9					9				
10					10				
11					11				
12					12				
13					13				
14					14				
15					15				
16					16				

PED DIAGNOSTIC PLAN NUMBER 3					PED DIAGNOSTIC PLAN NUMBER 4				
DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER	DET	COUNTS	ACTUATIONS	PRESENCE	MULTIPLIER
1					1				
2					2				
3					3				
4					4				
5					5				
6					6				
7					7				
8					8				
9					9				
10					10				
11					11				
12					12				
13					13				
14					14				
15					15				
16					16				

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Appendix E

HV% Calculations

AM/PM Intersection

1

Ninth Line / Dundas Street East

AM
verify results after output
PM
verify results after output

	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	15	14	10	11	92	8	6	20	0	4	32	7
PM	6	13	13	3	19	4	2	15	0	1	40	5
SAT												
	10%(2%)	4%(2%)	6%(2%)	6%(3%)	10%(2%)	6%(2%)	3%(2%)	3%(4%)	2%(2%)	2%(2%)	2%(3%)	3%(4%)

2

Glen Oaks Access / Ninth Line / Future Site Access

	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	0	26						29	0	0		0
PM	0	18						15	0	0		0
SAT												
	2%(2%)	4%(2%)	2%(2%)	2%(2%)	2%(2%)	2%(2%)	2%(2%)	3%(2%)	2%(2%)	2%(2%)	2%(2%)	2%(2%)

Appendix F

2022 Existing Synchro Intersection Worksheets

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

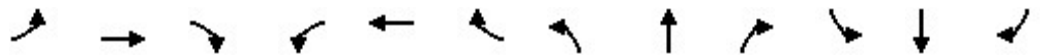
2023 Existing AM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	2055	258	173	961	129	147	315	167	239	574	149
Future Volume (vph)	171	2055	258	173	961	129	147	315	167	239	574	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850			0.850			0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478
Fl _t Permitted	0.188			0.065			0.171			0.402		
Satd. Flow (perm)	339	5085	1491	113	4715	1449	276	3433	1422	692	3466	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			180			145			188			167
Link Speed (k/h)		70			60			60			60	
Link Distance (m)		293.2			329.1			188.2			95.5	
Travel Time (s)		15.1			19.7			11.3			5.7	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	192	2309	290	194	1080	145	165	354	188	269	645	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	2309	290	194	1080	145	165	354	188	269	645	167
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.0			3.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2023 Existing AM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	52.9	52.9	11.0	52.9	52.9	11.0	56.0	56.0	11.0	56.0	56.0
Total Split (s)	20.0	60.0	60.0	20.0	60.0	60.0	20.0	40.0	40.0	20.0	40.0	40.0
Total Split (%)	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%	14.3%	28.6%	28.6%	14.3%	28.6%	28.6%
Maximum Green (s)	16.0	53.1	53.1	16.0	53.1	53.1	16.0	33.0	33.0	16.0	33.0	33.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	79.8	59.7	59.7	82.2	61.4	61.4	53.4	31.5	31.5	54.9	32.6	32.6
Actuated g/C Ratio	0.57	0.43	0.43	0.59	0.44	0.44	0.38	0.22	0.22	0.39	0.23	0.23
v/c Ratio	0.55	1.06	0.39	0.74	0.52	0.20	0.62	0.46	0.40	0.67	0.80	0.35
Control Delay	20.3	78.0	12.6	50.9	30.8	4.7	38.6	48.3	8.2	39.3	58.7	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	78.0	12.6	50.9	30.8	4.7	38.6	48.3	8.2	39.3	58.7	8.0
LOS	C	E	B	D	C	A	D	D	A	D	E	A
Approach Delay		67.2			30.9			35.4			46.0	
Approach LOS		E			C			D			D	
Queue Length 50th (m)	22.8	~253.9	18.4	33.9	75.6	0.0	27.3	40.3	0.0	47.4	80.8	0.0
Queue Length 95th (m)	34.9	#273.8	39.4	#61.4	91.0	11.8	41.9	53.1	16.5	67.6	99.1	15.9
Internal Link Dist (m)		269.2			305.1			164.2			71.5	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	384	2169	739	276	2067	716	277	858	496	399	866	494
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	1.06	0.39	0.70	0.52	0.20	0.60	0.41	0.38	0.67	0.74	0.34

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	100 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	155
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.06
Intersection Signal Delay:	51.1
Intersection LOS:	D

Intersection Capacity Utilization 88.3% ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2023 Existing AM
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	171	2055	258	173	961	129	147	315	167	239	574	149	
Future Volume (vph)	171	2055	258	173	961	129	147	315	167	239	574	149	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478	
Flt Permitted	0.19	1.00	1.00	0.06	1.00	1.00	0.17	1.00	1.00	0.40	1.00	1.00	
Satd. Flow (perm)	339	5085	1491	112	4715	1449	275	3433	1422	693	3466	1478	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	192	2309	290	194	1080	145	165	354	188	269	645	167	
RTOR Reduction (vph)	0	0	103	0	0	81	0	0	146	0	0	128	
Lane Group Flow (vph)	192	2309	187	194	1080	64	165	354	42	269	645	39	
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		7	4		3	8		
Permitted Phases	2		2	6		6	4		4	8		8	
Actuated Green, G (s)	70.9	57.8	57.8	74.3	59.5	59.5	44.4	29.5	29.5	46.6	30.6	30.6	
Effective Green, g (s)	76.9	59.7	59.7	79.6	61.4	61.4	50.4	31.5	31.5	52.5	32.6	32.6	
Actuated g/C Ratio	0.55	0.43	0.43	0.57	0.44	0.44	0.36	0.22	0.22	0.38	0.23	0.23	
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	343	2168	635	258	2067	635	259	772	319	387	807	344	
v/s Ratio Prot	0.06	c0.45		c0.10	0.23		0.08	0.10		c0.09	c0.19		
v/s Ratio Perm	0.24		0.13	0.33		0.04	0.15		0.03	0.17		0.03	
v/c Ratio	0.56	1.07	0.29	0.75	0.52	0.10	0.64	0.46	0.13	0.70	0.80	0.11	
Uniform Delay, d1	17.5	40.1	26.3	41.0	28.6	23.1	33.8	46.9	43.3	33.1	50.6	42.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	39.4	1.2	12.0	0.9	0.3	5.3	0.5	0.2	5.5	5.7	0.2	
Delay (s)	19.7	79.5	27.5	53.0	29.6	23.4	39.1	47.4	43.6	38.6	56.3	42.5	
Level of Service	B	E	C	D	C	C	D	D	D	D	E	D	
Approach Delay (s)		70.0			32.1			44.4			49.8		
Approach LOS		E			C			D			D		
Intersection Summary													
HCM 2000 Control Delay			54.4									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			88.3%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2023 Existing AM
3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	2055	258	173	961	129	147	315	167	239	574	149
Future Volume (veh/h)	171	2055	258	173	961	129	147	315	167	239	574	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1811	1752	1811	1682	1841	1739	1781	1856	1796
Adj Flow Rate, veh/h	192	2309	290	194	1080	145	165	354	188	269	645	167
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	3	6	10	6	10	4	6	3	3	2
Cap, veh/h	365	2326	705	251	2288	723	268	726	306	379	808	349
Arrive On Green	0.09	0.46	0.46	0.12	0.48	0.48	0.11	0.21	0.21	0.14	0.23	0.23
Sat Flow, veh/h	1781	5106	1547	1725	4782	1510	1602	3497	1473	1696	3526	1522
Grp Volume(v), veh/h	192	2309	290	194	1080	145	165	354	188	269	645	167
Grp Sat Flow(s),veh/h/ln	1781	1702	1547	1725	1594	1510	1602	1749	1473	1696	1763	1522
Q Serve(g_s), s	7.5	62.9	17.6	10.9	21.3	7.8	10.8	12.5	16.2	16.8	24.2	13.3
Cycle Q Clear(g_c), s	7.5	62.9	17.6	10.9	21.3	7.8	10.8	12.5	16.2	16.8	24.2	13.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	365	2326	705	251	2288	723	268	726	306	379	808	349
V/C Ratio(X)	0.53	0.99	0.41	0.77	0.47	0.20	0.61	0.49	0.61	0.71	0.80	0.48
Avail Cap(c_a), veh/h	442	2326	705	286	2288	723	303	874	368	379	881	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	37.9	25.5	42.8	24.6	21.1	37.6	48.9	50.4	34.8	50.9	46.7
Incr Delay (d2), s/veh	1.4	17.0	1.8	11.4	0.7	0.6	3.4	0.6	2.6	6.3	5.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	31.2	7.3	7.7	8.9	3.1	4.8	5.8	6.5	8.0	11.8	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	54.9	27.3	54.2	25.3	21.7	41.0	49.5	52.9	41.2	55.9	47.9
LnGrp LOS	B	D	C	D	C	C	D	D	D	D	E	D
Approach Vol, veh/h		2791			1419			707			1081	
Approach Delay, s/veh		49.6			28.9			48.4			51.0	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.2	68.8	20.0	34.1	13.9	72.0	17.0	37.1				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	16.0	* 53	16.0	33.0	16.0	* 53	16.0	33.0				
Max Q Clear Time (g_c+I1), s	12.9	65.9	18.8	18.2	9.5	24.3	12.8	27.2				
Green Ext Time (p_c), s	0.2	0.0	0.0	3.5	0.4	19.3	0.2	2.9				

Intersection Summary

HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access

2023 Existing AM
3855 Dundas Street East



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	4	21	598	960	5
Future Volume (vph)	3	4	21	598	960	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.923				0.999	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1608	0	0	3428	1822	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1608	0	0	3428	1822	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	47.4			51.2	157.3	
Travel Time (s)	2.8			3.1	9.4	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%
Adj. Flow (vph)	3	4	22	636	1021	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	658	1026	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	60.8%			ICU Level of Service B		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access

2023 Existing AM
3855 Dundas Street East



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	4	21	598	960	5
Future Volume (Veh/h)	3	4	21	598	960	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	3	4	22	636	1021	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)	147					
pX, platoon unblocked	0.92					
vC, conflicting volume	1386	1024	1026			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1242	1024	1026			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	97			
cM capacity (veh/h)	148	233	673			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	7	234	424	1026		
Volume Left	3	22	0	0		
Volume Right	4	0	0	5		
cSH	187	673	1700	1700		
Volume to Capacity	0.04	0.03	0.25	0.60		
Queue Length 95th (m)	0.8	0.7	0.0	0.0		
Control Delay (s)	25.0	1.3	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	25.0	0.5	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay	0.3					
Intersection Capacity Utilization	60.8%			ICU Level of Service	B	
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2023 Existing PM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156
Future Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00			1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5036	1477	1694	5085	1506	1652	3500	1478	1652	3433	1478
Flt Permitted	0.067			0.107			0.432			0.110		
Satd. Flow (perm)	121	5036	1455	191	5085	1506	751	3500	1478	191	3433	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			160			258			161
Link Speed (k/h)		70			60			60				60
Link Distance (m)		293.2			329.1			188.2				95.5
Travel Time (s)		15.1			19.7			11.3				5.7
Confl. Peds. (#/hr)			3	3			1					1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	158	1392	146	116	2149	239	260	846	542	187	344	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	1392	146	116	2149	239	260	846	542	187	344	161
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.0				3.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2023 Existing PM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	52.9	52.9	11.0	52.9	52.9	11.0	56.0	56.0	11.0	56.0	56.0
Total Split (s)	20.0	60.0	60.0	20.0	60.0	60.0	20.0	40.0	40.0	20.0	40.0	40.0
Total Split (%)	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%	14.3%	28.6%	28.6%	14.3%	28.6%	28.6%
Maximum Green (s)	16.0	53.1	53.1	16.0	53.1	53.1	16.0	33.0	33.0	16.0	33.0	33.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	79.0	60.1	60.1	75.9	58.0	58.0	58.3	36.3	36.3	56.9	35.2	35.2
Actuated g/C Ratio	0.56	0.43	0.43	0.54	0.41	0.41	0.42	0.26	0.26	0.41	0.25	0.25
v/c Ratio	0.63	0.64	0.21	0.46	1.02	0.33	0.60	0.93	0.94	0.72	0.40	0.33
Control Delay	39.1	33.6	4.6	20.5	65.4	11.0	34.6	68.3	52.8	47.0	45.3	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	33.6	4.6	20.5	65.4	11.0	34.6	68.3	52.8	47.0	45.3	7.8
LOS	D	C	A	C	E	B	C	E	D	D	D	A
Approach Delay		31.6			58.1			57.9				37.0
Approach LOS		C			E			E				D
Queue Length 50th (m)	23.6	100.5	0.0	13.3	~214.7	12.4	45.0	113.0	81.7	30.8	38.7	0.0
Queue Length 95th (m)	45.3	123.1	12.2	22.2	#248.6	31.3	66.2	#151.0	#149.4	55.2	52.3	16.1
Internal Link Dist (m)		269.2			305.1			164.2				71.5
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	284	2162	707	311	2105	717	435	907	574	277	864	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.64	0.21	0.37	1.02	0.33	0.60	0.93	0.94	0.68	0.40	0.33

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 100 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 48.9 Intersection LOS: D

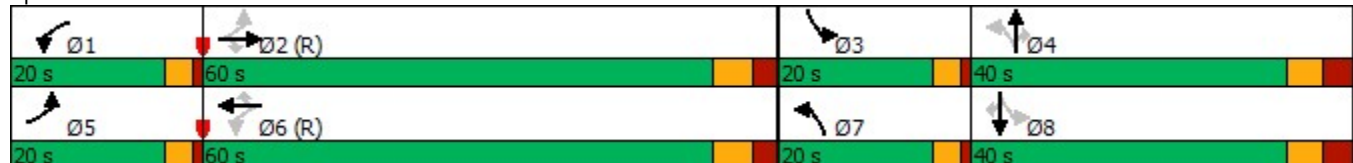
Intersection Capacity Utilization 96.5% ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East






























2023 Existing PM
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156	
Future Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	5036	1455	1694	5085	1506	1651	3500	1478	1652	3433	1459	
Flt Permitted	0.07	1.00	1.00	0.11	1.00	1.00	0.43	1.00	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	120	5036	1455	190	5085	1506	751	3500	1478	192	3433	1459	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	158	1392	146	116	2149	239	260	846	542	187	344	161	
RTOR Reduction (vph)	0	0	83	0	0	94	0	0	191	0	0	121	
Lane Group Flow (vph)	158	1392	63	116	2149	145	260	846	351	187	344	40	
Confl. Peds. (#/hr)			3	3			1					1	
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		7	4		3	8		
Permitted Phases	2		2	6		6	4		4	8		8	
Actuated Green, G (s)	71.3	58.2	58.2	67.1	56.1	56.1	50.0	34.3	34.3	47.8	33.2	33.2	
Effective Green, g (s)	76.2	60.1	60.1	73.1	58.0	58.0	55.9	36.3	36.3	53.8	35.2	35.2	
Actuated g/C Ratio	0.54	0.43	0.43	0.52	0.41	0.41	0.40	0.26	0.26	0.38	0.25	0.25	
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	248	2161	624	249	2106	623	420	907	383	257	863	366	
v/s Ratio Prot	c0.07	0.28		0.05	c0.42		c0.08	c0.24		c0.09	0.10		
v/s Ratio Perm	0.27		0.04	0.20		0.10	0.16		0.24	0.19		0.03	
v/c Ratio	0.64	0.64	0.10	0.47	1.02	0.23	0.62	0.93	0.92	0.73	0.40	0.11	
Uniform Delay, d1	35.6	31.5	23.8	20.5	41.0	26.6	30.3	50.7	50.4	33.5	43.6	40.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.5	1.5	0.3	1.6	24.9	0.9	2.8	16.2	26.4	10.2	0.4	0.2	
Delay (s)	41.2	33.0	24.1	22.1	65.9	27.5	33.1	66.8	76.8	43.7	44.0	40.5	
Level of Service	D	C	C	C	E	C	C	E	E	D	D	D	
Approach Delay (s)		33.0			60.2			64.8			43.1		
Approach LOS		C			E			E			D		
Intersection Summary													
HCM 2000 Control Delay			52.5		HCM 2000 Level of Service						D		
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			140.0		Sum of lost time (s)						12.0		
Intersection Capacity Utilization			96.5%		ICU Level of Service						F		
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2023 Existing PM
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 		 		
Traffic Volume (veh/h)	153	1350	142	113	2085	232	252	821	526	181	334	156
Future Volume (veh/h)	153	1350	142	113	2085	232	252	821	526	181	334	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1856	1870	1870	1796	1870	1796	1796	1841	1796
Adj Flow Rate, veh/h	158	1392	146	116	2149	239	260	846	542	187	344	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	3	4	3	2	2	2	2	2	2	4	2
Cap, veh/h	220	2416	731	270	2346	715	416	888	380	259	807	351
Arrive On Green	0.09	0.48	0.48	0.07	0.46	0.46	0.14	0.25	0.25	0.12	0.23	0.23
Sat Flow, veh/h	1781	5066	1532	1767	5106	1557	1710	3554	1520	1710	3497	1520
Grp Volume(v), veh/h	158	1392	146	116	2149	239	260	846	542	187	344	161
Grp Sat Flow(s),veh/h/ln	1781	1689	1532	1767	1702	1557	1710	1777	1520	1710	1749	1520
Q Serve(g_s), s	7.0	27.7	7.7	4.5	55.0	13.7	15.4	32.8	35.0	11.1	11.7	12.8
Cycle Q Clear(g_c), s	7.0	27.7	7.7	4.5	55.0	13.7	15.4	32.8	35.0	11.1	11.7	12.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	220	2416	731	270	2346	715	416	888	380	259	807	351
V/C Ratio(X)	0.72	0.58	0.20	0.43	0.92	0.33	0.63	0.95	1.43	0.72	0.43	0.46
Avail Cap(c_a), veh/h	304	2416	731	385	2346	715	416	888	380	292	874	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	26.4	21.2	19.8	35.3	24.2	31.9	51.7	52.5	36.7	45.9	46.3
Incr Delay (d2), s/veh	5.8	1.0	0.6	1.3	7.1	1.3	3.2	19.6	206.6	7.9	0.4	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	12.3	3.2	2.1	25.6	5.7	7.2	17.7	35.8	5.5	5.5	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	27.4	21.8	21.1	42.4	25.4	35.1	71.3	259.1	44.6	46.4	47.5
LnGrp LOS	D	C	C	C	D	C	D	E	F	D	D	D
Approach Vol, veh/h		1696			2504			1648			692	
Approach Delay, s/veh		28.3			39.8			127.4			46.1	
Approach LOS		C			D			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	71.8	17.3	40.0	13.4	69.3	20.0	37.3				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	16.0	* 53	16.0	33.0	16.0	* 53	16.0	33.0				
Max Q Clear Time (g_c+I1), s	6.5	30.7	13.1	37.0	9.0	57.0	17.4	14.8				
Green Ext Time (p_c), s	0.3	18.5	0.2	0.0	0.4	0.0	0.0	3.5				
Intersection Summary												
HCM 6th Ctrl Delay			59.5									
HCM 6th LOS			E									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access

2023 Existing PM
3855 Dundas Street East



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	38	22	1177	637	5
Future Volume (vph)	11	38	22	1177	637	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.895				0.999	
Flt Protected	0.989			0.999		
Satd. Flow (prot)	1576	0	0	3496	1840	0
Flt Permitted	0.989			0.999		
Satd. Flow (perm)	1576	0	0	3496	1840	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	47.4			51.2	158.7	
Travel Time (s)	2.8			3.1	9.5	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	11	39	23	1213	657	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	0	1236	662	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	58.8%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access

2023 Existing PM
3855 Dundas Street East



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	38	22	1177	637	5
Future Volume (Veh/h)	11	38	22	1177	637	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	11	39	23	1213	657	5
Pedestrians				2		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.1		
Percent Blockage				0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				147		
pX, platoon unblocked	0.76					
vC, conflicting volume	1312	662	662			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	792	662	662			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	90	98			
cM capacity (veh/h)	243	404	922			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	50	427	809	662		
Volume Left	11	23	0	0		
Volume Right	39	0	0	5		
cSH	353	922	1700	1700		
Volume to Capacity	0.14	0.02	0.48	0.39		
Queue Length 95th (m)	3.4	0.5	0.0	0.0		
Control Delay (s)	16.9	0.8	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	16.9	0.3				
Approach LOS	C					
Intersection Summary						
Average Delay	0.6					
Intersection Capacity Utilization	58.8%			ICU Level of Service	B	
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2023 Existing PM Optimized
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156
Future Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00			1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5036	1477	1694	5085	1506	1652	3500	1478	1652	3433	1478
Flt Permitted	0.061			0.109			0.519			0.107		
Satd. Flow (perm)	110	5036	1455	194	5085	1506	902	3500	1478	186	3433	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			166			59			144
Link Speed (k/h)		70			60			60				60
Link Distance (m)		293.2			329.1			188.2				95.5
Travel Time (s)		15.1			19.7			11.3				5.7
Confl. Peds. (#/hr)			3	3			1					1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	158	1392	146	116	2149	239	260	846	542	187	344	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	1392	146	116	2149	239	260	846	542	187	344	161
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.0				3.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2023 Existing PM Optimized
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.0	52.9	52.9	11.0	52.9	52.9	11.0	56.0	11.0	11.0	56.0	56.0
Total Split (s)	12.0	67.0	67.0	13.0	68.0	68.0	11.0	50.0	13.0	15.0	54.0	54.0
Total Split (%)	8.3%	46.2%	46.2%	9.0%	46.9%	46.9%	7.6%	34.5%	9.0%	10.3%	37.2%	37.2%
Maximum Green (s)	8.0	60.1	60.1	9.0	61.1	61.1	7.0	43.0	9.0	11.0	47.0	47.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0			15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	80.8	64.9	64.9	80.3	64.3	64.3	56.0	42.0	58.1	61.0	46.0	46.0
Actuated g/C Ratio	0.56	0.45	0.45	0.55	0.44	0.44	0.39	0.29	0.40	0.42	0.32	0.32
v/c Ratio	0.79	0.62	0.20	0.50	0.95	0.31	0.65	0.83	0.86	0.85	0.32	0.29
Control Delay	59.1	32.5	4.3	23.1	50.0	9.5	39.6	56.2	50.2	63.9	38.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	32.5	4.3	23.1	50.0	9.5	39.6	56.2	50.2	63.9	38.0	8.2
LOS	E	C	A	C	D	A	D	E	D	E	D	A
Approach Delay		32.6			44.9			51.6			38.1	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	27.4	105.5	0.0	14.3	201.5	11.4	45.7	108.6	114.7	31.3	35.6	3.1
Queue Length 95th (m)	#65.9	120.3	11.9	24.1	#235.3	28.3	65.5	130.2	#165.6	#68.5	47.2	17.9
Internal Link Dist (m)		269.2			305.1			164.2			71.5	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	201	2254	731	234	2253	760	400	1086	629	219	1160	588
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.62	0.20	0.50	0.95	0.31	0.65	0.78	0.86	0.85	0.30	0.27

Intersection Summary

Area Type: Other
 Cycle Length: 145
 Actuated Cycle Length: 145
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 145
 Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 42.7	Intersection LOS: D
Intersection Capacity Utilization 96.5%	ICU Level of Service F
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1: Ninth Line & Dundas Street East

 Ø1	 Ø2 (R)	 Ø3	 Ø4
13 s	67 s	15 s	50 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	68 s	11 s	54 s

HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2023 Existing PM Optimized
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156	
Future Volume (vph)	153	1350	142	113	2085	232	252	821	526	181	334	156	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	5036	1455	1694	5085	1506	1651	3500	1478	1652	3433	1459	
Flt Permitted	0.06	1.00	1.00	0.11	1.00	1.00	0.52	1.00	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	109	5036	1455	195	5085	1506	902	3500	1478	187	3433	1459	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	158	1392	146	116	2149	239	260	846	542	187	344	161	
RTOR Reduction (vph)	0	0	81	0	0	92	0	0	37	0	0	98	
Lane Group Flow (vph)	158	1392	65	116	2149	147	260	846	505	187	344	63	
Confl. Peds. (#/hr)			3	3			1					1	
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		7	4	1	3	8		
Permitted Phases	2		2	6		6	4		4	8		8	
Actuated Green, G (s)	72.7	63.0	63.0	71.5	62.4	62.4	47.0	40.0	49.1	55.0	44.0	44.0	
Effective Green, g (s)	78.7	64.9	64.9	77.5	64.3	64.3	53.0	42.0	53.1	58.0	46.0	46.0	
Actuated g/C Ratio	0.54	0.45	0.45	0.53	0.44	0.44	0.37	0.29	0.37	0.40	0.32	0.32	
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	4.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	199	2254	651	229	2254	667	381	1013	541	216	1089	462	
v/s Ratio Prot	c0.07	0.28		0.04	c0.42		0.05	0.24	c0.07	c0.08	0.10		
v/s Ratio Perm	0.36		0.04	0.23		0.10	0.20		0.27	0.26		0.04	
v/c Ratio	0.79	0.62	0.10	0.51	0.95	0.22	0.68	0.84	0.93	0.87	0.32	0.14	
Uniform Delay, d1	40.9	30.6	23.2	20.5	38.9	24.9	36.4	48.3	44.2	34.0	37.6	35.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.7	1.3	0.3	2.1	10.8	0.8	5.2	6.2	23.4	28.9	0.2	0.2	
Delay (s)	60.7	31.9	23.5	22.6	49.7	25.6	41.6	54.5	67.7	63.0	37.8	35.5	
Level of Service	E	C	C	C	D	C	D	D	E	E	D	D	
Approach Delay (s)		33.8			46.1			56.8			44.0		
Approach LOS		C			D			E			D		
Intersection Summary													
HCM 2000 Control Delay			45.4		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.92										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					13.0			
Intersection Capacity Utilization			96.5%		ICU Level of Service					F			
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2023 Existing PM Optimized
3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	153	1350	142	113	2085	232	252	821	526	181	334	156
Future Volume (veh/h)	153	1350	142	113	2085	232	252	821	526	181	334	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1856	1870	1870	1796	1870	1796	1796	1841	1796
Adj Flow Rate, veh/h	158	1392	146	116	2149	239	260	846	542	187	344	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	3	4	3	2	2	2	2	2	2	4	2
Cap, veh/h	189	2236	676	249	2219	676	401	1103	566	253	1182	514
Arrive On Green	0.08	0.44	0.44	0.07	0.43	0.43	0.07	0.31	0.31	0.10	0.34	0.34
Sat Flow, veh/h	1781	5066	1532	1767	5106	1556	1710	3554	1520	1710	3497	1520
Grp Volume(v), veh/h	158	1392	146	116	2149	239	260	846	542	187	344	161
Grp Sat Flow(s),veh/h/ln	1781	1689	1532	1767	1702	1556	1710	1777	1520	1710	1749	1520
Q Serve(g_s), s	8.2	30.7	8.5	5.0	59.6	14.9	10.0	31.2	45.0	10.2	10.5	11.4
Cycle Q Clear(g_c), s	8.2	30.7	8.5	5.0	59.6	14.9	10.0	31.2	45.0	10.2	10.5	11.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	189	2236	676	249	2219	676	401	1103	566	253	1182	514
V/C Ratio(X)	0.83	0.62	0.22	0.47	0.97	0.35	0.65	0.77	0.96	0.74	0.29	0.31
Avail Cap(c_a), veh/h	189	2236	676	273	2219	676	401	1103	566	253	1182	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	31.2	25.0	23.5	40.0	27.4	35.5	45.3	44.4	33.1	35.2	35.5
Incr Delay (d2), s/veh	26.6	1.3	0.7	1.6	13.0	1.4	3.9	3.4	27.5	11.3	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	13.7	3.5	2.4	28.9	6.3	4.0	15.1	24.3	5.3	4.8	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	32.5	25.7	25.2	53.1	28.8	39.4	48.7	71.9	44.5	35.4	36.0
LnGrp LOS	E	C	C	C	D	C	D	D	E	D	D	D
Approach Vol, veh/h		1696			2504			1648			692	
Approach Delay, s/veh		35.2			49.5			54.8			38.0	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	69.0	15.0	50.0	12.0	68.0	11.0	54.0				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	9.0	* 60	11.0	43.0	8.0	* 61	7.0	47.0				
Max Q Clear Time (g_c+I1), s	7.0	33.7	12.2	47.0	10.2	61.6	12.0	13.4				
Green Ext Time (p_c), s	0.1	21.3	0.0	0.0	0.0	0.0	0.0	4.2				

Intersection Summary

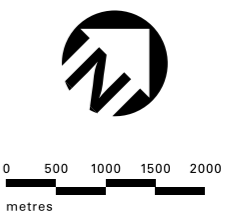
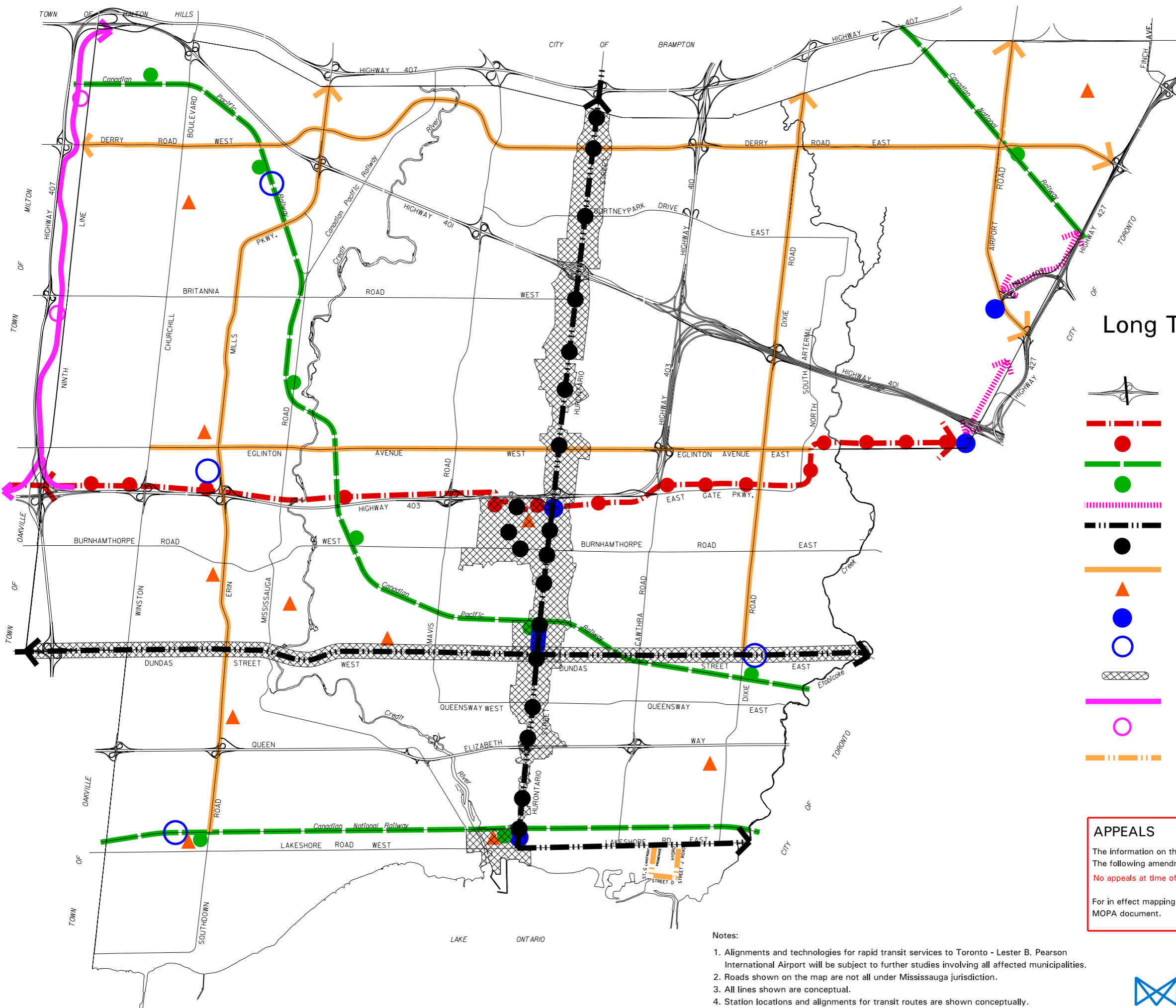
HCM 6th Ctrl Delay	45.9
HCM 6th LOS	D

Notes













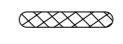



User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix G

Schedule 6 of the City of Mississauga Official Plan



Schedule 6 Long Term Transit Network

-  Provincial Highway and Interchange
-  Bus Rapid Transit Corridor
-  Bus Rapid Transit Station
-  Existing Commuter Rail
-  Existing Commuter Rail Station
-  Transit Airport Connection
-  Higher Order Transit Corridor
-  Light Rail Transit Station
-  Transit Priority Corridor
-  Existing Mississauga Transit Terminal
-  Mobility Hub
-  Potential Mobility Hub
-  Intensification Corridor
-  Potential 407 Transitway
-  Potential 407 Transitway Station
-  Future Enhanced Transit Route

APPEALS

The information on this schedule reflects Council adopted amendments. The following amendments are under appeal and effect this schedule:

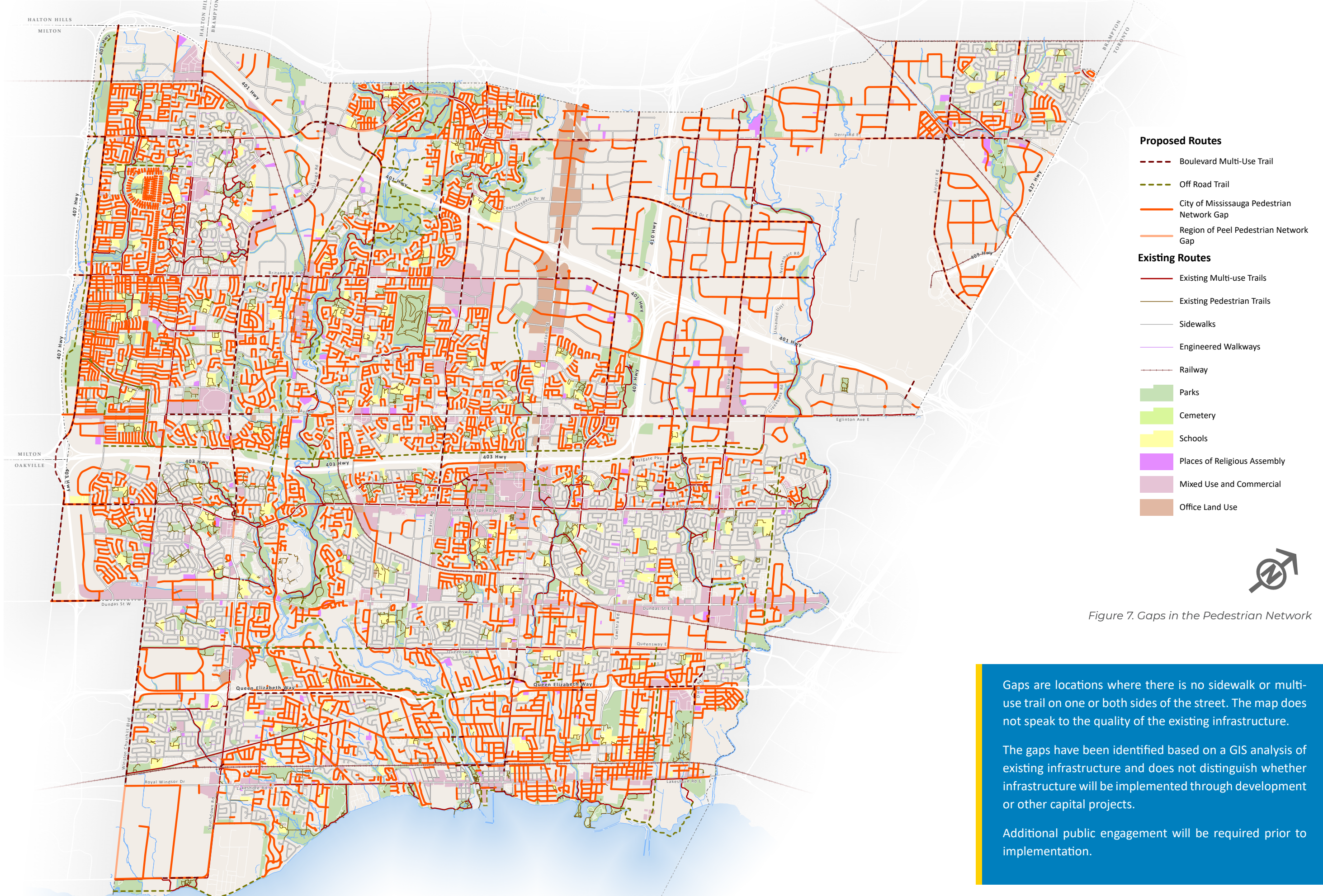
No appeals at time of consolidation.

For in effect mapping information refer to the Consolidation Tables and MOPA document.

- Notes:**
1. Alignments and technologies for rapid transit services to Toronto - Lester B. Pearson International Airport will be subject to further studies involving all affected municipalities.
 2. Roads shown on the map are not all under Mississauga jurisdiction.
 3. All lines shown are conceptual.
 4. Station locations and alignments for transit routes are shown conceptually.
 5. Base map information (e.g. roads, highways, railways, watercourses), including any lands or bodies of water outside the city boundaries, is shown for information purposes only.

Appendix H

Figures from City of Mississauga Pedestrian Master Plan



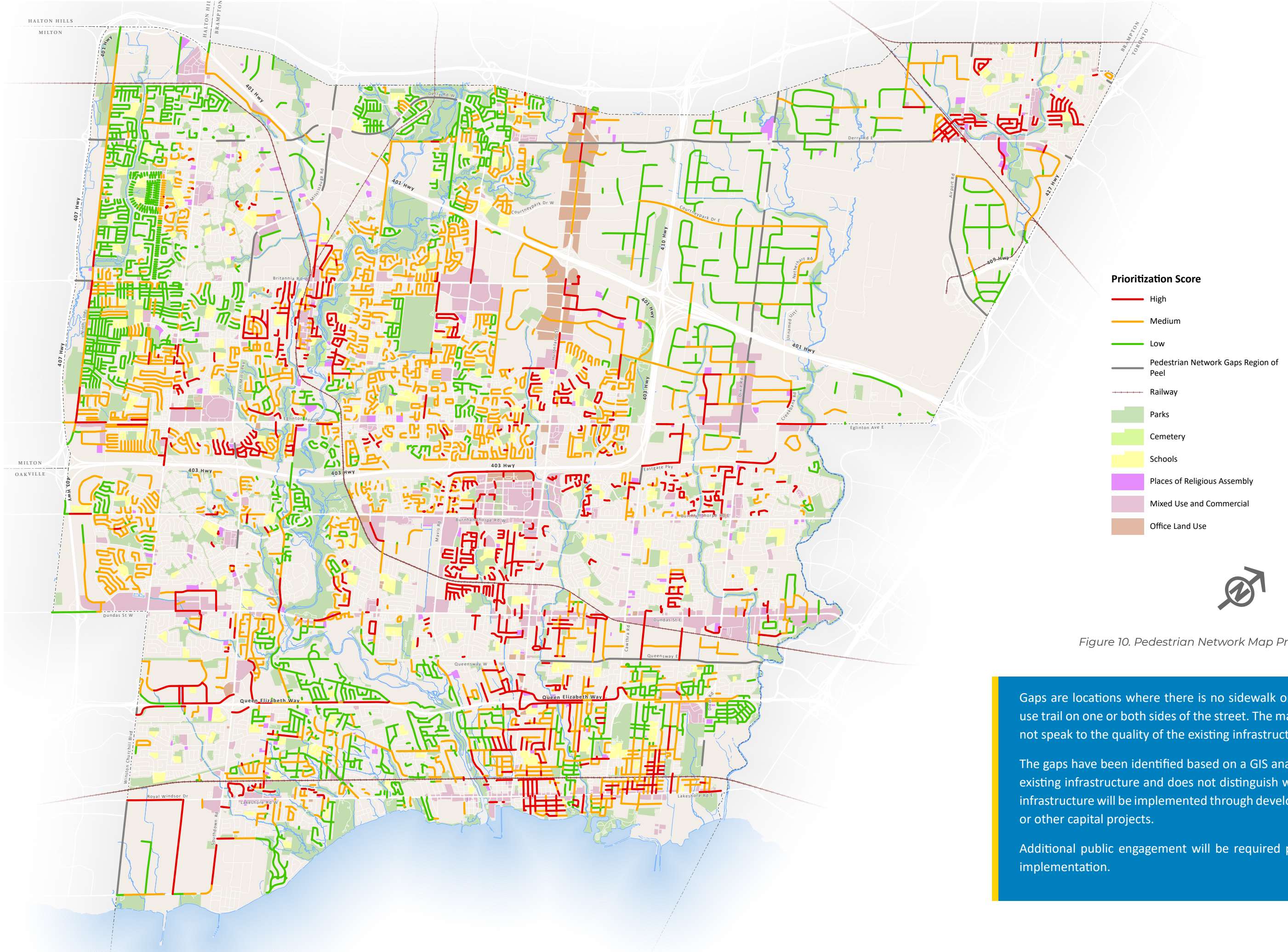
- Proposed Routes**
- Boulevard Multi-Use Trail
 - Off Road Trail
 - City of Mississauga Pedestrian Network Gap
 - Region of Peel Pedestrian Network Gap
- Existing Routes**
- Existing Multi-use Trails
 - Existing Pedestrian Trails
 - Sidewalks
 - Engineered Walkways
 - Railway
- Land Use**
- Parks
 - Cemetery
 - Schools
 - Places of Religious Assembly
 - Mixed Use and Commercial
 - Office Land Use

Figure 7. Gaps in the Pedestrian Network

Gaps are locations where there is no sidewalk or multi-use trail on one or both sides of the street. The map does not speak to the quality of the existing infrastructure.

The gaps have been identified based on a GIS analysis of existing infrastructure and does not distinguish whether infrastructure will be implemented through development or other capital projects.

Additional public engagement will be required prior to implementation.



Prioritization Score

- High
- Medium
- Low
- Pedestrian Network Gaps Region of Peel
- Railway
- Parks
- Cemetery
- Schools
- Places of Religious Assembly
- Mixed Use and Commercial
- Office Land Use



Figure 10. Pedestrian Network Map Priorities

Gaps are locations where there is no sidewalk or multi-use trail on one or both sides of the street. The map does not speak to the quality of the existing infrastructure.

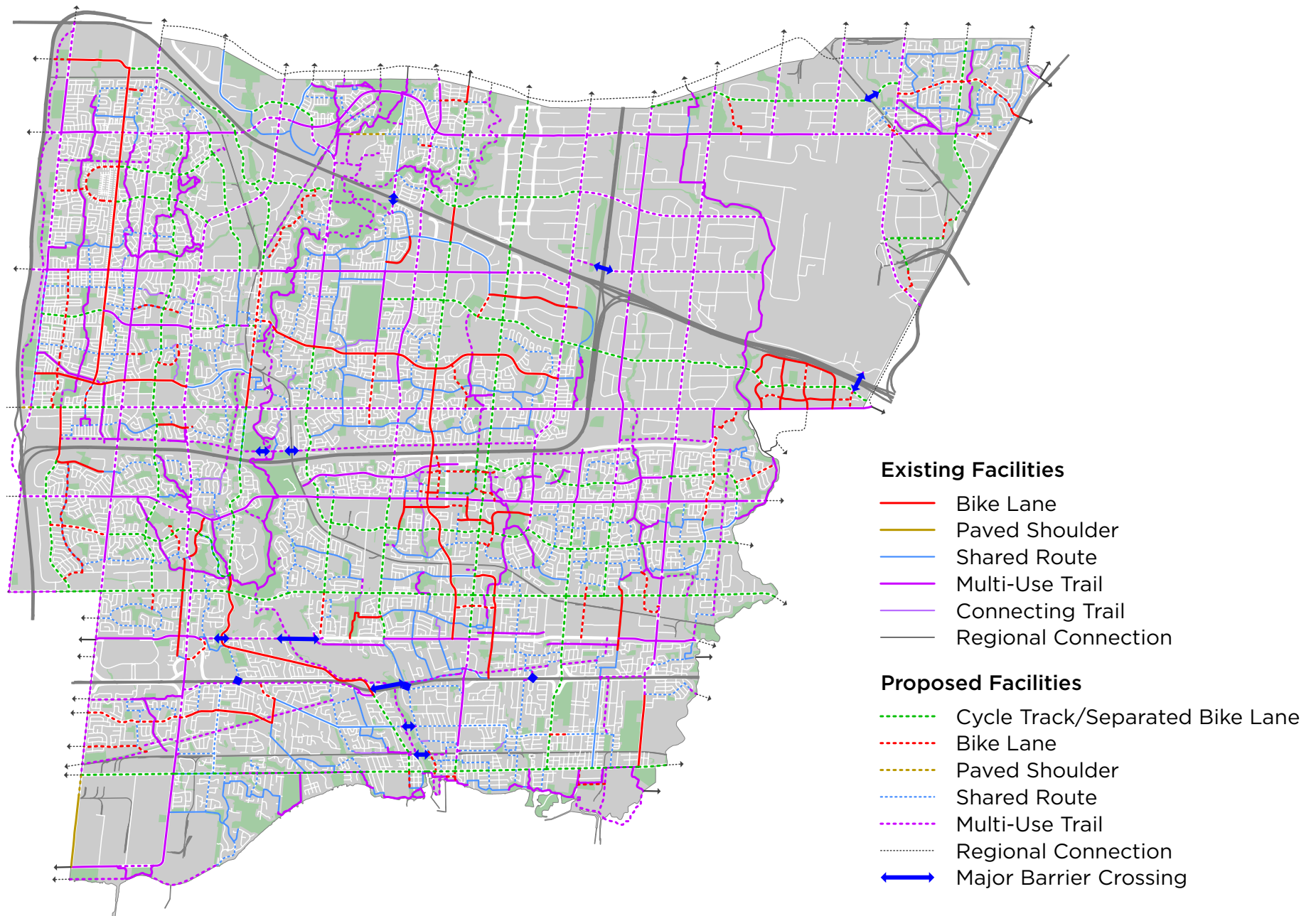
The gaps have been identified based on a GIS analysis of existing infrastructure and does not distinguish whether infrastructure will be implemented through development or other capital projects.

Additional public engagement will be required prior to implementation.

Appendix I

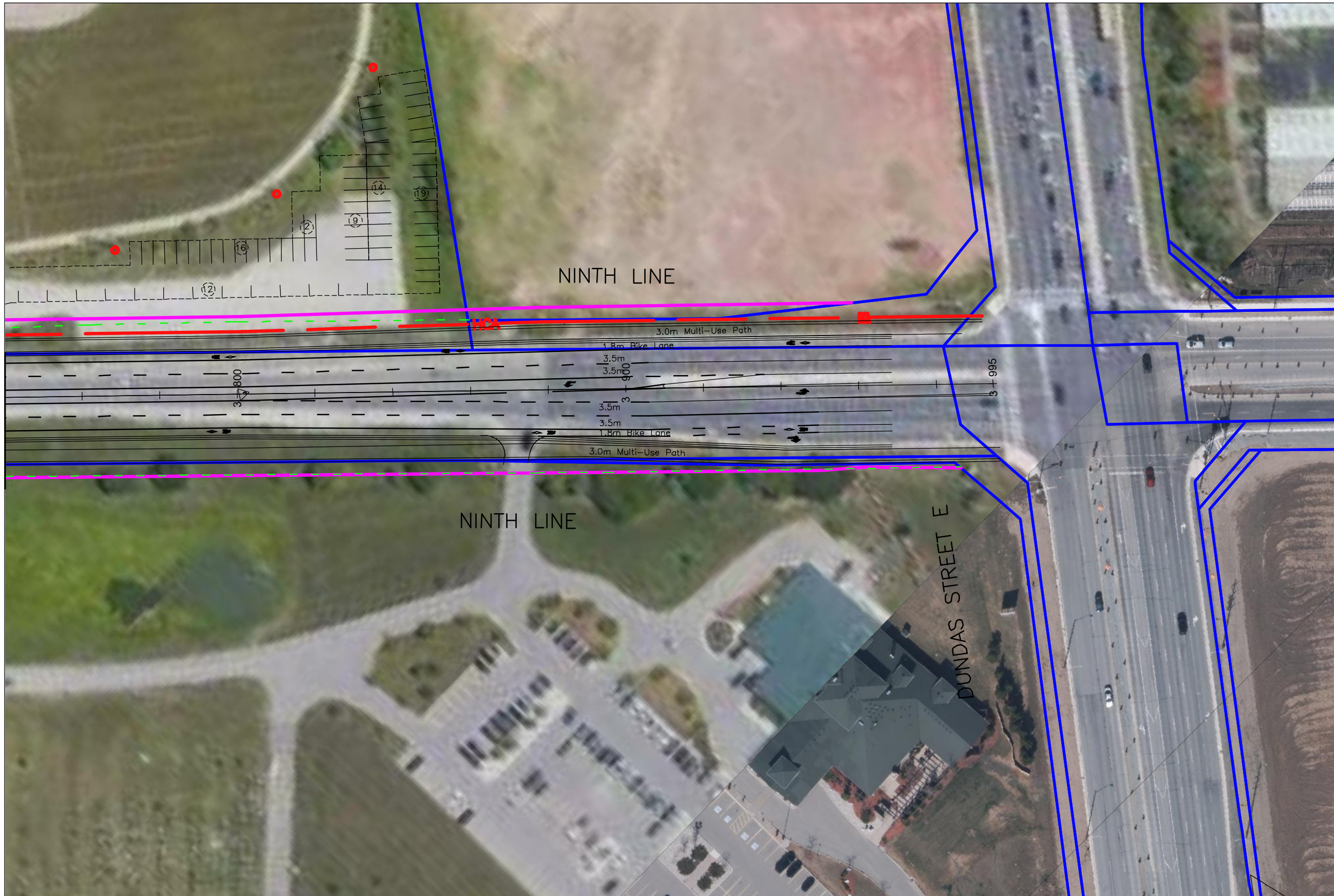
Figures from City of Mississauga Cycling Master Plan

Figure 15: Proposed cycling network



Appendix J

Ninth Line Widening Preliminary Design



SEE PLATE 19
MATCHLINE - STA. 3+740



**NINTH LINE - PREFERRED ALTERNATIVE
FROM STA. 3+740 TO STA. 3+995**

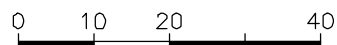
HALTON REGION
NINTH LINE - HYDRO RELOCATION ON EAST
OPTION 1- HYDRO 0.8m TO MUT 2.3m TO R-WALL
CLASS ENVIRONMENTAL ASSESSMENT STUDY
SECTION 2 - WILLIAM HALTON PARKWAY TO DUNDAS ST

LEGEND

- EXISTING PROPERTY LINE
- FUTURE PROPERTY LINE
- WATERCOURSE
- WETLAND
- RETAINING WALL

- GRADING LIMIT
- TEMPORARY EASEMENT
- PROPOSED HYDRO
- EXISTING HYDRO

SCALE
1:1000



PLATE

21

Appendix K

Background Compounded Annual Growth Rates

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: June 19, 2023 9:31 AM
To: May Lai
Cc: Mark Crockford
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Good Morning May,

Ninth Line south of Dundas Street is under the jurisdiction of Halton Region. Below are the growth rates for Ninth Line north of Dundas Street. While the rates may seem high, this is due to the widening of Ninth Line from 1 through lanes per direction to 2 through lanes per direction.

Dundas Street

	Compounded Annual Growth from Existing to 2026	
	NB	SB
AM Peak	4.5%	3.5%
PM Peak	3.0%	4.5%

	Compounded Annual Growth from 2026 to 2031	
	NB	SB
AM Peak	4.5%	3.5%
PM Peak	3.0%	4.5%

Regards,



Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: May Lai <may.lai@cghtransportation.com>
Sent: Thursday, June 15, 2023 4:00 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi Tyler,

Thank you for the rates along Dundas Street.
Is Ninth Line under the jurisdiction of Halton Region? Does Mississauga have the section of Ninth Line south of Dundas Street in the City's model?

Best regards,



May Lai, E.I.T.
CGH Transportation Inc.
P:289-834-0646
E:May.Lai@CGHTransportation.com

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Thursday, June 15, 2023 3:15 PM
To: May Lai <may.lai@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi May,

Below are the recommended growth rates to be used along Dundas Street from existing to 2026 and 2026 to 2031. These rates are compounded annually.

Dundas Street

	Compounded Annual Growth from Existing to 2026	
	EB	WB
AM Peak	0.5%	1.5%
PM Peak	1.5%	1.5%

Compounded Annual Growth from 2026 to 2031
--

	EB	WB
AM Peak	0.5%	1.5%
PM Peak	1.5%	1.5%

Best,



Tyler Xuereb

Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

[City of Mississauga](#) | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: May Lai <may.lai@cghtransportation.com>
Sent: Thursday, June 15, 2023 9:15 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi Tyler,

Just following up on the email below. I would like to confirm that we will be able to get the growth rates later today for our traffic study. Really appreciate your help!

Best regard,



May Lai, E.I.T.
CGH Transportation Inc.
P:289-834-0646
E:May.Lai@CGHTransportation.com

From: May Lai
Sent: Tuesday, June 13, 2023 8:03 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi Tyler,

Great, thank you so much!

Best regards,



May Lai, E.I.T.
CGH Transportation Inc.
P:289-834-0646
E:May.Lai@CGHTransportation.com

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Tuesday, June 13, 2023 8:01 AM
To: May Lai <may.lai@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Good Morning May,

I should be able to get them to you by end of day Thursday.

Regards,



Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

[City of Mississauga](#) | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: May Lai <may.lai@cghtransportation.com>
Sent: Tuesday, June 13, 2023 7:58 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi Tyler,

Thank you for checking up the growth rates. Do you have an estimate on how long this would take?

Best regards,



May Lai, E.I.T.
CGH Transportation Inc.
P:289-834-0646
E:May.Lai@CGHTransportation.com

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Monday, June 12, 2023 11:20 AM
To: May Lai <may.lai@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Thanks May.

I will send the rates to you as soon as I have them.

