

**TRANSPORTATION IMPACT STUDY & PARKING
JUSTIFICATION STUDY**

1470 WILLIAMSPORT DRIVE

**CITY OF MISSISSAUGA
REGION OF PEEL**

PREPARED FOR:

1470 WILLIAMSPORT HOLDINGS INC.

PREPARED BY:

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FEBRUARY 2025

CFCA FILE NO. 2719-7179

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Revision Number	Date	Comments
Rev.0	February 2025	Issued for Submission

Executive Summary

C.F. Crozier & Associates (Crozier) was retained by 1470 Williamsport Holdings Inc. to complete a Transportation Impact Study and Parking Justification Study to support the proposed residential development at 1470 Williamsport Drive in City of Mississauga, Region of Peel.

Based on the most recent Site Plan prepared by BDP Quadrangle, dated January 29, 2025, the proposed development includes 283 residential units, 272 vehicle parking spaces in two levels of underground parking, as well 5 additional pick-up drop-off spaces. A full-moves access to the site is proposed on Williamsport Drive. The proposed development will replace an existing apartment building and its associated at-grade parking.

Existing Conditions

Under 2024 existing conditions, all intersection movements within the study area are expected to operate at a Level of Service "E" or better except for the eastbound and westbound left-turn movements at the intersection of Dixie Road and Bloor Street. The intersections of Dixie Road and Bloor Street as well as Bloor Street and Havenwood Drive have several movements with 95th percentile queues that exceed the existing storage length provided in both the weekday AM and weekday PM peak periods.

2029 Future Background Conditions

As part of the Bloor Street redesign, lane removals are planned at the intersections of Dixie Road and Bloor Street as well as Bloor Street and Havenwood Drive. Additionally, dedicated bicycle lanes are planned on Bloor Street in the vicinity of the site.

As a result of background development traffic and a background growth rate of 0.5% on Dixie Road, intersection operations are expected to slightly worsen within the study area. All intersection movements within the study area are expected to operate at a Level of Service "E" or better in both peak periods except for the eastbound and westbound left turn movements at the intersection of Dixie Road and Bloor Street, as well as the eastbound left turn movement at the intersection of Bloor Street and Havenwood Drive.

Queue lengths at the intersection of Dixie Road and Bloor Street are also expected to worsen. Notably, the westbound left-turn movement is expected to have a 95th percentile queue length of 165 metres compared to an existing storage length of 60 metres.

Site Generated Traffic

The net site generated traffic includes the additional trips generated by the proposed development subtracted by the vehicle trips removed by the demolition of the existing apartment building. The proposed residential development is projected to generate a net total of 69 and 76 two-way vehicle trips during the weekday AM and PM peak hours, respectively.

2029 Future Total Conditions

The study intersections are expected to operate similarly to the 2029 future background conditions, with all intersection movements continuing to operate a Level of Service "E" or better except for the eastbound and westbound left turn movements at the intersection of Dixie Road and Bloor Street, as well as the eastbound left turn movement at the intersection of Bloor Street and Havenwood Drive. The 95th percentile queue length for the westbound left-turn movement at the Dixie Road and Bloor Street intersection is expected to increase by 5 metres and 10 metres during the weekday AM and

weekday PM peak hours, respectively due to site traffic. The increase in queue lengths at the Bloor Street and Havenwood Drive intersection can be accommodated within the existing taper lengths.

Site Access Review

The site access proposed on Williamsport Drive meets sight distance standards, required driveway spacing, and corner clearance requirements as specified in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017. The site access also meets throat length requirements set by City Staff as per the DARC comments.

Vehicle Maneuvering

There are no expected vehicle maneuverability constraints within the subject site for fire trucks, waste collection vehicles, loading vehicles, or passenger vehicles.

Parking Review and Justification

As per the City of Mississauga Zoning By-Law 0225-2007, the development is required to provide 283 resident parking spaces and 57 visitor parking spaces. A reduction in the resident parking rate to 0.85 spaces per unit and visitor parking rate to 0.10 spaces per unit is justified based on vehicle ownership and modal split trends in the study area, as well as approved and observed parking rates for other rental apartment developments in the vicinity of the site.

A parking study was conducted at the existing apartment at the Subject Site, observing a peak total parking demand of 1.09 spaces per unit. However, given the increasing share of apartments which do not own a vehicle and the increasing use of alternative modes of transportation in the study area, new rental tenants are expected to be less dependent on personal vehicles. Therefore, the future parking demand of the redevelopment is anticipated to be lower than the existing site.

Transportation Demand Management

Several TDM strategies are recommended for the site to further support the reduced parking supply proposed. These strategies include improved pedestrian, cycling, and transit facilities, unbundled resident parking, pedestrian and cycling wayfinding, as well as information packages. The TDM plan is estimated to cost a total of \$4,245 to be covered by the Owner.

These recommended strategies should enhance existing TDM opportunities at the site such as strong pedestrian connectivity in the study area, planned cycling facilities on Bloor Street, and two convenient Mi-Way bus routes that can connect passengers to several high-demand destinations. Overall, the TDM plan encourages alternative modes of transportation which is expected to lead to a reduction in parking demand.

Conclusion and Recommendations

The proposed development can be supported from a traffic operations and safety perspective if the following roadway improvements are implemented:

- Signal operations at the Dixie Road and Bloor Street intersection are optimized in both the weekday AM and weekday PM peak hour
- The storage length for the westbound left-turn movement at the Dixie Road and Bloor Street intersection is increased to accommodate a 95th percentile queue of 140 metres
- A protected phase is implemented in the weekday PM peak hour for the eastbound left-turn movement at the Bloor Street and Havenwood Drive intersection

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1 Introduction

1470 Williamsport Holdings Inc. retained C.F. Crozier & Associates Inc. (Crozier) to complete a Transportation Impact Study and Parking Justification Study to support the proposed residential development at 1470 Williamsport Drive in City of Mississauga, Region of Peel.

1.1 Developments Lands

The subject lands cover an area of approximately 0.5 ha and currently consist of a residential apartment building with at-grade parking and an underground parking lot. The property, located in a mixed-use residential and commercial neighborhood, is bounded by residential properties to the south and east, commercial properties to the west, and Williamsport Drive to the north.

Figure 1 includes the Site Location Plan.

1.2 Development Proposal

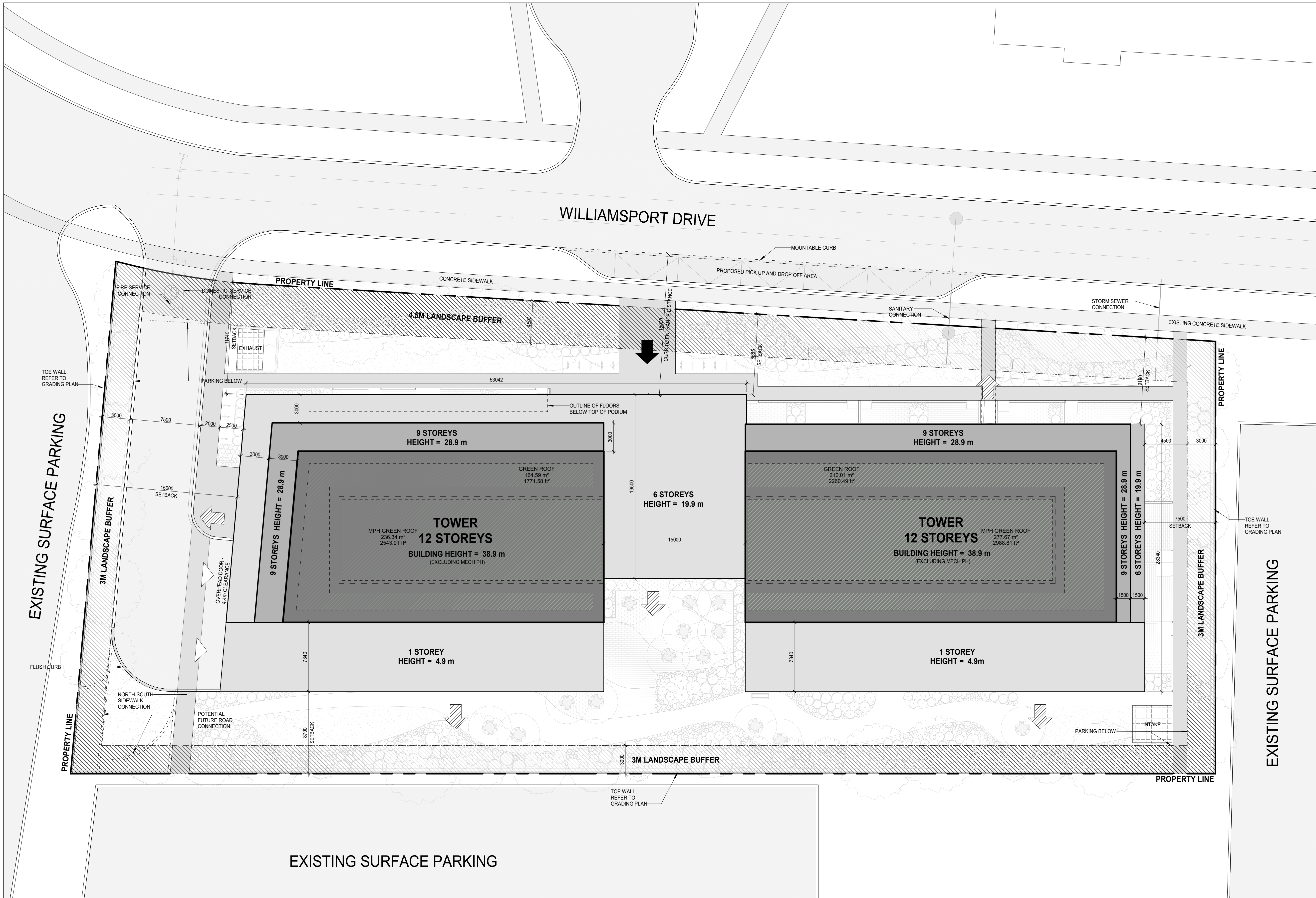
Per the Site Plan prepared by BDP Quadrangle, dated January 29, 2025, the proposed development includes two twelve (12) storey apartments connected by a six (6) storey podium consisting of a total of 283 units. The site also proposes a total of 272 parking spaces for residents and visitors in two underground parking levels, as well as a pick-up drop-off area with 5 short-term parking spaces on Williamsport Drive. A full-moves access to the site is proposed on Williamsport Drive.

The proposed development will replace the existing apartment building and its associated at-grade parking. The existing driveway will be relocated to the westerly property limit, creating a three-legged intersection with Williamsport Drive.

Figure 2, **Figure 3**, and **Figure 4** outline the current Site Plan for the ground floor, P1 Underground Level, and P2 Underground Level, respectively.



Legend Site Boundary	1470 Williamsport Drive Site Location	 CROZIER CONSULTING ENGINEERS	Figure 1 Project No. 2719-7179 Date: 11/12/2024 Analyst: AD
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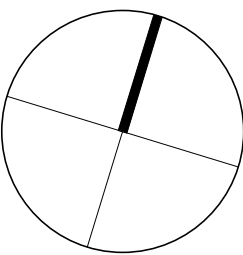


SITE PLAN LEGEND

- PROPERTY LINE
- LINE OF UNDER GROUND GARAGE BELOW
- MAIN BUILDING ENTRANCE
- EXIT
- VEHICLE / LOADING ENTRANCE / EXIT
- PROPOSED ELEVATION
- BUILDING ENVELOPE

REVISION RECORD

ISSUE RECORD



**BDP.
Quadrangle**

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t 416 598 1240 www.bdpquadrangle.com

1470 Williamsport Drive

Mississauga, ON
for
1470 Williamsport Holdings Inc.

23057 1:200 SJ AB
PROJECT SCALE DRAWN REVIEWED

Site Plan

A101.S

Note: This drawing is the property of the Architect and may not be reproduced or used without the expressed consent of the Architect. The Contractor is responsible for checking and verifying all levels and dimensions and shall report all discrepancies to the Architect and obtain clarification prior to commencing work.

PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):

- 2600mm WIDE X 5200mm LONG (NO SIDES OBSTRUCTED)
- 2750mm WIDE X 5200mm LONG (ONE SIDE OBSTRUCTED)
- 2900mm WIDE X 5200mm LONG (TWO SIDES OBSTRUCTED)

2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 7000mm UNLESS OTHERWISE NOTED.

3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

BIKE PARKING (HORIZONTAL)

BIKE PARKING (VERTICAL)

TRACTOR

2600

2750

2900

TYPICAL

ONE SIDE OBSTRUCTED

TWO SIDE OBSTRUCTED

ACCESSIBLE

ACCESSIBLE VISITOR - TYPE A

ACCESSIBLE VISITOR - TYPE B

C

R

V

E

BIKE LOCKER

BIKE PARKING (STACKED)

BIKE PARKING (VERTICAL)

ELECTRIC VEHICLE

CONVEX MIRROR

PAINTED LINES

COMMERCIAL PARKING SPACE

RESIDENTIAL PARKING SPACE

VISITOR PARKING SPACE

EXISTING PARKING SPACE

1
A103.S

P1 Underground Plan

REVISION RECORD

ISSUE RECORD

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23057 1:200 SJ AB
PROJECT SCALE DRAWN REVIEWED

P1 Underground Plan

A103.S

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1.3 Study Purpose and Scope

The purpose of the study is to evaluate the transportation-related impacts of the proposed development on the study road network and to recommend or confirm any required mitigation measures, if warranted. This TIS is in support of an Official Plan Amendment (OPA) and a Zoning By-Law Amendment (ZBA) application.

The study reviews the following main aspects of the proposed development from a transportation engineering perspective:

- Impacts of development traffic on the study road network through analyzing existing, future background, and future total traffic operations;
- Need for external roadway improvements to mitigate traffic impacts;
- Adequacy of the development plan to service circulation of design vehicles;
- Safety requirements of the proposed site accesses;
- Parking requirements and supply of the proposed site; and,
- Existing, future, and site-specific Transportation Demand Management opportunities.

The study has been completed in accordance with the City of Mississauga Transportation Impact Study Guidelines (December 2022).

Appendix A includes the Terms of Reference for the study, which was confirmed with the City Staff.

As confirmed in the Terms of Reference, this Transportation Impact Study considers the following study intersections:

- Dixie Road and Bloor Street
- Bloor Street and Havenwood Drive
- Havenwood Drive and Williamsport Drive
- Williamsport Drive and Gulleden Drive
- Site Access and Williamsport Drive

The development is anticipated to be built out by the horizon year 2029. Therefore, the 2029 horizon year was analyzed as confirmed through the Terms of Reference.

2 Existing Conditions

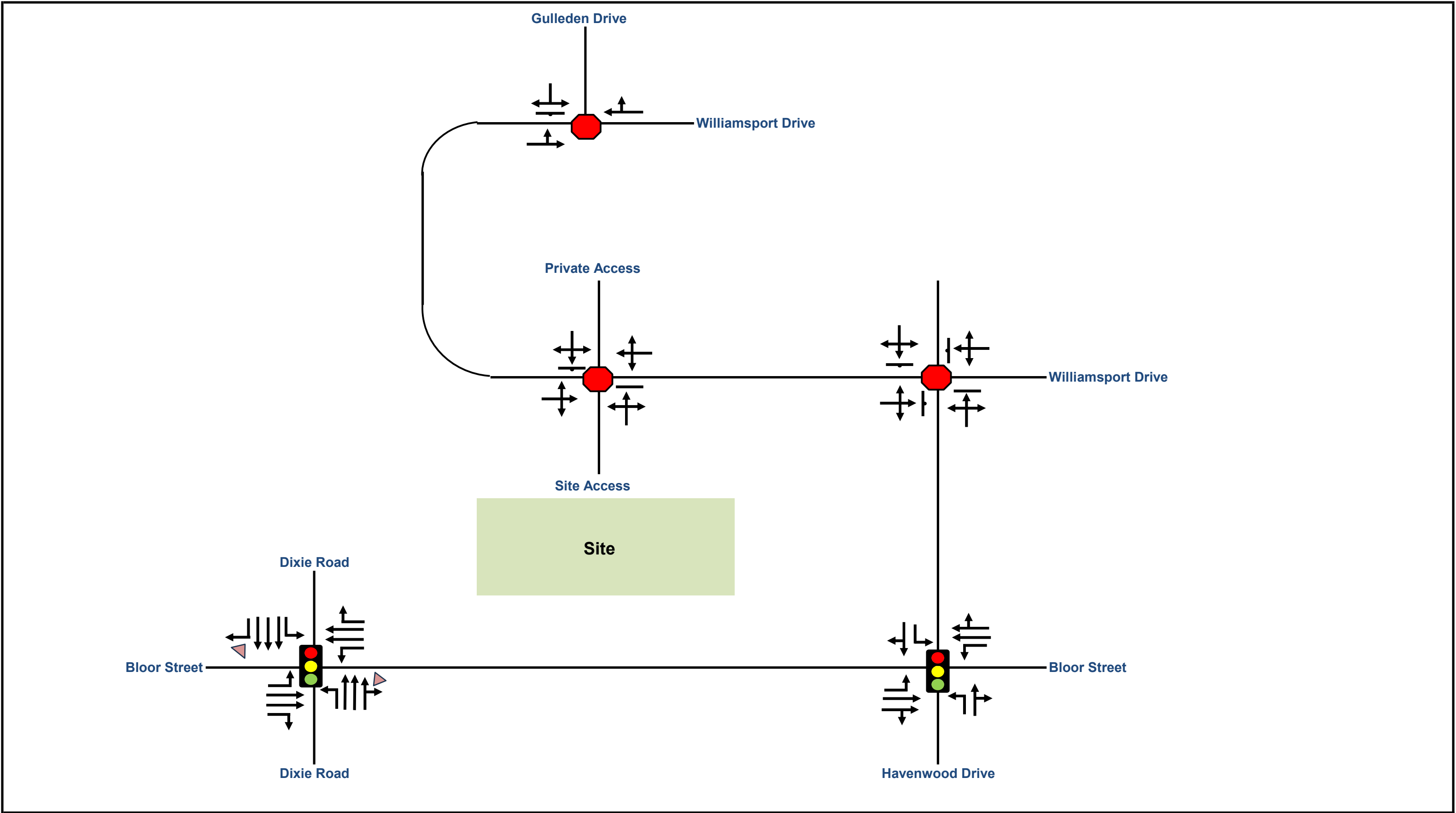
This section outlines the current conditions of the transportation network in the vicinity of the site. Details of the study road network, including traffic controls, lane configurations, speed limits, transit routes and stops, active transportation infrastructure and other relevant transportation elements are identified. The existing traffic operations are also summarized.

2.1 Study Road Network

The study road network consists of the existing road network near the site, which includes the study intersections and the adjoining roadway segments. **Table 1** summarizes the existing study road network. **Figure 5** illustrates the study road network, including the lane configurations and intersection control at the study intersections.

Table 1: Study Roadways

Features	Roadways				
	Dixie Road	Bloor Street	Havenwood Drive	Williamsport Drive	Gulleden Drive
Direction	Two-way (North-South)	Two-way (East-West)	Two-way (North-South)	Two-way (East-West)	Two-Way (North-South)
Classification	Arterial	Major Collector	Local	Local	Local
Jurisdiction	Region of Peel	City of Mississauga	City of Mississauga	City of Mississauga	City of Mississauga
Speed Limit	60 km/h	50 km/h	30 km/h (south of Bloor St) 40 km/h (north of Bloor St)	40 km/h (assumed)	40 km/h (assumed)
Number of travel lanes	Six	Four	Two	Two	Two
Median type	Concrete Median	Two-Way Left Turn	None	None	None
Active Transportation	Sidewalk on east side and MUP on west side	Sidewalk on both sides	Sidewalk on both sides	Sidewalk on both sides	Sidewalk on both sides



2.2 Transit Network

The proposed development is well-served by public transit, which is operated by MiWay within the study area.

Bloor Street is served by a bus route that runs primarily east-west between the City Transit Terminal and the Kipling TTC Station. This route operates with a frequency of 10 minutes during weekday morning and afternoon peak periods.

Dixie Road is served by a bus route that runs primarily north-south between the Long Branch GO Station and Lorimar Drive at Cardiff Boulevard. It operates on weekdays during morning and afternoon peak hours with a headway of 20 minutes. Additionally, this route provides access to the Mississauga Transitway, Dixie GO Station, and the Dixie Outlet Mall.

2.3 Transportation Data

A variety of transportation data was obtained and used to support the analysis in this study. **Table 2** summarizes the study intersections, date of data collection and signal timing plans, and the source of the information.

Table 2: Traffic Data

Intersection	TMC Date	Source	Timing Plan Date	Source
Dixie Road & Bloor Street	Thursday, May 09, 2024 (7:00 AM to 10:AM & 4:00 PM to 7:00 PM)	Spectrum	August 12, 2024	Region
Bloor Street & Havenwood Drive			May 08, 2024	City
Havenwood Drive & Williamsport Drive	N/A		-	
Williamsport Drive & Gulleden Drive	N/A		-	
Williamsport Drive & Site Access/Private Access	N/A		-	

Appendix B contains all transportation data used in support of this study.

2.4 Establishing Existing Conditions Traffic Volumes

The turning movement counts for the intersections of Dixie Road & Bloor Street and Bloor Street & Havenwood Drive were sourced from counts previously conducted in April 2023 for the development at 3403-3445 Fieldgate Drive. New turning movement counts were collected for the remaining intersections in the study network on Wednesday, September 18, 2024.

Additionally, due to the higher volumes observed at the Williamsport Drive & Havenwood Drive intersection during the weekday PM peak hour, through movements along Havenwood Drive were balanced at its intersection with Bloor Street.

Appendix B contains all transportation data used in support of this study.

2.5 Traffic Modelling and Assumptions

The evaluation of intersections within this report is conducted based on the methodology outlined in the Highway Capacity Manual (2000), using Synchro 11 modelling software. Intersections are assessed using a Level of Service (LOS) metric, with ranges of intersection delays assigned a letter from "A" to "F". For stop-controlled intersections, a Level of Service "A" or "B" would typically be measured during off-peak hours when lesser traffic volumes are on the roadways. Levels of Service "C" through "F" would typically be observed during commuter peak hours when significant vehicle volumes would cause lengthy travel times. The Level of Service definitions for stop-controlled and signalized intersections are included in **Appendix C**.

The City/Region's Transportation Impact Study Guidelines provide the following parameters indicating critical operations requiring mitigation measures:

- For signalized intersections,
 - The critical v/c threshold for intersections with Regional Roads (Dixie Road & Bloor Street) is 0.90 for all shared/through/turning movements per Peel Region guidelines and 1.00 for exclusive movements.
 - Volume-to-capacity (v/c) ratio of 0.85 or greater for through or shared turning movements, and a v/c ratio of 1.00 or greater for exclusive turning movements.
 - 95th percentile queues exceeding the available storage length.
- For stop-controlled intersections:
 - A Level of Service "E" or worse, or movement v/c ratios exceeding 0.85
 - 95th percentile queues exceeding the available storage length.

The traffic volumes applied to the existing conditions model are the volumes established in **Section 2.3**, based on the turning movement count survey data. A peak hour factor of 0.92 was assumed for all the approaches per the City's Synchro guidelines.

The signal timing plans identified in **Section 2.3** were incorporated into the model for the signalized study intersections, while stop control was applied in the model to the remaining study intersections.

2.6 Intersection Operations

Table 3 and **Table 4** outline the 2024 existing conditions traffic operations at the signalized and unsignalized study intersections, respectively. **Table 5** outlines the queueing assessment for the study intersections. Synchro 11 was used to determine intersection operations at both the signalized and unsignalized study intersections.

Figure 6 illustrates the 2024 existing condition balanced traffic volumes used in the operational analysis.

Appendix D contains the detailed capacity analysis worksheets.

Table 3: 2024 Existing Conditions Traffic Operations – Signalized Intersections

Intersection	Performance Metrics						
	Movement	LOS ¹		Delay (s)		v/c ratio ²	
		AM	PM	AM	PM	AM	PM
Dixie Rd & Bloor St	Overall	D	D	37.4	48.8	1.06	1.06
	EBL	F	E	84.8	66.9	0.78	0.80
	EBT	E	D	62.2	53.6	0.67	0.52
	EBR	C	C	33.8	31.3	0.48	0.44
	WBL	F	F	117.3	113.9	1.06	1.06
	WBT	D	E	44.1	65.2	0.37	0.83
	WBR	C	C	29.0	34.6	0.51	0.50
	NBL	C	E	34.9	60.6	0.32	0.80
	NBTR	C	D	29.3	37.0	0.52	0.75
	SBL	C	D	27.9	54.1	0.69	0.71
	SBT	B	D	17.7	45.4	0.42	0.75
	SBR	A	B	3.0	10.6	0.11	0.33
Bloor St & Havenwood Dr	Overall	B	B	13.1	10.3	0.69	0.61
	EBL	A	A	6.8	10.3	0.14	0.38
	EBTR	A	A	6.5	5.6	0.34	0.35
	WBL	A	A	7.2	5.7	0.16	0.12
	WBTR	A	A	6.2	6.4	0.29	0.45
	NBL	E	D	57.4	42.2	0.60	0.28
	NBTR	C	C	26.2	23.6	0.44	0.31
	SBL	D	D	38.5	46.0	0.25	0.41
	SBTR	D	D	37.8	36.1	0.69	0.61

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text.
The critical v/c threshold for intersections with Regional Roads (Dixie Road & Bloor Street) is 0.90 for all shared/through/turning movements per Peel Region guidelines and 1.00 for exclusive movements.

Note 3: The critical threshold for all intersections without Regional Roads is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

Table 4: 2024 Existing Conditions Traffic Operations – Unsignalized Intersections

Intersection	Performance Metrics						
	Movement	LOS ¹		Delay (s)		v/c ratio ²	
		AM	PM	AM	PM	AM	PM
Havenwood Drive & Williamsport Drive (AWSC)	Overall	A	A	9.2	9.3	0.26	0.27
	EBLTR	A	A	8.3	8.6	0.10	0.15
	WBLTR	A	A	8.5	8.4	0.13	0.10
	NBLTR	A	A	8.9	9.3	0.22	0.27
	SBLTR	A	A	9.2	9.0	0.26	0.23
Williamsport Drive & Guelden Drive (TWSC)	Overall	A	A	9.8	9.9	0.06	0.16
	EBLT	A	A	4.7	5.0	0.03	0.04
	WBTR	A	A	0.0	0.0	0.06	0.05
	SBLR	A	A	9.8	9.9	0.15	0.16
Williamsport Drive & Site Access/Private Access (TWSC)	Overall	A	A	9.3	7.7	0.02	0.14
	EBLTR	A	A	0.4	7.7	0.00	0.14
	WBLTR	A	A	0.1	7.4	0.00	0.07
	NBLTR	A	A	9.3	7.1	0.02	0.01
	SBLTR	A	A	8.8	7.0	0.01	0.03

Note 1: The overall Level of Service of a two-way stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text.

Note 3: The critical threshold for all intersections is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

Table 5: 2024 Existing Conditions Queuing Assessment

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (m) [50 th Percentile Queue Length (m)]		Auxiliary Lane Storage Length (m)
		AM	PM	
Dixie Rd & Bloor St	EBL	70 [50]	50 [35]	40
	EBR	55 [30]	55 [35]	15
	WBL	115 [75]	130 [85]	60
	WBR	65 [45]	60 [40]	10
	NBL	30	130 [70]	75
	SBL	50	50	100
	SBR	10	35	85
Bloor St & Havenwood Dr	EBL	15	25	50
	WBL	15	10	50
	NBL	30 [15]	20	25
	SBL	15	25	25

Note 1: The 95th percentile queue lengths for an individual movement exceeding available turn lane storage are bolded with red text.

The signalized intersections operate with a Level of Service (LOS) “E” or better with an exception for the eastbound left-turn and westbound left-turn movements at the intersection of Dixie Road & Bloor Street.

Dixie Road and Bloor Street

The eastbound left-turn movement operates at LOS "F" with a control delay of 84.8 seconds during the weekday AM peak hour. However, the movement remains undercapacity, with a volume-to-capacity ratio of 0.78.

The westbound left-turn movement operates at LOS "F" during both the weekday AM and PM peak hours, with control delays of 117.3 seconds and 113.9 seconds, respectively. A volume-to-capacity ratio of 1.06 indicates that the movement is at capacity during both peak hours.

The 95th and 50th percentile queues for the eastbound right-turn, westbound left-turn, and westbound right-turn exceed available storage during both the weekday peak hours. Additionally, the 95th percentile queue for the eastbound left-turn exceeds available storage during both weekday peak hours, while the 50th percentile queue exceeds storage only during the weekday AM peak hour. For the northbound left-turn movement, the 95th percentile queue exceeds available storage during the weekday PM peak hour, but the 50th percentile queue remains within storage limits.

Despite these findings, the queue lengths for the eastbound left-turn, eastbound right-turn, westbound right-turn, and northbound left-turn can be accommodated within the current taper length.

Bloor Street and Havenwood Drive

The intersection operates with a LOS "E" or better with no movements being overcapacity.

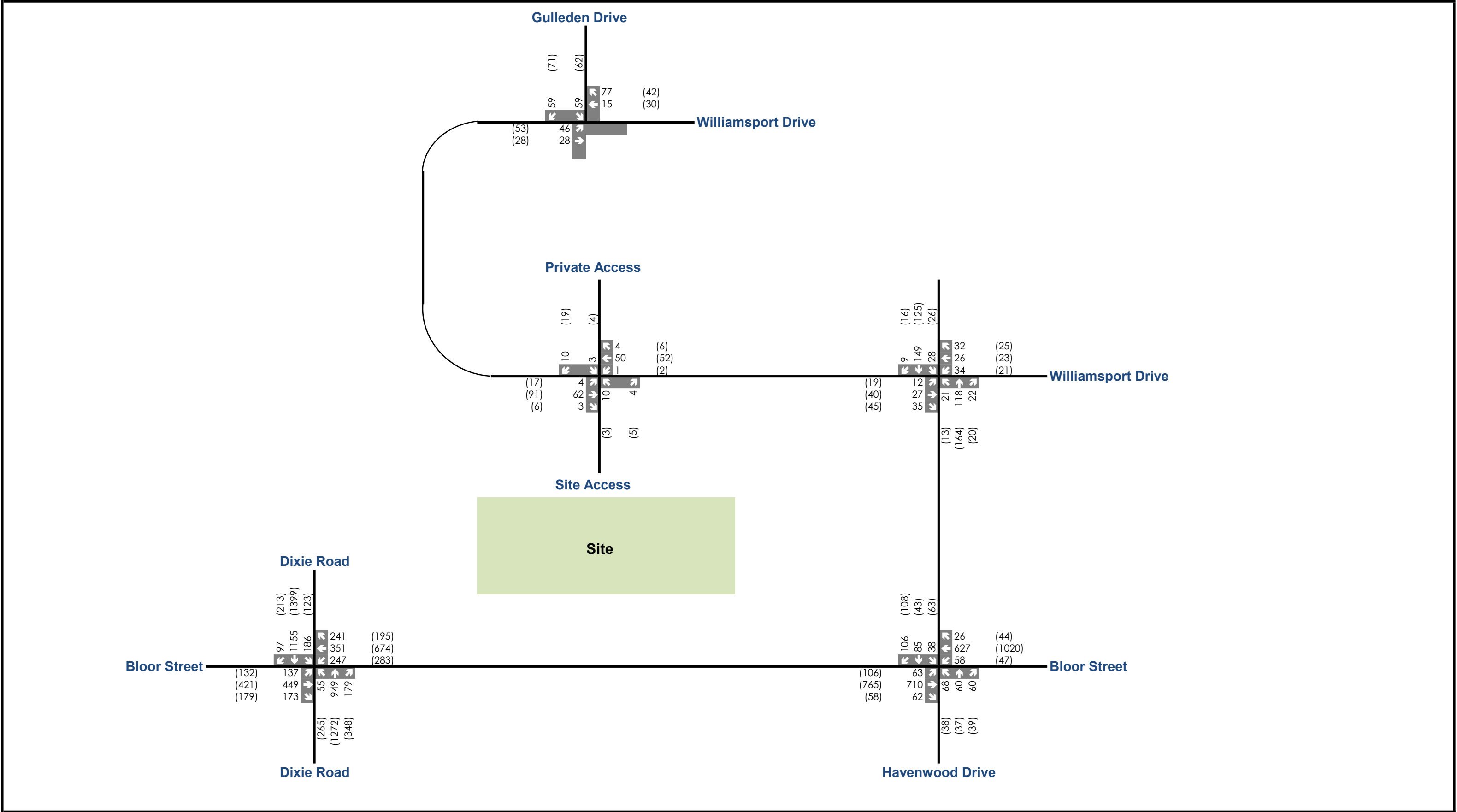
The 95th percentile queue for the northbound left-turn movement at Bloor Street & Havenwood Drive exceeds the available storage in weekday A.M. peak hour by 5.0 meters with 50th percentile queue well within the available storage.

Havenwood Drive and Williamsport Drive

The intersection operates with a LOS "A" and all the movements are operating undercapacity.

Williamsport Drive and Gulleden Drive

The intersection operates with a LOS "A" and all the movements are operating undercapacity.



3 Future Background Conditions

This section summarizes the future background conditions of the study road network and provides details relating to growth rates, future transportation network improvements, and background developments within the study area. The study considers the 2029 horizon year in the future background traffic analysis, the results of which are summarized in **Section 3.4**.

3.1 Future Transportation Network

The City of Mississauga conducted a study for the Bloor Street corridor and will be conducting road improvements. The improvements are anticipated to make the roadway safer and more accessible to pedestrians and transit users. Construction was anticipated to begin in the fall of 2024 and continue until the end of 2025, followed by restoration work in 2026.

The improvements will include:

- Road rehabilitation work
- Construction of cycling facilities
- Road safety improvements
- Landscaping Work

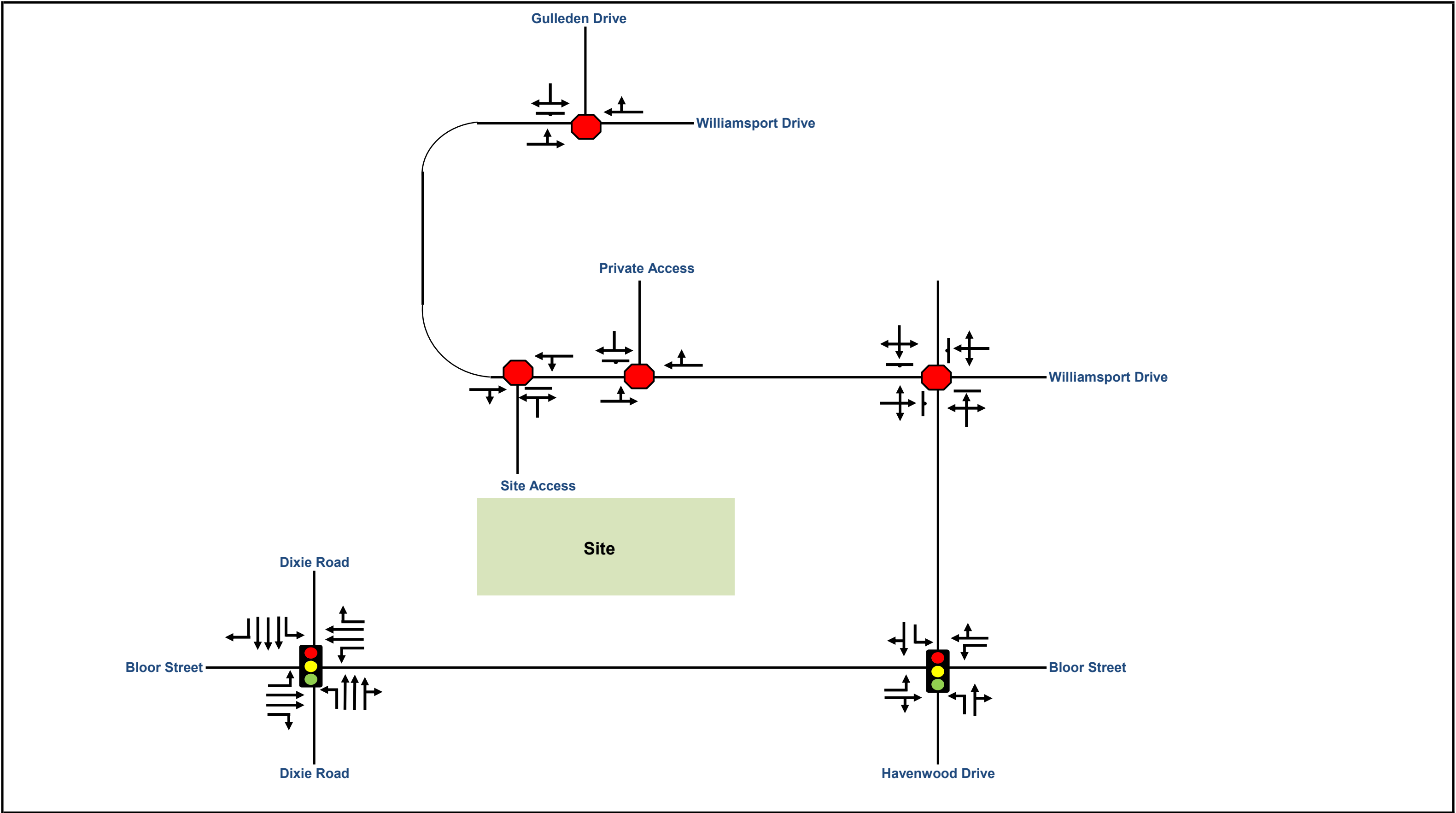
Road upgrades will result in changes outlined in **Table 6** below:

Table 6: Roadway Improvements

Intersection	Roadway Improvements
Bloor Street & Dixie Road	• Removal of channelized right-turn lanes in both northbound and southbound directions • Inclusion of dedicated bicycle lanes
Bloor Street & Havenwood Drive	• Removal of one through lane in both eastbound and westbound directions • Inclusion of dedicated bicycle lanes

For the purpose of properly calibrating the traffic model, the future lane configurations were obtained from the preliminary design in **Appendix E**. The noted improvements along Bloor Street were also applied in the future scenarios.

Figure 7 illustrates the future background boundary road network, which is applicable for the future background horizon year analyzed herein.



3.2 Growth Rates

The growth rate for Dixie Road was obtained from Region of Peel and a compounded growth rate of 0.5% was assumed for the northbound and southbound approach at the Dixie Road and Bloor Street intersection for the horizon year of 2029. Furthermore, upon further consultation with City staff, no growth rate was assumed along Bloor Street due to the future improvements and narrowing of the roadway.

3.3 Background Developments

Background developments were identified near the site and confirmed with City staff. The development details and respective traffic volume forecasts are discussed in the subsequent sections, and the forecasted volumes have been incorporated into the future background volumes for the 2029 horizon year. **Table 7** summarizes the background developments.

Table 7: Summary of Background Developments

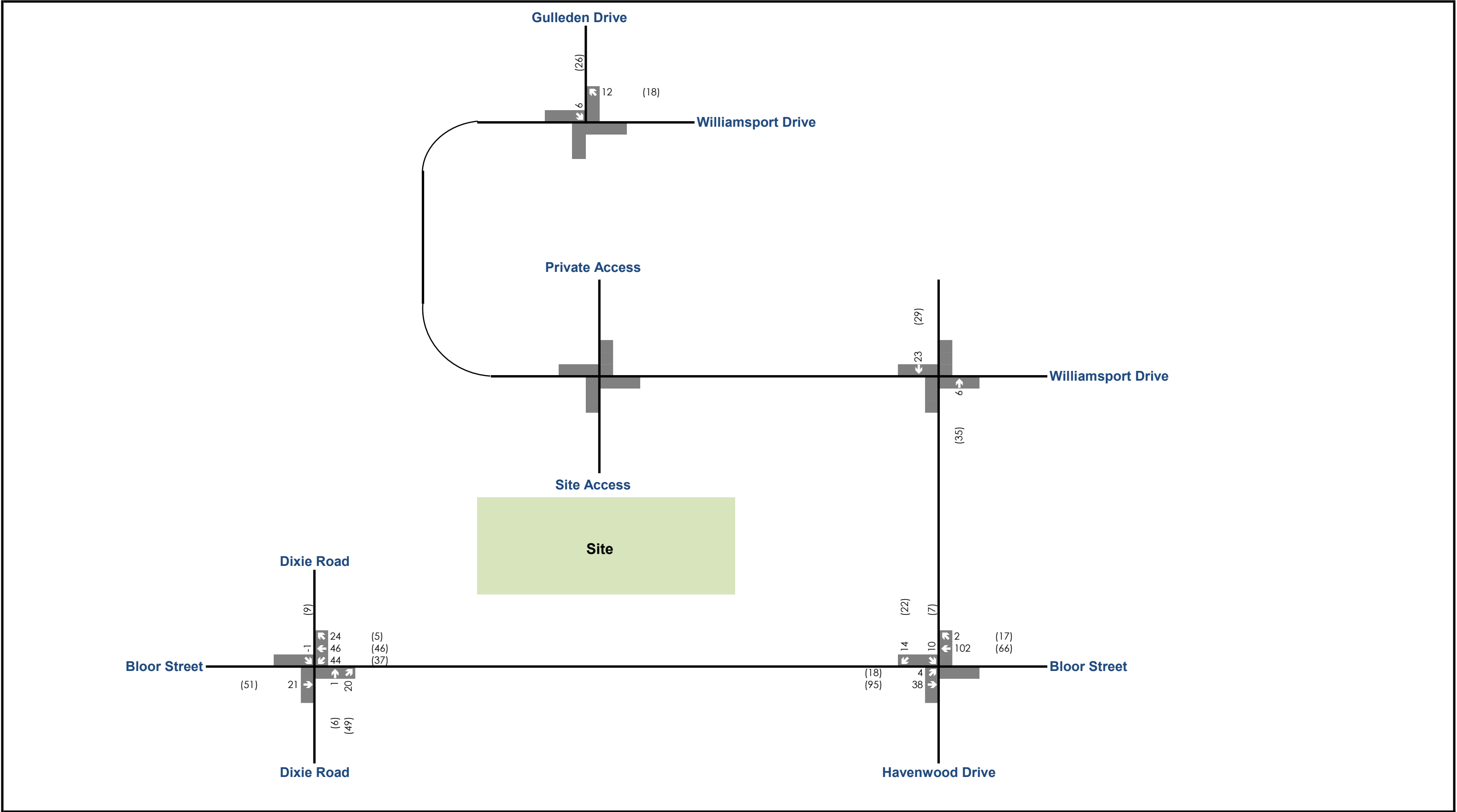
Development	Land Use & Site Statistics	Background Report/Reference
1785 Bloor Street	- Addition of a new 14-storey apartment to existing apartment building - A total of 238 units are proposed	TIS (Trans-Plan, June 2022)
1840 -1850 Bloor Street	- Addition of two new 18-storey apartments to existing two 14-storey apartment buildings - A total of 433 units are proposed	Urban Transportation Consideration Report (BA Group, March 2020)
3480 Havenwood Drive & 1485 Williamsport Drive	- Addition of two new 8 to 9-storey apartments to existing two apartment buildings - A total of 466 units are proposed	Transportation Impact Study (LEA Consulting, June 2018)
1750 Bloor Street & 3315 Fieldgate Drive	- Addition of a 17-storey apartment and 2-storey building to existing two apartment buildings - A total of 266 units are proposed	Transportation Impact Study (LEA Consulting, October 2020)
3404-3445 Fieldgate Drive	A total of 592 units proposed in three high-rise buildings including 13 townhouses and 2869.33 m² commercial area on ground floor	Transportation Impact Study & Parking Justification Study (Crozier, August 2024)

It should be noted that the existing Fieldgate Plaza Shopping Mall will be demolished as part of the proposed high-rise mixed-use development at 3404-3445 Fieldgate Drive. Consequently, the turning movement counts at the site accesses were obtained from a study by Spectrum in May 2024 and existing associated trips with the Fieldgate Plaza have been removed from the study road network.

Furthermore, not all the study intersections overlap with the study networks included in the background development reports. Background trips that were not distributed to the study intersections within their respective analyses were therefore distributed based on existing travel patterns.

Figure 8 shows the background developments trips including the existing plaza trip reduced from the study road network.

Appendix F outlines the background development excerpts.



Legend
xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

1470 Williamsport Drive
Background Development Traffic Volumes



Figure 8
Project No. 2719-7179
Date: 02/04/2025
Analyst: AD

3.4 Intersection Operations

Table 8 and **Table 9** outline the 2029 future background traffic operations for the signalized study intersections and unsignalized study intersections, respectively. **Table 10** outlines the queuing assessment for the study intersections. Synchro 11 was used to determine intersection operations at both the signalized and unsignalized study intersections. **Figure 9** illustrates the 2029 future background traffic volumes.

Appendix G contains detailed capacity analysis worksheets.

Table 8: 2029 Future Background Conditions Traffic Operations – Signalized Intersections

Intersection	Performance Metrics						
	Movement	LOS ¹		Delay (s)		v/c ratio ²	
		AM	PM	AM	PM	AM	PM
Dixie Rd & Bloor St	Overall	D	D	43.6	54.8	1.27	1.24
	EBL	F	E	86.1	67.5	0.79	0.81
	EBT	E	D	61.9	52.8	0.68	0.55
	EBR	C	C	33.1	29.8	0.47	0.42
	WBL	F	F	186.5	174.0	1.27	1.24
	WBT	D	E	44.3	64.2	0.41	0.84
	WBR	C	C	32.0	33.7	0.56	0.49
	NBL	D	E	37.6	65.0	0.35	0.83
	NBTR	C	D	31.1	41.8	0.56	0.83
	SBL	C	E	32.9	61.6	0.74	0.76
	SBT	B	D	18.4	48.7	0.43	0.80
	SBR	A	B	3.0	12.1	0.12	0.35
Bloor St & Havenwood Dr	Overall	B	D	18.2	43.6	0.72	1.79
	EBL	A	F	9.0	418.8	0.22	1.79
	EBTR	B	B	14.1	14.9	0.70	0.75
	WBL	A	A	9.6	8.9	0.22	0.21
	WBTR	B	C	12.7	29.1	0.65	0.94
	NBL	E	D	58.1	39.9	0.61	0.27
	NBTR	C	C	25.2	21.7	0.44	0.28
	SBL	D	D	39.5	43.6	0.33	0.41
	SBTR	D	D	37.7	40.4	0.72	0.66

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text. The critical v/c threshold for intersections with Regional Roads (Dixie Road & Bloor Street) is 0.90 for all shared/through/turning movements per Peel Region guidelines and 1.00 for exclusive movements.

Note 3: The critical threshold for all intersections without Regional Roads is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

Table 9: 2029 Future Background Conditions Traffic Operations – Unsignalized Intersections

Intersection	Performance Metrics						
	Movement	LOS ¹		Delay (s)		v/c ratio ²	
		AM	PM	AM	PM	AM	PM
Havenwood Drive & Williamsport Drive (AWSC)	Overall	A	A	9.5	9.9	0.31	0.32
	EBLTR	A	A	8.4	8.8	0.08	0.15
	WBLTR	A	A	8.6	8.6	0.11	0.11
	NBLTR	A	A	9.0	9.9	0.28	0.32
	SBLTR	A	A	9.5	9.5	0.31	0.28
Williamsport Drive & Gullen Drive (TWSC)	Overall	A	B	9.9	10.4	0.16	0.21
	EBLT	A	A	4.8	5.0	0.03	0.04
	WBTR	A	A	0.0	0.0	0.07	0.06
	SBLR	A	B	9.9	10.4	0.16	0.21

Note 1: The overall Level of Service of a two-way stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text.