Regards,



Tyler Xuereb
Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

[City of Mississauga](#) | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: May Lai <may.lai@cghtransportation.com>
Sent: Monday, June 12, 2023 11:08 AM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi Tyler,

Our future horizons are 2026 and 2031.

Best regards,



May Lai, E.I.T.
CGH Transportation Inc.
P:289-834-0646
E:May.Lai@CGHTransportation.com

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Monday, June 12, 2023 7:47 AM
To: May Lai <may.lai@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Good Morning May,

Hope you had a great weekend!

I will provide you with updated rates as or travel demand model has been updated since 2018.

Can you please provide me with your horizon years.

Regards,



Tyler Xuereb

Transportation Planning Analyst
T 905-615-3200 ext.4783
Tyler.xuereb@mississauga.ca

[City of Mississauga](#) | Transportation and Works Department,
Infrastructure Planning and Engineering Services Division

Please consider the environment before printing.

From: May Lai <may.lai@cghtransportation.com>
Sent: Friday, June 9, 2023 4:51 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: FW: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi Tyler,

We are currently working on the transportation study for 3855 Dundas Street. Bo has provided his comments on our Terms of Reference. Regarding the compounded annual growth rates to be applied to calculate the future background volumes along Dundas Street East and Ninth Line, we decided to use the rates the City staff informed Crozier to use in their 2018 TIS on the proposed development. Please confirm whether these rates still apply.

Best regards,



May Lai, E.I.T.
CGH Transportation Inc.
P:289-834-0646
E:May.Lai@CGHTransportation.com

From: Bo Yu <BoYang.Yu@mississauga.ca>
Sent: Friday, June 9, 2023 4:18 PM
To: May Lai <may.lai@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Michael Franzolini <Michael.Franzolini@mississauga.ca>; Trans Projects <Trans.Projects@mississauga.ca>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi May,

Please find attached stamped and approved ToR for the proposed development, which encompasses City comments. Other items to note:

- Certification Form - The Transportation Consultant must complete, sign, and seal (if appropriate) the attached Certification Form from the City's TIS Guidelines (2022) and submit the document with the application/report to ensure compliance with qualification requirements. The TIS Guidelines can be found at <https://www.mississauga.ca/wp-content/uploads/2023/03/CMississauga-TIS-Guidelines-Version-5.1-Dec-2022.pdf> . It must be ensured that the report conforms to the City's TIS Guidelines.
- For City of Mississauga roadways, please contact Tyler Xuereb from the City's Transportation Planning Section (tyler.xuereb@mississauga.ca, Ext. 4783) to confirm growth rates and historical AADT data and Turning Movements Count for the study area roadways. Otherwise, please contact the Halton Region. New traffic counts are to be compared to pre-pandemic counts to ensure that there are no major discrepancies.
- Signal timing plans for signalized intersections under the City's jurisdiction can be obtained from Jim Kartsomanis (Jim.Kartsomanis@mississauga.ca, Ext. 3964).

Should you have any questions, please feel free to contact me.

Regards,



Bo Yang Yu, C.Tech

Traffic Planning Technologist
T 905-615-3200 ext. 4784
boyang.yu@mississauga.ca

[City of Mississauga](#) | Transportation & Works Department
Infrastructure Planning & Engineering Services Division

Please consider the environment before printing

From: Ryan Au <Ryan.Au@mississauga.ca> **On Behalf Of** Trans Projects
Sent: Wednesday, May 31, 2023 8:57 AM
To: May Lai <may.lai@ghtransportation.com>
Cc: Mark Crockford <mark.crockford@ghtransportation.com>; Michael Franzolini <Michael.Franzolini@mississauga.ca>; Bo Yu <BoYang.Yu@mississauga.ca>
Subject: RE: 3855 Dundas Street East Transportation Pre-Study Checklist

Hi May,

This is to acknowledge receipt of your email. Bo (copied) will provide a response on the TOR.

Thanks,



Ryan Au, P.Eng.

Manager, Traffic Planning
T 905-615-3200 ext. 3713
ryan.au@mississauga.ca

[City of Mississauga](#) | Transportation & Works Department
300 City Centre Drive | Mississauga ON | L5B 3C1

Please consider the environment before printing.

From: May Lai <may.lai@cghtransportation.com>
Sent: Tuesday, May 30, 2023 5:01 PM
To: Trans Projects <Trans.Projects@mississauga.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: 3855 Dundas Street East Transportation Pre-Study Checklist

Greetings,

CGH Transportation has been retained by Dymon Group of Companies to undertake a traffic impact study to support a mixed-use development at 3855 Dundas Street East in the City of Mississauga, near the Mississauga / Oakville boundary. The proposed development will include a self-storage facility, a co-working office and a retail / reception space. We have filled out the attached checklist with the scope, parameters and assumptions intended to be used in our proposed traffic impact study. Please let us know if City staff have any comments or questions.

Best regards,


































May Lai, E.I.T.
CGH Transportation Inc.
P: 289-834-0646
E: May.Lai@CGHTransportation.com

Appendix L

2026 Future Background Synchro Intersection Worksheets

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background AM
3855 Dundas Street East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	 
Traffic Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158
Future Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850			0.850			0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478
Fl _t Permitted	0.115			0.067			0.144			0.385		
Satd. Flow (perm)	207	5085	1491	116	4715	1449	232	3433	1422	663	3466	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			197			147			192			172
Link Speed (k/h)		70			60			60				60
Link Distance (m)		293.2			329.1			188.2				95.5
Travel Time (s)		15.1			19.7			11.3				5.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	189	2946	404	197	1320	147	208	390	192	276	691	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	2946	404	197	1320	147	208	390	192	276	691	172
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.0				3.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background AM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	52.9	52.9	11.0	52.9	52.9	11.0	56.0	56.0	11.0	56.0	56.0
Total Split (s)	20.0	60.0	60.0	20.0	60.0	60.0	20.0	40.0	40.0	20.0	40.0	40.0
Total Split (%)	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%	14.3%	28.6%	28.6%	14.3%	28.6%	28.6%
Maximum Green (s)	16.0	53.1	53.1	16.0	53.1	53.1	16.0	33.0	33.0	16.0	33.0	33.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	79.2	58.0	58.0	80.1	58.6	58.6	56.0	33.3	33.3	56.5	33.6	33.6
Actuated g/C Ratio	0.57	0.41	0.41	0.57	0.42	0.42	0.40	0.24	0.24	0.40	0.24	0.24
v/c Ratio	0.63	1.40	0.55	0.76	0.67	0.21	0.78	0.48	0.40	0.69	0.83	0.35
Control Delay	28.9	215.4	19.0	52.5	35.7	4.8	51.4	47.8	8.0	39.4	60.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	215.4	19.0	52.5	35.7	4.8	51.4	47.8	8.0	39.4	60.2	7.8
LOS	C	F	B	D	D	A	D	D	A	D	E	A
Approach Delay		183.1			34.9			39.0			47.2	
Approach LOS		F			C			D			D	
Queue Length 50th (m)	22.7	~377.3	40.5	35.0	103.1	0.0	35.1	44.5	0.0	48.4	87.4	0.0
Queue Length 95th (m)	44.7	#399.2	71.1	#64.5	119.0	12.3	#66.6	59.2	17.6	70.7	108.6	16.5
Internal Link Dist (m)		269.2			305.1			164.2			71.5	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	322	2106	733	274	1972	691	269	858	499	399	866	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.40	0.55	0.72	0.67	0.21	0.77	0.45	0.38	0.69	0.80	0.35

Intersection Summary

Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 100 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 155
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.40
 Intersection Signal Delay: 110.9
 Intersection LOS: F

Intersection Capacity Utilization 105.6% ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.































Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2026 Future Background AM
3855 Dundas Street East

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  			 			 		
Traffic Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158	
Future Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478	
Flt Permitted	0.12	1.00	1.00	0.07	1.00	1.00	0.14	1.00	1.00	0.39	1.00	1.00	
Satd. Flow (perm)	207	5085	1491	116	4715	1449	231	3433	1422	663	3466	1478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	189	2946	404	197	1320	147	208	390	192	276	691	172	
RTOR Reduction (vph)	0	0	115	0	0	86	0	0	146	0	0	131	
Lane Group Flow (vph)	189	2946	289	197	1320	61	208	390	46	276	691	41	
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		7	4		3	8		
Permitted Phases	2		2	6		6	4		4	8		8	
Actuated Green, G (s)	70.3	56.1	56.1	71.3	56.6	56.6	47.0	31.3	31.3	47.6	31.6	31.6	
Effective Green, g (s)	76.3	58.0	58.0	77.3	58.5	58.5	53.0	33.3	33.3	53.6	33.6	33.6	
Actuated g/C Ratio	0.54	0.41	0.41	0.55	0.42	0.42	0.38	0.24	0.24	0.38	0.24	0.24	
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	297	2106	617	257	1970	605	261	816	338	385	831	354	
v/s Ratio Prot	0.08	c0.58		c0.10	0.28		c0.11	0.11		c0.10	c0.20		
v/s Ratio Perm	0.27		0.19	0.32		0.04	0.19		0.03	0.18		0.03	
v/c Ratio	0.64	1.40	0.47	0.77	0.67	0.10	0.80	0.48	0.14	0.72	0.83	0.12	
Uniform Delay, d1	20.9	41.0	29.8	40.8	32.9	24.8	33.8	45.9	42.0	32.5	50.5	41.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	182.4	2.5	13.2	1.8	0.3	15.8	0.5	0.2	6.5	7.3	0.2	
Delay (s)	25.5	223.4	32.3	54.0	34.8	25.1	49.6	46.4	42.2	39.0	57.8	41.8	
Level of Service	C	F	C	D	C	C	D	D	D	D	E	D	
Approach Delay (s)		191.0			36.2			46.2			50.8		
Approach LOS		F			D			D			D		
Intersection Summary													
HCM 2000 Control Delay			116.5									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.06										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			105.6%									ICU Level of Service	G
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2026 Future Background AM
3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	2710	372	181	1214	135	191	359	177	254	636	158
Future Volume (veh/h)	174	2710	372	181	1214	135	191	359	177	254	636	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1811	1752	1811	1682	1841	1739	1781	1856	1796
Adj Flow Rate, veh/h	189	2946	404	197	1320	147	208	390	192	276	691	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	3	6	10	6	10	4	6	3	3	2
Cap, veh/h	311	2206	669	254	2179	688	292	801	338	392	826	357
Arrive On Green	0.09	0.43	0.43	0.12	0.46	0.46	0.13	0.23	0.23	0.14	0.23	0.23
Sat Flow, veh/h	1781	5106	1547	1725	4782	1510	1602	3497	1473	1696	3526	1522
Grp Volume(v), veh/h	189	2946	404	197	1320	147	208	390	192	276	691	172
Grp Sat Flow(s),veh/h/ln	1781	1702	1547	1725	1594	1510	1602	1749	1473	1696	1763	1522
Q Serve(g_s), s	7.7	60.5	28.1	11.2	29.1	8.2	13.2	13.5	16.2	16.7	26.1	13.7
Cycle Q Clear(g_c), s	7.7	60.5	28.1	11.2	29.1	8.2	13.2	13.5	16.2	16.7	26.1	13.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	311	2206	669	254	2179	688	292	801	338	392	826	357
V/C Ratio(X)	0.61	1.34	0.60	0.78	0.61	0.21	0.71	0.49	0.57	0.70	0.84	0.48
Avail Cap(c_a), veh/h	386	2206	669	286	2179	688	300	874	368	392	881	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	39.8	30.6	42.3	28.7	23.0	35.5	46.8	47.8	33.0	51.0	46.3
Incr Delay (d2), s/veh	2.3	154.1	4.0	11.9	1.3	0.7	7.9	0.6	2.0	5.9	6.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	58.1	12.0	7.9	12.2	3.3	6.1	6.3	6.5	8.0	12.9	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	193.8	34.6	54.2	29.9	23.7	43.3	47.4	49.9	38.8	58.0	47.5
LnGrp LOS	C	F	C	D	C	C	D	D	D	D	E	D
Approach Vol, veh/h		3539			1664			790			1139	
Approach Delay, s/veh		166.6			32.2			46.9			51.8	
Approach LOS		F			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.4	65.5	20.0	37.1	14.2	68.8	19.3	37.8				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	16.0	* 53	16.0	33.0	16.0	* 53	16.0	33.0				
Max Q Clear Time (g_c+I1), s	13.2	63.5	18.7	18.2	9.7	31.1	15.2	28.1				
Green Ext Time (p_c), s	0.2	0.0	0.0	3.8	0.4	17.9	0.1	2.7				

Intersection Summary

HCM 6th Ctrl Delay	103.6
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access

2026 Future Background AM
3855 Dundas Street East



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	4	22	682	1064	5
Future Volume (vph)	3	4	22	682	1064	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.923				0.999	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1608	0	0	3428	1822	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1608	0	0	3428	1822	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	47.4			51.2	157.3	
Travel Time (s)	2.8			3.1	9.4	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%
Adj. Flow (vph)	3	4	24	741	1157	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	765	1162	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	66.3%			ICU Level of Service C		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access




































2026 Future Background AM
3855 Dundas Street East



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	4	22	682	1064	5
Future Volume (Veh/h)	3	4	22	682	1064	5
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)	3	4	24	741	1157	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)	147					
pX, platoon unblocked	0.91					
vC, conflicting volume	1578	1160	1162			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1432	1160	1162			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	98	96			
cM capacity (veh/h)	109	189	597			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	7	271	494	1162		
Volume Left	3	24	0	0		
Volume Right	4	0	0	5		
cSH	144	597	1700	1700		
Volume to Capacity	0.05	0.04	0.29	0.68		
Queue Length 95th (m)	1.1	0.9	0.0	0.0		
Control Delay (s)	31.3	1.5	0.0	0.0		
Lane LOS	D	A				
Approach Delay (s)	31.3	0.5	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay	0.3					
Intersection Capacity Utilization	66.3%			ICU Level of Service	C	
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background AM Optimized
3855 Dundas Street East

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  			  			  	  	
Traffic Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158	
Future Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0	
Storage Lanes	1		1	1		1	1		1	1		1	
Taper Length (m)	15.0			15.0			15.0			15.0			
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Fr _t			0.850			0.850			0.850			0.850	
Fl _t Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478	
Fl _t Permitted	0.124			0.056			0.151			0.481			
Satd. Flow (perm)	223	5085	1491	97	4715	1449	243	3433	1422	828	3466	1478	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			199			146			128			170	
Link Speed (k/h)		70			60			60				60	
Link Distance (m)		293.2			329.1			188.2				95.5	
Travel Time (s)		15.1			19.7			11.3				5.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Adj. Flow (vph)	189	2946	404	197	1320	147	208	390	192	276	691	172	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	189	2946	404	197	1320	147	208	390	192	276	691	172	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.3			3.3			3.0				3.0	
Link Offset(m)		0.0			0.0			0.0				0.0	
Crosswalk Width(m)		3.0			3.0			3.0				3.0	
Two way Left Turn Lane													
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09	
Turning Speed (k/h)	25		15	25		15	25		15	25		15	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4				9.4	
Detector 2 Size(m)		0.6			0.6			0.6				0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0				0.0	

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background AM Optimized
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	52.9	52.9	11.0	52.9	52.9	11.0	56.0	56.0	11.0	56.0	56.0
Total Split (s)	21.0	76.0	76.0	12.0	67.0	67.0	17.0	56.0	56.0	11.0	50.0	50.0
Total Split (%)	13.5%	49.0%	49.0%	7.7%	43.2%	43.2%	11.0%	36.1%	36.1%	7.1%	32.3%	32.3%
Maximum Green (s)	17.0	69.1	69.1	8.0	60.1	60.1	13.0	49.0	49.0	7.0	43.0	43.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	89.1	71.0	71.0	88.4	70.6	70.6	60.3	45.3	45.3	53.3	39.3	39.3
Actuated g/C Ratio	0.57	0.46	0.46	0.57	0.46	0.46	0.39	0.29	0.29	0.34	0.25	0.25
v/c Ratio	0.65	1.26	0.51	0.89	0.62	0.20	0.92	0.39	0.38	0.82	0.79	0.34
Control Delay	28.5	159.0	16.6	79.8	34.6	4.9	75.8	44.4	16.3	60.1	60.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	159.0	16.6	79.8	34.6	4.9	75.8	44.4	16.3	60.1	60.6	7.7
LOS	C	F	B	E	C	A	E	D	B	E	E	A
Approach Delay		135.7			37.4			45.8			52.5	
Approach LOS		F			D			D			D	
Queue Length 50th (m)	23.6	~383.2	39.5	42.2	103.9	0.2	41.2	46.3	13.4	56.8	96.2	0.4
Queue Length 95th (m)	45.3	#403.1	67.3	#104.7	129.4	13.0	#77.7	57.5	32.1	76.4	112.3	16.6
Internal Link Dist (m)		269.2			305.1			164.2			71.5	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	325	2329	790	221	2146	739	227	1129	553	337	1006	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	1.26	0.51	0.89	0.62	0.20	0.92	0.35	0.35	0.82	0.69	0.31

Intersection Summary

Area Type:	Other
Cycle Length:	155
Actuated Cycle Length:	155
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	155
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.26
Intersection Signal Delay:	89.5
Intersection LOS:	F

Lanes, Volumes, Timings
 1: Ninth Line & Dundas Street East

2026 Future Background AM Optimized
 3855 Dundas Street East

Intersection Capacity Utilization 105.6% ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.































Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2026 Future Background AM Optimized
3855 Dundas Street East

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  			 			 		
Traffic Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158	
Future Volume (vph)	174	2710	372	181	1214	135	191	359	177	254	636	158	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478	
Flt Permitted	0.12	1.00	1.00	0.06	1.00	1.00	0.15	1.00	1.00	0.48	1.00	1.00	
Satd. Flow (perm)	224	5085	1491	97	4715	1449	243	3433	1422	828	3466	1478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	189	2946	404	197	1320	147	208	390	192	276	691	172	
RTOR Reduction (vph)	0	0	108	0	0	79	0	0	91	0	0	127	
Lane Group Flow (vph)	189	2946	296	197	1320	68	208	390	101	276	691	45	
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		7	4		3	8		
Permitted Phases	2		2	6		6	4		4	8		8	
Actuated Green, G (s)	83.2	69.1	69.1	82.4	68.7	68.7	54.3	43.3	43.3	44.3	37.3	37.3	
Effective Green, g (s)	89.2	71.0	71.0	88.4	70.6	70.6	57.3	45.3	45.3	50.3	39.3	39.3	
Actuated g/C Ratio	0.58	0.46	0.46	0.57	0.46	0.46	0.37	0.29	0.29	0.32	0.25	0.25	
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	292	2329	682	222	2147	659	222	1003	415	320	878	374	
v/s Ratio Prot	c0.07	c0.58		c0.10	0.28		c0.10	0.11		0.06	0.20		
v/s Ratio Perm	0.30		0.20	0.41		0.05	0.25		0.07	c0.22		0.03	
v/c Ratio	0.65	1.26	0.43	0.89	0.61	0.10	0.94	0.39	0.24	0.86	0.79	0.12	
Uniform Delay, d1	20.5	42.0	28.4	50.8	31.9	24.1	38.7	43.8	41.8	46.6	53.9	44.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.1	122.8	2.0	32.3	1.3	0.3	43.1	0.3	0.4	21.0	4.8	0.2	
Delay (s)	25.6	164.8	30.4	83.1	33.2	24.4	81.8	44.1	42.2	67.6	58.8	44.7	
Level of Service	C	F	C	F	C	C	F	D	D	E	E	D	
Approach Delay (s)		142.0			38.4			53.6			58.8		
Approach LOS		F			D			D			E		
Intersection Summary													
HCM 2000 Control Delay			94.7									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.06										
Actuated Cycle Length (s)			155.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			105.6%									ICU Level of Service	G
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2026 Future Background AM Optimized
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	2710	372	181	1214	135	191	359	177	254	636	158
Future Volume (veh/h)	174	2710	372	181	1214	135	191	359	177	254	636	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1811	1752	1811	1682	1841	1739	1781	1856	1796
Adj Flow Rate, veh/h	189	2946	404	197	1320	147	208	390	192	276	691	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	3	6	10	6	10	4	6	3	3	2
Cap, veh/h	305	2572	779	169	2349	742	250	991	418	314	863	372
Arrive On Green	0.08	0.50	0.50	0.07	0.49	0.49	0.10	0.28	0.28	0.06	0.24	0.24
Sat Flow, veh/h	1781	5106	1547	1725	4782	1510	1602	3497	1473	1696	3526	1522
Grp Volume(v), veh/h	189	2946	404	197	1320	147	208	390	192	276	691	172
Grp Sat Flow(s),veh/h/ln	1781	1702	1547	1725	1594	1510	1602	1749	1473	1696	1763	1522
Q Serve(g_s), s	7.5	78.1	27.2	11.0	30.1	8.5	14.6	13.9	16.6	10.0	28.5	14.9
Cycle Q Clear(g_c), s	7.5	78.1	27.2	11.0	30.1	8.5	14.6	13.9	16.6	10.0	28.5	14.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	2572	779	169	2349	742	250	991	418	314	863	372
V/C Ratio(X)	0.62	1.15	0.52	1.17	0.56	0.20	0.83	0.39	0.46	0.88	0.80	0.46
Avail Cap(c_a), veh/h	386	2572	779	169	2349	742	250	1151	485	314	1024	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	38.5	25.8	52.1	27.7	22.2	40.1	44.8	45.8	51.2	55.0	49.8
Incr Delay (d2), s/veh	2.5	70.6	2.5	121.1	1.0	0.6	20.8	0.3	1.0	23.6	4.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	51.1	11.4	12.7	12.6	3.4	7.6	6.5	6.6	8.8	13.8	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.7	109.1	28.3	173.2	28.7	22.8	60.8	45.1	46.7	74.7	59.1	50.9
LnGrp LOS	C	F	C	F	C	C	E	D	D	E	E	D
Approach Vol, veh/h		3539			1664			790			1139	
Approach Delay, s/veh		95.3			45.3			49.6			61.7	
Approach LOS		F			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	83.1	11.0	48.9	13.9	81.1	17.0	42.9				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	8.0	* 69	7.0	49.0	17.0	* 60	13.0	43.0				
Max Q Clear Time (g_c+I1), s	13.0	81.1	12.0	18.6	9.5	32.1	16.6	30.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.9	0.5	21.8	0.0	5.4				

Intersection Summary































HCM 6th Ctrl Delay	73.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background PM
3855 Dundas Street East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166
Future Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99				1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5036	1477	1694	5085	1506	1652	3500	1478	1652	3433	1478
Flt Permitted	0.067			0.068			0.368			0.111		
Satd. Flow (perm)	121	5036	1455	121	5085	1506	640	3500	1478	193	3433	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172			123			246			180
Link Speed (k/h)		70			60			60				60
Link Distance (m)		293.2			329.1			188.2				95.5
Travel Time (s)		15.1			19.7			11.3				5.7
Confl. Peds. (#/hr)			3	3			1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	174	1967	236	128	3073	264	411	975	607	209	414	180
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1967	236	128	3073	264	411	975	607	209	414	180
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.0				3.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background PM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	52.9	52.9	11.0	52.9	52.9	11.0	56.0	56.0	11.0	56.0	56.0
Total Split (s)	20.0	60.0	60.0	20.0	60.0	60.0	20.0	40.0	40.0	20.0	40.0	40.0
Total Split (%)	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%	14.3%	28.6%	28.6%	14.3%	28.6%	28.6%
Maximum Green (s)	16.0	53.1	53.1	16.0	53.1	53.1	16.0	33.0	33.0	16.0	33.0	33.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	78.8	59.0	59.0	76.3	57.3	57.3	58.2	35.7	35.7	57.3	35.0	35.0
Actuated g/C Ratio	0.56	0.42	0.42	0.54	0.41	0.41	0.42	0.26	0.26	0.41	0.25	0.25
v/c Ratio	0.68	0.93	0.33	0.55	1.48	0.38	1.02	1.09	1.08	0.78	0.48	0.36
Control Delay	43.7	47.3	9.5	33.4	249.3	17.1	84.4	106.9	92.0	52.9	47.0	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	47.3	9.5	33.4	249.3	17.1	84.4	106.9	92.0	52.9	47.0	7.7
LOS	D	D	A	C	F	B	F	F	F	D	D	A
Approach Delay		43.3			223.6			97.7			39.7	
Approach LOS		D			F			F			D	
Queue Length 50th (m)	27.7	172.2	9.8	16.8	~398.8	24.2	~82.7	~149.6	~124.8	36.8	47.6	0.0
Queue Length 95th (m)	51.0	#215.8	28.4	35.0	#423.1	45.9	#121.1	#187.8	#191.9	#69.1	62.8	17.0
Internal Link Dist (m)		269.2			305.1			164.2			71.5	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	284	2123	712	281	2081	689	403	892	560	277	858	499
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.93	0.33	0.46	1.48	0.38	1.02	1.09	1.08	0.75	0.48	0.36

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 100 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 155

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.48

Intersection Signal Delay: 127.8 Intersection LOS: F

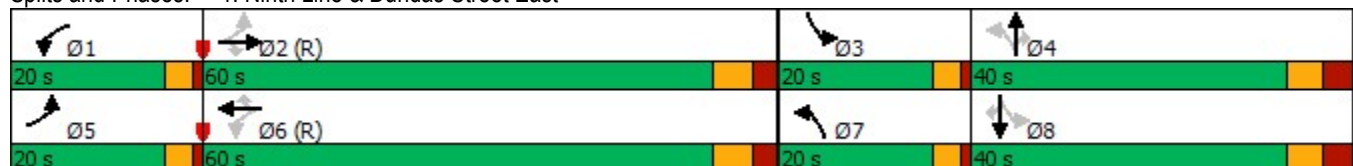
Intersection Capacity Utilization 113.9% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2026 Future Background PM
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166
Future Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	5036	1455	1694	5085	1506	1651	3500	1478	1652	3433	1459
Flt Permitted	0.07	1.00	1.00	0.07	1.00	1.00	0.37	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	121	5036	1455	122	5085	1506	640	3500	1478	193	3433	1459
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	1967	236	128	3073	264	411	975	607	209	414	180
RTOR Reduction (vph)	0	0	100	0	0	73	0	0	183	0	0	135
Lane Group Flow (vph)	174	1967	136	128	3073	191	411	975	424	209	414	45
Confl. Peds. (#/hr)			3	3			1					1
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	70.8	57.1	57.1	67.4	55.4	55.4	49.7	33.7	33.7	48.3	33.0	33.0
Effective Green, g (s)	76.1	59.0	59.0	73.4	57.3	57.3	55.7	35.7	35.7	54.3	35.0	35.0
Actuated g/C Ratio	0.54	0.42	0.42	0.52	0.41	0.41	0.40	0.26	0.26	0.39	0.25	0.25
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	255	2122	613	232	2081	616	391	892	376	265	858	364
v/s Ratio Prot	c0.08	0.39		0.06	c0.60		c0.14	0.28		0.10	0.12	
v/s Ratio Perm	0.29		0.09	0.23		0.13	0.27		c0.29	0.20		0.03
v/c Ratio	0.68	0.93	0.22	0.55	1.48	0.31	1.05	1.09	1.13	0.79	0.48	0.12
Uniform Delay, d1	37.5	38.5	25.9	28.5	41.4	28.0	37.8	52.1	52.1	36.1	44.8	40.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	8.5	0.8	3.1	217.2	1.3	59.6	58.8	85.5	14.7	0.5	0.2
Delay (s)	45.1	47.0	26.7	31.6	258.5	29.3	97.4	110.9	137.7	50.8	45.3	40.8
Level of Service	D	D	C	C	F	C	F	F	F	D	D	D
Approach Delay (s)		44.8			232.7			116.3			45.7	
Approach LOS		D			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			136.7			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			113.9%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2026 Future Background PM
3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1810	217	118	2827	243	378	897	558	192	381	166
Future Volume (veh/h)	160	1810	217	118	2827	243	378	897	558	192	381	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1856	1870	1870	1796	1870	1796	1796	1841	1796
Adj Flow Rate, veh/h	174	1967	236	128	3073	264	411	975	607	209	414	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	3	4	3	2	2	2	2	2	2	4	2
Cap, veh/h	235	2354	712	206	2232	680	397	888	380	267	835	363
Arrive On Green	0.10	0.46	0.46	0.08	0.44	0.44	0.14	0.25	0.25	0.12	0.24	0.24
Sat Flow, veh/h	1781	5066	1532	1767	5106	1556	1710	3554	1520	1710	3497	1520
Grp Volume(v), veh/h	174	1967	236	128	3073	264	411	975	607	209	414	180
Grp Sat Flow(s),veh/h/ln	1781	1689	1532	1767	1702	1556	1710	1777	1520	1710	1749	1520
Q Serve(g_s), s	9.1	47.6	13.6	5.2	61.2	16.1	19.0	35.0	35.0	12.3	14.3	14.3
Cycle Q Clear(g_c), s	9.1	47.6	13.6	5.2	61.2	16.1	19.0	35.0	35.0	12.3	14.3	14.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	2354	712	206	2232	680	397	888	380	267	835	363
V/C Ratio(X)	0.74	0.84	0.33	0.62	1.38	0.39	1.04	1.10	1.60	0.78	0.50	0.50
Avail Cap(c_a), veh/h	294	2354	712	313	2232	680	397	888	380	286	874	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	32.8	23.7	29.7	39.4	26.7	40.3	52.5	52.5	35.8	46.0	46.0
Incr Delay (d2), s/veh	8.2	3.7	1.2	3.7	172.5	1.7	54.5	60.4	281.0	13.0	0.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	21.5	5.6	2.6	62.5	6.8	11.8	23.8	43.6	6.4	6.6	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	36.5	25.0	33.4	211.9	28.4	94.8	112.9	333.5	48.9	46.6	47.3
LnGrp LOS	D	D	C	C	F	C	F	F	F	D	D	D
Approach Vol, veh/h		2377			3465			1993			803	
Approach Delay, s/veh		36.3			191.3			176.4			47.3	
Approach LOS		D			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	70.1	18.4	40.0	15.4	66.2	20.0	38.4				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	16.0	* 53	16.0	33.0	16.0	* 53	16.0	33.0				
Max Q Clear Time (g_c+l1), s	7.2	50.6	14.3	37.0	11.1	63.2	21.0	16.3				
Green Ext Time (p_c), s	0.3	2.5	0.2	0.0	0.3	0.0	0.0	4.1				

Intersection Summary

HCM 6th Ctrl Delay	131.8
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access

2026 Future Background PM
3855 Dundas Street East



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	38	23	1286	727	5
Future Volume (vph)	11	38	23	1286	727	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.896				0.999	
Flt Protected	0.989			0.999		
Satd. Flow (prot)	1577	0	0	3496	1840	0
Flt Permitted	0.989			0.999		
Satd. Flow (perm)	1577	0	0	3496	1840	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	47.4			51.2	158.7	
Travel Time (s)	2.8			3.1	9.5	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	41	25	1398	790	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	0	1423	795	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.5%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access




































2026 Future Background PM
3855 Dundas Street East



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	38	23	1286	727	5
Future Volume (Veh/h)	11	38	23	1286	727	5
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)	12	41	25	1398	790	5
Pedestrians				2		
Lane Width (m)				3.5		
Walking Speed (m/s)				1.1		
Percent Blockage				0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				147		
pX, platoon unblocked	0.75					
vC, conflicting volume	1542	794	795			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1057	794	795			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	88	97			
cM capacity (veh/h)	160	330	822			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	53	491	932	795		
Volume Left	12	25	0	0		
Volume Right	41	0	0	5		
cSH	266	822	1700	1700		
Volume to Capacity	0.20	0.03	0.55	0.47		
Queue Length 95th (m)	5.1	0.7	0.0	0.0		
Control Delay (s)	21.9	0.9	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	21.9	0.3				
Approach LOS	C					
Intersection Summary						
Average Delay	0.7					
Intersection Capacity Utilization	62.5%			ICU Level of Service	B	
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background PM Optimized
3855 Dundas Street East

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  			  		  		  	
Traffic Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166	
Future Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0	
Storage Lanes	1		1	1		1	1		1	1		1	
Taper Length (m)	55.0			60.0			80.0			70.0			
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Ped Bike Factor			0.98				1.00					0.99	
Frt			0.850			0.850			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1711	5036	1477	1694	5085	1506	1652	3500	1478	1652	3433	1478	
Flt Permitted	0.059			0.058			0.334			0.108			
Satd. Flow (perm)	106	5036	1455	103	5085	1506	580	3500	1478	188	3433	1459	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			156			126			54			136	
Link Speed (k/h)		70			60			60				60	
Link Distance (m)		293.2			370.6			188.2				95.5	
Travel Time (s)		15.1			22.2			11.3				5.7	
Confl. Peds. (#/hr)			3	3			1					1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Adj. Flow (vph)	174	1967	236	128	3073	264	411	975	607	209	414	180	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	174	1967	236	128	3073	264	411	975	607	209	414	180	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.3			3.3			3.0				3.0	
Link Offset(m)		0.0			0.0			0.0				0.0	
Crosswalk Width(m)		3.0			3.0			3.0				3.0	
Two way Left Turn Lane													
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09	
Turning Speed (k/h)	25		15	25		15	25		15	25		15	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4				9.4	
Detector 2 Size(m)		0.6			0.6			0.6				0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Background PM Optimized
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.0	52.9	52.9	9.0	52.9	52.9	9.0	56.0	9.0	9.0	56.0	56.0
Total Split (s)	9.0	71.0	71.0	20.0	82.0	82.0	28.0	51.0	20.0	18.0	41.0	41.0
Total Split (%)	5.6%	44.4%	44.4%	12.5%	51.3%	51.3%	17.5%	31.9%	12.5%	11.3%	25.6%	25.6%
Maximum Green (s)	5.0	64.1	64.1	16.0	75.1	75.1	24.0	44.0	16.0	14.0	34.0	34.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0			15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	79.2	67.2	67.2	90.0	77.0	77.0	68.0	46.0	67.8	57.0	36.0	36.0
Actuated g/C Ratio	0.50	0.42	0.42	0.56	0.48	0.48	0.42	0.29	0.42	0.36	0.22	0.22
v/c Ratio	1.32	0.93	0.34	0.54	1.26	0.33	0.96	0.97	0.92	0.94	0.54	0.42
Control Delay	219.0	53.3	12.0	39.3	154.7	14.0	72.3	77.6	60.3	90.4	57.6	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	219.0	53.3	12.0	39.3	154.7	14.0	72.3	77.6	60.3	90.4	57.6	17.7
LOS	F	D	B	D	F	B	E	E	E	F	E	B
Approach Delay		61.3			139.7			71.3			57.2	
Approach LOS		E			F			E			E	
Queue Length 50th (m)	~51.5	202.3	14.5	21.0	~411.0	23.3	91.6	149.4	154.0	47.0	56.8	10.4
Queue Length 95th (m)	#97.6	#223.4	33.6	41.5	#429.3	42.3	#134.8	#189.6	#224.4	#94.4	73.3	31.8
Internal Link Dist (m)		269.2			346.6			164.2			71.5	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	132	2114	701	246	2447	790	427	1006	668	222	772	433
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.93	0.34	0.52	1.26	0.33	0.96	0.97	0.91	0.94	0.54	0.42

Intersection Summary

Area Type: Other
 Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 160
 Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 94.7 Intersection LOS: F

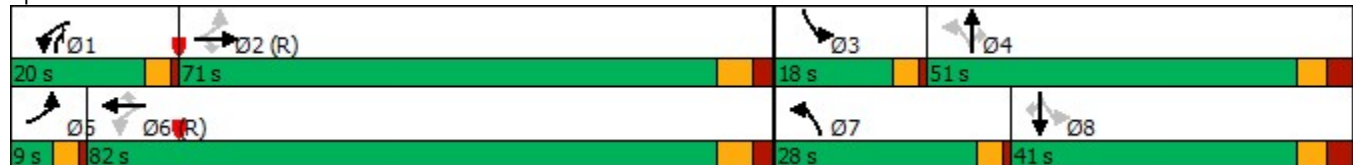
Intersection Capacity Utilization 113.9% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East































2026 Future Background PM Optimized
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166	
Future Volume (vph)	160	1810	217	118	2827	243	378	897	558	192	381	166	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	5036	1455	1694	5085	1506	1651	3500	1478	1652	3433	1459	
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.33	1.00	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	105	5036	1455	103	5085	1506	581	3500	1478	188	3433	1459	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	174	1967	236	128	3073	264	411	975	607	209	414	180	
RTOR Reduction (vph)	0	0	90	0	0	65	0	0	33	0	0	105	
Lane Group Flow (vph)	174	1967	146	128	3073	199	411	975	574	209	414	75	
Confl. Peds. (#/hr)			3	3			1					1	
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	
Protected Phases	5	2		1	6		7	4	1	3	8		
Permitted Phases	2		2	6		6	4		4	8		8	
Actuated Green, G (s)	70.3	65.3	65.3	84.1	75.1	75.1	62.0	44.0	58.8	48.0	34.0	34.0	
Effective Green, g (s)	76.3	67.2	67.2	87.1	77.0	77.0	65.0	46.0	62.8	54.0	36.0	36.0	
Actuated g/C Ratio	0.48	0.42	0.42	0.54	0.48	0.48	0.41	0.29	0.39	0.34	0.22	0.22	
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	4.0	4.0	7.0	7.0	
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	130	2115	611	233	2447	724	416	1006	580	219	772	328	
v/s Ratio Prot	c0.07	0.39		0.06	0.60		c0.17	0.28	c0.10	0.10	0.12		
v/s Ratio Perm	c0.57		0.10	0.24		0.13	0.23		0.28	0.22		0.05	
v/c Ratio	1.34	0.93	0.24	0.55	1.26	0.27	0.99	0.97	0.99	0.95	0.54	0.23	
Uniform Delay, d1	44.9	44.2	29.9	37.7	41.5	24.8	40.9	56.3	48.3	46.6	54.6	50.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	195.1	8.8	0.9	2.9	118.6	0.9	40.6	21.1	34.5	47.9	0.8	0.4	
Delay (s)	240.0	53.0	30.8	40.7	160.1	25.7	81.5	77.4	82.8	94.6	55.5	51.1	
Level of Service	F	D	C	D	F	C	F	E	F	F	E	D	
Approach Delay (s)		64.5			145.5			79.9			64.6		
Approach LOS		E			F			E			E		
Intersection Summary													
HCM 2000 Control Delay			100.5									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.18										
Actuated Cycle Length (s)			160.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			113.9%									ICU Level of Service	H
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2026 Future Background PM Optimized
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	160	1810	217	118	2827	243	378	897	558	192	381	166
Future Volume (veh/h)	160	1810	217	118	2827	243	378	897	558	192	381	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1856	1870	1870	1796	1870	1796	1796	1841	1796
Adj Flow Rate, veh/h	174	1967	236	128	3073	264	411	975	607	209	414	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	3	4	3	2	2	2	2	2	2	4	2
Cap, veh/h	134	2346	710	187	2457	749	434	1022	531	234	787	342
Arrive On Green	0.05	0.46	0.46	0.07	0.48	0.48	0.17	0.29	0.29	0.11	0.22	0.22
Sat Flow, veh/h	1781	5066	1532	1767	5106	1557	1710	3554	1520	1710	3497	1520
Grp Volume(v), veh/h	174	1967	236	128	3073	264	411	975	607	209	414	180
Grp Sat Flow(s),veh/h/ln	1781	1689	1532	1767	1702	1557	1710	1777	1520	1710	1749	1520
Q Serve(g_s), s	8.0	54.5	15.6	5.6	77.0	16.9	27.0	43.1	46.0	14.8	16.6	16.7
Cycle Q Clear(g_c), s	8.0	54.5	15.6	5.6	77.0	16.9	27.0	43.1	46.0	14.8	16.6	16.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	2346	710	187	2457	749	434	1022	531	234	787	342
V/C Ratio(X)	1.29	0.84	0.33	0.69	1.25	0.35	0.95	0.95	1.14	0.89	0.53	0.53
Avail Cap(c_a), veh/h	134	2346	710	276	2457	749	434	1022	531	234	787	342
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	37.7	27.3	34.4	41.5	25.9	40.7	56.0	52.1	44.2	54.5	54.5
Incr Delay (d2), s/veh	176.5	3.8	1.3	5.3	116.3	1.3	30.1	18.2	84.9	32.2	0.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	19.5	32.9	10.6	5.1	85.8	11.5	13.2	30.6	48.4	13.6	12.4	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	225.3	41.5	28.5	39.7	157.8	27.2	70.8	74.2	136.9	76.4	55.3	56.2
LnGrp LOS	F	D	C	D	F	C	E	E	F	E	E	E
Approach Vol, veh/h		2377			3465			1993			803	
Approach Delay, s/veh		53.6			143.5			92.6			61.0	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	79.1	18.0	51.0	9.0	82.0	28.0	41.0				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	16.0	* 64	14.0	44.0	5.0	* 75	24.0	34.0				
Max Q Clear Time (g_c+I1), s	7.6	57.5	16.8	48.0	10.0	79.0	29.0	18.7				
Green Ext Time (p_c), s	0.3	6.5	0.0	0.0	0.0	0.0	0.0	4.0				

Intersection Summary

HCM 6th Ctrl Delay	99.3
HCM 6th LOS	F

Notes
































- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
- User approved changes to right turn type.

Appendix M

2031 Future Background Synchro Intersection Worksheets

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Background AM
3855 Dundas Street East

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  			 				 	
Traffic Volume (vph)	178	2865	390	195	1328	145	210	448	196	280	756	175	
Future Volume (vph)	178	2865	390	195	1328	145	210	448	196	280	756	175	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0	
Storage Lanes	1		1	1		1	1		1	1		1	
Taper Length (m)	15.0			15.0			15.0			15.0			
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Fr _t			0.850			0.850			0.850			0.850	
Fl _t Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478	
Fl _t Permitted	0.084			0.060			0.095			0.383			
Satd. Flow (perm)	151	5085	1491	104	4715	1449	153	3433	1422	659	3466	1478	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			196			136			120			145	
Link Speed (k/h)		70			60			60				60	
Link Distance (m)		293.2			427.0			188.2				146.7	
Travel Time (s)		15.1			25.6			11.3				8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Adj. Flow (vph)	193	3114	424	212	1443	158	228	487	213	304	822	190	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	193	3114	424	212	1443	158	228	487	213	304	822	190	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.3			3.3			3.3				3.3	
Link Offset(m)		0.0			0.0			0.0				0.0	
Crosswalk Width(m)		3.0			3.0			3.0				3.0	
Two way Left Turn Lane													
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09	
Turning Speed (k/h)	25		15	25		15	25		15	25		15	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4				9.4	
Detector 2 Size(m)		0.6			0.6			0.6				0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0				0.0	

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Background AM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	52.9	52.9	9.0	52.9	52.9	9.0	56.0	56.0	9.0	56.0	56.0
Total Split (s)	25.0	80.0	80.0	12.0	67.0	67.0	23.0	51.0	51.0	17.0	45.0	45.0
Total Split (%)	15.6%	50.0%	50.0%	7.5%	41.9%	41.9%	14.4%	31.9%	31.9%	10.6%	28.1%	28.1%
Maximum Green (s)	21.0	73.1	73.1	8.0	60.1	60.1	19.0	44.0	44.0	13.0	38.0	38.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	91.0	75.0	75.0	81.1	66.1	66.1	67.0	46.0	46.0	60.0	40.0	40.0
Actuated g/C Ratio	0.57	0.47	0.47	0.51	0.41	0.41	0.42	0.29	0.29	0.38	0.25	0.25
v/c Ratio	0.69	1.31	0.53	1.34	0.74	0.23	0.90	0.49	0.43	0.88	0.95	0.40
Control Delay	43.0	176.8	17.7	223.4	43.2	7.7	79.8	49.4	22.5	64.4	79.1	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	176.8	17.7	223.4	43.2	7.7	79.8	49.4	22.5	64.4	79.1	15.9
LOS	D	F	B	F	D	A	E	D	C	E	E	B
Approach Delay		151.8			61.2			50.7			66.6	
Approach LOS		F			E			D			E	
Queue Length 50th (m)	33.1	~427.2	45.8	~67.1	131.3	3.9	53.1	62.7	21.3	63.2	125.7	10.3
Queue Length 95th (m)	58.0	#445.0	75.2	#118.2	153.4	18.1	#98.8	79.3	44.3	#108.1	#162.1	31.2
Internal Link Dist (m)		269.2			403.0			164.2			122.7	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	319	2383	803	158	1947	678	253	986	494	344	866	478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	1.31	0.53	1.34	0.74	0.23	0.90	0.49	0.43	0.88	0.95	0.40

Intersection Summary

Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	160
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	160
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.34
Intersection Signal Delay:	104.3
Intersection LOS:	F

Intersection Capacity Utilization 113.7% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.































95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2031 Future Background AM
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 		 		
Traffic Volume (vph)	178	2865	390	195	1328	145	210	448	196	280	756	175
Future Volume (vph)	178	2865	390	195	1328	145	210	448	196	280	756	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478
Flt Permitted	0.08	1.00	1.00	0.06	1.00	1.00	0.10	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	151	5085	1491	103	4715	1449	154	3433	1422	659	3466	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	193	3114	424	212	1443	158	228	487	213	304	822	190
RTOR Reduction (vph)	0	0	104	0	0	80	0	0	86	0	0	109
Lane Group Flow (vph)	193	3114	320	212	1443	78	228	487	128	304	822	81
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	85.1	73.1	73.1	72.2	64.2	64.2	61.0	44.0	44.0	51.0	38.0	38.0
Effective Green, g (s)	88.1	75.0	75.0	78.2	66.1	66.1	64.0	46.0	46.0	57.0	40.0	40.0
Actuated g/C Ratio	0.55	0.47	0.47	0.49	0.41	0.41	0.40	0.29	0.29	0.36	0.25	0.25
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	277	2383	698	156	1947	598	251	986	408	332	866	369
v/s Ratio Prot	0.09	c0.61		c0.09	0.31		c0.12	0.14		c0.09	c0.24	
v/s Ratio Perm	0.30		0.21	c0.57		0.05	0.24		0.09	0.23		0.05
v/c Ratio	0.70	1.31	0.46	1.36	0.74	0.13	0.91	0.49	0.31	0.92	0.95	0.22
Uniform Delay, d1	34.9	42.5	28.8	49.7	39.7	29.1	48.4	47.3	44.6	44.9	59.0	47.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	141.2	2.2	197.3	2.6	0.5	33.7	0.5	0.5	29.1	19.3	0.4
Delay (s)	42.5	183.7	30.9	247.0	42.3	29.6	82.1	47.8	45.1	74.0	78.3	48.0
Level of Service	D	F	C	F	D	C	F	D	D	E	E	D
Approach Delay (s)		159.0			65.1			55.6			72.9	
Approach LOS		F			E			E			E	
Intersection Summary												
HCM 2000 Control Delay			110.3			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.14									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			113.7%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2031 Future Background AM
3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (veh/h)	178	2865	390	195	1328	145	210	448	196	280	756	175
Future Volume (veh/h)	178	2865	390	195	1328	145	210	448	196	280	756	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1811	1752	1811	1682	1841	1739	1781	1856	1796
Adj Flow Rate, veh/h	193	3114	424	212	1443	158	228	487	213	304	822	190
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	3	6	10	6	10	4	6	3	3	2
Cap, veh/h	274	2418	733	164	2171	686	272	989	417	338	881	380
Arrive On Green	0.09	0.47	0.47	0.07	0.45	0.45	0.13	0.28	0.28	0.10	0.25	0.25
Sat Flow, veh/h	1781	5106	1547	1725	4782	1510	1602	3497	1473	1696	3526	1522
Grp Volume(v), veh/h	193	3114	424	212	1443	158	228	487	213	304	822	190
Grp Sat Flow(s),veh/h/ln	1781	1702	1547	1725	1594	1510	1602	1749	1473	1696	1763	1522
Q Serve(g_s), s	8.5	75.8	31.8	11.0	37.8	10.2	16.1	18.6	19.4	16.0	36.5	17.1
Cycle Q Clear(g_c), s	8.5	75.8	31.8	11.0	37.8	10.2	16.1	18.6	19.4	16.0	36.5	17.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	274	2418	733	164	2171	686	272	989	417	338	881	380
V/C Ratio(X)	0.71	1.29	0.58	1.30	0.66	0.23	0.84	0.49	0.51	0.90	0.93	0.50
Avail Cap(c_a), veh/h	384	2418	733	164	2171	686	279	1005	424	338	881	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	42.1	30.5	52.3	34.2	26.6	40.1	47.8	48.1	47.1	58.7	51.4
Incr Delay (d2), s/veh	4.0	132.8	3.3	170.7	1.6	0.8	19.8	0.5	1.2	26.0	16.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	63.2	13.4	14.7	16.0	4.2	8.1	8.6	7.7	7.9	19.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	175.0	33.9	222.9	35.8	27.4	59.9	48.3	49.3	73.1	75.2	52.6
LnGrp LOS	C	F	C	F	D	C	E	D	D	E	E	D
Approach Vol, veh/h		3731			1813			928			1316	
Approach Delay, s/veh		151.6			56.9			51.4			71.4	
Approach LOS		F			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	80.8	17.0	50.2	15.1	77.6	22.2	45.0				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	8.0	* 73	13.0	44.0	21.0	* 60	19.0	38.0				
Max Q Clear Time (g_c+I1), s	13.0	78.8	18.0	21.4	10.5	39.8	18.1	38.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	5.6	0.6	17.5	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay	104.1
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access

2031 Future Background AM
3855 Dundas Street East



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	4	25	850	1264	6
Future Volume (vph)	3	4	25	850	1264	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.923				0.999	
Flt Protected	0.979		0.950			
Satd. Flow (prot)	1608	0	1711	3433	3463	0
Flt Permitted	0.979		0.950			
Satd. Flow (perm)	1608	0	1711	3433	3463	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	47.4			146.7	158.7	
Travel Time (s)	2.8			8.8	9.5	
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%
Adj. Flow (vph)	3	4	27	924	1374	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	27	924	1381	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			3.3	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access































2031 Future Background AM
3855 Dundas Street East



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	4	25	850	1264	6
Future Volume (Veh/h)	3	4	25	850	1264	6
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)	3	4	27	924	1374	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)	147					
pX, platoon unblocked	0.89					
vC, conflicting volume	1894	690	1381			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1753	690	1381			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	95			
cM capacity (veh/h)	64	387	492			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	7	27	462	462	916	465
Volume Left	3	27	0	0	0	0
Volume Right	4	0	0	0	0	7
cSH	123	492	1700	1700	1700	1700
Volume to Capacity	0.06	0.05	0.27	0.27	0.54	0.27
Queue Length 95th (m)	1.3	1.2	0.0	0.0	0.0	0.0
Control Delay (s)	36.1	12.7	0.0	0.0	0.0	0.0
Lane LOS	E	B				
Approach Delay (s)	36.1	0.4	0.0			
Approach LOS	E					
Intersection Summary						
Average Delay	0.3					
Intersection Capacity Utilization	45.1%			ICU Level of Service	A	
Analysis Period (min)	15					

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Background PM
3855 Dundas Street East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	172	1986	229	127	3102	262	416	1040	617	212	475	183
Future Volume (vph)	172	1986	229	127	3102	262	416	1040	617	212	475	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	55.0			60.0			80.0			70.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.98				1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5036	1477	1694	5085	1506	1652	3500	1478	1652	3433	1478
Flt Permitted	0.057			0.056			0.207			0.121		
Satd. Flow (perm)	103	5036	1455	100	5085	1506	360	3500	1478	210	3433	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			124			54			136
Link Speed (k/h)		70			60			60				60
Link Distance (m)		293.2			455.7			188.2				146.7
Travel Time (s)		15.1			27.3			11.3				8.8
Confl. Peds. (#/hr)			3	3			1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	187	2159	249	138	3372	285	452	1130	671	230	516	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	2159	249	138	3372	285	452	1130	671	230	516	199
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3				3.3
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Background PM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.0	52.9	52.9	9.0	52.9	52.9	9.0	56.0	9.0	9.0	56.0	56.0
Total Split (s)	9.0	74.0	74.0	17.0	82.0	82.0	32.0	57.0	17.0	12.0	37.0	37.0
Total Split (%)	5.6%	46.3%	46.3%	10.6%	51.3%	51.3%	20.0%	35.6%	10.6%	7.5%	23.1%	23.1%
Maximum Green (s)	5.0	67.1	67.1	13.0	75.1	75.1	28.0	50.0	13.0	8.0	30.0	30.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0			15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	81.0	69.0	69.0	90.0	77.0	77.0	68.0	52.0	72.0	47.0	32.0	32.0
Actuated g/C Ratio	0.51	0.43	0.43	0.56	0.48	0.48	0.42	0.32	0.45	0.29	0.20	0.20
v/c Ratio	1.42	0.99	0.35	0.64	1.38	0.36	1.12	0.99	0.97	1.44	0.75	0.50
Control Delay	256.3	62.9	12.3	48.2	206.5	15.4	118.5	78.4	66.1	260.7	68.1	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	256.3	62.9	12.3	48.2	206.5	15.4	118.5	78.4	66.1	260.7	68.1	23.3
LOS	F	E	B	D	F	B	F	E	E	F	E	C
Approach Delay		72.0			186.4			82.8				105.6
Approach LOS		E			F			F				F
Queue Length 50th (m)	~59.1	228.9	16.6	24.7	~477.5	28.0	~126.4	174.1	179.1	~76.6	75.8	15.6
Queue Length 95th (m)	#107.0	#263.2	36.3	46.9	#493.3	48.1	#190.3	#218.5	#257.6	#127.6	95.2	39.6
Internal Link Dist (m)		269.2			431.7			164.2				122.7
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	132	2171	715	215	2447	789	403	1137	694	160	686	400
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.42	0.99	0.35	0.64	1.38	0.36	1.12	0.99	0.97	1.44	0.75	0.50

Intersection Summary

Area Type: Other
 Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 160
 Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.44

Intersection Signal Delay: 123.1 Intersection LOS: F

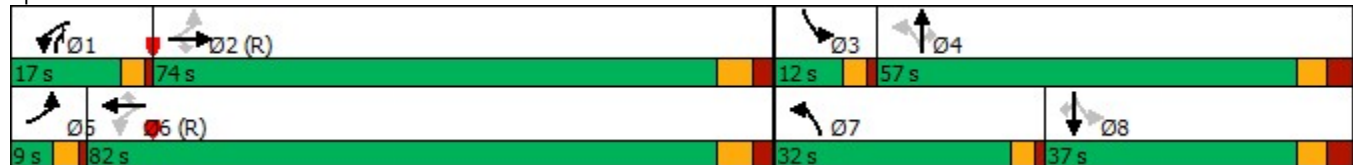
Intersection Capacity Utilization 125.0% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

























95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2031 Future Background PM
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	1986	229	127	3102	262	416	1040	617	212	475	183
Future Volume (vph)	172	1986	229	127	3102	262	416	1040	617	212	475	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	5036	1455	1694	5085	1506	1652	3500	1478	1652	3433	1459
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.21	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	103	5036	1455	100	5085	1506	360	3500	1478	211	3433	1459
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	2159	249	138	3372	285	452	1130	671	230	516	199
RTOR Reduction (vph)	0	0	88	0	0	64	0	0	31	0	0	109
Lane Group Flow (vph)	187	2159	161	138	3372	221	452	1130	640	230	516	90
Confl. Peds. (#/hr)			3	3			1					1
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	72.1	67.1	67.1	84.1	75.1	75.1	62.0	50.0	63.0	38.0	30.0	30.0
Effective Green, g (s)	78.1	69.0	69.0	87.1	77.0	77.0	65.0	52.0	67.0	44.0	32.0	32.0
Actuated g/C Ratio	0.49	0.43	0.43	0.54	0.48	0.48	0.41	0.32	0.42	0.28	0.20	0.20
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	4.0	4.0	7.0	7.0
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	130	2171	627	213	2447	724	396	1137	618	157	686	291
v/s Ratio Prot	c0.07	0.43		0.06	0.66		c0.22	0.32	c0.10	c0.10	0.15	
v/s Ratio Perm	c0.63		0.11	0.29		0.15	0.24		0.34	c0.30		0.06
v/c Ratio	1.44	0.99	0.26	0.65	1.38	0.30	1.14	0.99	1.03	1.46	0.75	0.31
Uniform Delay, d1	45.5	45.3	29.1	43.0	41.5	25.2	41.7	53.8	46.5	51.5	60.3	54.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	235.4	18.1	1.0	6.9	172.7	1.1	89.7	25.1	45.5	240.6	4.8	0.7
Delay (s)	280.9	63.4	30.1	49.9	214.2	26.3	131.3	78.9	92.0	292.1	65.1	55.3
Level of Service	F	E	C	D	F	C	F	E	F	F	E	E
Approach Delay (s)		75.9			194.2			93.3			118.3	
Approach LOS		E			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			131.0	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.38									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				13.0				
Intersection Capacity Utilization			125.0%	ICU Level of Service				H				
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2031 Future Background PM
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	1986	229	127	3102	262	416	1040	617	212	475	183
Future Volume (veh/h)	172	1986	229	127	3102	262	416	1040	617	212	475	183
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1856	1870	1870	1796	1870	1796	1796	1841	1796
Adj Flow Rate, veh/h	187	2159	249	138	3372	285	452	1130	671	230	516	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	3	4	3	2	2	2	2	2	2	4	2
Cap, veh/h	134	2293	694	190	2457	749	424	1155	604	167	699	304
Arrive On Green	0.05	0.45	0.45	0.08	0.48	0.48	0.19	0.32	0.32	0.07	0.20	0.20
Sat Flow, veh/h	1781	5066	1532	1767	5106	1557	1710	3554	1520	1710	3497	1519
Grp Volume(v), veh/h	187	2159	249	138	3372	285	452	1130	671	230	516	199
Grp Sat Flow(s),veh/h/ln	1781	1689	1532	1767	1702	1557	1710	1777	1520	1710	1749	1519
Q Serve(g_s), s	8.0	65.0	17.0	7.4	77.0	18.6	31.0	50.4	52.0	11.0	22.2	19.3
Cycle Q Clear(g_c), s	8.0	65.0	17.0	7.4	77.0	18.6	31.0	50.4	52.0	11.0	22.2	19.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	2293	694	190	2457	749	424	1155	604	167	699	304
V/C Ratio(X)	1.39	0.94	0.36	0.72	1.37	0.38	1.07	0.98	1.11	1.38	0.74	0.65
Avail Cap(c_a), veh/h	134	2293	694	228	2457	749	424	1155	604	167	699	304
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	41.8	28.6	42.8	41.5	26.4	39.9	53.4	48.2	52.8	60.1	58.9
Incr Delay (d2), s/veh	215.4	9.3	1.4	9.6	170.2	1.5	62.2	21.4	70.9	203.7	4.3	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.8	30.5	7.0	6.2	72.7	7.8	21.1	27.0	37.2	11.4	10.7	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	263.6	51.1	30.1	52.4	211.7	27.8	102.1	74.8	119.1	256.5	64.3	64.2
LnGrp LOS	F	D	C	D	F	C	F	E	F	F	E	E
Approach Vol, veh/h		2595			3795			2253			945	
Approach Delay, s/veh		64.4			192.1			93.5			111.1	
Approach LOS		E			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	77.4	12.0	57.0	9.0	82.0	32.0	37.0				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	13.0	* 67	8.0	50.0	5.0	* 75	28.0	30.0				
Max Q Clear Time (g_c+I1), s	9.4	68.0	13.0	54.0	10.0	79.0	33.0	24.2				
Green Ext Time (p_c), s	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.6				

Intersection Summary

HCM 6th Ctrl Delay	126.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access

2031 Future Background PM
3855 Dundas Street East



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	38	26	1491	906	6
Future Volume (vph)	11	38	26	1491	906	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	25.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.896				0.999	
Flt Protected	0.989		0.950			
Satd. Flow (prot)	1577	0	1711	3500	3496	0
Flt Permitted	0.989		0.950			
Satd. Flow (perm)	1577	0	1711	3500	3496	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	47.4			146.7	158.7	
Travel Time (s)	2.8			8.8	9.5	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	41	28	1621	985	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	28	1621	992	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			3.3	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access

2031 Future Background PM
3855 Dundas Street East



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	38	26	1491	906	6
Future Volume (Veh/h)	11	38	26	1491	906	6
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)	12	41	28	1621	985	7
Pedestrians				2		
Lane Width (m)				3.4		
Walking Speed (m/s)				1.1		
Percent Blockage				0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				147		
pX, platoon unblocked	0.68					
vC, conflicting volume	1855	498	992			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1323	498	992			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	92	96			
cM capacity (veh/h)	97	517	693			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	53	28	810	810	657	335
Volume Left	12	28	0	0	0	0
Volume Right	41	0	0	0	0	7
cSH	261	693	1700	1700	1700	1700
Volume to Capacity	0.20	0.04	0.48	0.48	0.39	0.20
Queue Length 95th (m)	5.2	0.9	0.0	0.0	0.0	0.0
Control Delay (s)	22.3	10.4	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	22.3	0.2			0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			51.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Appendix N

Parking and Loading Study Report



August 1, 2023

Ref: 2023-015

Dymon Group of Companies

c/o James Byck, Regional Director – Construction (Toronto)

2-1830 Walkley Road

Ottawa, ON K1H 8K3

By email: JByck@Dymon.ca

Re: 3855 Dundas Street Parking and Loading Study

Dear James:

Dymon Group of Companies (Dymon) is proposing to develop 3855 Dundas Street in Mississauga. The site is located on the northeast corner of the intersection of Ninth Line and Dundas Street East and is currently an empty field. The proposed development includes a 25,954 m² Dymon facility and will consist of 15,616 m² (168,091 ft²) of self-storage space, 97 m² (1,048 ft²) of wine cellar space, 5,755 m² (61,941 ft²) of office space, 1,231 m² (13,255 ft²) of industrial condo units, and 1,400 m² (15,065 ft²) of reception and retail spaces that support the self-storage customers.

A total of 190 parking spaces are proposed, of which 97 are at grade and 93 are on one underground level. A total of 12 accessible parking spaces will be provided and will serve all proposed land uses. Ten of the 12 accessible spaces are proposed at grade, and two will be underground. A total of 28 bicycle parking spaces will be provided. The site will include one exterior loading dock south of the interior loading area / drive aisle. There will also be an interior loading / drive-through area located adjacent to the industrial condos and connected via doors in each condo unit. This area will serve the industrial condo tenants as well as providing spaces for additional overflow parking and loading for self-storage customers. Attachment 1 includes the proposed site plan.

This letter has been prepared to address the transportation requirements of the proposed Dymon Self-Storage and Work Refined Facility and will examine the site parking and loading requirements.

Dymon Business Model and Site Context

Dymon offers a unique customer-centric storage solution unlike anything else in the marketplace. Unlike traditional self storage operations, Dymon facilities are located along arterial corridors, in very prominent locations within close proximity to its residential and business customers. With its high level of security, total humidity and climate control environment, and focus on customer service, Dymon offers a reliable extension to people's homes and businesses. The primary access to Dymon's facilities is via an interior loading area (with secure access 24 hours a day) that protects customers from the weather while loading/unloading their possessions. By providing this interior area the reliance on surface parking is significantly reduced, as up to 75% of visitors to the site during any period use the interior loading bay, rather than the provided parking lot. In fact, any visit after the initial visit uses the interior loading area as this is the direct access to the storage lockers. Dymon sites include a reception and a retail area that is not used directly for self-storage. This space has several functions, including allowing space for new customers to come in and rent a storage locker or purchase storage supplies (boxes, tape, bubble wrap, etc.). In 2019, Dymon expanded the services available in this space to include home storage solutions including closet organizers, under counter shelving, and storage bins. This service is now offered at several Ottawa Dymon locations. This development also includes a Work Refined co-working space which provides members with 24/7 secure access to fully equipped office facilities and dedicated high speed wi-fi, on flexible terms with no long-term commitments.

Industrial condos to be provided to this site are a new addition to Dymon facilities. The industrial condo is a condominium development like residential and office condominiums but dedicated to industrial land use. Dymon's industrial condos aim at providing quality small to mid-bay industrial activities. The industrial condos are located in a multi-unit structure and share common driveways, loading areas, parking areas, garbage collection, utilities, sidewalks, lobbies, etc.

Parking Generation / Requirement

The proposed development will provide a total of 97 exterior parking spaces at grade, and 93 underground parking spaces. The development is mixed-use and the total site parking requirements are a sum of the individual parking space requirements for each land use. The zoning by-law does not have an “industrial condo” land use specifically, therefore the parking rates required for all industrial related uses, such as manufacturing facility, warehouse / distribution facility, and contractor service shop, for multiple-occupancy buildings have been reviewed. The industrial condos are expected to be used for a variety of industrial activities, thus the highest unit area parking rate among these has been applied to calculate the minimum parking requirement for this use.

The site is located in Parking Precinct 4, and therefore the Mississauga Zoning By-law 0225-2007 parking rates for Precinct 4 have been applied. Precinct 4 includes the areas outside the City Centre or the areas currently with limited access to rapid transit, thus the minimum parking rates for each land use are on the higher end of the City in the Zoning By-law. The zoning requirements and parking provisions are summarized in Table 1.

Table 1: Vehicle Parking Requirement Zoning By-Law Approach

Land Use	GFA (m ²)	Parking Rate (Required)	Parking Spaces (Required)	Parking Spaces (Provided)	Difference
Self Storage incl. Wine Cellar	15,714	0.25 spaces per 100 m ² GFA	39	190	-102
Retail (less than 2,000 m ² GFA)	1,400	4.3 spaces per 100 m ² GFA	60		
Office	5,755	3 spaces per 100 m ² GFA	173		
Industrial Condo	1,231	1.6 spaces per 100 m ² GFA	20		
Total			292	190	-102

As noted above, the proposed site does not include the number of parking stalls prescribed by the zoning by-law. The proposed site includes 190 parking spaces, whereas the requirement is 292 parking spaces.

To support the proposed parking variance for the self-storage warehouse, a parking survey has been undertaken at a proxy site operated by Dymon at 1460 The Queensway in Etobicoke, Toronto. It has been selected as an appropriate proxy site for comparison, as it has similar features to the proposed development such as the proposed land uses, total gross floor area, and arterial road access. The selected site includes the Dymon self-storage facility with drive-through areas, the retail functions which sell the home storage solutions discussed previously, and a co-working office space. These will operate in the same manner as the proposed site plan at 3855 Dundas Street West. Attachment 2 provides the detailed parking generation counts for 1460 The Queensway. As shown in Table 2, the counts were recorded on the busiest days of the week in February 2022, October 2022, and March 2023, allowing observation of the parking demand increase as the proxy site gradually approached its full occupancy.

Table 2: Data Dates – 1460 The Queensway

Data Type	Location	Count Date
Parking Counts	1460 The Queensway	Saturday, February 12, 2022
		Tuesday, February 15, 2022
		Thursday, October 20, 2022
		Wednesday, March 29, 2023
		Thursday, March 30, 2023
		Friday, March 31, 2023
		Saturday, April 1, 2023

Table 3 summarizes the parking supply and parking demand for the site as well as the calculated parking supply rate and parking demand rate for the self-storage component. The exterior parking supply has been included. The sum of self-storage and reception / retail parking demand has been provided for the February 2022 counts as the parking surveys taken then did not separate the two uses.

Table 4 summarizes the parking supply and parking demand as well as the calculated parking supply rate and parking demand rate for the Work Refined office component of 1460 The Queensway.

Per the City of Mississauga’s requirement, parking survey data was collected over a consecutive two-week period for two or three of the busiest days per week. Data has been collected for four days within one week between Wednesday, March 29, 2023, and Saturday, April 1, 2023. The three weekdays were selected as the busiest days during the week according to information supplied by the reception staff at the subject facility. Data was also collected on Saturday to account for the potential alternative peak period due to the increasing self-storage-related traffic and decreasing office-related traffic during the weekend. Data was not collected over a two-week period as the week after the data was collected was a four-day week before the Easter holidays and the survey results would not represent the parking demand of a typical week.

As parking counts from a consecutive two-week period was not available, the dataset was supplemented with earlier parking counts from February 2022 and October 2022. Although those counts were from earlier dates, they could be validated by applying the occupancy rate at the time of the parking surveys.

At the 1460 Queensway location, in February 2022, 59.5% of the self-storage lockers were rented (1548 Units) while 40.5% were available or vacant (1055 Units), and 64.5% of the co-working spaces were rented (129 workstations) while 35.5% (71 workstations) were available for the office. Considering the potential growth from more customers, the parking demands at maximum capacity, assuming that the increase in the parking demand will be linear to the number of rented units, have been calculated for self-storage (including retail) and office land uses and are summarized in Table 3 and Table 4 in the “Adjusted” rows. It is observed that the parking demand rate has been steadily increasing over time, and the parking demand rates from the adjusted February 2022 counts and the parking demand rates directly from the March 2023 counts are converging. Therefore, it is evident that the proxy site is approaching full occupancy in 2023 and the March 2023 peak parking demand rates are representative of the peak parking demand of comparable facilities. The March 2023 peak parking demand rates have been applied to calculate the parking requirement for 3855 Dundas Street.

The proposed parking survey range has been submitted to the transportation staff at the City, but no responses have been received in advance of this resubmission. In this case, we have proceeded with the assumption.

Table 3: Parking Survey Summary – Self-storage and Retail

Site	GFA Storage & Retail (m ²)	Parking Supply (Exterior)	Parking Supply (Interior)	Parking Supply (Total)	Parking Demand	Parking Supply Rate	Parking Demand Rate
1460 The Queensway (February 2022)	28,799	173	59	232	49	0.81/100m ²	0.17/100m ²
Adjusted							0.29/100m ²
1460 The Queensway (March – April 2023)	28,799	173	59	232	95	0.81/100m ²	0.33/100m ²
Storage	27,568	145	59	204	68	0.74/100m ²	0.25/100m ²
Retail	1,231	28	0	28	27	2.27/100m ²	2.19/100m ²

Table 4: Parking Survey Summary – Office

Site	GFA Storage & Retail (m ²)	Parking Supply (Exterior)	Parking Supply (Interior)	Parking Supply (Total)	Parking Demand	Parking Supply Rate	Parking Demand Rate
1460 The Queensway (February 2022)	2,192	40	0	0	25	1.82/100m ²	1.14/100m ²
Adjusted							1.77/100m ²
1460 The Queensway (October 2022)	2,192	40	0	0	29	1.82/100m ²	1.32/100m ²
1460 The Queensway (March – April 2023)	2,192	40	0	0	36	1.82/100m ²	1.64/100m ²

Based on the proposed site plan for 3855 Dundas Street, the gross floor area, and parking stall provisions, the parking rate provided for the proposed development has been calculated. Table 5 summarizes the 3855 Dundas Street parking provisions.

Table 5: 3855 Dundas Street Parking Provisions – Dymon

Land Use	GFA (m ²)	Parking Rate (Required)	Parking Spaces Required	Parking Spaces Provided	Parking Rate (Provided)
Self-Storage	15,714	0.25/100m ²	39	39	0.25/100 m ²
Retail / Reception	1,400	2.19/100m ²	31	34	2.43/100 m ²
Office	5,755	1.64/100m ²	95	97	1.69/100 m ²
Subtotal			165	170	-
Industrial Condo	1,231	1.6/100m ²	20	20	1.6/100m ²
Total			185	190	-

It has been calculated that parking is proposed to be provided at a rate of 0.25 spaces per 100 square metres of non-residential GFA for the self-storage component, 2.43 spaces per 100 square metres of non-residential GFA for the retail component, and 1.69 spaces per 100 square metres of non-residential GFA for the office component. While these are less than the parking rate requested by the City of Mississauga, the rates are higher than the peak surveyed parking demand rates at the comparable Dymon site. No parking variance is proposed for the industrial condo land use, and the Zoning by-law parking rate of 1.6 spaces per 100 square metres of non-residential GFA has been provided.

In addition to the above, patrons will utilize the interior loading space more efficiently than other areas of the site as they will park within the interior loading area to facilitate loading and unloading. The interior loading space can accommodate more vehicles.

Further, future higher order transit is planned along Dundas Street in the form of BRT facilities. It is anticipated that the completion of the Dundas BRT will result in an increase in the transit mode share within the Study Area and will reduce the reliance on personal vehicles and the parking demand along Dundas Street corridor.

Considering the proxy site requirements, the parking provisions for both the Dymon self-storage and office uses are adequate.

Accessible Parking

Accessible parking spaces requirements and provisions are summarized in Table 6. Since a reduction from the zoning by-law requirement is sought for both the self-storage and the office components and this reduction is supported by the proxy site survey data, the accessible parking spaces will be provided based on the number of total parking spaces proposed, instead of the total parking spaces required by the zoning by-law.

Table 6: Accessible Parking Requirement - Zoning By-Law Approach

Land Use	Total Number of Required Non-Residential Parking Spaces	Range	Minimum Accessible Parking Rate (Required)	Minimum Accessible Parking Spaces (Required)	Parking Spaces (Provided)	Meeting the Requirement?
Total	190	101-200	1.0 space plus 3% of the total	3 Type A 4 Type B	6 Type A 6 Type B	Yes

A total of 12 accessible parking spaces will be provided, including 6 Type A spaces and 6 Type B spaces paired with each other. All accessible parking spaces are provided at grade, immediately next to building entrances. As shown above, the accessible parking provisions exceed the zoning by-law requirements.

Bicycle Parking

Bicycle parking spaces will be provided in accordance with Section 3.1.6 of the Mississauga Zoning By-law 0225-2007 as summarized in Table 7. The bicycle parking provisions are listed for comparison. Class A are long-term bicycle parking spaces and Class B are short-term bicycle parking spaces.

Table 7: Bicycle Parking Requirement - Zoning By-Law Approach

Land Use	GFA (m ²)	Class A Rate (Required)	Class A (Required)	Class A (Provided)	Class B Rate (Required)	Class B (Required)	Class B (Provided)
Self Storage + Wine Cellar	15,714	n/a	0	12	2.0	2	16
Retail	1,400	0.15*	2		0.2*	3	
Office	5,755	0.1*	6		0.1*	6	
Industrial Condo**	1,231	0.15*	2		0.15*	2	
Total			10	12		13	16

*Unit for parking rates is spaces per 100 m² non-residential GFA.

**For industrial condos, the bicycle parking rates for Manufacturing Facility, Warehouse/Distribution Facility, and Wholesaling Facility have been applied.

The site will provide a total of 28 bicycle parking spaces including 12 long-term spaces on underground level 1 and 16 short-term spaces at grade. The bicycle parking provisions will exceed the zoning by-law requirements of 10 long-term and 13 short-term spaces.

Loading Spaces

Loading Space requirements per Mississauga Zoning By-law 0225-2007 and provisions are summarized in Table 8.

Table 8: Loading Requirement – Zoning By-law Approach

Land Use	GFA (m ²)	Criteria	Minimum Loading Spaces	Loading Spaces Provided	Difference
Warehouse / Distribution Facility	15,714	Greater than 14,000 m ² : 3.0 spaces plus 1.0 additional space for each 9,300 m ² GFA - non-residential or portion thereof	4	2	2
Retail	1,400	Greater than 250 m ² but less than or equal to 2,350 m ² : 1.0 space	1		
Office	5,755	Greater than 2,350 m ² but less than or equal to 11,600 m ² : 1.0 space	1		
Industrial Condos	1,231	Greater than 250 m ² but less than or equal to 2,350 m ² : 1.0 space	1		
Total			7	2	-5

As shown in Table 8, the provided loading spaces are 5 spaces short from the required. However, it is anticipated that the loading space provisions will be able to accommodate the needs of the vehicles on site.

The industrial condo is the only land use where no previously collected proxy site data on loading demand rates is available. As such, the required one loading dock is provided in the interior loading / drive-through area next to the industrial condos, with doors connecting the loading area to each industrial condo.

To support the loading variance for the rest of the land uses, proxy site survey data from 1460 The Queensway has been used to determine the frequency of truck visits. Table 9 summarizes the surveyed heavy vehicle In and Out trips during the heavy truck peak hour of 1460 The Queensway.

Table 9: Net Peak Hour Trucks

Site	AM Peak Hour			PM Peak Hour			Sat Peak Hour		
	In	Out	Net	In	Out	Net	In	Out	Net
1460 The Queensway (February 2022)	0	0	0	0	0	0	0	0	0
1460 The Queensway (October 2022)	1	1	0	1	0	1	-	-	-
5 Nevets Road	0	0	0	0	0	0	0	0	0

As can be seen in Table 9, trucks entering the proxy Dymon sites vary between zero and one during the truck peak hour periods. The demand for loading docks is expected to be even lower, as the proxy site turning movement counts include moving trucks, as well as garbage trucks. Considering this, two loading spaces will meet the loading space demand at the subject site.

Moreover, the City’s Loading Space Regulations do not include specific loading space requirements for the Self-Storage Warehouse land use. The loading space requirement for the City of Mississauga has a general rate for all non-residential land uses excluding office and medical office land uses. Using this general rate, the self-storage portion alone requires a minimum of four loading spaces. Unlike a self-storage facility, where patrons may utilize personal vehicles for loading and unloading, it is expected that the majority of vehicles entering a manufacturing site will be utilizing loading docks. Therefore, the requirement of four spaces is considered overly conservative for a self-storage facility and a provision of two loading docks is recommended. Similarly, the loading requirement of the retail land use on site is also based on the general non-residential rate which is not representative of the storage-related reception / retail area in the proposed development.

The “office” land use provided in the City’s Loading Space Regulations is also a general rate for all types of offices instead of the specific rate for co-working spaces. Co-working spaces have less loading / unloading activities than typical office land uses as some visitors use them as temporary locations for work.

In addition, the interior loading area is designed with the intention to provide more freedom to customers using the parking and loading spaces. Apart from the loading space in the centre delineated with pavement markings, the rest of the interior loading area is also intended to be used as loading spaces to accommodate the loading / unloading vehicles. They are not marked on the ground, thus during the operation of the site the users can decide the locations to use depending on the sizes of the vehicles, the sizes of the empty spaces, and the location of the lockers. This feature can potentially result in higher efficiency in utilizing the loading area. Therefore, the actual loading spaces provided will function as more than the two loading docks. On a rare occasion where extra loading spaces for trucks are required, the interior loading area can accommodate more HSU trucks.

Mr. James Byck
August 1, 2023

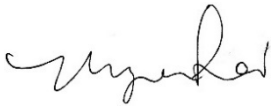
As such, the provision of two loading docks for all proposed land uses satisfies the expected demand based on heavy vehicle trip generation at comparable Dymon sites, and the loading requirements provided in the City's Loading Space Regulations are not considered applicable to this development.

Conclusions

Based on the key requirements of the agreed to scope, the following conclusions are made for this site:

- Based on the proxy site parking surveys, the provided parking will adequately serve the proposed self-storage and office facility.

Based on this Transportation and Parking Summary, the proposed development should be approved, from a transportation perspective.



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Attachments:

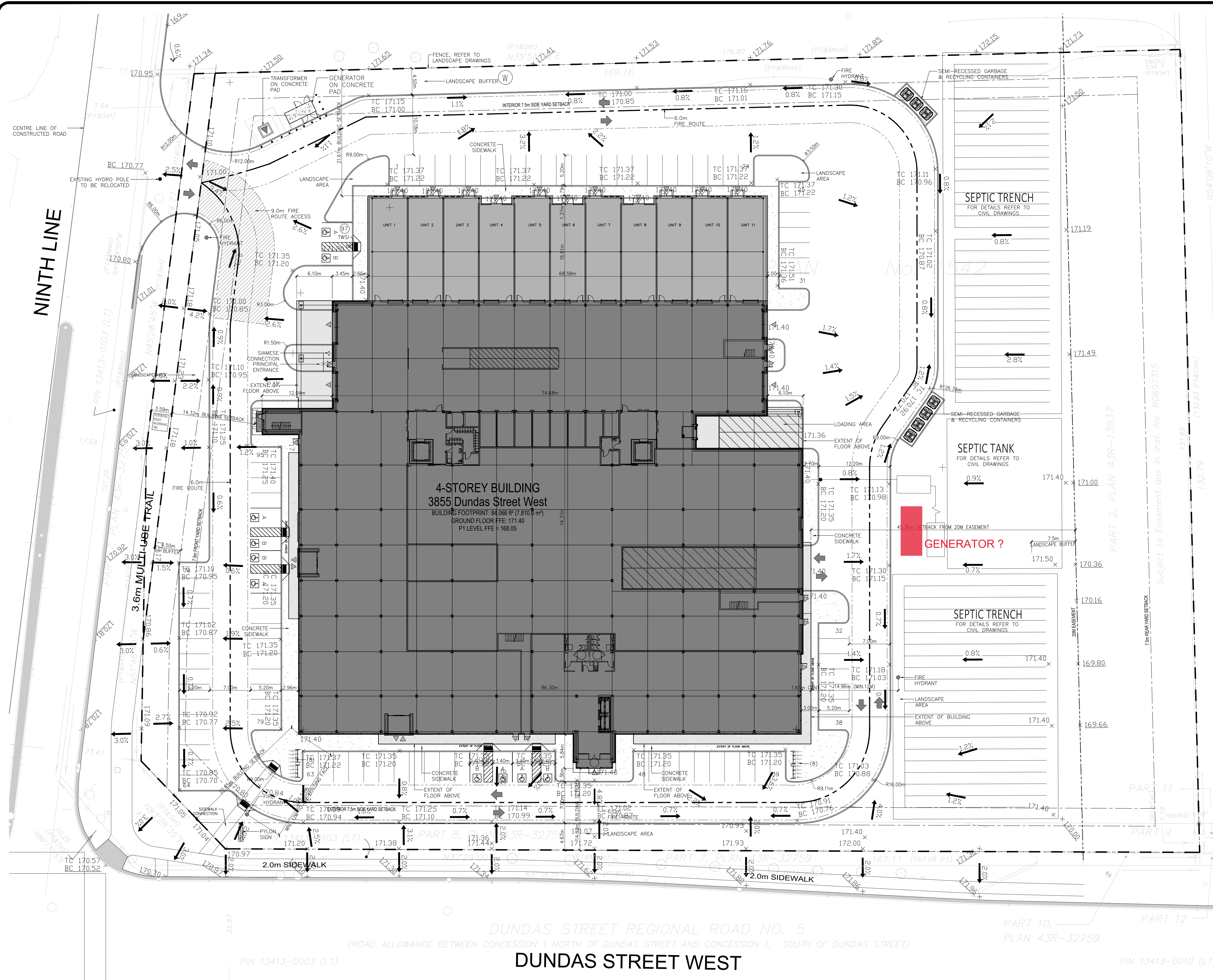
Attachment 1 – Proposed Site Plan

Attachment 2 – Proxy Site Parking Data and Site Plan

Attachment 1

Proposed Site Plan



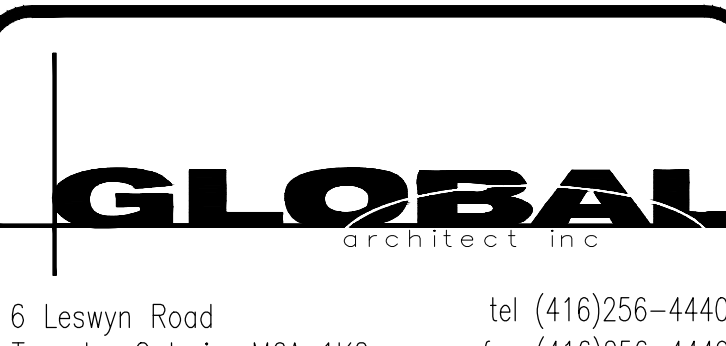
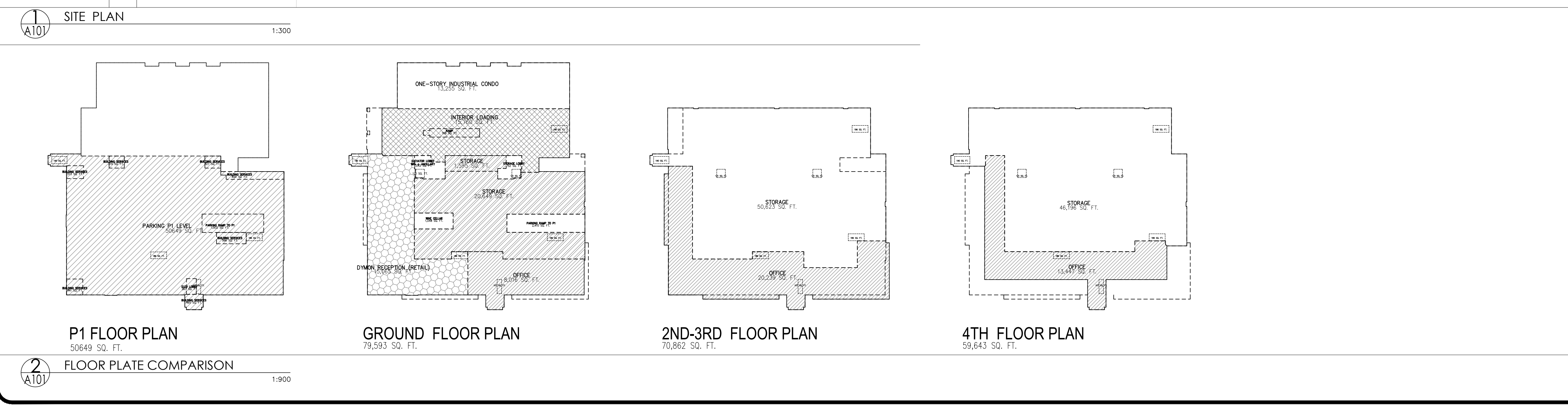


SITE STATISTICS			
GENERAL INFORMATION OF PROPERTY			
LOT #1 REGISTRATION COMPLED PLAN 542			
CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF HILL			
SURVEYED BY SPEIGHT, VAN NOSTRAND & GIBSON LIMITED			
ONTARIO LAND SURVEYORS 2018			
ZONING REGULATION (By-law 527-2016 (OAS)) REFERRED TO ZONE			
	PROPOSED	RECORDED	COMPLIANCE
Total Lot Area	23,871.0m ²	(256,962)	N/A
R.O. to Road Widening (to be confirmed)	281.3m	(1,142)	
Lot Area	23,589.7m ²	(253,820)	
Building Footprint Area	7,850.0m ²	(84,966)	33.3% of lot area
GFA per uses			
Drive-through Loading Area	1,043.2m ²	(11,796)	
Storage Lobby	165.2m ²	(1,142)	
Reception & Retail Area	1,799.6m ²	(15,067)	
Parking Ramp Area	223.0m ²	(2,434)	
Self Storage Ground to 4th Floor	15,436.2m ²	(168,019)	
Office Ground to 4th Floor	10,345.0m ²	(91,948)	
Wine Cellar & Lounge	97.4m ²	(1,048)	
Industrial Goods Self Storage	1,231.4m ²	(13,259)	
Total Building GFA per uses (excluding P1)	25,953.8m²	(279,954)	
Building Setbacks			
Setback from North Line - Front yard	14.6m	7.5m	YES
Setback from Rear yard	45.36m (to 20m easement)	7.5m	YES
Setback from Dundas Street West - Exterior Side yard	12.57m	7.5m	YES
Setback from North property line - Interior Side yard	21.47m	7.5m	YES
Building Height	4 storeys	21.3m (5-storey building)	
Permitted uses			
Retail, Offices & Self Storage Warehouse			
Parking spaces			
As per Parking Classification Report	100 spaces (97 grade & 3 at underground level)	202	NO
Industrial uses (Self Storage Warehouse) - 0.25 per 300m ² net floor area		39	
Retail - 4.3 per 300m ² net floor area		66	
Office - 1.0 per 300m ² net floor area		12	
Industrial Goods - 1.6 per 300m ² net floor area		20	
Accessible Parking Spaces	Total provided: 12 spaces (8 type A & 4 type B) (80% grade & 2 at underground level)	Total required: 8 spaces (4 type A & 4 type B)	YES
Bicycle Parking Spaces	Total provided: 38 spaces (8% grade & 3 at underground level)	Total required: 23 (30 long term & 13 short term)	YES
Landscaping Buffers			
Landscaping abutting Nine Line	7.5m	7.5m	YES
Landscaping abutting Dundas Street West	7.5m	7.5m	YES
Loading	1 storey & 1 Exterior Loading	N/A	
Driver Aisle Width	7.0m (one-way)	7.0m	YES
Landscaping			
Planting Area (not of landscape)	7,020.0m ²	(80,800)	32.20%
Landscaped Area (of landscape)	6,554.9m ²	(81,644)	36.13%
GFA per floor			
Ground floor	7,394.4m ²	(79,504)	
2nd floor	6,983.3m ²	(76,924)	
3rd floor	6,983.3m ²	(76,924)	
4th floor	5,582.8m ²	(60,444)	
Parking level 1	6,705.6m ²	(72,499)	
Total Building GFA (including P1)	36,650.0m²	(396,904)	
One-storey Industrial Condo			
One-storey Industrial Condo	1,211.4m ²	(13,254)	3%
Storey Self Storage & Office	6,581.3m ²	(71,924)	18%
GFA breakdown per uses			
Stairs Ground floor to 4th (Self-Storage)	138.2m ²	(1,488.0)	0.5%
Stairs Ground floor to 4th (Office)	81.3m ²	(904)	0.3%
Elevators Ground floor to 4th (Self-Storage)	89.5m ²	(964)	0.3%
Stairs & Ramp Underground Level 1	39.8m ²	(428)	0.2%
Elevators Lobby Underground Level 1	34.4m ²	(374)	0.1%
Mechanical & Electrical Service Area	199.3m ²	(2,164)	0.8%
Elevator Lobby/Auxiliary Space Ground floor Self-storage	166.7m ²	(1,794)	0.7%
Interior Loading & Parking and Loading Dock	1,484.2m ²	(16,104)	4.6%
Dymon Reception & Retail	1,298.6m ²	(13,904)	3.6%
Total Self-storage Ground to 4th (***)	15,388.0m ²	(166,674)	5%
Total Office Ground to 4th (***)	5,644.6m ²	(60,748)	2%
Total GFA 4-storey Building	25,953.8m²	(279,954)	99%
Total GFA (****)	26,485.7m²	(283,054)	

LEGEND			
■	PROPOSED BUILDING LOCATION	◀	PRINCIPAL ENTRANCE
▨	EXISTING NEIGHBORING BUILDINGS	▲	TRANSFORMER
▩	LANDSCAPED AREA	—	FENCE & GATE
▧	CONCRETE / SIDEWALK	○	UTILITY POLE
▦	BARRIER FREE PARKING CLEARANCE	●	FIRE HYDRANT
▥	CURB	○	NLS (NEW LIGHT STANDARD, REFER TO ELECTRICAL)
▤	DEPRESSED CURB	●	BOLLARD
TWS	TACTILE WALKING SURFACE INDICATOR	●	HYDRO POLE
○	NEW TREE / VEGETATION (REFER TO LANDSCAPE PLAN FOR TYPE, SIZE AND LOCATION)	▨	PEDESTRIAN CROSSING DEMARCATION PAINTED
○	EXISTING TREE (FOR REFERENCE ONLY, REFER TO LANDSCAPE PLAN)	▨	DENOTES PAINTED LINES
♿	BARRIER FREE PARKING	▨	DENOTES FIRE ROUTE ACCESS
⊙	INTERIOR PARKING	→	ONE-WAY SIGN
⊙	MAN HOLE, CATCH BASIN	→	NO ENTRY SIGN
⊙	SIAMSESE CONNECTION	→	FIRE ROUTE ACCESS / NO PARKING SIGN
▶	ENTRANCE / EXIT LOCATION	→	TRAFFIC DIRECTION

BOUNDARY INFORMATION FROM SURVEY BY: SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS
COMPLETED ON APRIL 22, 2018

SCALE 1 : 300



6 Leswyn Road Toronto, Ontario, M6A 1K2
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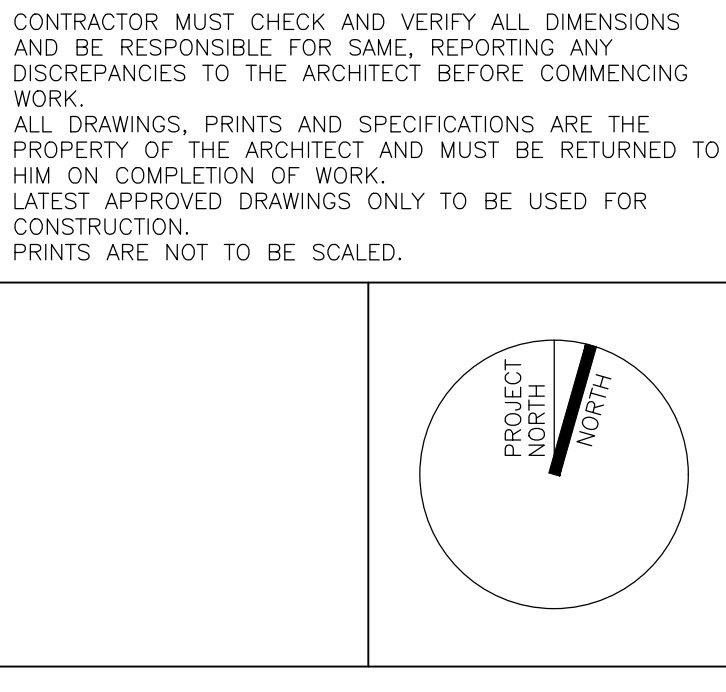
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Planning, Urban Design & Landscape Architect
MHBC Planning, Urban Design & Landscape Architecture
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Woodbridge ON, L4L 8G1
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Civil Engineer
C.F. Crozier & Associates
Consulting Engineers
211 Yonge Street, Suite 301,
Toronto ON, M5B 1M4
tel: (416) 477-3392

NO.	DATE	DESCRIPTION
13	JULY 31, 23	FOR REVIEW & SUBMISSION
12	JULY 25, 23	FOR CIVIL COORDINATION
11	JULY 20, 23	DELETE P2 PARKING/ REVISD SITE PLAN INFO
10	JULY 17, 23	REVISED STAIRS FOR COORDINATION
9	JUN 29, 23	REVISED FOR COORDINATION
8	JUN 14, 23	REVISED SOUTH ENTRANCE
7	JUN 05, 23	FOR COORDINATION
6	MAY 31, 23	SPA PROGRESS FOR COORDINATION
5	APR 13, 23	REVISED CONCEPT PLAN R3
4	DEC 04, 22	REVISED CONCEPT PLAN R2
3	OCT 28, 22	REVISED CONCEPT PLAN R1
2	OCT 19, 22	REVISED TO MTD COMMENTS
1	SEPT 02, 22	ISSUED FOR REVIEW

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME, REPORTING ANY DISCREPANCIES TO THE ARCHITECT BEFORE COMMENCING WORK.
ALL DRAWINGS, PRINTS AND SPECIFICATIONS ARE THE PROPERTY OF THE ARCHITECT AND MUST BE RETURNED TO HIM ON COMPLETION OF WORK.
LATEST APPROVED DRAWINGS ONLY TO BE USED FOR CONSTRUCTION.
PRINTS ARE NOT TO BE SCALED.



DYMON CAPITAL CORP.
2-1830 WALKLEY ROAD
OTTAWA ON, K1H 8K3

PROJECT NAME
**4 STOREY SELF STORAGE FACILITY
& 1 STOREY INDUSTRIAL CONDO**
3855 DUNDAS ST. WEST
MISSISSAUGA ON

DRAWN BY AT

CHECKED BY R.P.

DATE July 25, 2023

SCALE AS NOTED

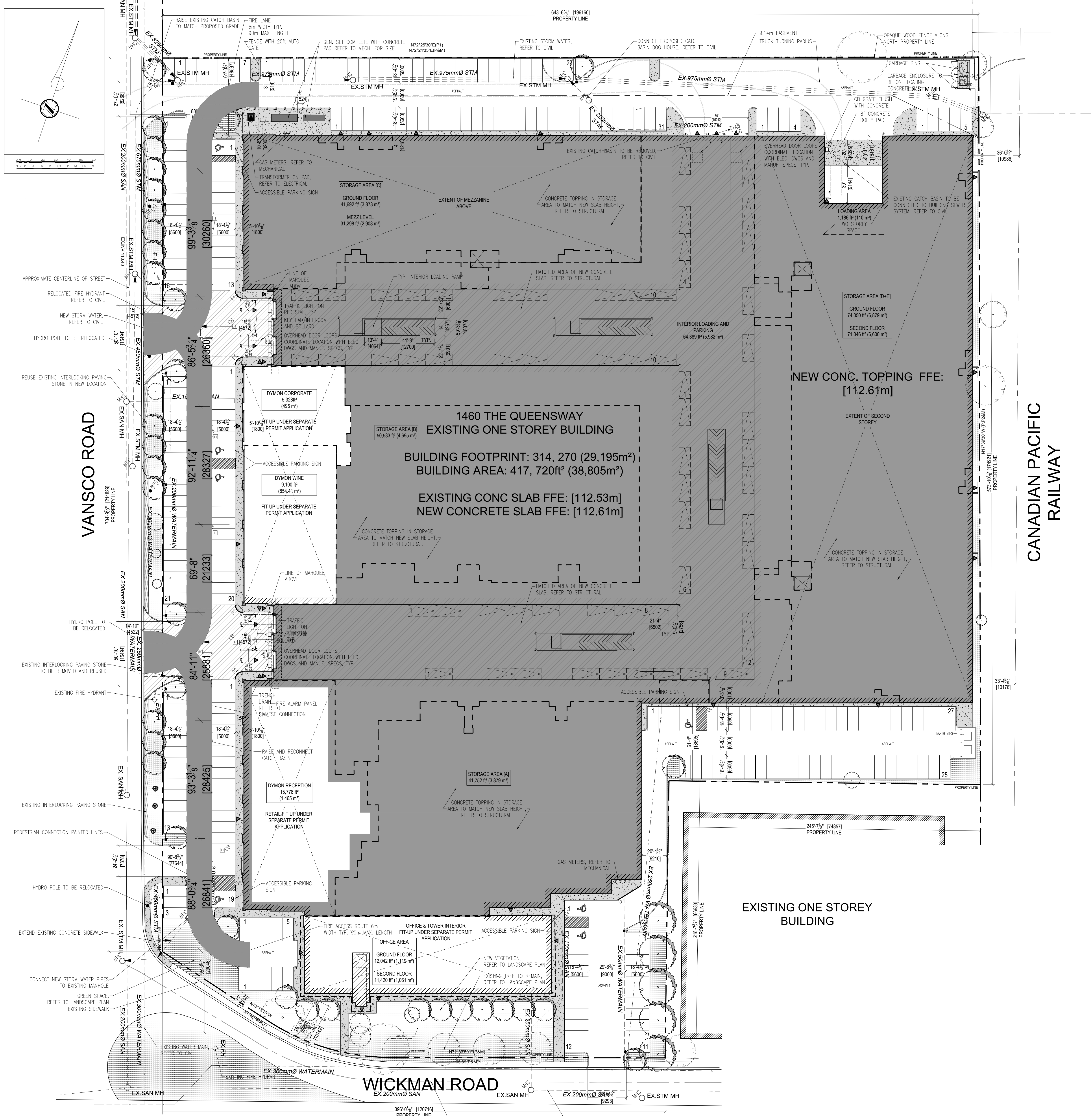
DRAWING TITLE

SITE PLAN

PROJECT NO. **22-06** DRAWING NO. **A101**

Attachment 2

Proxy Site Parking Data and Site Plans



STATISTICS

LEGAL DESCRIPTION OF PROPERTY:
 THE 41,719m² PROPERTY KNOWN MUNICIPALLY AS 1460 THE QUEENSWAY IS LOCATED AT THE NORTHEAST CORNER OF VANSOCO ROAD AND THE QUEENSWAY IN THE CITY OF TORONTO (ETORONCA).
 BOUNDARY INFORMATION FROM SURVEY BY: DAVID B. SEARLES SURVEYING LTD.

BUILDING FOOTPRINT (INCLUDING INTERIOR LOADING): 29,210 m² (314,411 ft²)
 TOTAL SELF STORAGE: 27,588 m² (297,866 ft²)
 TOTAL RECEPTION: 1,231 m² (13,212 ft²)
 TOTAL OFFICE: 3,192 m² (34,349 ft²)
 TOTAL GFA: 30,981 m² (337,956 ft²)

PARKING STATISTICS

REQUIRED	FORMER CITY OF TORONTO BY-LAW	PROPOSED
206 SPACES	359 SPACES	266 EXT. SPACES 59 INT. SPACES 325 TOTAL

FOR A COMPLETE LIST OF THE PERFORMANCE STANDARDS FOR BOTH ZONING CATEGORIES PLEASE REFER TO THE TABLE IN APPENDIX A OF THE ASSOCIATED PLANNING RATIONALE REPORT.