Note 3: The critical threshold for all intersections is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

Table 10: 2029 Future Background Conditions Queuing Assessment

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (m) [50 th Percentile Queue Length (m)]		Auxiliary Lane Storage Length (m)
		AM	PM	
Dixie Rd & Bloor St	EBL	70 [50]	55 [35]	40
	EBR	55 [30]	55 [35]	15
	WBL	160 [110]	165 [115]	60
	WBR	75 [50]	60 [40]	10
	NBL	30	145 [75]	75
	SBL	55	55	100
	SBR	10	35	85
Bloor St & Havenwood Dr	EBL	20	65 [25]	50
	WBL	15	10	50
	NBL	30 [15]	20	25
	SBL	20	25	25

Note 1: The 95th percentile queue lengths for an individual movement exceeding available turn lane storage are bolded with red text.

The signalized intersections are forecasted to operate with an overall LOS "E" or better with an exception for the eastbound left-turn and westbound left-turn movements at the intersection of Dixie Road & Bloor Street and eastbound left-turn movement at the intersection of Bloor Street & Havenwood Drive which are anticipated to operate at a LOS "F".

Dixie Road and Bloor Street

The eastbound left-turn movement is forecasted to experience a minor increase of 1.3 seconds in the control delay in the weekday AM peak hour compared to the existing operations due to the anticipated traffic growth. The movement is still expected to operate well undercapacity.

The westbound left-turn movement is forecasted to deteriorate in both the weekday AM and weekday PM peak hours with an increase of 69.2 seconds and 60.1 seconds in control delay in the weekday AM and weekday PM peak hours, respectively. The v/c ratio is also forecasted to increase to 1.27 and 1.24 in the weekday AM and weekday PM peak hours, respectively. The increase in delays and capacity are expected to be a result of the assumed growth rate and background development trips heading south via Dixie Road.

A minor increase in the 95th percentile and 50th percentile queue lengths is anticipated in comparison to the existing conditions. However, the queues for the westbound left-turn movement are forecasted to notably worsen. The weekday PM peak hour is expected to experience a 95th percentile queue of 165 metres and a 50th percentile queues of 115 meters compared to a provided storage length of 60 metres.

Bloor Street and Havenwood Drive

The intersection is anticipated to operate with an Overall LOS "D" or better. The eastbound left-turn movement is forecasted to deteriorate to LOS "F" with an increase of 408.5 seconds in control delay and 1.79 in v/c ratio in the weekday PM peak hour when compared to the existing conditions. The increased delays are anticipated to be a result of eastbound left-turn trips generated from the background developments and westbound trips generated from the background developments providing less gaps for eastbound left-turning vehicles.

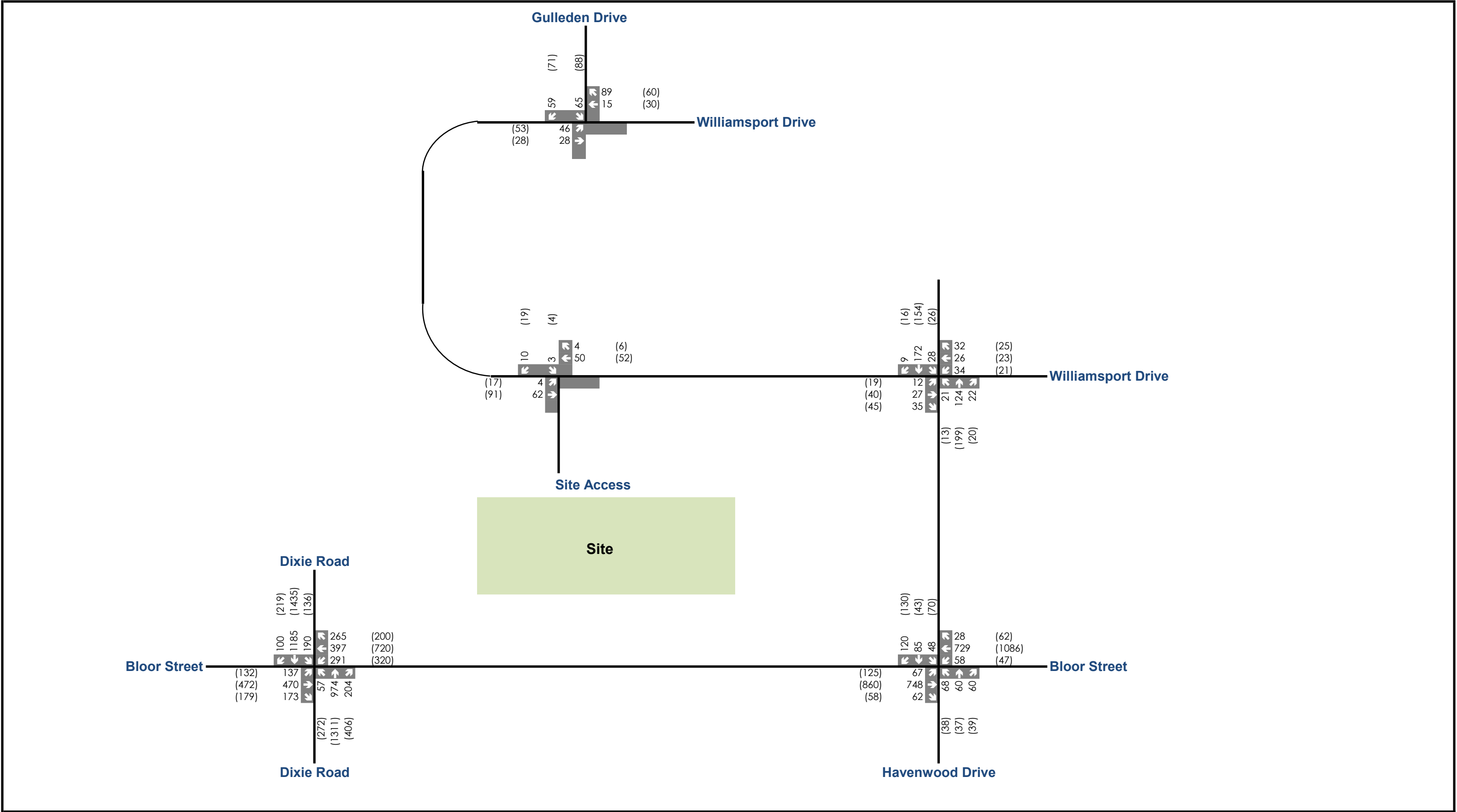
The 95th percentile queue for the eastbound left-turn movement is anticipated to exceed the available storage by 15 meters (approximately 3 vehicles) in the weekday PM peak hour. These additional vehicles can be accommodated within the existing taper. The southbound left-turn queue is also expected to operate within the existing storage length.

Havenwood Drive and Williamsport Drive

The intersection is forecasted to operate with a LOS "A" and all the movements are anticipated to operate within capacity.

Williamsport Drive and Gulleden Drive

The intersection is forecasted to operate with a LOS "A" and LOS "B" in the weekday AM and PM peak hours, respectively. All the movements are anticipated to operate within capacity.



Legend
xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

1470 Williamsport Drive
2029 Future Background Traffic Volumes



Figure 9
Project No. 2719-7179
Date: 02/04/2025
Analyst, AD

4 Site Generated Traffic

The proposed development will result in additional turning movements at the study intersections. Therefore, this section describes the trip forecasting methodology and results of this forecast for the development proposal.

The site generated traffic forecasting methodology for this study consists of two steps. The first step, Trip Generation, projects the number of trips that originate from or are destined for the proposed development. The second step, Trip Distribution and Assignment, assigns trips to the study road network based on the expected distribution of trips to catchment areas and expected shortest paths for trips destined for particular locations.

4.1 Trip Generation

As noted, the development is proposed to consist of two twelve (12) storey buildings connected by a six (6) storey podium consisting of 283 dwelling units.

The trip generation of the proposed residential dwelling units was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition.

The fitted curve equations for Land Use Category (LUC) 222 "Multi-Family Housing High-Rise" for the weekday AM and PM peak hours were applied to the proposed residential dwelling units.

Furthermore, the trips generated by the existing residential apartment were determined using Land Use Category (LUC) 221, "Multifamily Housing Mid-Rise". The lower equation rate was applied to the weekday AM peak hour, while the average rate was applied to the weekday PM peak hour as part of a conservative approach.

Relevant excerpts from the ITE Trip Generation Manual have been included in **Appendix H**. The forecasted trip generation of the proposed residential development is summarized in **Table 11**.

Table 11: Trip Generation

Land Use (Units/GFA)	AM			PM		
	Equation/ Rate	Trips Generated		Equation/ Rate	Trips Generated	
		Inbound	Outbound		Inbound	Outbound
222: Multifamily Housing High-Rise (283 Units)	0.29	21	60	0.34	60	37
221: Multifamily Housing Mid-Rise (53 Units)	0.22	3	9	0.39	13	8
Net Total Trips	-	18	51	-	47	29

Therefore, the full-buildout of the proposed development is expected to generate a total of 69 two-way trips (18 inbound and 51 outbound) during the weekday AM peak hour and 76 two-way trips (47 inbound and 29 outbound) during the weekday PM peak hour.

4.2 Trip Distribution and Assignment

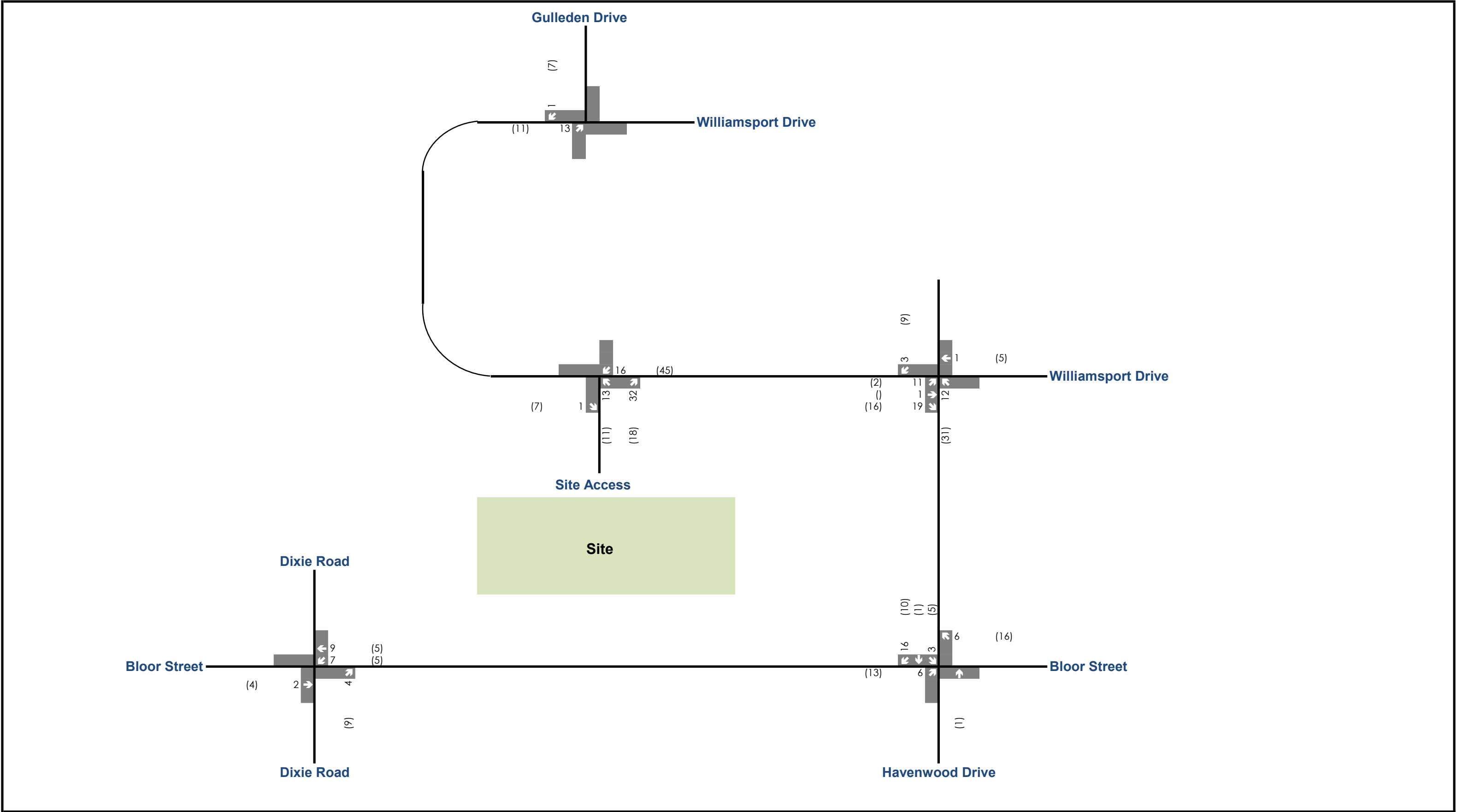
The trips generated by the proposed development were distributed to the study road network using 2016 Transportation Tomorrow Survey (TTS) data. Excerpts from the TTS query have been included in **Appendix I**.

The trip distribution is outlined in the **Table 12**.

Table 12: Trip Distribution

Location	AM (IN)	AM (OUT)	PM (IN)	PM (OUT)
North Via Gulleden Dr	19.1%	39%	22%	39%
North Via Dixie Rd	0.0%	0%	0%	0%
North Via Havenwood Dr	14.5%	19%	15%	8%
South Via Dixie Rd	18.1%	12%	15%	12%
South via Havenwood Dr	1.2%	2%	2%	5%
West Via Bloor St	10.1%	16%	7%	20%
East Via Bloor St	31.5%	5%	29%	13%
East Via Williamsport Dr	5.4%	7%	10%	3%

The associated primary trip assignment is illustrated in **Figure 10**.



Legend
xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

1470 Williamsport Drive

Site Generated Trips



Figure 10
Project No. 2719-7179
Date: 02/04/2025
Analyst: AD

5 Future Total Conditions

This section will summarize the future total conditions of the study road network. The future total traffic volumes for the horizon years consist of the following components:

- Future background traffic volumes from the corresponding horizon year.
- Proposed development site generated traffic volumes.

5.1 Intersection Operations

Table 13 and **Table 14** outline the 2029 future total traffic operations for signalized and unsignalized study intersections, respectively. **Table 15** outlines the 2029 future total queueing assessment. Synchro 11 was used to determine intersection operations at both the signalized and unsignalized study intersections.

Figure 11 illustrates the 2029 future total traffic operations. **Appendix J** contains the detailed capacity analysis worksheets.

Table 13: 2029 Future Total Conditions Traffic Operations – Signalized Intersections

Intersection	Performance Metrics						
	Movement	LOS ¹		Delay (s)		v/c ratio ²	
		AM	PM	AM	PM	AM	PM
Dixie Rd & Bloor St	Overall	D	E	44.9	55.5	1.31	1.27
	EBL	F	E	86.5	68.1	0.79	0.82
	EBT	E	D	61.7	52.7	0.68	0.56
	EBR	C	C	32.9	29.7	0.47	0.42
	WBL	F	F	200.2	181.7	1.31	1.27
	WBT	D	E	44.3	64.1	0.42	0.84
	WBR	C	C	32.2	33.5	0.56	0.49
	NBL	D	E	37.8	64.8	0.35	0.83
	NBTR	C	D	31.3	42.2	0.56	0.83
	SBL	C	E	33.3	61.9	0.74	0.76
	SBT	B	D	18.5	48.8	0.43	0.81
	SBR	A	B	3.0	12.1	0.12	0.35
Bloor St & Havenwood Dr	Overall	B	D	19.1	51.8	0.73	1.96
	EBL	B	F	10.2	493.0	0.25	1.96
	EBTR	B	B	15.1	15.6	0.70	0.76
	WBL	B	A	10.5	9.6	0.23	0.22
	WBTR	B	C	13.8	34.1	0.66	0.97
	NBL	E	D	58.7	39.3	0.63	0.27
	NBTR	C	C	24.3	21.4	0.42	0.28
	SBL	D	D	38.7	43.3	0.34	0.43
	SBTR	D	D	37.1	41.2	0.73	0.68

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text. The critical v/c threshold for intersections with Regional Roads (Dixie Road & Bloor Street) is 0.90 for all shared/through/turning movements per Peel Region guidelines and 1.00 for exclusive movements.

Note 3: The critical threshold for all intersections without Regional Roads is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

Table 14: 2029 Future Total Conditions Traffic Operations – Unsignalized Intersections

Intersection	Performance Metrics						
	Movement	LOS ¹		Delay (s)		v/c ratio ²	
		AM	PM	AM	PM	AM	PM
Havenwood Drive & Williamsport Drive (AWSC)	Overall	A	B	9.8	10.7	0.30	0.38
	EBLTR	A	A	8.8	9.2	0.16	0.19
	WBLTR	A	A	8.8	9.0	0.14	0.12
	NBLTR	A	B	9.4	10.7	0.26	0.38
	SBLTR	A	A	9.8	9.9	0.30	0.30
Williamsport Drive & Guelden Drive (TWSC)	Overall	B	A	10.1	10.6	0.16	0.22
	EBLT	A	A	5.3	5.4	0.04	0.05
	WBTR	A	A	0.0	0.0	0.07	0.06
	SBLR	B	B	10.1	10.6	0.16	0.22
Site Access & Williamsport Drive (TWSC)	Overall	A	A	9.3	9.7	0.06	0.08
	EBLT	A	A	0.0	0.0	0.04	0.08
	WBTR	A	A	1.8	3.2	0.01	0.04
	NBLR	A	A	9.3	9.7	0.06	0.05

Note 1: The overall Level of Service of a two-way stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text.

Note 3: The critical threshold for all intersections is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

Table 15: 2029 Future Total Conditions Queuing Assessment

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (m) [50 th Percentile Queue Length (m)]		Auxiliary Lane Storage Length (m)
		AM	PM	
Dixie Rd & Bloor St	EBL	70 [45]	55 [35]	40
	EBR	55 [30]	55 [30]	15
	WBL	165 [115]	175 [120]	60
	WBR	75 [50]	60 [40]	10
	NBL	35	145 [75]	75
	SBL	55	55	100
	SBR	10	40	85
Bloor St & Havenwood Dr	EBL	20	75 [35]	50
	WBL	15	15	50
	NBL	30 [15]	20	25
	SBL	20	30 [15]	25

Note 1: The 95th percentile queue lengths for an individual movement exceeding available turn lane storage are bolded with red text.

As per **Table 13** and **Table 14**, the signalized and unsignalized intersections are anticipated to operate with a LOS "E" or better with exception to the eastbound left-turn and westbound left-turn movements at the intersection of Dixie Road and Bloor Street as well as the eastbound left-turn movement at the intersection of Bloor Street and Havenwood Drive.

Dixie Road and Bloor Street

The eastbound left-turn movement is forecasted to operate similarly to the 2029 future background conditions in the weekday AM peak hour with an expected increase in control delay of only 0.4 seconds. The movement is still anticipated to operate undercapacity with a v/c ratio of 0.82 in the weekday PM peak hour of the 2029 future total condition.

The westbound left-turn movement is forecasted to operate at a LOS "F" during both peak hours of the 2029 future total condition, consistent with the 2029 future background conditions. Compared to the future background condition, the movement is expected to have 8 additional vehicles and 5 additional vehicles because of site generated traffic during the weekday AM and PM peak hours, respectively. As a result, an increase of 13.7 and 7.7 seconds in control delay is expected during the weekday AM and weekday PM peak hours of the future total scenario. The v/c ratio is forecasted to increase to 1.31 and 1.27 in the weekday AM and weekday PM peak hours, respectively.

The 95th percentile queue for the westbound left-turn is also forecasted to increase by 5 meters and 10 metres during the weekday AM and weekday PM peak hours, respectively due to the site generated trips.

Bloor Street and Havenwood Drive

The eastbound left-turn movement is expected to experience an increase in control delay of 74.2 seconds in the weekday PM peak hour and operate at a LOS "F". The v/c ratio is also anticipated to increase by 0.17 due to the addition of 14 vehicles generated by the proposed site. The increase in vehicles conducting the eastbound left-turn due to site traffic is projected to be relatively low, and poor delays are expected to be a result of roadway improvements and trips generated from background developments.

The 95th percentile queue for eastbound left-turn is forecasted to increase by 10 meters in the weekday PM peak hour. The 95th percentile queue for the southbound left-turn is forecasted to increase by 5 metres in the weekday PM peak hour. While the projected 95th percentile queue length for both turning movements exceed the existing storage length, the additional vehicles can be accommodated within the existing taper lengths provided for both turning lanes.

Havenwood Drive and Williamsport Drive

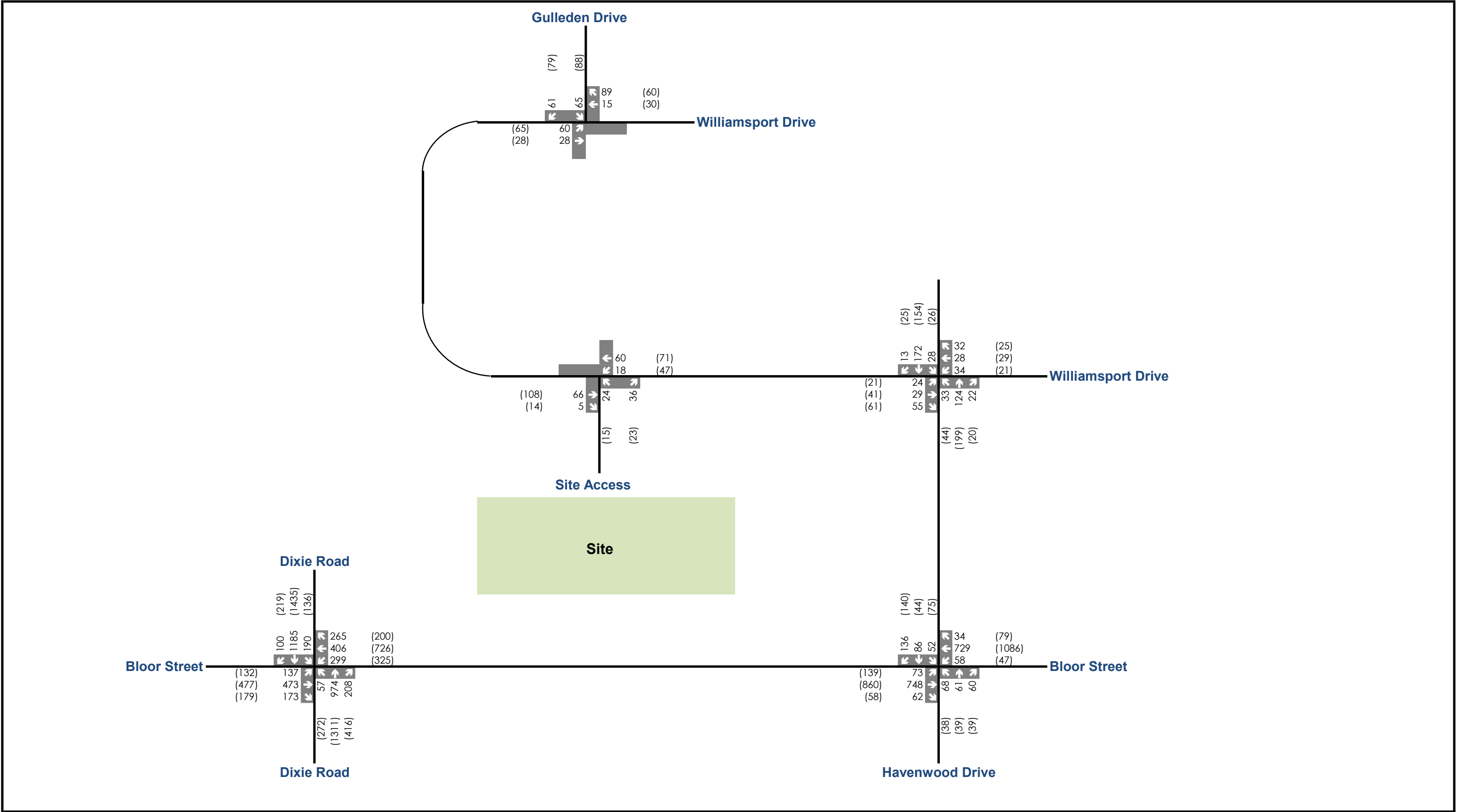
The intersection is forecasted to operate with an acceptable LOS, minor delays and well undercapacity after the addition of site generated trips to the study road network.

Williamsport Drive and Gulleden Drive

The intersection is forecasted to operate with an acceptable LOS, minor delays and well undercapacity after the addition of site generated trips to the study road network. It is anticipated that inbound site trips originating from Dixie Road north of the site will use Gulleden Drive. However, no significant impacts are observed in the intersection operations.

Site Access and Williamsport Drive

The site access is expected to operate with no major delays and well undercapacity.



5.2 Recommendations

In the projected 2029 conditions, certain movements at the signalized intersections are forecasted to operate at LOS "F", with v/c ratios exceeding capacity and queues expected to surpass available storage. Consequently, the following improvements are recommended to enhance intersection operations and address potential deterioration caused by the Bloor Street redesign as well as the anticipated increase in overall traffic volumes.

5.2.1 Dixie Road and Bloor Street

Due to the increased delays anticipated for the westbound left-turn movement. The signal timing is recommended to be optimized in both the weekday AM and PM peak hours to improve intersection operations. **Table 16** outlines the intersection operations per the optimized signal timings.

Table 16: Dixie Road & Bloor Street Optimized Operations

Intersection	Performance Metrics						
	Movement	LOS ¹		Delay (s)		v/c ratio ²	
		AM	PM	AM	PM	AM	PM
Dixie Rd & Bloor St (Optimized)	Overall	D	D	39.5	53.2	0.91	0.99
	EBL	F	E	89.1	57.8	0.81	0.74
	EBT	E	E	62.5	71.6	0.69	0.79
	EBR	C	C	33.4	26.1	0.47	0.51
	WBL	E	F	66.0	85.4	0.91	0.99
	WBT	D	E	36.8	62.3	0.35	0.82
	WBR	C	C	24.7	27.6	0.48	0.47
	NBL	D	E	47.8	59.9	0.41	0.80
	NBTR	D	D	40.1	47.9	0.65	0.89
	SBL	D	D	46.3	51.0	0.79	0.65
	SBT	C	D	24.2	53.0	0.48	0.85
	SBR	A	B	3.8	13.3	0.13	0.37

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text.

Note 3: The critical threshold for all intersections with City Roads is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

The operations for the westbound left-turn movement are expected to improve with the signal timings updates. The delays are forecasted to reduce by 134.2 and 96.3 seconds in the weekday AM and PM peak hours, respectively. The v/c ratios for the movement are also anticipated to be within the threshold of 1.00 in both the peak hours.

Furthermore the 95th percentile queues as a result of recommended signal timings are outlined in the **Table 17** below.

Table 17: Dixie Road & Bloor Street Optimized Queues

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (m) [50 th Percentile Queue Length (m)]		Auxiliary Lane Storage Length (m)
		AM	PM	
Dixie Rd & Bloor St (Optimized)	EBL	70 [50]	45 [35]	40
	EBR	55 [30]	45 [25]	15
	WBL	110 [80]	140 [90]	60
	WBR	65 [45]	55 [30]	10
	NBL	35	130 [75]	75
	SBL	75	70	100
	SBR	15	40	85

Note 1: The 95th percentile queue lengths for an individual movement exceeding available turn lane storage are bolded with red text.

The 95th percentile and 50th percentile queues for the westbound left-turn are projected to decrease during both the peak hours. However, they are still forecasted to exceed the available storage and therefore, the storage length is recommended to be increased to accommodate the queues in the future total scenario.

5.2.2 Bloor Street and Havenwood Drive

To address the increased delays for the eastbound left-turn movement caused by the Bloor Street roadway improvements, as well as traffic from background developments and the subject site, a protected phase is recommended in the weekday PM peak hour. The optimized signal timing results for the weekday PM peak hour are outlined in **Table 18**.

Table 18: Bloor Street & Havenwood Drive Optimized Operations

Intersection	Performance Metrics			
	Movement	LOS ¹	Delay (s)	v/c ratio ²
		PM		
Bloor St & Havenwood Dr (Optimized)	Overall	D	36.8	1.10
	EBL	C	22.8	0.55
	EBTR	B	10.7	0.71
	WBL	B	12.3	0.18
	WBTR	F	80.2	1.10
	NBL	D	46.7	0.35
	NBTR	C	24.2	0.32
	SBL	D	51.2	0.52
	SBTR	C	22.2	0.61

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro).

Note 2: All v/c ratios above critical thresholds are bolded, all v/c ratios greater than 1.00 are bolded with red text.

Note 3: The critical threshold for all intersections with City Roads is 0.85 for shared/through/turning movements and 1.00 for exclusive through and turning movements per the City of Mississauga guidelines.

The eastbound left-turn movement is anticipated to significantly improve in the weekday PM peak hour with the addition of a protected phase. The delays are expected to decrease from 493.0 seconds to 22.8 seconds. The v/c ratio is also forecasted to improve from 1.92 to 0.55.

Furthermore, the 95th percentile queue for the eastbound left-turn movement is also forecasted to reduce to 35 metres which can be accommodated within the existing available storage of 50 metres.

It is noted that the shared westbound through/right movement is expected to operate overcapacity with a Level of Service 'F' during the afternoon peak hour. However, the higher delays for the through movement on Bloor Street can be anticipated on a major collector after the removal of a through lane in each direction. When the Bloor Street redesign is completed, it is expected that the existing traffic volumes on Bloor Street will reroute to other east/west corridors to avoid delays caused by the reduction in roadway capacity. As these traffic reassignments were not considered in the future total analysis, it is anticipated that the future delays and v/c ratio for the westbound through/right movement will be lower than the numbers reported in **Table 18**.

5.2.3 Conclusion

It is recommended to adjust the signal timing plans at the intersections of Dixie Road and Bloor Street as well as Bloor Street and Havenwood Drive as outlined above. Additionally, it is recommended to increase the storage length for the westbound left-turn movement at the Dixie Road and Bloor Street intersection to accommodate the 95th percentile queue lengths during critical peak hours.

6 Site Access Safety Review

The development proposal includes a single two-way site access at Williamsport Drive. This section evaluates the suitability of the site access from a transportation safety perspective and recommends mitigation measures, if warranted. The safety review of the access includes an assessment of whether turning maneuvers can be made safely at the site access without issues related to sight lines, intersection spacing, access spacing, or clear throat length.

6.1 Intersection Sight Distance

Section 9.9 of the TAC GDGCR provides intersection sight distance for different intersection control types. The calculated and design sight distances are further summarized in TAC GDGCR Tables 9.9.4, 9.9.6 and 9.9.12 for vehicles turning left from stop, turning right from stop, or turning left from the major road, respectively.

Case B1 (Left Turn from the Minor Road) and Case B2/B3 (Right Turn / Crossing Maneuver from the Minor Road) were used to evaluate sight line adequacy for the site access.

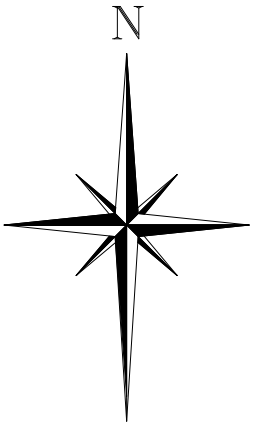
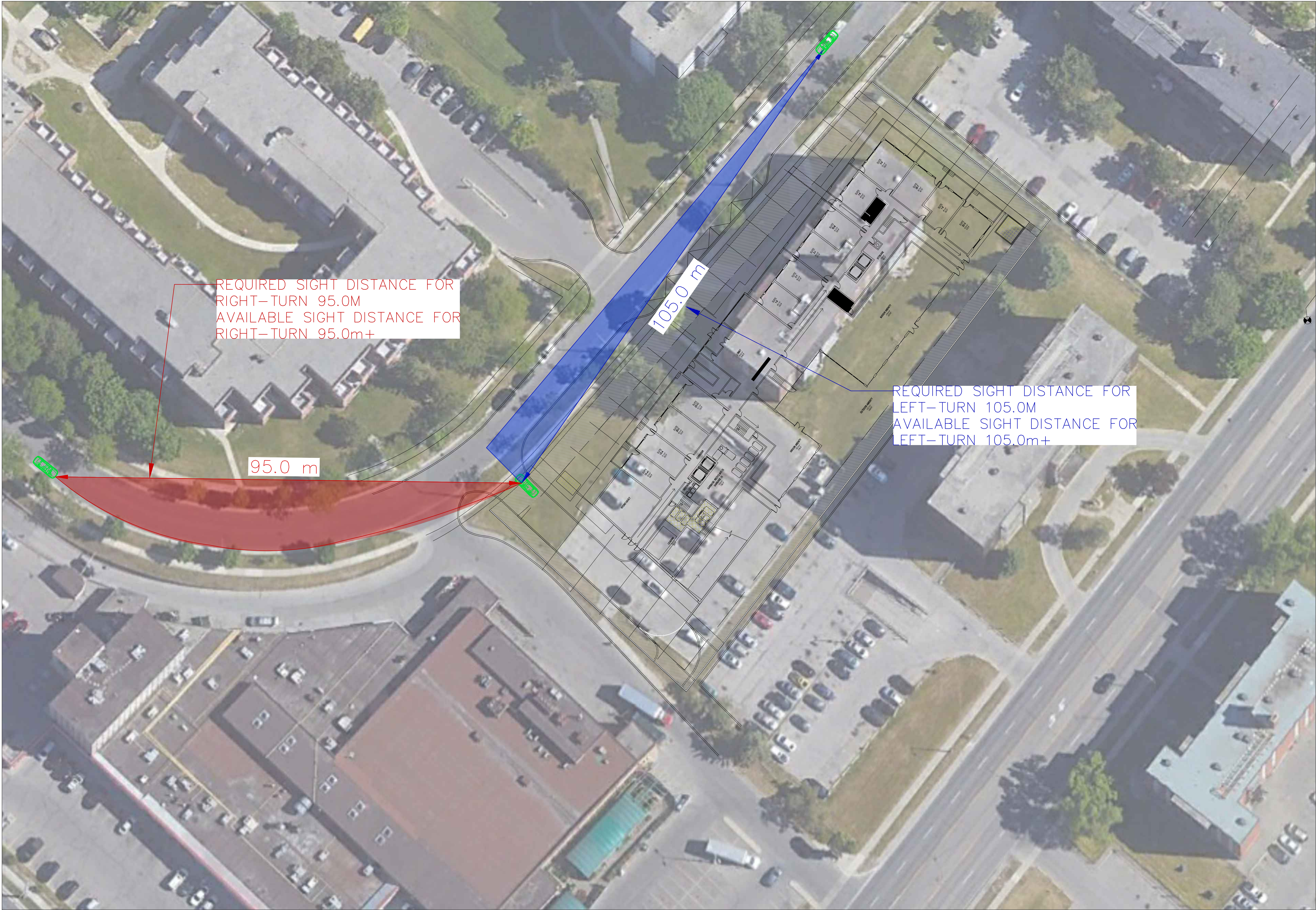
Table 19: Intersection Sight Distance Assessment

Williamsport Drive and Site Access #1 Posted Speed = 40 km/h Design Speed = 50 km/h		
Formula	$ISD = 0.278 * V_{major} * t_g$	
Feature	Case B1 – Left Turn	Case B2/B3 – Right Turn
Time Gap ¹	Left Turn: 7.5s	Right Turn: 6.5s
Required Sight Distance	105m (looking east)	95m (looking west)
Available Sight Distance	>105m (looking east)	>95m (looking west)

Note 1: To calculate Time Gap, base time gap is required. This default parameter is based on particular turning cases (such as Case B1 and Case B2/B3) and particular design vehicles. Roadways with more than one lane per direction require additions of 0.5s and 0.7s per addition lane for passenger car and truck design vehicles, respectively. For minor street approach upgrades that exceed 3%, additions of 0.2s and 0.1s for Case B1 and Case B2/B3, respectively, are required per percent grade. Refer to Section 9.9 of TAC-GDGCR for additional details.

Sufficient sight distance is available for vehicles making both left and right turns from the site onto Williamsport Drive. Although there is a bend in the roadway to the west of the site access, this section remains clearly visible. Vegetation on the north side of Williamsport Drive should be kept properly maintained to prevent overgrowth resulting in visual obstruction. Overall, the proposed site access is acceptable from an intersection sight distance perspective.

Figure 12 outlines the sight distance at the access via Williamsport Drive.



REQUIRED SIGHT DISTANCE FOR
RIGHT-TURN 95.0M
AVAILABLE SIGHT DISTANCE FOR
RIGHT-TURN 95.0m+

105.0 m

REQUIRED SIGHT DISTANCE FOR
LEFT-TURN 105.0M
AVAILABLE SIGHT DISTANCE FOR
LEFT-TURN 105.0m+

95.0 m

LEGEND	
	SIGHT DISTANCE FOR RIGHT-TURN
	SIGHT DISTANCE FOR LEFT-TURN

SIGHT DISTANCE ASSESSMENT AT ACCESS VIA WILLIAMSPORT DRIVE	
GRADE	-3% TO +3%
DESIGN SPEED	50 km/h
TIME GAP	Right-Turn - 6.5s Left-Turn - 7.5s
SIGHT DISTANCE	RIGHT-TURN FROM STOP (TO LEFT) - 105m LEFT-TURN FROM STOP (TO RIGHT) - 95m

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR REVIEW	08/22/2024
1	ISSUED FOR SUBMISSION	02/05/2025

Engineer	Engineer
PRELIMINARY NOT TO BE USED FOR CONSTRUCTION	

Project	1470 WILLIAMSPORT DRIVE CITY OF MISSISSAUGA
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Drawing	SIGHT LINES
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Drawn By	B.L.	Design By	B.L.
Check By	A.D.R.	Check By	B.B.
Project		Scale	1:400
2719-1470		Drawing	SL



6.2 Intersection Spacing and Corner Clearance

As per TAC GDGCR Figure 8.9.2: Driveway Spacing Guidelines – Locals and Collectors, a minimum spacing of 1 meter is required between driveways. The proposed site driveway, located at the westerly limit of the property, will maintain a 1-meter spacing from the adjacent driveway of the plaza to the west.

Furthermore, according to TAC GDGCR Figure 8.8.2: Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections, a minimum corner clearance of 15 meters is required for accesses along local roadways from a stop-controlled intersection. The proposed site driveway will maintain a corner clearance of 180 meters, which exceeds this requirement.

6.3 Throat Length

Throat length requirements for accesses along local roads were not specified in the TAC GDGCR. However, DARC comments provided by City Staff indicated that an 8-meter throat length is required. The proposed plan includes a 30-meter throat length, which is expected to meet and exceed the 8-meter requirement.

6.4 Lane Width and Curb Radii

The proposed site entrance meets the 7.0 metre minimum aisle width as per the City of Mississauga Zoning By-Law 0225-2007. The proposed driveway width and access curb radii can accommodate the expected vehicle maneuvers as discussed in **Section 7**.

Overall, the site access location and design are supportable from an operational and safety perspective.

7 Vehicle Maneuverability Review

This section considers the internal servicing of the development proposal, including the adequacy and safety of the internal driveways and roadways. The vehicles expected to operate within and service the development proposal is identified and assessed as to whether they can be safely accommodated without conflicts or constraints. The Auto-TURN vehicle turning software was used to assess the expected design vehicles onsite.

7.1 Emergency Vehicles

A maneuvering assessment was conducted for emergency vehicles using a Pumper Fire Truck 12.19 metres wide. Since the primary entrance is located 15 meters from the edge of the roadway, fire trucks will service the site from Williamsport Drive and thus, would not be required to use the proposed driveway.

Figure 13 outlines the emergency vehicle maneuver.

7.2 Waste Collection Vehicles

Vehicle turning plans using a Region of Peel front-end bin loading waste vehicle per the Region of Peel Waste Collection Design Standards Manual (WCDSM) were prepared. The waste collection point for the proposed apartment building is located at the south end of the building.

The waste collection vehicle adheres to a 13-meter centerline radius while maneuvering in and out of the site. The waste collection vehicle can enter and exit the site access via Williamsport without any conflicts. The waste vehicle can enter and exit the loading space without any conflicts.

Figure 14 outlines the waste collection vehicle maneuver.

7.3 Loading Vehicles

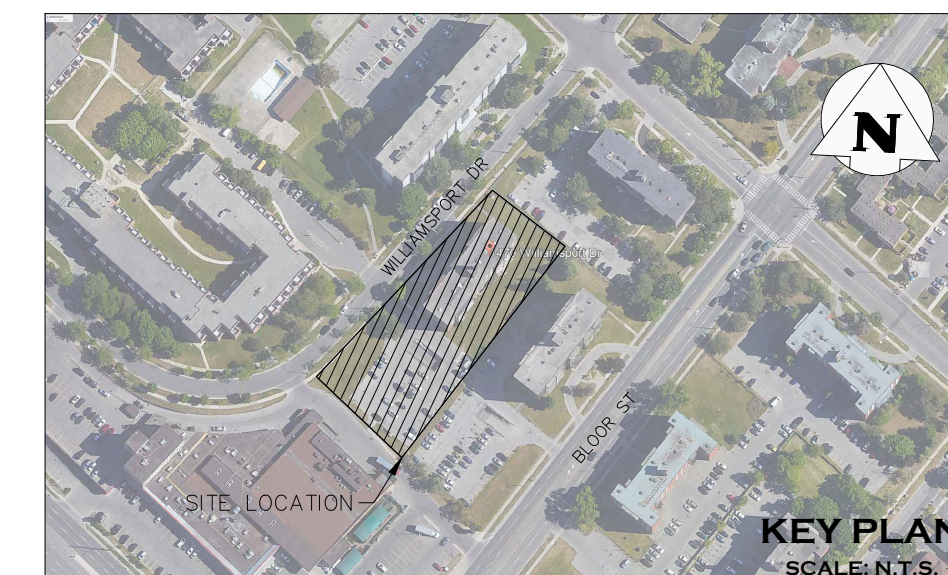
A maneuvering assessment was conducted using Medium Single Unit (MSU) vehicle accessing the loading space. The vehicle turning diagrams demonstrate that the MSU can access the site via Williamsport Drive, reverse into the moving space, and exit the site without encroaching on curbs or obstacles.

Figure 15 outlines the loading vehicle maneuver.

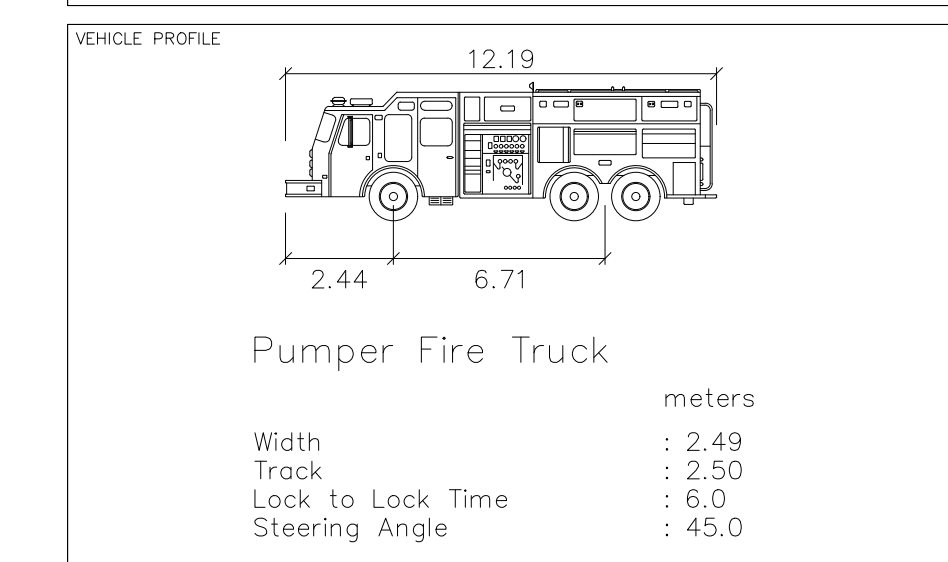
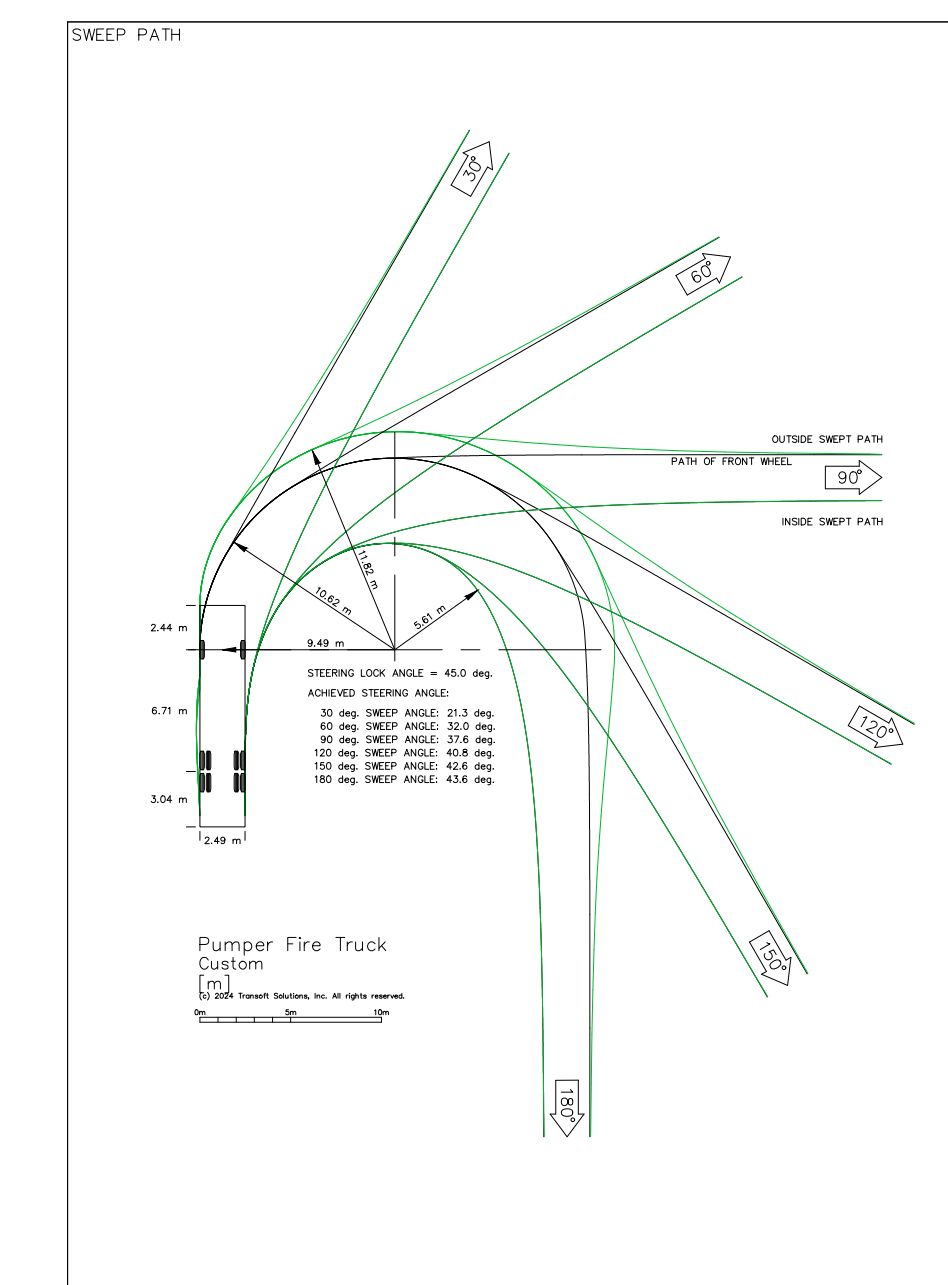
7.4 Passenger Vehicle

A maneuvering assessment was conducted for passenger vehicle using a TAC passenger vehicle (PTAC) and no encroachments were observed while entering and exiting the site access, as well as entering and exiting the ramp to the underground parking. Additionally, no conflicts were identified within the underground parking or while maneuvering into or out of critical parking spaces.