LEGEND

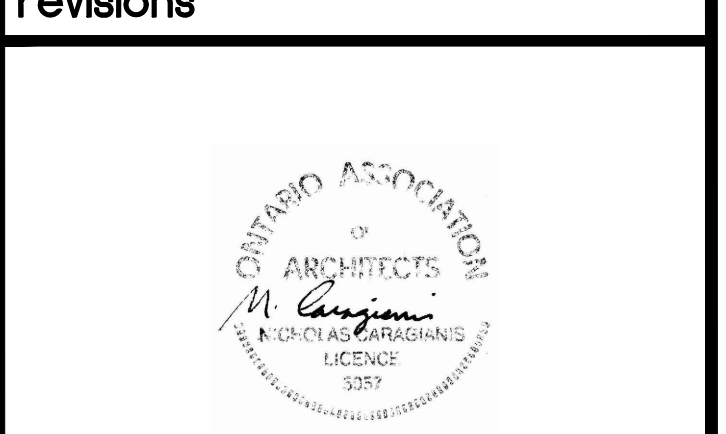
- PROPOSED BUILDING LOCATION
- EXISTING NEIGHBORING BUILDINGS
- LANDSCAPED AREA
- CONCRETE/ SIDEWALK
- BARRIER FREE PARKING CLEARANCE
- INTERLOCKING PAVING STONE (EXISTING TO REMAIN OR REUSE)
- CURB
- DEPRESSED CURB
- NEW TREE/ VEGETATION (REFER TO LANDSCAPE PLAN FOR TYPE, SIZE AND LOCATION)
- EXISTING TREE (LOCATION IS FOR REFERENCE ONLY, REFER TO LANDSCAPE PLAN)
- BARRIER FREE PARKING
- INTERIOR PARKING
- CATCH BASIN
- SAMESE CONNECTION
- ENTRANCE/ EXIT LOCATION
- TRANSFORMER
- FENCE & GATE
- MAN HOLE COVER
- WOOD POLE (HYDRO)
- FIRE HYDRANT
- NLS NEW LIGHT STANDARD, REFER TO ELECTRICAL
- NEW BOLLARD

BOUNDARY INFORMATION FROM SURVEY BY: DAVID B. SEARLES SURVEYING LTD. ONTARIO LAND SURVEYORS. 04 MAY 2016

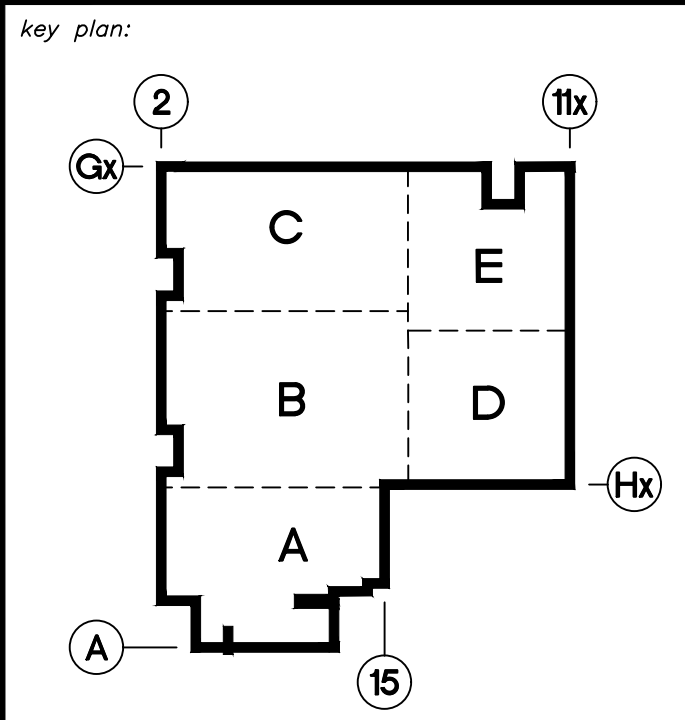
1. Contractor must verify all job dimensions, all drawings, details, specifications and report any discrepancies to owners before proceeding with work.
 2. All drawings and specifications are instruments of service and the property of the architects which must be returned at the completion of the work, and may not be reproduced without their written permission.

revisions

no.	description	date
16	ISSUED FOR PERMIT	2020 09 02
15	RE-ISSUED FOR CONSTRUCTION (FC5)	2018 12 03
14	ISSUED FOR ZONING	2018 04 27
13	FOR COORDINATION	2018 04 26
12	REVISED FOR PERMIT	2018 03 07
11	RE-ISSUED FOR COORDINATION (FC4)	2018 02 02
10	FOR COORDINATION	2017 01 16
9	FOR COORDINATION	2017 12 12
8	FOR COORDINATION	2017 10 11
7	FOR COORDINATION	2017 09 22
6	FOR COORDINATION	2017 08 23
5	FOR COORDINATION	2017 08 16
4	FOR COORDINATION	2017 08 08
3	FOR COORDINATION	2017 06 29
2	BLDG. STRUCT. & SHELL PERMIT	2017 06 20
1	FOR COORDINATION	2017 06 15



2020 09 02
ISSUED FOR PERMIT



DESIGN ARCHITECT	TACT Architecture Inc. 660R College St (Rear Lane) Toronto ON M6G 1B8 tel: (416) 516 1949 email: info@tactdesign.ca
STRUCTURAL ENGINEER	Cleland Jardine Engineering Ltd. 206-580 Terry Fox Drive, Kanata ON K2K 4B9 tel: (613) 591-5233 fax: (613) 591-1703 e-mail: mail@clelandjardine.com
MECHANICAL/ELECTRICAL	Tristar Engineering Ltd. 8901 Woodbine Ave. Suite 116, Markham, ON L3R 9Y4 tel: (905) 804 2601 e-mail:
CIVIL ENGINEER	Cole Engineering Ltd. 70 Valleywood Drive, Markham ON L3R 4T5 tel: (416) 987-6161 or (905) 940-6161 fax: (905) 640-2064 www.coleengineering.ca
PLANNING & URBAN DESIGN	Folerni 223 McLeod Street, Ottawa ON K2P 1Z3 tel: (613) 730-5709 fax: (613) 730-1136 www.folerni.com

owner:
Dymon Capital Corporation
 2-1830 Walkley Road
 Ottawa ON K1H 9K3
 tel: 613-247-0888 fax: 613-247-7730

TRUE NORTH PROJECT NORTH

architect
nicholas caraglanis architect inc.
 137 Pimlico Street,
 Ottawa, ON K1S 3K9
 t: 613 237 6801
 f: 613 237 8999
 e: info@narchitect.ca
 www.narchitect.ca

project & location
DYMON CAPITAL CORP
 1460 THE QUEENSWAY
 TORONTO, ONTARIO

title of drawing
SITE PLAN

scale AS NOTED
 date DEC 2016
 drawn by KL, DL

drawing
A1-1

1 SITE PLAN
 A1-1 SCALE: 1:400

Ontario Traffic Inc - Parking Counts

Time	Saturday, February 12, 2022						Tuesday, February 15, 2022					
	1460 The Queensway			5 Nevets Rd			1460 The Queensway			5 Nevets Rd		
	Legal	Illegal	Off-Site	Legal	Disabled	Off-Site	Legal	Illegal	Off-Site	Legal	Disabled	Off-Site
10:00 to 10:30	15	4	0	8	0	0	42	3	0	6	0	0
10:30 to 11:00	18	4	0	8	0	0	55	4	0	7	0	0
11:00 to 11:30	21	4	0	10	0	0	60	3	0	8	0	0
11:30 to 12:00	26	4	0	9	0	0	67	2	0	9	0	0
12:00 to 12:30	31	5	0	11	0	0	71	2	0	10	0	0
12:30 to 13:00	33	4	0	9	0	0	69	2	0	10	0	0
13:00 to 13:30	30	4	0	9	0	0	66	2	0	9	0	0
13:30 to 14:00	36	4	0	10	0	0	67	2	0	11	0	0
14:00 to 14:30	25	4	0	7	0	0	55	2	0	11	0	0
14:30 to 15:00	32	4	0	10	0	0	59	2	0	8	0	0
15:00 to 15:30	30	4	0	13	0	0	56	1	0	10	0	0
15:30 to 16:00	29	4	0	12	0	0	51	1	0	9	0	0
Available Spaces =	202			32	2		202			32	2	

Location: 1460 The Queensway
 Site ID:
 Date: 20-Oct-22

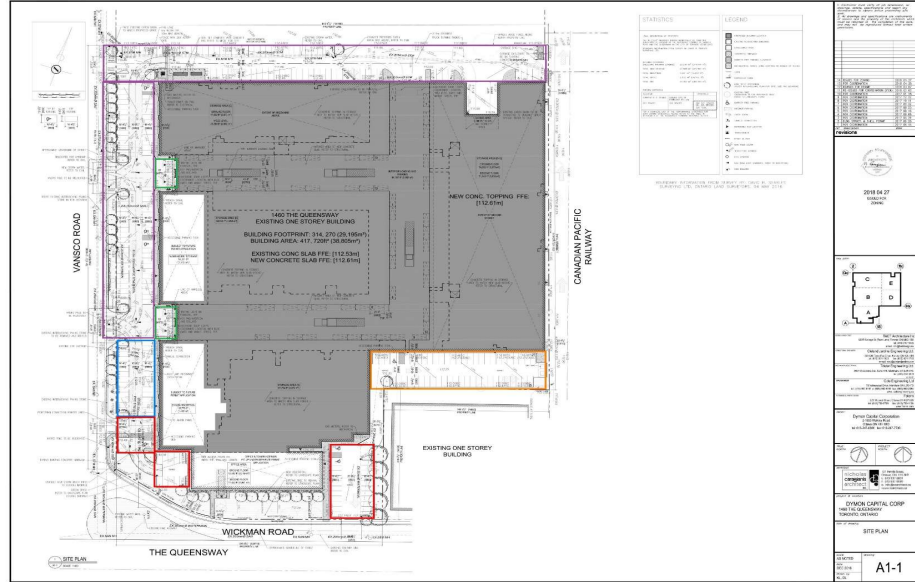
Time	Thursday, October 20, 2022			Thursday, October 20, 2022			Thursday, October 20, 2022			Thursday, October 20, 2022			
	Work Refined Members Access			in front of Work Refined			Vansco access #1 to access #2			Vansco access #2 to access #3			
	Legal	Illegal	Off-Site	Legal	Illegal	Off-Site	Legal	Illegal	Off-Site	Notes	Legal	Illegal	Off-Site
08:00 to 08:30	5	0	0	1	0	0	13	0	0				
08:30 to 09:00	7	0	0	5	0	0	18	0	0	at least 1 going to WR			
09:00 to 09:30	10	0	0	8	0	0	26	0	0	1			
09:30 to 10:00	11	1	0	9	0	0	27	0	0	2 going to WR	7	0	0
10:00 to 10:30	11	1	0	10	1	0	28	0	0	2	10	0	0
10:30 to 11:00	12	1	0	9	0	0	28	0	0	1	14	0	0
11:00 to 11:30	14	2	0	9	0	0	32	0	0	1	13	0	0
11:30 to 12:00	15	2	0	9	0	0	31	0	0		16	0	0
12:00 to 12:30	15	2	0	9	0	0	28	0	0		17	0	0
12:30 to 13:00	14	2	0	10	0	0	26	0	0		18	0	0
13:00 to 13:30	13	2	0	10	0	0	29	0	0		13	0	0
13:30 to 14:00	13	2	0	9	1	0	28	0	0		13	0	0
14:00 to 14:30	13	2	0	7	0	0	26	0	0		13	0	0
14:30 to 15:00	13	2	0	7	0	0	24	0	0	1 out from WR	14	0	0
15:00 to 15:30	14	2	0	7	0	0	26	0	0		14	0	0
15:30 to 16:00	12	2	0	6	0	0	23	0	0	1 out from WR	12	0	0
16:00 to 16:30	12	2	0	7	0	0	22	0	0	1 out from WR			
16:30 to 17:00	8	2	0	8	0	0	19	0	0				
Available Spaces =	23			10			35				41		

Ontario Traffic Inc - Parking Study

Location: 1460 The Queensway (Dymon Self-Storage)

Date: Saturday, April 01, 2023

Time			Parking Area				
			Red	Orange	Blue	Green Drive-Thru	Purple
8:00	to	8:30	0	0	1	8	15
8:30	to	9:00	0	0	1	9	16
9:00	to	9:30	0	0	2	8	14
9:30	to	10:00	0	0	1	8	12
10:00	to	10:30	3	0	2	12	8
10:30	to	11:00	5	0	4	14	10
11:00	to	11:30	8	0	3	15	11
11:30	to	12:00	7	0	4	13	11
12:00	to	12:30	7	0	6	14	10
12:30	to	13:00	7	0	4	14	11
13:00	to	13:30	7	0	3	17	12
13:30	to	14:00	8	0	3	14	14
14:00	to	14:30	8	0	3	14	12
14:30	to	15:00	7	0	2	13	13
15:00	to	15:30	7	0	2	11	14
15:30	to	16:00	6	0	3	12	15
16:00	to	16:30	6	0	3	11	16
16:30	to	17:00	6	0	4	9	20
17:00	to	17:30	4	0	2	10	17
17:30	to	18:00	3	0	1	11	16
18:00	to	18:30	3	0	1	12	15
18:30	to	19:00	3	0	1	13	13
19:00	to	19:30	3	0	1	12	10
19:30	to	20:00	3	0	1	12	8
Available Spaces =			40	53	28		145



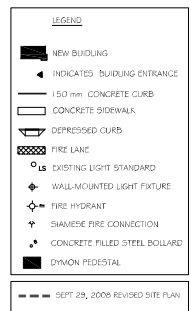
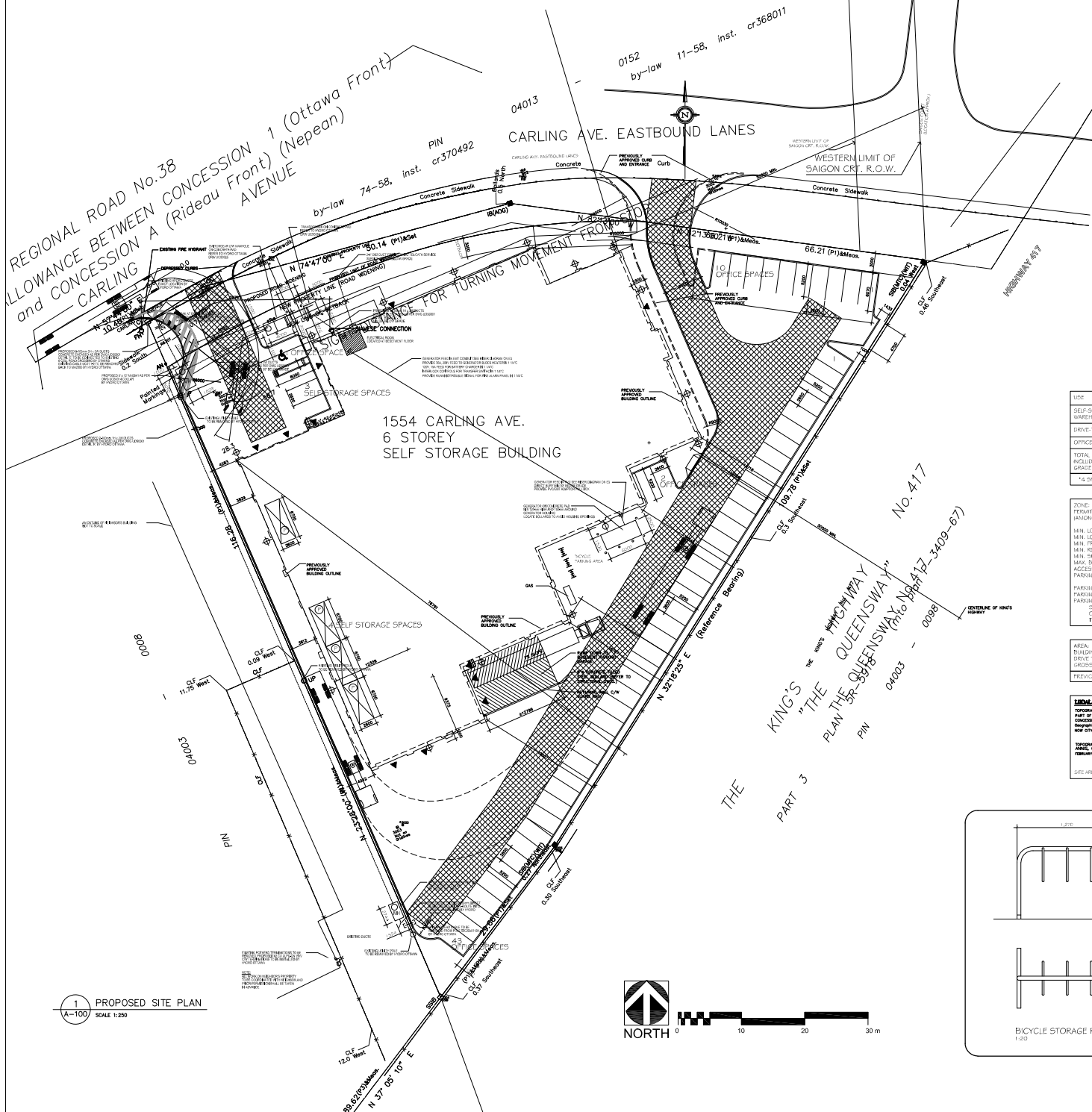
Ontario Traffic Inc - Parking Study

Location: 1460 The Queensway (Dymon Self-Storage)

Time			Wednesday, March 29, 2023					Thursday, March 30, 2023					Friday, March 31, 2023				
			Parking Area					Parking Area					Parking Area				
			Red	Orange	Blue	Green Drive-Thru	Purple	Red	Orange	Blue	Green Drive-Thru	Purple	Red	Orange	Blue	Green Drive-Thru	Purple
08:30	to	09:00	13	0	4	13	17	13	0	2	12	17	14	0	4	13	18
09:00	to	09:30	16	0	7	14	20	24	0	5	15	18	21	0	4	17	17
09:30	to	10:00	23	0	8	15	22	25	0	12	21	19	27	0	6	15	18
10:00	to	10:30	26	0	14	19	21	30	0	15	22	20	31	0	15	17	21
10:30	to	11:00	27	0	14	18	21	32	0	21	24	20	31	0	21	17	20
11:00	to	11:30	29	0	15	21	23	30	0	21	25	21	31	0	23	17	20
11:30	to	12:00	30	0	19	27	21	29	0	20	25	23	29	0	25	19	21
12:00	to	12:30	30	0	19	24	21	28	0	21	25	24	30	0	25	18	21
12:30	to	13:00	30	0	20	27	23	31	0	17	27	24	31	0	25	18	22
13:00	to	13:30	32	0	24	30	25	33	0	15	27	22	31	0	23	20	23
13:30	to	14:00	36	0	27	38	30	32	0	16	25	29	32	0	21	20	33
14:00	to	14:30	35	0	23	32	26	35	0	19	22	33	31	0	20	20	32
14:30	to	15:00	35	0	22	30	24	34	0	20	21	32	29	0	20	23	31
15:00	to	15:30	34	0	20	31	22	34	0	22	22	31	25	0	19	22	25
15:30	to	16:00	34	0	18	32	20	32	0	21	19	33	24	0	18	20	23
16:00	to	16:30	31	0	14	30	20	31	0	18	18	34	22	0	16	23	20
16:30	to	17:00	27	0	10	27	19	31	0	16	18	22	19	0	12	29	17
17:00	to	17:30	25	0	6	21	17	23	0	14	20	23	15	0	10	25	15
Available Spaces =			40	53	28	145	40	53	28	145	40	53	28	145			

Appendix O

Trip Generation Proxy Counts



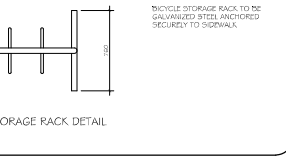
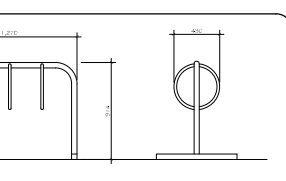
USE	BUILDING AREA	PARKING RATE (TABLE 11.0)	PARKING REQUIRED	PARKING PROVIDED
SELF-STORAGE/ WAREHOUSE AREA (sq ft)	1,020.4 sq ft	0 SPACES	0 SPACES	0 SPACES
DRIVE-THRU AREA (sq ft)	766.6 sq ft	N/A	N/A	N/A
OFFICE AREA (sq ft)	2,714.4 sq ft	2 SPACES/1000 sq ft	55 SPACES	55 SPACES
TOTAL BUILDING AREA, INCLUDING BELOW GRADE (sq ft)	21,054.9 sq ft	N/A	N/A	N/A

*4 SPACES LOCATED WITHIN DRIVE-THRU AREA.

TYPE	PERMITTED USES	CEC (11000) FIB 50 Sec. 68
WAREHOUSE	WAREHOUSE	
OFFICE	OFFICE	
MIN. LOT AREA	7,500 sq ft (2,000 sq ft)	
MIN. LOT WIDTH	NO MINIMUM	
MIN. FRONT YARD SETBACK	NO MINIMUM	
MIN. SIDE YARD SETBACK	7.5 m (24.6 ft)	
MIN. SIDE YARD SETBACK	NO MINIMUM	
MAX. BUILDING HEIGHT	30 m	
ACCESS DRIVE	MIN. WIDTH: 6.7 m (21.98 ft)	
PARKING SPACE	MIN. WIDTH: 2.6 m (8.53 ft)	
PARKING SPACE	MIN. LENGTH: 5.2 m (17.06 ft)	
PARKING SPACE	MIN. WIDTH: 6.7 m (21.98 ft)	
PARKING LOCATION	NONE IN REQUIRED FRONT YARD SETBACK	
PARKING REQUIREMENT	0 SPACES	
SELF-STORAGE FACILITY	2 SPACES / 100 sq ft = 54 SPACES	
OFFICE (MAX. PERMITTED)	62	
TOTAL PARKING	62	

AREA	BUILDING AREA	35,429.4 sq ft (3,291.5 sq m)
DRIVE THROUGH AREA	0.0000 sq ft (0.0000 sq m)	
GROSS AREA	197,766.85 sq ft (18,375.0 sq m)	
TRUCK/OLDS GROSS BUILDING AREA	200,101.1 sq ft (18,590.4 sq m)	

DATE	REVISION	DESCRIPTION
01/26/04	01	ISSUED FOR REVIEW
02/12/04	02	ISSUED FOR REVIEW
03/18/04	03	GENERAL REVISIONS
04/15/04	04	GENERAL REVISIONS
05/12/04	05	CITY COMMENTS
06/12/04	06	CITY COMMENTS
07/16/04	07	ENTRANCE SHIFTS
08/10/04	08	GENERAL
09/10/04	09	GENERAL



GENERAL NOTES

- DO NOT SCALE DRAWINGS. DIMENSIONS ONLY TO BE USED.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECT.
- ALL WORK DESCRIBED UNDER THIS CONTRACT TO COMPLY WITH ONTARIO BUILDING CODE, 2006 AND/OR NATIONAL BUILDING CODE, 2005 AND OTHER CODES AND BY-LAWS IN EFFECT.
- THIS DRAWING IS AN INSTRUMENT OF SERVICE AND IS PROTECTED BY COPYRIGHT. COPYRIGHT FOR THE ARCHITECT'S INSTRUMENT OF SERVICE BELONGS TO THE ARCHITECT. ELECTRONIC COPIES, INCLUDING PHOTOCOPIES, MAY ONLY BE USED FOR THE PURPOSES INTENDED AND FOR A ONE-TIME USE, ON THE SAME SITE AND FOR THE SAME PROJECT AND MAY NOT BE OFFERED FOR SALE OR TRANSFER WITHOUT THE EXPRESS WRITTEN CONSENT OF THE ARCHITECT.

ISSUE RECORD

DATE	REV	DESCRIPTION	DATE
01/26/04	01	FOR COORDINATION	26/JAN/04
02/12/04	02	FOR PERMIT	04/FEB/04
03/18/04	03	FOR PERMIT	18/FEB/04
04/15/04	04	FOR PERMIT - REVISED	15/FEB/04
05/12/04	05	FOR PERMIT	12/MAR/04
06/12/04	06	FOR COORDINATION	12/MAR/04
07/16/04	07	FOR COORDINATION	22/MAR/04
08/10/04	08	FOR REVIEW	10/MAR/04
09/10/04	09	FOR COORDINATION	26/MAR/04
10/10/04	10	FOR COORDINATION	04/APR/04
11/10/04	11	FOR COORDINATION	10/APR/04
12/10/04	12	FOR COORDINATION	07/MAY/04
01/10/05	13	ISSUED FOR REVIEW	07/MAY/04
02/10/05	14	ISSUED FOR REVIEW	21/MAY/04
03/10/05	15	FOR COORDINATION	11/JUN/04
04/10/05	16	FOR COORDINATION	23/JUN/04
05/10/05	17	FOR COORDINATION	10/JUL/04

CLIENT
D'YMON CAPITAL CORPORATION
TEL: 416-341-0586
FAX: 416-341-7750

CONSULTANTS
CLELAND JARDINE ENGINEERING
STRUCTURAL ENGINEERS
TEL: 416-591-1533
FAX: 416-591-1704
GOODEY WEEDMARK & ASSOCIATES
MECHANICAL/ELECTRICAL ENGINEERS
TEL: 416-747-3115
FAX: 416-747-3115
SITE PLANNING BY
FOTENN PLANNING & URBAN DESIGN

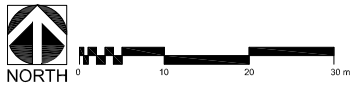
PROJECT TITLE
D'YMON SELF STORAGE
CARLING AVENUE

DRAWING TITLE
PROPOSED SITE PLAN

DATE MAR 2008 **DRAWN** M.W.C. **DATE** 1975 **DRAWING NO.** A-100
SCALE AS SHOWN **DESIGNED** DS

ARCHITECTURAL

1 PROPOSED SITE PLAN
A-100 SCALE 1:250





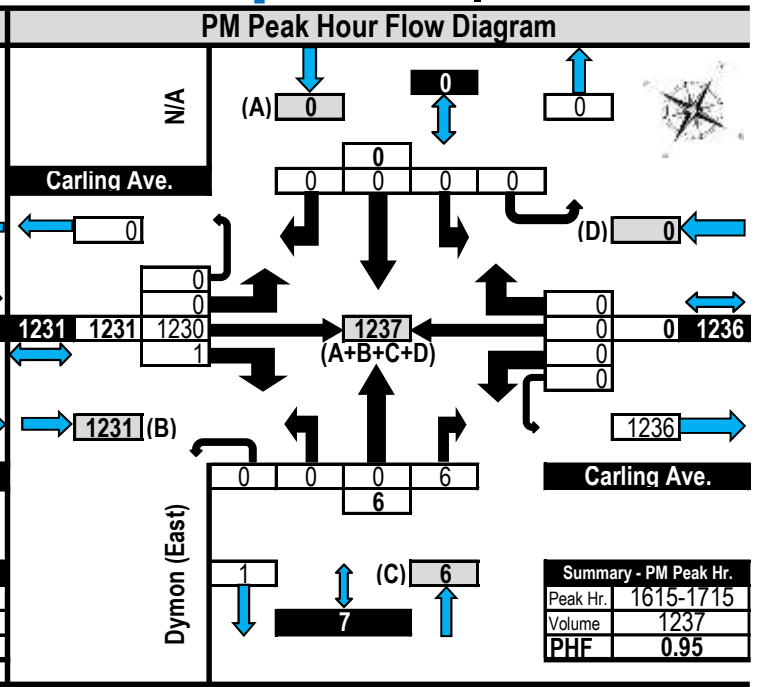
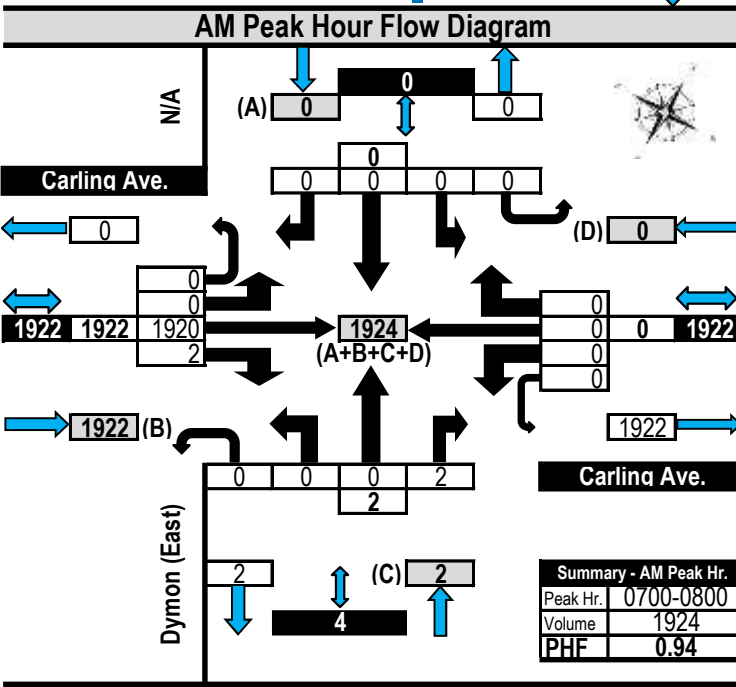
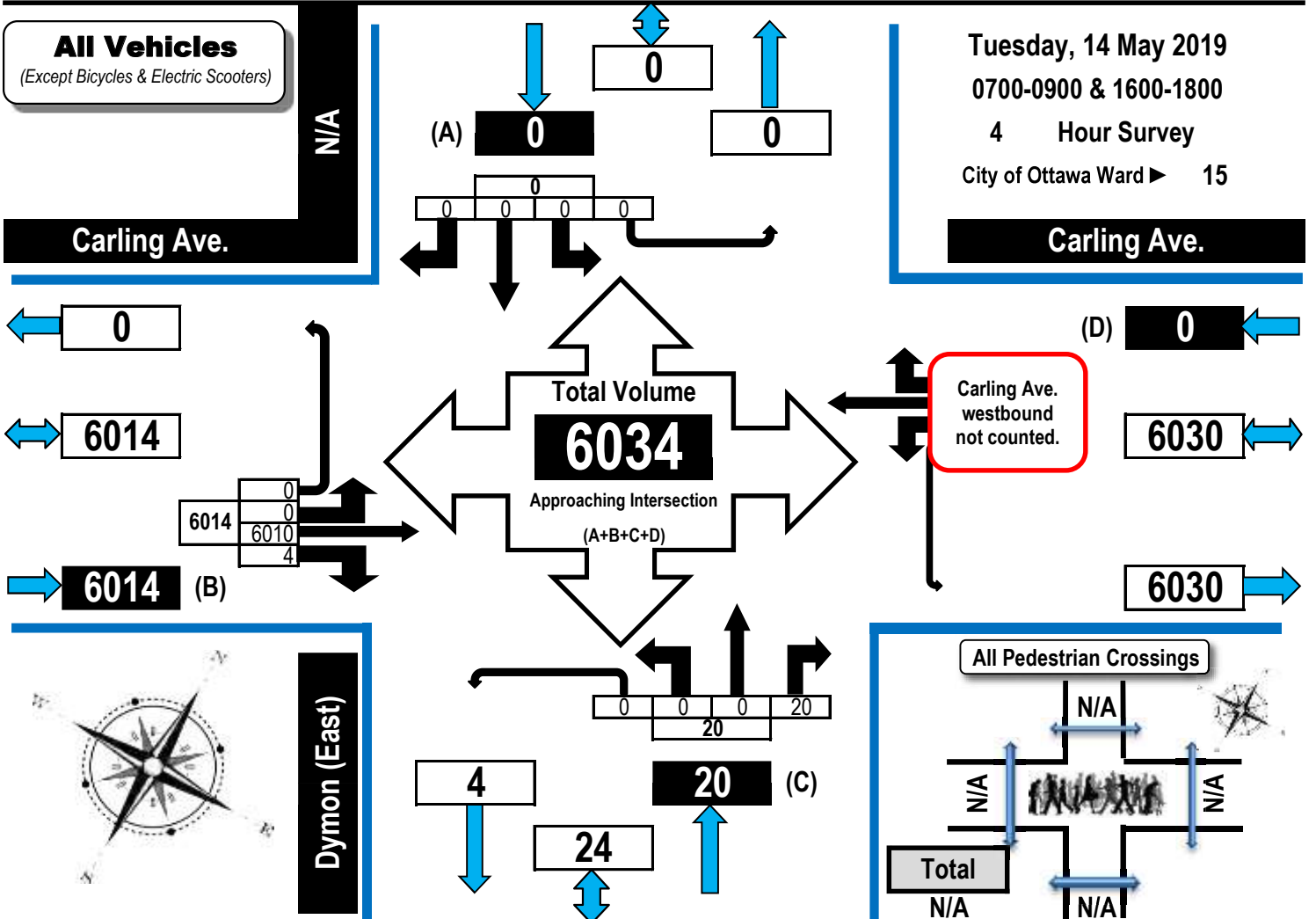
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Carling Avenue & Dymon (1554 Carling Ave.) EAST Access Ottawa, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Tuesday, 14 May 2019
0700-0900 & 1600-1800
4 Hour Survey
City of Ottawa Ward 15





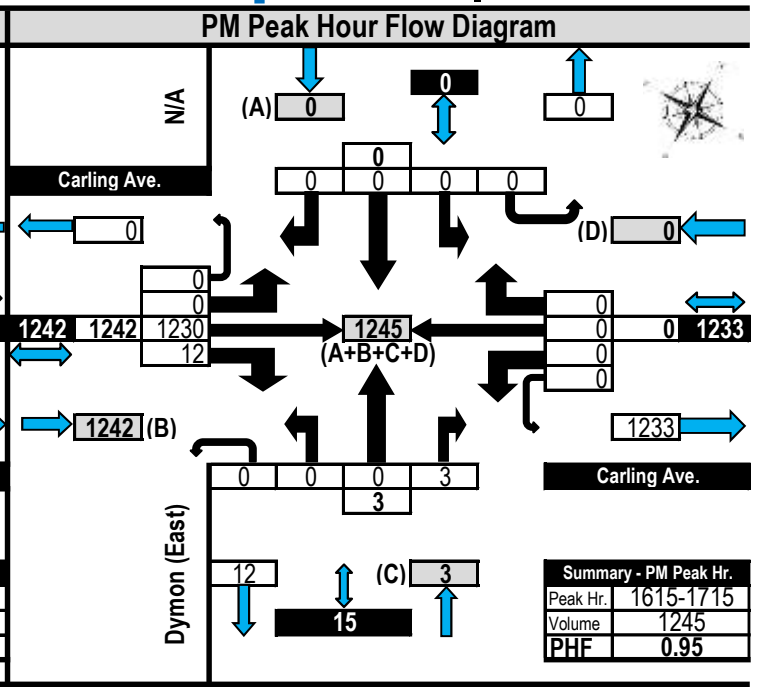
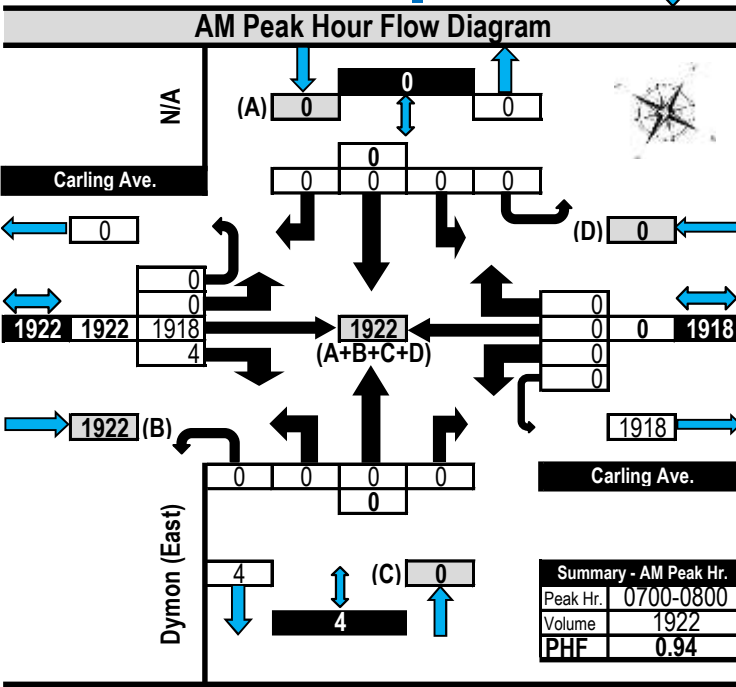
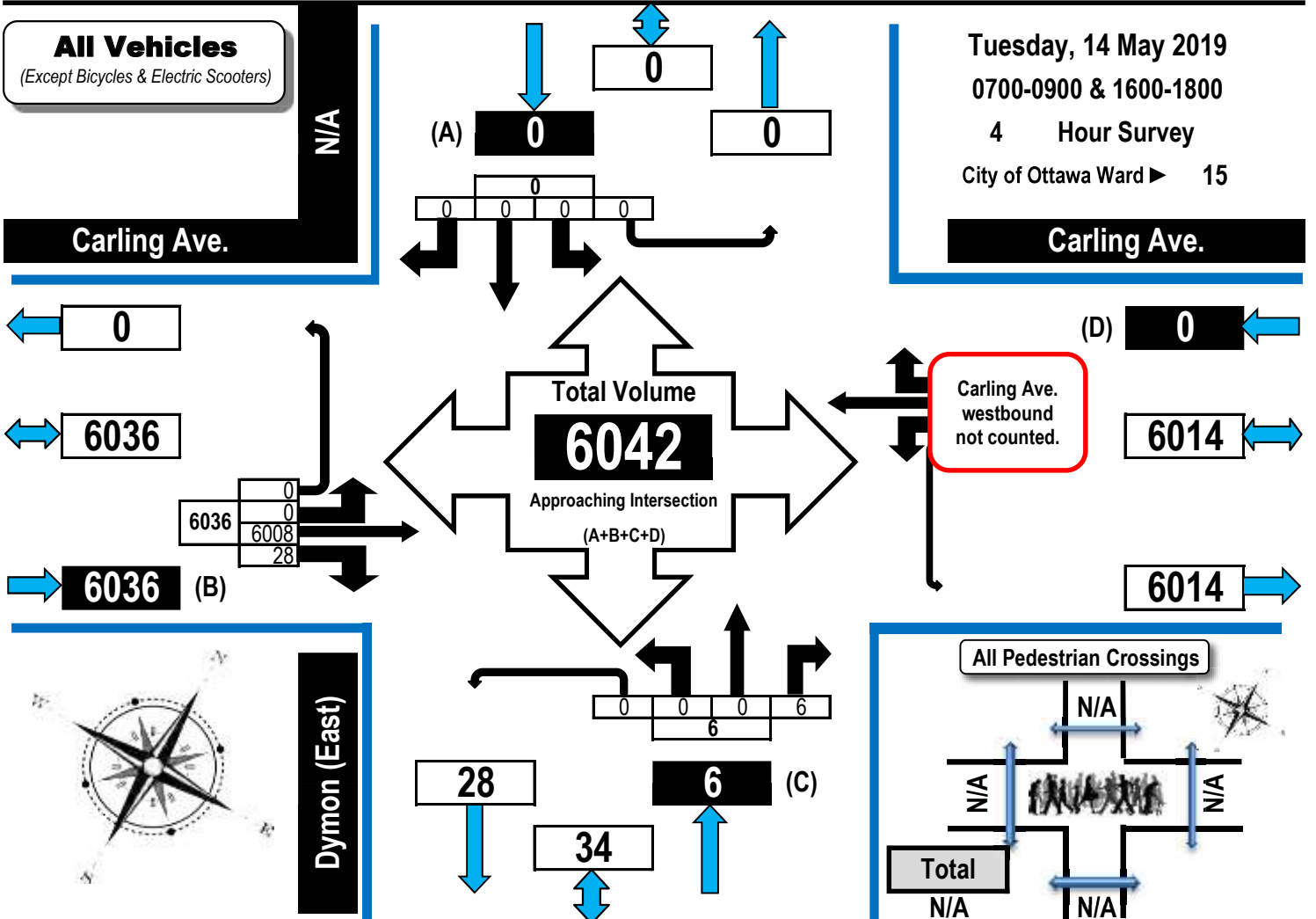
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

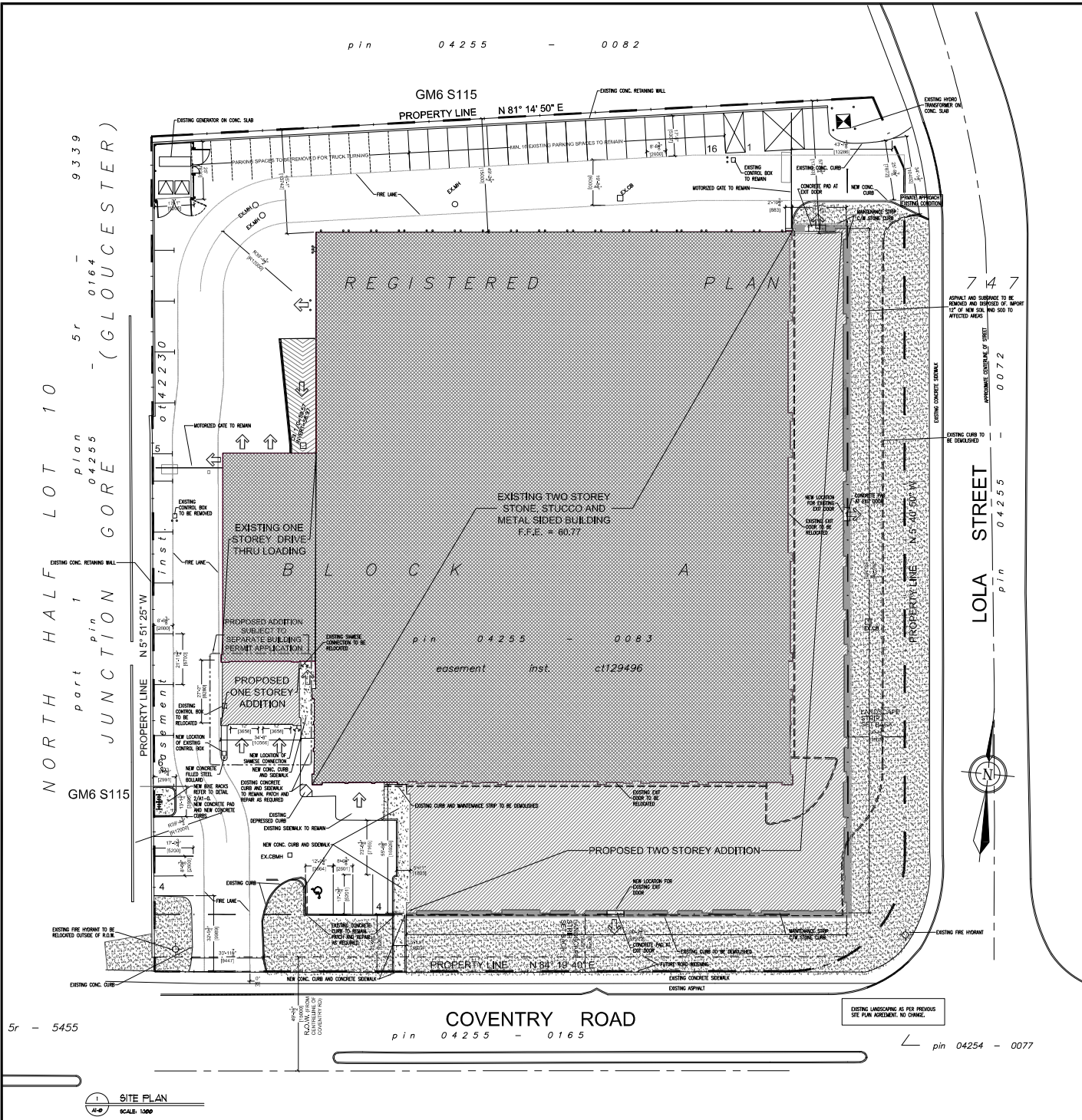
Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Carling Avenue & Dymon (1554 Carling Ave.) WEST Access Ottawa, ON

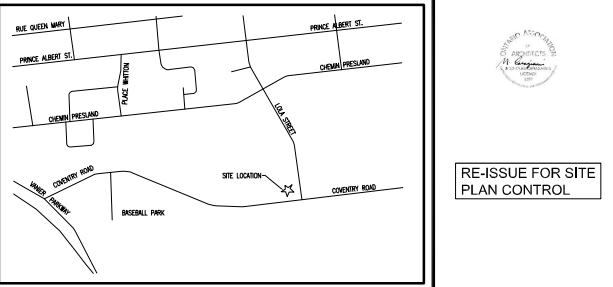
All Vehicles
(Except Bicycles & Electric Scooters)

Tuesday, 14 May 2019
0700-0900 & 1600-1800
4 Hour Survey
City of Ottawa Ward 15

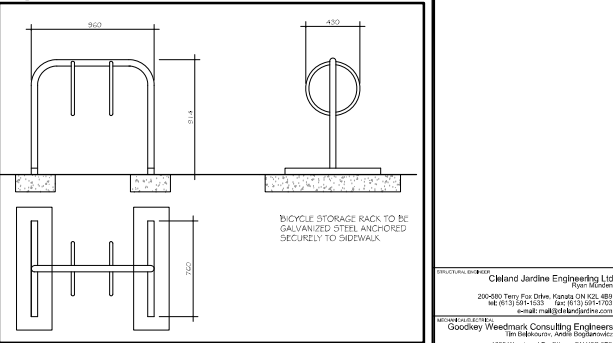




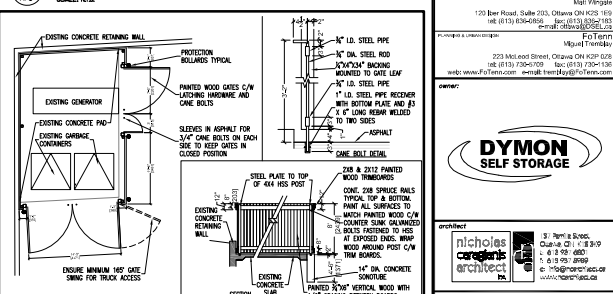
LEGAL DESCRIPTION OF PROPERTY:		BUILDING AREA	
PART OF BLOCK A REGISTERED PLAN 147		EXISTING GROUND FLOOR 523x63 SQ.FT. (32813 SQ.M.)	
CITY OF OTTAWA		EXISTING SECOND FLOOR 467x61 SQ.FT. (43251 SQ.M.)	
		TOTAL EXISTING GROSS FLOOR AREA 101064 SQ.FT. (93664 SQ.M.)	
SITE STATISTICS		GROSS LEASABLE AREA	
LOT AREA 119181.57 SQ.FT. (11073.34 SQ.M.)		PROPOSED GROUND FLOOR 1960x9 SQ.FT. (18170 SQ.M.)	
EXISTING LOT COVERAGE 43.5%		PROPOSED SECOND FLOOR 1960x9 SQ.FT. (18170 SQ.M.)	
PROPOSED LOT COVERAGE 56.5% (INCLUDING GARAGE ADDITION SUBJECT TO SEPARATE BUILDING PERMIT APPLICATION)		TOTAL GROUND FLOOR AREA 48324 SQ.FT. (44833 SQ.M.)	
		TOTAL SECOND FLOOR AREA 64613 SQ.FT. (60225 SQ.M.)	
		TOTAL GROSS FLOOR AREA 112937 SQ.FT. (105058 SQ.M.)	
EXISTING BUILDING HEIGHT: 22'-4" (6.81M) TOP OF STEEL		GROSS FLOOR AREA OF PROPOSED GARAGE ADDITION (SUBJECT TO SEPARATE BUILDING PERMIT APPLICATION): 8084 SQ.FT. (754 SQ.M.)	
PROPOSED BUILDING HEIGHT TO MATCH EXISTING		TOTAL GROSS FLOOR AREA (INCLUDING GFA OF GARAGE ADDITION): 121021 SQ.FT. (112433 SQ.M.)	
7.5M LANDSCAPED STRIP ALONG COVENTRY ROAD AND LOLA STREET		36 PARKING SPACES PROVIDED	
BOUNDARY INFORMATION FROM SURVEY BY: ANNEC'S SURVEILLING, VOLLECKX LTD. JUNE 24, 2008.		PROPOSED GROUND FLOOR 1580x8 SQ.FT. (1472.76 SQ.M.)	
		PROPOSED SECOND FLOOR 1580x8 SQ.FT. (1472.76 SQ.M.)	
		TOTAL PROPOSED GROSS LEASABLE AREA: 31705.52 (2945.5 SQ.M.)	



2 SITE KEY PLAN
SCALE: NTA



2 BICYCLE STORAGE RACK DETAIL
SCALE: NTA



4 GARBAGE ENCLOSURE DETAIL
SCALE: NTA

1. Contractor verify all job dimensions, all drawings, details, specifications and report any discrepancies to owner before proceeding with work.
2. All drawings and specifications are instruments of service and the property of the architect which must be retained at the completion of the work, and may not be reproduced without their written permission.

Revisions	date
1. Revised Site Plan	24 Jan 2012
2. Revised Site Plan, Working & Block	12 Feb 2012
3. Revised Fire Safety Plans & Comments	12 July 2012
4. Revised Fire Safety Plans & Comments	12 July 2012
5. Revised Fire Safety Plans & Comments	12 July 2012
6. Revised Fire Safety Plans & Comments	12 July 2012
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97. Revised Fire Safety Plans & Comments	12 July 2012
98. Revised Fire Safety Plans & Comments	12 July 2012
99. Revised Fire Safety Plans & Comments	12 July 2012
100. Revised Fire Safety Plans & Comments	12 July 2012

RE-ISSUE FOR SITE PLAN CONTROL

Chiland Jardine Engineering Ltd.
290-800 Terry Fox Drive, Kanata ON K2L 6B9
Tel: (416) 884-6233 Fax: (416) 884-7073
www.chilandjardine.com

Weedmark Consulting Engineers
1688 Woodbine Ave., Aurora ON M1C 1P9
Tel: (416) 721-1111 Fax: (416) 721-1110
www.weedmark.com

David Schaeffer Engineering Ltd.
120 Bar Road, Suite 703, Ottawa ON K2C 1S3
Tel: (416) 634-6569 Fax: (416) 634-7853
www.dse.ca

19th Floor
221 King Street, Ottawa ON K2P 2K8
Tel: (416) 593-0909 Fax: (416) 593-1988
www.fortym.com

DYMON SELF STORAGE

nicholas architects inc.

project & location
RENOVATION & ADDITION TO
DYMON SELF-STORAGE
323 COVENTRY ROAD, OTTAWA

SITE PLAN & WIDENING ROAD

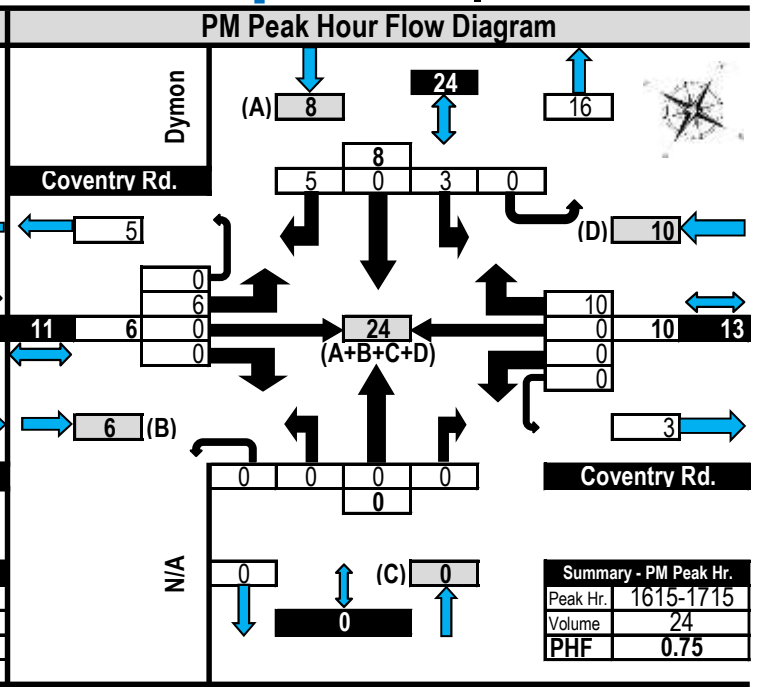
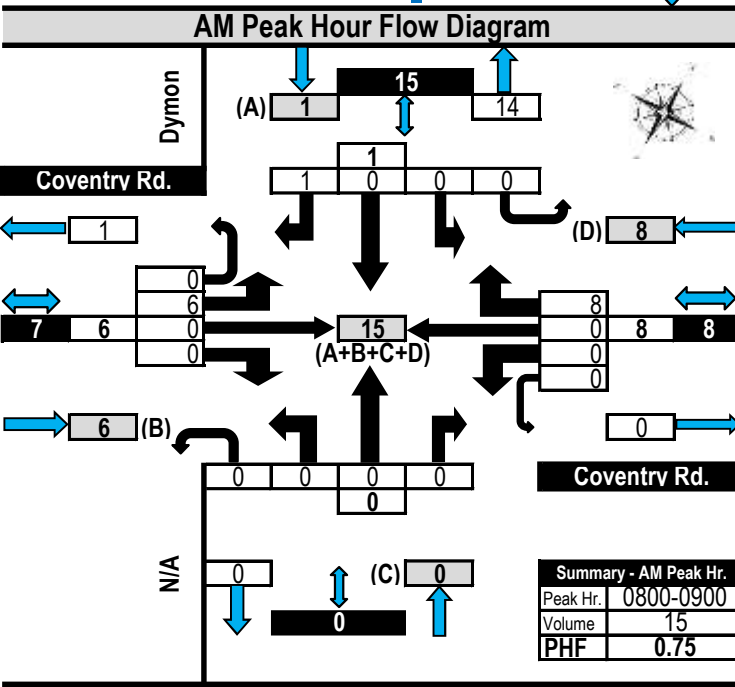
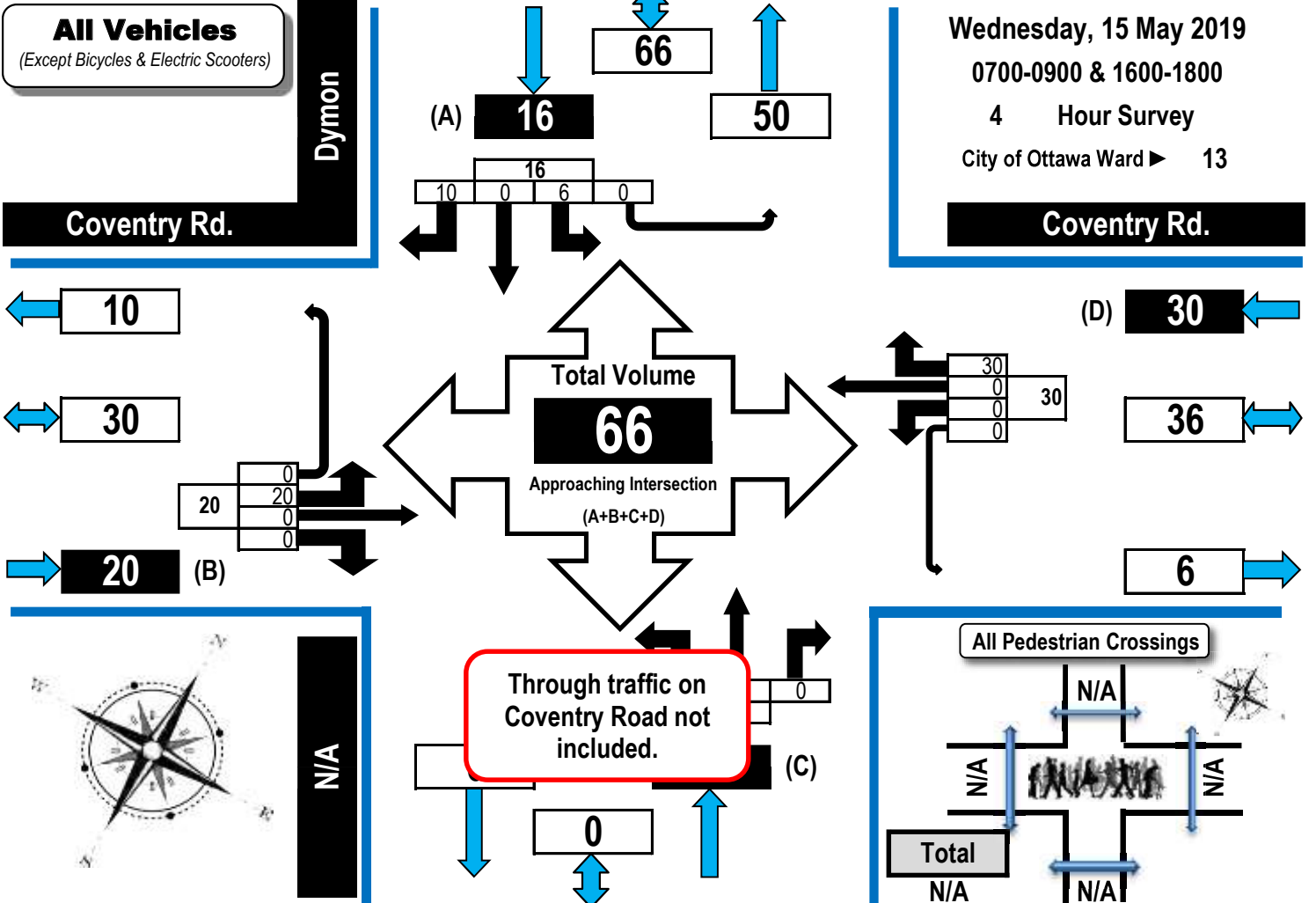
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drawing: A1-0
drawn by: RL - 01



Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Coventry Road & Dymon Storage (343 Coventry Road) Ottawa, ON

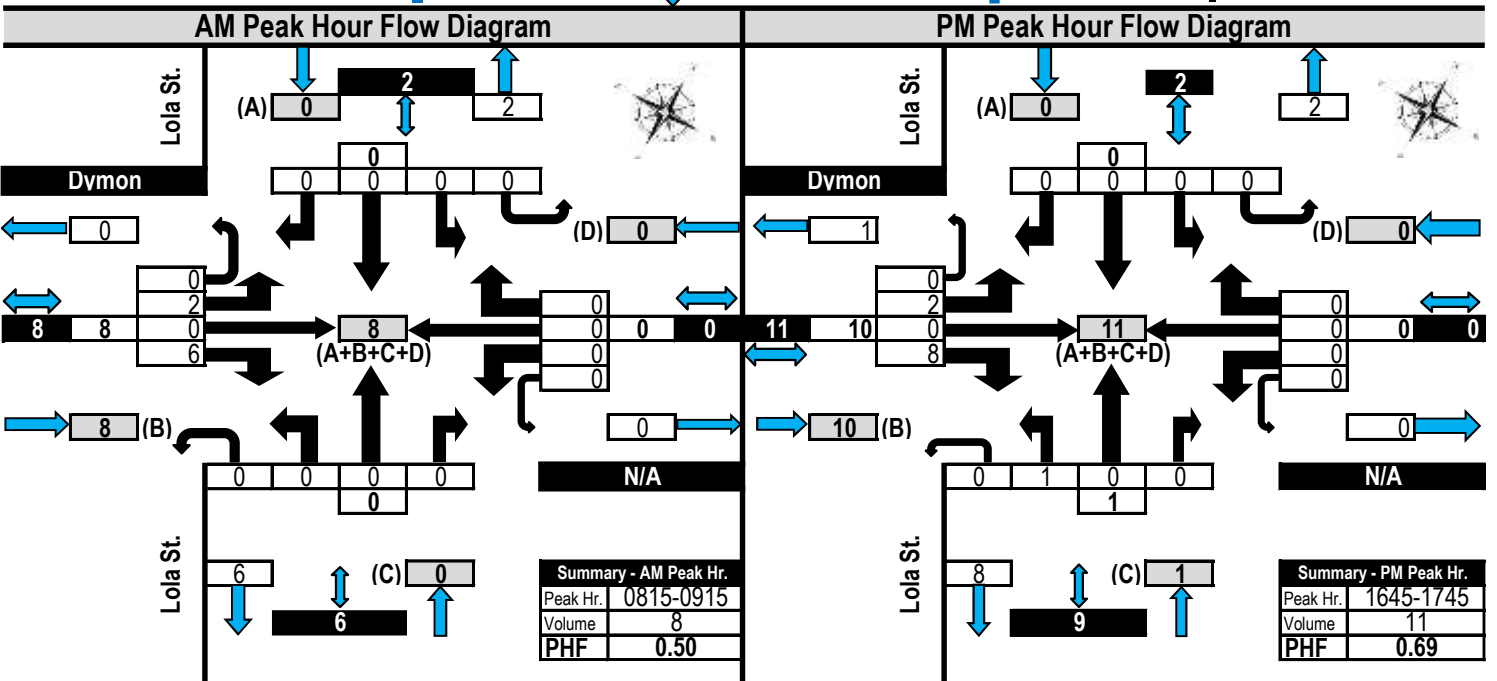
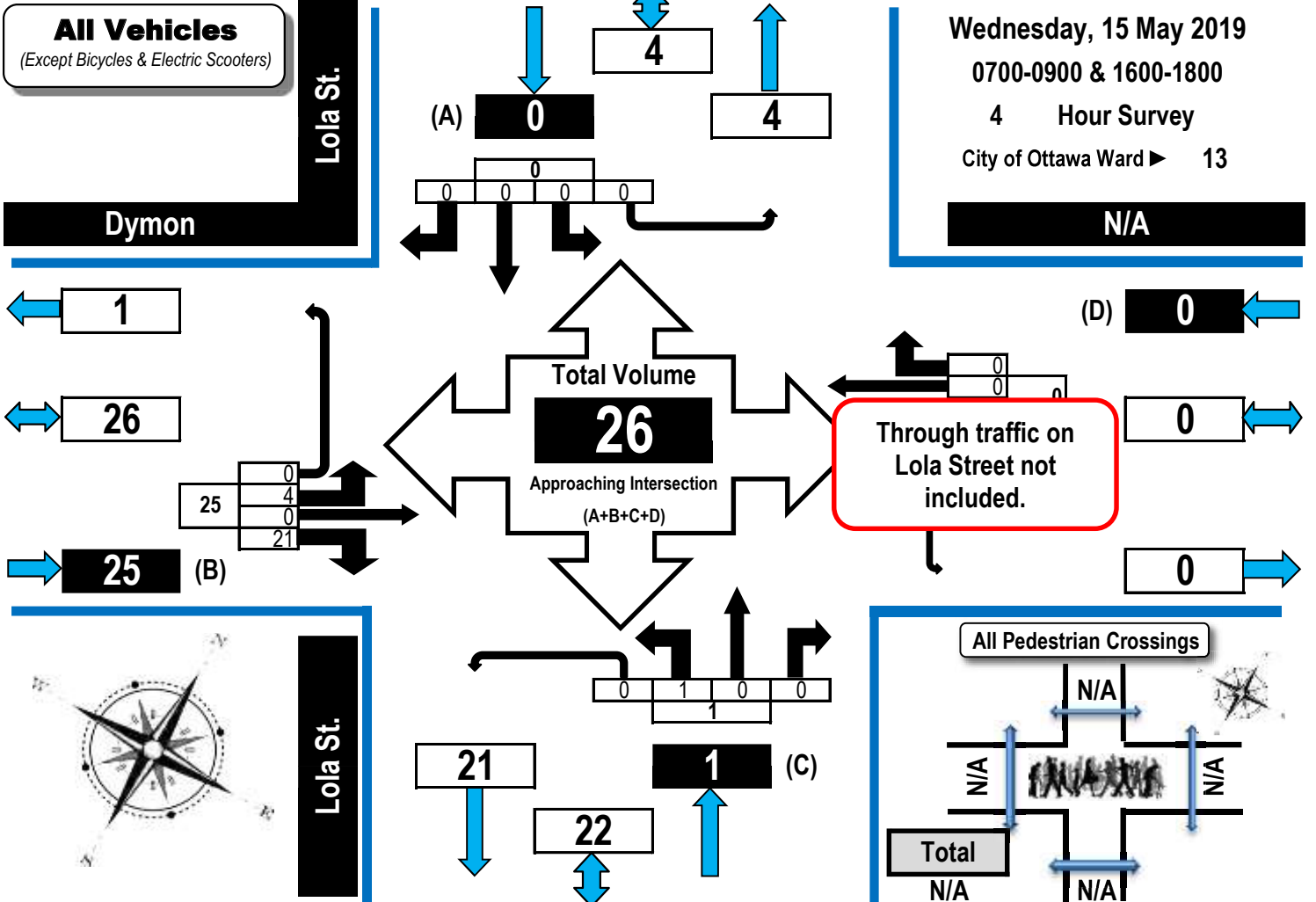




Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Lola Street & Dymon Storage (343 Coventry Road) Ottawa, ON





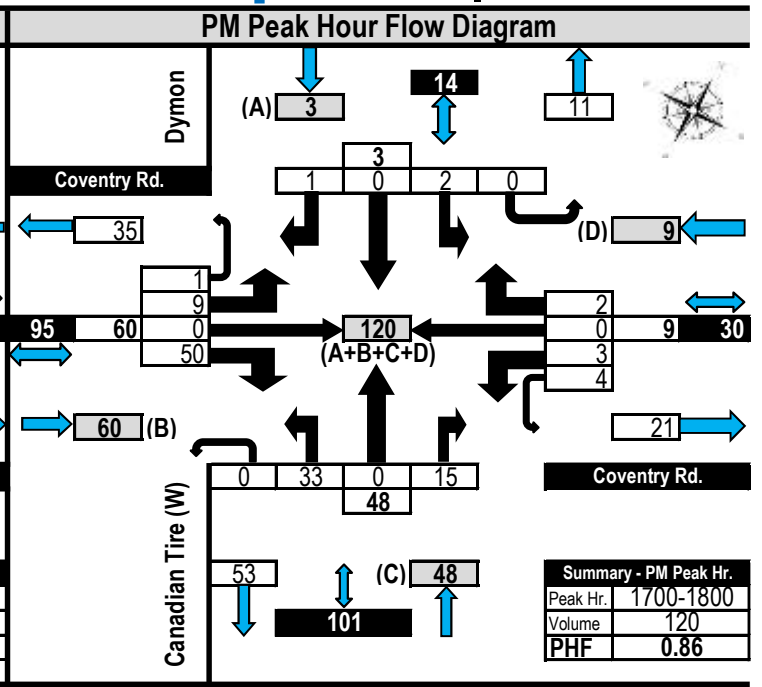
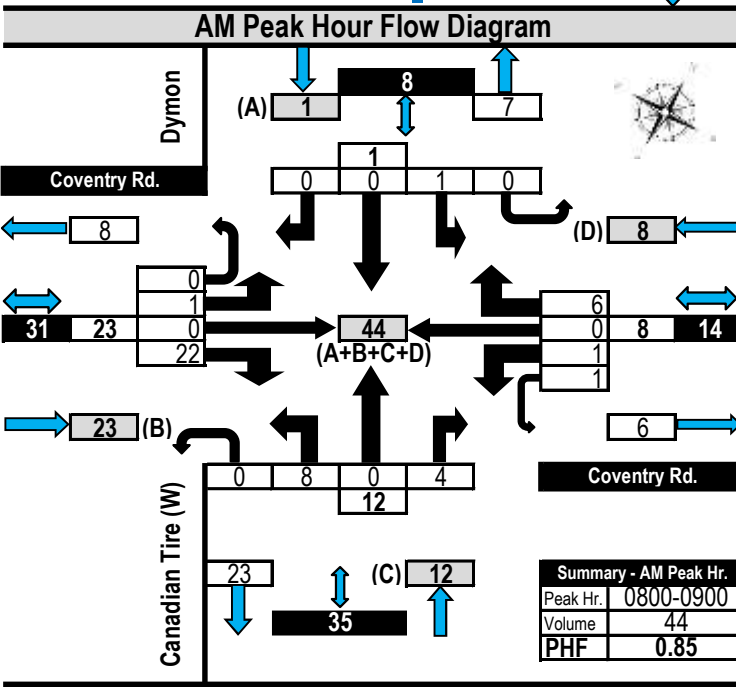
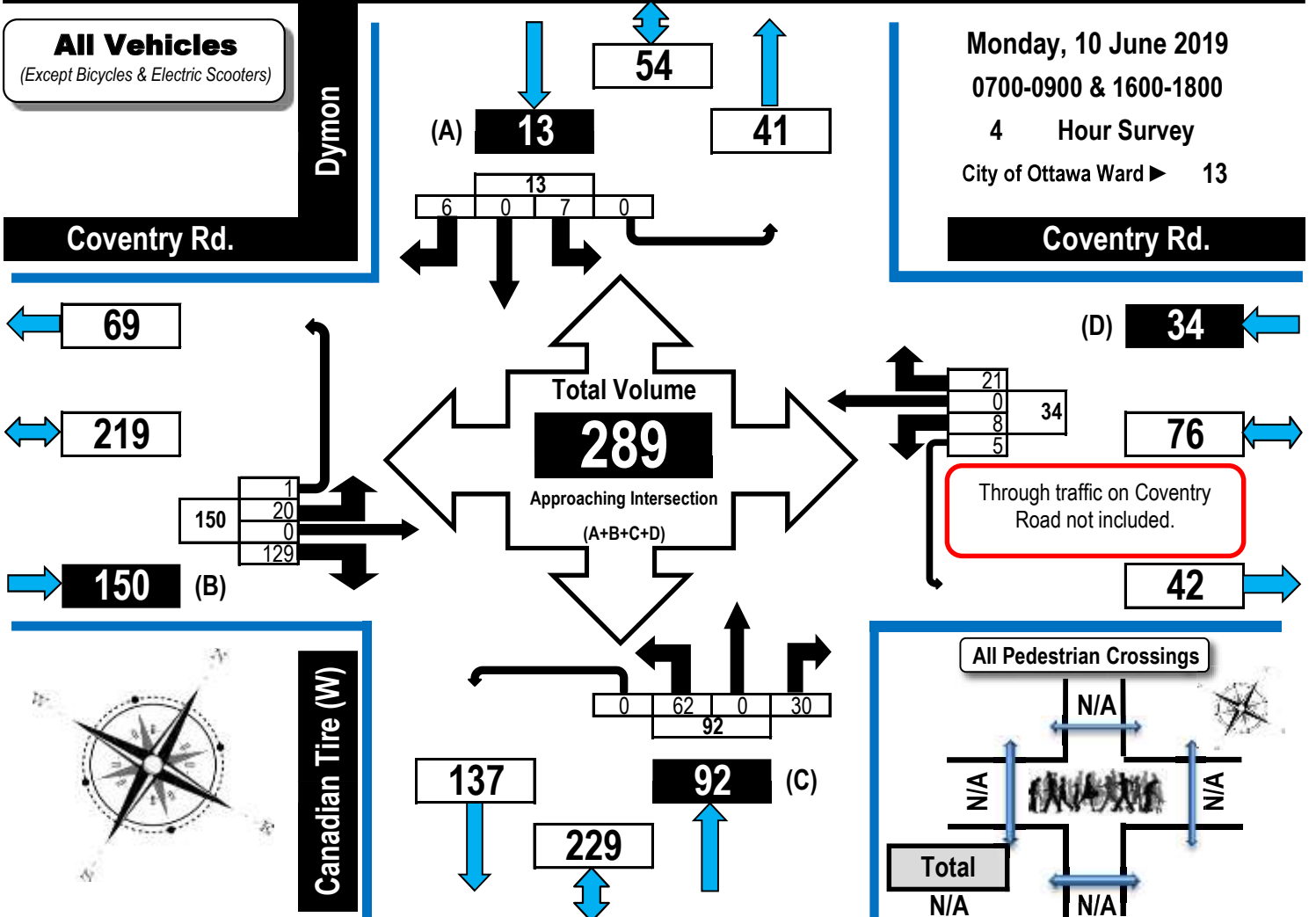
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Coventry Road & Dymon Storage (343 Coventry Road) Ottawa, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Monday, 10 June 2019
0700-0900 & 1600-1800
4 Hour Survey
City of Ottawa Ward 13





Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

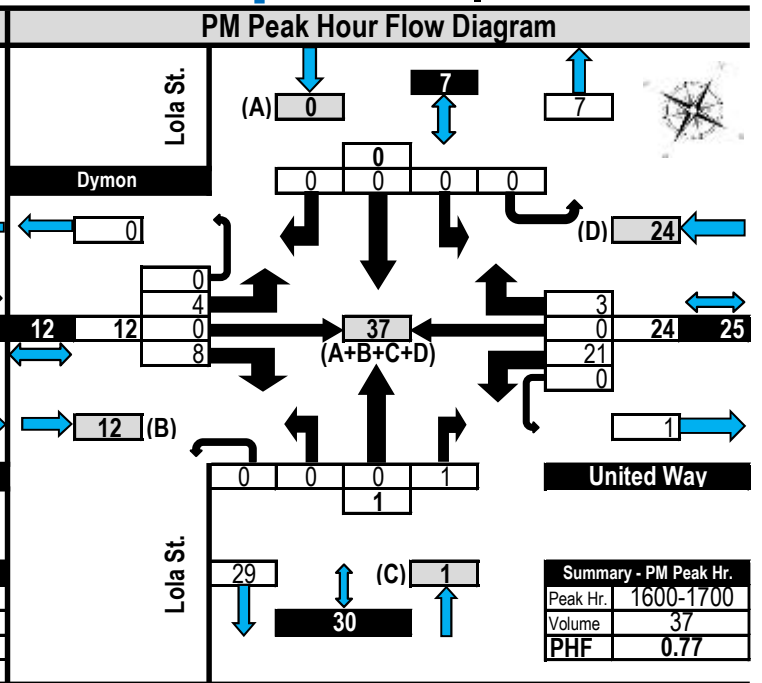
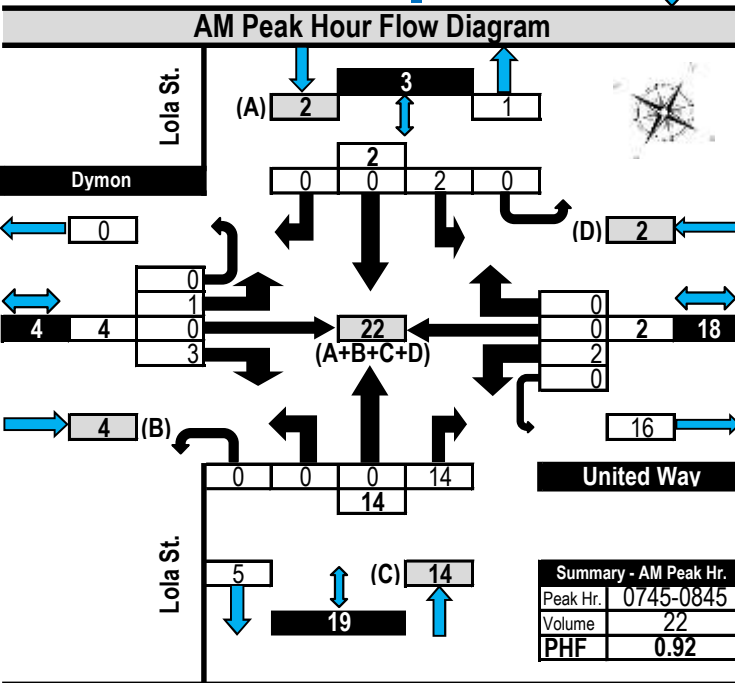
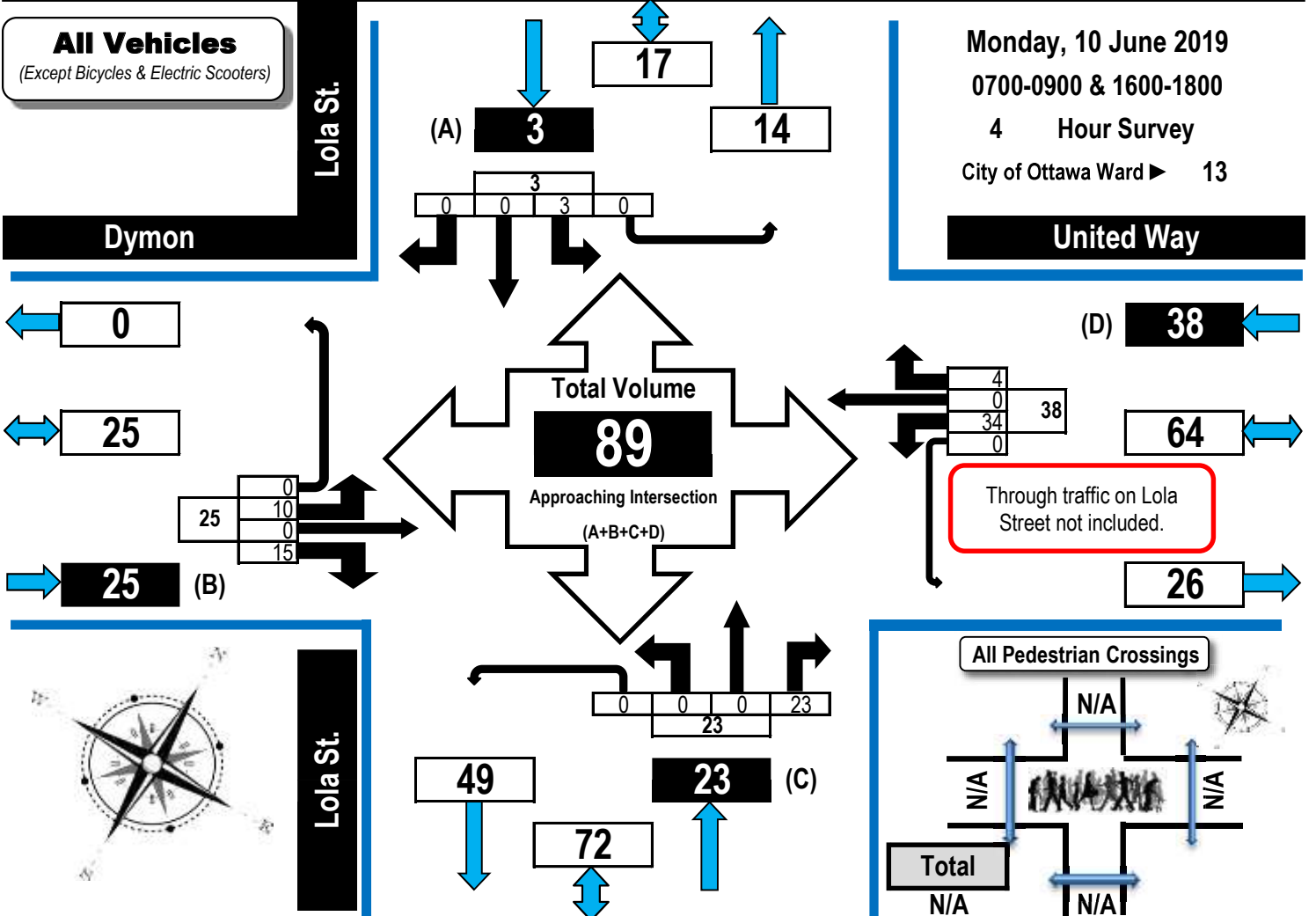
Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Lola Street & Dymon Storage (343 Coventry Road)

Ottawa, ON

All Vehicles
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City of Ottawa Ward 13

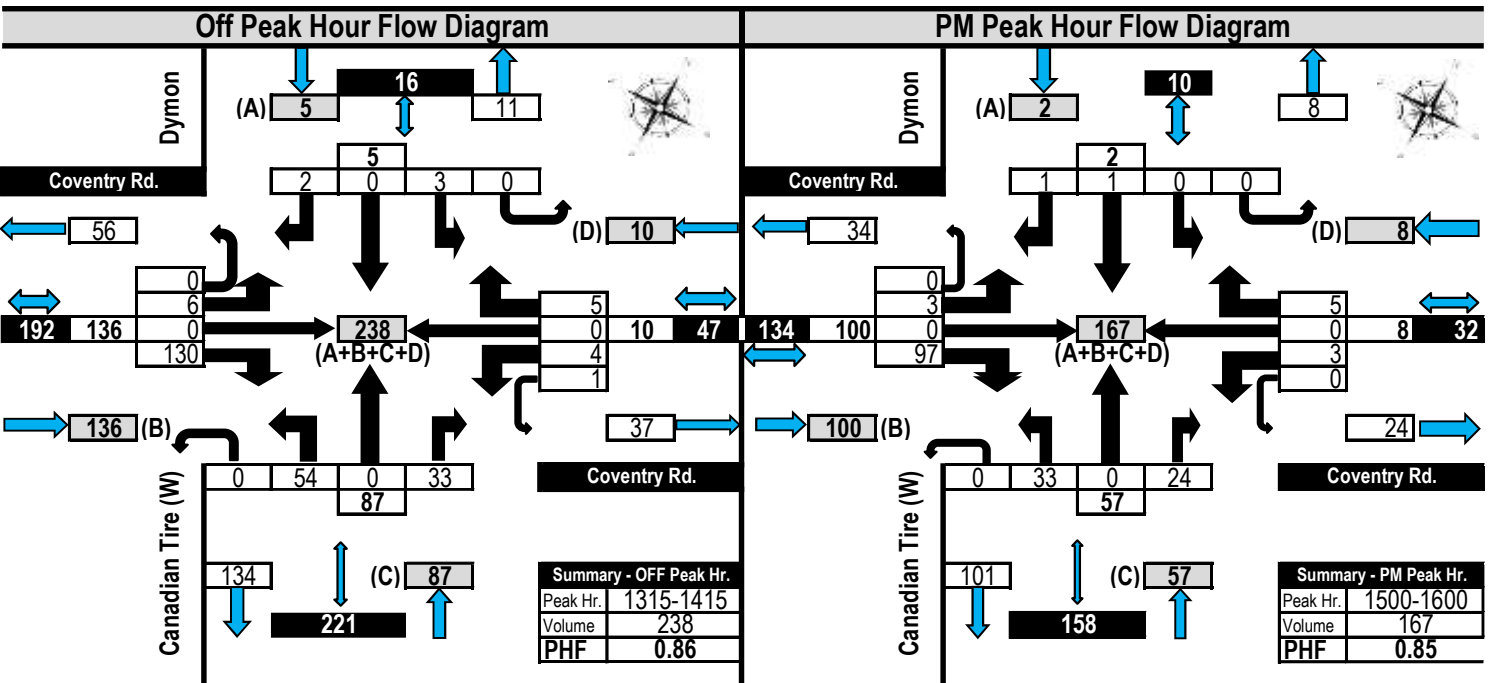
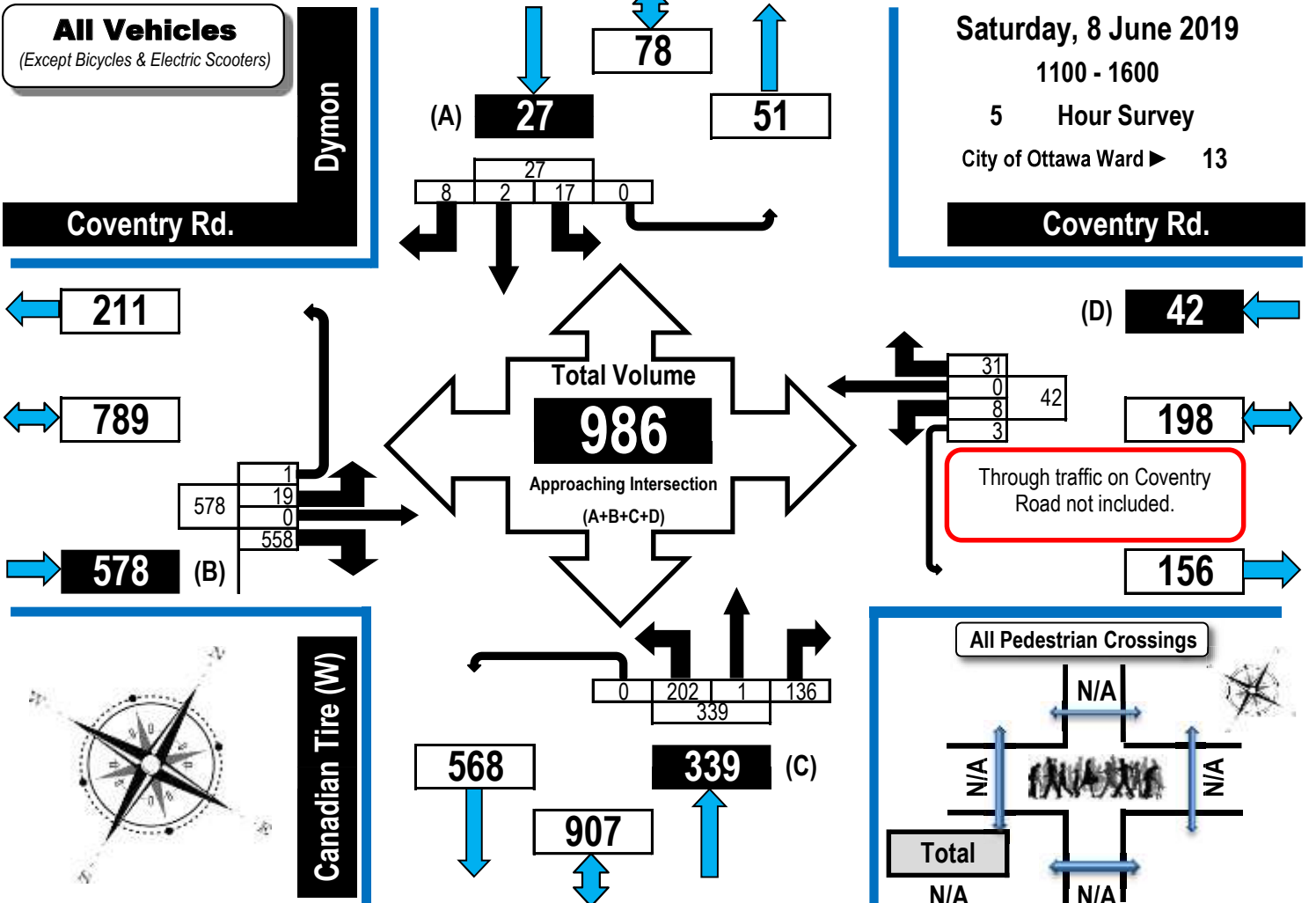




Turning Movement Count Summary, OFF and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Coventry Road & Dymon Storage (343 Coventry Road) Ottawa, ON



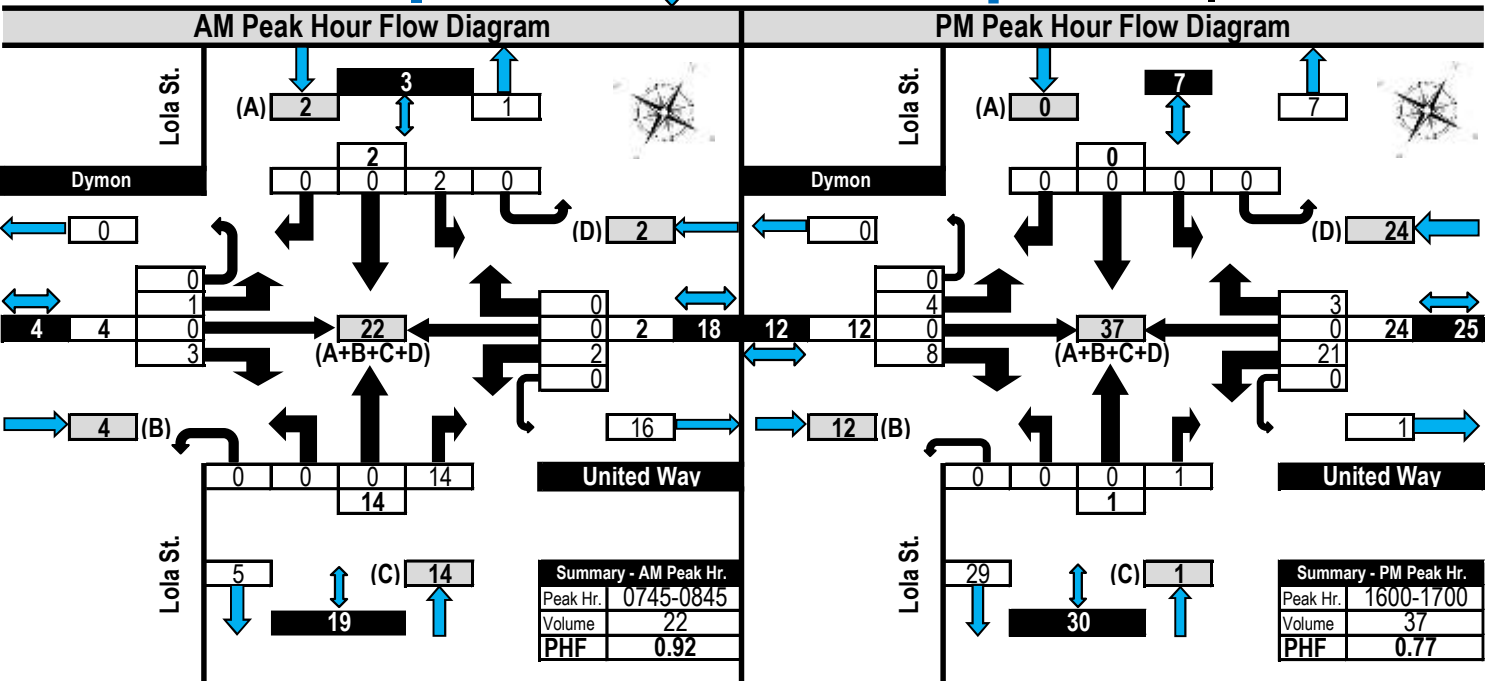
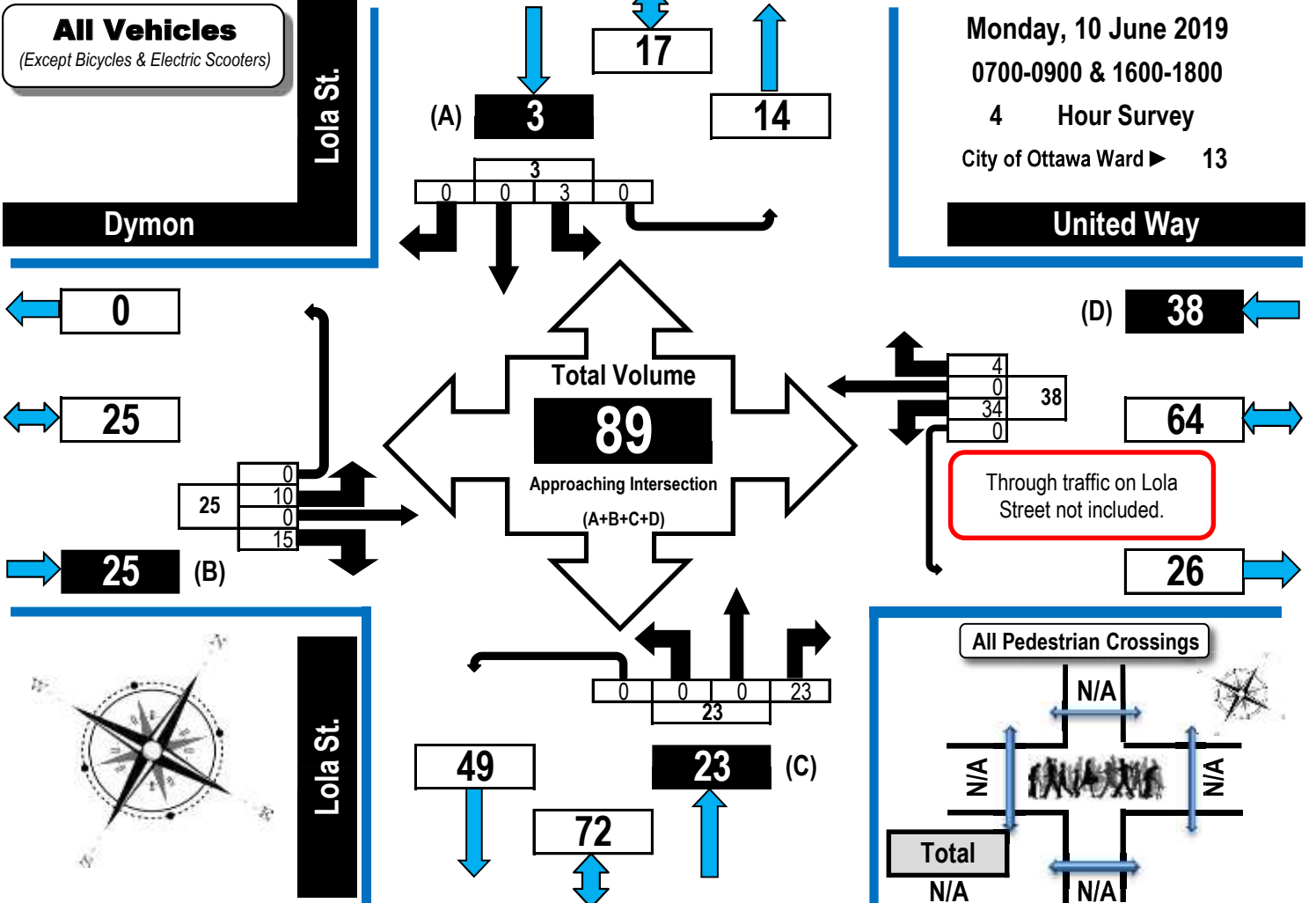


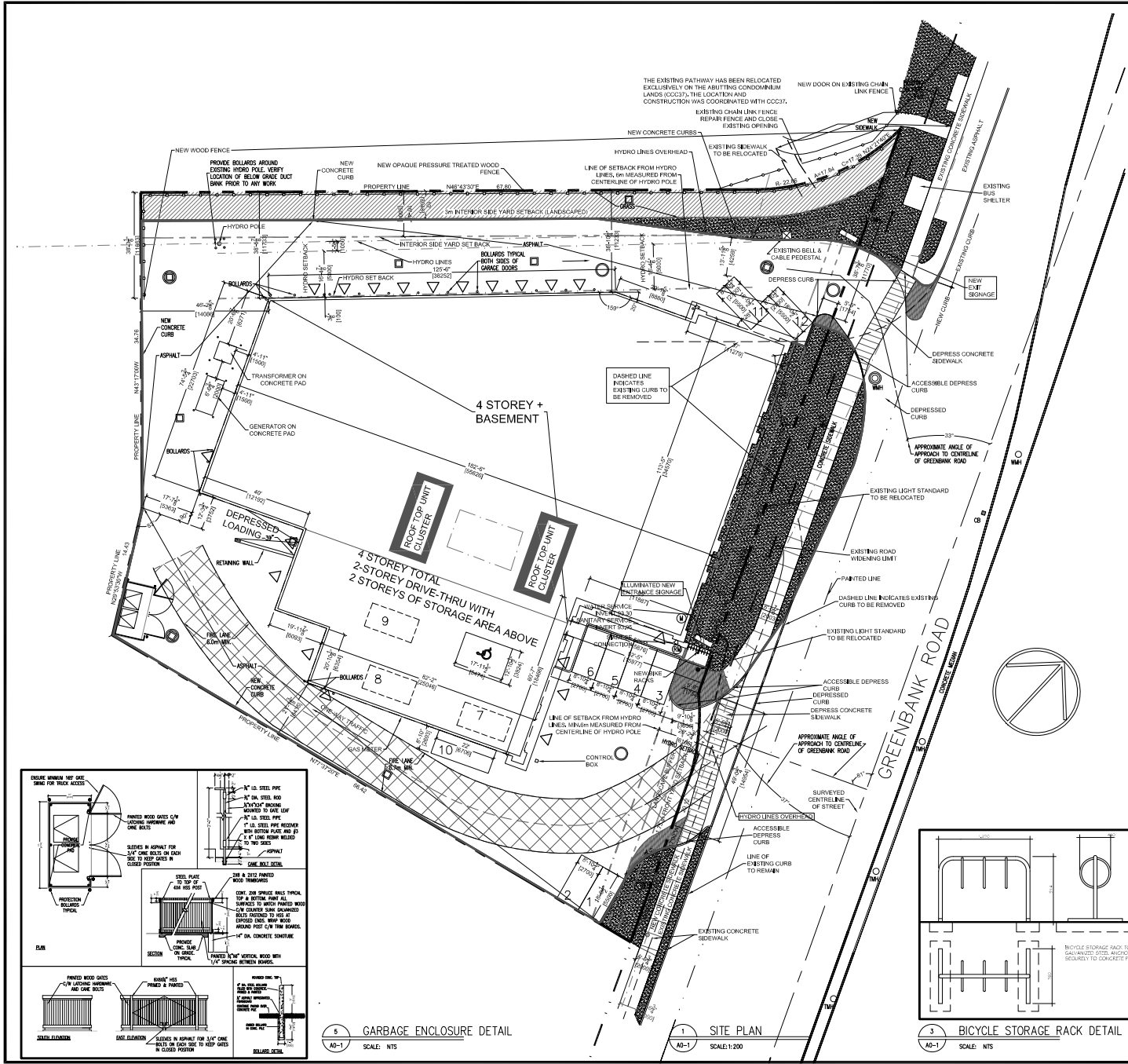
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Lola Street & Dymon Storage (343 Coventry Road)

Ottawa, ON





LEGAL DESCRIPTION OF PROPERTY:
 PART OF BLOCKS "D" & "E"
 REGISTERED PLAN 627624
 AND PART OF THE ROAD ALLOWANCE BETWEEN LOTS 30 & 31 (AS CLOSED)
 CONCESSION 3 (REAR) FRONT
 GEOGRAPHIC TOWNSHIP OF NEPEAN
 NOW CITY OF OTTAWA

SITE STATISTICS
 LOT AREA 4,738.5m²
 LOT WIDTH 84.7m (506'-10")
 PARKING REQUIRED 9 SPACES
 4 PARKING SPACES + 5 IN DRIVE-THRU PROVIDED

ZONING INFORMATION
 ZONE GM15(1672)(17.5)

	REQUIRED	PROVIDED
MN. FRONT YARD	1.75 m	3.78
CORNER YARD SETBACK	3.0 m	3.0m
MN. INTERIOR SIDE YARD SETBACK		
ABUTTING A RESIDENTIAL ZONE	5.0 m	11.0m
OTHER CASES	NO MIN.	
MN. REAR YARD SETBACK		
ABUTTING A RESIDENTIAL ZONE	7.5 m	N/A
OTHER CASES	NO MIN.	6.15m
MAX. BUILDING HEIGHT	17.5 m	13.3m (64'-5") T.O. HIGH PARAPET
MN. WIDTH OF LANDSCAPED AREA:		
ABUTTING A STREET	3.0 m	3.0m
ABUTTING A RESIDENTIAL ZONE	3.0 m	3.0m (10'-0")
OTHER CASES	NO MIN.	

BOUNDARY INFORMATION FROM SURVEY BY: FARHALL, WOFFAT & WOODLAND LIMITED, ONTARIO LAND SURVEYORS. 26 NOVEMBER 2009.

BUILDING AREA (FOOTPRINT)
 2,211.7 m² (23,908.97 SQF)

GROSS FLOOR AREA AS PER CITY OF OTTAWA ZENITHION

BASEMENT	1 633.2 m ² (17,590 sqf)
GROUND	1 221 m ² (13,241 sqft) OFFICE 415m ² (4,466.7 sqf) TOTAL 1 672 m ² (17,997.7 sqf)
SECOND	1 731.6 m ² (18,638 sqf)
THIRD	2 079 m ² (22,579 sqf)
FOURTH	2 029 m ² (21,975 sqf)
TOTAL GFA	9 194.8 m ² (98,972.8 sqf)

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23	FOR TENDER	2015 07 03
24	BUILDING PERMIT	2015 07 12
25	ELEVATIONS	2015 03 25
22	FOR COORDINATION	2015 03 20
27	NEW LAYOUT	2015 03 08
20	CHANGED AREAS	2014 04 17
19	CHANGED AREAS	2014 01 15
18	REQUIRED FOR BUILDING PERMIT	2013 09 02
17	FINAL SITE PLAN CONTROL	2013 03 14
16	FOR FINAL COORDINATION	2013 02 20
15	BUILDING PERMIT	2013 01 18
14	RESOLVE FOR SITE PLAN CONTROL	2013 01 07
13	PLANS FOR JANUS LAYOUT	2012 11 28
12	PLANS FOR COORDINATION	2012 11 27
11	COORDINATION TTP	2012 10 02
10	SENT TO CLIENT	2012 09 12
9	UPDATE ELEV. TOP PARAPET	2012 08 24
8	UPDATE ELEV. & FLOOR PLANS	2012 07 26
7	UPDATE ELEVATIONS	2012 07 25
6	UPDATE GROUND FLOOR	2012 07 16
5	SEND TO ARCHITECT	2012 06 28
4	EXTENDED LOADING DOCK	2012 07 06
3	SENT FOR APPROVAL	2012 06 27
2	SENT TO CLIENT	2012 06 11
1	SITE PLAN CONTROL	2012 02 13

Revisions

2015 08 06
 - SHOWING EXTERIOR DOORS ON NORTH ELEVATION
ISSUED FOR REVIEW

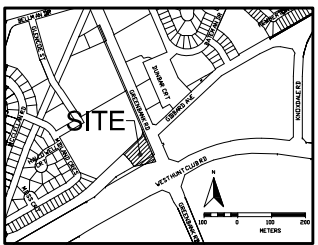
PROFESSIONAL ENGINEER
 Cleland Jardine Engineering Ltd.
 Ryan Mundert
 200-580 Terry Fox Drive, Kanata ON K2C 4B9
 tel: (613) 591-1533 fax: (613) 591-1703
 email: rtm@cljardine.com

PROFESSIONAL ARCHITECT
 Goodkey Weetmark Consulting Engineers
 1688 Woodward Dr, Ottawa ON K2C 0P9
 tel: (613) 727-5111 fax: (613) 727-5115
 www.goodkey.com email: info@goodkey.com

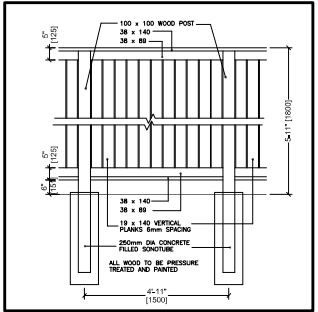
PROFESSIONAL ENGINEER
 David Schaeffer Engineering Ltd.
 120 Ibis Road, Suite 203, Ottawa ON K2S 1E9
 tel: (613) 836-0206 fax: (613) 836-7103
 email: dschaeffer@dsengr.com

PROFESSIONAL ENGINEER
 Fof Terni
 Miguel Tremblay
 223 McLeod Street, Ottawa ON K2P 0Z6
 tel: (613) 730-5709 fax: (613) 730-1136
 web: www.fofterni.com email: tremblay@fofterni.com

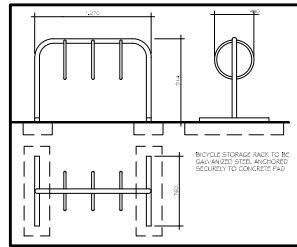
OWNER
 Dymon Capital Corporation
 2-1830 Walkley Road
 Ottawa ON K1H 8K3
 tel: 613-247-0888 fax: 613-247-7730



2 SITE KEY PLAN
 AD-1 SCALE: NTS



4 WOOD FENCE DETAIL
 AD-1 SCALE: NTS



3 BICYCLE STORAGE RACK DETAIL
 AD-1 SCALE: NTS

5 GARBAGE ENCLOSURE DETAIL
 AD-1 SCALE: NTS

1 SITE PLAN
 AD-1 SCALE: 1:200

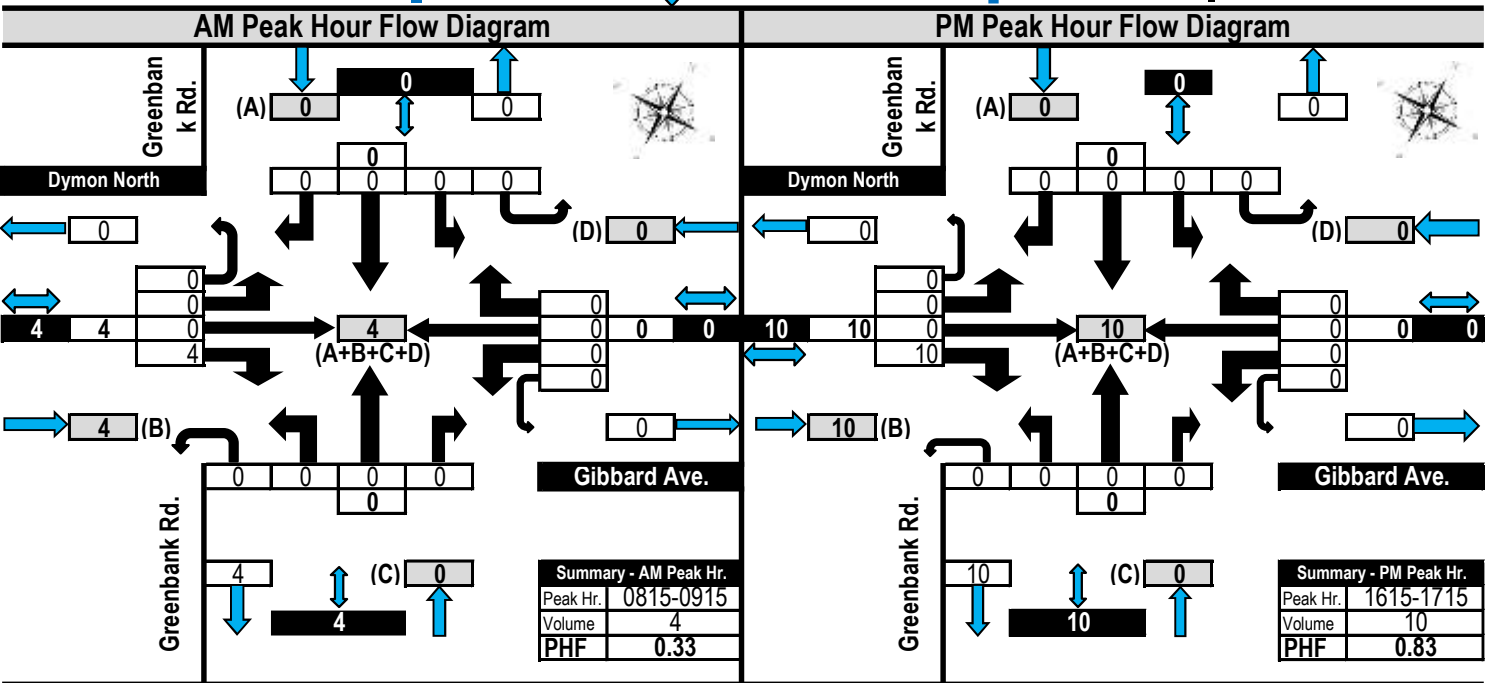
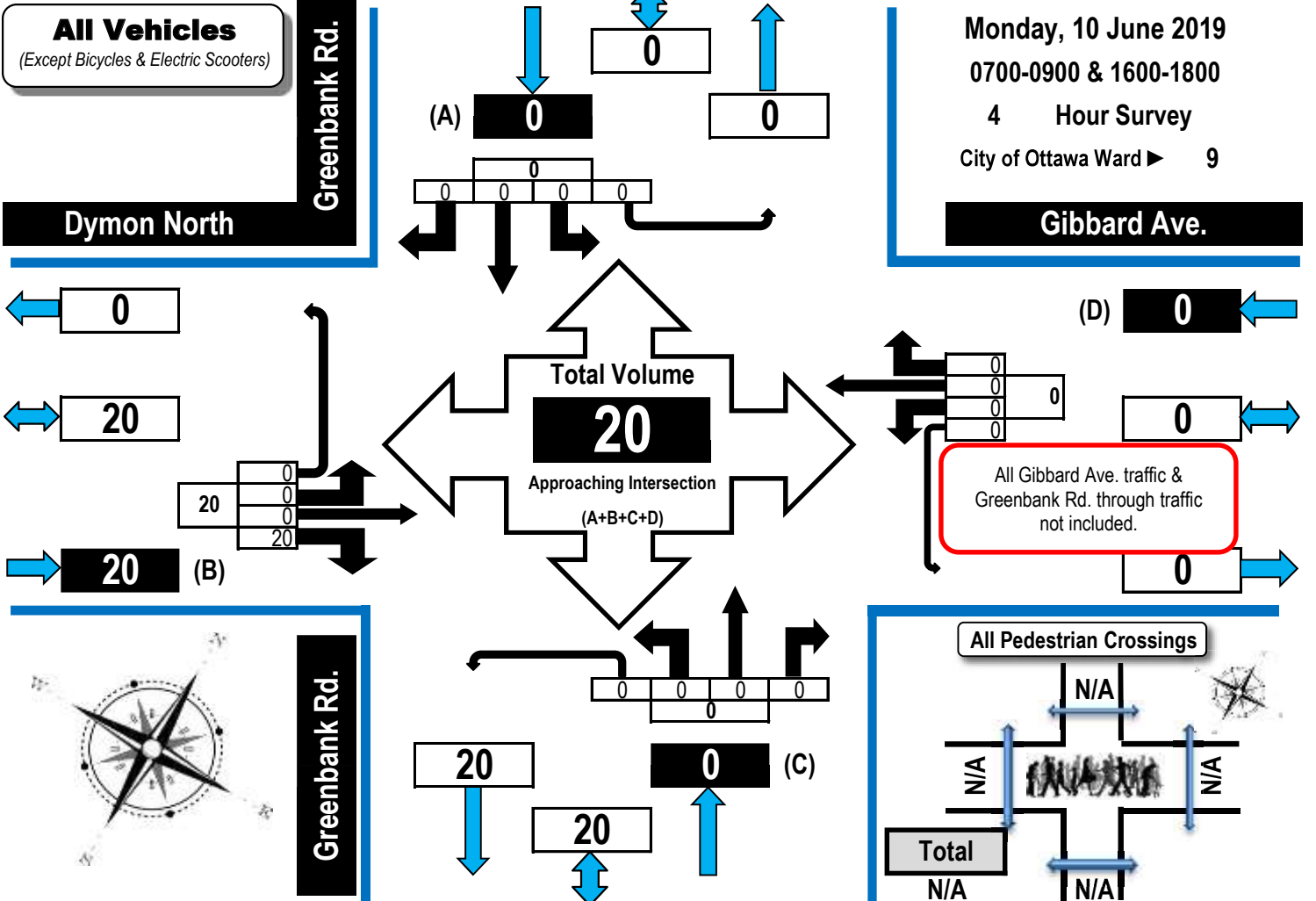
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 drawn by: KS CT
A0-1



Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Greenbank Road & Dymon Storage NORTH (300 Greenbank Road) Nepean, ON





Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

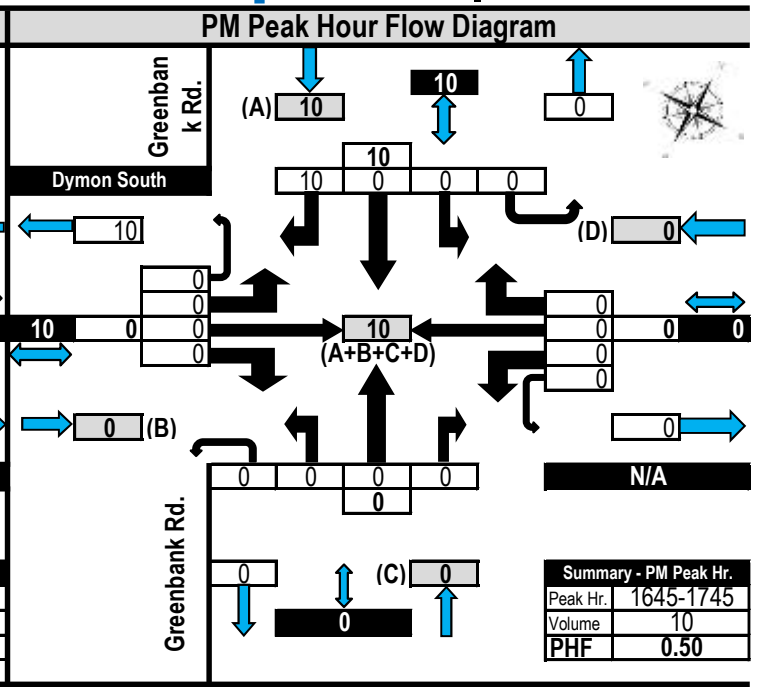
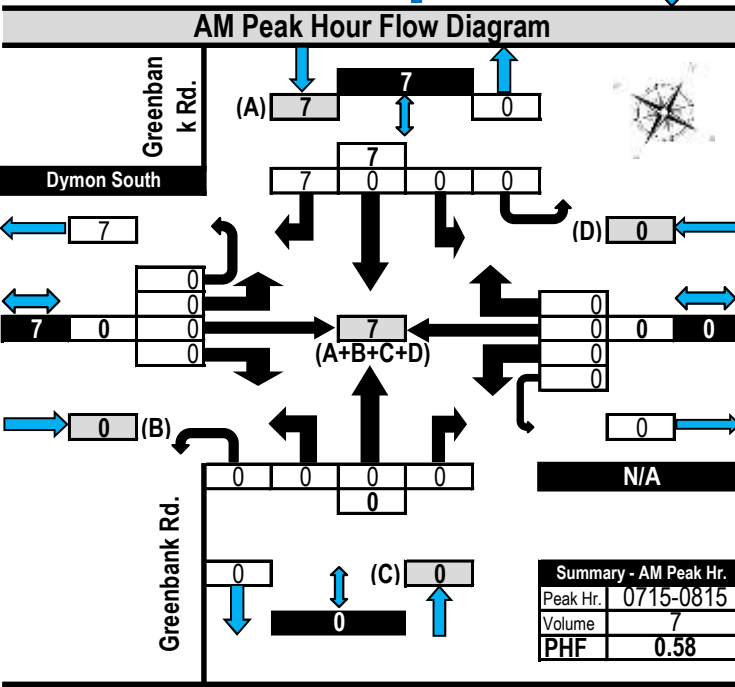
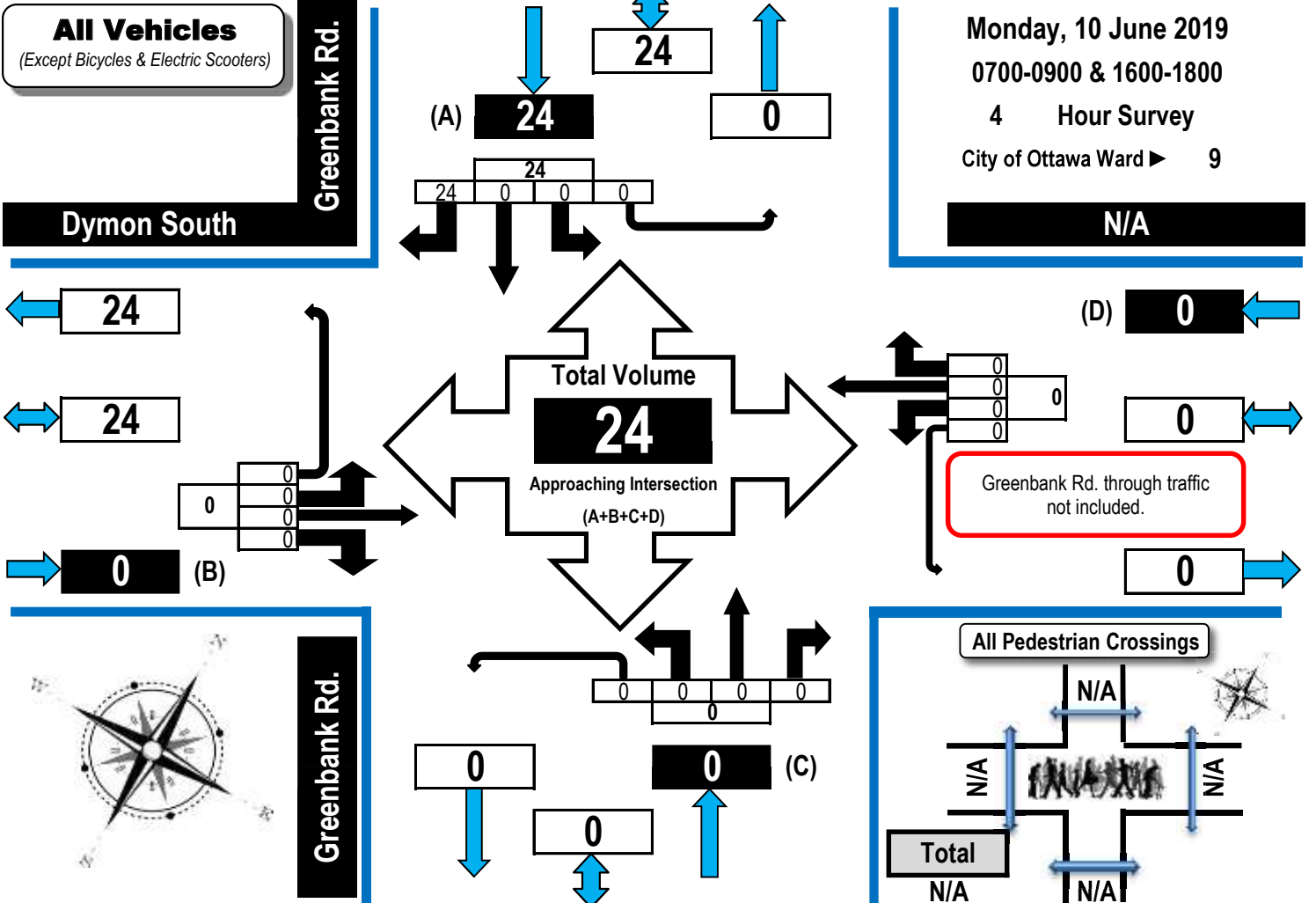
Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Greenbank Road & Dymon Storage SOUTH (300 Greenbank Road)

Nepean, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Monday, 10 June 2019
0700-0900 & 1600-1800
4 Hour Survey
City of Ottawa Ward 9



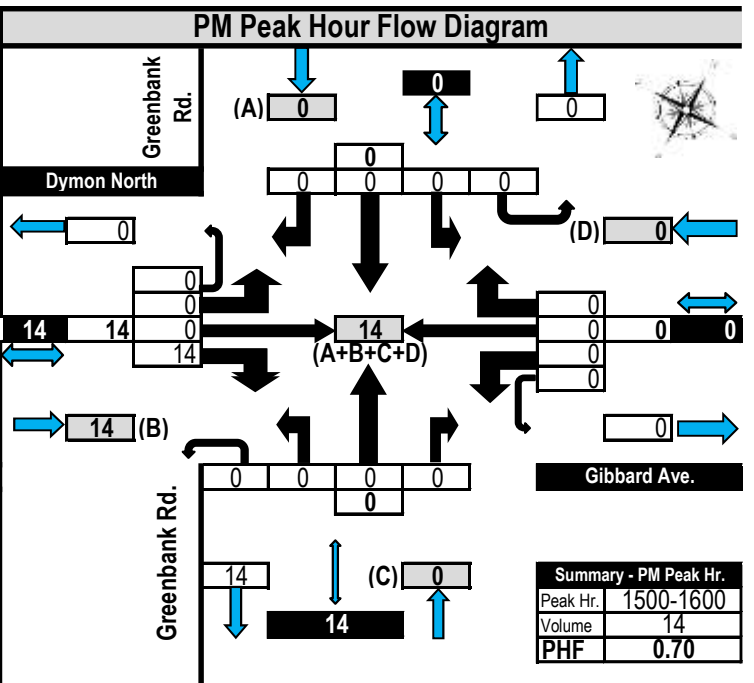
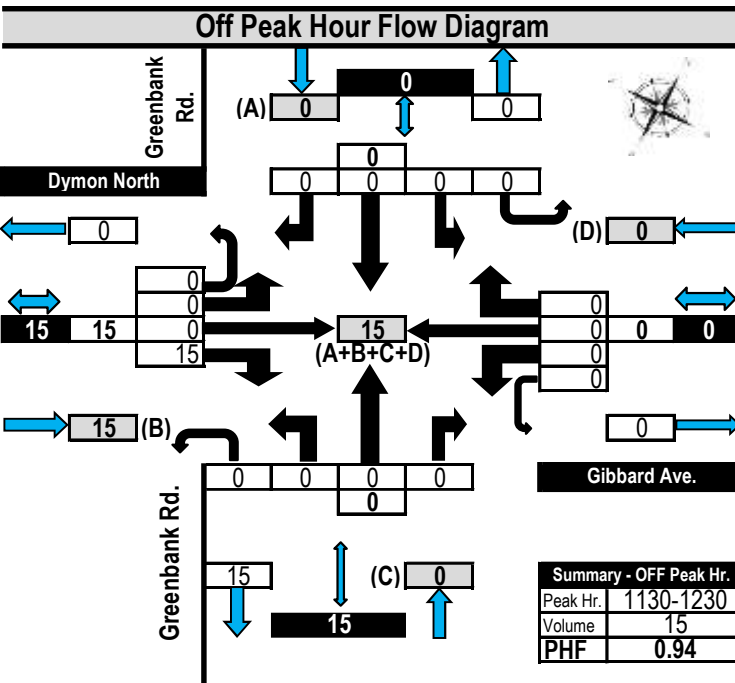
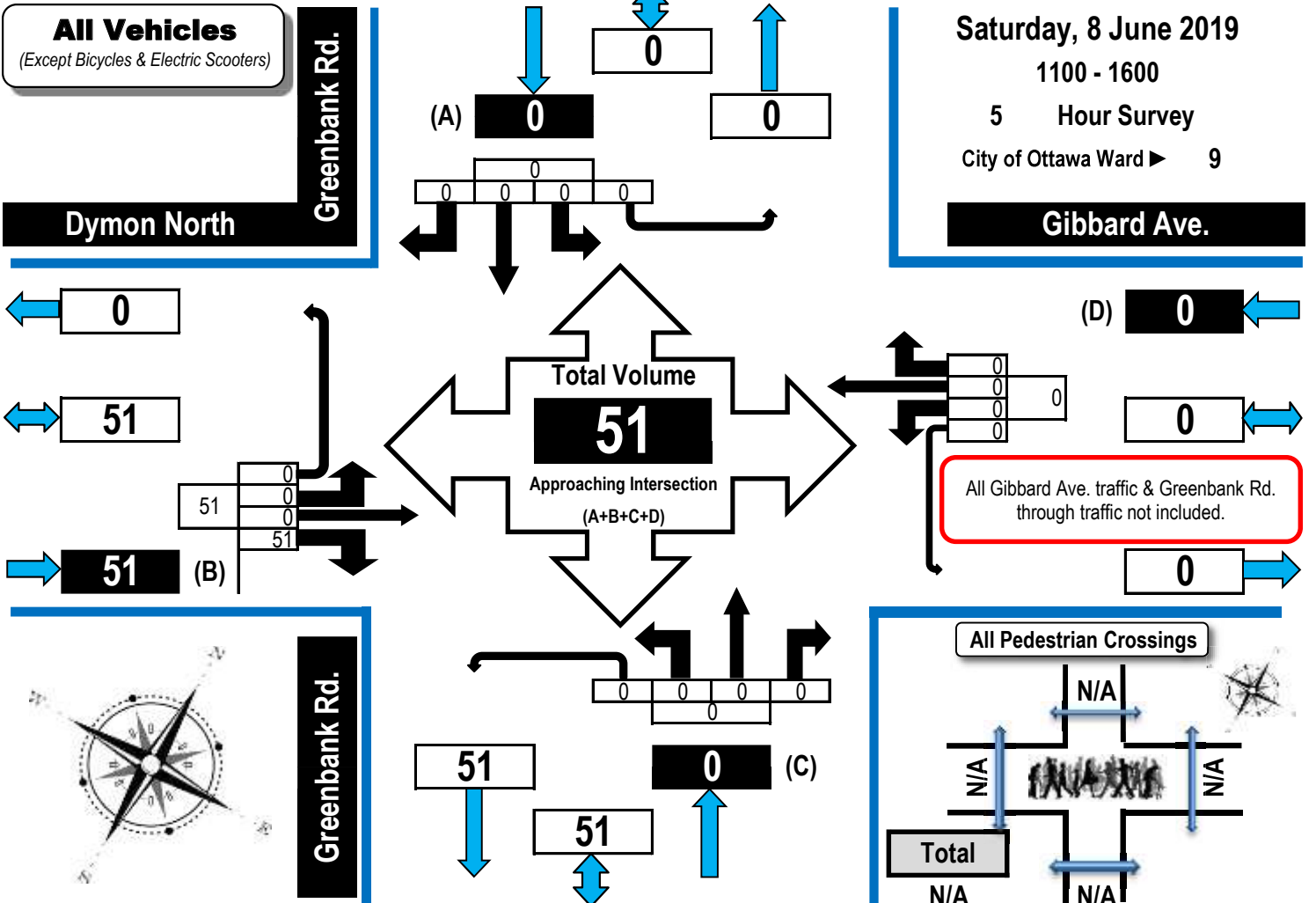


Turning Movement Count Summary, OFF and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Greenbank Road & Dymon Storage NORTH (300 Greenbank Road)

Nepean, ON

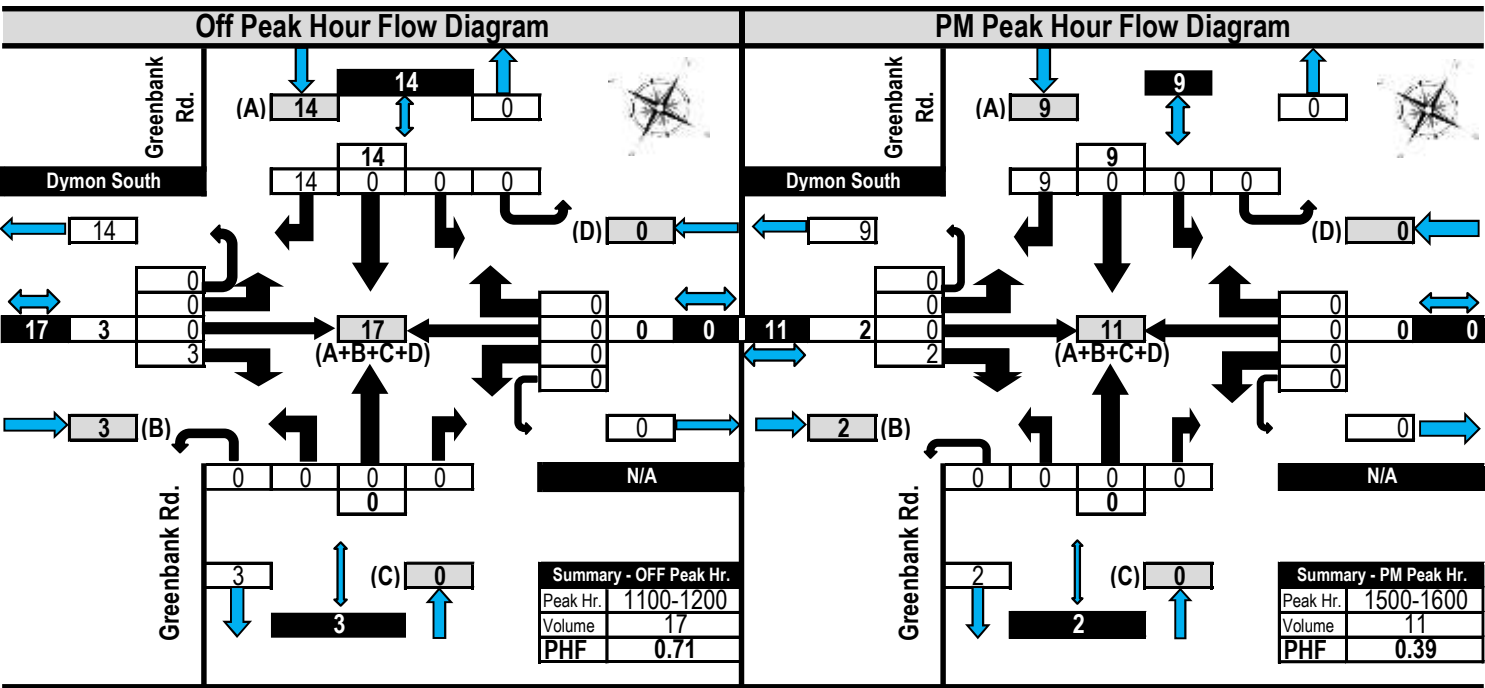
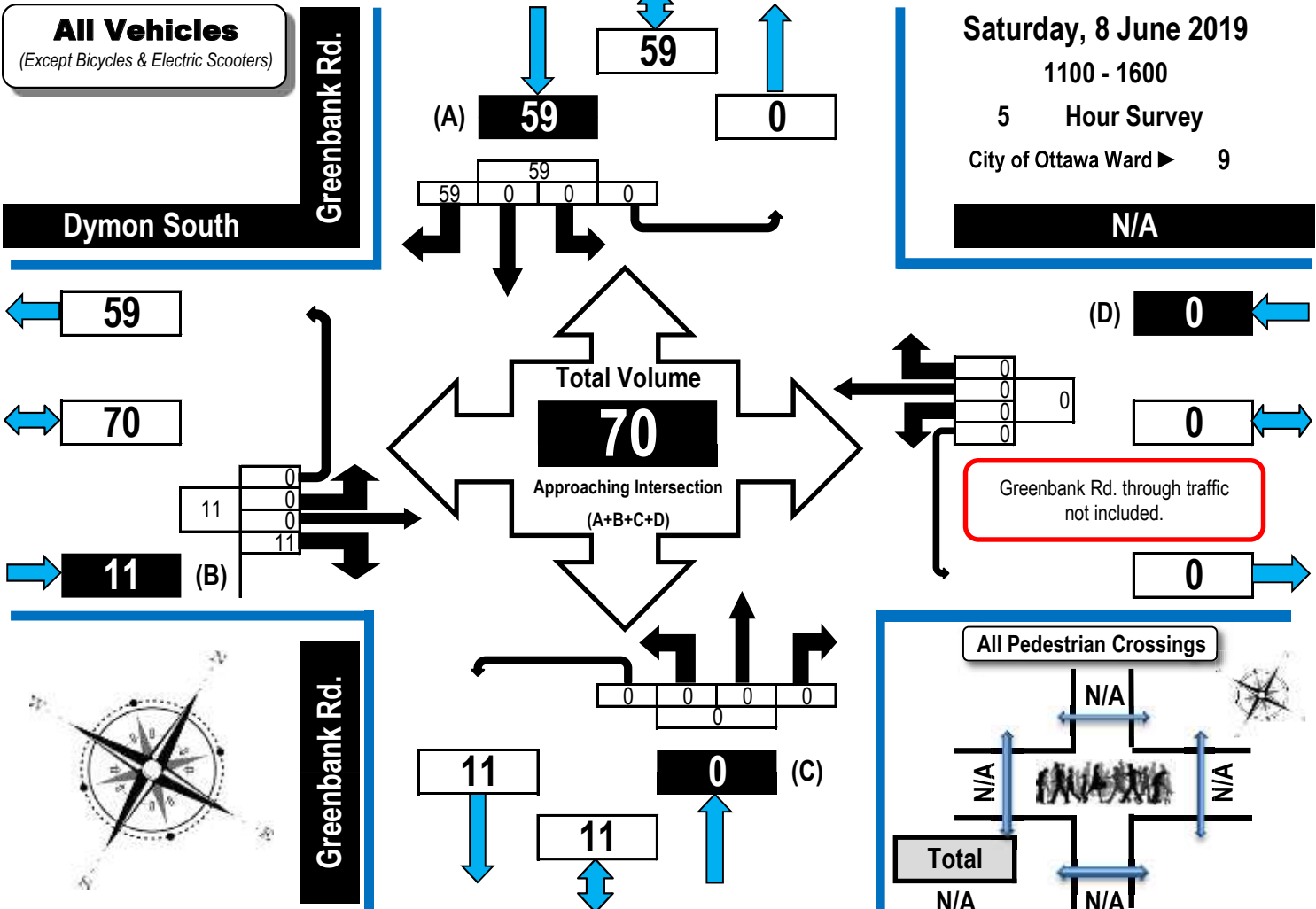




Turning Movement Count Summary, OFF and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Greenbank Road & Dymon Storage SOUTH (300 Greenbank Road) Nepean, ON





LEGAL DESCRIPTION OF PROPERTY:
 BLOCK 4
 PLAN 43M-879
 CITY OF BRAMPTON
 BOUNDARY INFORMATION FROM SURVEY BY: LLOYD & PURCELL LTD.,
 ONTARIO LAND SURVEYORS, 2015.

STATISTIC	ZONING	PROPOSED
LOT AREA	2,000 m ² / 21527sf	7,972 m ² / 85,809 sf
LOT COVERAGE	NO MAX.	45%
MAX. % ACCESSORY RETAIL	15% OF TOTAL GFA	4.6%
MIN. LOADING SPACE REQUIREMENT	5 spaces	16 spaces
COMMERCIAL SELF STORAGE WAREHOUSE	109	-
RETAIL ESTABLISHMENT	41	-
TOTAL	150	41

FRONT YARD LANDSCAPE AREA	21.5%
FRONT YARD LANDSCAPE BUFFER	0 m
EXTERIOR SIDE YARD LANDSCAPE AREA	238.14m ² / 4.86%

Ground Floor Dymon Warehouse Retail	564 m ² (6,070 sf)
Ground Floor Dymon	696 m ² (7,502 sf)
Second Floor Dymon	3,508 m ² (37,759 sf)
Third Floor Dymon	3,544 m ² (38,147 sf)
Fourth Floor Dymon	3,544 m ² (38,147 sf)

PROPOSED Self-Storage Ground Floor	1,156 m ² (12,443 sf)
TOTAL SELF STORAGE	12,448 m ² (133,998 sf)
TOTAL GFA WITH 4 STOREYS	13,012 m ² (140,068 sf)

1	FOR SITE PLAN APPLICATION REV01	2016/08/16
2	FOR MINOR VARIANCE SUBMISSION	2016/11/08
3	REVISED FOR SUBMISSION	2017/01/06
4	FOR CLIENT REVIEW	2017/01/23
5	REVISED FOR SUBMISSION	2017/02/1
6	FOR PERMIT APPLICATION	2017/03/03
7	FOR FINAL SITE PLAN APPLICATION	2017/04/12
11	REVISED FOR APPROVAL	2017/07/14
10	REVISED FOR APPROVAL	2017/07/10
9	ISSUED FOR APPROVAL	2017/06/28
8	FOR PERMIT APPLICATION	2017/05/10
12	REVISED FOR APPROVAL	2017/07/19
13	REVISED FOR REGION OF PEEL	2017/08/16
14	ISSUED FOR TENDER	2017/08/17
15	FOR FINAL SITE PLAN APPLICATION	2017/08/31
16	REVISED FOR REGION OF PEEL	2017/09/08
17	REVISED FOR PERMIT	2018/09/21
18	ISSUED FOR DISCUSSION	2020/06/24
19	ISSUED FOR DISCUSSION	2020/06/24

ref	description	date
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 2. All drawings and specifications are instruments of service and the property of the architects which must be returned at the completion of the work, and may not be reproduced without their written permission.

revisions



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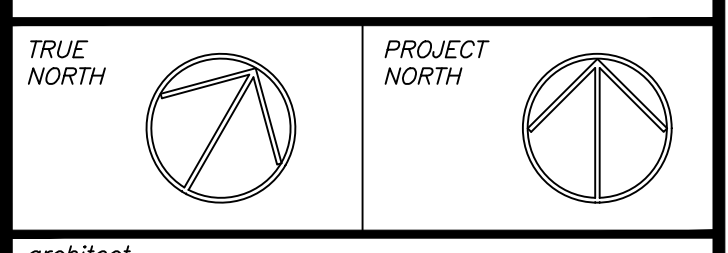
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project & location
DYMON SELF-STORAGE
 5 NEVETS ROAD
 BRAMPTON, ONT.

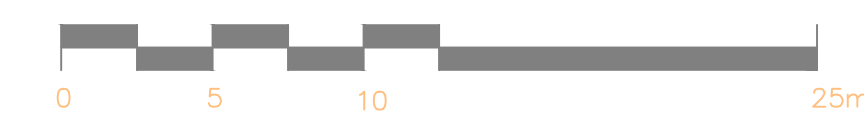
CITY FILE NUMBER: SP16-013.000

title of drawing

SITE PLAN

scale: 1:250
 date: JAN 2016
 drawn by: KL SS DL
A1-1

NOTE:
 GENERAL CONTRACTOR IS RESPONSIBLE TO USE OWNER'S LAND SURVEYOR & GEOTECH ENGINEER TO LOCATE BUILDING AND TO CONFIRM SOILS AND COMPACTION.



Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 07:30:00
To: 08:30:00



Intersection: Nevets Rd & 5 Nevets Rd (Dymon Self-Storage)
Site Code: 2204600019
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Nevets Rd runs E/W

North Approach



	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Commerical Entrance







	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

← ↓ → ↻

East Approach

	Out	In	Total
	1	0	1
	0	0	0
Totals	1	0	1

Nevets Rd

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	2	2	

Peds: 0



Peds: 0



Peds: 0



Peds: 1



Nevets Rd

Totals		
0	0	0
0	0	0
0	0	0
1	1	0

↻ ↑ ← ↓



West Approach

	Out	In	Total
	2	2	4
	0	0	0
Totals	2	2	4


Totals	←	↑	→	↻
2	2	0	0	0
	2	0	0	0
	0	0	0	0

5 Nevets Rd (Dymon Self-Storage)

South Approach

	Out	In	Total
	2	3	5
	0	0	0
Totals	2	3	5

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Nevels Rd & 5 Nevels Rd (Dymon Self-Storage)
 Site Code: 2204600019
 Count Date: Feb 15, 2022
 Period: 07:00 - 09:00

Peak Hour Data (07:30 - 08:30)

Start Time	North Approach Commerical Entrance						South Approach 5 Nevels Rd (Dymon Self-Storage)						East Approach Nevels Rd						West Approach Nevels Rd						Total Vehicl es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
08:00	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1
08:15	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	2	0	0	0	0	1	2	1	0	0	0	0	0	0	2	0	0	2	5
Approach %	0	0	0	0	-	-	100	0	0	0	-	-	-	100	0	0	0	-	-	0	0	100	0	-	-
Totals %	0	0	0	0	0	0	40	0	0	0	0	40	40	20	0	0	0	0	20	0	0	40	0	40	40
PHF	0	0	0	0	0	0	0.5	0	0	0	0	0.5	0.25	0	0	0	0	0.25	0	0	0.5	0	0.5	0.42	
Cars	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	1	0	0	2	0	0	2	5
% Cars	0	0	0	0	0	0	100	0	0	0	0	100	100	0	0	0	0	100	0	0	100	0	0	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					0	-					1	-					0	-				0	-	1	
% Peds					0	-					100	-					0	-				0	-	100	

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:00:00
To: 17:00:00

Intersection: Nevets Rd & 5 Nevets Rd (Dymon Self-Storage)
Site Code: 2204600019
Count Date: Feb 15, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Nevets Rd runs E/W

North Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Commerical Entrance

	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

← ↓ → ↻

East Approach

	Out	In	Total
	1	4	5
	0	0	0
Totals	1	4	5

Nevets Rd

			Totals	
0	0	0	0	↻
0	0	0	0	↑
0	0	0	0	→
0	5	5	5	↓

Peds: 0

Peds: 0



Peds: 0

Peds: 0

Nevets Rd

Totals		
0	0	0
0	0	0
0	0	0
1	1	0

↻ ↑ ← ↓

West Approach

	Out	In	Total
	5	4	9
	0	0	0
Totals	5	4	9

Totals	←	↑	→	↻
	4	0	4	0
	0	0	0	0

5 Nevets Rd (Dymon Self-Storage)

South Approach

	Out	In	Total
	8	6	14
	0	0	0
Totals	8	6	14

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Nevets Rd & 5 Nevets Rd (Dymon Self-Storage)
 Site Code: 2204600019
 Count Date: Feb 15, 2022
 Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Commerical Entrance						South Approach 5 Nevets Rd (Dymon Self-Storage)						East Approach Nevets Rd						West Approach Nevets Rd						Total Vehi cles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	0	0	0	0	0	0	0	0	2	0	0	2	1	0	0	0	0	1	0	0	3	0	0	3	6
16:15	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
16:30	0	0	0	0	0	0	1	0	2	0	0	3	0	0	0	0	0	0	0	0	2	0	0	2	5
16:45	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	4	0	4	0	0	8	1	0	0	0	0	1	0	0	5	0	0	5	14
Approach %	0	0	0	0	-	-	50	0	50	0	-	-	100	0	0	0	-	-	0	0	100	0	-	-	-
Totals %	0	0	0	0	0	0	28.6	0	28.6	0	57.1	57.1	7.1	0	0	0	7.1	7.1	0	0	35.7	0	35.7	35.7	35.7
PHF	0	0	0	0	0	0	0.5	0	0.5	0	0.67	0.67	0.25	0	0	0	0.25	0.25	0	0	0.42	0	0.42	0.42	0.58
Cars	0	0	0	0	0	0	4	0	4	0	8	8	1	0	0	0	1	1	0	0	5	0	5	5	14
% Cars	0	0	0	0	0	0	100	0	100	0	100	100	100	0	0	0	100	100	0	0	100	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00



Intersection: Airport Rd & 5 Nevets Rd (Dymon Self-Storage)
Site Code: 2204600020
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Airport Rd runs N/S



North Approach

	Out	In	Total
	0	1	1
	0	0	0
Totals	0	1	1

Airport Rd

	0	0	0
	0	0	0
Totals	0	0	0






East Approach



	Out	In	Total
	1	2	3
	0	0	0
Totals	1	2	3

Peds: 0





5 Nevets Rd (Dymon Self-Storage)

Totals		
	0	0
	1	0
	0	0


Totals	0	2	0
	0	2	0
	0	0	0

Airport Rd

South Approach

	Out	In	Total
	2	0	2
	0	0	0
Totals	2	0	2

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Airport Rd & 5 Nevets Rd (Dymon Self-Storage)
 Site Code: 2204600020
 Count Date: Feb 15, 2022
 Period: 07:00 - 09:00

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

Start Time	North Approach Airport Rd						South Approach Airport Rd						East Approach 5 Nevets Rd (Dymon Self-Storage)						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
08:15	0	0		0	0	0		0	1	0	0	1	0		0	0	0	0					0		1
08:30	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
08:45	0	0		0	0	0		0	1	0	0	1	0		1	0	0	1					0		2
Grand Total	0	0		0	0	0		0	2	0	0	2	0		1	0	0	1					0	0	3
Approach %	0	0		0	-	-	0	100	0	-	-	-	0	100	0	-	-	-					0	-	-
Totals %	0	0		0	0	0	0	66.7	0	66.7	66.7	66.7	0	33.3	0	33.3	33.3	33.3					0	0	0
PHF	0	0		0	0	0	0	0.5	0	0.5	0.5	0.5	0	0.25	0	0.25	0.25	0.25					0	0	0.38
Cars	0	0		0	0	0	0	2	0	2	2	2	0	1	0	1	1	1					0	0	3
% Cars	0	0		0	0	0	0	100	0	100	100	100	0	100	0	100	100	100					0	0	100
Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0
% Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:00:00
To: 17:00:00



Intersection: Airport Rd & 5 Nevets Rd (Dymon Self-Storage)
Site Code: 2204600020
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Airport Rd runs N/S



North Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Airport Rd

	0	0	0
	0	0	0
Totals	0	0	0






East Approach



	Out	In	Total
	0	3	3
	0	0	0
Totals	0	3	3

Peds: 0





5 Nevets Rd (Dymon Self-Storage)

Totals		
	0	0
	0	0
	0	0


Totals	0	3	0
	0	3	0
	0	0	0

South Approach

Out	In	Total	
	3	0	3
	0	0	0
Totals	3	0	3

Airport Rd

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Airport Rd & 5 Nevets Rd (Dymon Self-Storage)
 Site Code: 2204600020
 Count Date: Feb 15, 2022
 Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Airport Rd						South Approach Airport Rd						East Approach 5 Nevets Rd (Dymon Self-Storage)						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	0	0		0	0	0		0	2	0	0	2	0		0	0	0	0					0		2
16:15	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
16:30	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
16:45	0	0		0	0	0		0	1	0	0	1	0		0	0	0	0					0		1
Grand Total	0	0		0	0	0		0	3	0	0	3	0		0	0	0	0					0	0	3
Approach %	0	0		0	-	-	0	100	0	-	-	-	0	0	0	-	-	-					0	-	-
Totals %	0	0		0	0	0	0	100	0	100	0	0	0	0	0	0	0					0	0	0	
PHF	0	0		0	0	0	0	0.38	0	0.38	0	0	0	0	0	0					0	0	0.38		
Cars	0	0		0	0	0	0	3	0	3	0	0	0	0	0	0					0	0	3		
% Cars	0	0		0	0	0	0	100	0	100	0	0	0	0	0	0					0	0	100		
Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0		
% Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0		
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:15:00
To: 13:15:00

Intersection: Nevets Rd & 5 Nevets Rd (Dymon Self-Storage)
Site Code: 2204600021
Count Date: Feb 12, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Nevets Rd runs E/W

North Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Commerical Entrance

	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

← ↓ → ↻

East Approach

	Out	In	Total
	4	2	6
	0	0	0
Totals	4	2	6

Nevets Rd

			Totals	
0	0	0	0	
0	0	0	0	
0	0	0	0	
0	10	10	10	

Peds: 0



Nevets Rd

Totals		
0	0	0
0	0	0
0	0	0
4	4	0

↻ ↑ ← ↓

West Approach

	Out	In	Total
	10	9	19
	0	0	0
Totals	10	9	19

Totals				
9	0	2	0	0
	9	0	2	0
	0	0	0	0

5 Nevets Rd (Dymon Self-Storage)

South Approach

	Out	In	Total
	11	14	25
	0	0	0
Totals	11	14	25

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Nevets Rd & 5 Nevets Rd (Dymon Self-Storage)
 Site Code: 2204600021
 Count Date: Feb 12, 2022
 Period: 11:00 - 14:00

Peak Hour Data (12:15 - 13:15)

Start Time	North Approach Commerical Entrance						South Approach 5 Nevets Rd (Dymon Self-Storage)						East Approach Nevets Rd						West Approach Nevets Rd						Total Vehicl es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
12:15	0	0	0	0	0	0	1	0	2	0	0	3	0	0	0	0	0	0	0	0	1	0	0	1	4
12:30	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	2	0	0	3	0	0	3	6
12:45	0	0	0	0	0	0	4	0	0	0	0	4	2	0	0	0	0	2	0	0	5	0	0	5	11
13:00	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	1	4
Grand Total	0	0	0	0	0	0	9	0	2	0	0	11	4	0	0	0	0	4	0	0	10	0	0	10	25
Approach %	0	0	0	0	-	-	81.8	0	18.2	0	-	-	100	0	0	0	-	-	0	0	100	0	-	-	-
Totals %	0	0	0	0	0	0	36	0	8	0	44	44	16	0	0	0	16	16	0	0	40	0	0	40	40
PHF	0	0	0	0	0	0	0.56	0	0.25	0	0.69	0.69	0.5	0	0	0	0.5	0.5	0	0	0.5	0	0.5	0.5	0.57
Cars	0	0	0	0	0	0	9	0	2	0	11	11	4	0	0	0	4	4	0	0	10	0	0	10	25
% Cars	0	0	0	0	0	0	100	0	100	0	100	100	100	0	0	0	100	100	0	0	100	0	0	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 11:45:00
To: 12:45:00



Intersection: Airport Rd & 5 Nevets Rd (Dymon Self-Storage)
Site Code: 2204600022
Count Date: Feb 12, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Airport Rd runs N/S



North Approach

	Out	In	Total
	0	2	2
	0	0	0
Totals	0	2	2

Airport Rd

	0	0	0
	0	0	0
Totals	0	0	0






East Approach



	Out	In	Total
	2	4	6
	0	0	0
Totals	2	4	6

Peds: 0





5 Nevets Rd (Dymon Self-Storage)

Totals		
	0	0
	2	0
	0	0


Totals	0	4	0
	0	4	0
	0	0	0

Airport Rd

South Approach

	Out	In	Total
	4	0	4
	0	0	0
Totals	4	0	4

 - Cars

 - Trucks

Comments

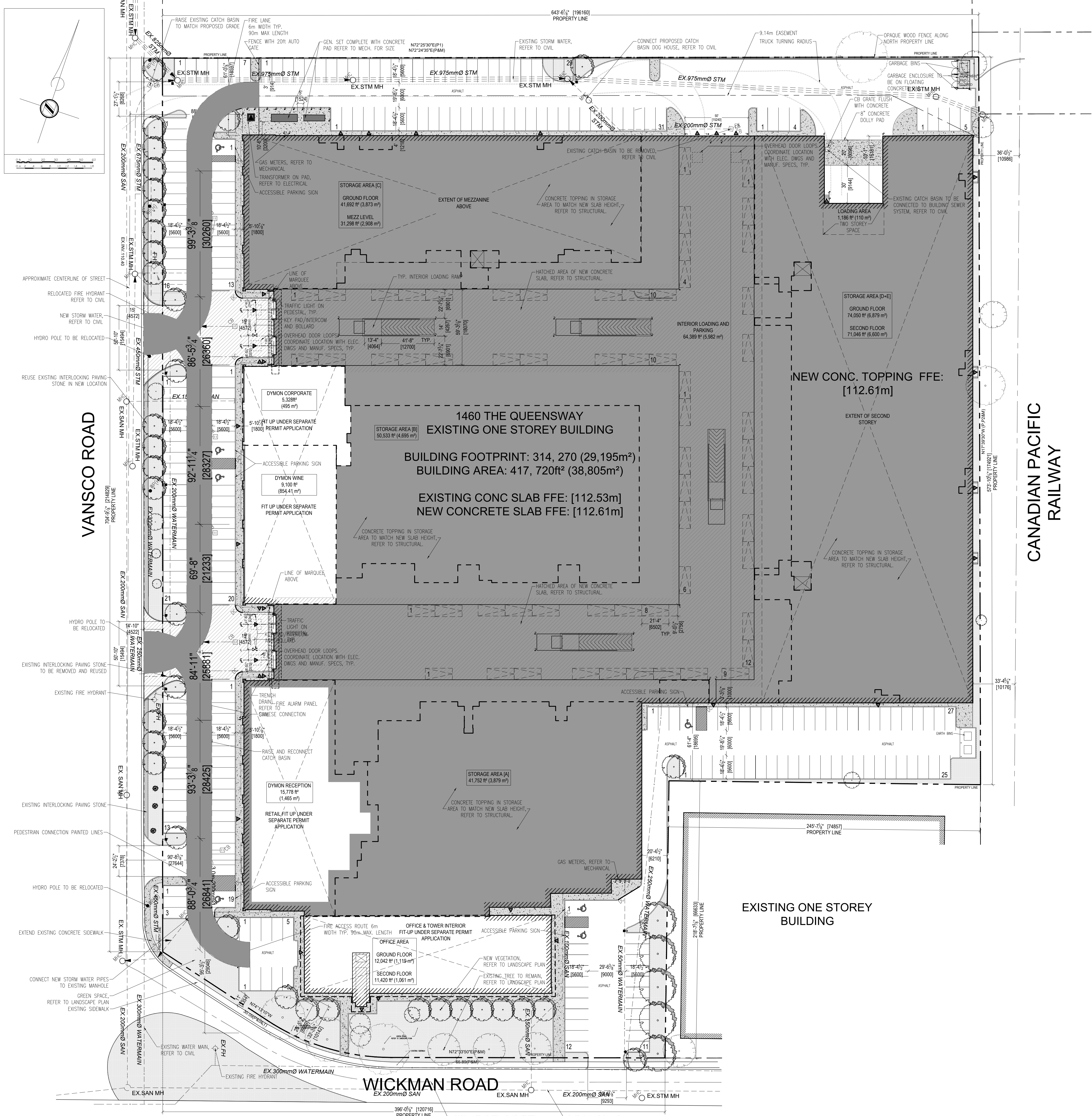


Peak Hour Summary

Intersection: Airport Rd & 5 Nevets Rd (Dymon Self-Storage)
 Site Code: 2204600022
 Count Date: Feb 12, 2022
 Period: 11:00 - 14:00

Peak Hour Data (11:45 - 12:45)

Start Time	North Approach Airport Rd						South Approach Airport Rd						East Approach 5 Nevets Rd (Dymon Self-Storage)						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
11:45	0	0		0	0	0		0	1	0	0	1	0		0	0	0	0					0		1
12:00	0	0		0	0	0		0	1	0	0	1	0		1	0	0	1					0		2
12:15	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
12:30	0	0		0	0	0		0	2	0	0	2	0		1	0	0	1					0		3
Grand Total	0	0		0	0	0		0	4	0	0	4	0		2	0	0	2					0	0	6
Approach %	0	0		0	-	-	0	100	0	-	-	-	0	100	0	-	-	-					0	-	-
Totals %	0	0		0	0	0	0	66.7	0	66.7	66.7	66.7	0	33.3	0	33.3	33.3	33.3					0	0	0
PHF	0	0		0	0	0	0	0.5	0	0.5	0.5	0.5	0	0.5	0	0.5	0.5	0.5					0	0	0.5
Cars	0	0		0	0	0	0	4	0	4	4	4	0	2	0	2	2	2					0	0	6
% Cars	0	0		0	0	0	0	100	0	100	100	100	0	100	0	100	100	100					0	0	100
Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0
% Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0



STATISTICS

LEGAL DESCRIPTION OF PROPERTY:
 THE 41,719m² PROPERTY KNOWN MUNICIPALLY AS 1460 THE QUEENSWAY IS LOCATED AT THE NORTHWEST CORNER OF VANSOCO ROAD AND THE QUEENSWAY IN THE CITY OF TORONTO (ETORONCA).
 BOUNDARY INFORMATION FROM SURVEY BY: DAVID B. SEARLES SURVEYING LTD.

BUILDING FOOTPRINT (INCLUDING INTERIOR LOADING): 29,210 m² (314,411 ft²)
 TOTAL SELF STORAGE: 27,588 m² (297,866 ft²)
 TOTAL RECEIPTION: 1,231 m² (13,212 ft²)
 TOTAL OFFICE: 2,192 m² (23,749 ft²)
 TOTAL GFA: 30,981 m² (337,956 ft²)

PARKING STATISTICS

REQUIRED	FORMER CITY OF TORONTO BY-LAW	PROPOSED
206 SPACES	359 SPACES	266 EXT. SPACES 59 INT. SPACES 325 TOTAL

FOR A COMPLETE LIST OF THE PERFORMANCE STANDARDS FOR BOTH ZONING CATEGORIES PLEASE REFER TO THE TABLE IN APPENDIX A OF THE ASSOCIATED PLANNING RATIONALE REPORT.

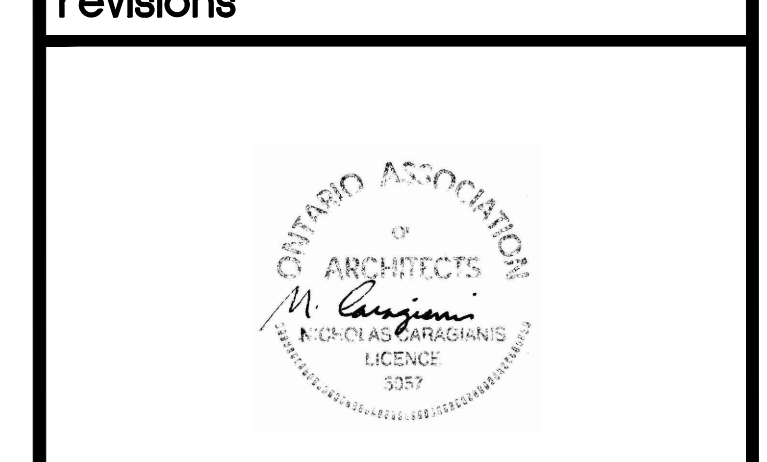
LEGEND

- PROPOSED BUILDING LOCATION
- EXISTING NEIGHBORING BUILDINGS
- LANDSCAPED AREA
- CONCRETE/ SIDEWALK
- BARRIER FREE PARKING CLEARANCE
- INTERLOCKING PAVING STONE (EXISTING TO REMAIN OR REUSE)
- CURB
- DEPRESSED CURB
- NEW TREE/ VEGETATION (REFER TO LANDSCAPE PLAN FOR TYPE, SIZE AND LOCATION)
- EXISTING TREE (LOCATION IS FOR REFERENCE ONLY, REFER TO LANDSCAPE PLAN)
- BARRIER FREE PARKING
- INTERIOR PARKING
- CATCH BASIN
- SAMESE CONNECTION
- ENTRANCE/ EXIT LOCATION
- TRANSFORMER
- FENCE & GATE
- MAN HOLE COVER
- WOOD POLE (HYDRO)
- FIRE HYDRANT
- NLS NEW LIGHT STANDARD, REFER TO ELECTRICAL
- NEW BOLLARD

BOUNDARY INFORMATION FROM SURVEY BY: DAVID B. SEARLES SURVEYING LTD. ONTARIO LAND SURVEYORS. 04 MAY 2016

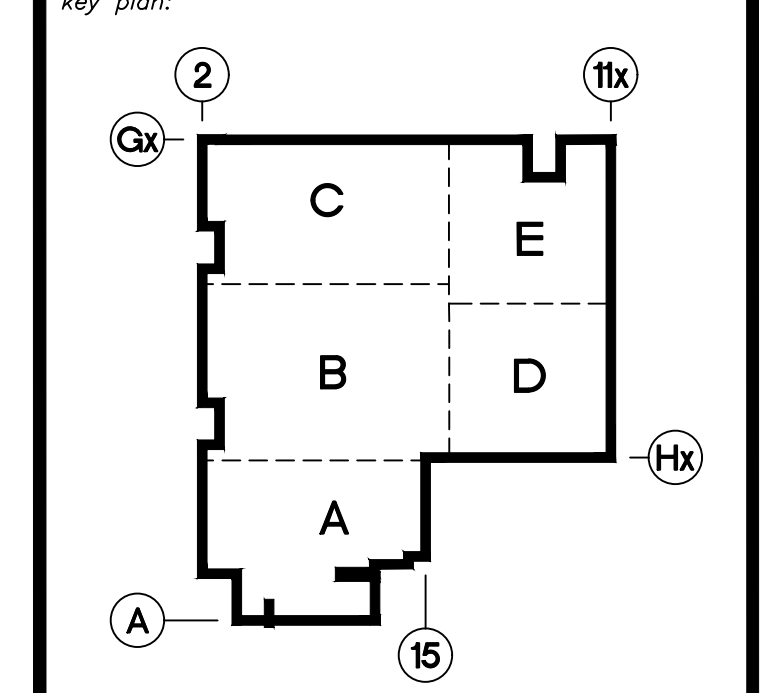
1. Contractor must verify all job dimensions, all drawings, details, specifications and report any discrepancies to owners before proceeding with work.
 2. All drawings and specifications are instruments of service and the property of the architects which must be returned at the completion of the work, and may not be reproduced without their written permission.

NO.	DESCRIPTION	DATE
16	ISSUED FOR PERMIT	2020 09 02
15	RE-ISSUED FOR CONSTRUCTION (FC5)	2018 12 03
14	ISSUED FOR ZONING	2018 04 27
13	FOR COORDINATION	2018 04 26
12	REVISED FOR PERMIT	2018 03 07
11	RE-ISSUED FOR COORDINATION (FC4)	2018 02 02
10	FOR COORDINATION	2017 01 16
9	FOR COORDINATION	2017 12 12
8	FOR COORDINATION	2017 10 11
7	FOR COORDINATION	2017 09 22
6	FOR COORDINATION	2017 08 23
5	FOR COORDINATION	2017 08 16
4	FOR COORDINATION	2017 08 08
3	FOR COORDINATION	2017 06 29
2	BLDG. STRUCT. & SHELL PERMIT	2017 06 20
1	FOR COORDINATION	2017 06 15



revisions

NO.	DESCRIPTION	DATE
2020 09 02	ISSUED FOR PERMIT	



DESIGN ARCHITECT	TACT Architecture Inc. 660R College St (Rear Lane) Toronto ON M6G 1B8 tel: (416) 616 1949 email: info@tactdesign.ca
STRUCTURAL ENGINEER	Cleland Jardine Engineering Ltd. 206-580 Terry Fox Drive, Kanata ON K2C 4B9 tel: (613) 591-5233 fax: (613) 591-1703 e-mail: mail@clelandjardine.com
MECHANICAL/ELECTRICAL	Tristar Engineering Ltd. 8001 Woodbine Ave. Suite 116, Markham, ON L3R 9Y4 tel: (905) 804 2601 e-mail:
CIVIL ENGINEER	Cole Engineering Ltd. 70 Valleywood Drive, Markham, ON L3R 4T5 tel: (416) 987-6161 or (905) 940-6161 fax: (905) 640-2064 www.coleengineering.ca
PLANNING & URBAN DESIGN	Folsom 223 McLeod Street, Ottawa ON K2P 1Z3 tel: (613) 730-5709 fax: (613) 730-1136 www.folsom.com

owner:
Dymon Capital Corporation
 2-1830 Walkley Road
 Ottawa ON K1H 9K3
 tel: 613-247-0888 fax: 613-247-7730

TRUE NORTH	PROJECT NORTH
architect	nicholas caraglanis architect inc.
project & location	DYMON CAPITAL CORP 1460 THE QUEENSWAY TORONTO, ONTARIO
title of drawing	SITE PLAN

scale	AS NOTED
date	DEC 2016
drawn by	KL, DL
drawing	A1-1

1 SITE PLAN
 A1-1 SCALE: 1:400

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 07:45:00
To: 08:45:00



Intersection: Wickman Rd & Dymon Self-Storage
Site Code: 2204600023
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****




Major Road: Wickman Rd runs E/W

North Approach



	Out	In	Total
	1	10	11
	0	0	0
Totals	1	10	11

Dymon Self-Storage






	0	0	0
	0	1	0
Totals	0	1	0

East Approach

	Out	In	Total
	121	64	185
	0	1	1
Totals	121	65	186

Wickman Rd

		Totals	
0	0	0	
0	7	7	
1	63	64	

Peds: 0








Peds: 0

Peds: 0



Peds: 0

Wickman Rd


Totals		
0	0	0
3	3	0
118	118	0

West Approach

	Out	In	Total
	70	118	188
	1	0	1
Totals	71	118	189

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Wickman Rd & Dymon Self-Storage
 Site Code: 2204600023
 Count Date: Feb 15, 2022
 Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Dymon Self-Storage						South Approach				East Approach Wickman Rd				West Approach Wickman Rd				Total Vehicles						
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total							
07:45	0		0	0	0	0					0		25	0	0	0	0	25	3	17		0	0	20	45
08:00	0		0	0	0	0					0		18	0	0	0	0	18	0	12		0	0	12	30
08:15	1		0	0	0	1					0		35	1	0	0	0	36	1	18		0	0	19	56
08:30	0		0	0	0	0					0		40	2	0	0	0	42	3	17		0	0	20	62
Grand Total	1	0	0	0	0	1					0	0	118	3	0	0	0	121	7	64		0	0	71	193
Approach %	100	0	0	-	-	-					-	-	97.5	2.5	0	-	-	-	9.9	90.1	0	-	-	-	-
Totals %	0.5	0	0	0.5	0	0					0	0	61.1	1.6	0	62.7	3.6	33.2	0	36.8					
PHF	0.25	0	0	0.25	0	0					0	0	0.74	0.38	0	0.72	0.58	0.89	0	0.89		0	0.89	0.78	
Cars	1	0	0	1	0	0					0	0	118	3	0	121	7	63	0	70		0	0	192	
% Cars	100	0	0	100	0	0					0	0	100	100	0	100	100	98.4	0	98.6		0	0	99.5	
Trucks	0	0	0	0	0	0					0	0	0	0	0	0	0	1	0	1		0	0	1	
% Trucks	0	0	0	0	0	0					0	0	0	0	0	0	0	1.6	0	1.4		0	0	0.5	
Peds				0	-	-					0	-					0	-		0	-		0	-	0
% Peds				0	-	-					0	-					0	-		0	-		0	-	0

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:15:00
To: 17:15:00



Intersection: Wickman Rd & Dymon Self-Storage
Site Code: 2204600023
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****




Major Road: Wickman Rd runs E/W

North Approach



	Out	In	Total
	5	0	5
	0	0	0
Totals	5	0	5

Dymon Self-Storage






	0	0	0
	3	2	0
Totals	3	2	0

East Approach

	Out	In	Total
	145	126	271
	0	0	0
Totals	145	126	271

Wickman Rd

		Totals	
0	0	0	
0	0	0	
0	124	124	

Peds: 4



Peds: 0





Peds: 0

Peds: 0


Wickman Rd

Totals		
0	0	0
0	0	0
145	145	0

West Approach

	Out	In	Total
	124	148	272
	0	0	0
Totals	124	148	272

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Wickman Rd & Dymon Self-Storage
 Site Code: 2204600023
 Count Date: Feb 15, 2022
 Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Dymon Self-Storage						South Approach				East Approach Wickman Rd						West Approach Wickman Rd						Total Vehicles		
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻		Peds	Total
16:15	0		0	0	0	0					0			42	0	0	0	42	0	30		0	0	30	72
16:30	2		1	0	0	3					0			38	0	0	0	38	0	35		0	0	35	76
16:45	0		0	0	4	0					0			33	0	0	0	33	0	25		0	0	25	58
17:00	0		2	0	0	2					0			32	0	0	0	32	0	34		0	0	34	68
Grand Total	2		3	0	4	5					0	0		145	0	0	0	145	0	124		0	0	124	274
Approach %	40		60	0	-	-					-	-		100	0	0	-	-	0	100		0	0	-	-
Totals %	0.7		1.1	0	1.8	-					0	-		52.9	0	0	-	-	0	45.3		0	0	45.3	-
PHF	0.25		0.38	0	0.42	-					0	-		0.86	0	0	-	-	0	0.89		0	0	0.89	0.9
Cars	2		3	0	5	-					0	-		145	0	0	-	-	0	124		0	0	124	274
% Cars	100		100	0	100	-					0	-		100	0	0	-	-	0	100		0	0	100	100
Trucks	0		0	0	0	-					0	-		0	0	0	-	-	0	0		0	0	0	0
% Trucks	0		0	0	0	-					0	-		0	0	0	-	-	0	0		0	0	0	0
Peds					4	-					0	-						-				0	-	4	-
% Peds					100	-					0	-						-				0	-	100	-

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00



Intersection: Vansco Rd & Dymon Self-Storage (south driveway)
Site Code: 2204600024
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S



North Approach

	Out	In	Total
	1	1	2
	0	0	0
Totals	1	1	2

Vansco Rd

	0	0	0
	0	1	0
Totals	0	1	0

East Approach

	Out	In	Total
	1	11	12
	0	0	0
Totals	1	11	12

Peds: 0










Peds: 0

Peds: 0

Peds: 0



Dymon Self-Storage (south driveway)

Totals		
	0	0
	1	0
	0	0


Totals	0	10	0
	0	10	0
	0	0	0

Vansco Rd

South Approach

	Out	In	Total
	10	0	10
	0	0	0
Totals	10	0	10

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (south driveway)
 Site Code: 2204600024
 Count Date: Feb 15, 2022
 Period: 07:00 - 09:00

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

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (south driveway)						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	0		0	0	0		0	4	0	0	4	0		0	0	0	0					0		4
08:15	0	0		0	0	0		0	4	0	0	4	0		1	0	0	1					0		5
08:30	1	0		0	0	1		0	1	0	0	1	0		0	0	0	0					0		2
08:45	0	0		0	0	0		0	1	0	0	1	0		0	0	0	0					0		1
Grand Total	1	0		0	0	1		0	10	0	0	10	0		1	0	0	1					0	0	12
Approach %	100	0		0	-	-		0	100	0	-	-	0		100	0	-	-					0	-	-
Totals %	8.3	0		0	8.3	-		0	83.3	0	83.3	-	0		8.3	0	8.3	-					0	-	0
PHF	0.25	0		0	0.25	-		0	0.63	0	0.63	-	0		0.25	0	0.25	-					0	-	0.6
Cars	1	0		0	1	-		0	10	0	10	-	0		1	0	1	-					0	-	12
% Cars	100	0		0	100	-		0	100	0	100	-	0		100	0	100	-					0	-	100
Trucks	0	0		0	0	-		0	0	0	0	-	0		0	0	0	-					0	-	0
% Trucks	0	0		0	0	-		0	0	0	0	-	0		0	0	0	-					0	-	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:45:00
To: 17:45:00



Intersection: Vansco Rd & Dymon Self-Storage (south driveway)
Site Code: 2204600024
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S



North Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Vansco Rd

	0	0	0
	0	0	0
Totals	0	0	0

East Approach

	Out	In	Total
	0	2	2
	0	0	0
Totals	0	2	2

Peds: 0










Peds: 0

Peds: 0

Peds: 0



Dymon Self-Storage (south driveway)

Totals		
	0	0
	0	0
	0	0


Totals	0	2	0
	0	2	0
	0	0	0

Vansco Rd

South Approach

	Out	In	Total
	2	0	2
	0	0	0
Totals	2	0	2

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (south driveway)
 Site Code: 2204600024
 Count Date: Feb 15, 2022
 Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (south driveway)						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:45	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
17:00	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
17:15	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0					0		0
17:30	0	0		0	0	0		0	2	0	0	2	0		0	0	0	0					0		2
Grand Total	0	0		0	0	0		0	2	0	0	2	0		0	0	0	0					0	0	2
Approach %	0	0		0	-	-	0	100	0	-	-	-	0	0	0	-	-	-					0	-	-
Totals %	0	0		0	0	0	0	100	0	0	100	0	0	0	0	0	0	0					0	0	0
PHF	0	0		0	0	0	0	0.25	0	0.25	0.25	0.25	0	0	0	0	0	0					0	0	0.25
Cars	0	0		0	0	0	0	2	0	0	2	2	0	0	0	0	0	0					0	0	2
% Cars	0	0		0	0	0	0	100	0	0	100	100	0	0	0	0	0	0					0	0	100
Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0
% Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					0	0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 07:45:00
To: 08:45:00



Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 1)
Site Code: 2204600025
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach



	Out	In	Total
	4	1	5
	0	0	0
Totals	4	1	5

Vansco Rd







	0	0	0	0
	0	0	4	0
Totals	0	0	4	0

← ↓ → ↻

East Approach

	Out	In	Total
	3	13	16
	0	0	0
Totals	3	13	16

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Peds: 0



Peds: 0



Peds: 0







Dymon Self-Storage (middle driveway 1)

Totals		
0	0	0
1	1	0
0	0	0
2	2	0

↻ ↑ ← ↓



West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0


Totals				
	0	0	9	0
	0	0	0	0

Vansco Rd

South Approach

	Out	In	Total
	9	2	11
	0	0	0
Totals	9	2	11

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 1)
 Site Code: 2204600025
 Count Date: Feb 15, 2022
 Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (middle driveway 1)						West Approach Commerical Entrance						Total Vehicl es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:45	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
08:00	1	0	0	0	0	1	0	0	2	0	0	2	1	0	1	0	0	2	0	0	0	0	0	0	5
08:15	2	0	0	0	0	2	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5	
08:30	1	0	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	3
Grand Total	4	0	0	0	0	4	0	0	9	0	0	9	2	0	1	0	0	3	0	0	0	0	0	0	16
Approach %	100	0	0	0	-	-	0	0	100	0	-	-	66.7	0	33.3	0	-	-	0	0	0	0	-	-	-
Totals %	25	0	0	0	-	25	0	0	56.3	0	-	56.3	12.5	0	6.3	0	-	18.8	0	0	0	0	-	-	0
PHF	0.5	0	0	0	0	0.5	0	0	0.75	0	0	0.75	0.5	0	0.25	0	0	0.38	0	0	0	0	0	0	0.8
Cars	4	0	0	0	0	4	0	0	9	0	0	9	2	0	1	0	0	3	0	0	0	0	0	0	16
% Cars	100	0	0	0	0	100	0	0	100	0	0	100	100	0	100	0	0	100	0	0	0	0	0	0	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:00:00
To: 17:00:00

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 1)
Site Code: 2204600025
Count Date: Feb 15, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach

	Out	In	Total
	5	1	6
	0	0	0
Totals	5	1	6

Vansco Rd

	0	0	0	0
	0	0	5	0
Totals	0	0	5	0

East Approach

	Out	In	Total
	3	11	14
	0	0	0
Totals	3	11	14

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Dymon Self-Storage (middle driveway 1)

Totals		
0	0	0
1	1	0
0	0	0
2	2	0

West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Totals				
	0	0	6	0
	0	0	6	0
	0	0	0	0

Vansco Rd

South Approach

	Out	In	Total
	6	2	8
	0	0	0
Totals	6	2	8

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 1)
 Site Code: 2204600025
 Count Date: Feb 15, 2022
 Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (middle driveway 1)						West Approach Commerical Entrance						Total Vehicl es	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
16:00	1	0	0	0	0	1	0	0	2	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	4
16:15	1	0	0	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
16:30	1	0	0	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
16:45	2	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	4
Grand Total	5	0	0	0	0	5	0	0	6	0	0	6	2	0	1	0	0	3	0	0	0	0	0	0	0	14
Approach %	100	0	0	0	-	-	0	0	100	0	-	-	66.7	0	33.3	0	-	-	0	0	0	0	-	-	-	-
Totals %	35.7	0	0	0	-	35.7	0	0	42.9	0	-	42.9	14.3	0	7.1	0	-	21.4	0	0	0	0	-	-	0	-
PHF	0.63	0	0	0	0	0.63	0	0	0.75	0	0	0.75	0.25	0	0.25	0	0	0.38	0	0	0	0	0	0	0.88	
Cars	5	0	0	0	0	5	0	0	6	0	0	6	2	0	1	0	0	3	0	0	0	0	0	0	0	14
% Cars	100	0	0	0	0	100	0	0	100	0	0	100	100	0	100	0	0	100	0	0	0	0	0	0	0	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					0	-					0	-					0	-					0	-	0	
% Peds					0	-					0	-					0	-					0	-	0	

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 2)
Site Code: 2204600026
Count Date: Feb 15, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach

	Out	In	Total
	0	1	1
	0	0	0
Totals	0	1	1

Vansco Rd

	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

← ↓ → ↻

East Approach

	Out	In	Total
	2	6	8
	0	0	0
Totals	2	6	8

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Dymon Self-Storage (middle driveway 2)

Totals		
0	0	0
1	1	0
0	0	0
1	1	0

West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Totals	0	0	6	0
	0	0	6	0
	0	0	0	0

← ↑ → ↻

Vansco Rd

South Approach

	Out	In	Total
	6	1	7
	0	0	0
Totals	6	1	7

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 2)
 Site Code: 2204600026
 Count Date: Feb 15, 2022
 Period: 07:00 - 09:00

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

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (middle driveway 2)						West Approach Commerical Entrance						Total Vehicl es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
08:15	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	0	0	1	0	0	0	0	0	0	4
Grand Total	0	0	0	0	0	0	0	0	6	0	0	6	1	0	1	0	0	2	0	0	0	0	0	0	8
Approach %	0	0	0	0	-	-	0	0	100	0	-	-	50	0	50	0	-	-	0	0	0	0	-	-	-
Totals %	0	0	0	0	0	0	0	0	75	0	75	12.5	0	12.5	0	25	0	0	0	0	0	0	0		
PHF	0	0	0	0	0	0	0	0	0.5	0	0.5	0.25	0	0.25	0	0.5	0	0	0	0	0	0	0.5		
Cars	0	0	0	0	0	0	0	0	6	0	6	1	0	1	0	2	0	0	0	0	0	0	8		
% Cars	0	0	0	0	0	0	0	0	100	0	100	100	0	100	0	100	0	0	0	0	0	0	100		
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:00:00
To: 17:00:00

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 2)
Site Code: 2204600026
Count Date: Feb 15, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach

	Out	In	Total
	0	1	1
	0	0	0
Totals	0	1	1

Vansco Rd

	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

← ↓ → ↻

East Approach

	Out	In	Total
	4	1	5
	0	0	0
Totals	4	1	5

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Dymon Self-Storage (middle driveway 2)

Totals		
0	0	0
1	1	0
0	0	0
3	3	0

↻ ↑ ← ↓

West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Totals	0	0	1	0
	0	0	1	0
	0	0	0	0

← ↑ → ↻

Vansco Rd

South Approach

	Out	In	Total
	1	3	4
	0	0	0
Totals	1	3	4

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 2)
 Site Code: 2204600026
 Count Date: Feb 15, 2022
 Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (middle driveway 2)						West Approach Commerical Entrance						Total Vehicl es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	0	0	0	0	0	0	0	0	1	0	0	1	3	0	1	0	0	4	0	0	0	0	0	0	5
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	1	0	0	1	3	0	1	0	0	4	0	0	0	0	0	0	5
Approach %	0	0	0	0	-	-	0	0	100	0	-	-	75	0	25	0	-	-	0	0	0	0	-	-	-
Totals %	0	0	0	0	0	0	0	0	20	0	20	60	0	20	0	80	0	0	0	0	0	0	0	0	0
PHF	0	0	0	0	0	0	0	0	0.25	0	0.25	0.25	0	0.25	0	0.25	0	0.25	0	0	0	0	0	0.25	
Cars	0	0	0	0	0	0	0	0	1	0	1	3	0	1	0	4	0	0	0	0	0	0	0	0	5
% Cars	0	0	0	0	0	0	0	0	100	0	100	100	0	100	0	100	0	100	0	0	0	0	0	0	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					0	-				0	-					0	-					0	-	0	0
% Peds					0	-				0	-					0	-					0	-	0	0

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
To: 09:00:00

Intersection: Vansco Rd & Dymon Self-Storage (north driveway)
Site Code: 2204600027
Count Date: Feb 15, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach

	Out	In	Total
	2	3	5
	0	0	0
Totals	2	3	5

Vansco Rd

	0	0	0	0
	0	0	2	0
Totals	0	0	2	0

← ↓ → ↻

East Approach

	Out	In	Total
	12	2	14
	0	0	0
Totals	12	2	14

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Dymon Self-Storage (north driveway)

Totals		
0	0	0
3	3	0
0	0	0
9	9	0

West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Totals	0	0	0	0
	0	0	0	0
	0	0	0	0

← ↑ → ↻

Vansco Rd

South Approach

	Out	In	Total
	0	9	9
	0	0	0
Totals	0	9	9

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (north driveway)
 Site Code: 2204600027
 Count Date: Feb 15, 2022
 Period: 07:00 - 09:00

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

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (north driveway)						West Approach Commerical Entrance						Total Vehicl es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2
08:15	1	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	0	4	
08:30	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	5	0	0	0	0	0	0	5	
08:45	1	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	3	
Grand Total	2	0	0	0	0	2	0	0	0	0	0	0	9	0	3	0	12	0	0	0	0	0	0	14	
Approach %	100	0	0	0	-	-	0	0	0	0	-	-	75	0	25	0	-	0	0	0	0	-	-	-	
Totals %	14.3	0	0	0	-	14.3	0	0	0	0	-	-	64.3	0	21.4	0	85.7	0	0	0	0	-	-	0	
PHF	0.5	0	0	0	0	0.5	0	0	0	0	0	0	0.75	0	0.38	0	0.6	0	0	0	0	0	0	0.7	
Cars	2	0	0	0	0	2	0	0	0	0	0	0	9	0	3	0	12	0	0	0	0	0	0	14	
% Cars	100	0	0	0	0	100	0	0	0	0	0	0	100	0	100	0	100	0	0	0	0	0	0	100	
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:30:00
To: 17:30:00



Intersection: Vansco Rd & Dymon Self-Storage (north driveway)
Site Code: 2204600027
Count Date: Feb 15, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach



	Out	In	Total
	0	3	3
	0	0	0
Totals	0	3	3

Vansco Rd







	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

← ↓ → ↻

East Approach

	Out	In	Total
	16	0	16
	0	0	0
Totals	16	0	16

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Peds: 0



Peds: 0



Peds: 0







Dymon Self-Storage (north driveway)

Totals		
0	0	0
3	3	0
0	0	0
13	13	0

↻ ↑ ← ↓



West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0


Totals					0	0	0	0
	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	

Vansco Rd

South Approach

	Out	In	Total
	0	13	13
	0	0	0
Totals	0	13	13

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (north driveway)
 Site Code: 2204600027
 Count Date: Feb 15, 2022
 Period: 16:00 - 18:00

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

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (north driveway)						West Approach Commerical Entrance						Total Vehi es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:30	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	5	0	0	0	0	0	0	5
16:45	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	4
17:00	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	4	0	0	0	0	0	0	4
17:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3	0	0	0	0	0	0	3
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	13	0	3	0	0	16	0	0	0	0	0	0	16
Approach %	0	0	0	0	-	-	0	0	0	0	-	-	81.3	0	18.8	0	-	0	0	0	0	-	-	-	
Totals %	0	0	0	0	0	0	0	0	0	0	0	0	81.3	0	18.8	0	100	0	0	0	0	0	0	0	
PHF	0	0	0	0	0	0	0	0	0	0	0	0	0.81	0	0.75	0	0.8	0	0	0	0	0	0	0.8	
Cars	0	0	0	0	0	0	0	0	0	0	0	0	13	0	3	0	16	0	0	0	0	0	0	16	
% Cars	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	0	100	0	0	0	0	0	0	100	
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:00:00
To: 13:00:00



Intersection: Wickman Rd & Dymon Self-Storage
Site Code: 2204600028
Count Date: Feb 12, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****




Major Road: Wickman Rd runs E/W

North Approach



	Out	In	Total
	1	1	2
	0	0	0
Totals	1	1	2

Dymon Self-Storage






	0	0	0
	1	0	0
Totals	1	0	0

East Approach

	Out	In	Total
	129	78	207
	0	0	0
Totals	129	78	207

Wickman Rd

		Totals	
0	0	0	
0	1	1	
0	78	78	

Peds: 0








Peds: 0

Peds: 0



Peds: 0

Wickman Rd

Totals		
0	0	0
0	0	0
129	129	0

West Approach

	Out	In	Total
	79	130	209
	0	0	0
Totals	79	130	209

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Wickman Rd & Dymon Self-Storage
 Site Code: 2204600028
 Count Date: Feb 12, 2022
 Period: 11:00 - 14:00

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Dymon Self-Storage						South Approach				East Approach Wickman Rd						West Approach Wickman Rd						Total Vehicles		
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻		Peds	Total
12:00	0		0	0	0	0					0			43	0	0	0	43	1	19		0	0	20	63
12:15	0		0	0	0	0					0			38	0	0	0	38	0	25		0	0	25	63
12:30	0		0	0	0	0					0			22	0	0	0	22	0	21		0	0	21	43
12:45	0		1	0	0	1					0			26	0	0	0	26	0	13		0	0	13	40
Grand Total	0	1	0	0	0	1					0	0		129	0	0	0	129	1	78		0	0	79	209
Approach %	0	100	0	-	-	-					-	-		100	0	0	-	-	1.3	98.7		0	-	-	
Totals %	0	0.5	0	0.5	-	-					0	-		61.7	0	0	61.7	-	0.5	37.3		0	-	37.8	
PHF	0	0.25	0	0.25	0	0					0	0		0.75	0	0	0.75	0.25	0.78		0	0	0.79	0.83	
Cars	0	1	0	1	0	1					0	0		129	0	0	129	1	78		0	0	79	209	
% Cars	0	100	0	100	0	100					0	0		100	0	0	100	100	100		0	0	100	100	
Trucks	0	0	0	0	0	0					0	0		0	0	0	0	0	0	0		0	0	0	0
% Trucks	0	0	0	0	0	0					0	0		0	0	0	0	0	0	0		0	0	0	0
Peds					0	-					0	-						0	-			0	-	0	
% Peds					0	-					0	-						0	-			0	-	0	

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:15:00
To: 13:15:00



Intersection: Vansco Rd & Dymon Self-Storage (south driveway)
Site Code: 2204600029
Count Date: Feb 12, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S



North Approach

	Out	In	Total
	0	1	1
	0	0	0
Totals	0	1	1

Vansco Rd

	0	0	0
	0	0	0
Totals	0	0	0

East Approach

	Out	In	Total
	2	7	9
	0	0	0
Totals	2	7	9

Peds: 0










Peds: 0

Peds: 0

Peds: 0



Dymon Self-Storage (south driveway)

Totals		
	0	0
	1	0
	1	0


Totals	0	7	0
	0	7	0
	0	0	0

Vansco Rd

South Approach

	Out	In	Total
	7	1	8
	0	0	0
Totals	7	1	8

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (south driveway)
 Site Code: 2204600029
 Count Date: Feb 12, 2022
 Period: 11:00 - 14:00

Peak Hour Data (12:15 - 13:15)

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (south driveway)						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
12:15	0	0		0	0	0		0	1	0	0	1	0		0	0	0	0					0		1
12:30	0	0		0	0	0		0	1	0	0	1	0		0	0	0	0					0		1
12:45	0	0		0	0	0		0	1	0	0	1	0		0	0	0	0					0		1
13:00	0	0		0	0	0		0	4	0	0	4	1		1	0	0	2					0		6
Grand Total	0	0		0	0	0		0	7	0	0	7	1		1	0	0	2					0	0	9
Approach %	0	0		0	-	-	0	100	0	-	-	-	50	50	0	-	-	-	-	-	-	-	-	-	
Totals %	0	0		0	0	0	0	77.8	0	77.8	11.1	11.1	0	22.2											0
PHF	0	0		0	0	0	0	0.44	0	0.44	0.25	0.25	0	0.25											0.38
Cars	0	0		0	0	0	0	7	0	7	1	1	0	2									0	9	
% Cars	0	0		0	0	0	0	100	0	100	100	100	0	100									0	100	
Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0									0	0	
% Trucks	0	0		0	0	0	0	0	0	0	0	0	0	0									0	0	
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:00:00
To: 13:00:00

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 1)
Site Code: 2204600030
Count Date: Feb 12, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach

	Out	In	Total
	5	2	7
	0	0	0
Totals	5	2	7

Vansco Rd

	0	0	0	0
	0	0	5	0
Totals	0	0	5	0

← ↓ → ↻

East Approach

	Out	In	Total
	8	13	21
	0	0	0
Totals	8	13	21

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Dymon Self-Storage (middle driveway 1)

Totals		
0	0	0
2	2	0
0	0	0
6	6	0

↻ ↑ ← ↓

West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Totals				
	0	0	8	0
	0	0	8	0
	0	0	0	0

Vansco Rd

South Approach

	Out	In	Total
	8	6	14
	0	0	0
Totals	8	6	14

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 1)
 Site Code: 2204600030
 Count Date: Feb 12, 2022
 Period: 11:00 - 14:00

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (middle driveway 1)						West Approach Commerical Entrance						Total Vehicles	
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total		
12:00	1	0	0	0	0	1	0	0	2	0	0	2	3	0	0	0	0	0	3	0	0	0	0	0	0	6
12:15	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30	3	0	0	0	0	3	0	0	3	0	0	3	2	0	1	0	0	0	3	0	0	0	0	0	0	9
12:45	1	0	0	0	0	1	0	0	2	0	0	2	1	0	1	0	0	0	2	0	0	0	0	0	0	5
Grand Total	5	0	0	0	0	5	0	0	8	0	0	8	6	0	2	0	0	8	0	0	0	0	0	0	0	21
Approach %	100	0	0	0	-	-	0	0	100	0	-	-	75	0	25	0	-	-	0	0	0	0	-	-	-	-
Totals %	23.8	0	0	0		23.8	0	0	38.1	0		38.1	28.6	0	9.5	0		38.1	0	0	0	0			0	
PHF	0.42	0	0	0		0.42	0	0	0.67	0		0.67	0.5	0	0.5	0		0.67	0	0	0	0		0	0.58	
Cars	5	0	0	0		5	0	0	8	0		8	6	0	2	0		8	0	0	0	0		0	21	
% Cars	100	0	0	0		100	0	0	100	0		100	100	0	100	0		100	0	0	0	0		0	100	
Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	
% Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	
Peds					0	-				0	-					0	-					0	-		0	
% Peds					0	-				0	-					0	-					0	-		0	

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 11:15:00
To: 12:15:00

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 2)
Site Code: 2204600031
Count Date: Feb 12, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach

	Out	In	Total
	2	0	2
	0	0	0
Totals	2	0	2

Vansco Rd

	0	0	0	0
	0	0	2	0
Totals	0	0	2	0

← ↓ → ↻

East Approach

	Out	In	Total
	0	4	4
	0	0	0
Totals	0	4	4

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Dymon Self-Storage (middle driveway 2)

Totals		
0	0	0
0	0	0
0	0	0
0	0	0

↻ ↑ ← ↓

West Approach

	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Totals				
	0	0	2	0
	0	0	2	0
	0	0	0	0

Vansco Rd

South Approach

	Out	In	Total
	2	0	2
	0	0	0
Totals	2	0	2

- Cars

- Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (middle driveway 2)
 Site Code: 2204600031
 Count Date: Feb 12, 2022
 Period: 11:00 - 14:00

Peak Hour Data (11:15 - 12:15)

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (middle driveway 2)						West Approach Commerical Entrance						Total Vehicles						
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total							
11:15	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	1	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	2	0	0	0	0	2	0	0	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Approach %	100	0	0	0	-	-	0	0	100	0	-	-	0	0	0	0	-	0	0	0	0	-	-	0	0	0	0	-	-		
Totals %	50	0	0	0	-	50	0	0	50	0	50	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PHF	0.5	0	0	0	0	0.5	0	0	0.5	0	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5		
Cars	2	0	0	0	0	2	0	0	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
% Cars	100	0	0	0	0	100	0	0	100	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peds					0	-					1	-					0	-						0	-		1				
% Peds					0	-					100	-					0	-						0	-		1				

Peak Hour Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 13:00:00
To: 14:00:00



Intersection: Vansco Rd & Dymon Self-Storage (north driveway)
Site Code: 2204600032
Count Date: Feb 12, 2022

Weather conditions: Clear



**** Unsignalized Intersection ****

Major Road: Vansco Rd runs N/S

North Approach



	Out	In	Total
	0	3	3
	0	0	0
Totals	0	3	3

Vansco Rd







	0	0	0	0
	0	0	0	0
Totals	0	0	0	0

← ↓ → ↻

East Approach

	Out	In	Total
	11	0	11
	0	0	0
Totals	11	0	11

Commerical Entrance

		Totals	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

Peds: 0



Peds: 0



Peds: 0



Peds: 0



Dymon Self-Storage (north driveway)

Totals		
0	0	0
3	3	0
0	0	0
8	8	0

↻ ↑ ← ↓

West Approach



	Out	In	Total
	0	0	0
	0	0	0
Totals	0	0	0

Totals	0	0	0	0
	0	0	0	0
	0	0	0	0


← ↑ → ↻

Vansco Rd

South Approach

	Out	In	Total
	0	8	8
	0	0	0
Totals	0	8	8

 - Cars

 - Trucks

Comments



Peak Hour Summary

Intersection: Vansco Rd & Dymon Self-Storage (north driveway)
 Site Code: 2204600032
 Count Date: Feb 12, 2022
 Period: 11:00 - 14:00

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

Start Time	North Approach Vansco Rd						South Approach Vansco Rd						East Approach Dymon Self-Storage (north driveway)						West Approach Commerical Entrance						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
13:00	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	4	0	0	0	0	0	0	4
13:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
13:45	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	4	0	0	0	0	0	0	4
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	8	0	3	0	0	11	0	0	0	0	0	0	11
Approach %	0	0	0	0	-	-	0	0	0	0	-	-	72.7	0	27.3	0	-	-	0	0	0	0	-	-	-
Totals %	0	0	0	0	0	0	0	0	0	0	0	0	72.7	0	27.3	0	100	0	0	0	0	0	0	0	0
PHF	0	0	0	0	0	0	0	0	0	0	0	0	0.67	0	0.75	0	0.69	0	0	0	0	0	0	0.69	
Cars	0	0	0	0	0	0	0	0	0	0	0	0	8	0	3	0	11	0	0	0	0	0	0	0	11
% Cars	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	0	100	0	0	0	0	0	0	0	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	0

Appendix P

TTS Trip Distribution Data

2006 Zone	From	To	Cardinal Direction	%	Route (direction) trips	%	Route (direction) trips	%	Route (direction) trips	%	Route (direction) trips	%
3614	1	47	13	East	50% Ninth Line(NB)	23.5	50% Dundas(WB)	23.5	50% Ninth Line(SB)	6.5	50% Dundas(EB)	6.5
3633	2	81		East	40% Ninth Line(NB)	32.4	60% Dundas(WB)	48.6				
3634	3	36	16	Internal	50% Ninth Line(SB)	18	50% Dundas(WB)	18	50% Ninth Line(NB)	8	50% Dundas(EB)	8
3635	4	162		North	50% Ninth Line(SB)	81	50% Dundas(WB)	81				
3644	5	69		East	50% Ninth Line(NB)	34.5	50% Dundas(WB)	34.5				
3645	6	61		East	50% Ninth Line(NB)	30.5	50% Dundas(WB)	30.5				
3650	7	117	11	East			100% Dundas(WB)	117			100% Dundas(EB)	11
3651	8	85		East	50% Ninth Line(NB)	42.5	50% Dundas(WB)	42.5				
3662	9	194	52	Northeast			100% Dundas(WB)	194			100% Dundas(EB)	52
3663	10	23		North			100% Dundas(WB)	23				
3676	11	155		North	50% Ninth Line(SB)	77.5	50% Dundas(WB)	77.5				
3812	12	171	4	North	50% Ninth Line(SB)	85.5	50% Dundas(WB)	85.5	50% Ninth Line(NB)	2	50% Dundas(EB)	2
3813	13	101		North	50% Ninth Line(SB)	50.5	50% Dundas(WB)	50.5				
3840	14	37		North	50% Ninth Line(SB)	18.5	50% Dundas(WB)	18.5				
3868	15	41		North	20% Ninth Line(SB)	8.2	80% Dundas(WB)	32.8				
3870	16	32	14	East	50% Ninth Line(NB)	16	50% Dundas(WB)	16	50% Ninth Line(SB)	7	50% Dundas(EB)	7
4020	17	15		East	80% Ninth Line(NB)	12	20% Dundas(WB)	3				
4023	18	48	38	East	80% Ninth Line(NB)	38.4	20% Dundas(WB)	9.6	80% Ninth Line(SB)	30.4	20% Dundas(EB)	7.6
4024	19	16	36	East	50% Ninth Line(NB)	8	50% Dundas(WB)	8	50% Ninth Line(SB)	18	50% Dundas(EB)	18
4025	20	71	6	South	90% Ninth Line(NB)	63.9	10% Dundas(EB)	7.1	90% Ninth Line(SB)	5.4	10% Dundas(WB)	0.6
4026	21	51		South	50% Ninth Line(NB)	25.5	50% Dundas(EB)	25.5				
4028	22	81		South	5% Ninth Line(NB)	4.05	95% Dundas(EB)	76.95				
4029	23	95		South	30% Ninth Line(NB)	28.5	70% Dundas(EB)	66.5				
4030	24	18	8	South	30% Ninth Line(NB)	5.4	70% Dundas(EB)	12.6	30% Ninth Line(SB)	2.4	70% Dundas(WB)	5.6
4031	25	23		South	50% Ninth Line(NB)	11.5	50% Dundas(EB)	11.5				
4032	26	30		South	30% Ninth Line(NB)	9	70% Dundas(EB)	21				
4033	27	188		South	10% Ninth Line(NB)	18.8	90% Dundas(EB)	169.2				
4034	28	88	56	South			100% Dundas(EB)	88			100% Dundas(WB)	56
4035	29	96		South			100% Dundas(EB)	96				
4036	30	18	15	South			100% Dundas(EB)	18			100% Dundas(WB)	15
4037	31	59		South			100% Dundas(EB)	59				
4038	32	29	18	South			100% Dundas(EB)	29			100% Dundas(WB)	18
4039	33	40		South			100% Dundas(EB)	40				
4040	34	52		South			100% Dundas(EB)	52				
4041	35	129	21	South			100% Dundas(EB)	129			100% Dundas(WB)	21
4042	36	77	13	South			100% Dundas(EB)	77			100% Dundas(WB)	13
4045	37	66		South			100% Dundas(EB)	66				
4183	38	173		West			100% Dundas(EB)	173				
4186	39	232		West			100% Dundas(EB)	232				
4189	40	107		West			100% Dundas(EB)	107				

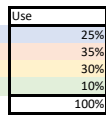
Total 3,214 321

	North	South	East	West	Internal	Outside GTHA	Total	Use
North	805	25%	38	12%	North	843	24%	25%
South	1211	38%	137	43%	South	1348	38%	35%
East	686	21%	146	45%	East	832	24%	25%
West	512	16%	0	0%	West	512	14%	15%
Internal	36		16		Total	3535	100%	100%
Outside GTHA	0		0					
Total	3214		321					

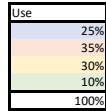
Route Choice	INBOUND	OUTBOUND	
Ninth Line(NB)	404	13%	10 3%
Ninth Line(SB)	339	11%	70 23%
Dundas(EB)	1556	48%	112 37%
Dundas(WB)	914	28%	111 37%
	3214		303

2006 Zone	From	To	Cardinal Direction	%	Route Choice							
					Route (direction) trips	%	Route (direction) trips	%	Route (direction) trips	%		
3614	1	56	56	East	50% Ninth Line(NB)	28	50% Dundas(WB)	28	50% Ninth Line(SB)	28	50% Dundas(EB)	28
3633	2		30	East					40% Ninth Line(SB)	12	60% Dundas(EB)	18
3634	3	140	115	Internal	50% Ninth Line(SB)	70	50% Dundas(WB)	70	50% Ninth Line(NB)	57.5	50% Dundas(EB)	57.5
3635	4	91	59	North	50% Ninth Line(SB)	45.5	50% Dundas(WB)	45.5	50% Ninth Line(NB)	29.5	50% Dundas(EB)	29.5
3644	5	29	49	East	50% Ninth Line(NB)	14.5	50% Dundas(WB)	14.5	50% Ninth Line(SB)	24.5	50% Dundas(EB)	24.5
3645	6		54	East					50% Ninth Line(SB)	27	50% Dundas(EB)	27
3650	7	238	314	East		0	100% Dundas(WB)	238		0	100% Dundas(EB)	314
3651	8	17	78	East	50% Ninth Line(NB)	8.5	50% Dundas(WB)	8.5	50% Ninth Line(SB)	39	50% Dundas(EB)	39
3662	9	133	224	Northeast		0	100% Dundas(WB)	133		0	100% Dundas(EB)	224
3663	10	46	46	North		0	100% Dundas(WB)	46		0	100% Dundas(EB)	46
3676	11	23	204	North	50% Ninth Line(SB)	11.5	50% Dundas(WB)	11.5	50% Ninth Line(NB)	102	50% Dundas(EB)	102
3677	12	11	77	North	50% Ninth Line(SB)	5.5	50% Dundas(WB)	5.5	50% Ninth Line(NB)	38.5	50% Dundas(EB)	38.5
3811	13	23	82	North	50% Ninth Line(SB)	11.5	50% Dundas(WB)	11.5	50% Ninth Line(NB)	41	50% Dundas(EB)	41
3812	14	96	230	North	50% Ninth Line(SB)	48	50% Dundas(WB)	48	50% Ninth Line(NB)	115	50% Dundas(EB)	115
3813	15	93	51	North	50% Ninth Line(SB)	46.5	50% Dundas(WB)	46.5	50% Ninth Line(NB)	25.5	50% Dundas(EB)	25.5
3840	16		37	North					50% Ninth Line(NB)	18.5	50% Dundas(EB)	18.5
3868	17	21	18	North	50% Ninth Line(SB)	10.5	50% Dundas(WB)	10.5	50% Ninth Line(NB)	9	50% Dundas(EB)	9
3869	18	12		East	50% Ninth Line(NB)	6	50% Dundas(WB)	6				
3870	19	24	106	East	20% Ninth Line(NB)	4.8	80% Dundas(WB)	19.2	20% Ninth Line(SB)	21.2	80% Dundas(EB)	84.8
4020	20	58	28	East	60% Ninth Line(NB)	34.8	40% Dundas(WB)	23.2	60% Ninth Line(SB)	16.8	40% Dundas(EB)	11.2
4023	21	30	37	East	80% Ninth Line(NB)	24	20% Dundas(WB)	6	80% Ninth Line(SB)	29.6	20% Dundas(EB)	7.4
4024	22	79	104	East	50% Ninth Line(NB)	39.5	50% Dundas(WB)	39.5	50% Ninth Line(SB)	52	50% Dundas(EB)	52
4025	23	202	210	South	90% Ninth Line(NB)	181.8	10% Dundas(WB)	20.2	90% Ninth Line(SB)	189	10% Dundas(EB)	21
4026	24	9	70	South	50% Ninth Line(NB)	4.5	50% Dundas(EB)	4.5	50% Ninth Line(SB)	35	50% Dundas(WB)	35
4028	25	8	109	South	5% Ninth Line(NB)	0.4	95% Dundas(EB)	7.6	5% Ninth Line(SB)	5.45	95% Dundas(WB)	103.55
4029	26		33	South					30% Ninth Line(SB)	9.9	70% Dundas(WB)	23.1
4030	27		152	South					50% Ninth Line(SB)	76	50% Dundas(WB)	76
4031	28	139		South	50% Ninth Line(NB)	69.5	50% Dundas(EB)	69.5				
4032	29	14	46	South	20% Ninth Line(NB)	2.8	80% Dundas(EB)	11.2	20% Ninth Line(SB)	9.2	80% Dundas(WB)	36.8
4033	30	82	167	South	40% Ninth Line(NB)	32.8	60% Dundas(EB)	49.2	40% Ninth Line(SB)	66.8	60% Dundas(WB)	100.2
4034	31	19	133	South	0% Ninth Line(NB)	0	100% Dundas(EB)	19	0% Ninth Line(SB)	0	100% Dundas(WB)	133
4035	32	12	85	South	0% Ninth Line(NB)	0	100% Dundas(EB)	12	0% Ninth Line(SB)	0	100% Dundas(WB)	85
4036	33	62	60	South	Ninth Line(NB)	0	100% Dundas(EB)	62	Ninth Line(SB)	0	100% Dundas(WB)	60
4038	34	20	29	South	Ninth Line(NB)	0	100% Dundas(EB)	20	Ninth Line(SB)	0	100% Dundas(WB)	29
4039	35	45	38	South	Ninth Line(NB)	0	100% Dundas(EB)	45	Ninth Line(SB)	0	100% Dundas(WB)	38
4040	36	80	55	South	Ninth Line(NB)	0	100% Dundas(EB)	80	Ninth Line(SB)	0	100% Dundas(WB)	55
4041	37	105	102	South	Ninth Line(NB)	0	100% Dundas(EB)	105	Ninth Line(SB)	0	100% Dundas(WB)	102
4042	38		17	South					Ninth Line(SB)	0	100% Dundas(WB)	17
4045	39	85	66	South	Ninth Line(NB)	0	100% Dundas(EB)	85	Ninth Line(SB)	0	100% Dundas(WB)	66
4182	40	15		West		0	100% Dundas(EB)	15				
4183	41	9	113	West		0	100% Dundas(EB)	9		0	100% Dundas(WB)	113
4186	42		215	West					0	100% Dundas(WB)	215	
4189	43		112	West					0	100% Dundas(WB)	112	

Total	2,126		3811									
North	541	25%	974	26%	North	1514	26%					
South	882	41%	1372	36%	South	2254	38%					
East	680	32%	1026	27%	East	1705	29%					
West	24	1%	440	12%	West	464	8%					
Internal	140		115		Total	5937	100%					
Total	2126		3811									



Sum of AM and PM Peaks			
North	2357	25%	
South	3602	38%	
East	2537	27%	
West	976	10%	
Total	9472	100%	



Route Choice	INBOUND		OUTBOUND	
Ninth Line(NB)	452	21%	437	11%
Ninth Line(SB)	249	12%	641	17%
Dundas(EB)	614	29%	1312	34%
Dundas(WB)	811	38%	1421	37%
	2126		3811	

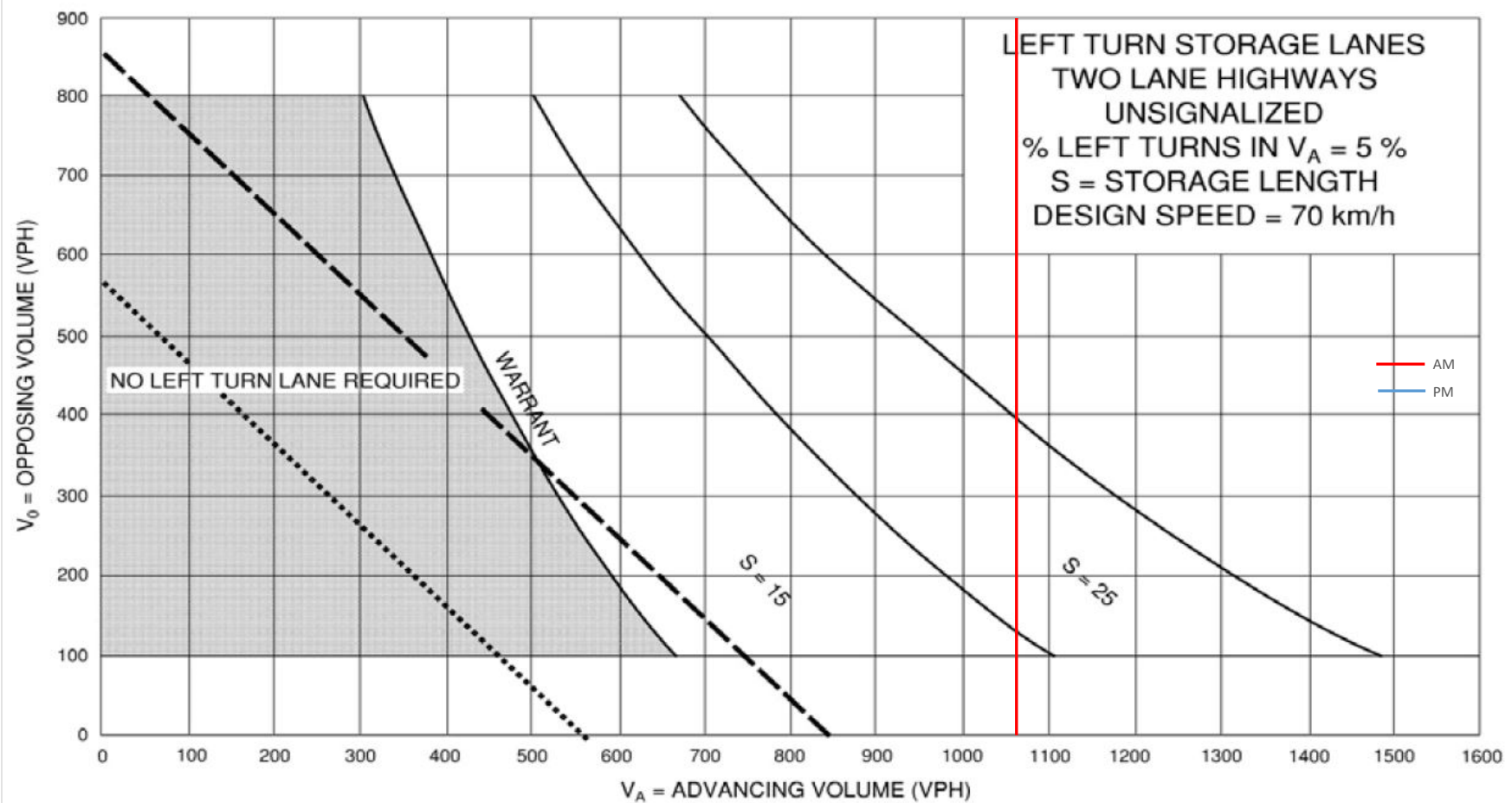
Route Choice	INBOUND		OUTBOUND	
Ninth Line(NB)	856	16%	447	11%
Ninth Line(SB)	588	11%	711	17%
Dundas(EB)	2,171	41%	1,425	35%
Dundas(WB)	1,725	32%	1,532	37%
	5,340		4,114	

Combined		
North	1,035	11%
South	1,568	17%
East	3,149	33%
West	3,702	39%
Total	9,454	100%

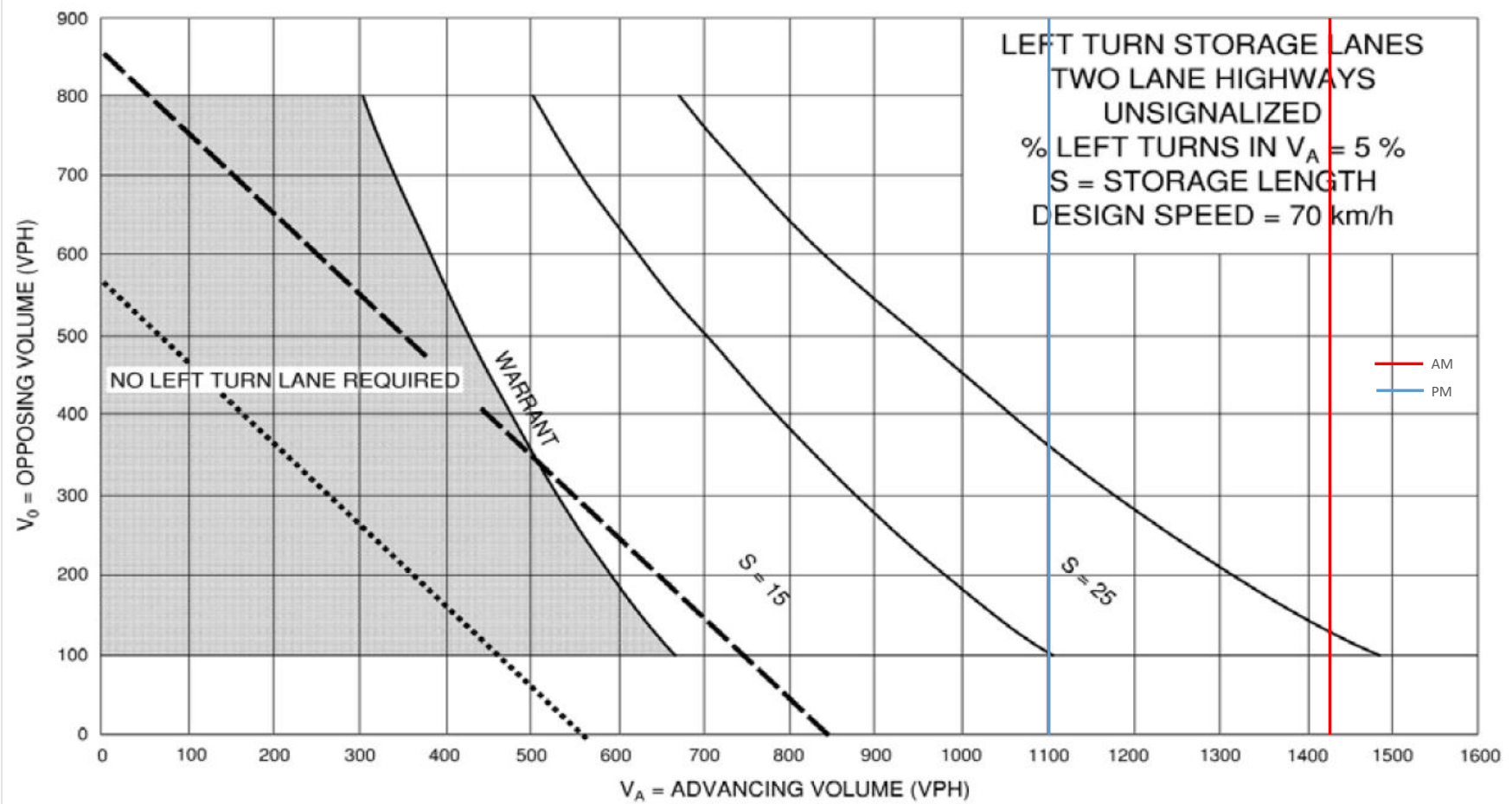
Appendix Q

Left Turn Lane Warrant

Design Speed 70 km/h	Northbound Left							Yes							%Left Turn	Volume Advancing	Volume Opposing
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
AM	3	0	4	19	0	1	25	953	85	5	1418	6	2.4%	1063	1429		
PM	11	0	38	47	0	3	26	1876	40	2	1094	6	1.3%	1942	1102		



Design Speed 70 km/h	Southbound Left											Yes		%Left Turn	Volume Advancing	Volume Opposing
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
AM	3	0	4	19	0	1	25	953	85	5	1418	6	0.3%	1429	1063	
PM	11	0	38	47	0	3	26	1876	40	2	1094	6	0.2%	1102	1942	


































Appendix R

2026 Future Total Synchro Intersection Worksheets

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Total AM
3855 Dundas Street East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 		 		 
Traffic Volume (vph)	225	2710	372	181	1214	154	191	373	177	258	639	169
Future Volume (vph)	225	2710	372	181	1214	154	191	373	177	258	639	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850			0.850			0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478
Fl _t Permitted	0.111			0.058			0.126			0.409		
Satd. Flow (perm)	200	5085	1491	100	4715	1449	203	3433	1422	704	3466	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202			153			134			166
Link Speed (k/h)		70			60			60				60
Link Distance (m)		293.2			329.1			188.2				95.5
Travel Time (s)		15.1			19.7			11.3				5.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	245	2946	404	197	1320	167	208	405	192	280	695	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	2946	404	197	1320	167	208	405	192	280	695	184
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.0				3.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Total AM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	52.9	52.9	9.0	52.9	52.9	9.0	56.0	56.0	9.0	56.0	56.0
Total Split (s)	31.0	82.0	82.0	13.0	64.0	64.0	20.0	48.0	48.0	17.0	45.0	45.0
Total Split (%)	19.4%	51.3%	51.3%	8.1%	40.0%	40.0%	12.5%	30.0%	30.0%	10.6%	28.1%	28.1%
Maximum Green (s)	27.0	75.1	75.1	9.0	57.1	57.1	16.0	41.0	41.0	13.0	38.0	38.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	95.0	77.0	77.0	84.7	67.3	67.3	62.1	41.1	41.1	58.1	38.1	38.1
Actuated g/C Ratio	0.59	0.48	0.48	0.53	0.42	0.42	0.39	0.26	0.26	0.36	0.24	0.24
v/c Ratio	0.72	1.20	0.49	1.05	0.67	0.24	0.88	0.46	0.41	0.80	0.84	0.38
Control Delay	38.6	133.0	15.3	124.7	40.5	6.9	72.7	51.7	18.1	56.5	68.3	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	133.0	15.3	124.7	40.5	6.9	72.7	51.7	18.1	56.5	68.3	11.2
LOS	D	F	B	F	D	A	E	D	B	E	E	B
Approach Delay		113.3			47.0			49.1			56.4	
Approach LOS		F			D			D			E	
Queue Length 50th (m)	40.5	~382.8	38.3	~56.0	116.6	2.5	42.6	52.1	13.1	59.2	101.4	4.1
Queue Length 95th (m)	67.7	#402.2	65.1	#106.7	140.7	17.4	#85.5	67.4	34.3	#88.5	123.5	23.2
Internal Link Dist (m)		269.2			305.1			164.2			71.5	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	403	2447	822	187	1984	698	236	922	480	349	866	494
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	1.20	0.49	1.05	0.67	0.24	0.88	0.44	0.40	0.80	0.80	0.37

Intersection Summary

Area Type: Other
 Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 160
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 81.7
 Intersection LOS: F

Lanes, Volumes, Timings
 1: Ninth Line & Dundas Street East

2026 Future Total AM
 3855 Dundas Street East

Intersection Capacity Utilization 105.6% ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.































Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2026 Future Total AM
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	225	2710	372	181	1214	154	191	373	177	258	639	169
Future Volume (vph)	225	2710	372	181	1214	154	191	373	177	258	639	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478
Flt Permitted	0.11	1.00	1.00	0.06	1.00	1.00	0.13	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	200	5085	1491	101	4715	1449	203	3433	1422	704	3466	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	2946	404	197	1320	167	208	405	192	280	695	184
RTOR Reduction (vph)	0	0	105	0	0	89	0	0	100	0	0	126
Lane Group Flow (vph)	245	2946	299	197	1320	78	208	405	92	280	695	58
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	90.0	75.1	75.1	76.3	65.4	65.4	55.1	39.1	39.1	49.1	36.1	36.1
Effective Green, g (s)	93.0	77.0	77.0	82.3	67.3	67.3	59.1	41.1	41.1	55.1	38.1	38.1
Actuated g/C Ratio	0.58	0.48	0.48	0.51	0.42	0.42	0.37	0.26	0.26	0.34	0.24	0.24
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	339	2447	717	186	1983	609	232	881	365	335	825	351
v/s Ratio Prot	0.11	c0.58		c0.09	0.28		c0.11	0.12		0.08	0.20	
v/s Ratio Perm	0.31		0.20	0.45		0.05	0.22		0.06	c0.20		0.04
v/c Ratio	0.72	1.20	0.42	1.06	0.67	0.13	0.90	0.46	0.25	0.84	0.84	0.16
Uniform Delay, d1	30.7	41.5	26.9	52.9	37.3	28.4	41.0	50.1	47.3	44.4	58.1	48.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	95.9	1.8	82.5	1.8	0.4	33.1	0.5	0.4	16.7	8.0	0.3
Delay (s)	38.4	137.4	28.7	135.4	39.1	28.8	74.2	50.5	47.7	61.1	66.1	48.6
Level of Service	D	F	C	F	D	C	E	D	D	E	E	D
Approach Delay (s)		118.5			49.3			56.0			62.1	
Approach LOS		F			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			86.4									F
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			160.0							12.0		
Intersection Capacity Utilization			105.6%									G
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 1: Ninth Line & Dundas Street East

2026 Future Total AM
 3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	2710	372	181	1214	154	191	373	177	258	639	169
Future Volume (veh/h)	225	2710	372	181	1214	154	191	373	177	258	639	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1811	1752	1811	1682	1841	1739	1781	1856	1796
Adj Flow Rate, veh/h	245	2946	404	197	1320	167	208	405	192	280	695	184
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	3	6	10	6	10	4	6	3	3	2
Cap, veh/h	325	2544	771	174	2251	711	264	881	371	340	822	355
Arrive On Green	0.10	0.50	0.50	0.08	0.47	0.47	0.12	0.25	0.25	0.10	0.23	0.23
Sat Flow, veh/h	1781	5106	1547	1725	4782	1510	1602	3497	1473	1696	3526	1522
Grp Volume(v), veh/h	245	2946	404	197	1320	167	208	405	192	280	695	184
Grp Sat Flow(s),veh/h/ln	1781	1702	1547	1725	1594	1510	1602	1749	1473	1696	1763	1522
Q Serve(g_s), s	10.4	79.7	28.4	12.0	32.3	10.5	15.0	15.7	17.9	16.0	30.1	16.9
Cycle Q Clear(g_c), s	10.4	79.7	28.4	12.0	32.3	10.5	15.0	15.7	17.9	16.0	30.1	16.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	325	2544	771	174	2251	711	264	881	371	340	822	355
V/C Ratio(X)	0.75	1.16	0.52	1.13	0.59	0.23	0.79	0.46	0.52	0.82	0.85	0.52
Avail Cap(c_a), veh/h	477	2544	771	174	2251	711	264	940	396	340	881	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	40.1	27.3	54.0	31.0	25.2	40.9	50.6	51.5	46.4	58.6	53.5
Incr Delay (d2), s/veh	4.6	76.0	2.5	107.2	1.1	0.8	15.0	0.5	1.3	15.4	7.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	52.9	11.9	12.6	13.6	4.3	7.4	7.3	7.1	5.3	14.9	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.4	116.1	29.8	161.2	32.1	26.0	55.9	51.1	52.8	61.7	66.1	54.9
LnGrp LOS	C	F	C	F	C	C	E	D	D	E	E	D
Approach Vol, veh/h		3595			1684			805			1159	
Approach Delay, s/veh		100.6			46.6			52.8			63.3	
Approach LOS		F			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	84.7	17.0	45.3	17.4	80.3	20.0	42.3				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	9.0	* 75	13.0	41.0	27.0	* 57	16.0	38.0				
Max Q Clear Time (g_c+I1), s	14.0	82.7	18.0	19.9	12.4	34.3	17.0	32.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.5	1.0	18.5	0.0	3.2				

Intersection Summary

HCM 6th Ctrl Delay	76.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access/Site Access

2026 Future Total AM
3855 Dundas Street East





















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Volume (vph)	3	0	4	17	0	2	22	682	83	10	1064	5
Future Volume (vph)	3	0	4	17	0	2	22	682	83	10	1064	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.5	3.2	3.5	3.5	3.5	3.3	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.923			0.986			0.984			0.999	
Flt Protected		0.979			0.957			0.999		0.950		
Satd. Flow (prot)	0	1665	0	0	1738	0	0	3383	0	1750	1822	0
Flt Permitted		0.979			0.957			0.999		0.950		
Satd. Flow (perm)	0	1665	0	0	1738	0	0	3383	0	1750	1822	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		47.4			48.5			51.2			157.3	
Travel Time (s)		2.8			2.9			3.1			9.4	
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	3%	2%
Adj. Flow (vph)	3	0	4	18	0	2	24	741	90	11	1157	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	20	0	0	855	0	11	1162	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.06	1.01	1.06	1.01	1.01	1.01	1.04	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	66.3%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access/Site Access

2026 Future Total AM
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	4	17	0	2	22	682	83	10	1064	5
Future Volume (Veh/h)	3	0	4	17	0	2	22	682	83	10	1064	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	4	18	0	2	24	741	90	11	1157	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked	0.90	0.90		0.90	0.90	0.90				0.90		
vC, conflicting volume	1602	2060	1160	2017	2018	416	1162			831		
vC1, stage 1 conf vol	1182	1182		834	834							
vC2, stage 2 conf vol	420	879		1183	1184							
vCu, unblocked vol	1455	1961	1160	1913	1915	143	1162			602		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	88	100	100	96			99		
cM capacity (veh/h)	191	215	189	154	205	795	597			878		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	7	20	394	460	11	1162						
Volume Left	3	18	24	0	11	0						
Volume Right	4	2	0	90	0	5						
cSH	190	167	597	1700	878	1700						
Volume to Capacity	0.04	0.12	0.04	0.27	0.01	0.68						
Queue Length 95th (m)	0.8	2.8	0.9	0.0	0.3	0.0						
Control Delay (s)	24.7	29.4	1.2	0.0	9.1	0.0						
Lane LOS	C	D	A		A							
Approach Delay (s)	24.7	29.4	0.6		0.1							
Approach LOS	C	D										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			66.3%		ICU Level of Service					C		
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Total PM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1810	217	118	2827	250	378	903	558	203	389	194
Future Volume (vph)	182	1810	217	118	2827	250	378	903	558	203	389	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.98				1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5036	1477	1694	5085	1506	1652	3500	1478	1652	3433	1478
Flt Permitted	0.059			0.059			0.319			0.111		
Satd. Flow (perm)	106	5036	1455	105	5085	1506	554	3500	1478	193	3433	1459
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			154			127			54			136
Link Speed (k/h)		70			60			60				60
Link Distance (m)		293.2			415.5			188.2				95.5
Travel Time (s)		15.1			24.9			11.3				5.7
Confl. Peds. (#/hr)			3	3			1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	198	1967	236	128	3073	272	411	982	607	221	423	211
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	1967	236	128	3073	272	411	982	607	221	423	211
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.0				3.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		3.0			3.0			3.0				3.0
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2026 Future Total PM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.0	52.9	52.9	9.0	52.9	52.9	9.0	56.0	9.0	9.0	56.0	56.0
Total Split (s)	10.0	70.0	70.0	20.0	80.0	80.0	30.0	51.0	20.0	19.0	40.0	40.0
Total Split (%)	6.3%	43.8%	43.8%	12.5%	50.0%	50.0%	18.8%	31.9%	12.5%	11.9%	25.0%	25.0%
Maximum Green (s)	6.0	63.1	63.1	16.0	73.1	73.1	26.0	44.0	16.0	15.0	33.0	33.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0			15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	79.2	66.2	66.2	89.0	75.0	75.0	69.0	46.0	67.8	57.0	35.0	35.0
Actuated g/C Ratio	0.50	0.41	0.41	0.56	0.47	0.47	0.43	0.29	0.42	0.36	0.22	0.22
v/c Ratio	1.39	0.94	0.34	0.54	1.29	0.35	0.94	0.98	0.92	0.95	0.56	0.50
Control Delay	246.5	55.7	12.5	39.1	169.6	15.1	66.6	79.0	60.3	92.3	59.1	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	246.5	55.7	12.5	39.1	169.6	15.1	66.6	79.0	60.3	92.3	59.1	23.8
LOS	F	E	B	D	F	B	E	E	E	F	E	C
Approach Delay		67.2			152.7			70.8				59.0
Approach LOS		E			F			E				E
Queue Length 50th (m)	~63.3	204.6	15.1	20.9	~418.1	25.4	90.5	150.8	154.0	50.6	58.7	18.5
Queue Length 95th (m)	#111.9	#235.4	34.5	41.4	#436.4	45.3	#134.7	#191.9	#224.4	#99.1	75.4	43.2
Internal Link Dist (m)		269.2			391.5			164.2				71.5
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	142	2082	691	247	2383	773	437	1006	668	232	750	425
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.94	0.34	0.52	1.29	0.35	0.94	0.98	0.91	0.95	0.56	0.50