Figure 16 outlines the ground floor passenger vehicle maneuvers. **Figure 17, Figure 18, and Figure 19** outline the underground parking passenger vehicle maneuvers.



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3	ISSUED FOR REVIEW	02/04/2025

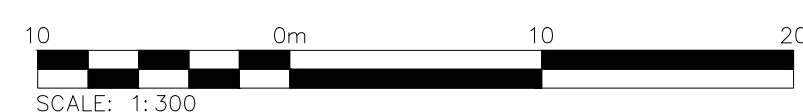
Project	1470 WILLIMASPORT DRIVE CITY OF MISSISSAUGA
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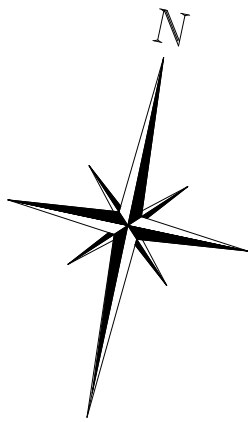
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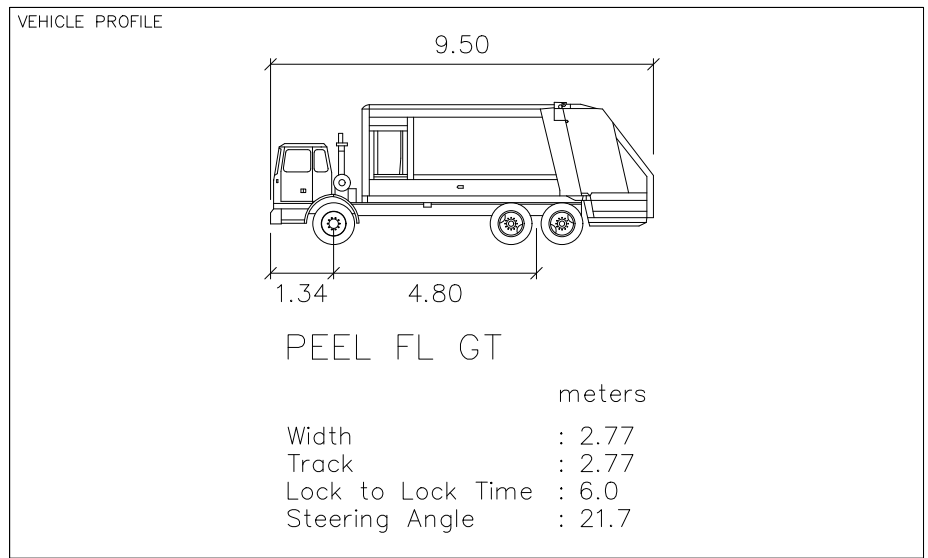
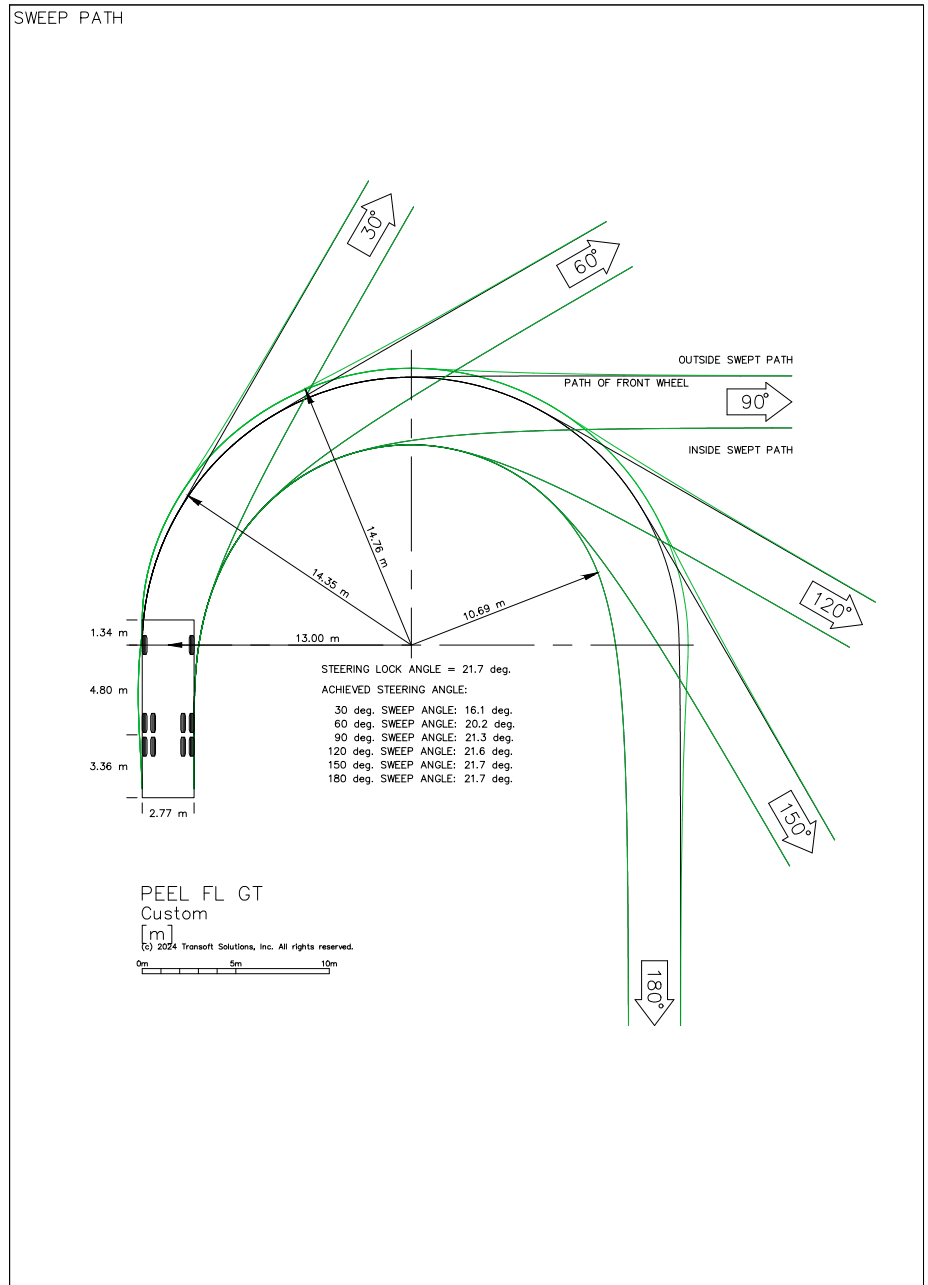
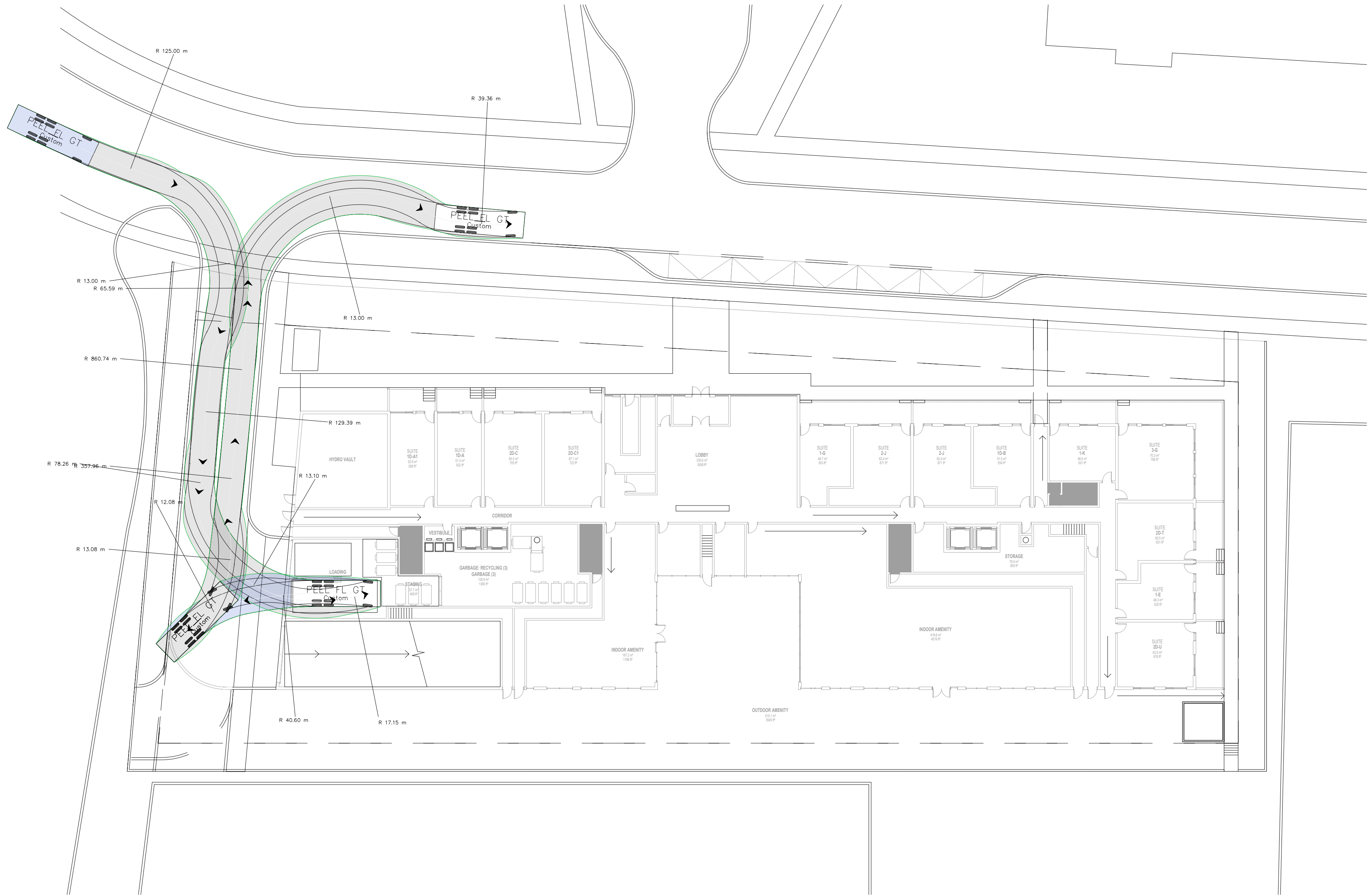


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Check By	A.D.R.	Check By	B.B.	Scale 1:300 Drawing T30





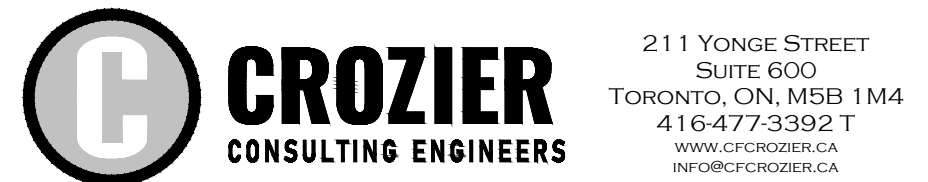
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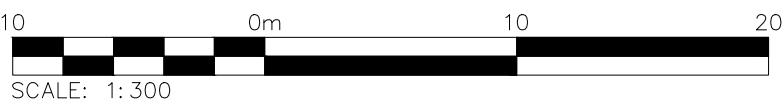
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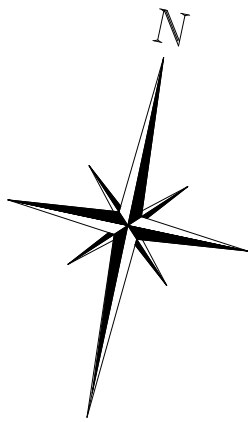
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CITY OF MISSISSAUGA

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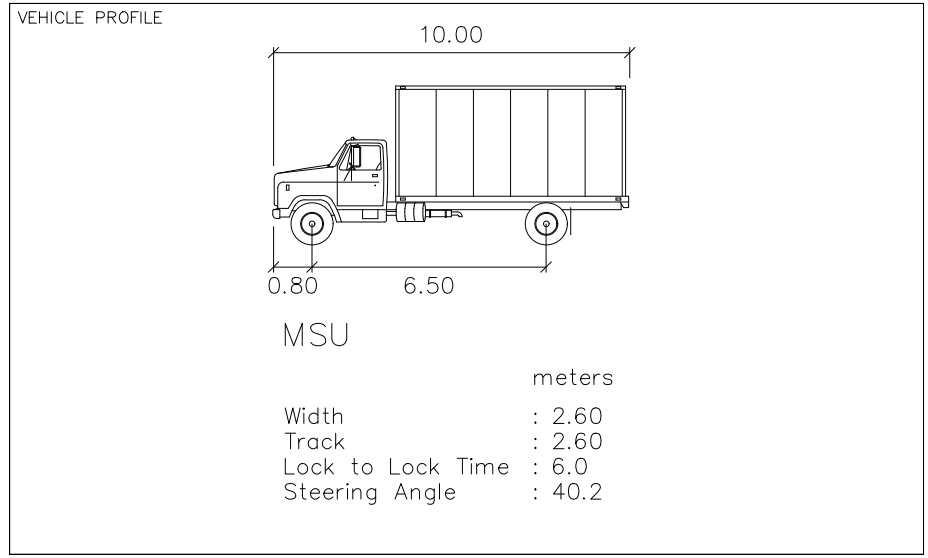
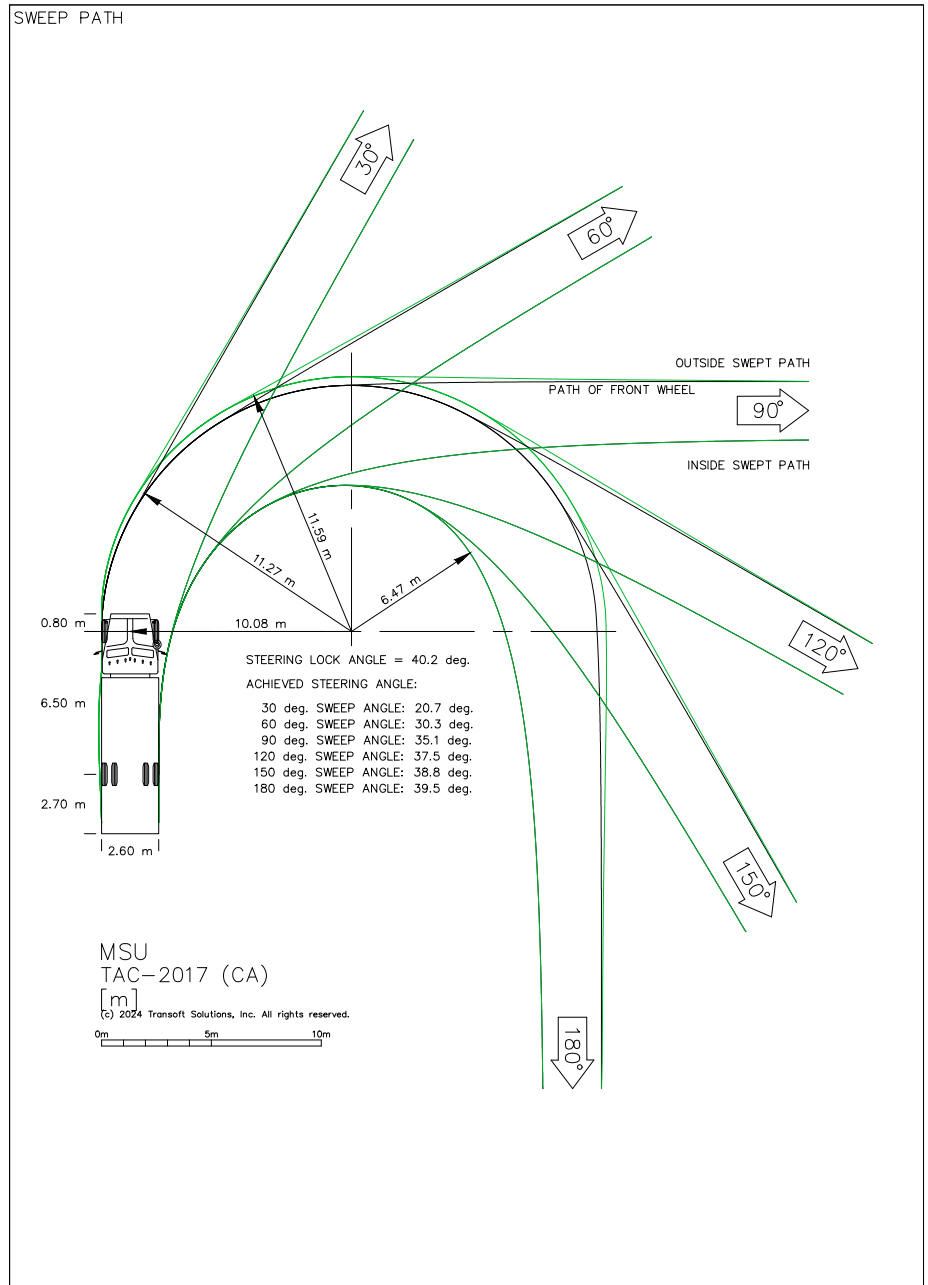
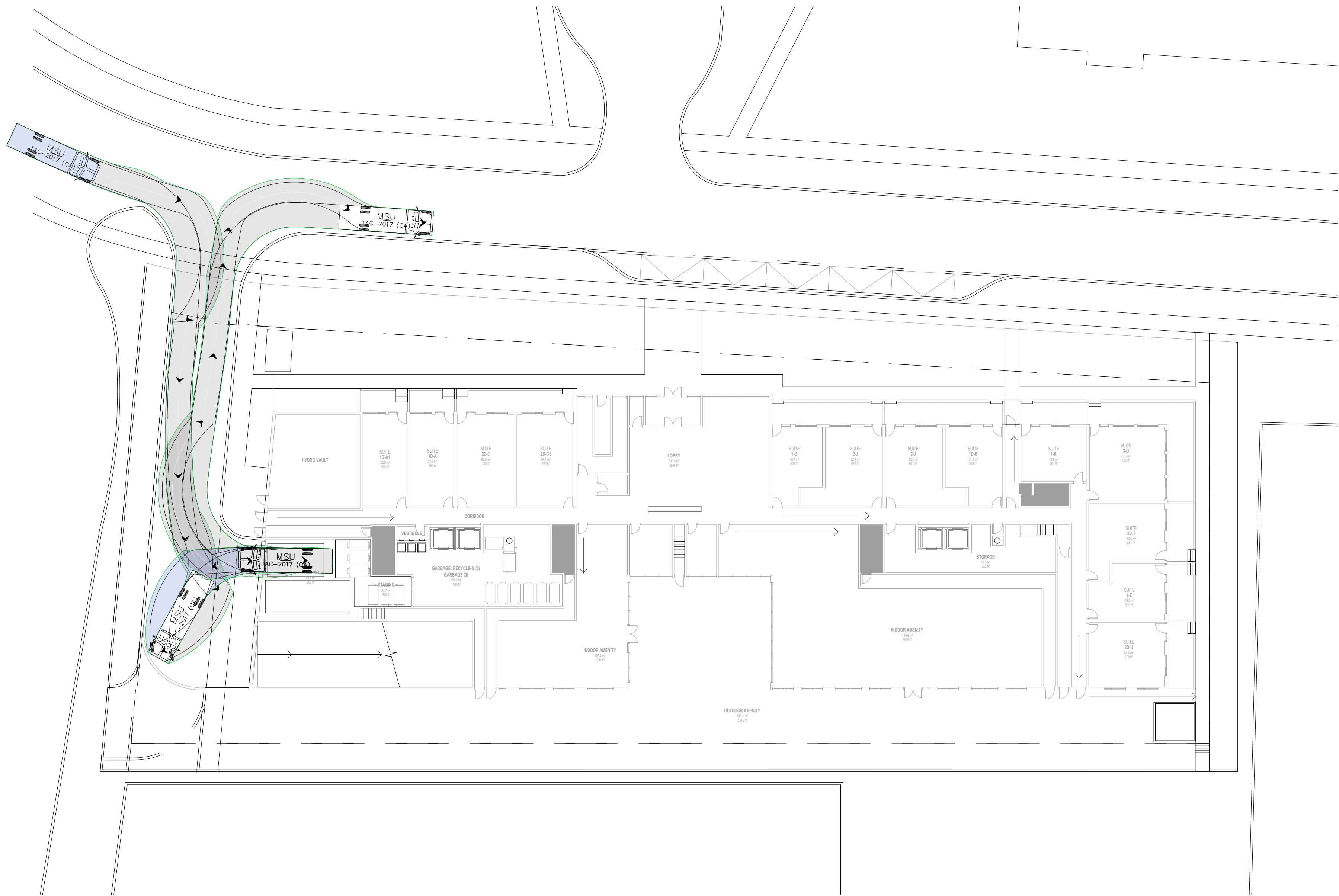


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		B.B.	Drawing	T300





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3	ISSUED FOR REVIEW	02/04/2025

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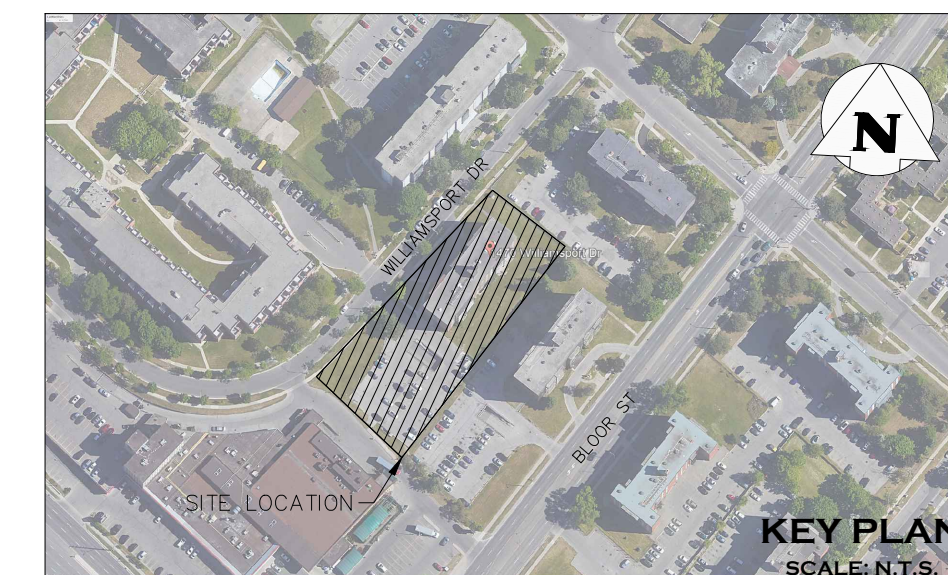
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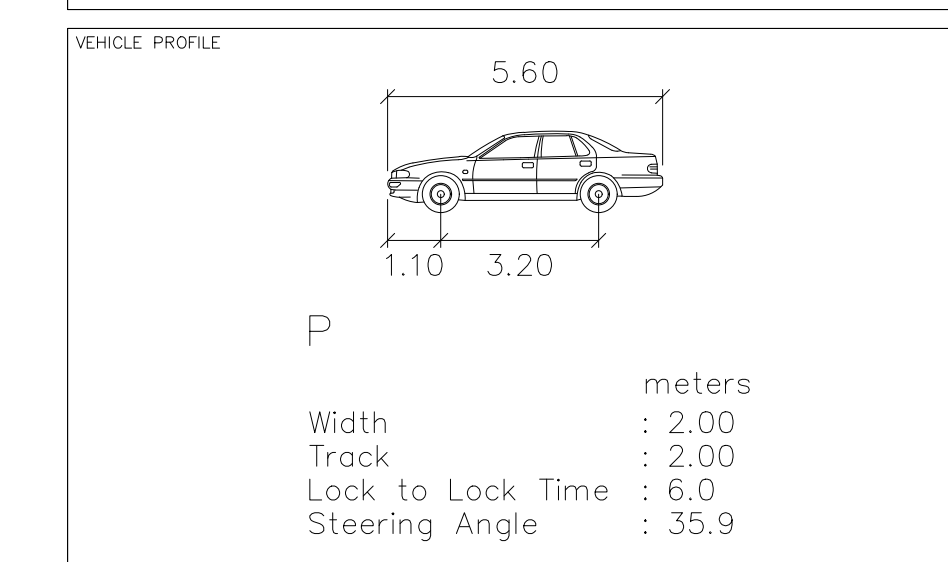
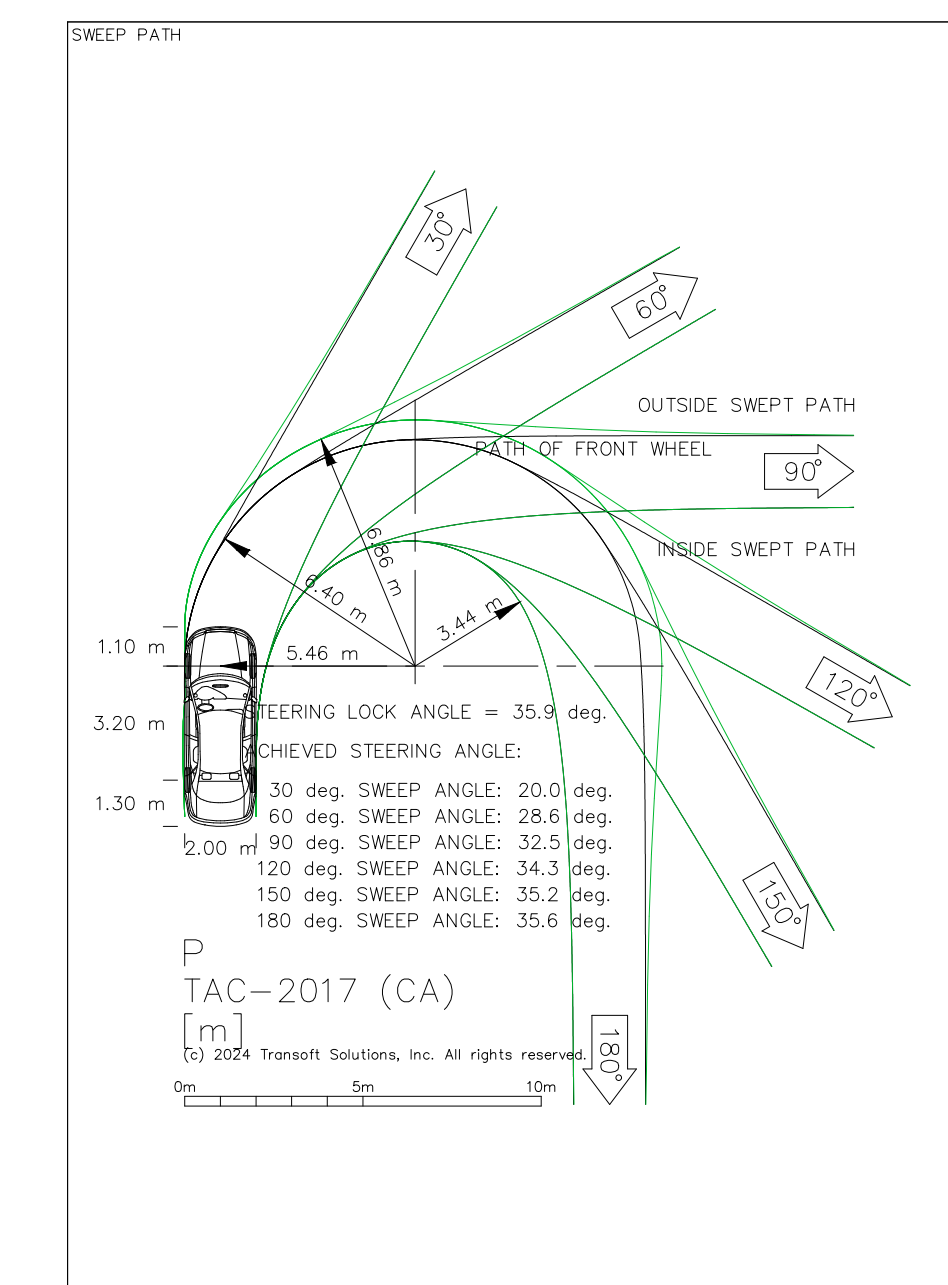
211 YONGE STREET
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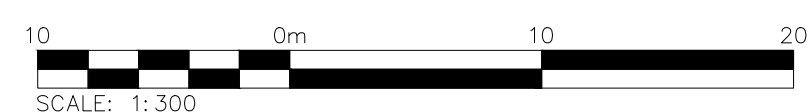
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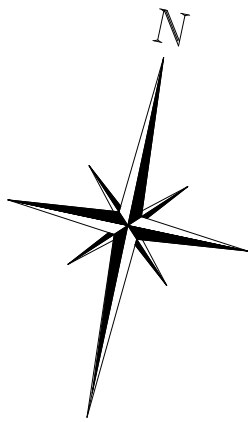
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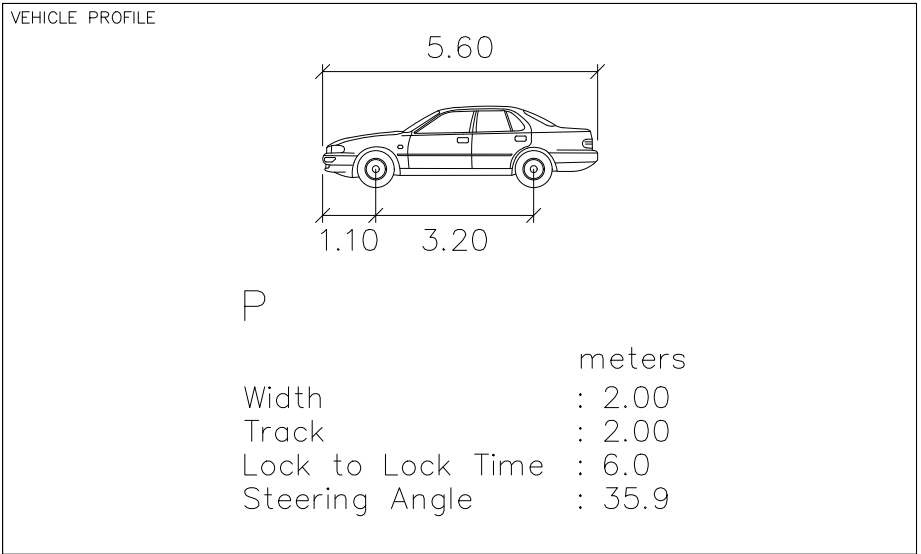
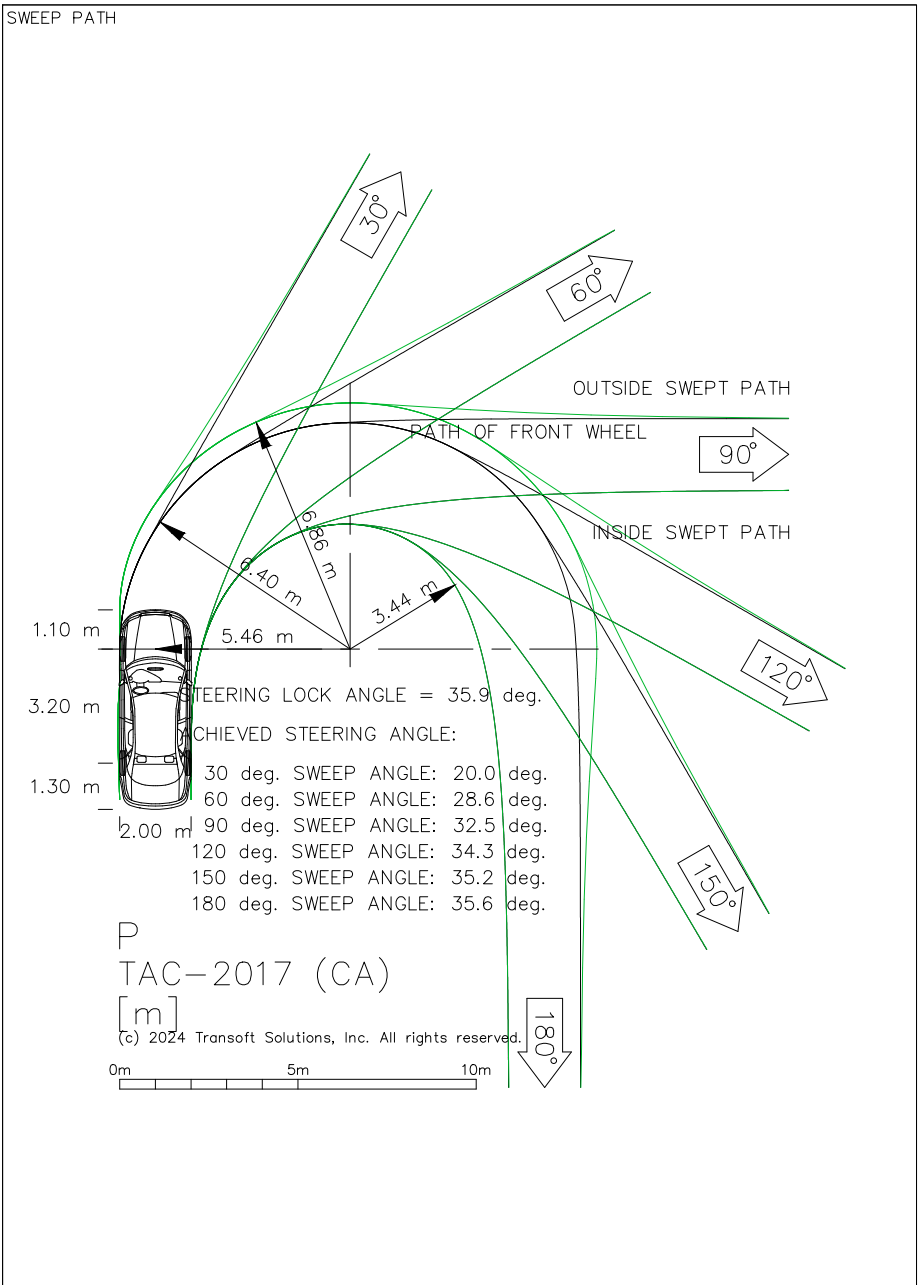


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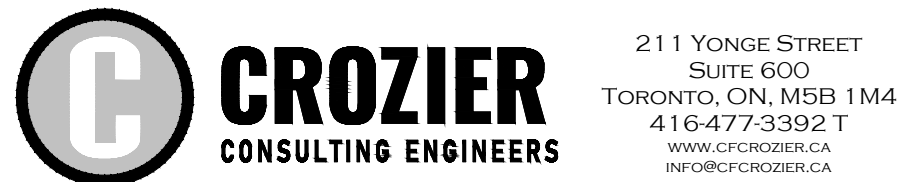
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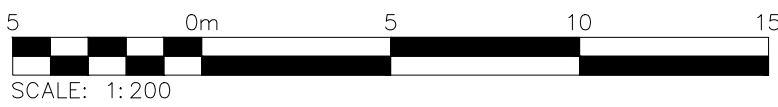
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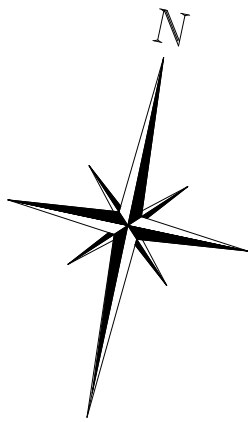
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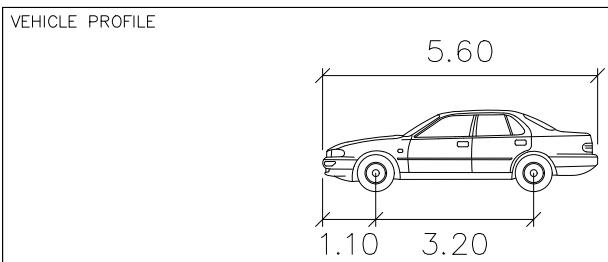
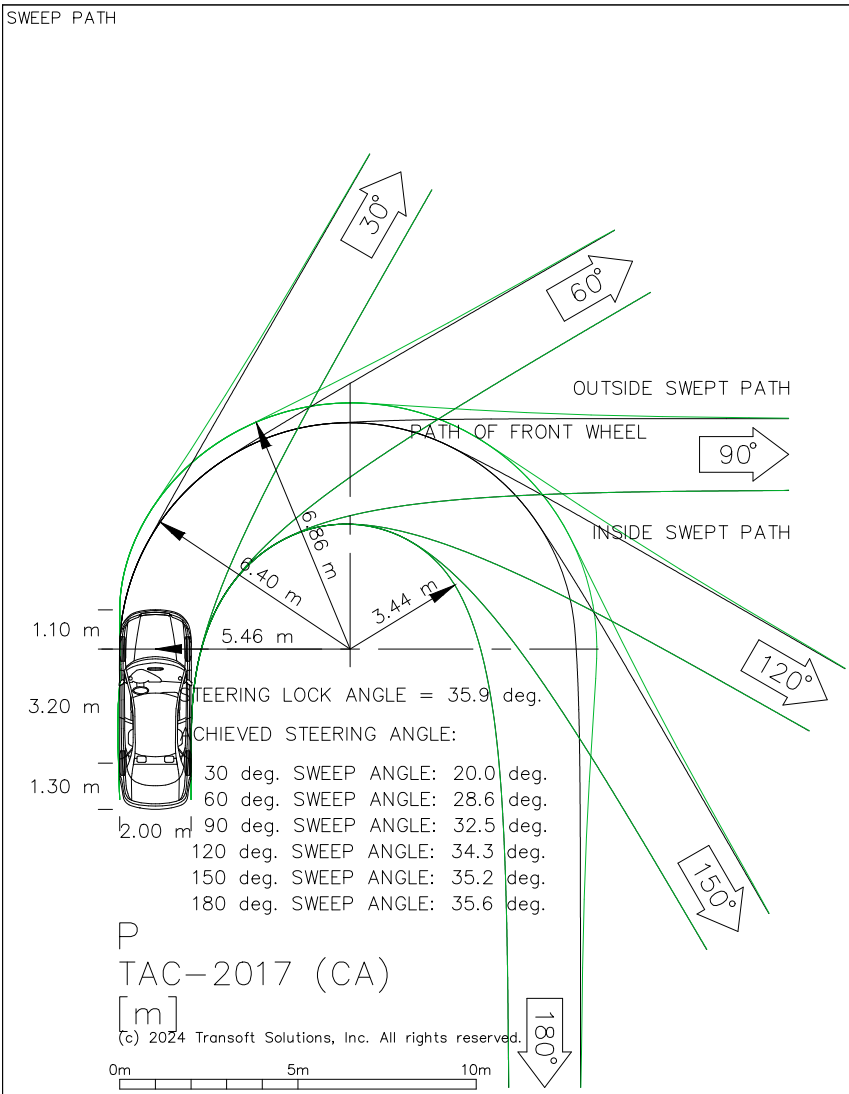


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Width	: 2.00	meters
Track	: 2.00	
Lock to Lock Time	: 6.0	
Steering Angle	: 35.9	

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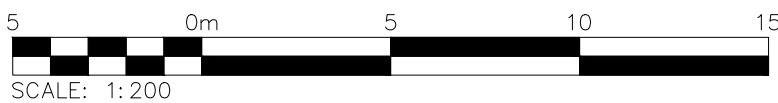
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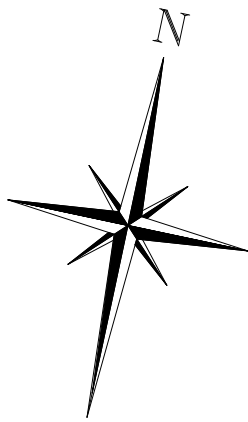
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PASSENGER VEHICLE-P1 UNDERGROUND



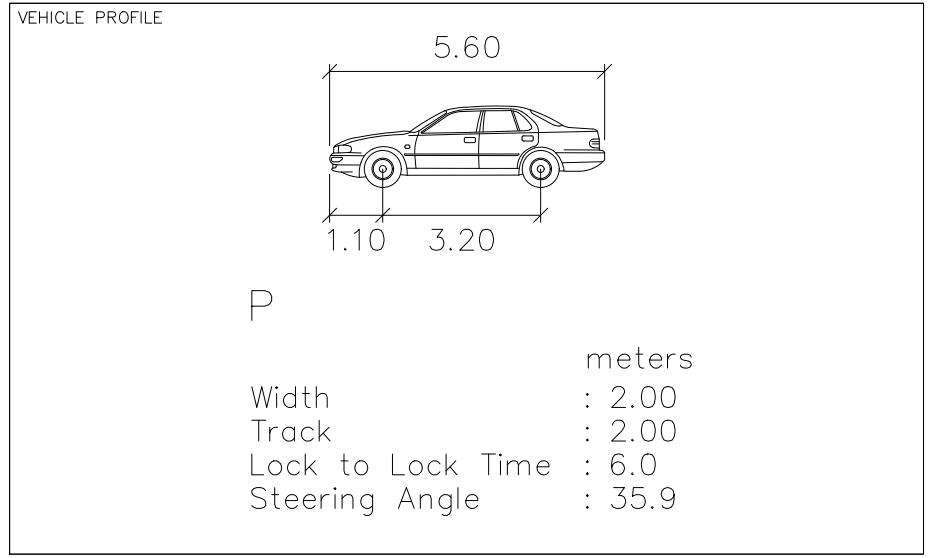
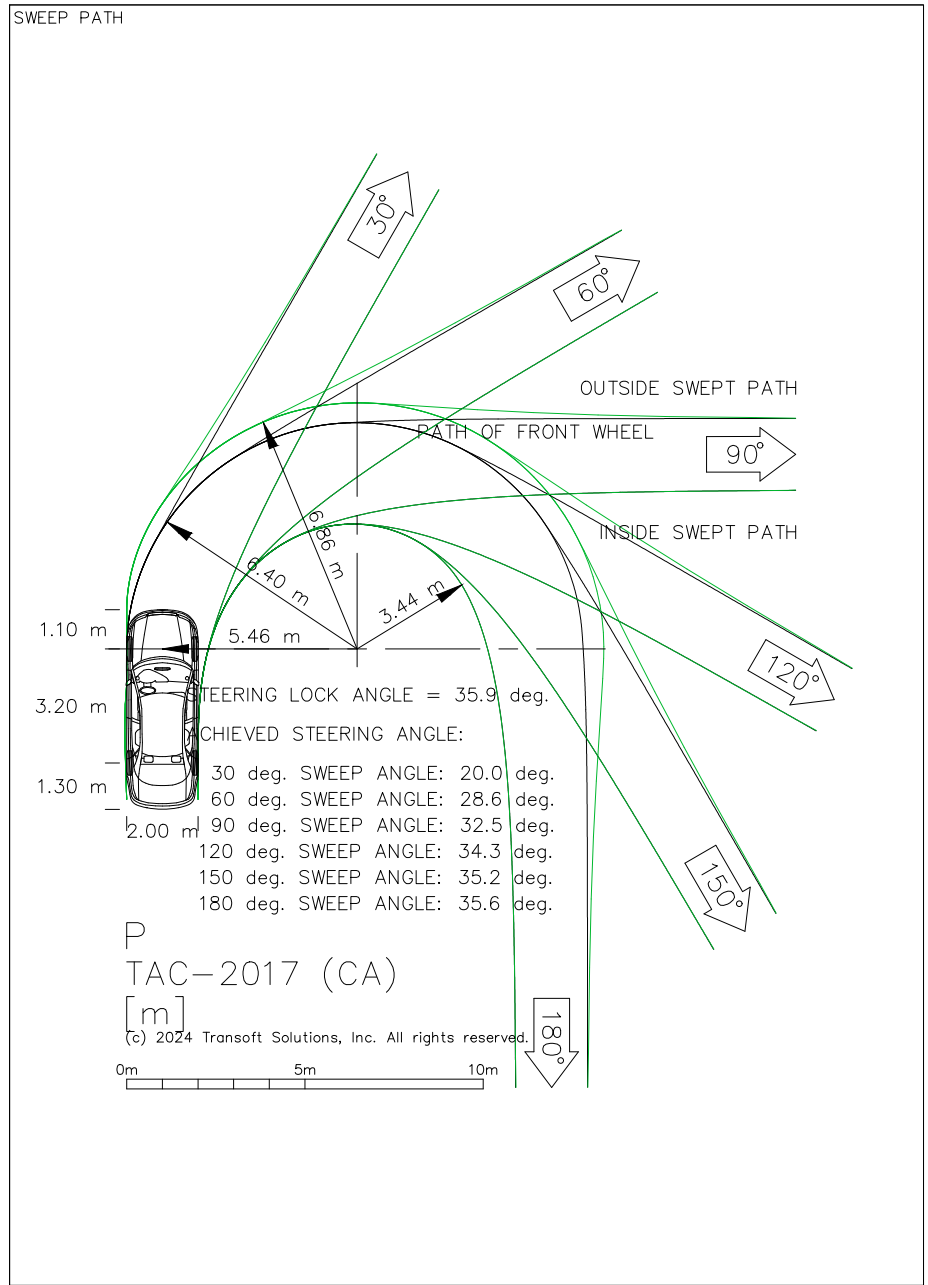
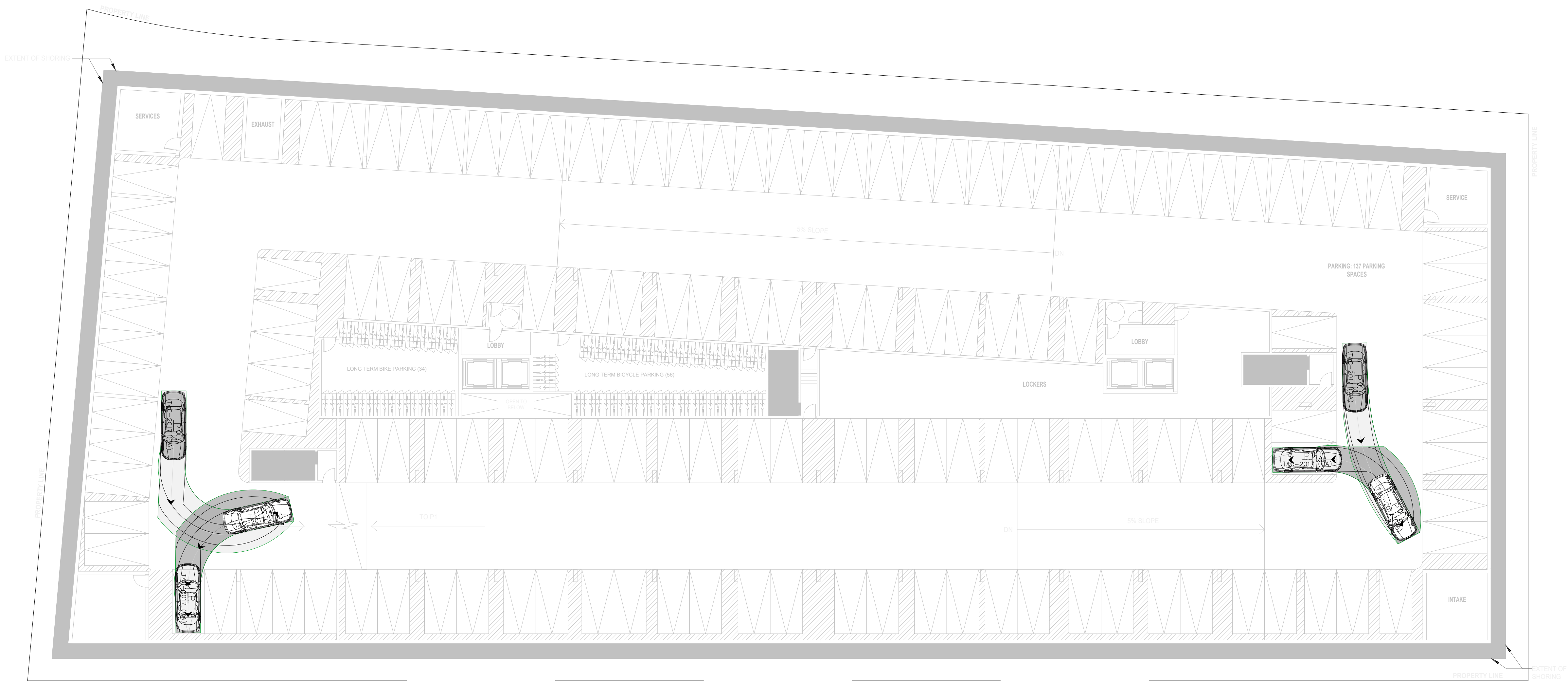
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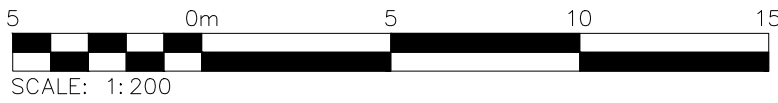
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Drawing
VEHICLE MANEUVERING ANALYSIS
PASSENGER VEHICLE-P2 UNDERGROUND



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Check By	A.D.R.	Check By	B.B.	Scale 1:200 Drawing T306



8 Parking and Loading Review

The following section reviews the adequacy of the parking supply of the proposed development. The parking review includes an assessment of the proposed parking supply of the development against the requirements outlined in the City of Mississauga Zoning By-Law No. 0225-2007 requirements.

Appendix K contains relevant Zoning By-Law excerpts.

8.1 Vehicle Parking Assessment

Section 3.1.2 of the City of Mississauga Zoning By-Law was used to calculate the minimum number of vehicle parking spaces required for the proposed development. The minimum parking space rates outlined in Table 3.2.1.1 for Precinct 4 were applied to the residential dwelling units per the development statistics outlined in **Section 1.2**.

Table 20 outlines the calculated vehicle parking requirements and compares them with the proposed supply.

Table 20: Zoning By-Law No. 0225-2007 Vehicle Parking Requirement Assessment

Building (By-Law Land Use)	Units / GFA	Minimum Parking Space Rate	Required Minimum Parking Spaces	Proposed Parking Spaces
Condominium Apartment	283	1.0 resident spaces per dwelling	283	242 (-41)
		0.2 visitor spaces per dwelling	57	30 (-27)
Total Required Parking Spaces			340	272
Surplus/Deficit			-	-68 ~20% reduction

The development proposes a total of 272 parking spaces, including 242 resident parking spaces and 30 visitor parking spaces, resulting in a parking deficit of 41 resident parking spaces and 27 visitor parking spaces compared to the By-law requirements.

A review of the adequacy of the proposed reduced parking supply is presented in the subsequent sections to justify the proposed resident and visitor parking supply.

8.1.1 Parking Demand at Existing Site

A parking survey was conducted at the existing apartment building at 1470 Williamsport Drive to determine the existing parking demand at the site. The existing 6-storey rental apartment contains 53 units. Following confirmation of the parking study methodology with City Staff, parking surveys were conducted for six days throughout two consecutive weeks. The survey was conducted at 30-minute intervals to record parking demand. The survey was conducted on the following dates:

- Thursday, September 5th and 12th, 2024 from 6:00 AM to 2:00 PM and 6:00 PM to 1:00 AM

- Friday, September 6th, 2024, from 6:00 PM to 1:00 AM
- Saturday, September 8th, 2024, from 2:00 PM to 1:00 AM
- Sunday, September 9th and 15th, 2024, from 2:00 PM to 1:00 AM

Correspondence with the City of Mississauga regarding the parking survey is included in **Appendix L**.

Since the existing rental apartment does not have any designated visitor parking spaces, the total parking demand rate including both resident and visitor uses was monitored during the survey periods. The summary of the peak total parking demand during each survey date is summarized below:

Table 21: Peak Peaking Demand at Existing Site

Day	Survey Times	Peak Total Parking Demand
Thursday, September 5, 2024	6:00 AM to 2:00 PM 2:00 PM to 1:00 AM	1.09
Friday, September 6, 2024	6:00 PM to 1:00 AM	0.94
Saturday, September 7, 2024	2:00 PM to 1:00 AM	1.00
Sunday, September 8, 2024	2:00 PM to 1:00 AM	1.09
Thursday, September 12, 2024	6:00 AM to 2:00 PM 2:00 PM to 1:00 AM	0.96
Sunday, September 15, 2024	2:00 PM to 1:00 AM	1.02

Based on the parking surveys conducted, the existing rental apartment at the Subject Site had a peak parking demand of 1.09 parking spaces per unit. This compares to a total parking supply of 0.95 parking spaces per unit for the proposed development. It is noted the proposed parking supply is slightly lower than the observed rates at the existing site, however it is recognized that the existing parking demand is driven by tenants of the current building who have likely lived in the study area for a relatively long time. While the future rental replacement units proposed as part of the redevelopment are expected to have similar parking demand rates as the existing apartment, new rental tenants are less likely to be dependent on a personal vehicle and more likely to utilize alternative modes of transportation. This should decrease the future parking demand of the overall site.

8.1.2 Resident Parking Justification

This section provides justification for the resident parking supply, considering vehicle ownership trends in the study area, approved parking rates at nearby developments, and the inclusion of affordable housing units within the site.

8.1.2.1 Vehicle Ownership and Modal Split Trends in the Subject Area

Transportation Tomorrow Survey (TTS) data was reviewed to assess vehicle ownership trends within the study area to predict future parking demand at the proposed development. The data was filtered for apartment dwellings within 2006 GTA Zones 3669, 3670, 3674, and 3675, the same traffic analysis zones that were used in the trip distribution analysis. **Table 22** summarizes the results for vehicle ownership within the study area between the years of 2011 and 2022.

Table 22: Vehicle Ownership Trends near Proposed Development

Year	% of Apartment Units that Own One or More Vehicles in the Study Area	% of Apartment Units that do not Own a Vehicle in the Study Area
2011	80.8%	19.2%
2016	78.9%	21.1%
2022	77.0%	23.0%

As shown in **Table 22**, the share of apartment units that do not own a vehicle is steadily increasing in the vicinity of the proposed development. The upward trend is an encouraging suggestion that it is possible and increasingly popular for residents within the study area to meet their daily needs without owning a vehicle. The proposed development's reduced resident parking supply of 0.85 vehicle parking spaces per unit aligns with these travel behaviour trends.

TTS data was also reviewed to assess the usage of alternative modes of transportation within the study area, such as public transit, walking, paid ride share and cycling. The primary mode of travel was determined for each trip after filtering for apartment dwellings within 2006 GTA Zones 3669, 3670, 3674, and 3675. **Table 23** summarizes the results for modal split within the study area between the years of 2011 and 2022.

Table 23: Modal Split Trends near Proposed Development

Year	% of Trips Taken by Vehicle (Includes Auto Driver and Auto Passenger)	% of Trips Taken by Alternative Transportation Modes
2011	80.8%	19.2%
2016	78.8%	21.2%
2022	78.5%	21.5%

As shown in **Table 23**, the share of trips near the proposed development using alternative modes of transportation has steadily increased. This upwards trend reflects the increasing proportion of apartments in the study area that do not own a vehicle. It also shows that residents near the proposed development do have access to alternative modes of transportation and are taking advantage of these transportation opportunities. It is anticipated that the planned construction of dedicated bicycle lanes and the removal of vehicle travel lanes on Bloor Street will further increase the percentage of trips taken by alternative transportation modes in the study area. The proposed development's reduced resident parking supply of 0.85 vehicle parking spaces per unit would align with the transportation trends in the study area and encourage alternative modes of transportation in the neighbourhood.

The increase in the share of apartment units which do not own a vehicle as well as the growing popularity of alternative transportation modes in the vicinity over the last 11 years reinforces the reasoning that new tenants of the proposed development will be less likely to be dependent on a personal automobile. Thus, it is expected that the future parking demand at the proposed development will be less than the observed rates at the existing apartment at the Subject Site.

Appendix M includes the TTS queries for the vehicle ownership and modal split trends.

8.1.2.2 Approved Resident Parking Rate at 1485 Williamsport Drive and 3480 Havenwood Drive

The nearby development at 1485 Williamsport Drive and 3480 Havenwood Drive is proposing a ten-storey infill rental apartment building with 154 units. On September 16, 2024, this development was approved with a resident parking rate of 0.87 spaces per unit, a standard that is aligned with the vehicle ownership and modal split trends in this area as previously discussed. To support the approved residential parking rate, parking rental rates at the two existing rental apartment buildings on the property were analyzed. Based on the available rental data at the time of the study, a maximum resident parking demand of 0.56 vehicle parking spaces per unit was observed. The proposed resident parking supply at the approved site well exceeds the observed resident parking demand.

Located directly across from the subject site, the observed parking rates at 1485 Williamsport Drive and 3480 Havenwood Drive serve as a relevant benchmark to support the proposed parking rates at the subject site.

8.1.2.3 Existing Rental Units Replacement at Subject Site

The subject site plans to incorporate 53 existing rental units designated as affordable housing to serve current residents. Although the site falls outside of the inclusionary zoning area per the Zoning By-Law, which specifies a 70% parking requirement for affordable units in Precincts 2, 3, and 4, the subject site proposes to integrate affordable units within the development. This approach supports the city's objectives for accessible housing and justifies consideration of a reduction in the parking requirement for the affordable units.

8.1.2.4 Conclusion

Vehicle ownership and the share of trips taken by personal vehicle have steadily decreased within apartment households over the past 11 years within the study area. It is expected that new tenants at the proposed development will generate a lower parking demand than the existing apartment building on the property.

A peak resident parking rate of 0.56 spaces per unit was observed at the existing apartment buildings at 1485 Williamsport Drive and 3480 Havenwood Drive, which can be accommodated by the proposed parking supply.

Furthermore, Transportation Demand Management measures are also recommended at the subject site discussed within this report that would promote uses of other modes of travel and reduce single occupant vehicle (SOV) trips. These measures are aligned with roadway improvements in the study area, including the planned removal of a traffic lane on Bloor Street to construct dedicated bicycle lanes.

8.1.3 Visitor Parking Justification

The section justifies the proposed visitor parking supply considering approved parking rates at nearby developments and other existing and proposed parking opportunities.

8.1.3.1 Approved Parking Rate at 1785 Bloor Street

A visitor parking rate of 0.05 spaces/unit was recently approved for an infill development located at 1785 Bloor Street, only 1.1 km east of the subject site. To support this visitor parking rate, a parking utilization study was conducted by Trans-Plan at the existing residential building on-site. The parking

surveys were conducted at the existing rental apartment at 1785 Bloor Street for six days in two consecutive weeks on the following days:

- Friday September 8 and September 15, 2023 – 6:00pm to 1:00am
- Saturday September 9 and September 16, 2023 – 2:00pm to 1:00am
- Sunday September 10 and September 17, 2023 – 2:00pm to 1:00am

The peak parking demand for visitor parking was observed on Saturday, September 9, 2023, and Saturday, September 16, 2023, with a utilization rate of 0.05 visitor parking spaces per unit. It is understood that the visitor parking at the site is paid visitor parking, which incentivizes visitors to use alternative means of travel to visit the site.

Similarly, the visitor parking at the subject site is proposed to be paid parking. Given the proximity of the subject site to the proxy rental apartment, the proposed rate of 0.10 visitor spaces per unit is anticipated to be sufficient to accommodate visitor parking demand at the site.

8.1.3.2 Approved Visitor Parking Rate at 1485 Williamsport Drive and 3480 Havenwood Drive

The nearby development at 1485 Williamsport Drive and 3480 Havenwood Drive was also approved for a visitor parking rate of 0.10 visitor parking spaces per unit. To support this visitor parking rate, a parking utilization study was conducted by NexTrans Consulting at the two existing rental apartment buildings located on the property on the following days:

- Friday, April 21, 2017 - 5:00pm to 10:00pm
- Sunday, April 23, 2017 - 2:00pm to 8:00pm

The peak parking demand for visitor parking was observed on Sunday, April 23, 2017, with a utilization rate of 0.04 visitor parking spaces per unit. The proposed visitor parking supply of 0.10 visitor parking spaces per unit exceeds the observed peak visitor parking demand at the neighbouring property.

Given the approved rental apartment development is located directly across from the proposed development, the proposed visitor parking rate of 0.10 visitor parking spaces per unit at the Subject Site is justifiable.

8.1.3.3 Unpaid On-Street Parking Availability

It is noted that existing unpaid parking is available along Williamsport Drive on the northern side of the road and on Havenwood Drive on the western side of the road north of the intersection of Williamsport Drive and Havenwood Drive.

There are approximately 13 parking spaces on Williamsport Drive and 33 additional parking spaces along Havenwood Drive. The parking spaces are within a short walking distance and well connected with sidewalks on both sides of the roadway allowing visitors to walk safely.

Furthermore, the development is proposing approximately 5 lay-by spaces along the Williamsport Drive frontage that will provide additional parking supply for short-term uses.

8.1.3.4 Conclusion

The proposed visitor parking supply of 0.10 spaces per unit is justified by the approved and observed visitor parking rates at the nearby 1785 Bloor Street, and 1485 Williamsport Drive and 3480 Havenwood Drive developments. Additionally, the availability of unpaid on-street parking along Williamsport Drive and Havenwood Drive and the proposed lay-by parking on Williamsport Drive provides additional short-term parking supply for visitors. Therefore, the proposed visitor parking supply is expected to be adequate to meet the expected visitor parking demand at the Subject Site.

8.2 Accessible Parking Assessment

Section 3.1.3 of the City of Mississauga Zoning By-Law was used to calculate the minimum number of accessible (barrier free) parking spaces required for the proposed development. As per the Zoning By-Law, the accessible parking spaces for residential uses only apply to the total number of visitor parking spaces required.

Table 24 outlines the accessible parking requirement assessment.

Table 24: Zoning By-Law 0144-2016 Accessible Parking Requirement Assessment

Total Number of Required Visitor Parking Spaces	Minimum Accessible Parking Space Rate	Required Accessible Parking Spaces
57	4% of the Total	3
Provided Accessible Parking Spaces (Surplus / Deficit)		3 (+0)

As per **Table 24**, a total of 3 barrier free parking spaces are required. The City of Mississauga Zoning By-Law requires that the 3 barrier free parking spaces consist of 2 Type B accessible parking spaces and 1 Type A accessible parking space. Since the development proposes to provide 2 Type A accessible parking spaces and 1 Type B accessible parking space as illustrated on the Site Plan, the proposed development exceeds the By-Law requirements.

8.3 Bicycle Parking Assessment

Bicycle parking requirements for City of Mississauga's Zoning By-Law No. 0225-2007 are identified in Section 3.6.5.1 for residential and non-residential uses.

Table 25 outlines the bicycle parking requirement assessment.

Table 25: Zoning By-Law No.1-2021 Bicycle Parking Requirement Assessment

Building (By-Law Land Use)	Units / GFA	Type	Minimum Parking Space Rate	Required	Proposed
				Resident	Total
Apartment	283	Class A	0.6 spaces per unit	170	236
		Class B	The greater of 0.05 spaces per unit or 6.0 spaces	15	24
Total Required Parking Spaces				185	260
Surplus/Deficit				+75 spaces	

The site proposes a total of 236 long-term spaces and 24 short-term spaces for the residential apartment. The bicycle parking meets the requirement per the City of Mississauga Zoning By-Law requirements and is in surplus by 66 long-term spaces and 9 short-term spaces.

8.4 Loading Spaces Assessment

The City of Mississauga's minimum loading requirements were reviewed to determine the adequacy of the proposed loading supply. **Table 26** below outlines the City of Mississauga Zoning By-Law 0225-2007 minimum loading requirements.

Table 26: Loading Spaces Assessment

Land Use	Units/GFA	Statistic Range	Loading Required
Residential	283 Units	-	1 loading space (3.5m*9.0m)
Total Loading Required			1 space
Loading Supply			1 loading space

According to Section 3.1.4.5 of the City of Mississauga Zoning By-Law, an apartment complex with 30 or more dwelling units must provide one loading space. The proposed site, which includes two towers, provides one loading space to comply with this regulation. Waste will be collected in a common area on underground parking level 1, and bins will be maneuvered to the loading area at the time of collection.

Therefore, the subject site meets the minimum loading spaces requirements.

9 Transportation Demand Management

Transportation Demand Management (TDM) is the practice of influencing or maximizing the travel choices for users through infrastructure improvements, strategic services and programs, or public outreach, with the purpose of shifting travel demands away from the auto travel mode to make more efficient use of the transportation system.

Transportation Demand Management (TDM) measures are recommended to promote alternative modes of transportation, such as transit, cycling or walking, and reduce single-occupant vehicle (SOV) trips entering and exiting the proposed development.

9.1 Existing TDM Opportunities

9.1.1 Pedestrian Connectivity

The study area's road network provides ample pedestrian travel opportunities, with continuous sidewalks on both sides of Williamsport Drive, Havenwood Drive, Bloor Street, and Dixie Road. These sidewalks, separated from the road by landscaped strips, offer connectivity to nearby schools, parks, community centers, retail stores, and other destinations. Furthermore, the redesign of Bloor Street aims to improve accessibility for pedestrians utilizing the corridor, creating an even more pedestrian-friendly environment through safety and landscaping improvements.

9.1.2 Cycling Connectivity

The existing sidewalks along Williamsport Drive and Havenwood Drive seamlessly connect to a multi-use path on Dixie Road and a multi-use trail along Burnhamthorpe Road. The Burnhamthorpe trail, which spans east-west between Ponytail Drive and Creditview Road/Central Parkway West, serves as a key corridor for both pedestrians and cyclists. Additionally, a north-south multi-use trail is accessible via Applewood Hills Park, approximately 700 meters west of the site, further enhancing access to nearby recreational spaces. Together, these trails and paths create a strong cycling network throughout the surrounding neighborhoods, linking important destinations and bike-friendly streets, and promoting active transportation within the community.

In addition, the planned redesign of Bloor Street will include dedicated bicycle lanes, enhancing connectivity along Bloor Street and providing a safer environment for cyclists, making it easier to complete short trips in the vicinity of the proposed development.

9.1.3 Transit

As outlined previously in **Section 2.2**, there are two primary bus routes in the study area that connect passengers to Downtown Mississauga, the GO Transit Network, the TTC Line 1 Subway, the Mississauga Transitway, and multiple shopping centres.

The bus services operate with approximately 10 to 20-minute headways during morning and afternoon peak hours, and about 25 to 30-minute headways on weekends. Additionally, the development is approximately 1.5km from Dixie GO station, accessible by cycling.

9.2 TDM Opportunities and Recommendations

This section discusses the Transportation Demand Management opportunities and recommendations to enhance the non-single occupant auto vehicle trips for the future residents of the subject development. A variety of TDM measures and strategies have been detailed below.

9.2.1 Pedestrian Facilities

The proposed Site Plan emphasizes safe and convenient pedestrian connections to improve accessibility between the site and nearby roadways. A 2.0-meter-wide pedestrian pathway will run north-south alongside the driveway, connecting to the sidewalk on Williamsport Drive. Additionally, a potential future connection is indicated in the southwest corner of the site to align with a possible redevelopment of the neighboring property to the south, which could offer a direct path to Bloor Street.

Pedestrian pathways are planned around the site, with a wider pathway provided at the building's main entrance. These internal connections will facilitate access to sidewalks leading to nearby bus stops on Bloor Street.

To enhance both safety and visual appeal, pedestrian-friendly design elements, such as lighting, benches, and landscaping, are included. The ground floor will offer weather protection, complemented by landscaping, greenery, and amenities that further beautify the space.

9.2.2 Cycling Facilities

The site design includes bicycle parking facilities to promote and support active transportation, aligning with the planned improvements to the cycling network along Bloor Street.

Short-term bicycle parking is recommended at ground level, strategically located near building entrances and outdoor amenity areas for easy access and visibility. Long-term bicycle parking is provided in the underground parking level (P1), offering a secure and weather-protected area for cyclists' convenience.

The short-term parking exceeds the requirement by 9 spaces, while the long-term parking exceeds the requirement by 66 spaces. This proposal aims to encourage cycling as a practical alternative to car ownership, making bike commuting more accessible. Additionally, it supports seamless connections to nearby transit, such as the Dixie GO station, facilitating first- and last-mile travel.

The site design includes bicycle parking facilities to encourage and support active transportation, complementing planned enhancements to the cycling network along Bloor Street.

9.2.3 Transit Facilities

The design encourages transit use by providing strong pedestrian connectivity from the site to the existing sidewalks on Bloor Street and Dixie Road, ensuring easy access to nearby local transit stops.

The nearby MiWay Routes, including Route 5 Dixie and Route 3 Bloor, operate daily and offer key north-south and east-west connections to major destinations such as the Mississauga City Centre Transit Terminal, Dixie GO Station, and Kipling TTC Station. The bus platforms for both eastbound and westbound routes will be upgraded to a 2.0-meter-wide platform, providing a safer and more accessible stop for transit users.

9.2.4 Unbundled Resident Parking

Parking could be offered for rent to tenants on a first-come first-serve basis in addition to unit rental, as opposed to automatically including parking with unit rental.

This strategy allows for prospective tenants to choose whether they wish to incur the added cost of renting a parking space, particularly if parking is not desired due to vehicle ownership choices. This is expected to encourage residents to make visible the hidden cost of driving and encourage residents to make more effective use of active transportation and available transit facilities.

9.2.5 Wayfinding

Signage or real-time transit information screens could be displayed in the lobby or via wall mounted screens. This information provides information about transit schedules and real time service delays, increasing reliability for tenants to use transit as the primary mode.

Wayfinding signage should be installed to guide residents and visitors to bike share locations, transit stops, stations, and trails in the vicinity. Additional wayfinding signage directing residents to nearby bus stops can also be implemented to encourage the use of local transit options.

9.2.6 Parking Reduction

Restricting parking availability will incentivize residents to consider alternative transportation modes other than driving. This approach aims to reduce the number of vehicles on the road, lessen auto-dependency, and discourage excessive vehicle ownership and usage.

Given the roadway improvements planned on Bloor Street, which will reduce one through lane in each direction, potential congestion along the roadway is anticipated. Residents are expected to seek out alternative commuting options as a result.

9.2.7 Education and Incentives

It is advisable for the Owner to create an information package aimed at informing new and prospective residents about alternative transportation options. Consultation with the City is recommended to include the following materials promoting active transportation: Peel Region Transit Map, City of Mississauga Trails Map, Peel Region Cycling Map, and Peel Region Bike-to-Work Practical Guide.

Additionally, the information package will feature transit schedules (e.g., MiWay Transit, Go Transit) to aid residents in planning their commutes to/from work or school using the expanding transit network. A location map will also be included, highlighting nearby facilities and points of interest (e.g., retail stores, grocery stores, schools, community centers, and libraries) within convenient walking distance, aiming to reduce dependence on vehicles.

The approximate cost to compile this information into the package is estimated at \$4,245 (\$15/unit), to be covered by the Owner. Availability of the above materials is subject to discretion and availability.

9.2.8 Estimated TDM Cost

The estimated cost to implement the TDM program components are outlined in **Table 27**. The estimated cost to administer the TDM plan would be \$4,245.

Table 27: Travel Demand Management Plan Costs

TDM Measure	Unit Price	Quantity / Number of	Product Cost
Pedestrian Facilities	Included in Construction Cost		
Cycling Facilities	Included in Construction Cost		
TDM Information Package	\$15	283	\$4,245
Total Cost			\$4,245

10 Community Impacts

To date, there have been no formal transportation-related comments from the community regarding the Subject Development. Any community concerns or comments related to transportation will be incorporated into subsequent application sections.

Additionally, the traffic generated by the development is not anticipated to have a significant impact on the local road network. Site trips are anticipated to only minorly increase traffic on Havenwood Drive, Williamsport Drive, and Gullenden Drive, especially considering the reduction in trips resulting from the demolition of the existing apartment building. It is projected that the unsignalized intersections in the study network will experience a relatively small increase in delay.

11 Conclusions and Recommendations

This study has assessed the transportation impacts of the proposed development at 1470 Williamsport Drive in the City of Mississauga. Many conclusions have been identified as a result of the study process. Furthermore, given these conclusions, several transportation planning recommendations have been produced for the consideration of the relevant reviewing agencies.

11.1 Conclusions

The analysis contained within this study has resulted in the following key findings:

- Under the 2024 existing conditions scenario:
 - All intersection movements within the study area operate at LOS “E” or better except for the eastbound and westbound left turn movements at the intersection of Dixie Road and Bloor Street.
 - The intersections of Dixie Road and Bloor Street as well as Bloor Street and Havenwood Drive have several movements with 95th percentile queues that exceed the existing storage length provided in both the weekday AM and weekday PM peak periods.
- Under the 2029 future background conditions:
 - As per the Bloor Street redesign, one through lane in each direction will be removed from Bloor Street to accommodate dedicated bicycle lanes.
 - A growth rate of 0.5% was assumed on Dixie Road.
 - All intersection movements within the study area are expected to operate at a LOS “E” or better except for the eastbound and westbound left turn movements at the intersection of Dixie Road and Bloor Street, as well as the eastbound left turn movement at the intersection of Bloor Street and Havenwood Drive.
 - The westbound left-turn movement at the Dixie Road and Bloor Street intersection as well as the eastbound left-turn movement at the intersection of Bloor Street and Havenwood Drive are anticipated to be overcapacity, with v/c ratios that exceed 1.00.
 - Queue lengths at the intersection of Dixie Road and Bloor Street are expected to worsen as a result of background development and anticipated traffic growth. Notably, the westbound left-turn movement is expected to have a 95th percentile queue length of 165 metres compared to an existing storage length of 60 metres.
- Under the 2029 future total conditions:
 - The proposed residential development is projected to generate a net total of 69 and 76 two-way vehicle trips during the weekday AM and PM peak hours, respectively.
 - The study intersections are expected to operate similarly to the 2029 future background conditions. All intersection movements are expected to operate at a LOS “E” or better except for the eastbound and westbound left turn movements at the intersection of Dixie Road and Bloor Street, as well as the eastbound left turn

movement at the intersection of Bloor Street and Havenwood Drive.

- The eastbound left and westbound left-turn movement at the Dixie Road and Bloor Street intersection are expected to have an increase in control delay of 0.4 and 13.7 seconds, respectively due to site traffic during the weekday AM peak hour.
- The eastbound left-turn movement at the Bloor Street and Havenwood Drive intersection is expected to have an increase in control delay of 74.2 seconds due to site traffic during the PM peak hour.
- The 95th percentile queue length for the westbound left-turn movement at the Dixie Road and Bloor Street intersection is expected to increase by 5 metres and 10 metres during the weekday AM and weekday PM peak hours, respectively due to site traffic. The increase in queue lengths at the Bloor Street and Havenwood Drive intersection can be accommodated within the existing taper lengths.
- Analysis of site access safety components associated with the proposed development indicate the following:
 - The available sight distance at the proposed site access exceeds the minimum sight distance requirements set out in the TAC GDGCR.
 - The proposed site access spacing exceeds recommended minimum driveway spacing guidelines and corner clearance requirements set out in the TAC GDGCR.
 - The proposed site access exceeds the throat length requirements set out by City Staff as per the DARC comments.
- There are no expected vehicle maneuverability constraints within the subject site for fire trucks, waste collection vehicles, loading vehicles or passenger vehicles.
- 272 vehicle parking spaces are proposed at the site, a reduction from the 340 parking spaces required by the City of Mississauga Zoning By-Law No. 0225-2007.
 - A resident parking rate of 0.85 spaces per unit and a visitor parking rate of 0.10 spaces per unit is justified based on vehicle ownership and modal split trends in the study area, as well as observed and approved parking rates at developments in the vicinity of the site.
 - A parking study was conducted at the existing apartment at the Subject Site, observing a peak total parking demand of 1.09 spaces per unit. However, given the increasing share of apartments which do not own a vehicle and trips taken using alternative modes of transportation in the study area, new rental tenants are expected to be less dependent on personal vehicles. Therefore, the future parking demand of the redevelopment is anticipated to be lower than the existing site.
- The site meets the required accessible parking spaces, bicycle parking spaces, and loading spaces as per the City of Mississauga Zoning By-Law No. 0225-2007.

11.2 Recommendations

The conclusions and findings resulting from this study have led to the following recommendations:

- It is recommended that the signal operations at the Dixie Road and Bloor Street intersection are optimized in both the weekday AM and weekday PM peak hour to reduce delays for the eastbound and westbound left-turn movements.
- It is recommended that the storage length for the westbound left-turn movement at the Dixie Road and Bloor Street intersection is increased to accommodate a 95th percentile queue of 140 metres.
- It is recommended that a protected phase is implemented in the weekday PM peak hour for the eastbound left-turn movement at the Bloor Street and Havenwood Drive intersection to reduce delays.
- Several TDM strategies are recommended to encourage alternative modes of transportation and enhance existing TDM opportunities. The estimated cost of the TDM program is \$4,245 and includes pedestrian infrastructure, cycling facilities that exceed the By-law requirements, and unbundled parking. These TDM strategies are expected to complement the proposed reduction in vehicle parking spaces at the site as they will reduce demand for single-occupancy vehicle trips by promoting other modes of transportation.

The analysis undertaken herein was prepared using the most recent Site Plan. Minor changes to the Plan will not materially affect the conclusions contained within this report.

In conclusion, the proposed residential development can be supported from a traffic operations and safety perspective.

Respectfully submitted by,

C.F. CROZIER & ASSOCIATES INC.



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AD / ADR

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APPENDIX A

Terms of Reference Correspondence

Appendix B

APPROVED

By James Emerson at 11:56 am, Aug 02, 2024

Pre-Study Consultation Checklist

Description	Information	Section Reference
Development Information		
Development Description (land use, size, and number of phases of development)	- Two (2) twelve storey apartment buildings with a shared podium consisting a total of 290 units. - Site Access through Williamsport Drive.	2.3.6
Transportation Impact Assessment		
Step 1 – Screening		
Type of Application (attach a drawing)	☒ Official Plan Amendment ☒ Zoning Amendment ☐ Site Plan Control Application ☐ Plan of Subdivision ☐ Other _____	2.3.5
Screening Criteria	☒ Trip Generation Trigger Satisfied ☐ Location Trigger Satisfied ☐ Operational/Safety Trigger Satisfied	2.2.1
Type of Study	☒ Transportation Impact Study ☐ Access Review ☐ 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.	- Williamsport Drive (South) and Havenwood Drive - Bloor Street and Havenwood Drive - Bloor Street and Dixie Road - Site Access and Williamsport Drive - Gullden Drive and Williamsport Drive	2.3.8
Horizon Years	☒ 5 years from date of TIS (no phasing envisioned) ☐ Interim years _____ ☐ Other _____	2.3.9

Description	Information	Section Reference
Analysis Periods	✓ AM weekday peak hour of adjacent roadway ✓ PM weekday peak hour of adjacent roadway ☐ Saturday peak hour of adjacent roadway ☐ AM weekday peak hour of development ☐ PM weekday peak hour of development ☐ Saturday peak hour of development ☐ Other _____	2.3.10
Input Parameters and Assumptions (potential deviations)	• None	2.3.13
Existing Transportation Conditions	☐ City data sources ✓ New data collection for Williamsport Drive (South) and Havenwood Drive ✓ Previously collected new TMC data for the other intersections noted above on Thursday, May 9, 2024	2.3.14
Planned Network Improvements (with timing)	• Bloor Street Integrated Road Project identifies planned improvement for Bloor Street from Central Parkway East to Etobicoke Street which will include intersection improvements, new cycling facilities, pedestrian crossings and transit infrastructure. Construction is scheduled to begin in 2024/2025.	2.3.16
Other Planned Developments (per City's Website)	• OZ 18/014 W3 – 3480 Havenwood Drive and 1485 Williamsport Drive • OZ 17/014 W3 – 1750 Bloor Street and 3315 Fieldgate Drive • OZ/OPA 22-14 W3 – 1785 Bloor Street • OZ 20-003 W3 – 1840 Bloor Street • 3403-3445 Fieldgate Drive (Currently being undertaken by Crozier)	2.3.17
Identification of Mitigation Improvement Measures	☐ Neighbourhood Traffic Management Plan ☐ Other _____	2.3.23
Safety Analysis (any special issues)	• None	2.3.25
Site Access and Circulation (design vehicles)	✓ Passenger Car (P) ☐ Light Single Unit Truck (LSU) ✓ Medium Single Unit Truck (MSU) ☐ Heavy Single Unit Truck (HSU) ✓ Pumper Fire Truck ☐ WB-20 Tractor Semi-Trailer Truck ✓ Other <u>Waste Management</u>	2.3.26

Description	Information	Section Reference
Impacts During Construction (any special issues)	None	2.3.27
Step 3 – Forecasting		
Growth Rate	✓ Obtained from City ☐ Historical traffic counts ☐ Travel demand forecasts ☐ Proposed Growth Rate: _____	2.3.15
Site Trip Generation	✓ ITE Trip Generation Manual ☐ "First Principles" ☐ Observed rates for similar developments in area ✓ Other: <u>Traffic associated with the existing residential use at the site will be subtracted from the study road network to provide a net trip generation estimate for the site.</u>	2.3.19
Trip Reductions	☐ Internal capture reductions ☐ Pass-by reductions ☐ Other _____	2.3.19
Trip Distribution	✓ Local traffic patterns ✓ TTS ☐ Travel demand model ☐ Population and employment distribution ☐ Market analysis of catchment area ☐ Other _____	2.3.20
Trip Assignment	✓ Local traffic patterns ✓ Shortest distance ✓ Site layout, access design and logical routing ✓ Existing turning movements ☐ Other _____	2.3.21
Transportation Demand Management Plan		
Format	✓ Within a TIA Report ☐ Standalone	3.2.1
Type of Transportation Demand Management Plan	✓ TDM Statement ☐ TDM Scheme	3.2.2
Pedestrian Circulation Plan		
Format	✓ Within a TIA Report ☐ Standalone	4.2.1
Additional Comments		

Description	Information	Section Reference
	• Community Impacts: Any transportation related impacts on existing community will be assessed in the report and comments from the public through the planning approvals process shall be addressed in the report. • Access Review: Ensure that the proposed site access conforms to all TAC standards (e.g. corner clearances, clear throat lengths, veh & ped sight line distances for ingress/egress, proximity/alignment to other driveways/roads, etc.); Provide confirmation and technical justification of whether the site access location and design is safe for all roadway users and why. • Recommendations: Detailed Recommendations regarding on-site/off-site roadway improvements, site access, site circulation, and TDM measures shall be made.	

APPENDIX B

Transportation Data



Turning Movement Count (8 . BLOOR ST & DIXIE RD) CustID: 0040934

Start Time	N Approach DIXIE RD						E Approach BLOOR ST						S Approach DIXIE RD						W Approach BLOOR ST						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
07:00:00	8	202	40	1	8	251	42	48	35	0	4	125	24	135	7	0	4	166	14	79	13	0	5	106	648		
07:15:00	10	231	49	0	6	290	56	35	46	0	3	137	26	158	10	0	0	194	33	77	21	0	3	131	752		
07:30:00	12	282	48	0	2	342	66	62	62	0	2	190	21	173	17	0	3	211	34	79	16	0	6	129	872		
07:45:00	12	270	43	0	6	325	60	73	64	0	2	197	27	164	23	0	0	214	41	86	37	0	2	164	900	3172	
08:00:00	21	335	52	0	7	408	53	80	58	0	4	191	44	261	12	0	2	317	45	114	27	0	3	186	1102	3626	
08:15:00	22	284	44	1	9	351	65	91	69	0	2	225	47	197	8	1	1	253	42	115	34	0	17	191	1020	3894	
08:30:00	17	270	46	0	11	333	62	73	60	0	4	195	45	228	13	1	3	287	36	97	39	0	0	172	987	4009	
08:45:00	37	266	43	0	18	346	61	107	59	1	4	228	43	263	20	0	2	326	50	123	37	0	15	210	1110	4219	
09:00:00	20	235	49	2	13	306	46	97	74	0	4	217	39	216	22	0	4	277	52	102	33	0	2	187	987	4104	
09:15:00	25	241	44	0	6	310	41	68	53	1	5	163	31	184	24	0	3	239	38	71	21	0	19	130	842	3926	
09:30:00	25	271	27	0	11	323	44	59	63	0	5	166	32	184	14	0	4	230	31	59	25	0	6	115	834	3773	
09:45:00	19	179	24	1	7	223	41	47	65	0	6	153	45	169	15	2	1	231	30	68	40	0	7	138	745	3408	
BREAK																											
16:00:00	48	351	37	0	15	436	37	152	71	0	14	260	65	344	56	3	12	468	29	103	41	0	5	173	1337		
16:15:00	54	309	27	0	18	390	57	150	79	0	11	286	81	282	36	1	10	400	41	132	32	1	12	206	1282		
16:30:00	63	371	33	0	15	467	59	135	73	0	6	267	86	288	64	1	3	439	35	82	24	1	8	142	1315		
16:45:00	55	347	35	0	20	437	55	166	75	0	2	296	72	292	62	0	4	426	31	90	30	0	12	151	1310	5244	
17:00:00	53	290	26	0	18	369	49	178	74	0	11	301	75	216	57	1	14	349	32	116	33	2	21	183	1202	5109	
17:15:00	63	386	29	0	17	478	32	189	67	0	10	288	101	354	68	0	10	523	51	122	36	0	13	209	1498	5325	
17:30:00	56	339	28	1	12	424	61	178	76	0	3	315	76	296	57	1	6	430	45	106	31	0	12	182	1351	5361	
17:45:00	59	374	31	0	23	464	53	155	70	1	6	279	79	268	73	3	6	423	46	112	32	1	14	191	1357	5408	
18:00:00	35	300	34	0	23	369	49	152	69	0	5	270	92	354	63	0	5	509	37	81	32	0	11	150	1298	5504	
18:15:00	37	299	30	0	18	366	63	120	82	1	8	266	72	256	48	1	11	377	46	95	39	0	6	180	1189	5195	
18:30:00	37	261	30	0	12	328	58	105	65	0	5	228	82	285	52	0	3	419	33	80	39	0	8	152	1127	4971	
18:45:00	44	230	30	2	14	306	46	105	79	0	8	230	83	231	37	0	7	351	29	106	25	0	6	160	1047	4661	
Grand Total	832	6923	879	8	309	8642	1256	2625	1588	4	134	5473	1388	5798	858	15	118	8059	901	2295	737	5	213	3938	26112	-	
Approach%	9.6%	80.1%	10.2%	0.1%		-	22.9%	48%	29%	0.1%		-	17.2%	71.9%	10.6%	0.2%		-	22.9%	58.3%	18.7%	0.1%		-	-	-	
Totals %	3.2%	26.5%	3.4%	0%		33.1%	4.8%	10.1%	6.1%	0%		21%	5.3%	22.2%	3.3%	0.1%		30.9%	3.5%	8.8%	2.8%	0%		15.1%	-	-	
Heavy	15	279	31	0		-	23	80	23	1		-	25	277	7	0		-	13	68	14	0		-	-	-	
Heavy %	1.8%	4%	3.5%	0%		-	1.8%	3%	1.4%	25%		-	1.8%	4.8%	0.8%	0%		-	1.4%	3%	1.9%	0%		-	-	-	
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	



Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (8.33 °C)

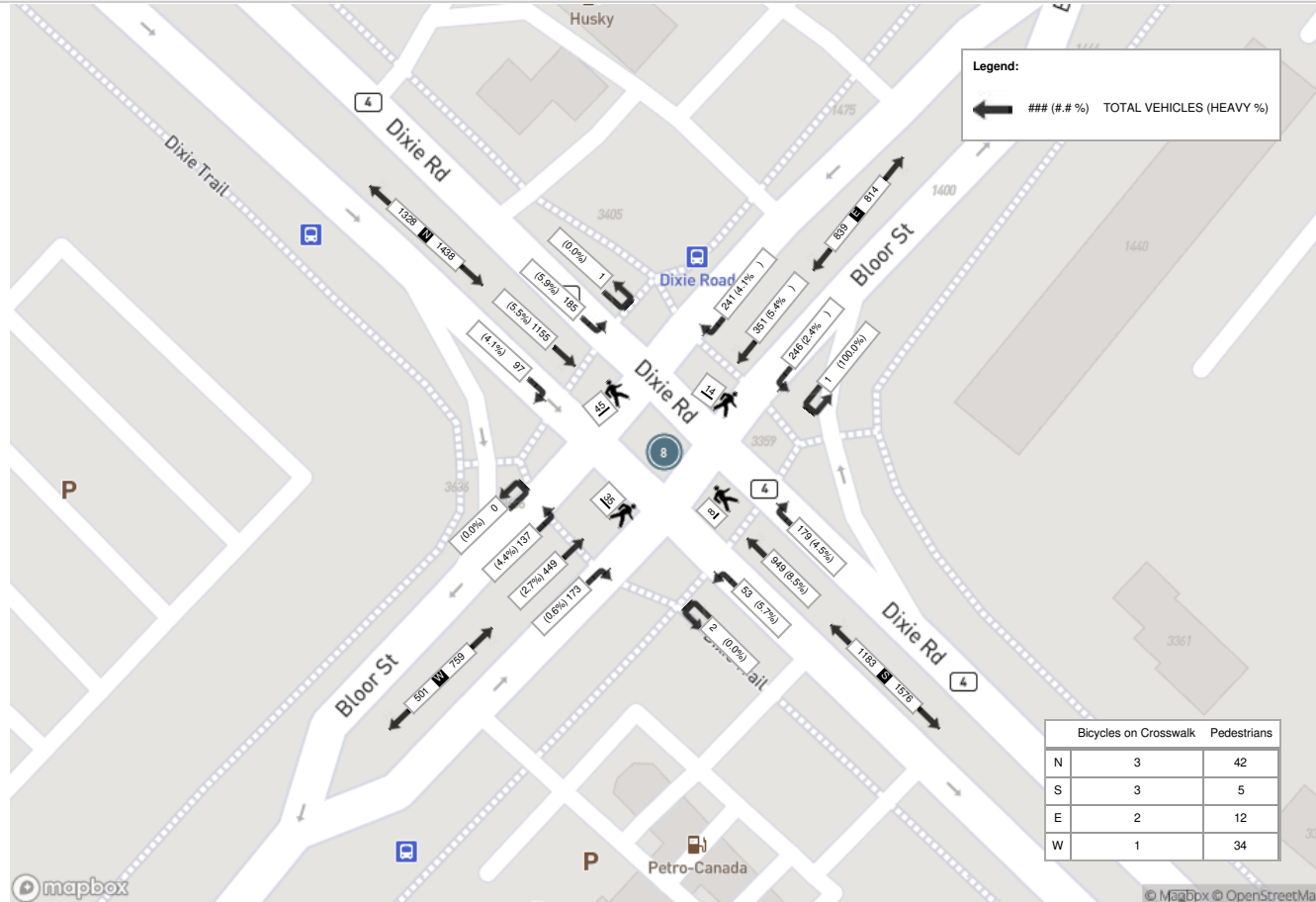
Start Time	N Approach DIXIE RD						E Approach BLOOR ST						S Approach DIXIE RD						W Approach BLOOR ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	21	335	52	0	7	408	53	80	58	0	4	191	44	261	12	0	2	317	45	114	27	0	3	186	1102
08:15:00	22	284	44	1	9	351	65	91	69	0	2	225	47	197	8	1	1	253	42	115	34	0	17	191	1020
08:30:00	17	270	46	0	11	333	62	73	60	0	4	195	45	228	13	1	3	287	36	97	39	0	0	172	987
08:45:00	37	266	43	0	18	346	61	107	59	1	4	228	43	263	20	0	2	326	50	123	37	0	15	210	1110
Grand Total	97	1155	185	1	45	1438	241	351	246	1	14	839	179	949	53	2	8	1183	173	449	137	0	35	759	4219
Approach%	6.7%	80.3%	12.9%	0.1%		-	28.7%	41.8%	29.3%	0.1%		-	15.1%	80.2%	4.5%	0.2%		-	22.8%	59.2%	18.1%	0%		-	-
Totals %	2.3%	27.4%	4.4%	0%		34.1%	5.7%	8.3%	5.8%	0%		19.9%	4.2%	22.5%	1.3%	0%		28%	4.1%	10.6%	3.2%	0%		18%	-
PHF	0.66	0.86	0.89	0.25		0.88	0.93	0.82	0.89	0.25		0.92	0.95	0.9	0.66	0.5		0.91	0.87	0.91	0.88	0		0.9	-
Heavy	4	64	11	0		79	10	19	6	1		36	8	81	3	0		92	1	12	6	0		19	-
Heavy %	4.1%	5.5%	5.9%	0%		5.5%	4.1%	5.4%	2.4%	100%		4.3%	4.5%	8.5%	5.7%	0%		7.8%	0.6%	2.7%	4.4%	0%		2.5%	-
Lights	93	1091	174	1		1359	231	332	240	0		803	171	868	50	2		1091	172	437	131	0		740	-
Lights %	95.9%	94.5%	94.1%	100%		94.5%	95.9%	94.6%	97.6%	0%		95.7%	95.5%	91.5%	94.3%	100%		92.2%	99.4%	97.3%	95.6%	0%		97.5%	-
Single-Unit Trucks	1	40	9	0		50	5	3	3	1		12	0	48	3	0		51	1	4	4	0		9	-
Single-Unit Trucks %	1%	3.5%	4.9%	0%		3.5%	2.1%	0.9%	1.2%	100%		1.4%	0%	5.1%	5.7%	0%		4.3%	0.6%	0.9%	2.9%	0%		1.2%	-
Buses	3	8	2	0		13	4	16	3	0		23	8	12	0	0		20	0	8	1	0		9	-
Buses %	3.1%	0.7%	1.1%	0%		0.9%	1.7%	4.6%	1.2%	0%		2.7%	4.5%	1.3%	0%	0%		1.7%	0%	1.8%	0.7%	0%		1.2%	-
Articulated Trucks	0	16	0	0		16	1	0	0	0		1	0	21	0	0		21	0	0	1	0		1	-
Articulated Trucks %	0%	1.4%	0%	0%		1.1%	0.4%	0%	0%	0%		0.1%	0%	2.2%	0%	0%		1.8%	0%	0%	0.7%	0%		0.1%	-
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	-	-	-	-	42	-	-	-	-	-	12	-	-	-	-	-	5	-	-	-	-	-	34	-	-
Pedestrians%	-	-	-	-	41.2%	-	-	-	-	-	11.8%	-	-	-	-	-	4.9%	-	-	-	-	-	33.3%	-	-
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	-	-	2.9%	-	-	-	-	-	2%	-	-	-	-	-	2.9%	-	-	-	-	-	1%	-	-



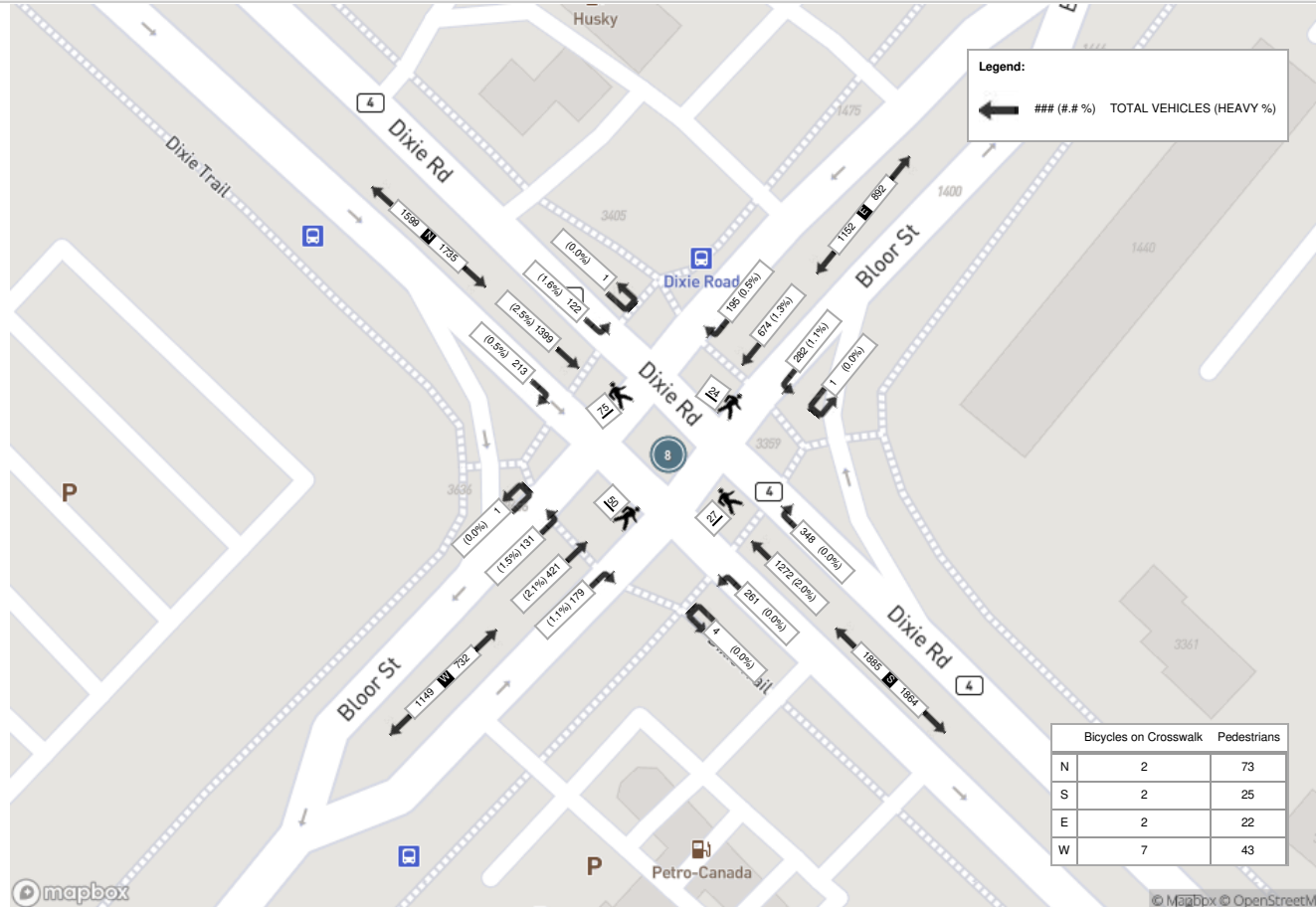
Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (14.49 °C)

Start Time	N Approach DIXIE RD						E Approach BLOOR ST						S Approach DIXIE RD						W Approach BLOOR ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:15:00	63	386	29	0	17	478	32	189	67	0	10	288	101	354	68	0	10	523	51	122	36	0	13	209	1498
17:30:00	56	339	28	1	12	424	61	178	76	0	3	315	76	296	57	1	6	430	45	106	31	0	12	182	1351
17:45:00	59	374	31	0	23	464	53	155	70	1	6	279	79	268	73	3	6	423	46	112	32	1	14	191	1357
18:00:00	35	300	34	0	23	369	49	152	69	0	5	270	92	354	63	0	5	509	37	81	32	0	11	150	1298
Grand Total	213	1399	122	1	75	1735	195	674	282	1	24	1152	348	1272	261	4	27	1885	179	421	131	1	50	732	5504
Approach%	12.3%	80.6%	7%	0.1%		-	16.9%	58.5%	24.5%	0.1%		-	18.5%	67.5%	13.8%	0.2%		-	24.5%	57.5%	17.9%	0.1%		-	-
Totals %	3.9%	25.4%	2.2%	0%		31.5%	3.5%	12.2%	5.1%	0%		20.9%	6.3%	23.1%	4.7%	0.1%		34.2%	3.3%	7.6%	2.4%	0%		13.3%	-
PHF	0.85	0.91	0.9	0.25		0.91	0.8	0.89	0.93	0.25		0.91	0.86	0.9	0.89	0.33		0.9	0.88	0.86	0.91	0.25		0.88	-
Heavy	1	35	2	0		38	1	9	3	0		13	0	26	0	0		26	2	9	2	0		13	-
Heavy %	0.5%	2.5%	1.6%	0%		2.2%	0.5%	1.3%	1.1%	0%		1.1%	0%	2%	0%	0%		1.4%	1.1%	2.1%	1.5%	0%		1.8%	-
Lights	211	1364	120	1		1696	194	665	279	1		1139	348	1246	261	4		1859	177	412	129	1		719	-
Lights %	99.1%	97.5%	98.4%	100%		97.8%	99.5%	98.7%	98.9%	100%		98.9%	100%	98%	100%	100%		98.6%	98.9%	97.9%	98.5%	100%		98.2%	-
Single-Unit Trucks	1	23	2	0		26	1	1	2	0		4	0	17	0	0		17	1	3	2	0		6	-
Single-Unit Trucks %	0.5%	1.6%	1.6%	0%		1.5%	0.5%	0.1%	0.7%	0%		0.3%	0%	1.3%	0%	0%		0.9%	0.6%	0.7%	1.5%	0%		0.8%	-
Buses	0	4	0	0		4	0	8	1	0		9	0	5	0	0		5	0	6	0	0		6	-
Buses %	0%	0.3%	0%	0%		0.2%	0%	1.2%	0.4%	0%		0.8%	0%	0.4%	0%	0%		0.3%	0%	1.4%	0%	0%		0.8%	-
Articulated Trucks	0	8	0	0		8	0	0	0	0		0	0	4	0	0		4	1	0	0	0		1	-
Articulated Trucks %	0%	0.6%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0.6%	0%	0%	0%		0.1%	-
Bicycles on Road	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0.5%	0%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	73	-	-	-	-	22	-	-	-	-	-	25	-	-	-	-	-	43	-	-	-
Pedestrians%	-	-	-	-	41.5%	-	-	-	-	12.5%	-	-	-	-	-	14.2%	-	-	-	-	-	24.4%	-	-	-
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	7	-	-	-
Bicycles on Crosswalk%	-	-	-	-	1.1%	-	-	-	-	1.1%	-	-	-	-	-	1.1%	-	-	-	-	-	4%	-	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (8.33 °C)



Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (14.49 °C)





Turning Movement Count (7 . BLOOR ST & HAVENWOOD DR)

Start Time	N Approach HAVENWOOD DR						E Approach BLOOR ST						S Approach HAVENWOOD DR						W Approach BLOOR ST						Int. Total (15 min)	Int. Total (1 hr)
	Right N-W	Thru N-S	Left N-E	UTurn N-N	Peds N:	Approach Total	Right E-N	Thru E-W	Left E-S	UTurn E-E	Peds E:	Approach Total	Right S-E	Thru S-N	Left S-W	UTurn S-S	Peds S:	Approach Total	Right W-S	Thru W-E	Left W-N	UTurn W-W	Peds W:	Approach Total		
07:00:00	8	1	3	0	6	12	4	91	3	0	2	98	4	2	9	0	1	15	7	122	8	0	2	137	262	
07:15:00	10	1	6	0	4	17	4	104	2	0	3	110	8	3	13	0	4	24	8	135	10	0	4	153	304	
07:30:00	27	5	9	0	3	41	8	149	5	0	3	162	9	3	11	0	2	23	2	133	5	0	4	140	366	
07:45:00	20	5	10	0	2	35	1	146	8	0	2	155	9	2	14	0	3	25	9	136	9	0	1	154	369	1301
08:00:00	29	9	9	0	8	47	5	149	11	0	8	165	11	7	12	0	4	30	12	183	22	0	20	217	459	1498
08:15:00	23	14	13	0	9	50	9	163	11	0	34	183	6	12	8	0	2	26	15	186	14	1	24	216	475	1669
08:30:00	30	41	7	0	25	78	3	155	24	1	84	183	17	21	22	0	11	60	19	164	8	0	45	191	512	1815
08:45:00	24	21	9	0	28	54	9	160	11	0	52	180	26	20	26	0	8	72	16	177	17	1	38	211	517	1963
09:00:00	35	12	15	0	9	62	9	135	2	0	18	146	9	20	22	0	3	51	16	122	20	0	30	158	417	1921
09:15:00	18	8	10	0	5	36	4	141	4	0	9	149	4	7	12	0	3	23	6	120	15	0	12	141	349	1795
09:30:00	22	5	6	0	7	33	9	117	4	0	3	130	8	2	12	0	3	22	5	95	9	0	8	109	294	1577
09:45:00	3	2	9	0	4	14	2	113	3	1	3	119	0	8	8	0	7	16	2	110	9	0	11	121	270	1330
BREAK																										
16:00:00	35	9	23	0	13	67	16	224	4	0	15	244	6	11	9	0	8	26	11	168	13	0	13	192	529	
16:15:00	41	16	15	0	10	72	8	210	11	0	21	229	11	4	8	0	17	23	19	167	19	0	10	205	529	
16:30:00	20	7	10	0	14	37	9	238	5	0	12	252	6	7	13	0	9	26	13	202	17	0	9	232	547	
16:45:00	21	9	14	0	15	44	13	228	11	1	13	253	3	3	9	0	6	15	9	164	21	0	5	194	506	2111
17:00:00	28	12	15	0	14	55	4	265	11	0	8	280	10	9	14	0	8	33	15	176	18	0	7	209	577	2159
17:15:00	33	10	18	0	10	61	15	234	7	0	6	256	7	7	6	0	3	20	21	225	25	0	5	271	608	2238
17:30:00	23	7	15	0	7	45	8	269	15	3	6	295	14	4	7	0	6	25	9	169	30	0	4	208	573	2264
17:45:00	24	14	15	0	5	53	10	252	11	0	34	273	8	11	11	0	13	30	13	195	16	0	19	224	580	2338
18:00:00	27	13	16	0	14	56	5	207	11	0	55	223	11	6	15	0	17	32	11	176	21	0	31	208	519	2280
18:15:00	23	11	11	0	14	45	10	209	14	0	29	233	8	6	17	0	5	31	9	168	21	0	1	198	507	2179
18:30:00	27	3	21	0	7	51	6	174	4	0	10	184	17	7	10	1	0	35	7	158	20	0	10	185	455	2061
18:45:00	21	7	14	0	12	42	2	172	6	0	5	180	6	3	10	0	5	19	6	193	24	0	9	223	464	1945
Grand Total	572	242	293	0	245	1107	173	4305	198	6	435	4682	218	185	298	1	148	702	260	3844	391	2	322	4497	10988	-
Approach%	51.7%	21.9%	26.5%	0%	-	-	3.7%	91.9%	4.2%	0.1%	-	-	31.1%	26.4%	42.5%	0.1%	-	-	5.8%	85.5%	8.7%	0%	-	-	-	-
Totals %	5.2%	2.2%	2.7%	0%	10.1%	-	1.6%	39.2%	1.8%	0.1%	42.6%	-	2%	1.7%	2.7%	0%	6.4%	-	2.4%	35%	3.6%	0%	40.9%	-	-	-
Heavy	19	7	6	0	-	-	4	92	5	0	-	-	4	5	8	0	-	-	4	104	13	0	-	-	-	-
Heavy %	3.3%	2.9%	2%	0%	-	-	2.3%	2.1%	2.5%	0%	-	-	1.8%	2.7%	2.7%	0%	-	-	1.5%	2.7%	3.3%	0%	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (8.33 °C)

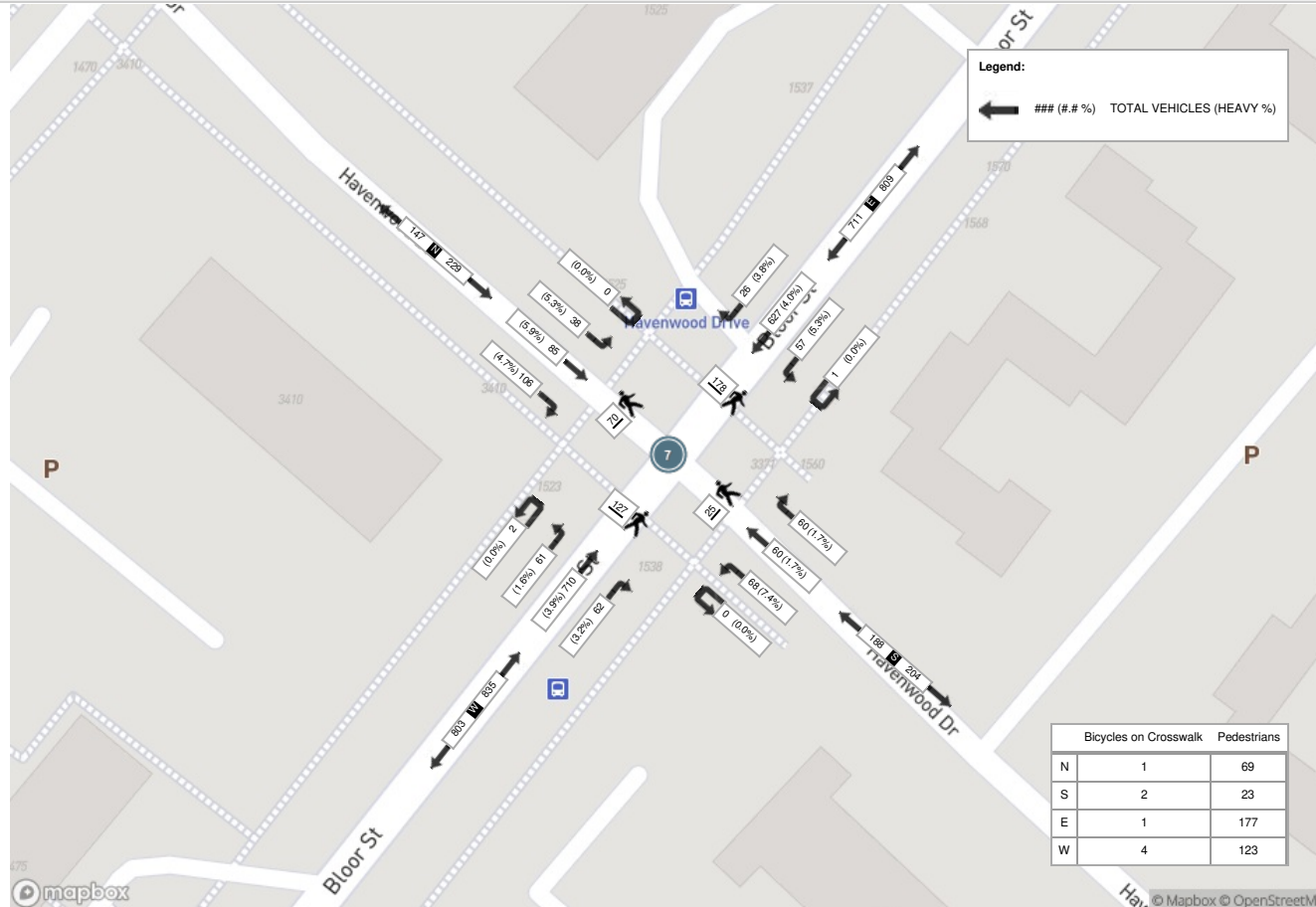
Start Time	N Approach HAVENWOOD DR						E Approach BLOOR ST						S Approach HAVENWOOD DR						W Approach BLOOR ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	29	9	9	0	8	47	5	149	11	0	8	165	11	7	12	0	4	30	12	183	22	0	20	217	459
08:15:00	23	14	13	0	9	50	9	163	11	0	34	183	6	12	8	0	2	26	15	186	14	1	24	216	475
08:30:00	30	41	7	0	25	78	3	155	24	1	84	183	17	21	22	0	11	60	19	164	8	0	45	191	512
08:45:00	24	21	9	0	28	54	9	160	11	0	52	180	26	20	26	0	8	72	16	177	17	1	38	211	517
Grand Total	106	85	38	0	70	229	26	627	57	1	178	711	60	60	68	0	25	188	62	710	61	2	127	835	1963
Approach%	46.3%	37.1%	16.6%	0%		-	3.7%	88.2%	8%	0.1%		-	31.9%	31.9%	36.2%	0%		-	7.4%	85%	7.3%	0.2%		-	-
Totals %	5.4%	4.3%	1.9%	0%		11.7%	1.3%	31.9%	2.9%	0.1%		36.2%	3.1%	3.1%	3.5%	0%		9.6%	3.2%	36.2%	3.1%	0.1%		42.5%	-
PHF	0.88	0.52	0.73	0		0.73	0.72	0.96	0.59	0.25		0.97	0.58	0.71	0.65	0		0.65	0.82	0.95	0.69	0.5		0.96	-
Heavy	5	5	2	0		12	1	25	3	0		29	1	1	5	0		7	2	28	1	0		31	-
Heavy %	4.7%	5.9%	5.3%	0%		5.2%	3.8%	4%	5.3%	0%		4.1%	1.7%	1.7%	7.4%	0%		3.7%	3.2%	3.9%	1.6%	0%		3.7%	-
Lights	101	80	36	0		217	25	602	54	1		682	59	59	63	0		181	60	682	60	2		804	-
Lights %	95.3%	94.1%	94.7%	0%		94.8%	96.2%	96%	94.7%	100%		95.9%	98.3%	98.3%	92.6%	0%		96.3%	96.8%	96.1%	98.4%	100%		96.3%	-
Single-Unit Trucks	0	3	0	0		3	0	10	0	0		10	1	0	1	0		2	1	13	0	0		14	-
Single-Unit Trucks %	0%	3.5%	0%	0%		1.3%	0%	1.6%	0%	0%		1.4%	1.7%	0%	1.5%	0%		1.1%	1.6%	1.8%	0%	0%		1.7%	-
Buses	5	2	2	0		9	1	15	3	0		19	0	1	4	0		5	1	15	1	0		17	-
Buses %	4.7%	2.4%	5.3%	0%		3.9%	3.8%	2.4%	5.3%	0%		2.7%	0%	1.7%	5.9%	0%		2.7%	1.6%	2.1%	1.6%	0%		2%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	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	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	69	-	-	-	-	-	177	-	-	-	-	-	23	-	-	-	-	-	123	-	-
Pedestrians%	-	-	-	-	17.3%	-	-	-	-	-	44.3%	-	-	-	-	-	5.8%	-	-	-	-	-	30.8%	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	4	-	-
Bicycles on Crosswalk%	-	-	-	-	0.3%	-	-	-	-	-	0.3%	-	-	-	-	-	0.5%	-	-	-	-	-	1%	-	-



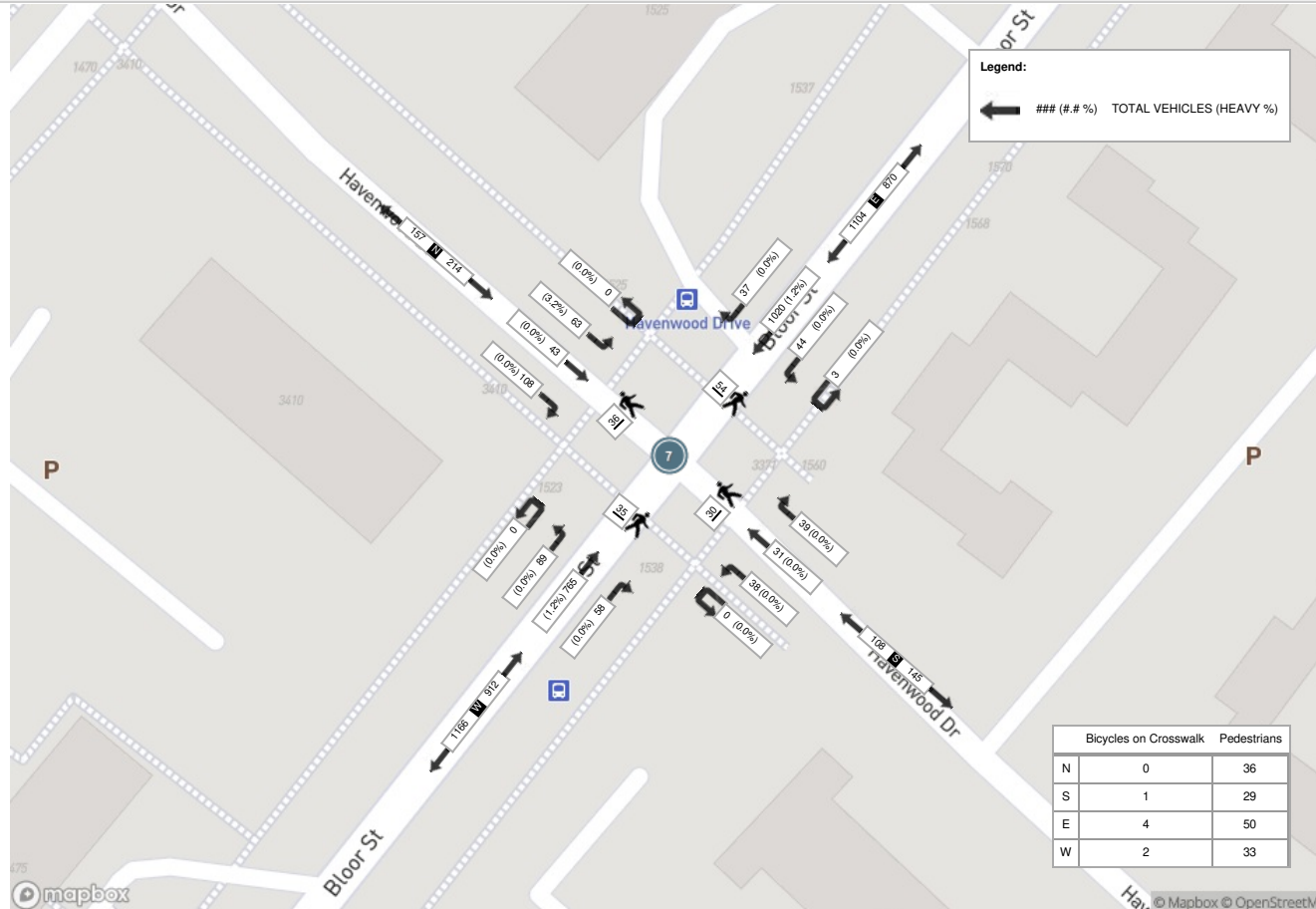
Peak Hour: 05:00 PM - 06:00 PM Weather: Broken Clouds (14.49 °C)

Start Time	N Approach HAVENWOOD DR						E Approach BLOOR ST						S Approach HAVENWOOD DR						W Approach BLOOR ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:00:00	28	12	15	0	14	55	4	265	11	0	8	280	10	9	14	0	8	33	15	176	18	0	7	209	577
17:15:00	33	10	18	0	10	61	15	234	7	0	6	256	7	7	6	0	3	20	21	225	25	0	5	271	608
17:30:00	23	7	15	0	7	45	8	269	15	3	6	295	14	4	7	0	6	25	9	169	30	0	4	208	573
17:45:00	24	14	15	0	5	53	10	252	11	0	34	273	8	11	11	0	13	30	13	195	16	0	19	224	580
Grand Total	108	43	63	0	36	214	37	1020	44	3	54	1104	39	31	38	0	30	108	58	765	89	0	35	912	2338
Approach%	50.5%	20.1%	29.4%	0%		-	3.4%	92.4%	4%	0.3%		-	36.1%	28.7%	35.2%	0%		-	6.4%	83.9%	9.8%	0%		-	-
Totals %	4.6%	1.8%	2.7%	0%		9.2%	1.6%	43.6%	1.9%	0.1%		47.2%	1.7%	1.3%	1.6%	0%		4.6%	2.5%	32.7%	3.8%	0%		39%	-
PHF	0.82	0.77	0.88	0		0.88	0.62	0.95	0.73	0.25		0.94	0.7	0.7	0.68	0		0.82	0.69	0.85	0.74	0		0.84	-
Heavy	0	0	2	0		2	0	12	0	0		12	0	0	0	0		0	0	9	0	0		9	-
Heavy %	0%	0%	3.2%	0%		0.9%	0%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	1.2%	0%	0%		1%	-
Lights	108	40	61	0		209	37	1008	44	3		1092	39	31	38	0		108	58	756	89	0		903	-
Lights %	100%	93%	96.8%	0%		97.7%	100%	98.8%	100%	100%		98.9%	100%	100%	100%	0%		100%	100%	98.8%	100%	0%		99%	-
Single-Unit Trucks	0	0	2	0		2	0	3	0	0		3	0	0	0	0		0	0	4	0	0		4	-
Single-Unit Trucks %	0%	0%	3.2%	0%		0.9%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	-
Buses	0	0	0	0		0	0	9	0	0		9	0	0	0	0		0	0	5	0	0		5	-
Buses %	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.5%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Bicycles on Road	0	3	0	0		3	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	7%	0%	0%		1.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	36	-	-	-	-	-	50	-	-	-	-	-	29	-	-	-	-	-	33	-	-
Pedestrians%	-	-	-	-	23.2%	-	-	-	-	-	32.3%	-	-	-	-	-	18.7%	-	-	-	-	-	21.3%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	2	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	2.6%	-	-	-	-	-	0.6%	-	-	-	-	-	1.3%	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Scattered Clouds (8.33 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Broken Clouds (14.49 °C)





Turning Movement Count (1 . HAVENWOOD DRIVE & WILLIAMSPORT DRIVE)

Start Time	N Approach HAVENWOOD DR						E Approach WILLIAMSPORT DR (S)						S Approach HAVENWOOD DR						W Approach WILLIAMSPORT DR (S)						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
06:00:00	2	9	1	0	1	12	0	1	1	0	0	2	0	7	1	0	1	8	2	0	1	0	2	3	25		
06:15:00	1	10	5	0	0	16	2	2	0	0	0	4	0	0	1	0	0	1	1	0	2	0	1	3	24		
06:30:00	4	8	3	0	2	15	2	2	2	0	3	6	1	5	2	0	2	8	2	2	2	0	9	6	35		
06:45:00	2	17	1	0	0	20	3	5	1	0	2	9	1	7	1	0	1	9	3	6	2	0	0	11	49	133	
07:00:00	0	10	3	0	1	13	0	6	4	0	0	10	2	7	1	0	2	10	7	0	1	0	8	8	41	149	
07:15:00	4	15	3	0	3	22	3	7	5	0	8	15	4	5	4	0	4	13	10	5	0	0	10	15	65	190	
07:30:00	2	24	6	0	2	32	4	12	10	0	4	26	0	11	8	0	1	19	7	6	1	0	6	14	91	246	
07:45:00	3	26	3	0	6	32	0	8	9	0	4	17	4	9	8	0	2	21	4	6	0	0	5	10	80	277	
08:00:00	1	35	7	0	8	43	3	6	7	0	9	16	6	31	3	0	7	40	5	6	4	0	35	15	114	350	
08:15:00	4	40	7	0	20	51	7	3	11	0	26	21	3	31	6	0	2	40	12	9	5	0	22	26	138	423	
08:30:00	3	33	10	0	6	46	7	3	16	0	51	26	4	26	4	0	8	34	8	8	0	0	46	16	122	454	
08:45:00	1	37	2	0	9	40	9	15	6	0	23	30	11	18	5	0	8	34	10	5	3	0	51	18	122	496	
09:00:00	1	39	9	0	8	49	9	5	1	0	18	15	4	43	6	0	6	53	5	5	4	0	14	14	131	513	
09:15:00	5	25	5	0	2	35	3	5	7	0	5	15	7	13	3	0	0	23	8	1	1	0	6	10	83	458	
09:30:00	2	15	6	0	4	23	0	5	3	0	5	8	9	17	3	0	1	29	4	5	4	0	9	13	73	409	
09:45:00	6	24	6	0	0	36	0	3	4	0	0	7	3	14	2	0	1	19	4	2	4	0	4	10	72	359	
BREAK																											
15:00:00	3	31	6	0	21	40	3	3	9	0	24	15	5	28	5	0	13	38	9	9	4	0	30	22	115		
15:15:00	3	35	5	0	17	43	4	7	5	0	49	16	6	28	7	0	4	41	11	9	3	0	36	23	123		
15:30:00	6	33	7	0	9	46	6	6	4	0	32	16	11	23	6	0	3	40	10	13	3	0	21	26	128		
15:45:00	7	30	9	0	7	46	3	3	5	0	6	11	7	38	4	0	3	49	13	10	5	0	14	28	134	500	
16:00:00	5	52	7	1	6	65	4	10	5	0	6	19	7	25	6	0	11	38	14	9	6	0	32	29	151	536	
16:15:00	2	32	6	0	12	40	4	4	6	0	6	14	16	24	2	0	7	42	10	7	5	0	11	22	118	531	
16:30:00	8	27	9	0	7	44	2	4	5	0	5	11	7	15	2	0	2	24	8	19	2	0	7	29	108	511	
16:45:00	3	22	6	0	11	31	3	6	7	0	6	16	4	27	3	0	4	34	15	12	3	0	8	30	111	488	
17:00:00	3	37	2	0	12	42	4	13	5	0	10	22	8	28	2	0	5	38	9	16	7	0	7	32	134	471	
17:15:00	5	32	8	0	6	45	4	0	9	0	11	13	5	43	3	0	4	51	14	8	2	0	5	24	133	486	
17:30:00	1	24	4	0	5	29	9	6	1	0	4	16	4	37	4	0	3	45	8	11	6	0	6	25	115	493	
17:45:00	2	39	7	0	2	48	8	10	5	0	4	23	8	39	4	0	5	51	13	9	6	0	10	28	150	532	
18:00:00	8	30	7	0	10	45	4	7	6	0	14	17	3	45	2	0	6	50	10	12	5	0	21	27	139	537	
18:15:00	9	42	4	0	3	55	3	6	5	0	6	14	7	20	6	0	6	33	13	7	3	1	5	24	126	530	
18:30:00	3	20	5	0	8	28	2	5	4	0	18	11	8	18	7	0	8	33	15	12	2	0	5	29	101	516	
18:45:00	2	35	4	0	3	41	8	8	9	0	13	25	6	23	6	0	5	35	14	8	2	0	11	24	125	491	
Grand Total	111	888	173	1	211	1173	123	186	177	0	372	486	171	705	127	0	135	1003	278	237	98	1	457	614	3276	-	
Approach%	9.5%	75.7%	14.7%	0.1%	-	-	25.3%	38.3%	36.4%	0%	-	-	17%	70.3%	12.7%	0%	-	-	45.3%	38.6%	16%	0.2%	-	-	-	-	
Totals %	3.4%	27.1%	5.3%	0%	-	35.8%	3.8%	5.7%	5.4%	0%	-	14.8%	5.2%	21.5%	3.9%	0%	-	30.6%	8.5%	7.2%	3%	0%	-	18.7%	-	-	
Heavy	1	24	3	0	-	-	3	3	10	0	-	-	6	20	7	0	-	-	5	4	2	0	-	-	-	-	
Heavy %	0.9%	2.7%	1.7%	0%	-	-	2.4%	1.6%	5.6%	0%	-	-	3.5%	2.8%	5.5%	0%	-	-	1.8%	1.7%	2%	0%	-	-	-	-	
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Peak Hour: 08:15 AM - 09:15 AM Weather: Scattered Clouds (16.32 °C)

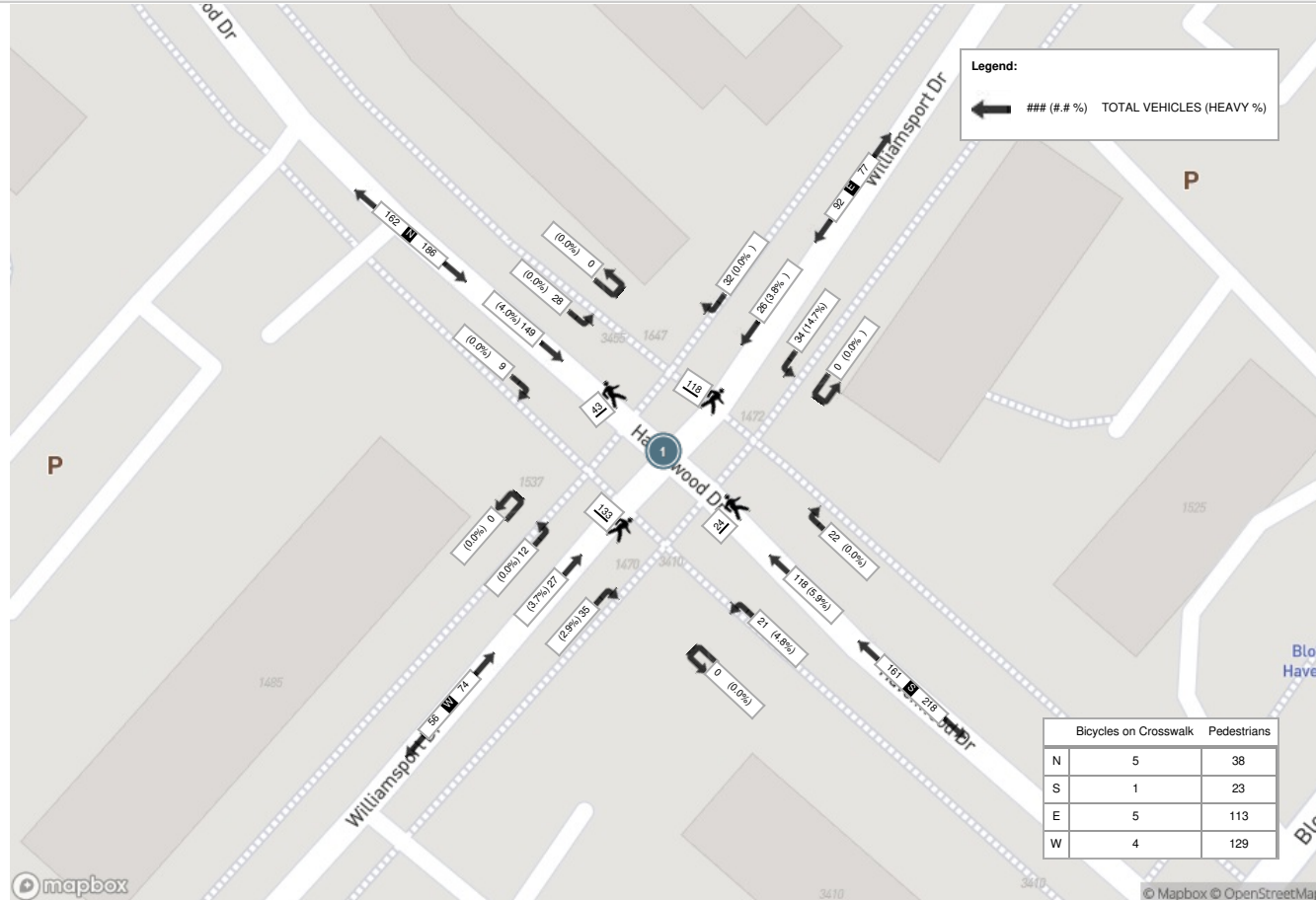
Start Time	N Approach HAVENWOOD DR						E Approach WILLIAMSPORT DR (S)						S Approach HAVENWOOD DR						W Approach WILLIAMSPORT DR (S)						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	4	40	7	0	20	51	7	3	11	0	26	21	3	31	6	0	2	40	12	9	5	0	22	26	138
08:30:00	3	33	10	0	6	46	7	3	16	0	51	26	4	26	4	0	8	34	8	8	0	0	46	16	122
08:45:00	1	37	2	0	9	40	9	15	6	0	23	30	11	18	5	0	8	34	10	5	3	0	51	18	122
09:00:00	1	39	9	0	8	49	9	5	1	0	18	15	4	43	6	0	6	53	5	5	4	0	14	14	131
Grand Total	9	149	28	0	43	186	32	26	34	0	118	92	22	118	21	0	24	161	35	27	12	0	133	74	513
Approach%	4.8%	80.1%	15.1%	0%		-	34.8%	28.3%	37%	0%		-	13.7%	73.3%	13%	0%		-	47.3%	36.5%	16.2%	0%		-	-
Totals %	1.8%	29%	5.5%	0%		36.3%	6.2%	5.1%	6.6%	0%		17.9%	4.3%	23%	4.1%	0%		31.4%	6.8%	5.3%	2.3%	0%		14.4%	-
PHF	0.56	0.93	0.7	0		0.91	0.89	0.43	0.53	0		0.77	0.5	0.69	0.88	0		0.76	0.73	0.75	0.6	0		0.71	-
Heavy	0	6	0	0		6	0	1	5	0		6	0	7	1	0		8	1	1	0	0		2	-
Heavy %	0%	4%	0%	0%		3.2%	0%	3.8%	14.7%	0%		6.5%	0%	5.9%	4.8%	0%		5%	2.9%	3.7%	0%	0%		2.7%	-
Lights	9	141	28	0		178	32	25	28	0		85	22	109	20	0		151	34	26	12	0		72	-
Lights %	100%	94.6%	100%	0%		95.7%	100%	96.2%	82.4%	0%		92.4%	100%	92.4%	95.2%	0%		93.8%	97.1%	96.3%	100%	0%		97.3%	-
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	3.7%	0%	0%		1.4%	-
Buses	0	6	0	0		6	0	1	5	0		6	0	7	1	0		8	1	0	0	0		1	-
Buses %	0%	4%	0%	0%		3.2%	0%	3.8%	14.7%	0%		6.5%	0%	5.9%	4.8%	0%		5%	2.9%	0%	0%	0%		1.4%	-
Bicycles on Road	0	2	0	0		2	0	0	1	0		1	0	2	0	0		2	0	0	0	0		0	-
Bicycles on Road %	0%	1.3%	0%	0%		1.1%	0%	0%	2.9%	0%		1.1%	0%	1.7%	0%	0%		1.2%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	38	-	-	-	-	113	-	-	-	-	-	-	23	-	-	-	-	-	129	-	-
Pedestrians%	-	-	-	-	11.9%	-	-	-	-	35.5%	-	-	-	-	-	-	7.2%	-	-	-	-	-	40.6%	-	-
Bicycles on Crosswalk	-	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	1	-	-	-	-	-	4	-	-
Bicycles on Crosswalk%	-	-	-	-	1.6%	-	-	-	-	1.6%	-	-	-	-	-	-	0.3%	-	-	-	-	-	1.3%	-	-



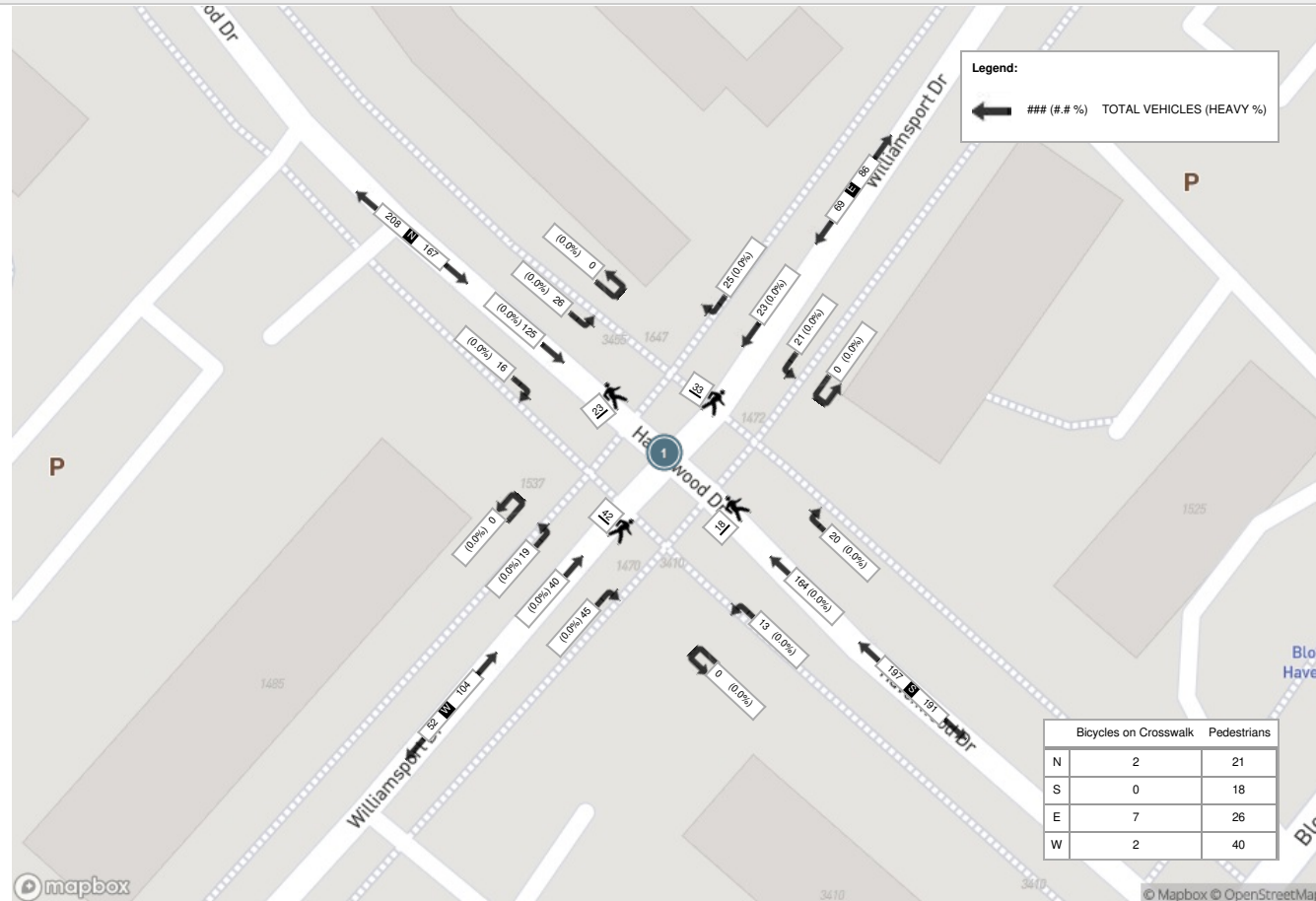
Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (23.32 °C)

Start Time	N Approach HAVENWOOD DR						E Approach WILLIAMSPORT DR (S)						S Approach HAVENWOOD DR						W Approach WILLIAMSPORT DR (S)						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:15:00	5	32	8	0	6	45	4	0	9	0	11	13	5	43	3	0	4	51	14	8	2	0	5	24	133
17:30:00	1	24	4	0	5	29	9	6	1	0	4	16	4	37	4	0	3	45	8	11	6	0	6	25	115
17:45:00	2	39	7	0	2	48	8	10	5	0	4	23	8	39	4	0	5	51	13	9	6	0	10	28	150
18:00:00	8	30	7	0	10	45	4	7	6	0	14	17	3	45	2	0	6	50	10	12	5	0	21	27	139
Grand Total	16	125	26	0	23	167	25	23	21	0	33	69	20	164	13	0	18	197	45	40	19	0	42	104	537
Approach%	9.6%	74.9%	15.6%	0%		-	36.2%	33.3%	30.4%	0%		-	10.2%	83.2%	6.6%	0%		-	43.3%	38.5%	18.3%	0%		-	-
Totals %	3%	23.3%	4.8%	0%		31.1%	4.7%	4.3%	3.9%	0%		12.8%	3.7%	30.5%	2.4%	0%		36.7%	8.4%	7.4%	3.5%	0%		19.4%	-
PHF	0.5	0.8	0.81	0		0.87	0.69	0.58	0.58	0		0.75	0.63	0.91	0.81	0		0.97	0.8	0.83	0.79	0		0.93	-
Heavy	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Heavy %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Lights	16	124	26	0		166	25	22	21	0		68	20	164	13	0		197	44	39	19	0		102	-
Lights %	100%	99.2%	100%	0%		99.4%	100%	95.7%	100%	0%		98.6%	100%	100%	100%	0%		100%	97.8%	97.5%	100%	0%		98.1%	-
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	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	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Bicycles on Road	0	1	0	0		1	0	1	0	0		1	0	0	0	0		0	1	1	0	0		2	-
Bicycles on Road %	0%	0.8%	0%	0%		0.6%	0%	4.3%	0%	0%		1.4%	0%	0%	0%	0%		0%	2.2%	2.5%	0%	0%		1.9%	-
Pedestrians	-	-	-	-	21	-	-	-	-	-	26	-	-	-	-	-	18	-	-	-	-	-	40	-	-
Pedestrians%	-	-	-	-	18.1%	-	-	-	-	-	22.4%	-	-	-	-	-	15.5%	-	-	-	-	-	34.5%	-	-
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	2	-	-
Bicycles on Crosswalk%	-	-	-	-	1.7%	-	-	-	-	-	6%	-	-	-	-	-	0%	-	-	-	-	-	1.7%	-	-

Peak Hour: 08:15 AM - 09:15 AM Weather: Scattered Clouds (16.32 °C)



Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (23.32 °C)





Turning Movement Count (2 . WILLIAMSPORT DRIVE & GULLEDEN DRIVE)

Start Time	N Approach GULLEDEN DRIVE					E Approach WILLIAMSPORT DRIVE					W Approach WILLIAMSPORT DRIVE					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	5	0	0	0	5	6	2	0	0	8	0	4	0	1	4	17	
06:15:00	4	1	0	0	5	10	2	0	0	12	4	4	0	2	8	25	
06:30:00	4	3	0	2	7	10	3	0	0	13	1	11	0	0	12	32	
06:45:00	4	2	0	0	6	11	0	0	0	11	0	8	0	0	8	25	99
07:00:00	3	3	0	1	6	5	4	0	2	9	1	11	0	1	12	27	109
07:15:00	14	3	0	1	17	8	4	0	1	12	3	13	0	1	16	45	129
07:30:00	12	4	0	1	16	15	3	0	2	18	1	18	0	5	19	53	150
07:45:00	13	5	0	1	18	10	5	0	1	15	4	15	0	3	19	52	177
08:00:00	10	13	0	8	23	16	1	0	2	17	2	10	0	1	12	52	202
08:15:00	15	21	0	3	36	10	5	0	1	15	1	8	0	5	9	60	217
08:30:00	16	8	0	3	24	21	2	0	1	23	5	15	0	2	20	67	231
08:45:00	15	11	0	7	26	13	3	0	0	16	10	13	0	2	23	65	244
09:00:00	13	19	0	3	32	33	5	0	1	38	12	10	0	4	22	92	284
09:15:00	9	7	0	2	16	8	6	0	2	14	5	12	0	4	17	47	271
09:30:00	11	8	1	3	20	5	5	0	1	10	3	12	0	1	15	45	249
09:45:00	7	4	0	1	11	4	3	0	1	7	2	10	0	0	12	30	214
BREAK																	
15:00:00	11	3	0	3	14	6	4	0	2	10	4	5	0	2	9	33	
15:15:00	14	9	0	2	23	5	6	0	1	11	5	11	0	1	16	50	
15:30:00	12	16	0	5	28	4	3	0	0	7	7	17	0	3	24	59	
15:45:00	29	20	0	5	49	7	6	0	0	13	7	13	0	1	20	82	224
16:00:00	16	17	0	2	33	26	15	0	0	41	9	12	0	2	21	95	286
16:15:00	11	8	0	5	19	11	3	0	1	14	2	7	0	4	9	42	278
16:30:00	16	15	0	4	31	6	1	0	0	7	10	10	0	0	20	58	277
16:45:00	17	15	0	0	32	5	4	0	0	9	6	7	0	0	13	54	249
17:00:00	18	14	0	2	32	4	2	0	0	6	4	17	0	3	21	59	213
17:15:00	22	13	0	2	35	9	2	0	1	11	5	3	0	3	8	54	225
17:30:00	13	11	0	3	24	6	5	0	1	11	7	13	0	1	20	55	222
17:45:00	13	17	0	10	30	16	8	0	3	24	4	10	0	1	14	68	236
18:00:00	20	11	0	7	31	5	6	1	2	12	9	14	0	1	23	66	243
18:15:00	14	16	0	2	30	11	4	0	6	15	8	15	0	2	23	68	257
18:30:00	17	7	1	6	25	8	3	0	3	11	4	10	0	3	14	50	252
18:45:00	12	13	0	3	25	8	4	0	1	12	4	11	0	4	15	52	236



Grand Total	410	317	2	97	729	322	129	1	36	452	149	349	0	63	498	1679	-
Approach%	56.2%	43.5%	0.3%		-	71.2%	28.5%	0.2%		-	29.9%	70.1%	0%		-	-	-
Totals %	24.4%	18.9%	0.1%		43.4%	19.2%	7.7%	0.1%		26.9%	8.9%	20.8%	0%		29.7%	-	-
Heavy	7	4	0		-	6	3	0		-	4	6	0		-	-	-
Heavy %	1.7%	1.3%	0%		-	1.9%	2.3%	0%		-	2.7%	1.7%	0%		-	-	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	-	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	-	-



Peak Hour: 08:15 AM - 09:15 AM Weather: Scattered Clouds (16.32 °C)

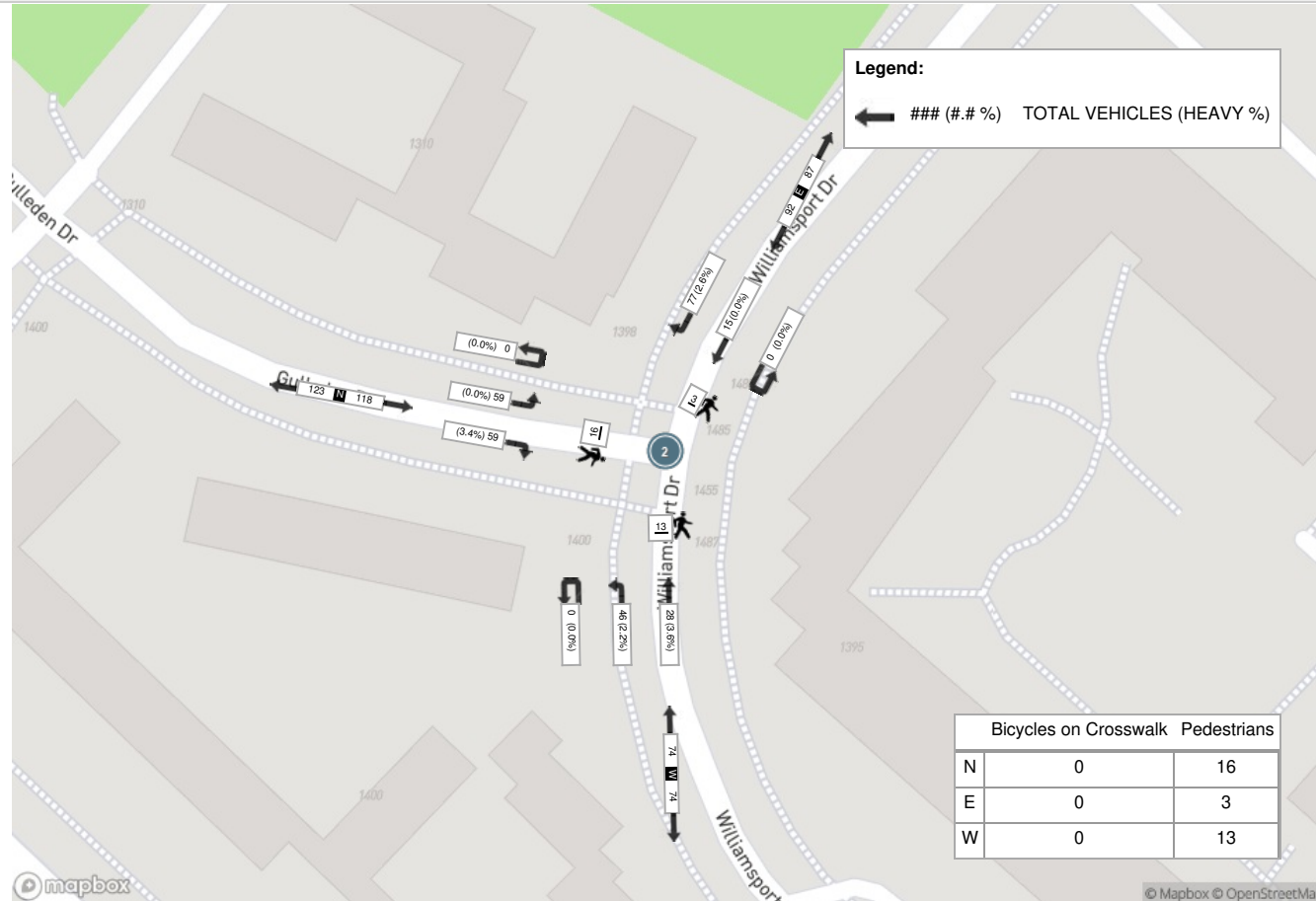
Start Time	N Approach GULLEDEN DRIVE					E Approach WILLIAMSPORT DRIVE					W Approach WILLIAMSPORT DRIVE					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	15	21	0	3	36	10	5	0	1	15	1	8	0	5	9	60
08:30:00	16	8	0	3	24	21	2	0	1	23	5	15	0	2	20	67
08:45:00	15	11	0	7	26	13	3	0	0	16	10	13	0	2	23	65
09:00:00	13	19	0	3	32	33	5	0	1	38	12	10	0	4	22	92
Grand Total	59	59	0	16	118	77	15	0	3	92	28	46	0	13	74	284
Approach%	50%	50%	0%		-	83.7%	16.3%	0%		-	37.8%	62.2%	0%		-	-
Totals %	20.8%	20.8%	0%		41.5%	27.1%	5.3%	0%		32.4%	9.9%	16.2%	0%		26.1%	-
PHF	0.92	0.7	0		0.82	0.58	0.75	0		0.61	0.58	0.77	0		0.8	-
Heavy	2	0	0		2	2	0	0		2	1	1	0		2	-
Heavy %	3.4%	0%	0%		1.7%	2.6%	0%	0%		2.2%	3.6%	2.2%	0%		2.7%	-
Lights	57	59	0		116	75	15	0		90	27	45	0		72	-
Lights %	96.6%	100%	0%		98.3%	97.4%	100%	0%		97.8%	96.4%	97.8%	0%		97.3%	-
Single-Unit Trucks	1	0	0		1	0	0	0		0	0	0	0		0	-
Single-Unit Trucks %	1.7%	0%	0%		0.8%	0%	0%	0%		0%	0%	0%	0%		0%	-
Buses	1	0	0		1	2	0	0		2	1	1	0		2	-
Buses %	1.7%	0%	0%		0.8%	2.6%	0%	0%		2.2%	3.6%	2.2%	0%		2.7%	-
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%	-
Pedestrians	-	-	-	16	-	-	-	-	3	-	-	-	-	13	-	-
Pedestrians%	-	-	-	50%	-	-	-	-	9.4%	-	-	-	-	40.6%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-



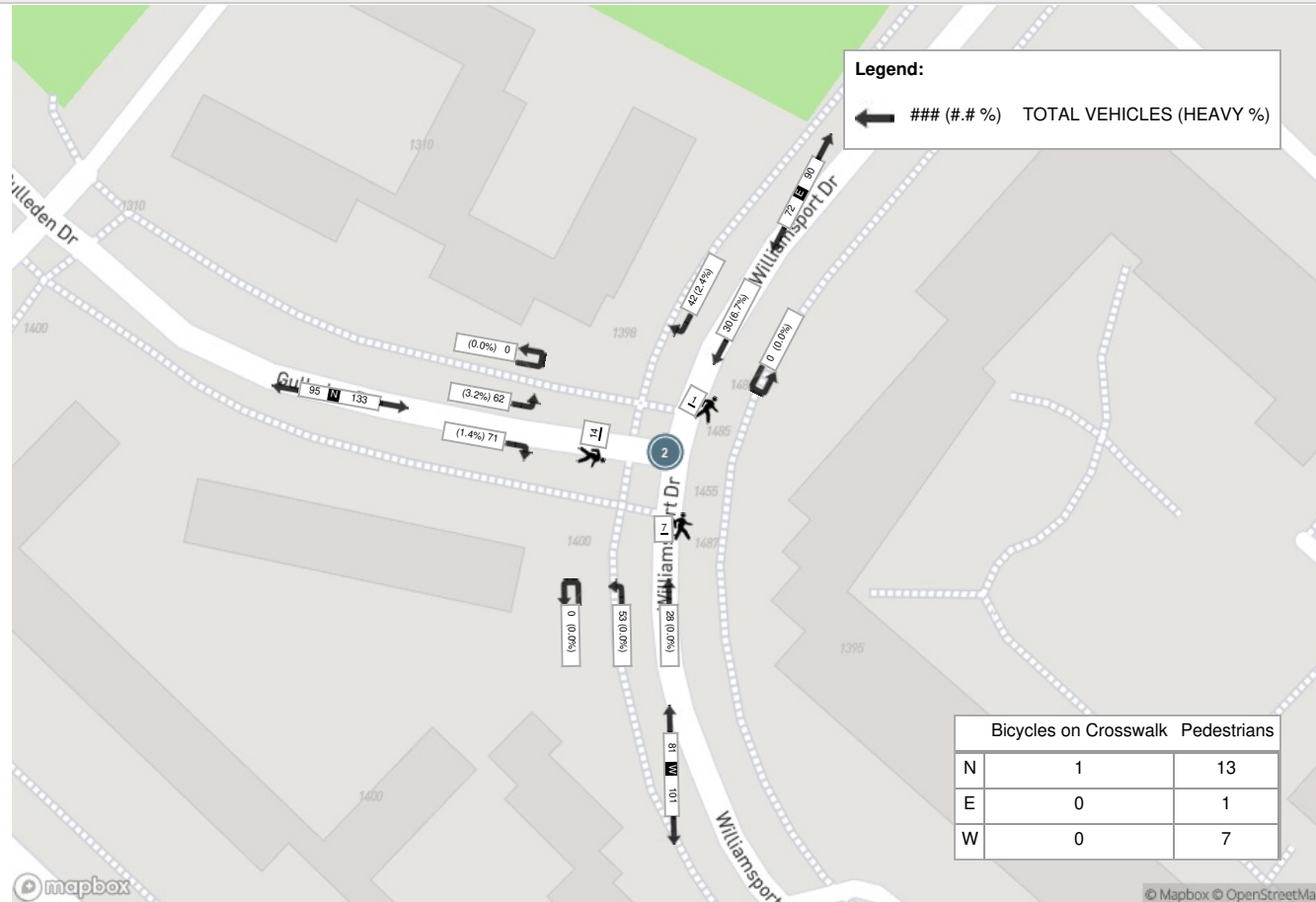
Peak Hour: 03:15 PM - 04:15 PM Weather: Broken Clouds (23.32 °C)

Start Time	N Approach GULLEDEN DRIVE					E Approach WILLIAMSPORT DRIVE					W Approach WILLIAMSPORT DRIVE					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
15:15:00	14	9	0	2	23	5	6	0	1	11	5	11	0	1	16	50
15:30:00	12	16	0	5	28	4	3	0	0	7	7	17	0	3	24	59
15:45:00	29	20	0	5	49	7	6	0	0	13	7	13	0	1	20	82
16:00:00	16	17	0	2	33	26	15	0	0	41	9	12	0	2	21	95
Grand Total	71	62	0	14	133	42	30	0	1	72	28	53	0	7	81	286
Approach%	53.4%	46.6%	0%		-	58.3%	41.7%	0%		-	34.6%	65.4%	0%		-	-
Totals %	24.8%	21.7%	0%		46.5%	14.7%	10.5%	0%		25.2%	9.8%	18.5%	0%		28.3%	-
PHF	0.61	0.78	0		0.68	0.4	0.5	0		0.44	0.78	0.78	0		0.84	-
Heavy	1	2	0		3	1	2	0		3	0	0	0		0	-
Heavy %	1.4%	3.2%	0%		2.3%	2.4%	6.7%	0%		4.2%	0%	0%	0%		0%	-
Lights	69	60	0		129	40	28	0		68	27	52	0		79	-
Lights %	97.2%	96.8%	0%		97%	95.2%	93.3%	0%		94.4%	96.4%	98.1%	0%		97.5%	-
Single-Unit Trucks	1	0	0		1	0	1	0		1	0	0	0		0	-
Single-Unit Trucks %	1.4%	0%	0%		0.8%	0%	3.3%	0%		1.4%	0%	0%	0%		0%	-
Buses	0	2	0		2	1	1	0		2	0	0	0		0	-
Buses %	0%	3.2%	0%		1.5%	2.4%	3.3%	0%		2.8%	0%	0%	0%		0%	-
Bicycles on Road	1	0	0		1	1	0	0		1	1	1	0		2	-
Bicycles on Road %	1.4%	0%	0%		0.8%	2.4%	0%	0%		1.4%	3.6%	1.9%	0%		2.5%	-
Pedestrians	-	-	-	13	-	-	-	-	1	-	-	-	-	7	-	-
Pedestrians%	-	-	-	59.1%	-	-	-	-	4.5%	-	-	-	-	31.8%	-	-
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	4.5%	-	-	-	-	0%	-	-	-	-	0%	-	-

Peak Hour: 08:15 AM - 09:15 AM Weather: Scattered Clouds (16.32 °C)



Peak Hour: 03:15 PM - 04:15 PM Weather: Broken Clouds (23.32 °C)





Turning Movement Count (3 . 1470 WILLIAMSPORT DRIVE(PRIVATE ACCESS) & WILLIAMSPORT DRIVE)

Start Time	N Approach NORTH DRIVEWAY						E Approach WILLIAMSPORT DRIVE						S Approach 1470 WILLIAMSPORT DRIVE(PRIVATE ACCESS)						W Approach WILLIAMSPORT DRIVE						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
06:00:00	1	0	0	0	0	1	0	3	0	0	2	3	0	0	0	0	1	0	1	1	0	0	0	2	6		
06:15:00	4	0	1	0	1	5	0	3	0	0	0	3	0	0	2	0	1	2	2	1	0	0	1	3	13		
06:30:00	5	0	4	0	1	9	1	5	0	0	3	6	0	0	0	0	1	0	0	2	1	0	1	3	18		
06:45:00	1	0	1	0	1	2	1	8	1	0	0	10	3	0	0	0	0	3	0	7	1	0	2	8	23	60	
07:00:00	6	0	2	0	2	8	0	7	0	0	0	7	0	0	2	0	2	2	0	7	0	0	0	7	24	78	
07:15:00	2	0	5	0	0	7	4	10	0	0	0	14	0	0	1	0	0	1	1	8	3	0	1	12	34	99	
07:30:00	4	0	1	0	0	5	1	18	0	0	0	19	1	0	0	0	2	1	0	11	1	0	0	12	37	118	
07:45:00	3	0	1	0	6	4	1	17	1	0	1	19	0	0	1	0	1	1	0	7	1	0	2	8	32	127	
08:00:00	4	0	2	0	5	6	1	9	0	0	2	10	1	0	0	0	1	1	0	14	0	0	0	14	31	134	
08:15:00	3	0	1	0	4	4	0	9	0	0	6	9	1	0	5	0	6	6	0	20	1	0	1	21	40	140	
08:30:00	3	0	1	0	8	4	1	13	0	0	0	14	2	0	1	0	1	3	2	12	1	0	2	15	36	139	
08:45:00	2	0	1	0	3	3	2	18	0	0	5	20	1	0	2	0	6	3	0	16	1	0	2	17	43	150	
09:00:00	2	0	0	0	5	2	1	10	1	0	5	12	0	0	2	0	4	2	1	14	1	0	1	16	32	151	
09:15:00	3	0	1	0	5	4	1	11	1	0	1	13	1	0	2	0	2	3	1	6	2	0	4	9	29	140	
09:30:00	4	0	2	0	1	6	1	9	0	0	2	10	1	0	2	0	3	3	1	9	1	0	1	11	30	134	
09:45:00	4	0	1	0	3	5	0	11	0	0	2	11	0	0	1	0	2	1	1	9	1	0	1	11	28	119	
BREAK																											
15:00:00	1	1	1	0	11	3	0	9	0	0	3	9	1	0	1	0	2	2	1	21	0	0	4	22	36		
15:15:00	0	0	0	0	4	0	2	12	1	0	3	15	0	0	1	0	5	1	1	22	2	0	5	25	41		
15:30:00	6	0	2	0	5	8	1	16	0	1	7	18	1	0	0	0	8	1	1	20	0	0	8	21	48		
15:45:00	2	0	0	0	4	2	1	10	3	0	4	14	0	0	0	0	1	0	2	29	4	0	4	35	51	176	
16:00:00	0	0	0	0	5	0	3	11	1	1	3	16	2	0	2	0	3	4	0	23	2	0	1	25	45	185	
16:15:00	2	0	1	0	7	3	3	7	1	0	3	11	0	0	0	0	4	0	2	24	9	0	1	35	49	193	
16:30:00	3	0	0	0	6	3	3	12	2	0	7	17	0	0	2	0	1	2	0	27	5	0	9	32	54	199	
16:45:00	1	0	3	0	4	4	1	10	0	0	3	11	1	0	0	0	3	1	1	27	0	0	2	28	44	192	
17:00:00	1	0	0	0	6	1	2	16	1	0	8	19	1	0	0	0	3	1	1	31	2	0	0	34	55	202	
17:15:00	3	0	1	0	8	4	2	4	1	0	7	7	0	0	1	0	1	1	2	23	4	0	2	29	41	194	
17:30:00	5	0	1	0	7	6	2	10	0	0	5	12	0	0	0	0	2	0	2	24	5	0	1	31	49	189	
17:45:00	4	0	1	0	7	5	1	11	1	0	3	13	1	0	2	0	2	3	2	26	3	0	3	31	52	197	
18:00:00	7	0	1	0	7	8	1	14	0	0	4	15	1	0	0	0	2	1	1	22	3	0	5	26	50	192	
18:15:00	3	0	1	0	5	4	2	17	1	0	4	20	3	0	1	0	2	4	1	19	6	0	4	26	54	205	
18:30:00	3	1	2	0	5	6	2	10	1	0	4	13	0	0	0	0	5	0	1	24	2	0	3	27	46	202	
18:45:00	1	0	1	0	5	2	0	14	3	0	6	17	1	0	1	0	1	2	0	25	3	0	1	28	49	199	
Grand Total	93	2	39	0	141	134	41	344	20	2	103	407	23	0	32	0	78	55	28	531	65	0	72	624	1220	-	
Approach%	69.4%	1.5%	29.1%	0%	-	-	10.1%	84.5%	4.9%	0.5%	-	-	41.8%	0%	58.2%	0%	-	-	4.5%	85.1%	10.4%	0%	-	-	-	-	
Totals %	7.6%	0.2%	3.2%	0%	11%	11%	3.4%	28.2%	1.6%	0.2%	33.4%	33.4%	1.9%	0%	2.6%	0%	4.5%	4.5%	2.3%	43.5%	5.3%	0%	51.1%	-	-	-	
Heavy	0	0	0	0	-	-	0	8	0	0	-	-	0	0	0	0	-	-	0	9	0	0	-	-	-	-	
Heavy %	0%	0%	0%	0%	-	-	0%	2.3%	0%	0%	-	-	0%	0%	0%	0%	-	-	0%	1.7%	0%	0%	-	-	-	-	
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Peak Hour: 08:15 AM - 09:15 AM Weather: Scattered Clouds (16.32 °C)

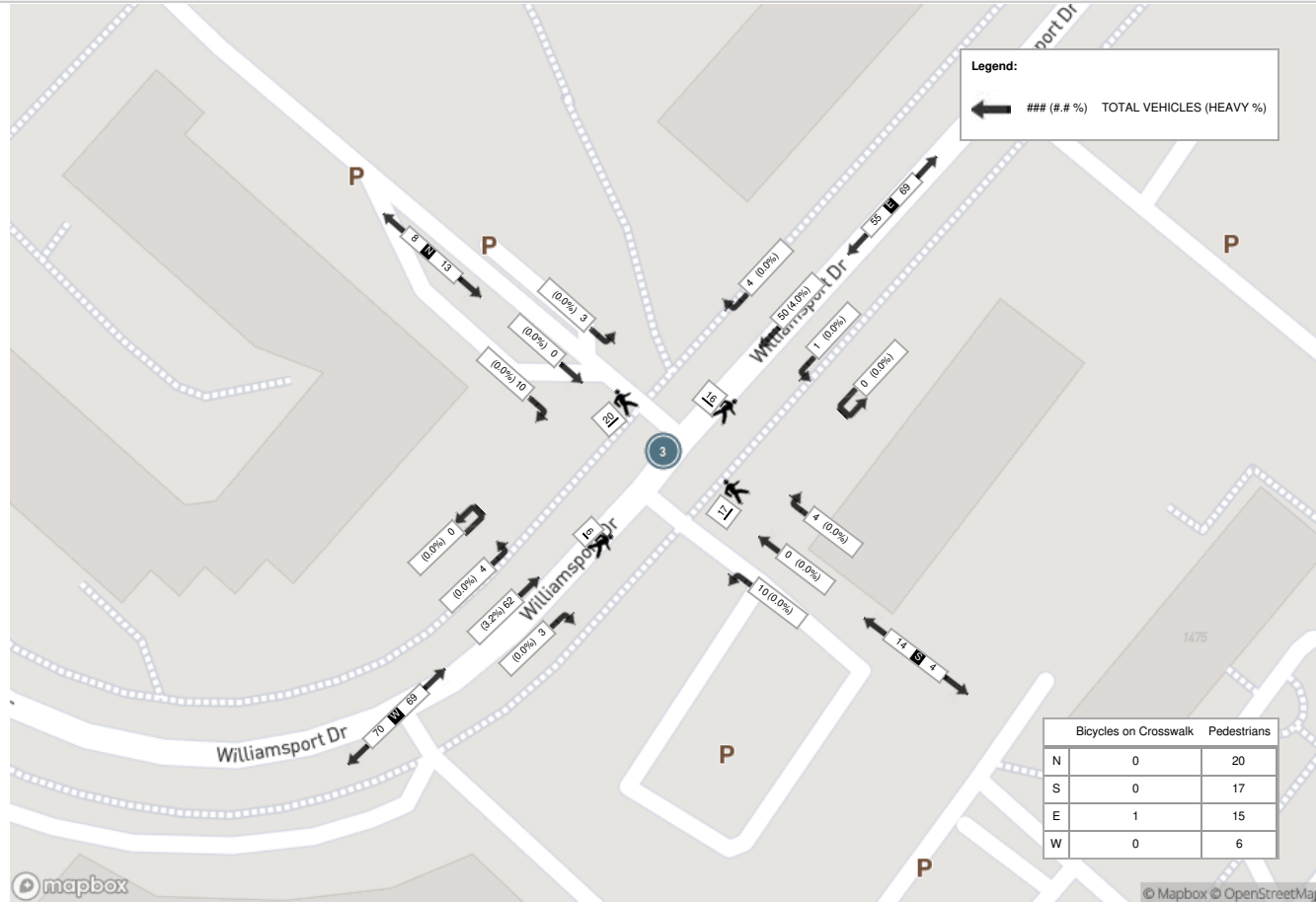
Start Time	N Approach NORTH DRIVEWAY						E Approach WILLIAMSPORT DRIVE						S Approach 1470 WILLIAMSPORT DRIVE(PRIVATE ACCESS)						W Approach WILLIAMSPORT DRIVE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	3	0	1	0	4	4	0	9	0	0	6	9	1	0	5	0	6	6	0	20	1	0	1	21	40
08:30:00	3	0	1	0	8	4	1	13	0	0	0	14	2	0	1	0	1	3	2	12	1	0	2	15	36
08:45:00	2	0	1	0	3	3	2	18	0	0	5	20	1	0	2	0	6	3	0	16	1	0	2	17	43
09:00:00	2	0	0	0	5	2	1	10	1	0	5	12	0	0	2	0	4	2	1	14	1	0	1	16	32
Grand Total	10	0	3	0	20	13	4	50	1	0	16	55	4	0	10	0	17	14	3	62	4	0	6	69	151
Approach%	76.9%	0%	23.1%	0%		-	7.3%	90.9%	1.8%	0%		-	28.6%	0%	71.4%	0%		-	4.3%	89.9%	5.8%	0%		-	-
Totals %	6.6%	0%	2%	0%		8.6%	2.6%	33.1%	0.7%	0%		36.4%	2.6%	0%	6.6%	0%		9.3%	2%	41.1%	2.6%	0%		45.7%	-
PHF	0.83	0	0.75	0		0.81	0.5	0.69	0.25	0		0.69	0.5	0	0.5	0		0.58	0.38	0.78	1	0		0.82	-
Heavy	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	2	0	0		2	-
Heavy %	0%	0%	0%	0%		0%	0%	4%	0%	0%		3.6%	0%	0%	0%	0%		0%	0%	3.2%	0%	0%		2.9%	-
Lights	10	0	3	0		13	4	48	1	0		53	4	0	10	0		14	3	60	4	0		67	-
Lights %	100%	0%	100%	0%		100%	100%	96%	100%	0%		96.4%	100%	0%	100%	0%		100%	100%	96.8%	100%	0%		97.1%	-
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.6%	0%	0%		1.4%	-
Buses	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	-
Buses %	0%	0%	0%	0%		0%	0%	4%	0%	0%		3.6%	0%	0%	0%	0%		0%	0%	1.6%	0%	0%		1.4%	-
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	-	-	-	-	20		-	-	-	-	15		-	-	-	-	17		-	-	-	-	6		-
Pedestrians%	-	-	-	-	33.9%		-	-	-	-	25.4%		-	-	-	-	28.8%		-	-	-	-	10.2%		-
Bicycles on Crosswalk	-	-	-	-	0		-	-	-	-	1		-	-	-	-	0		-	-	-	-	0		-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	1.7%		-	-	-	-	0%		-	-	-	-	0%		-



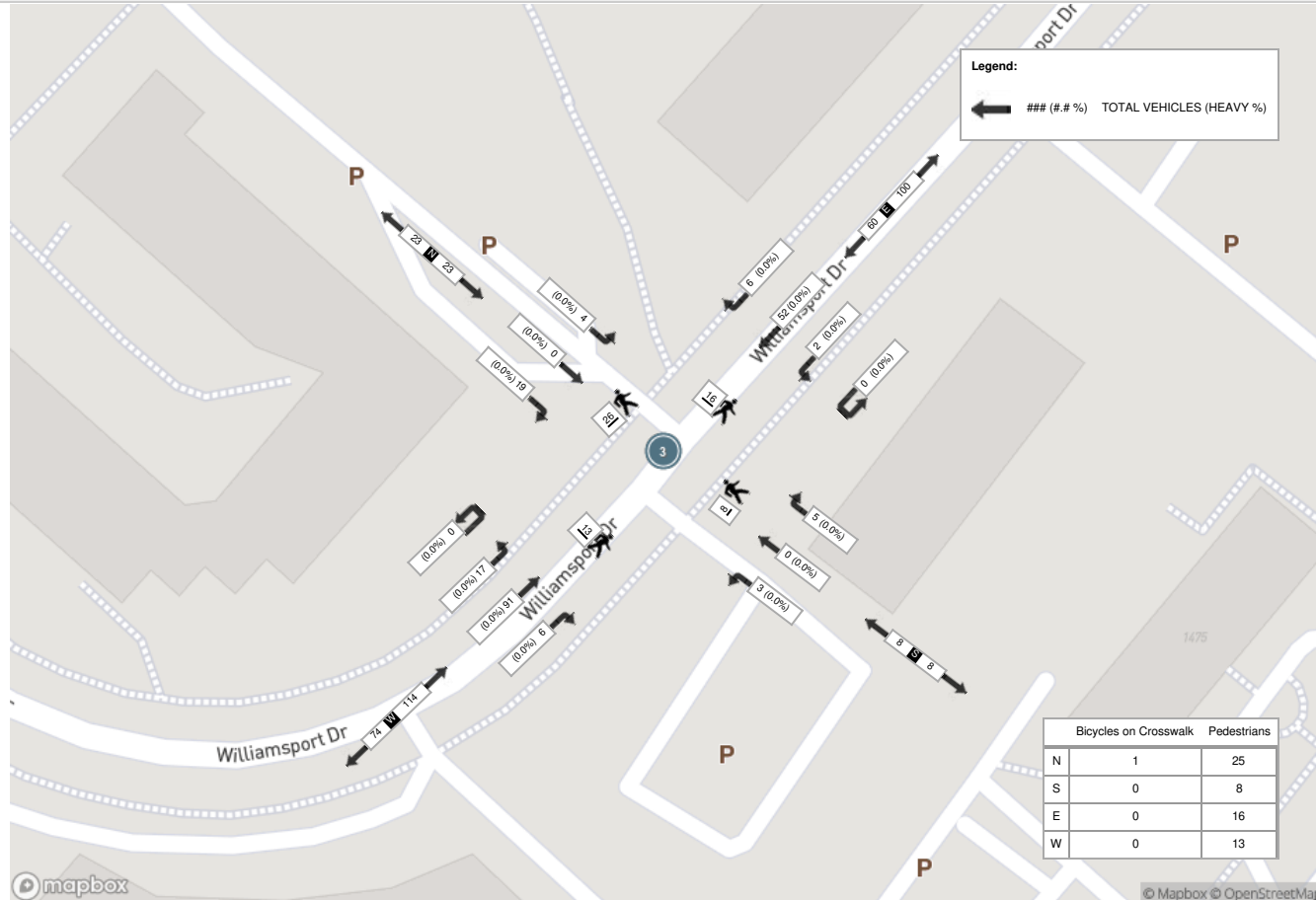
Peak Hour: 05:30 PM - 06:30 PM Weather: Broken Clouds (23.32 °C)

Start Time	N Approach NORTH DRIVEWAY						E Approach WILLIAMSPORT DRIVE						S Approach 1470 WILLIAMSPORT DRIVE(PRIVATE ACCESS)						W Approach WILLIAMSPORT DRIVE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:30:00	5	0	1	0	7	6	2	10	0	0	5	12	0	0	0	0	2	0	2	24	5	0	1	31	49
17:45:00	4	0	1	0	7	5	1	11	1	0	3	13	1	0	2	0	2	3	2	26	3	0	3	31	52
18:00:00	7	0	1	0	7	8	1	14	0	0	4	15	1	0	0	0	2	1	1	22	3	0	5	26	50
18:15:00	3	0	1	0	5	4	2	17	1	0	4	20	3	0	1	0	2	4	1	19	6	0	4	26	54
Grand Total	19	0	4	0	26	23	6	52	2	0	16	60	5	0	3	0	8	8	6	91	17	0	13	114	205
Approach%	82.6%	0%	17.4%	0%	-	-	10%	86.7%	3.3%	0%	-	-	62.5%	0%	37.5%	0%	-	-	5.3%	79.8%	14.9%	0%	-	-	-
Totals %	9.3%	0%	2%	0%	11.2%	11.2%	2.9%	25.4%	1%	0%	29.3%	29.3%	2.4%	0%	1.5%	0%	3.9%	3.9%	2.9%	44.4%	8.3%	0%	55.6%	55.6%	-
PHF	0.68	0	1	0	0.72	0.72	0.75	0.76	0.5	0	0.75	0.75	0.42	0	0.38	0	0.5	0.5	0.75	0.88	0.71	0	0.92	0.92	-
Heavy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Heavy %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Lights	19	0	4	0	23	23	6	52	2	0	60	60	5	0	3	0	8	8	6	91	16	0	113	113	-
Lights %	100%	0%	100%	0%	100%	100%	100%	100%	100%	0%	100%	100%	100%	0%	100%	0%	100%	100%	100%	100%	94.1%	0%	99.1%	99.1%	-
Single-Unit 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	-
Single-Unit 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%	-
Buses	0	0	0	0	0	0	0	0	0	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%	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	1	0	1	1	-
Bicycles on Road %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5.9%	0%	0.9%	0.9%	-
Pedestrians	-	-	-	-	25	-	-	-	-	-	16	-	-	-	-	-	8	-	-	-	-	-	13	-	-
Pedestrians%	-	-	-	-	39.7%	-	-	-	-	-	25.4%	-	-	-	-	-	12.7%	-	-	-	-	-	20.6%	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	1.6%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 08:15 AM - 09:15 AM Weather: Scattered Clouds (16.32 °C)



Peak Hour: 05:30 PM - 06:30 PM Weather: Broken Clouds (23.32 °C)



REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	August 12, 2024		Prepared Date	August 12, 2024
Database Rev	iNET		Completed By	S.A
Timing Card / Field rev	-		Checked By	J.V

Location	Dixie Road and Bloor Street								
----------	-----------------------------	--	--	--	--	--	--	--	--

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Dixie Road - NBLT Prot. Perm.	7	-	-	3	-	-	14	24
2	Dixie Road - SB	10	10	30	4	2.9	94	71	65
3	Bloor Street - EBLT Prot. Perm.	7	-	-	3	-	-	-	13
4	Bloor Street - WB	10	10	29	4	3.4	66	75	58
5	Dixie Road - SBLT PROT.	7	-	-	3	2	23	16	23
6	Dixie Road - NB	10	10	30	4	2.9	71	69	66
7	Bloor Street - WBLT Prot. Perm.	7	-	-	3	-	15	13	13
8	Bloor Street - EB	10	10	29	4	3.4	51	62	58

System Control Yes Semi-Actuated Mode Yes	TIME (M-F)		PEAK	CYCLE LENGTH (s)	OFFSET (s)
	6:00 - 9:30		AM	160	45
	9:30 - 15:00		OFF	160	46
	15:00 - 19:30		PM	160	74

Intelight		1907			BLOOR STREET E @ Havenwood Drive				
Phase - Parameter 1-16	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Phase Description*	String								
Walk	Sec	0	10	0	10	0	0	0	0
Ped Clear	Sec	0	19	0	24	0	0	0	0
Min Green	Sec	0	10	0	10	0	0	0	0
Passage	Sec	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0
Maximum 1	Sec	0	21	0	30	0	0	0	0
Maximum 2	Sec	0	21	0	30	0	0	0	0
Yellow Change	Sec	3.0	3.5	3.0	3.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	2.5	0.0	4.5	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before Reduction	Sec	0	0	0	0	0	0	0	0
Cars Before Reduction	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	other	redClear	other	phaseNotOn	other	other	other	other
[P2] Options	Bit		0:Enabled Phase 3:Non-Actuated 1 7:Max Vehicle Recall 8:Ped. Recall 13:Actuated Rest In Walk		0:Enabled Phase 5:Non Lock Detector Memory				
[P2] Ring	Ring	0	1	0	1	0	0	0	0
[P2] Concurrency	Phase (,)	()	()	()	()	()	()	()	()
Coordination - Pattern 1-32	Units	1	2	3	4	5	6	7	8
Cycle Time	Sec	100	80	100	0	0	0	0	0
Offset	Sec	39	39	77	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1
Phase Parameter Table*	Number	1	1	1	1	1	1	1	1
Coord Phase Reference Point*	Enum	green	green	green	green	green	green	green	green
Coord Mode*	Enum	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive	singlePermissive
Coordination - Splits	Units	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	0	59	0	41	0	0	0	0
Split 1 - Coord	Enum	False	True	False	False	False	False	False	False
Split 1 - Coord Phase Options*	Bit		0: Reference Point						
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	39	0	41	0	0	0	0
Split 2 - Coord	Enum	False	True	False	False	False	False	False	False
Split 2 - Coord Phase Options*	Bit		0: Reference Point						
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	0	59	0	41	0	0	0	0
Split 3 - Coord	Enum	False	True	False	False	False	False	False	False
Time Base - Schedule 1-16	Units	1	2	3	4	5	6	7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J-----	-F-----	--M-----	---M-----	-----J----
Day of Week	Bit	-MTWTF-	S-----	-----S	---W---	-M-----	-----F-	-M-----	-M-----
Day of Month	Bit	12345678901234567							

APPENDIX C

Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	> 10 and ≤ 15	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	> 15 and ≤ 25	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	> 25 and ≤ 35	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	> 35 and ≤ 50	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	> 50	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Level of Service Definitions

Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX D

Existing Detailed Capacity Analysis Reports

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2024 EX AM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	449	173	247	351	241	55	949	179	186	1155	97
Future Volume (vph)	137	449	173	247	351	241	55	949	179	186	1155	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.97		0.98	1.00		0.93	0.99	1.00		1.00		0.95
Frt			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	3544	1617	1772	3444	1555	1722	4702	0	1722	4948	1555
Flt Permitted	0.525			0.255			0.210			0.153		
Satd. Flow (perm)	929	3544	1582	474	3444	1452	378	4702	0	277	4948	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			107			29			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			339.9			615.3			434.7	
Travel Time (s)		21.7			24.5			36.9			26.1	
Confl. Peds. (#/hr)	45		8	8		45	35		14	14		35
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 (%)	5%	3%	1%	3%	6%	5%	6%	9%	5%	6%	6%	5%
Adj. Flow (vph)	149	488	188	268	382	262	60	1032	195	202	1255	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	488	188	268	382	262	60	1227	0	202	1255	105
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2024 EX AM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		8		7	4			6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	7	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	10.0
Minimum Split (s)	46.4	46.4	46.4	10.0	46.4	46.4	46.9	46.9		12.0	46.9	46.9
Total Split (s)	51.0	51.0	51.0	15.0	66.0	66.0	71.0	71.0		23.0	94.0	94.0
Total Split (%)	31.9%	31.9%	31.9%	9.4%	41.3%	41.3%	44.4%	44.4%		14.4%	58.8%	58.8%
Maximum Green (s)	43.6	43.6	43.6	12.0	58.6	58.6	64.1	64.1		18.0	87.1	87.1
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.4	3.4	3.4	0.0	3.4	3.4	2.9	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.9	6.9		5.0	6.9	6.9
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0		10.0	10.0	10.0	10.0			10.0	10.0
Flash Don't Walk (s)	29.0	29.0	29.0		29.0	29.0	30.0	30.0			30.0	30.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0			0	0
Act Effect Green (s)	33.1	33.1	33.1	52.5	48.1	48.1	79.5	79.5		99.5	97.6	97.6
Actuated g/C Ratio	0.21	0.21	0.21	0.33	0.30	0.30	0.50	0.50		0.62	0.61	0.61
v/c Ratio	0.78	0.67	0.48	1.06	0.37	0.51	0.32	0.52		0.69	0.42	0.11
Control Delay (s/veh)	84.8	62.2	33.8	117.3	44.1	29.0	34.9	29.3		27.9	17.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	84.8	62.2	33.8	117.3	44.1	29.0	34.9	29.3		27.9	17.7	3.0
LOS	F	E	C	F	D	C	C	C		C	B	A
Approach Delay (s/veh)		59.8			61.3			29.6			18.0	
Approach LOS		E			E			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 45 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay (s/veh): 37.4

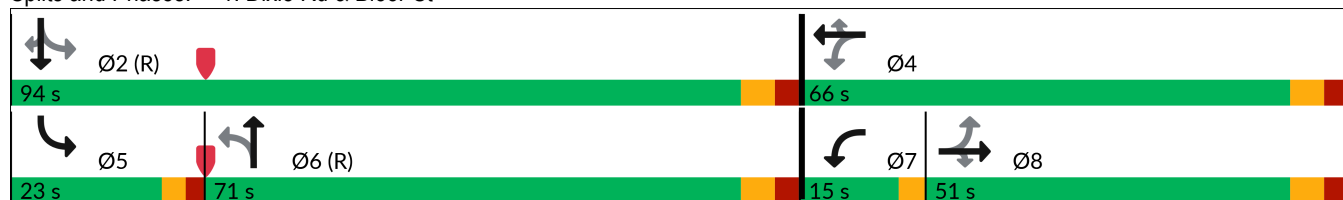
Intersection LOS: D

Intersection Capacity Utilization 101.6%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



2024 Existing AM 2:26 pm 05/01/2024 Baseline

Synchro 11 Report

Page 2

Queues
1: Dixie Rd & Bloor St

2024 EX AM
02/03/2025

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	149	488	188	268	382	262	60	1227	202	1255	105
v/c Ratio	0.78	0.67	0.48	1.06	0.37	0.51	0.32	0.52	0.69	0.42	0.11
Control Delay (s/veh)	84.8	62.2	33.8	117.3	44.1	29.0	34.9	29.3	27.9	17.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.8	62.2	33.8	117.3	44.1	29.0	34.9	29.3	27.9	17.7	3.0
Queue Length 50th (m)	45.4	76.1	29.9	~73.7	50.6	40.8	11.1	92.4	26.3	73.1	0.0
Queue Length 95th (m)	67.2	87.5	50.6	#114.2	59.4	62.4	28.7	128.6	47.2	98.8	9.2
Internal Link Dist (m)	278.0			315.9			591.3			410.7	
Turn Bay Length (m)	40.0		15.0	60.0		10.0	75.0		100.0		85.0
Base Capacity (vph)	253	965	490	252	1261	599	187	2350	334	3019	939
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.51	0.38	1.06	0.30	0.44	0.32	0.52	0.60	0.42	0.11

Intersection Summary

~ 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.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2024 EX AM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	710	62	58	627	26	68	60	60	38	85	106
Future Volume (vph)	63	710	62	58	627	26	68	60	60	38	85	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.96	1.00		0.99	0.99		0.92	0.92		0.87	0.93	
Frt		0.988			0.994			0.925			0.917	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3450	0	1722	3470	0	1690	1598	0	1722	1558	0
Flt Permitted	0.373			0.320			0.489			0.674		
Satd. Flow (perm)	674	3450	0	573	3470	0	798	1598	0	1061	1558	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			6			54			68	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		339.9			281.3			137.1			111.7	
Travel Time (s)		24.5			20.3			16.5			10.1	
Confl. Peds. (#/hr)	70		25	25		70	127		178	178		127
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%	4%	4%	6%	4%	4%	8%	2%	2%	6%	6%	5%
Adj. Flow (vph)	68	772	67	63	682	28	74	65	65	41	92	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	839	0	63	710	0	74	130	0	41	207	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes										
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2024 EX AM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		41.5	41.5		41.5	41.5	
Total Split (s)	59.0	59.0		59.0	59.0		41.0	41.0		41.0	41.0	
Total Split (%)	59.0%	59.0%		59.0%	59.0%		41.0%	41.0%		41.0%	41.0%	
Maximum Green (s)	53.0	53.0		53.0	53.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.5	7.5		7.5	7.5	

Lead/Lag

Lead-Lag Optimize?

Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	70.9	70.9		70.9	70.9		15.6	15.6		15.6	15.6	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.16	0.16		0.16	0.16	
v/c Ratio	0.14	0.34		0.16	0.29		0.60	0.44		0.25	0.69	
Control Delay (s/veh)	6.8	6.5		7.2	6.2		57.4	26.2		38.5	37.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.8	6.5		7.2	6.2		57.4	26.2		38.5	37.8	
LOS	A	A		A	A		E	C		D	D	
Approach Delay (s/veh)		6.6			6.3			37.5			37.9	
Approach LOS		A			A			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 39 (39%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 13.1

Intersection LOS: B

Intersection Capacity Utilization 91.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 2: Havenwood Dr & Bloor St

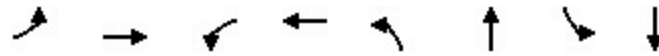


Queues

2: Havenwood Dr & Bloor St

2024 EX AM

02/03/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	839	63	710	74	130	41	207
v/c Ratio	0.14	0.34	0.16	0.29	0.60	0.44	0.25	0.69
Control Delay (s/veh)	6.8	6.5	7.2	6.2	57.4	26.2	38.5	37.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.8	6.5	7.2	6.2	57.4	26.2	38.5	37.8
Queue Length 50th (m)	3.6	27.2	3.4	22.1	13.6	13.3	7.1	25.8
Queue Length 95th (m)	10.9	48.1	10.6	39.7	26.1	27.8	15.4	45.0
Internal Link Dist (m)		315.9		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	477	2448	405	2460	267	571	355	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.34	0.16	0.29	0.28	0.23	0.12	0.37
Intersection Summary								

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2024 EX AM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	27	35	34	26	32	21	118	22	28	149	9
Future Volume (vph)	12	27	35	34	26	32	21	118	22	28	149	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.936			0.953			0.981			0.993	
Flt Protected		0.992			0.982			0.993			0.993	
Satd. Flow (prot)	0	1749	0	0	1763	0	0	1835	0	0	1857	0
Flt Permitted		0.992			0.982			0.993			0.993	
Satd. Flow (perm)	0	1749	0	0	1763	0	0	1835	0	0	1857	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		147.2			52.0			111.7			74.0	
Travel Time (s)		13.2			4.7			10.1			6.7	
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
Adj. Flow (vph)	13	29	38	37	28	35	23	128	24	30	162	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	100	0	0	175	0	0	202	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.8%											
Analysis Period (min)	15											
ICU Level of Service A												

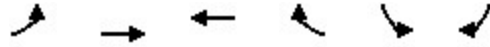
HCM Unsignalized Intersection Capacity Analysis 3: Havenwood Dr & Williamsport Drive

2024 EX AM
02/03/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	27	35	34	26	32	21	118	22	28	149	9
Future Volume (vph)	12	27	35	34	26	32	21	118	22	28	149	9
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)	13	29	38	37	28	35	23	128	24	30	162	10
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	80	100	175	202								
Volume Left (vph)	13	37	23	30								
Volume Right (vph)	38	35	24	10								
Hadj (s)	-0.22	-0.10	-0.02	0.03								
Departure Headway (s)	4.7	4.8	4.6	4.6								
Degree Utilization, x	0.10	0.13	0.22	0.26								
Capacity (veh/h)	693	686	749	744								
Control Delay (s/veh)	8.3	8.5	8.9	9.2								
Approach Delay (s/veh)	8.3	8.5	8.9	9.2								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.8									
Level of Service			A									
Intersection Capacity Utilization			30.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Williamsport Dr & Gulleden Dr

2024 EX AM
02/03/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	46	28	15	77	59	59
Future Volume (vph)	46	28	15	77	59	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.887		0.932	
Flt Protected		0.970			0.976	
Satd. Flow (prot)	0	1827	1671	0	1713	0
Flt Permitted		0.970			0.976	
Satd. Flow (perm)	0	1827	1671	0	1713	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		43.5	69.8		85.7	
Travel Time (s)		3.9	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	30	16	84	64	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	80	100	0	128	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 24.2%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis

4: Williamsport Dr & Gulleden Dr

2024 EX AM
02/03/2025



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	28	15	77	59	59
Future Volume (Veh/h)	46	28	15	77	59	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	30	16	84	64	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	100				188	58
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				188	58
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	94
cM capacity (veh/h)	1493				774	1008
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	80	100	128			
Volume Left	50	0	64			
Volume Right	0	84	64			
cSH	1493	1700	876			
Volume to Capacity	0.03	0.06	0.15			
Queue Length 95th (m)	0.8	0.0	3.9			
Control Delay (s/veh)	4.8	0.0	9.8			
Lane LOS	A		A			
Approach Delay (s/veh)	4.8	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization			24.2%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
5: Williamsport Drive

2024 EX AM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	62	3	1	50	4	10	0	4	3	0	10
Future Volume (vph)	4	62	3	1	50	4	10	0	4	3	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.995			0.991			0.964			0.894	
Flt Protected		0.997			0.999			0.965			0.989	
Satd. Flow (prot)	0	1868	0	0	1865	0	0	1752	0	0	1665	0
Flt Permitted		0.997			0.999			0.965			0.989	
Satd. Flow (perm)	0	1868	0	0	1865	0	0	1752	0	0	1665	0
Link Speed (k/h)		40			40			48			30	
Link Distance (m)		96.4			147.2			51.6			40.8	
Travel Time (s)		8.7			13.2			3.9			4.9	
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)	4	67	3	1	54	4	11	0	4	3	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	59	0	0	15	0	0	14	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	15.6%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis 5: Williamsport Drive

2024 EX AM
02/03/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	62	3	1	50	4	10	0	4	3	0	10
Future Volume (Veh/h)	4	62	3	1	50	4	10	0	4	3	0	10
Sign Control	Free			Free			Stop			Stop		
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)	4	67	3	1	54	4	11	0	4	3	0	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	58			70			146	137	69	139	136	56
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	58			70			146	137	69	139	136	56
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	100	100	99
cM capacity (veh/h)	1546			1531			812	752	995	827	752	1011
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	74	59	15	14								
Volume Left	4	1	11	3								
Volume Right	3	4	4	11								
cSH	1546	1531	854	965								
Volume to Capacity	0.00	0.00	0.02	0.01								
Queue Length 95th (m)	0.1	0.0	0.4	0.3								
Control Delay (s/veh)	0.4	0.1	9.3	8.8								
Lane LOS	A	A	A	A								
Approach Delay (s/veh)	0.4	0.1	9.3	8.8								
Approach LOS			A	A								
Intersection Summary												
Average Delay				1.9								
Intersection Capacity Utilization				15.6%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2024 EX PM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	421	179	283	674	195	265	1272	348	123	1399	213
Future Volume (vph)	132	421	179	283	674	195	265	1272	348	123	1399	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.98		0.96	0.98		0.90	1.00	0.99				0.93
Frt			0.850			0.850		0.968				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3544	1601	1789	3579	1617	1825	4917	0	1789	5092	1617
Flt Permitted	0.133			0.350			0.064			0.069		
Satd. Flow (perm)	245	3544	1530	649	3579	1451	123	4917	0	130	5092	1502
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			81		49				177
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			339.9			615.3			434.7	
Travel Time (s)		21.7			24.5			36.9			26.1	
Confl. Peds. (#/hr)	75		27	27		75	50		24	24		50
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%	2%	2%	2%	1%	0%	3%	0%	2%	3%	1%
Adj. Flow (vph)	143	458	195	308	733	212	288	1383	378	134	1521	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	458	195	308	733	212	288	1761	0	134	1521	232
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

2024 Existing PM 3:35 pm 05/23/2024

Synchro 11 Report
Page 1

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2024 EX PM
02/03/2025

												
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		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	3	8	8	7	4	4	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	46.4	46.4	10.0	46.4	46.4	11.5	46.9		12.0	46.9	46.9
Total Split (s)	13.0	58.0	58.0	13.0	58.0	58.0	24.0	66.0		23.0	65.0	65.0
Total Split (%)	8.1%	36.3%	36.3%	8.1%	36.3%	36.3%	15.0%	41.3%		14.4%	40.6%	40.6%
Maximum Green (s)	10.0	50.6	50.6	10.0	50.6	50.6	21.0	59.1		18.0	58.1	58.1
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	3.4	3.4	0.0	3.4	3.4	0.0	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.9		5.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		10.0	10.0		10.0	10.0		10.0			10.0	10.0
Flash Don't Walk (s)		29.0	29.0		29.0	29.0		30.0			30.0	30.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	54.0	39.6	39.6	54.0	39.6	39.6	97.0	75.9		77.5	63.4	63.4
Actuated g/C Ratio	0.34	0.25	0.25	0.34	0.25	0.25	0.61	0.47		0.48	0.40	0.40
v/c Ratio	0.80	0.52	0.44	1.06	0.83	0.50	0.80	0.75		0.71	0.75	0.33
Control Delay (s/veh)	66.9	53.6	31.3	113.9	65.2	34.6	60.6	37.0		54.1	45.4	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	66.9	53.6	31.3	113.9	65.2	34.6	60.6	37.0		54.1	45.4	10.6
LOS	E	D	C	F	E	C	E	D		D	D	B
Approach Delay (s/veh)		50.5			72.0			40.3			41.7	
Approach LOS		D			E			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 74 (46%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay (s/veh): 48.8

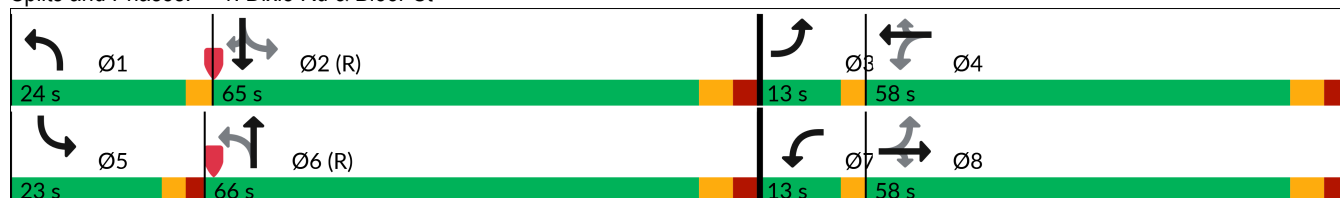
Intersection LOS: D

Intersection Capacity Utilization 106.3%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



2024 Existing PM 3:35 pm 05/23/2024

Synchro 11 Report

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Queues
1: Dixie Rd & Bloor St

2024 EX PM
02/03/2025

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	143	458	195	308	733	212	288	1761	134	1521	232
v/c Ratio	0.80	0.52	0.44	1.06	0.83	0.50	0.80	0.75	0.71	0.75	0.33
Control Delay (s/veh)	66.9	53.6	31.3	113.9	65.2	34.6	60.6	37.0	54.1	45.4	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.9	53.6	31.3	113.9	65.2	34.6	60.6	37.0	54.1	45.4	10.6
Queue Length 50th (m)	31.9	67.0	30.5	~83.8	117.4	36.0	69.2	159.5	24.7	155.0	11.2
Queue Length 95th (m)	#49.7	79.1	51.6	#129.0	131.8	58.4	#126.0	210.8	46.7	179.9	32.8
Internal Link Dist (m)	278.0				315.9				591.3		410.7
Turn Bay Length (m)	40.0			15.0	60.0			10.0	75.0	100.0	85.0
Base Capacity (vph)	179	1120	539	290	1131	514	358	2357	255	2017	702
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.41	0.36	1.06	0.65	0.41	0.80	0.75	0.53	0.75	0.33

Intersection Summary

~ 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.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2024 EX PM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	765	58	47	1020	44	38	37	39	63	43	108
Future Volume (vph)	106	765	58	47	1020	44	38	37	39	63	43	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00		0.98	0.97		0.96	0.97	
Frt		0.989			0.994			0.923			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3526	0	1825	3548	0	1825	1720	0	1755	1664	0
Flt Permitted	0.219			0.303			0.595			0.704		
Satd. Flow (perm)	417	3526	0	575	3548	0	1115	1720	0	1245	1664	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			7			42			55	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		339.9			281.3			137.1			111.7	
Travel Time (s)		24.5			20.3			16.5			10.1	
Confl. Peds. (#/hr)	36		30	30		36	35		54	54		35
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 (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	115	832	63	51	1109	48	41	40	42	68	47	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	895	0	51	1157	0	41	82	0	68	164	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes										
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

2024 Existing PM 3:35 pm 05/23/2024

Synchro 11 Report
Page 4

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2024 EX PM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		41.5	41.5		41.5	41.5	
Total Split (s)	59.0	59.0		59.0	59.0		41.0	41.0		41.0	41.0	
Total Split (%)	59.0%	59.0%		59.0%	59.0%		41.0%	41.0%		41.0%	41.0%	
Maximum Green (s)	53.0	53.0		53.0	53.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.5	7.5		7.5	7.5	

Lead/Lag

Lead-Lag Optimize?

Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	73.2	73.2		73.2	73.2		13.3	13.3		13.3	13.3	
Actuated g/C Ratio	0.73	0.73		0.73	0.73		0.13	0.13		0.13	0.13	
v/c Ratio	0.38	0.35		0.12	0.45		0.28	0.31		0.41	0.61	
Control Delay (s/veh)	10.3	5.6		5.7	6.4		42.2	23.6		46.0	36.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	10.3	5.6		5.7	6.4		42.2	23.6		46.0	36.1	
LOS	B	A		A	A		D	C		D	D	
Approach Delay (s/veh)		6.1			6.3			29.8			39.0	
Approach LOS		A			A			C			D	

Intersection Summary

Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 77 (77%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay (s/veh): 10.3	Intersection LOS: B
Intersection Capacity Utilization 85.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Havenwood Dr & Bloor St

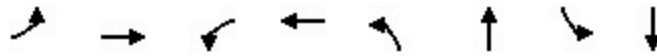


Queues

2: Havenwood Dr & Bloor St

2024 EX PM

02/03/2025



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	895	51	1157	41	82	68	164
v/c Ratio	0.38	0.35	0.12	0.45	0.28	0.31	0.41	0.61
Control Delay (s/veh)	10.3	5.6	5.7	6.4	42.2	23.6	46.0	36.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.3	5.6	5.7	6.4	42.2	23.6	46.0	36.1
Queue Length 50th (m)	6.7	26.0	2.4	37.6	7.3	7.1	12.4	20.1
Queue Length 95th (m)	21.7	45.3	7.6	64.3	16.2	18.9	23.7	37.7
Internal Link Dist (m)		315.9		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	305	2582	420	2597	373	604	417	594
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.35	0.12	0.45	0.11	0.14	0.16	0.28
Intersection Summary								

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2024 EX PM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	40	45	21	23	25	13	164	20	26	125	16
Future Volume (vph)	19	40	45	21	23	25	13	164	20	26	125	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.941			0.951			0.986			0.987	
Flt Protected		0.991			0.985			0.997			0.992	
Satd. Flow (prot)	0	1756	0	0	1764	0	0	1852	0	0	1844	0
Flt Permitted		0.991			0.985			0.997			0.992	
Satd. Flow (perm)	0	1756	0	0	1764	0	0	1852	0	0	1844	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		147.2			52.0			111.7			74.0	
Travel Time (s)		13.2			4.7			10.1			6.7	
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
Adj. Flow (vph)	21	43	49	23	25	27	14	178	22	28	136	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	75	0	0	214	0	0	181	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	29.3%											
Analysis Period (min)	15											
ICU Level of Service A												

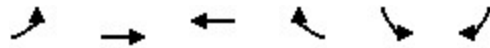
HCM Unsignalized Intersection Capacity Analysis 3: Havenwood Dr & Williamsport Drive

2024 EX PM
02/03/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	40	45	21	23	25	13	164	20	26	125	16
Future Volume (vph)	19	40	45	21	23	25	13	164	20	26	125	16
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)	21	43	49	23	25	27	14	178	22	28	136	17
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	113	75	214	181								
Volume Left (vph)	21	23	14	28								
Volume Right (vph)	49	27	22	17								
Hadj (s)	-0.19	-0.12	-0.01	0.01								
Departure Headway (s)	4.8	4.9	4.6	4.6								
Degree Utilization, x	0.15	0.10	0.27	0.23								
Capacity (veh/h)	690	667	750	733								
Control Delay (s/veh)	8.6	8.4	9.3	9.0								
Approach Delay (s/veh)	8.6	8.4	9.3	9.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.0									
Level of Service			A									
Intersection Capacity Utilization			29.3%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Williamsport Dr & Gulleden Dr

2024 EX PM
02/03/2025



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	28	30	42	62	71
Future Volume (vph)	53	28	30	42	62	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.921		0.928	
Flt Protected		0.968			0.977	
Satd. Flow (prot)	0	1823	1735	0	1708	0
Flt Permitted		0.968			0.977	
Satd. Flow (perm)	0	1823	1735	0	1708	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		43.5	69.8		85.7	
Travel Time (s)		3.9	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	30	33	46	67	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	88	79	0	144	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97			97	97	97
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 25.5% ICU Level of Service A						
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis 4: Williamsport Dr & Gulleden Dr

2024 EX PM
02/03/2025



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	28	30	42	62	71
Future Volume (Veh/h)	53	28	30	42	62	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	30	33	46	67	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	79				202	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79				202	56
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				91	92
cM capacity (veh/h)	1519				757	1011
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	88	79	144			
Volume Left	58	0	67			
Volume Right	0	46	77			
cSH	1519	1700	874			
Volume to Capacity	0.04	0.05	0.16			
Queue Length 95th (m)	0.9	0.0	4.5			
Control Delay (s/veh)	5.0	0.0	9.9			
Lane LOS	A		A			
Approach Delay (s/veh)	5.0	0.0	9.9			
Approach LOS			A			
Intersection Summary						
Average Delay			6.0			
Intersection Capacity Utilization			25.5%		ICU Level of Service	
Analysis Period (min)			15		A	

Lanes, Volumes, Timings
5: Williamsport Drive

2024 EX PM
02/03/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	91	6	2	52	6	3	0	5	4	0	19
Future Volume (vph)	17	91	6	2	52	6	3	0	5	4	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.992			0.986			0.916			0.887	
Flt Protected		0.993			0.998			0.982			0.992	
Satd. Flow (prot)	0	1855	0	0	1853	0	0	1694	0	0	1657	0
Flt Permitted		0.993			0.998			0.982			0.992	
Satd. Flow (perm)	0	1855	0	0	1853	0	0	1694	0	0	1657	0
Link Speed (k/h)		40			40			30			30	
Link Distance (m)		96.4			147.2			51.6			40.8	
Travel Time (s)		8.7			13.2			6.2			4.9	
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)	18	99	7	2	57	7	3	0	5	4	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	0	0	66	0	0	8	0	0	25	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.8%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis 5: Williamsport Drive

2024 EX PM
02/03/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	17	91	6	2	52	6	3	0	5	4	0	19
Future Volume (vph)	17	91	6	2	52	6	3	0	5	4	0	19
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)	18	99	7	2	57	7	3	0	5	4	0	21
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	124	66	8	25								
Volume Left (vph)	18	2	3	4								
Volume Right (vph)	7	7	5	21								
Hadj (s)	0.03	-0.02	-0.27	-0.44								
Departure Headway (s)	4.1	4.1	4.1	3.9								
Degree Utilization, x	0.14	0.07	0.01	0.03								
Capacity (veh/h)	872	870	835	881								
Control Delay (s/veh)	7.7	7.4	7.1	7.0								
Approach Delay (s/veh)	7.7	7.4	7.1	7.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				7.5								
Level of Service				A								
Intersection Capacity Utilization				22.8%	ICU Level of Service	A						
Analysis Period (min)				15								

APPENDIX E

Bloor Street Redesign Preliminary Design

LEGEND

- PROPOSED LANDSCAPE ZONE
- PROPOSED PAVEMENT / CYCLE TRACK
- PROPOSED SIDEWALK
- PROPOSED HARDSCAPE BUFFER / SPLASH PAD
- EXISTING PROPERTY LINE
- PROPOSED NOISE WALL
- PROPOSED TREES

BLOOR STREET INTEGRATED ROAD PROJECT
CENTRAL PARKWAY EAST TO CAWTHRA ROAD



DESIGN BY	APPROVED BY
C.E.T.	
DEPARTMENTAL APPROVAL	
SILVIO CESARIO P.ENG.	
PRODUCED FOR: T&W ENGINEERING AND WORKS	
BLOOR STREET INTEGRATED ROAD PROJECT EA CENTRAL PARKWAY BLVD TO CAWTHRA RD	
SCALE: 1:1000	AREA: BLOOR ST
C.A.D.D. BY: A.C.	CHECKED BY: M.P.
DATE: 2023-05-15	SHEET: 01 OF 04
PROJECT No. 134154	PLAN No.

- LEGEND
- PROPOSED LANDSCAPE ZONE
 - PROPOSED PAVEMENT / CYCLE TRACK
 - PROPOSED SIDEWALK
 - PROPOSED HARDSCAPE BUFFER / SPLASH PAD
 - EXISTING PROPERTY LINE
 - PROPOSED NOISE WALL
 - PROPOSED TREES

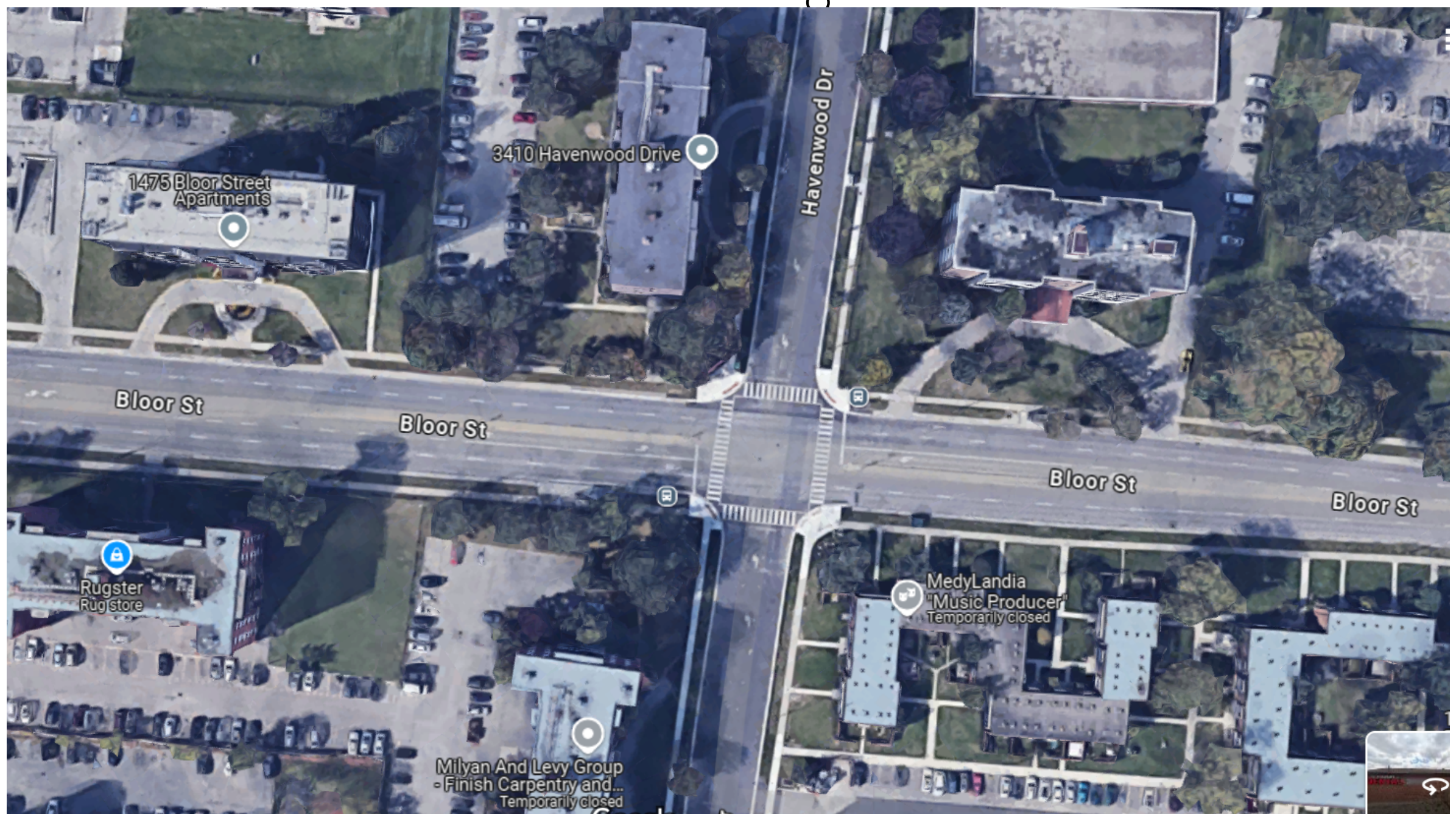
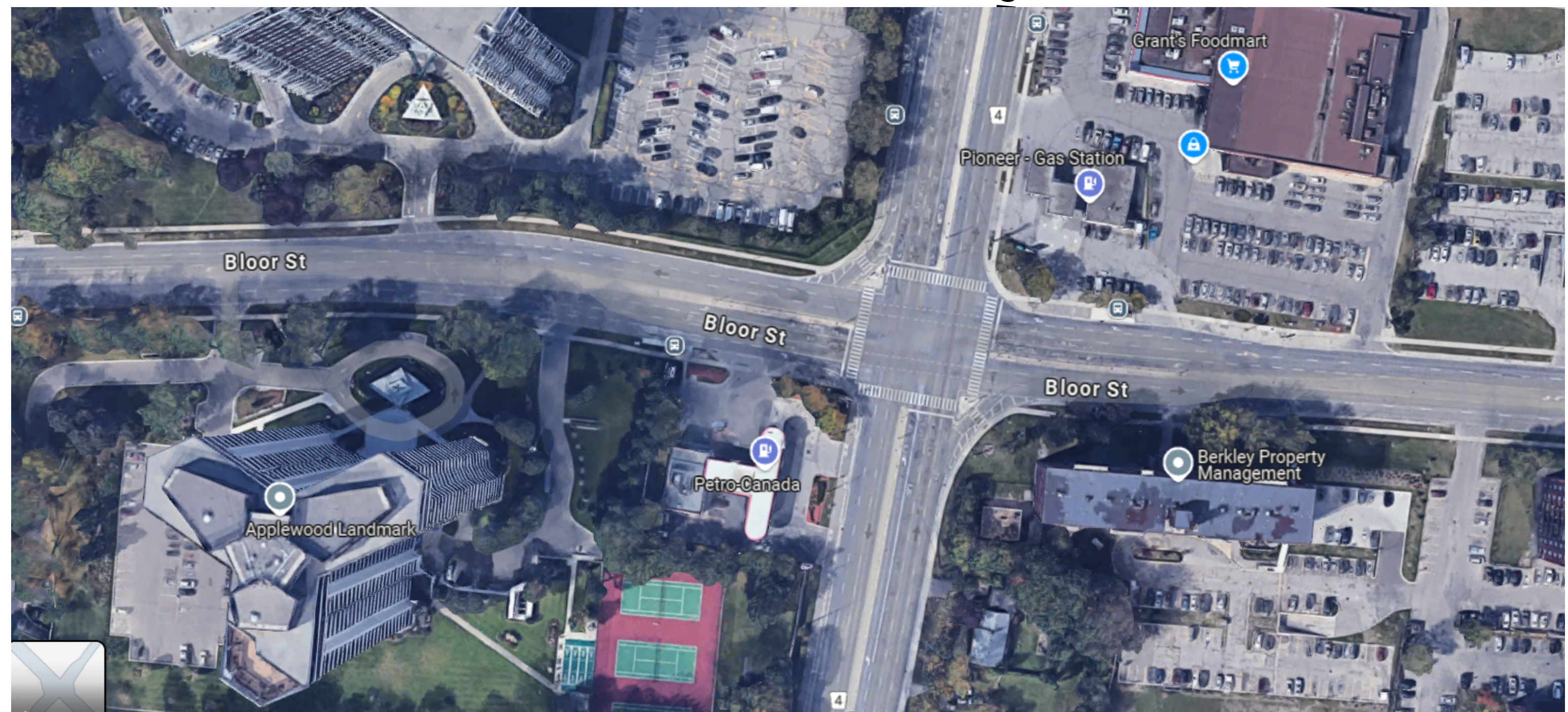
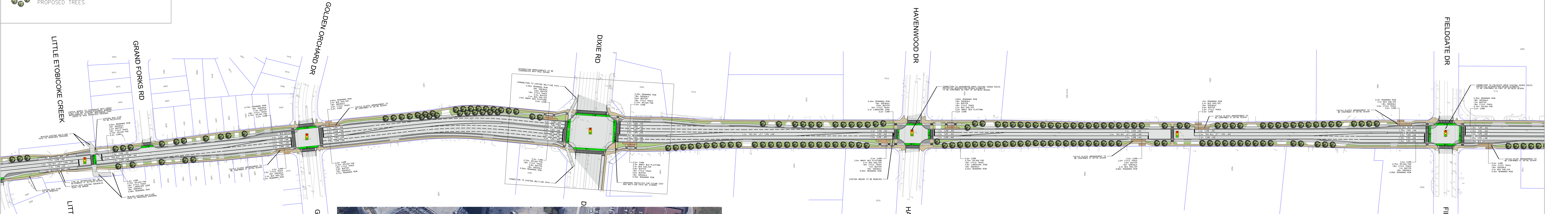
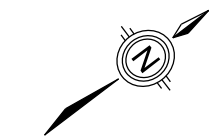
BLOOR STREET INTEGRATED ROAD PROJECT CEDAR CREEK DRIVE TO GRAND FORKS RD



DESIGN BY	APPROVED BY
C.E.T.	
DEPARTMENTAL APPROVAL	
SILVIO CESARIO P.ENG.	
PRODUCED FOR - T&W ENGINEERING AND WORKS	
BLOOR STREET INTEGRATED ROAD PROJECT CEDAR CREEK DR TO GRAND FORKS RD	
SCALE 1:1000	AREA BLOOR ST
C.A.D.D. BY A.C.	CHECKED BY M.P.
DATE 2023-05-15	SHEET 02 OF 04

- LEGEND
- PROPOSED LANDSCAPE ZONE
 - PROPOSED PAVEMENT / CYCLE TRACK
 - PROPOSED SIDEWALK
 - PROPOSED HARDSCAPE BUFFER / SPLASH PAD
 - EXISTING PROPERTY LINE
 - PROPOSED NOISE WALL
 - PROPOSED TREES

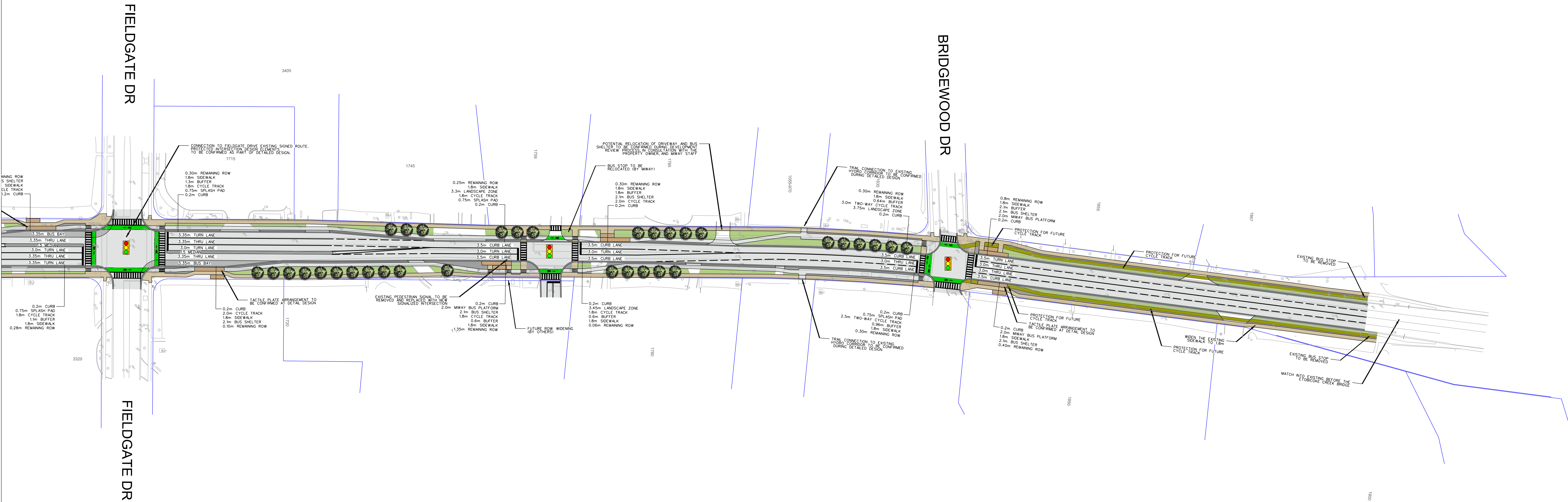
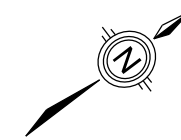
BLOOR STREET INTEGRATED ROAD PROJECT LITTLE ETOBICOKE CREEK TO FIELDGATE DRIVE



LEGEND

- PROPOSED LANDSCAPE ZONE
- PROPOSED PAVEMENT / CYCLE TRACK
- PROPOSED SIDEWALK
- PROPOSED HARDSCAPE BUFFER / SPLASH PAD
- EXISTING PROPERTY LINE
- PROPOSED NOISE WALL
- PROPOSED TREES
- PROTECTION FOR FUTURE CYCLE TRACK

BLOOR STREET INTEGRATED ROAD PROJECT FIELDGATE DRIVE TO ETOBICOKE CREEK



DESIGN BY	APPROVED BY
C.E.T.	
DEPARTMENTAL APPROVAL	
SILVIO CESARIO P.ENG.	
PRODUCED FOR T&W ENGINEERING AND WORKS	
BLOOR STREET INTEGRATED ROAD PROJECT FIELDGATE DR TO ETOBICOKE CREEK	
SCALE 1:1000	AREA BLOOR ST
C.A.D.D. BY A.C.	CHECKED BY M.P.
DATE 2023-05-15	SHEET 04 OF 04
PROJECT No. 134154	PLAN No.

APPENDIX F

Background Development Excerpts



Timbercreek Asset Management

TRANSPORTATION IMPACT STUDY

(OCTOBER 2020 UPDATE)

PROPOSED RESIDENTIAL
DEVELOPMENT

**1750 BLOOR STREET
CITY OF MISSISSAUGA**

October 2020

18005

4 SITE-GENERATED TRAFFIC

The proposed development includes the addition of a 17-storey residential and an amenity building with a total addition of 268 units. The sections below discuss in detail the calculation and distribution of site-generated single-occupant vehicle (SOV) trips.

4.1 MODAL SPLIT

To determine the modal split of the trips generated by the subject site, 2016 Transportation Tomorrow Survey (2016 TTS) modal split data was reviewed for home-based trips originating from the study area and is summarized in **Table 4.1**. The subject site is located within TTS Traffic Zone 3670, with detailed TTS data is provided in **Appendix D**.

Table 4.1: Modal Split Summary

Peak Period	Auto Driver (SOV)	Transit, excluding GO	GO Rail Only	Auto Passenger	School Bus/ Taxi	Walk	Total
AM	51%	14%	2%	9%	8%	16%	100%
PM	78%	10%	0%	4%	0%	7%	100%

Based on the results presented above, 49 and 22 percent of trips are made by a non-SOV in the AM and PM peak periods, respectively. Therefore, an average non-SOV modal split reduction of 35 percent was applied to the total trips generated by the proposed development, which is utilized below in Section 4.2.

4.2 TRIP GENERATION

Trip generation for the development was calculated based on the ITE Trip Generation Manual 10th Edition utilizing the rates for Multifamily High-Rise (LUC 222). The average trip rates were used for Multifamily Mid-Rise and the fitted equation was applied for Multifamily High-Rise. The trip generation rates are summarized in **Table 4.2**. The proposed development is expected to generate a maximum of 65 new trips during the two peak hours.

Table 4.2: ITE Trip Generation

Land Use	Trip Gen Info	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Multifamily High-Rise (266 Units)	Percentage Split	24%	76%	100%	65%	35%	100%
	Trip Rate	0.07	0.24	0.31	0.23	0.13	0.36
	Trips Generated	21	67	88	65	35	100
Non-SOV Reduction (35%)		-7	-24	-31	-23	-12	-35
Net SOV Trips		14	43	57	42	23	65

For comparison purposes, a trip generation survey was also completed at the subject site to determine the existing trip rate and compare with the ITE trip rates. Based on the existing unit count, the existing site traffic observed at Towers A and B were used to determine a trip generation rate, which was subsequently applied to the additional units proposed. The trip generation summary is provided for comparison in **Table 4.3** below.

Table 4.3: Existing Site Trip Generation

	Occupied Units	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Existing Residential Trips	305	16	49	65	30	21	51
Existing Trip Rate		0.05	0.16	0.21	0.10	0.07	0.17
Projected Residential Trips (based on Existing Trip Rates)	268	13	43	56	27	19	46

According to the trip generation survey, the proposed development would generate less than 60 new trips in the two peak hours. In comparison, the proposed development is expected to generate slightly more trips when applying the ITE rates as indicated above. As such, the ITE-based trip generation estimation was utilized in our analysis to present a conservative analysis.

4.3 TRIP DISTRIBUTION AND ASSIGNMENT

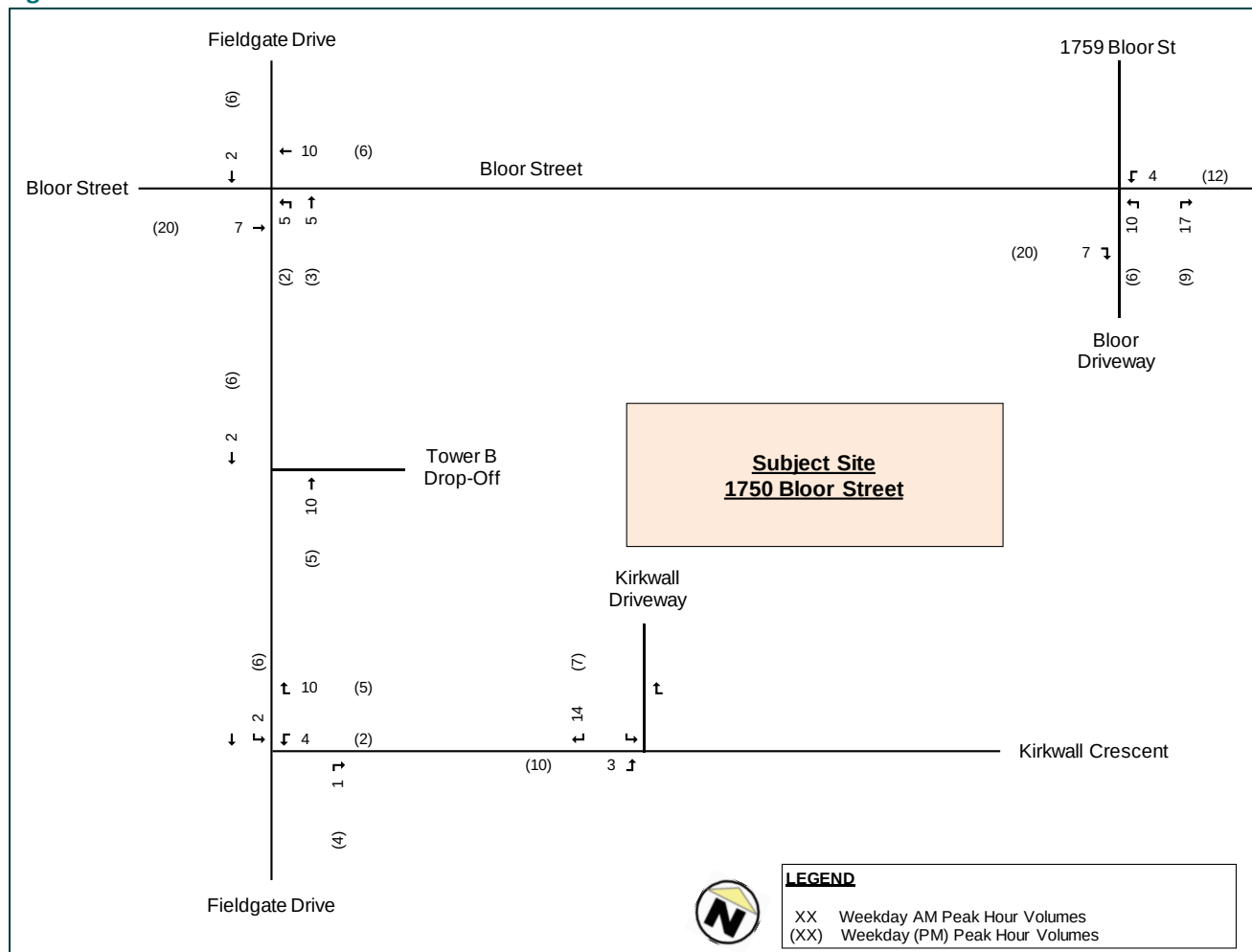
Directional trip distribution was determined using 2016 TTS data for “Home-Based Work” trip purposes for the AM and PM peak periods, as shown in **Table 4.4**. The assumption made is that the AM and PM peak hour trip distribution is the same for inbound and outbound trips. Detailed survey data is provided in **Appendix D**.

Table 4.4: Directional Trip Distribution

Directions	Inbound	Outbound
Bloor Street (East)	28%	42%
Bloor Street (West)	48%	36%
Fieldgate Drive (North)	15%	13%
Fieldgate Drive (South)	10%	9%
TOTAL	100%	100%

The site plan is proposing to maintain both existing site accesses on Bloor Street and Kirkwall Crescent. Given the underground parking connections, Tower C and Tower D can be accessed via both existing site driveways. As per Comment 8, site traffic has been reassigned accordingly to utilize the Bloor Street Access as well. The site-generated traffic volumes for the 2022 horizon year are illustrated in **Figure 4.1**.

Figure 4.1: Site Generated Peak Hour Traffic Volumes

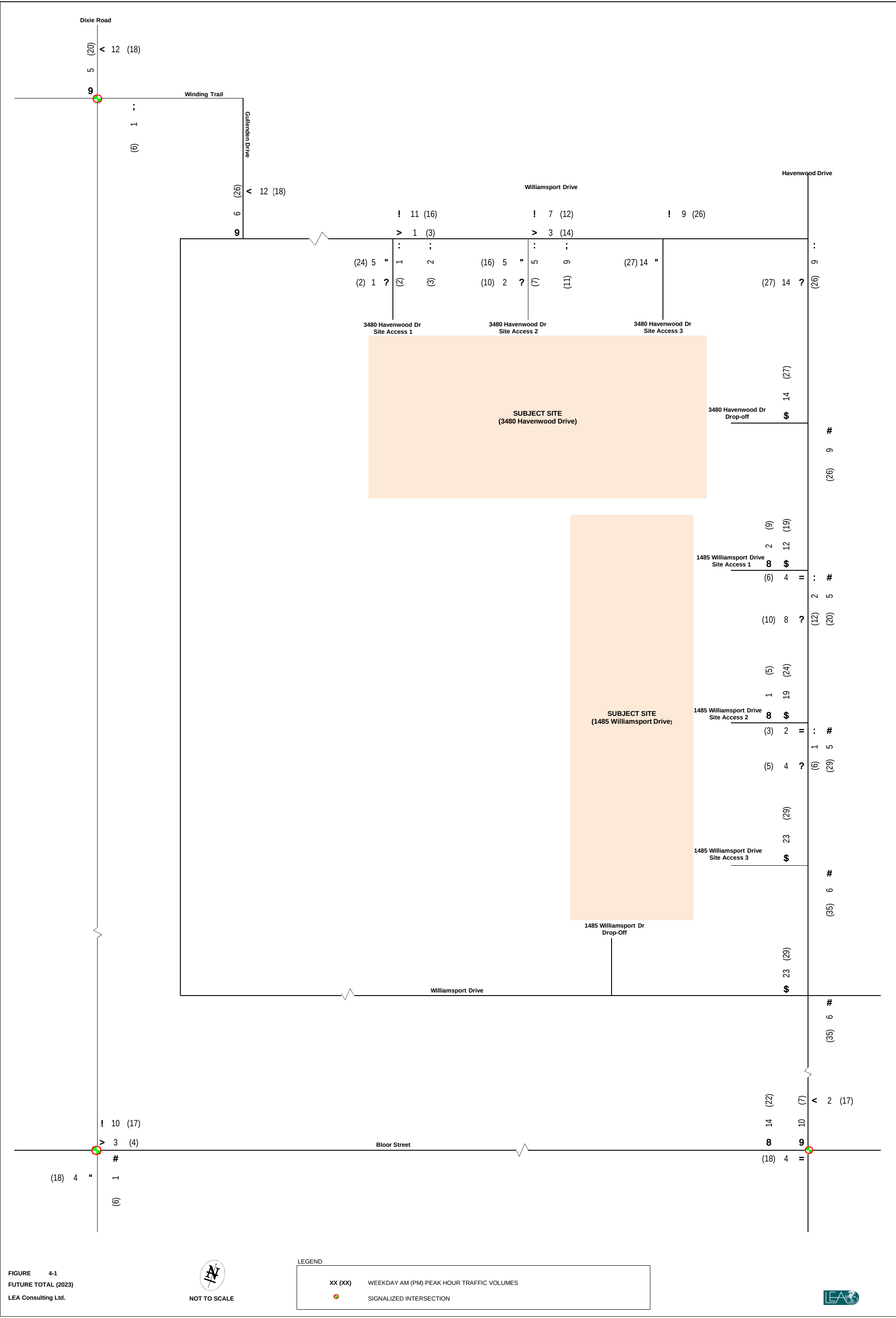




Starlight Investments
3480 Havenwood Drive & 1485 Williamsport Drive
Transportation Impact Study
Proposed Residential Redevelopment

June 2018

18337/200





BA Group

PROPOSED RESIDENTIAL DEVELOPMENT 1840-1850 BLOOR STREET CITY OF MISSISSAUGA

Urban Transportation Considerations Report

Prepared For: Raneer Management

March, 2020



**MOVEMENT
IN URBAN
ENVIRONMENTS**

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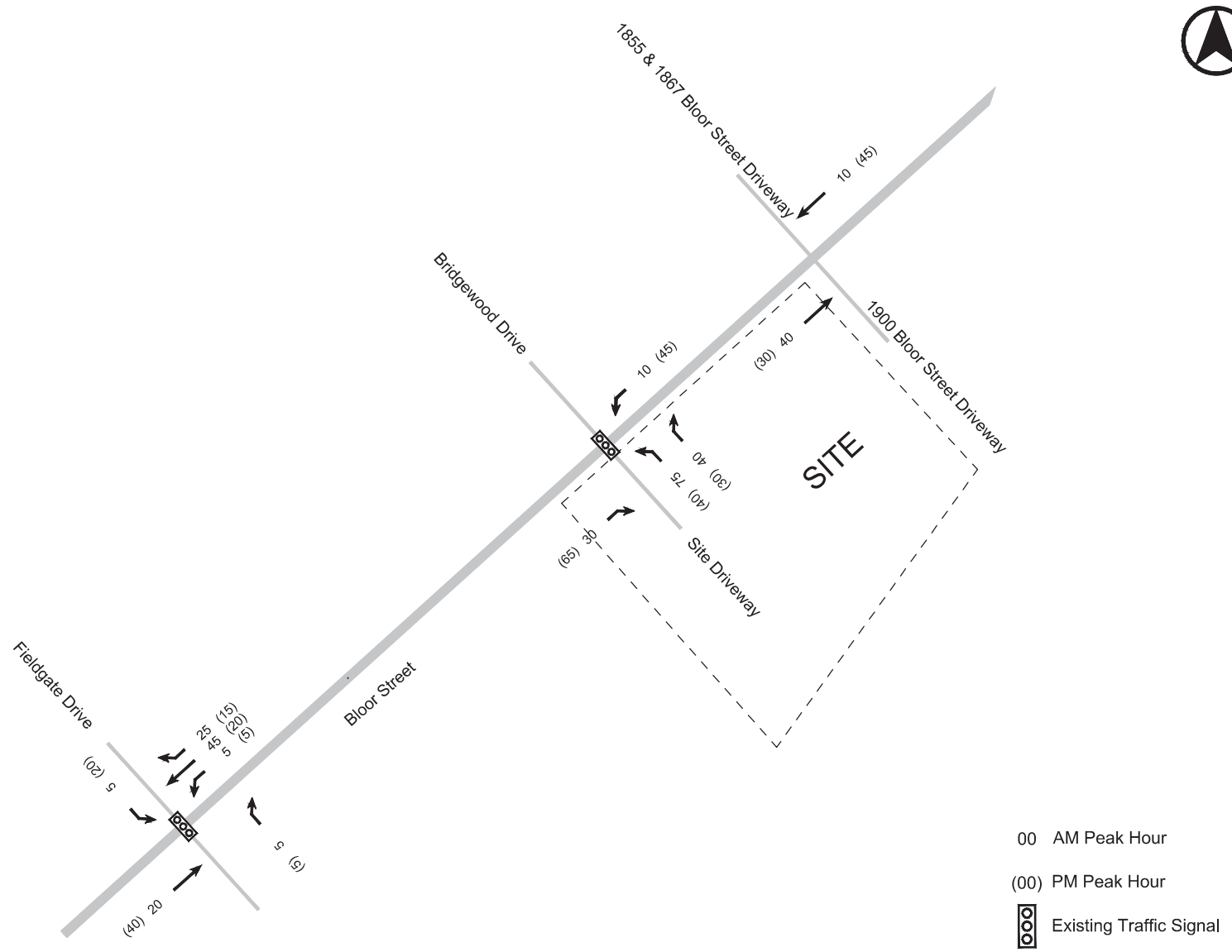


FIGURE 7 NEW RESIDENTIAL SITE TRAFFIC VOLUMES

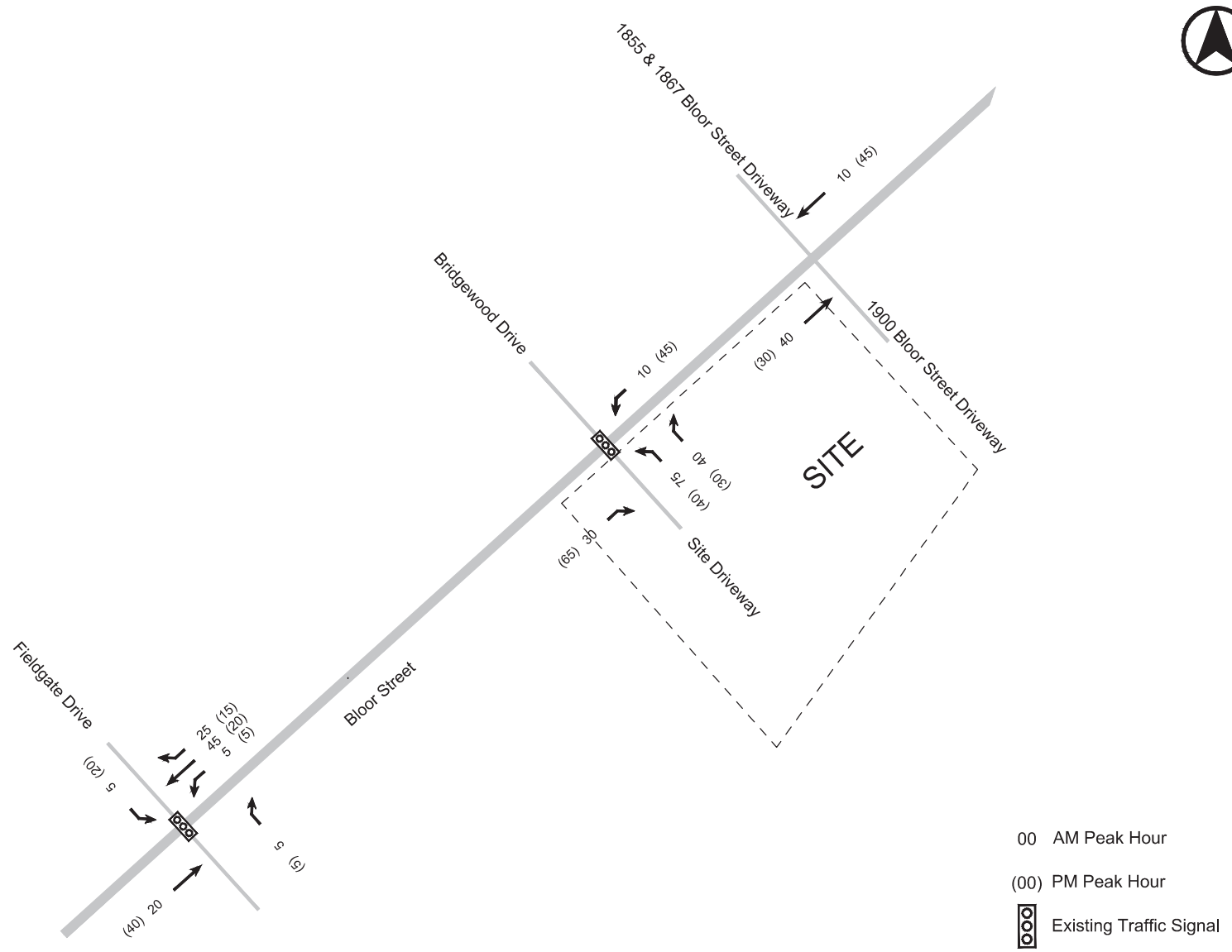


FIGURE 8 TOTAL RESIDENTIAL SITE TRAFFIC VOLUMES

TRAFFIC IMPACT STUDY & PARKING STUDY

Proposed Residential Apartment Addition
1785 Bloor Street
City of Mississauga, Region of Peel

June 2022

Prepared for
1785 Bloor Holdings Inc.

c/o Sajecki Planning



785 Dundas St W
Toronto, ON, M6J 1V2

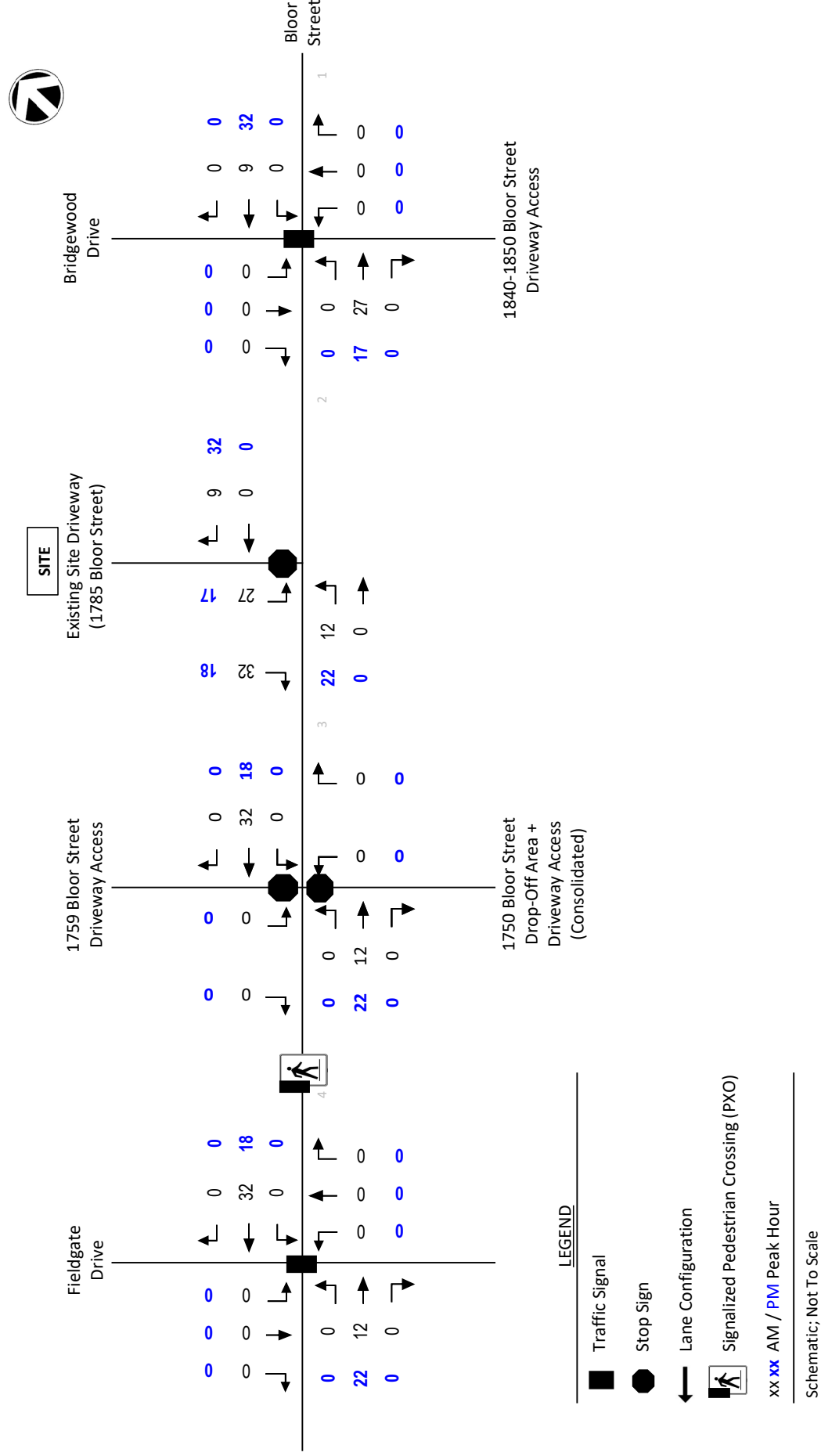


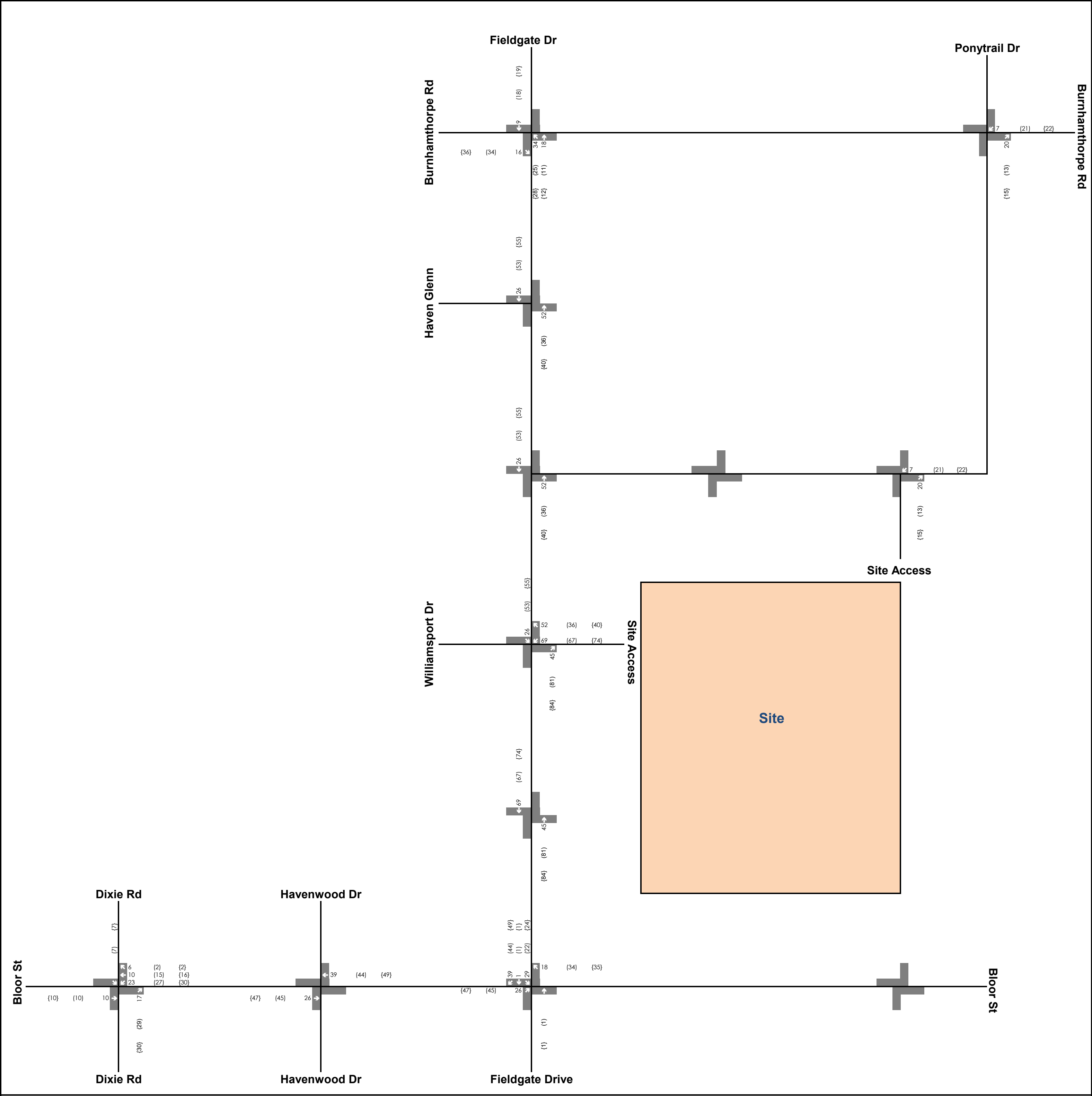
1 (647) 931 7383
1 (877) 668 8784



trans-plan.com
admin@trans-plan.com

Figure 7: Site Traffic Assignment, Weekday AM and PM Peak Hours





APPENDIX G

Future Background Detailed Capacity Analysis Reports

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FB AM
10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Traffic Volume (vph)	137	470	173	291	397	265	57	974	204	190	1185	100
Future Volume (vph)	137	470	173	291	397	265	57	974	204	190	1185	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.97		0.98	1.00		0.93	0.99	1.00		1.00		0.95
Flt			0.850			0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	3544	1617	1772	3444	1555	1722	4693	0	1722	4948	1555
Flt Permitted	0.501			0.242			0.203			0.137		
Satd. Flow (perm)	889	3544	1582	450	3444	1452	365	4693	0	248	4948	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			104			34			109
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			164.4			615.3			434.7	
Travel Time (s)		21.7			11.8			36.9			26.1	
Confl. Peds. (#/hr)	45		8	8		45	35		14	14		35
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 (%)	5%	3%	1%	3%	6%	5%	6%	9%	5%	6%	6%	5%
Adj. Flow (vph)	149	511	188	316	432	288	62	1059	222	207	1288	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	511	188	316	432	288	62	1281	0	207	1288	109
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FB AM
10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		8		7	4			6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	7	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	10.0
Minimum Split (s)	46.4	46.4	46.4	10.0	46.4	46.4	46.9	46.9		12.0	46.9	46.9
Total Split (s)	51.0	51.0	51.0	15.0	66.0	66.0	71.0	71.0		23.0	94.0	94.0
Total Split (%)	31.9%	31.9%	31.9%	9.4%	41.3%	41.3%	44.4%	44.4%		14.4%	58.8%	58.8%
Maximum Green (s)	43.6	43.6	43.6	12.0	58.6	58.6	64.1	64.1		18.0	87.1	87.1
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.4	3.4	3.4	0.0	3.4	3.4	2.9	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.9	6.9		5.0	6.9	6.9
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0		10.0	10.0	10.0	10.0			10.0	10.0
Flash Dont Walk (s)	29.0	29.0	29.0		29.0	29.0	30.0	30.0			30.0	30.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0			0	0
Act Effect Green (s)	34.1	34.1	34.1	53.5	49.1	49.1	77.6	77.6		98.5	96.6	96.6
Actuated g/C Ratio	0.21	0.21	0.21	0.33	0.31	0.31	0.48	0.48		0.62	0.60	0.60
v/c Ratio	0.79	0.68	0.47	1.27	0.41	0.56	0.35	0.56		0.74	0.43	0.12
Control Delay	86.1	61.9	33.1	186.5	44.3	32.0	37.6	31.1		32.9	18.4	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	86.1	61.9	33.1	186.5	44.3	32.0	37.6	31.1		32.9	18.4	3.0
LOS	F	E	C	F	D	C	D	C		C	B	A
Approach Delay		59.7			84.2			31.4			19.2	
Approach LOS		E			F			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 45 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.27

Intersection Signal Delay: 43.6

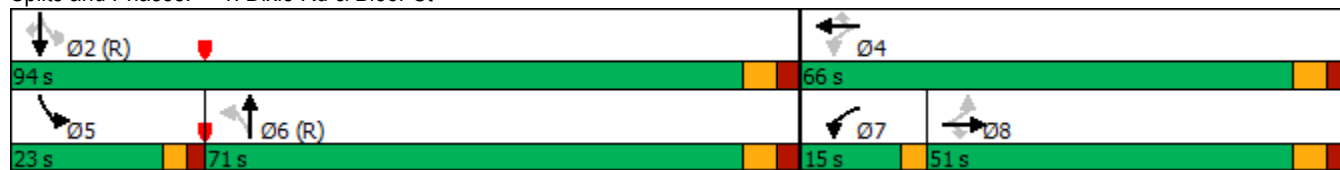
Intersection LOS: D

Intersection Capacity Utilization 102.1%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Queues

2029 FB AM

1: Dixie Rd & Bloor St

10/31/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	149	511	188	316	432	288	62	1281	207	1288	109
v/c Ratio	0.79	0.68	0.47	1.27	0.41	0.56	0.35	0.56	0.74	0.43	0.12
Control Delay	86.1	61.9	33.1	186.5	44.3	32.0	37.6	31.1	32.9	18.4	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.1	61.9	33.1	186.5	44.3	32.0	37.6	31.1	32.9	18.4	3.0
Queue Length 50th (m)	45.1	79.0	29.4	~106.0	57.2	48.9	12.1	101.9	27.9	78.2	0.0
Queue Length 95th (m)	68.2	91.7	50.6	#157.6	67.1	72.8	30.3	135.6	54.3	102.1	9.1
Internal Link Dist (m)	278.0			140.4			591.3			410.7	
Turn Bay Length (m)	40.0		15.0	60.0		10.0	75.0		100.0		85.0
Base Capacity (vph)	242	965	490	249	1261	597	176	2293	319	2987	932
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.53	0.38	1.27	0.34	0.48	0.35	0.56	0.65	0.43	0.12

Intersection Summary

~ 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.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FB AM

10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	748	62	58	729	28	68	60	60	48	85	120
Future Volume (vph)	67	748	62	58	729	28	68	60	60	48	85	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. 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
Ped Bike Factor		1.00			0.99		0.87	0.86		0.78	0.88	
Frt		0.989			0.995			0.925			0.912	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1818	0	1722	1829	0	1690	1501	0	1722	1464	0
Flt Permitted	0.256			0.225			0.466			0.674		
Satd. Flow (perm)	482	1818	0	408	1829	0	718	1501	0	955	1464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3			54			76	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		175.4			281.3			137.1			111.7	
Travel Time (s)		12.6			20.3			16.5			10.1	
Confl. Peds. (#/hr)	70		25	25		70	127		178	178		127
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%	4%	4%	6%	4%	4%	8%	2%	2%	6%	6%	5%
Adj. Flow (vph)	73	813	67	63	792	30	74	65	65	52	92	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	880	0	63	822	0	74	130	0	52	222	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FB AM
10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		41.5	41.5		41.5	41.5	
Total Split (s)	59.0	59.0		59.0	59.0		41.0	41.0		41.0	41.0	
Total Split (%)	59.0%	59.0%		59.0%	59.0%		41.0%	41.0%		41.0%	41.0%	
Maximum Green (s)	53.0	53.0		53.0	53.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.5	7.5		7.5	7.5	

Lead/Lag

Lead-Lag Optimize?

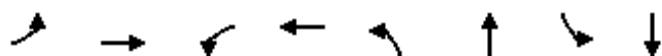
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	69.6	69.6		69.6	69.6		16.9	16.9		16.9	16.9	
Actuated g/C Ratio	0.70	0.70		0.70	0.70		0.17	0.17		0.17	0.17	
v/c Ratio	0.22	0.70		0.22	0.65		0.61	0.44		0.32	0.72	
Control Delay	9.0	14.1		9.6	12.7		58.1	25.2		39.5	37.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.0	14.1		9.6	12.7		58.1	25.2		39.5	37.7	
LOS	A	B		A	B		E	C		D	D	
Approach Delay		13.7			12.5			37.1			38.0	
Approach LOS		B			B			D			D	

Intersection Summary

Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 39 (39%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 109.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Havenwood Dr & Bloor St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	73	880	63	822	74	130	52	222
v/c Ratio	0.22	0.70	0.22	0.65	0.61	0.44	0.32	0.72
Control Delay	9.0	14.1	9.6	12.7	58.1	25.2	39.5	37.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	14.1	9.6	12.7	58.1	25.2	39.5	37.7
Queue Length 50th (m)	4.3	84.8	3.7	74.5	13.6	13.2	9.0	27.1
Queue Length 95th (m)	13.8	173.1	12.7	150.3	26.0	27.3	18.3	46.9
Internal Link Dist (m)		151.4		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	335	1266	283	1273	240	538	319	540
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.70	0.22	0.65	0.31	0.24	0.16	0.41
Intersection Summary								

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2029 FB AM

10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	27	35	34	26	32	21	124	22	28	172	9
Future Volume (vph)	12	27	35	34	26	32	21	124	22	28	172	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.936			0.953			0.982			0.994	
Flt Protected		0.992			0.982			0.994			0.993	
Satd. Flow (prot)	0	1749	0	0	1763	0	0	1838	0	0	1859	0
Flt Permitted		0.992			0.982			0.994			0.993	
Satd. Flow (perm)	0	1749	0	0	1763	0	0	1838	0	0	1859	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		147.2			52.0			111.7			74.0	
Travel Time (s)		13.2			4.7			10.1			6.7	
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
Adj. Flow (vph)	13	29	38	37	28	35	23	135	24	30	187	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	100	0	0	182	0	0	227	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.1%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

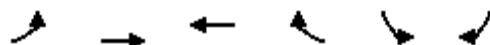
3: Havenwood Dr & Williamsport Drive

2029 FB AM
10/31/2024

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Sign Control		Stop			Stop			Stop			Stop									
Traffic Volume (vph)	12	27	35	34	26	32	21	124	22	28	172	9								
Future Volume (vph)	12	27	35	34	26	32	21	124	22	28	172	9								
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)	13	29	38	37	28	35	23	135	24	30	187	10								
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total (vph)	80	100	182	227																
Volume Left (vph)	13	37	23	30																
Volume Right (vph)	38	35	24	10																
Hadj (s)	-0.22	-0.10	-0.02	0.03																
Departure Headway (s)	4.8	4.9	4.6	4.6																
Degree Utilization, x	0.11	0.14	0.23	0.29																
Capacity (veh/h)	677	670	742	742																
Control Delay (s)	8.4	8.6	9.0	9.5																
Approach Delay (s)	8.4	8.6	9.0	9.5																
Approach LOS	A	A	A	A																
Intersection Summary																				
Delay			9.0																	
Level of Service			A																	
Intersection Capacity Utilization			32.1%	ICU Level of Service					A											
Analysis Period (min)			15																	

Lanes, Volumes, Timings
4: Williamsport Dr & Gulledden Dr

2029 FB AM
10/31/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	46	28	15	89	65	59
Future Volume (vph)	46	28	15	89	65	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.884		0.936	
Flt Protected		0.970			0.974	
Satd. Flow (prot)	0	1827	1665	0	1717	0
Flt Permitted		0.970			0.974	
Satd. Flow (perm)	0	1827	1665	0	1717	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		43.5	69.8		85.7	
Travel Time (s)		3.9	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	30	16	97	71	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	80	113	0	135	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 24.6%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis

4: Williamsport Dr & Gulleden Dr

2029 FB AM
10/31/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	28	15	89	65	59
Future Volume (Veh/h)	46	28	15	89	65	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	30	16	97	71	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	113				194	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				194	64
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				91	94
cM capacity (veh/h)	1476				767	1000
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	80	113	135			
Volume Left	50	0	71			
Volume Right	0	97	64			
cSH	1476	1700	862			
Volume to Capacity	0.03	0.07	0.16			
Queue Length 95th (m)	0.8	0.0	4.2			
Control Delay (s)	4.8	0.0	9.9			
Lane LOS	A		A			
Approach Delay (s)	4.8	0.0	9.9			
Approach LOS			A			
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization		24.6%		ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
5: Williamsport Drive

2029 FB AM
10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	62	0	0	50	4	0	0	0	3	0	10
Future Volume (vph)	4	62	0	0	50	4	0	0	0	3	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt	0.991					0.894						
Flt Protected	0.997		0.989									
Satd. Flow (prot)	0	1878	0	0	1866	0	0	1883	0	0	1665	0
Flt Permitted	0.997		0.989									
Satd. Flow (perm)	0	1878	0	0	1866	0	0	1883	0	0	1665	0
Link Speed (k/h)	40				40				48		30	
Link Distance (m)	96.4				147.2				51.6		40.8	
Travel Time (s)	8.7				13.2				3.9		4.9	
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)	4	67	0	0	54	4	0	0	0	3	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	0	0	58	0	0	0	0	0	14	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				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	1.6				1.6				1.6		1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Free				Free				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 16.5%												
ICU Level of Service A												
Analysis Period (min) 15												

HCM Unsignalized Intersection Capacity Analysis

5: Williamsport Drive

2029 FB AM
10/31/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	62	0	0	50	4	0	0	0	3	0	10
Future Volume (Veh/h)	4	62	0	0	50	4	0	0	0	3	0	10
Sign Control	Free			Free			Stop			Stop		
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)	4	67	0	0	54	4	0	0	0	3	0	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	58			67			142	133	67	131	131	56
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	58			67			142	133	67	131	131	56
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	99
cM capacity (veh/h)	1546			1535			817	756	997	840	758	1011
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	71	58	0	14								
Volume Left	4	0	0	3								
Volume Right	0	4	0	11								
cSH	1546	1535	1700	968								
Volume to Capacity	0.00	0.00	0.00	0.01								
Queue Length 95th (m)	0.1	0.0	0.0	0.3								
Control Delay (s)	0.4	0.0	0.0	8.8								
Lane LOS	A		A	A								
Approach Delay (s)	0.4	0.0	0.0	8.8								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			16.5%		ICU Level of Service					A		
Analysis Period (min)			15									

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FB PM
10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	472	179	320	720	200	272	1311	406	136	1435	219
Future Volume (vph)	132	472	179	320	720	200	272	1311	406	136	1435	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.98		0.96	0.99		0.90		0.99				0.93
Frt			0.850			0.850		0.965				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3544	1601	1789	3579	1617	1825	4901	0	1789	5092	1617
Flt Permitted	0.121			0.314			0.062			0.066		
Satd. Flow (perm)	223	3544	1530	583	3579	1451	119	4901	0	124	5092	1502
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			81			55			172
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			164.4			615.3			434.7	
Travel Time (s)		21.7			11.8			36.9			26.1	
Confl. Peds. (#/hr)	75		27	27		75	50		24	24		50
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%	2%	2%	2%	1%	0%	3%	0%	2%	3%	1%
Adj. Flow (vph)	143	513	195	348	783	217	296	1425	441	148	1560	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	513	195	348	783	217	296	1866	0	148	1560	238
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FB PM
10/31/2024

												
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		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	3	8	8	7	4	4	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	46.4	46.4	10.0	46.4	46.4	11.5	46.9		12.0	46.9	46.9
Total Split (s)	13.0	58.0	58.0	13.0	58.0	58.0	24.0	66.0		23.0	65.0	65.0
Total Split (%)	8.1%	36.3%	36.3%	8.1%	36.3%	36.3%	15.0%	41.3%		14.4%	40.6%	40.6%
Maximum Green (s)	10.0	50.6	50.6	10.0	50.6	50.6	21.0	59.1		18.0	58.1	58.1
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	3.4	3.4	0.0	3.4	3.4	0.0	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.9		5.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		10.0	10.0		10.0	10.0		10.0			10.0	10.0
Flash Dont Walk (s)		29.0	29.0		29.0	29.0		30.0			30.0	30.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	56.3	41.9	41.9	56.3	41.9	41.9	94.3	72.6		76.1	61.0	61.0
Actuated g/C Ratio	0.35	0.26	0.26	0.35	0.26	0.26	0.59	0.45		0.48	0.38	0.38
v/c Ratio	0.81	0.55	0.42	1.24	0.84	0.49	0.83	0.83		0.76	0.80	0.35
Control Delay	67.5	52.8	29.8	174.0	64.2	33.7	65.0	41.8		61.6	48.7	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	67.5	52.8	29.8	174.0	64.2	33.7	65.0	41.8		61.6	48.7	12.1
LOS	E	D	C	F	E	C	E	D		E	D	B
Approach Delay		50.0			87.6			45.0			45.2	
Approach LOS		D			F			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 74 (46%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 54.8

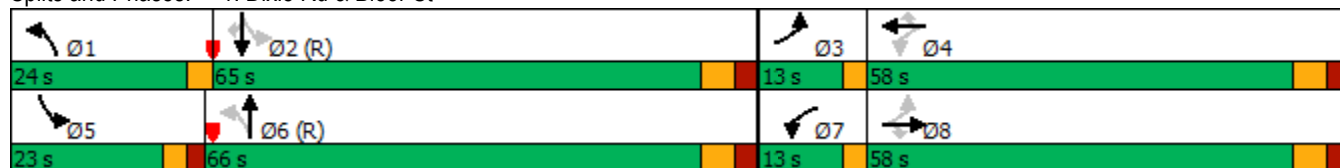
Intersection LOS: D

Intersection Capacity Utilization 109.3%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Queues

2029 FB PM

1: Dixie Rd & Bloor St

10/31/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	143	513	195	348	783	217	296	1866	148	1560	238
v/c Ratio	0.81	0.55	0.42	1.24	0.84	0.49	0.83	0.83	0.76	0.80	0.35
Control Delay	67.5	52.8	29.8	174.0	64.2	33.7	65.0	41.8	61.6	48.7	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.5	52.8	29.8	174.0	64.2	33.7	65.0	41.8	61.6	48.7	12.1
Queue Length 50th (m)	31.0	74.5	29.7	~112.3	124.4	36.6	73.5	184.7	30.8	166.8	14.0
Queue Length 95th (m)	#52.4	87.2	50.5	#166.0	139.6	59.2	#142.2	#252.0	53.3	186.2	35.9
Internal Link Dist (m)		278.0			140.4			591.3		410.7	
Turn Bay Length (m)	40.0		15.0	60.0		10.0	75.0		100.0		85.0
Base Capacity (vph)	176	1120	539	280	1131	514	356	2254	251	1940	678
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.46	0.36	1.24	0.69	0.42	0.83	0.83	0.59	0.80	0.35

Intersection Summary

~ 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.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FB PM
10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	860	58	47	1086	62	38	37	39	70	43	130
Future Volume (vph)	125	860	58	47	1086	62	38	37	39	70	43	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. 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
Ped Bike Factor		1.00			1.00		0.96	0.95		0.93	0.95	
Frt		0.991			0.992			0.923			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1860	0	1825	1862	0	1825	1684	0	1755	1614	0
Flt Permitted	0.056			0.175			0.540			0.704		
Satd. Flow (perm)	108	1860	0	336	1862	0	996	1684	0	1208	1614	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			4			42			46	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		175.4			281.3			137.1			111.7	
Travel Time (s)		12.6			20.3			16.5			10.1	
Confl. Peds. (#/hr)	36		30	30		36	35		54	54		35
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 (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	136	935	63	51	1180	67	41	40	42	76	47	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	998	0	51	1247	0	41	82	0	76	188	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FB PM

10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		41.5	41.5		41.5	41.5	
Total Split (s)	59.0	59.0		59.0	59.0		41.0	41.0		41.0	41.0	
Total Split (%)	59.0%	59.0%		59.0%	59.0%		41.0%	41.0%		41.0%	41.0%	
Maximum Green (s)	53.0	53.0		53.0	53.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.5	7.5		7.5	7.5	

Lead/Lag

Lead-Lag Optimize?

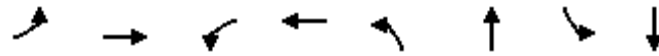
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	71.2	71.2		71.2	71.2		15.3	15.3		15.3	15.3	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.15	0.15		0.15	0.15	
v/c Ratio	1.79	0.75		0.21	0.94		0.27	0.28		0.41	0.66	
Control Delay	418.8	14.9		8.9	29.1		39.9	21.7		43.6	40.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	418.8	14.9		8.9	29.1		39.9	21.7		43.6	40.4	
LOS	F	B		A	C		D	C		D	D	
Approach Delay		63.3			28.3			27.8			41.3	
Approach LOS		E			C			C			D	

Intersection Summary

Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 77 (77%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.79	
Intersection Signal Delay: 43.6	Intersection LOS: D
Intersection Capacity Utilization 117.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Havenwood Dr & Bloor St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	136	998	51	1247	41	82	76	188
v/c Ratio	1.79	0.75	0.21	0.94	0.27	0.28	0.41	0.66
Control Delay	418.8	14.9	8.9	29.1	39.9	21.7	43.6	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	418.8	14.9	8.9	29.1	39.9	21.7	43.6	40.4
Queue Length 50th (m)	~24.4	100.3	2.8	176.5	7.2	6.9	13.6	26.2
Queue Length 95th (m)	#65.1	201.4	10.1	#341.0	15.8	18.2	25.2	44.7
Internal Link Dist (m)		151.4		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	76	1325	239	1327	333	592	404	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.79	0.75	0.21	0.94	0.12	0.14	0.19	0.33

Intersection Summary

~ 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.

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2029 FB PM

10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	40	45	21	23	25	13	199	20	26	154	16
Future Volume (vph)	19	40	45	21	23	25	13	199	20	26	154	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.941			0.951			0.988			0.989	
Flt Protected		0.991			0.985			0.997			0.993	
Satd. Flow (prot)	0	1756	0	0	1764	0	0	1855	0	0	1850	0
Flt Permitted		0.991			0.985			0.997			0.993	
Satd. Flow (perm)	0	1756	0	0	1764	0	0	1855	0	0	1850	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		147.2			52.0			111.7			74.0	
Travel Time (s)		13.2			4.7			10.1			6.7	
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
Adj. Flow (vph)	21	43	49	23	25	27	14	216	22	28	167	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	75	0	0	252	0	0	212	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	31.5%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

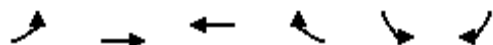
3: Havenwood Dr & Williamsport Drive

2029 FB PM
10/31/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	40	45	21	23	25	13	199	20	26	154	16
Future Volume (vph)	19	40	45	21	23	25	13	199	20	26	154	16
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)	21	43	49	23	25	27	14	216	22	28	167	17
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	113	75	252	212								
Volume Left (vph)	21	23	14	28								
Volume Right (vph)	49	27	22	17								
Hadj (s)	-0.19	-0.12	-0.01	0.01								
Departure Headway (s)	4.9	5.1	4.6	4.7								
Degree Utilization, x	0.15	0.11	0.32	0.28								
Capacity (veh/h)	659	636	741	723								
Control Delay (s)	8.8	8.6	9.9	9.5								
Approach Delay (s)	8.8	8.6	9.9	9.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.4									
Level of Service			A									
Intersection Capacity Utilization			31.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Williamsport Dr & Gullelen Dr

2029 FB PM
10/31/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	53	28	30	60	88	71
Future Volume (vph)	53	28	30	60	88	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.910		0.940	
Flt Protected		0.968			0.973	
Satd. Flow (prot)	0	1823	1714	0	1723	0
Flt Permitted		0.968			0.973	
Satd. Flow (perm)	0	1823	1714	0	1723	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		43.5	69.8		85.7	
Travel Time (s)		3.9	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	30	33	65	96	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	88	98	0	173	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97			97	97	97
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

4: Williamsport Dr & Gulleden Dr

2029 FB PM
10/31/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	28	30	60	88	71
Future Volume (Veh/h)	53	28	30	60	88	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	30	33	65	96	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	98				212	66
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	98				212	66
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				87	92
cM capacity (veh/h)	1495				747	998
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	88	98	173			
Volume Left	58	0	96			
Volume Right	0	65	77			
cSH	1495	1700	841			
Volume to Capacity	0.04	0.06	0.21			
Queue Length 95th (m)	0.9	0.0	5.9			
Control Delay (s)	5.0	0.0	10.4			
Lane LOS	A		B			
Approach Delay (s)	5.0	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization			27.0%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
5: Williamsport Drive

2029 FB PM
10/31/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	91	6	2	52	6	3	0	5	4	0	19
Future Volume (vph)	17	91	6	2	52	6	3	0	5	4	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.992			0.986			0.916			0.887	
Flt Protected		0.993			0.998			0.982			0.992	
Satd. Flow (prot)	0	1855	0	0	1853	0	0	1694	0	0	1657	0
Flt Permitted		0.993			0.998			0.982			0.992	
Satd. Flow (perm)	0	1855	0	0	1853	0	0	1694	0	0	1657	0
Link Speed (k/h)		40			40			30			30	
Link Distance (m)		96.4			147.2			51.6			40.8	
Travel Time (s)		8.7			13.2			6.2			4.9	
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)	18	99	7	2	57	7	3	0	5	4	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	0	0	66	0	0	8	0	0	25	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.8%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

5: Williamsport Drive

2029 FB PM
10/31/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	91	6	2	52	6	3	0	5	4	0	19
Future Volume (Veh/h)	17	91	6	2	52	6	3	0	5	4	0	19
Sign Control	Free			Free			Stop			Stop		
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)	18	99	7	2	57	7	3	0	5	4	0	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	64			106			224	206	102	208	206	60
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	64			106			224	206	102	208	206	60
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	99	99	100	98
cM capacity (veh/h)	1538			1485			709	681	953	738	681	1005
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	124	66	8	25								
Volume Left	18	2	3	4								
Volume Right	7	7	5	21								
cSH	1538	1485	844	950								
Volume to Capacity	0.01	0.00	0.01	0.03								
Queue Length 95th (m)	0.3	0.0	0.2	0.6								
Control Delay (s)	1.1	0.2	9.3	8.9								
Lane LOS	A	A	A	A								
Approach Delay (s)	1.1	0.2	9.3	8.9								
Approach LOS			A	A								
Intersection Summary												
Average Delay				2.0								
Intersection Capacity Utilization				22.8%	ICU Level of Service				A			
Analysis Period (min)				15								

APPENDIX H

ITE Trip Generation Manual Excerpts

Multifamily Housing (High-Rise)

Not Close to Rail Transit (222)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 45

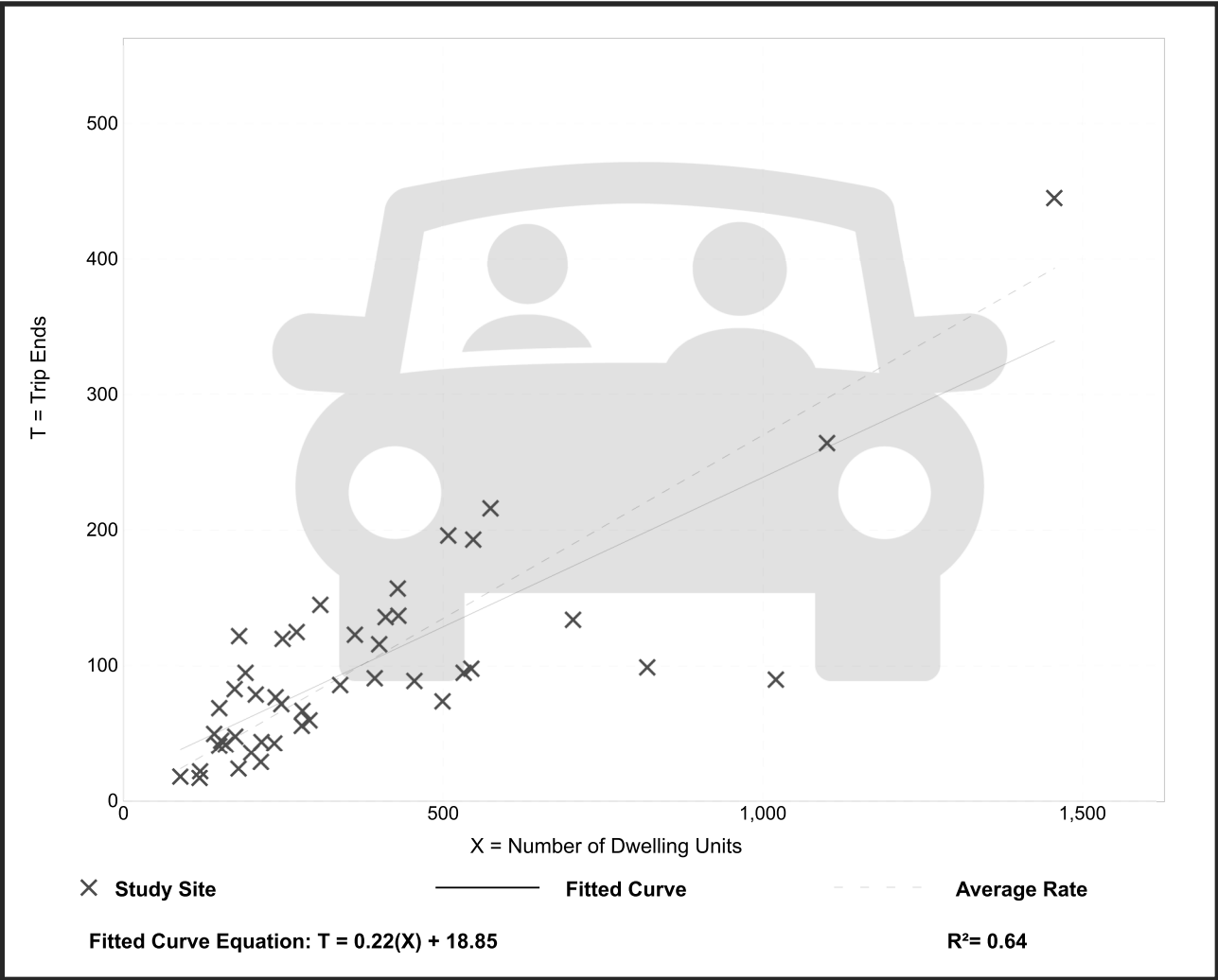
Avg. Num. of Dwelling Units: 372

Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.27	0.09 - 0.67	0.11

Data Plot and Equation



Multifamily Housing (High-Rise)

Not Close to Rail Transit (222)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 45

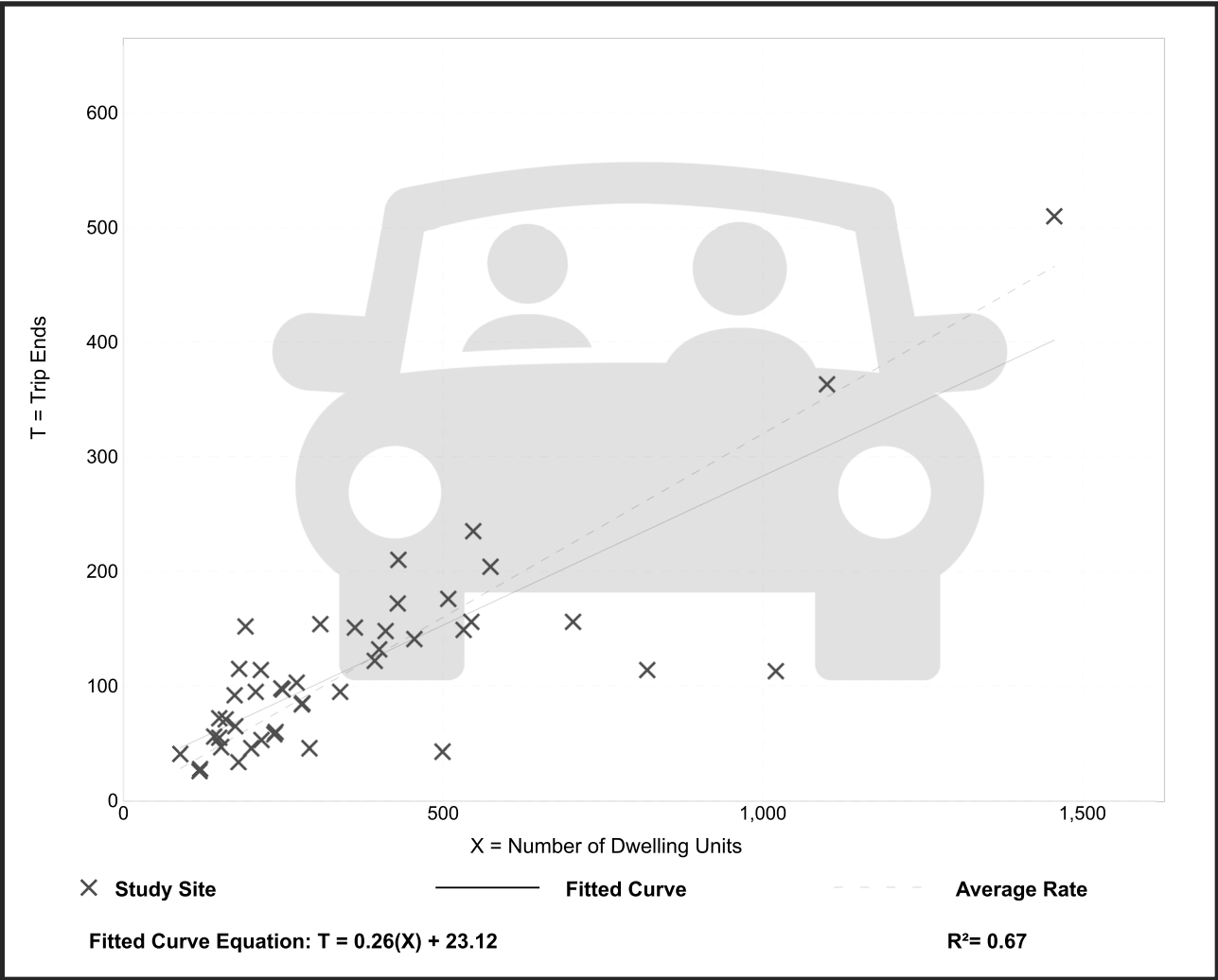
Avg. Num. of Dwelling Units: 372

Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.32	0.09 - 0.80	0.13

Data Plot and Equation



APPENDIX I

Trip Distribution TTS Query

TTS Query Results	
Distribution:	AM IN

Field	Selection	Value
Row variable:	2006 GTA zone of origin	-
Column variable:	2006 GTA zone of destination	-
Filter 1:	2006 GTA zone of destination	3669, 3670, 3674, 3675
Filter 2:	Start time of trip	0630-0930
Filter 3:	Trip purpose of destination	Home (H)

AM IN	Internal										External								Totals
	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	External	External	External	External	External	External	External	External	
Direction	I	NW	N	NE	E	SE	S	SW	W		NW	N	NE	E	SE	S	SW	W	
Trips	838	74	111	12	0	39	6	20	150		0	0	21	90	257	0	0	0	1618
%	51.79%	4.57%	6.86%	0.74%	0.00%	2.41%	0.37%	1.24%	9.27%		0.00%	0.00%	1.30%	5.56%	15.88%	0.00%	0.00%	0.00%	100.00%
% w/o trips in subject TAZ	0.00%	9.49%	14.23%	1.54%	0.00%	5.00%	0.77%	2.56%	19.23%		0.00%	0.00%	2.69%	11.54%	32.95%	0.00%	0.00%	0.00%	100.00%

Fri Aug 02 2024 14:12:29 GMT-0400 (Eastern Daylight Time) - Run Time: 3060ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of destination - gta06_dest In 3669,3670,3674,3675
and
Start time of trip - start_time In 0630-0930
and
Trip purpose of destination - purp_dest In H,)

Trip 2016
Table:

.3669,3670,3674,3675
51.0,38.0,0
60.0,23.0,0
68.8,0.0,0
115.0,0.0,19
147,14.0,0.0
289,0.0,57.0
299,0.8,0.0
307,0.13,0.0
308,47.0,20.0
309,0.0,24.0
312,4.8,0.9
324,36.0,0.0
335,0.0,0.11
336,10.0,0.0
439,19.0,0.0
3610,0.0,24.0
3655,0.26,0.0
3658,4.0,0.0
3660,20.0,0.0
3668,0.0,11.0
3669,151,18,22,12
3670,0.180,0.0
3671,0.42,0.0
3674,96,0.86,0
3675,6,148,0,119
3689,0.0,0.38
3698,0.0,21.0
3709,12.0,0.0
3717,0.12,0.0
3815,0.0,21.0
3844,19.0,0.0
3851,0.0,0.16
3859,90.0,0.0
3861,0.0,6.0
3863,11.0,0.0
3874,16.0,23.0

TTS Query Results

Distribution:AM OUT

Field	Selection	Value
Row variable:	2006 GTA zone of destination	-
Column variable:	2006 GTA zone of origin	-
Filter 1:	2006 GTA zone of origin	3669, 3670, 3674, 3675
Filter 2:	Start time of trip	0630-0930
Filter 3:	Trip purpose of origin	Home (H)

AM OUT	Internal										External								
	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	External	External	External	External	External	External	External	External	
Direction	I	NW	N	NE	E	SE	S	SW	W		NW	N	NE	E	SE	S	SW	W	Totals
Trips	838	77	134	60	0	0	87	0	250		32	72	0	47	0	27	0	0	1624
%	51.60%	4.74%	8.25%	3.69%	0.00%	0.00%	5.36%	0.00%	15.39%		1.97%	4.43%	0.00%	2.89%	0.00%	1.66%	0.00%	0.00%	99.98%
% w/o trips in subject TAZ	0.00%	9.80%	17.05%	7.63%	0.00%	0.00%	11.07%	0.00%	31.81%		4.07%	9.16%	0.00%	5.98%	0.00%	3.44%	0.00%	0.00%	100.01%

Fri Aug 02 2024 14:14:32 GMT-0400 (Eastern Daylight Time) - Run Time: 2820ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

Filters:
(2006 GTA zone of origin - gta06_orig In 3669,3670,3674,3675
and
Start time of trip - start_time In 0630-0930
and
Trip purpose of destination - purp_dest In H,)

Trip 2016
Table:

.3669,3670,3674,3675
130.0,15.0,0
295.0,27.0,0
324.0,0.0,18
328.0,0.0,14
3371.0,0.0,25
3376.0,0.47,0
3493.6,0.0,0
3607.0,0.0,7
3610,16.0,16.0
3622.0,0.0,12
3649.0,0.0,29
3655.0,0.0,40
3668,28.0,25.0
3669,151.0,96.6
3670,18,180,0,148
3671.0,0.0,56
3673.0,0.0,23
3674,22.0,86.0
3675,12.0,0,119
3677,8.0,0.0
3678,24.0,0.0
3680.0,0.12,0
3681.0,0.23,24
3682.0,0.0,60
3686.0,0.0,4
3687.0,18.0,0
3841,8.0,0.0
3853,13.0,0.0
3858.0,0.0,33
3859.0,0.42,0
3861,23.0,0,35
3863.0,0.11,0
3864.0,0.0,18
4159,0,26.0,0

TTS Query Results

Distribution:PM IN

Field	Selection	Value
Row variable:	2006 GTA zone of origin	-
Column variable:	2006 GTA zone of destination	-
Filter 1:	2006 GTA zone of destination	3669, 3670, 3674, 3675
Filter 2:	Start time of trip	1530-1830
Filter 3:	Trip purpose of destination	Home (H)

PM IN	Internal										External								
	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	External	External	External	External	External	External	External	External	
Direction	I	NW	N	NE	E	SE	S	SW	W		NW	N	NE	E	SE	S	SW	W	Totals
Trips	1516	1007	1412	600	0	562	462	303	923		193	302	891	1095	2026	11	32	593	11928
%	12.71%	8.44%	11.84%	5.03%	0.00%	4.71%	3.87%	2.54%	7.74%		1.62%	2.53%	7.47%	9.18%	16.99%	0.09%	0.27%	4.97%	100.00%
% w/o trips in subject TAZ	0.00%	9.67%	13.56%	5.76%	0.00%	5.40%	4.44%	2.91%	8.86%		1.85%	2.90%	8.56%	10.52%	19.46%	0.11%	0.31%	5.70%	100.01%

Fri Aug 02 2024 14:13:09 GMT-0400 (Eastern Daylight Time) - Run Time: 3057ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
(2006 GTA zone of destination - gta06_dest In 3669,3670,3674,3675
and
Start time of trip - start_time In 1530-1830
and
Trip purpose of destination - purp_dest In H,)

Trip 2016
Table:

.3669,3670,3674,3675
11,0,0,57,0
21,0,0,0,19
25,0,0,88,38
32,0,0,20,0
34,0,0,11,0
36,0,0,0,0
37,0,0,20,0
38,17,0,38,21
41,25,0,0,0
43,25,0,0,29
45,14,73,0,0
46,0,0,0,48
50,19,0,0,0
51,65,38,0,10
52,104,0,20,0
53,20,38,0,0
54,18,0,0,