Intersection Summary

Area Type: Other
 Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 160
 Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
 1: Ninth Line & Dundas Street East

2026 Future Total PM
 3855 Dundas Street East

Maximum v/c Ratio: 1.39

Intersection Signal Delay: 101.2 Intersection LOS: F

Intersection Capacity Utilization 115.9% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

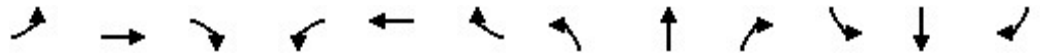
2026 Future Total PM
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	1810	217	118	2827	250	378	903	558	203	389	194
Future Volume (vph)	182	1810	217	118	2827	250	378	903	558	203	389	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	2.0	1.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	5036	1455	1694	5085	1506	1651	3500	1478	1652	3433	1459
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.32	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	107	5036	1455	104	5085	1506	554	3500	1478	193	3433	1459
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	198	1967	236	128	3073	272	411	982	607	221	423	211
RTOR Reduction (vph)	0	0	90	0	0	67	0	0	33	0	0	106
Lane Group Flow (vph)	198	1967	146	128	3073	205	411	982	574	221	423	105
Confl. Peds. (#/hr)			3	3			1					1
Heavy Vehicles (%)	2%	3%	4%	3%	2%	2%	2%	2%	2%	2%	4%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	70.3	64.3	64.3	83.1	73.1	73.1	63.0	44.0	58.8	48.0	33.0	33.0
Effective Green, g (s)	76.3	66.2	66.2	86.1	75.0	75.0	66.0	46.0	62.8	54.0	35.0	35.0
Actuated g/C Ratio	0.48	0.41	0.41	0.54	0.47	0.47	0.41	0.29	0.39	0.34	0.22	0.22
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	4.0	4.0	7.0	7.0
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	141	2083	602	232	2383	705	427	1006	580	229	750	319
v/s Ratio Prot	c0.08	0.39		0.06	0.60		c0.17	0.28	c0.10	c0.11	0.12	
v/s Ratio Perm	c0.59		0.10	0.23		0.14	0.22		0.28	0.22		0.07
v/c Ratio	1.40	0.94	0.24	0.55	1.29	0.29	0.96	0.98	0.99	0.97	0.56	0.33
Uniform Delay, d1	46.7	45.1	30.6	37.7	42.5	26.1	39.0	56.5	48.3	47.5	55.7	52.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	218.8	10.4	1.0	3.1	133.6	1.0	33.9	22.6	34.5	49.4	1.1	0.7
Delay (s)	265.5	55.5	31.5	40.8	176.1	27.2	72.9	79.0	82.8	96.9	56.8	53.3
Level of Service	F	E	C	D	F	C	E	E	F	F	E	D
Approach Delay (s)		70.5			159.4			78.9			66.3	
Approach LOS		E			F			E			E	
Intersection Summary												
HCM 2000 Control Delay			107.4			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			13.0			
Intersection Capacity Utilization			115.9%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2026 Future Total PM
3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	1810	217	118	2827	250	378	903	558	203	389	194
Future Volume (veh/h)	182	1810	217	118	2827	250	378	903	558	203	389	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1841	1856	1870	1870	1796	1870	1796	1796	1841	1796
Adj Flow Rate, veh/h	198	1967	236	128	3073	272	411	982	607	221	423	211
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	3	4	3	2	2	2	2	2	2	4	2
Cap, veh/h	146	2312	699	186	2393	730	444	1022	532	244	765	332
Arrive On Green	0.06	0.46	0.46	0.07	0.47	0.47	0.18	0.29	0.29	0.11	0.22	0.22
Sat Flow, veh/h	1781	5066	1532	1767	5106	1557	1710	3554	1520	1710	3497	1520
Grp Volume(v), veh/h	198	1967	236	128	3073	272	411	982	607	221	423	211
Grp Sat Flow(s),veh/h/ln	1781	1689	1532	1767	1702	1557	1710	1777	1520	1710	1749	1520
Q Serve(g_s), s	9.0	55.2	15.8	5.7	75.0	18.0	29.0	43.5	46.0	15.7	17.2	20.2
Cycle Q Clear(g_c), s	9.0	55.2	15.8	5.7	75.0	18.0	29.0	43.5	46.0	15.7	17.2	20.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	2312	699	186	2393	730	444	1022	532	244	765	332
V/C Ratio(X)	1.36	0.85	0.34	0.69	1.28	0.37	0.92	0.96	1.14	0.91	0.55	0.63
Avail Cap(c_a), veh/h	146	2312	699	274	2393	730	444	1022	532	244	765	332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	38.6	27.9	34.6	42.5	27.4	38.4	56.1	52.0	44.3	55.5	56.7
Incr Delay (d2), s/veh	199.9	4.2	1.3	5.4	131.1	1.5	25.3	19.4	84.3	33.8	1.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.3	25.1	6.6	2.9	62.2	7.6	16.2	23.2	34.8	9.4	8.1	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	250.0	42.8	29.2	40.0	173.6	28.8	63.7	75.6	136.3	78.2	56.5	60.9
LnGrp LOS	F	D	C	D	F	C	E	E	F	E	E	E
Approach Vol, veh/h		2401			3473			2000			855	
Approach Delay, s/veh		58.6			157.3			91.6			63.2	
Approach LOS		E			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	78.0	19.0	51.0	10.0	80.0	30.0	40.0				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	16.0	* 63	15.0	44.0	6.0	* 73	26.0	33.0				
Max Q Clear Time (g_c+I1), s	7.7	58.2	17.7	48.0	11.0	77.0	31.0	22.2				
Green Ext Time (p_c), s	0.3	4.8	0.0	0.0	0.0	0.0	0.0	3.5				

Intersection Summary


















HCM 6th Ctrl Delay	105.9
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access/Dymon Site Access

2026 Future Total PM
3855 Dundas Street East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	38	47	0	6	23	1286	36	4	727	5
Future Volume (vph)	11	0	38	47	0	6	23	1286	36	4	727	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.5	3.2	3.5	3.5	3.5	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.896			0.984			0.996			0.999	
Flt Protected		0.989			0.958			0.999		0.950		
Satd. Flow (prot)	0	1632	0	0	1736	0	0	3482	0	1711	1840	0
Flt Permitted		0.989			0.958			0.999		0.950		
Satd. Flow (perm)	0	1632	0	0	1736	0	0	3482	0	1711	1840	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		47.4			58.5			51.2			158.7	
Travel Time (s)		2.8			3.5			3.1			9.5	
Confl. Peds. (#/hr)			2									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	0	41	51	0	7	25	1398	39	4	790	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	0	58	0	0	1462	0	4	795	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.06	1.01	1.06	1.01	1.01	1.01	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	69.0%
Analysis Period (min)	15
	ICU Level of Service C

HCM Unsignalized Intersection Capacity Analysis
 2: Ninth Line & Glen Oaks Access/Dymon Site Access

2026 Future Total PM
 3855 Dundas Street East



































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Volume (veh/h)	11	0	38	47	0	6	23	1286	36	4	727	5
Future Volume (Veh/h)	11	0	38	47	0	6	23	1286	36	4	727	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	41	51	0	7	25	1398	39	4	790	5
Pedestrians								2				
Lane Width (m)								3.5				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh								2			2	
Upstream signal (m)								147				
pX, platoon unblocked	0.72	0.72		0.72	0.72	0.72				0.72		
vC, conflicting volume	1556	2288	794	2308	2270	718	795			1437		
vC1, stage 1 conf vol	800	800		1468	1468							
vC2, stage 2 conf vol	756	1487		841	803							
vCu, unblocked vol	1006	2016	794	2045	1992	0	795			841		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	88	68	100	99	97			99		
cM capacity (veh/h)	316	203	330	159	205	785	822			572		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	53	58	724	738	4	795						
Volume Left	12	51	25	0	4	0						
Volume Right	41	7	0	39	0	5						
cSH	327	176	822	1700	572	1700						
Volume to Capacity	0.16	0.33	0.03	0.43	0.01	0.47						
Queue Length 95th (m)	4.0	9.5	0.7	0.0	0.1	0.0						
Control Delay (s)	18.1	35.3	0.8	0.0	11.3	0.0						
Lane LOS	C	E	A		B							
Approach Delay (s)	18.1	35.3	0.4		0.1							
Approach LOS	C	E										
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			69.0%		ICU Level of Service					C		
Analysis Period (min)			15									

Appendix S

2031 Future Total Synchro Intersection Worksheets

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Total AM
3855 Dundas Street East

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  			 			 	 	
Traffic Volume (vph)	229	2865	390	195	1328	164	210	462	196	284	759	186	
Future Volume (vph)	229	2865	390	195	1328	164	210	462	196	284	759	186	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0	
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0	
Storage Lanes	1		1	1		1	1		1	1		1	
Taper Length (m)	15.0			15.0			15.0			15.0			
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Fr _t			0.850			0.850			0.850			0.850	
Fl _t Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478	
Fl _t Permitted	0.071			0.064			0.090			0.328			
Satd. Flow (perm)	128	5085	1491	111	4715	1449	145	3433	1422	565	3466	1478	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			196			146			111			158	
Link Speed (k/h)		70			60			60				60	
Link Distance (m)		293.2			329.1			188.2				146.7	
Travel Time (s)		15.1			19.7			11.3				8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%	
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0	
Adj. Flow (vph)	249	3114	424	212	1443	178	228	502	213	309	825	202	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	249	3114	424	212	1443	178	228	502	213	309	825	202	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)		3.3			3.3			3.3				3.3	
Link Offset(m)		0.0			0.0			0.0				0.0	
Crosswalk Width(m)		3.0			3.0			3.0				3.0	
Two way Left Turn Lane												Yes	
Headway Factor	1.04	1.00	1.07	1.04	1.00	1.07	1.09	1.01	1.09	1.09	1.01	1.09	
Turning Speed (k/h)	25		15	25		15	25		15	25		15	
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel													
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4				9.4	
Detector 2 Size(m)		0.6			0.6			0.6				0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	
Detector 2 Channel													
Detector 2 Extend (s)		0.0			0.0			0.0				0.0	

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Total AM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	52.9	52.9	9.0	52.9	52.9	9.0	56.0	56.0	9.0	56.0	56.0
Total Split (s)	29.0	80.0	80.0	11.0	62.0	62.0	21.0	50.0	50.0	19.0	48.0	48.0
Total Split (%)	18.1%	50.0%	50.0%	6.9%	38.8%	38.8%	13.1%	31.3%	31.3%	11.9%	30.0%	30.0%
Maximum Green (s)	25.0	73.1	73.1	7.0	55.1	55.1	17.0	43.0	43.0	15.0	41.0	41.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	3.3	1.0	3.3	3.3
Lost Time Adjust (s)	-3.0	-1.9	-1.9	-3.0	-1.9	-1.9	-3.0	-2.0	-2.0	-3.0	-2.0	-2.0
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0	15.0		15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	90.8	75.0	75.0	75.9	61.1	61.1	67.2	44.2	44.2	64.2	42.2	42.2
Actuated g/C Ratio	0.57	0.47	0.47	0.47	0.38	0.38	0.42	0.28	0.28	0.40	0.26	0.26
v/c Ratio	0.79	1.31	0.53	1.36	0.80	0.28	0.97	0.53	0.45	0.89	0.90	0.40
Control Delay	58.7	176.8	17.7	232.3	49.0	9.4	97.2	51.3	25.3	63.4	70.6	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	176.8	17.7	232.3	49.0	9.4	97.2	51.3	25.3	63.4	70.6	14.3
LOS	E	F	B	F	D	A	F	D	C	E	E	B
Approach Delay		151.3			66.3			56.5			60.5	
Approach LOS		F			E			E			E	
Queue Length 50th (m)	53.7	~427.2	45.8	~71.4	141.9	6.1	53.9	65.5	23.9	63.7	123.0	9.8
Queue Length 95th (m)	82.9	#445.0	75.2	#121.7	161.7	22.6	#104.5	82.5	47.3	#85.8	#152.7	30.8
Internal Link Dist (m)		269.2			305.1			164.2			122.7	
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	350	2383	803	156	1801	643	234	965	479	347	931	512
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	1.31	0.53	1.36	0.80	0.28	0.97	0.52	0.44	0.89	0.89	0.39

Intersection Summary

Area Type: Other
 Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 160
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.36
 Intersection Signal Delay: 104.9
 Intersection LOS: F

Lanes, Volumes, Timings
 1: Ninth Line & Dundas Street East

2031 Future Total AM
 3855 Dundas Street East

Intersection Capacity Utilization 113.8% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East



HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2031 Future Total AM
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	2865	390	195	1328	164	210	462	196	284	759	186
Future Volume (vph)	229	2865	390	195	1328	164	210	462	196	284	759	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	5085	1491	1646	4715	1449	1532	3433	1422	1636	3466	1478
Flt Permitted	0.07	1.00	1.00	0.06	1.00	1.00	0.09	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	129	5085	1491	111	4715	1449	146	3433	1422	564	3466	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	3114	424	212	1443	178	228	502	213	309	825	202
RTOR Reduction (vph)	0	0	104	0	0	90	0	0	80	0	0	116
Lane Group Flow (vph)	249	3114	320	212	1443	88	228	502	133	309	825	86
Heavy Vehicles (%)	2%	2%	3%	6%	10%	6%	10%	4%	6%	3%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	84.9	73.1	73.1	67.1	59.3	59.3	59.2	42.2	42.2	55.2	40.2	40.2
Effective Green, g (s)	87.9	75.0	75.0	73.1	61.2	61.2	64.2	44.2	44.2	61.2	42.2	42.2
Actuated g/C Ratio	0.55	0.47	0.47	0.46	0.38	0.38	0.40	0.28	0.28	0.38	0.26	0.26
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	314	2383	698	154	1803	554	231	948	392	336	914	389
v/s Ratio Prot	0.12	c0.61		c0.09	0.31		c0.12	0.15		0.10	0.24	
v/s Ratio Perm	0.31		0.21	c0.53		0.06	0.27		0.09	c0.25		0.06
v/c Ratio	0.79	1.31	0.46	1.38	0.80	0.16	0.99	0.53	0.34	0.92	0.90	0.22
Uniform Delay, d1	45.5	42.5	28.8	48.1	44.0	32.5	50.2	49.1	46.2	41.8	56.9	46.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	141.2	2.2	204.8	3.8	0.6	55.2	0.6	0.6	29.5	12.3	0.3
Delay (s)	58.7	183.7	30.9	252.9	47.8	33.1	105.3	49.7	46.8	71.3	69.2	46.4
Level of Service	E	F	C	F	D	C	F	D	D	E	E	D
Approach Delay (s)		158.4			70.1			62.5			66.2	
Approach LOS		F			E			E			E	
Intersection Summary												
HCM 2000 Control Delay			110.9			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.16									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			113.8%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2031 Future Total AM
3855 Dundas Street East



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	2865	390	195	1328	164	210	462	196	284	759	186
Future Volume (veh/h)	229	2865	390	195	1328	164	210	462	196	284	759	186
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1811	1752	1811	1682	1841	1739	1781	1856	1796
Adj Flow Rate, veh/h	249	3114	424	212	1443	178	228	502	213	309	825	202
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	3	6	10	6	10	4	6	3	3	2
Cap, veh/h	305	2425	735	153	2022	639	267	962	405	348	926	400
Arrive On Green	0.11	0.47	0.47	0.06	0.42	0.42	0.13	0.28	0.28	0.11	0.26	0.26
Sat Flow, veh/h	1781	5106	1547	1725	4782	1510	1602	3497	1473	1696	3526	1522
Grp Volume(v), veh/h	249	3114	424	212	1443	178	228	502	213	309	825	202
Grp Sat Flow(s),veh/h/ln	1781	1702	1547	1725	1594	1510	1602	1749	1473	1696	1763	1522
Q Serve(g_s), s	12.5	76.0	31.7	10.0	39.9	12.3	15.8	19.4	19.6	18.0	36.0	18.1
Cycle Q Clear(g_c), s	12.5	76.0	31.7	10.0	39.9	12.3	15.8	19.4	19.6	18.0	36.0	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	2425	735	153	2022	639	267	962	405	348	926	400
V/C Ratio(X)	0.82	1.28	0.58	1.39	0.71	0.28	0.85	0.52	0.53	0.89	0.89	0.51
Avail Cap(c_a), veh/h	413	2425	735	153	2022	639	267	984	414	348	947	409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	42.0	30.4	49.6	38.2	30.2	38.9	49.1	49.1	43.2	56.8	50.2
Incr Delay (d2), s/veh	9.7	131.2	3.3	209.3	2.2	1.1	23.1	0.6	1.4	23.4	10.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	63.0	13.4	15.4	17.0	5.0	8.3	9.1	7.8	6.9	18.2	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	173.2	33.7	258.9	40.3	31.3	61.9	49.6	50.5	66.7	67.4	51.4
LnGrp LOS	D	F	C	F	D	C	E	D	D	E	E	D
Approach Vol, veh/h		3787			1833			943			1336	
Approach Delay, s/veh		149.0			64.7			52.8			64.8	
Approach LOS		F			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	81.0	19.0	49.0	19.3	72.7	21.0	47.0				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	7.0	* 73	15.0	43.0	25.0	* 55	17.0	41.0				
Max Q Clear Time (g_c+I1), s	12.0	79.0	20.0	21.6	14.5	41.9	17.8	38.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	5.6	0.9	11.8	0.0	2.0				

Intersection Summary

HCM 6th Ctrl Delay	103.7
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
- User approved changes to right turn type.

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access/Site Access

2031 Future Total AM
3855 Dundas Street East























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	3	0	4	17	0	2	25	850	83	10	1264	6
Future Volume (vph)	3	0	4	17	0	2	25	850	83	10	1264	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.5	3.2	3.5	3.5	3.5	3.3	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	15.0		0.0	15.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.923			0.986			0.987			0.999	
Flt Protected		0.979			0.957		0.950			0.950		
Satd. Flow (prot)	0	1665	0	0	1738	0	1711	3394	0	1750	3463	0
Flt Permitted		0.979			0.957		0.950			0.950		
Satd. Flow (perm)	0	1665	0	0	1738	0	1711	3394	0	1750	3463	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		47.4			56.2			146.7			158.7	
Travel Time (s)		2.8			3.4			8.8			9.5	
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	3%	2%
Adj. Flow (vph)	3	0	4	18	0	2	27	924	90	11	1374	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	20	0	27	1014	0	11	1381	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.06	1.01	1.06	1.01	1.01	1.01	1.04	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.1%
ICU Level of Service	A
Analysis Period (min)	15































HCM Unsignalized Intersection Capacity Analysis
2: Ninth Line & Glen Oaks Access/Site Access

2031 Future Total AM
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	4	17	0	2	25	850	83	10	1264	6
Future Volume (Veh/h)	3	0	4	17	0	2	25	850	83	10	1264	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	4	18	0	2	27	924	90	11	1374	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked	0.88	0.88		0.88	0.88	0.88					0.88	
vC, conflicting volume	1918	2468	690	1736	2426	507	1381			1014		
vC1, stage 1 conf vol	1400	1400		1023	1023							
vC2, stage 2 conf vol	518	1068		713	1403							
vCu, unblocked vol	1771	2395	690	1565	2348	170	1381			745		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	92	100	100	95			99		
cM capacity (veh/h)	140	166	387	232	153	744	492			756		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	7	20	27	616	398	11	916	465				
Volume Left	3	18	27	0	0	11	0	0				
Volume Right	4	2	0	0	90	0	0	7				
cSH	220	250	492	1700	1700	756	1700	1700				
Volume to Capacity	0.03	0.08	0.05	0.36	0.23	0.01	0.54	0.27				
Queue Length 95th (m)	0.7	1.8	1.2	0.0	0.0	0.3	0.0	0.0				
Control Delay (s)	21.9	20.7	12.7	0.0	0.0	9.8	0.0	0.0				
Lane LOS	C	C	B			A						
Approach Delay (s)	21.9	20.7	0.3			0.1						
Approach LOS	C	C										
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			45.1%		ICU Level of Service					A		
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Total PM
3855 Dundas Street East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	194	1986	229	127	3102	269	416	1046	617	223	483	211
Future Volume (vph)	194	1986	229	127	3102	269	416	1046	617	223	483	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	55.0			60.0			80.0			70.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Fr _t			0.850			0.850			0.850			0.850
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	5085	1531	1711	5085	1531	1652	3500	1478	1652	3500	1478
Fl _t Permitted	0.061			0.057			0.191			0.129		
Satd. Flow (perm)	110	5085	1531	103	5085	1531	332	3500	1478	224	3500	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			119			54			136
Link Speed (k/h)		70			60			60			60	
Link Distance (m)		293.2			526.7			188.2			146.7	
Travel Time (s)		15.1			31.6			11.3			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	2159	249	138	3372	292	452	1137	671	242	525	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	2159	249	138	3372	292	452	1137	671	242	525	229
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												Yes
Headway Factor	1.04	1.00	1.04	1.04	1.00	1.04	1.09	1.01	1.09	1.09	1.01	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	

Lanes, Volumes, Timings
1: Ninth Line & Dundas Street East

2031 Future Total PM
3855 Dundas Street East



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.0	52.9	52.9	9.0	52.9	52.9	9.0	56.0	9.0	9.0	56.0	56.0
Total Split (s)	12.0	73.0	73.0	17.0	78.0	78.0	32.0	54.0	17.0	16.0	38.0	38.0
Total Split (%)	7.5%	45.6%	45.6%	10.6%	48.8%	48.8%	20.0%	33.8%	10.6%	10.0%	23.8%	23.8%
Maximum Green (s)	8.0	66.1	66.1	13.0	71.1	71.1	28.0	47.0	13.0	12.0	31.0	31.0
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	3.3	1.0	1.0	3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	4.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		14.0	14.0		14.0	14.0		15.0			15.0	15.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	77.0	66.1	66.1	86.0	71.1	71.1	66.0	47.0	67.0	46.0	31.0	31.0
Actuated g/C Ratio	0.48	0.41	0.41	0.54	0.44	0.44	0.41	0.29	0.42	0.29	0.19	0.19
v/c Ratio	1.60	1.03	0.35	0.74	1.49	0.39	1.23	1.11	1.03	1.42	0.77	0.58
Control Delay	329.7	72.8	13.5	58.2	257.3	18.7	160.3	112.9	85.1	250.5	70.0	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	329.7	72.8	13.5	58.2	257.3	18.7	160.3	112.9	85.1	250.5	70.0	29.6
LOS	F	E	B	E	F	B	F	F	F	F	E	C
Approach Delay		87.9			231.8			114.1				104.6
Approach LOS		F			F			F				F
Queue Length 50th (m)	~73.5	~246.4	18.2	25.3	~498.4	32.8	~138.8	~198.9	~200.3	~80.6	77.7	24.5
Queue Length 95th (m)	#123.3	#271.1	38.2	#54.7	#514.2	54.9	#202.7	#238.2	#271.0	#132.8	97.4	51.3
Internal Link Dist (m)		269.2			502.7			164.2				122.7
Turn Bay Length (m)	220.0		80.0	230.0		80.0	130.0		130.0	130.0		70.0
Base Capacity (vph)	132	2100	720	186	2259	746	367	1028	650	171	678	396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.60	1.03	0.35	0.74	1.49	0.39	1.23	1.11	1.03	1.42	0.77	0.58

Intersection Summary

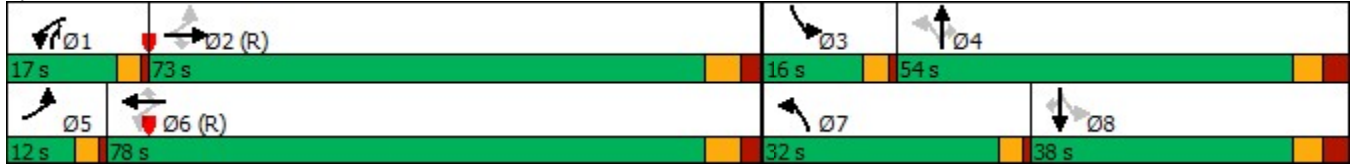
Area Type:	Other
Cycle Length:	160
Actuated Cycle Length:	160
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	160
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.60
Intersection Signal Delay:	152.3
Intersection LOS:	F
Intersection Capacity Utilization:	130.2%
ICU Level of Service:	H
Analysis Period (min):	15

Lanes, Volumes, Timings
 1: Ninth Line & Dundas Street East

2031 Future Total PM
 3855 Dundas Street East

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ninth Line & Dundas Street East

































HCM Signalized Intersection Capacity Analysis
1: Ninth Line & Dundas Street East

2031 Future Total PM
3855 Dundas Street East

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	1986	229	127	3102	269	416	1046	617	223	483	211
Future Volume (vph)	194	1986	229	127	3102	269	416	1046	617	223	483	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	4.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	5085	1531	1711	5085	1531	1652	3500	1478	1652	3500	1478
Flt Permitted	0.06	1.00	1.00	0.06	1.00	1.00	0.19	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	109	5085	1531	103	5085	1531	332	3500	1478	224	3500	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	2159	249	138	3372	292	452	1137	671	242	525	229
RTOR Reduction (vph)	0	0	88	0	0	66	0	0	34	0	0	110
Lane Group Flow (vph)	211	2159	161	138	3372	226	452	1137	637	242	525	119
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	74.1	66.1	66.1	83.1	71.1	71.1	63.0	47.0	60.0	43.0	31.0	31.0
Effective Green, g (s)	74.1	66.1	66.1	83.1	71.1	71.1	63.0	47.0	60.0	43.0	31.0	31.0
Actuated g/C Ratio	0.46	0.41	0.41	0.52	0.44	0.44	0.39	0.29	0.38	0.27	0.19	0.19
Clearance Time (s)	4.0	6.9	6.9	4.0	6.9	6.9	4.0	7.0	4.0	4.0	7.0	7.0
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	130	2100	632	184	2259	680	361	1028	554	167	678	286
v/s Ratio Prot	c0.08	0.42		0.06	0.66		c0.22	0.32	c0.09	c0.11	0.15	
v/s Ratio Perm	c0.67		0.11	0.33		0.15	0.27		0.34	c0.28		0.08
v/c Ratio	1.62	1.03	0.25	0.75	1.49	0.33	1.25	1.11	1.15	1.45	0.77	0.42
Uniform Delay, d1	44.2	47.0	30.8	44.3	44.5	29.0	42.2	56.5	50.0	52.0	61.2	56.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	312.7	27.2	1.0	16.2	224.1	1.3	134.3	61.8	87.0	232.3	5.7	1.2
Delay (s)	356.9	74.2	31.8	60.4	268.6	30.3	176.5	118.3	137.0	284.4	66.9	57.7
Level of Service	F	E	C	E	F	C	F	F	F	F	E	E
Approach Delay (s)		92.9			242.7			135.5			117.6	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			164.2									F
HCM 2000 Volume to Capacity ratio			1.48									
Actuated Cycle Length (s)			160.0						21.9			
Intersection Capacity Utilization			130.2%									H
Analysis Period (min)			15									
c Critical Lane Group												



















HCM 6th Signalized Intersection Summary
1: Ninth Line & Dundas Street East

2031 Future Total PM
3855 Dundas Street East

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	194	1986	229	127	3102	269	416	1046	617	223	483	211
Future Volume (veh/h)	194	1986	229	127	3102	269	416	1046	617	223	483	211
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1796	1870	1796	1796	1870	1796
Adj Flow Rate, veh/h	211	2159	249	138	3372	292	452	1137	671	242	525	229
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	2198	682	160	2269	704	381	1044	544	173	689	295
Arrive On Green	0.05	0.43	0.43	0.06	0.44	0.44	0.17	0.29	0.29	0.08	0.19	0.19
Sat Flow, veh/h	1781	5106	1585	1781	5106	1585	1710	3554	1522	1710	3554	1522
Grp Volume(v), veh/h	211	2159	249	138	3372	292	452	1137	671	242	525	229
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1585	1710	1777	1522	1710	1777	1522
Q Serve(g_s), s	8.0	66.7	17.0	8.1	71.1	20.1	28.0	47.0	47.0	12.0	22.4	22.9
Cycle Q Clear(g_c), s	8.0	66.7	17.0	8.1	71.1	20.1	28.0	47.0	47.0	12.0	22.4	22.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	2198	682	160	2269	704	381	1044	544	173	689	295
V/C Ratio(X)	1.57	0.98	0.36	0.86	1.49	0.41	1.19	1.09	1.23	1.40	0.76	0.78
Avail Cap(c_a), veh/h	134	2198	682	191	2269	704	381	1044	544	173	689	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	44.9	30.8	45.6	44.5	30.3	42.7	56.5	51.4	52.6	61.0	61.2
Incr Delay (d2), s/veh	290.9	15.4	1.5	28.8	221.1	1.8	107.3	55.4	120.2	209.7	5.2	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.6	32.8	7.3	4.4	78.0	8.6	24.0	30.1	41.0	11.8	11.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	337.7	60.4	32.3	74.4	265.6	32.1	150.0	111.9	171.6	262.3	66.2	73.9
LnGrp LOS	F	E	C	E	F	C	F	F	F	F	E	E
Approach Vol, veh/h		2619			3802			2260			996	
Approach Delay, s/veh		80.0			240.7			137.2			115.6	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.2	75.8	16.0	54.0	12.0	78.0	32.0	38.0				
Change Period (Y+Rc), s	4.0	* 6.9	4.0	7.0	4.0	* 6.9	4.0	7.0				
Max Green Setting (Gmax), s	13.0	* 66	12.0	47.0	8.0	* 71	28.0	31.0				
Max Q Clear Time (g_c+I1), s	10.1	69.7	14.0	49.0	10.0	73.1	30.0	24.9				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			160.2									
HCM 6th LOS			F									
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings
2: Ninth Line & Glen Oaks Access



















2031 Future Total PM
3855 Dundas Street East

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	38	47	0	6	26	1491	36	4	906	6
Future Volume (vph)	11	0	38	47	0	6	26	1491	36	4	906	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.5	3.2	3.5	3.5	3.5	3.3	3.5	3.5	3.5	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Fr _t		0.896			0.984			0.996			0.999	
Fl _t Protected		0.989			0.958		0.950			0.950		
Satd. Flow (prot)	0	1632	0	0	1736	0	1711	3486	0	1750	3496	0
Fl _t Permitted		0.989			0.958		0.950			0.950		
Satd. Flow (perm)	0	1632	0	0	1736	0	1711	3486	0	1750	3496	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		47.4			62.7			146.7			158.7	
Travel Time (s)		2.8			3.8			8.8			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	0	41	51	0	7	28	1621	39	4	985	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	0	58	0	28	1660	0	4	992	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.06	1.01	1.06	1.01	1.01	1.01	1.04	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	58.3%						ICU Level of Service B					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

2: Ninth Line & Glen Oaks Access

2031 Future Total PM
3855 Dundas Street East

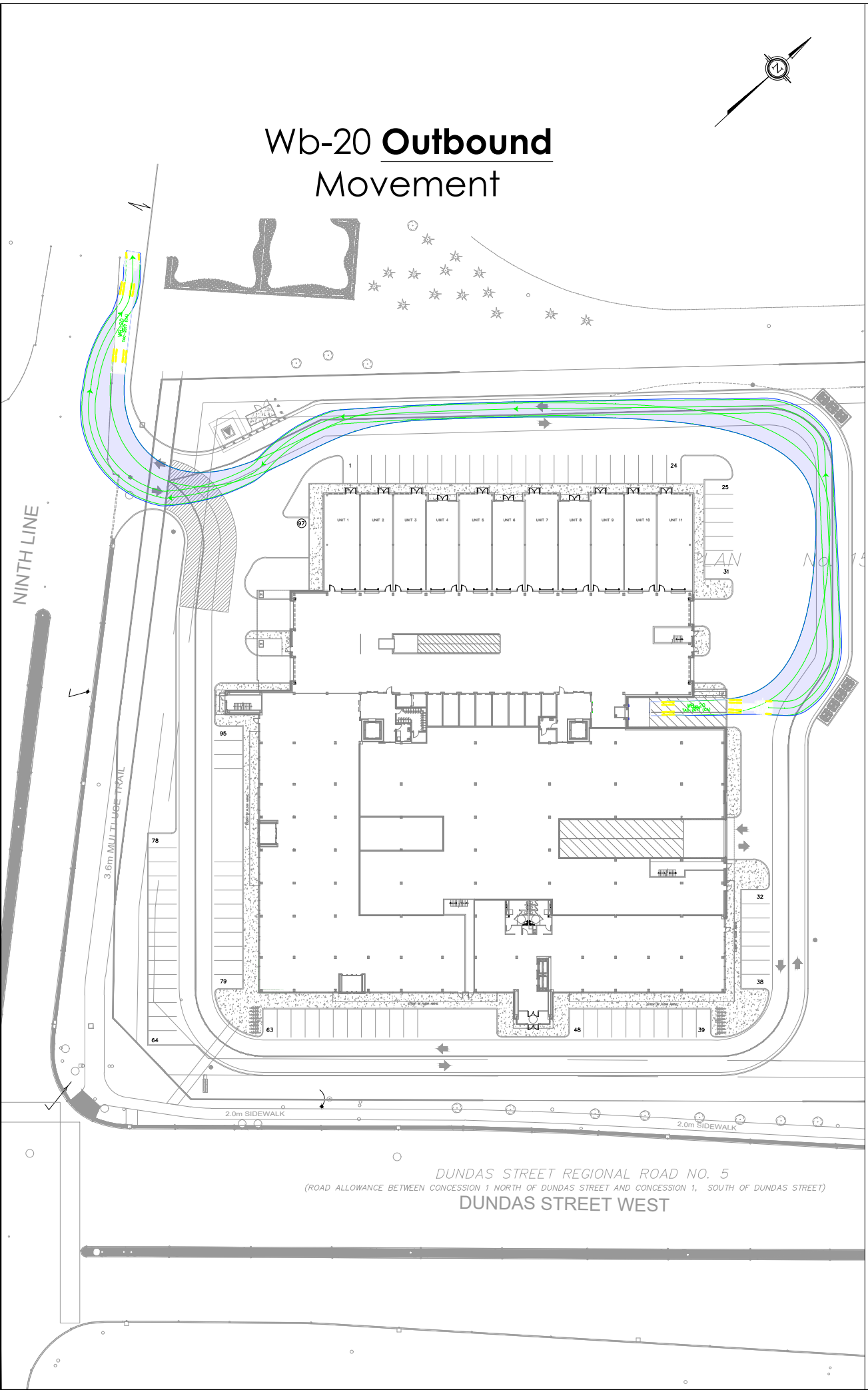
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	38	47	0	6	26	1491	36	4	906	6
Future Volume (Veh/h)	11	0	38	47	0	6	26	1491	36	4	906	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	41	51	0	7	28	1621	39	4	985	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked	0.71	0.71		0.71	0.71	0.71					0.71	
vC, conflicting volume	1870	2712	496	2238	2696	830	992			1660		
vC1, stage 1 conf vol	996	996		1696	1696							
vC2, stage 2 conf vol	874	1716		542	1000							
vCu, unblocked vol	1411	2596	496	1929	2573	0	992			1116		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	92	61	100	99	96			99		
cM capacity (veh/h)	240	145	519	130	147	771	693			442		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	53	58	28	1081	579	4	657	335				
Volume Left	12	51	28	0	0	4	0	0				
Volume Right	41	7	0	0	39	0	0	7				
cSH	411	145	693	1700	1700	442	1700	1700				
Volume to Capacity	0.13	0.40	0.04	0.64	0.34	0.01	0.39	0.20				
Queue Length 95th (m)	3.1	12.1	0.9	0.0	0.0	0.2	0.0	0.0				
Control Delay (s)	15.0	45.6	10.4	0.0	0.0	13.2	0.0	0.0				
Lane LOS	C	E	B			B						
Approach Delay (s)	15.0	45.6	0.2			0.1						
Approach LOS	C	E										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			58.3%		ICU Level of Service					B		
Analysis Period (min)			15									

Appendix T

Vehicle Turning Templates

Wb-20 Inbound Movement

Wb-20 Outbound Movement



Notes:

KEY PLAN:

WB-20

Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 28.2
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

07	Updated Site Plan	AN	2023-08-31
06	Updated Site Plan	AN	2023-08-03
05	Updated Site Plan	AN	2023-07-21
04	Updated Site Plan	AN	2023-07-11
03	Updated Site Plan	AN	2023-06-13
02	Updated Site Plan	AN	2023-03-21
01	Issued for Review	AN	2023-01-25
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

CGH Transportation
 628 Haines Road
 Newmarket, ON
 L3Y 6V5
 (905) 251-4070

CLIENT: Dymon Group of Companies

ARCHITECT:

SITE: 3885 Dundas St E

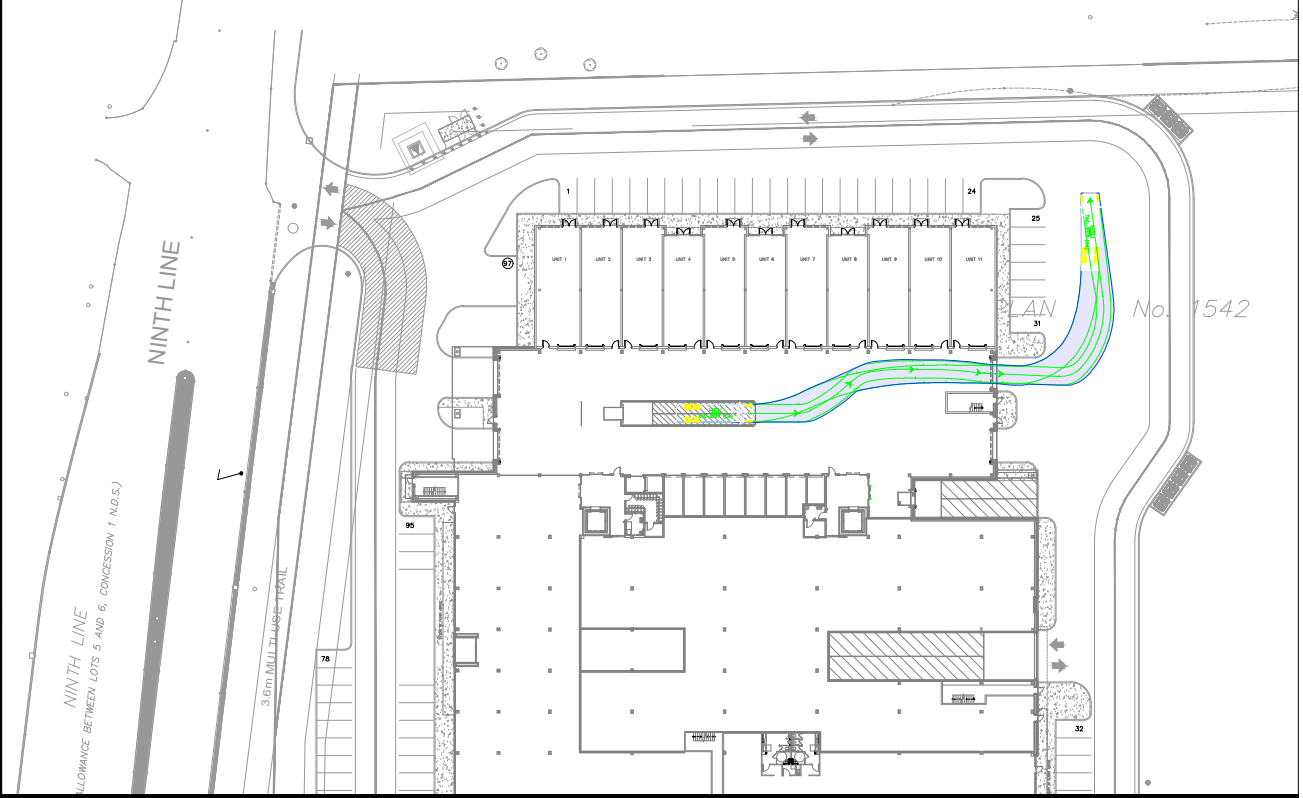
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 Wb20 - Loading Movements

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PROJECT NO:	DRAWING NO:	REVISION:	
2023-015	001	07	

HSU Inbound Movement - North Bay



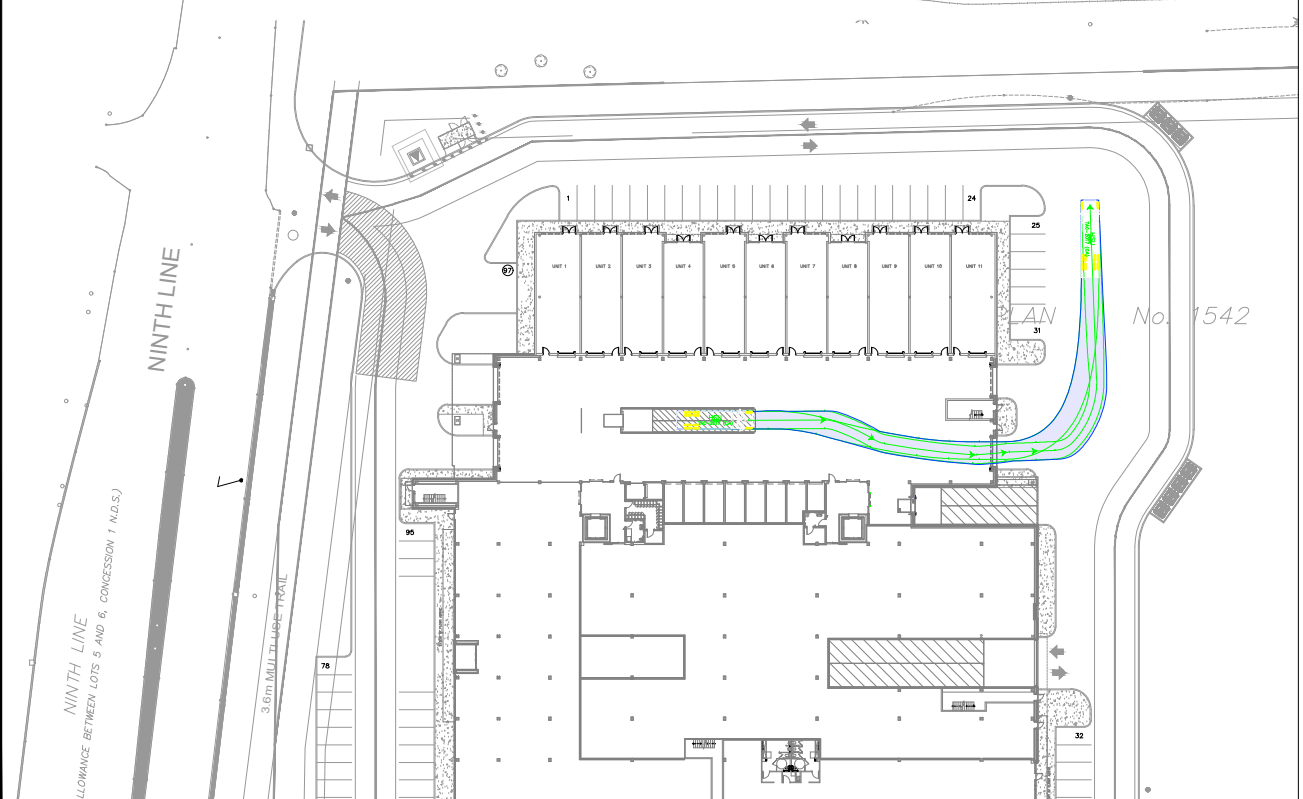
HSU Outbound Movement - North Bay



HSU Inbound Movement - South Bay



HSU Outbound Movement - South Bay



Notes:

KEY PLAN:

HSU meters

Width : 2.60
Track : 2.60
Lock to Lock Time : 6.0
Steering Angle : 40.0

07	Updated Site Plan	AN	2023-08-31
06	Updated Site Plan	AN	2023-08-03
05	Updated Site Plan	AN	2023-07-21
04	Updated Site Plan	AN	2023-07-11
03	Updated Site Plan	AN	2023-06-13
02	Updated Site Plan	AN	2023-03-21
01	Issued for Review	AN	2023-01-25
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: Dymon Group of Companies

ARCHITECT:

SITE: 3885 Dundas St E

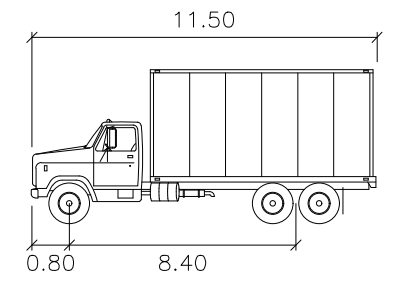
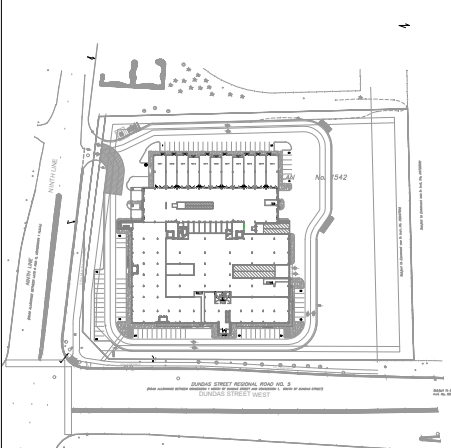
TITLE: Turning Movement Analysis
HSU - Loading Bay Movements

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2023-08-31	AN	MC
PROJECT NO:	DRAWING NO:	REVISION:	
2023-015	002	07	



Notes:

KEY PLAN:



HSU meters

Width : 2.60
 Track : 2.60
 Lock to Lock Time : 6.0
 Steering Angle : 40.0

07	Updated Site Plan	AN	2023-08-31
06	Updated Site Plan	AN	2023-08-03
05	Updated Site Plan	AN	2023-07-21
04	Updated Site Plan	AN	2023-07-11
03	Updated Site Plan	AN	2023-06-13
02	Updated Site Plan	AN	2023-03-21
01	Issued for Review	AN	2023-01-25
REV: DESCRIPTION:		BY:	DATE:
STATUS:			

Subject to Easement as in Inst. No. R0607315

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 Newmarket, ON
 L3Y 6V5
 (905) 251-4070

CLIENT: Dymon Group of Companies

ARCHITECT:

SITE: 3885 Dundas St E

TITLE: Turning Movement Analysis
 Garbage Loading Movements

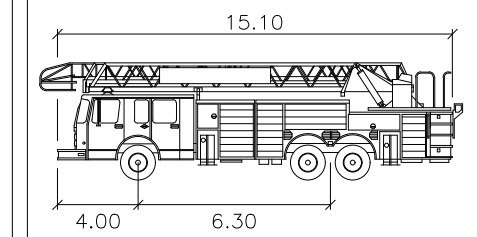
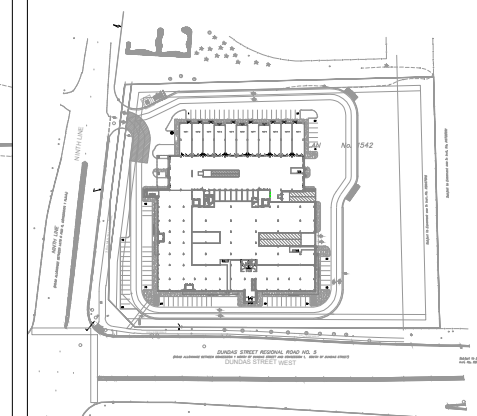
SCALE AT A3: NTS	DATE: 2023-08-31	DRAWN: AN	CHECKED: MC
PROJECT NO: 2023-015	DRAWING NO: 003	REVISION: 07	

DUNDAS STREET REGIONAL ROAD NO. 5
 (ROAD ALLOWANCE BETWEEN CONCESSION 1 NORTH OF DUNDAS STREET AND CONCESSION 1, SOUTH OF DUNDAS STREET)



Notes:

KEY PLAN:



Fire Truck

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 32.6

07	Updated Site Plan	AN	2023-08-31
06	Updated Site Plan	AN	2023-08-03
05	Updated Site Plan	AN	2023-07-21
04	Updated Site Plan	AN	2023-07-11
03	Updated Site Plan	AN	2023-06-13
02	Updated Site Plan	AN	2023-03-21
01	Issued for Review	AN	2023-01-25
REV: DESCRIPTION:		BY:	DATE:
STATUS:			



CGH Transportation
 628 Haines Road
 Newmarket, ON
 L3Y 6V5
 (905) 251-4070

CLIENT: Dymon Group of Companies

ARCHITECT:

SITE: 3885 Dundas St E

TITLE: Turning Movement Analysis
 Fire Truck Turning Movements

SCALE AT A3: NTS	DATE: 2023-08-31	DRAWN: AN	CHECKED: MC
PROJECT NO: 2023-015	DRAWING NO: 004	REVISION: 07	

Appendix U

TAC Section 8.8 Figure 8.8.2 for Minimum Corner Clearance Dimensions

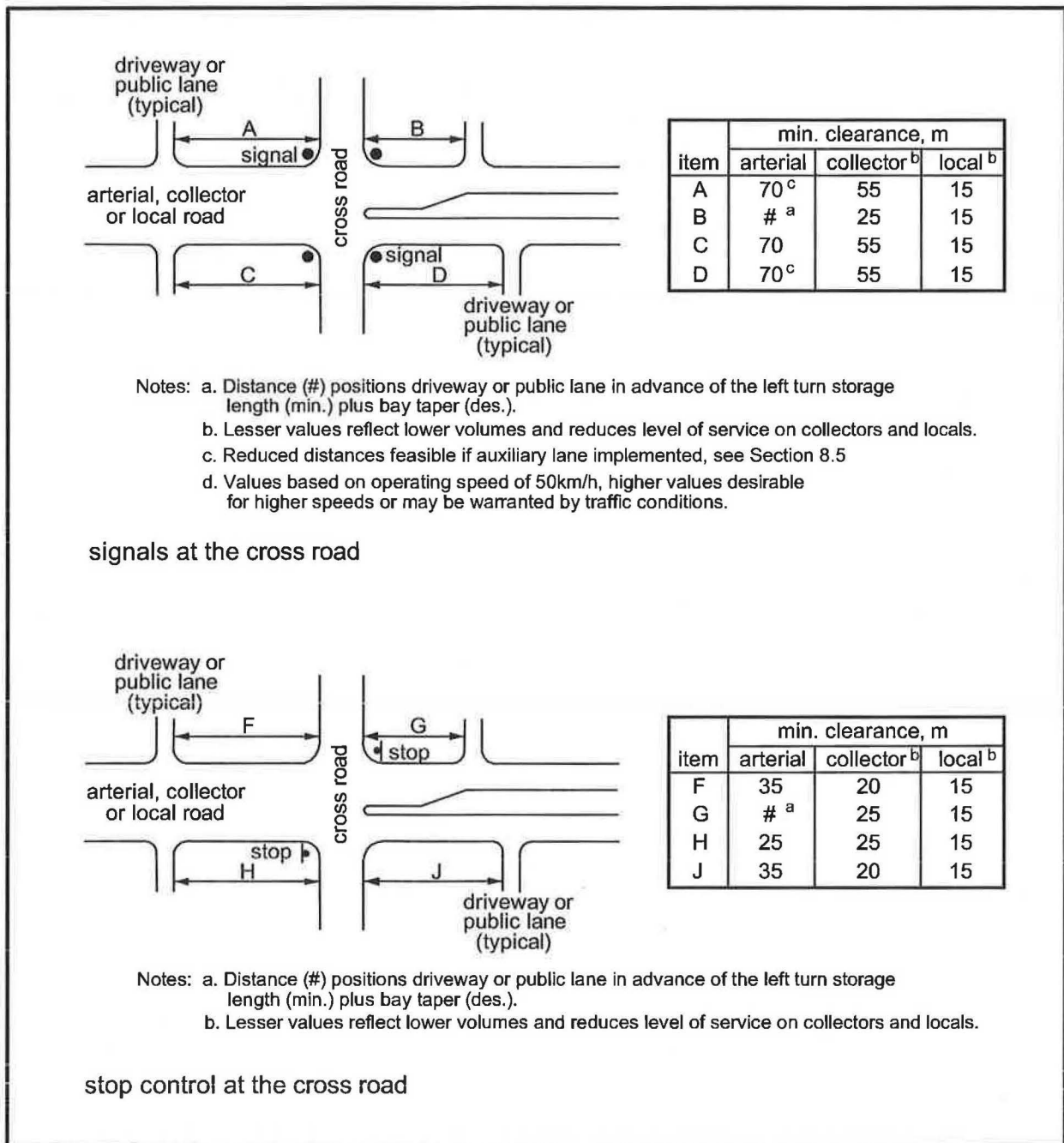


Figure 8.8.2: Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections

Inadequate corner clearance between accesses and signalized intersections along a major road, such as a major arterial, can create serious operational problems including: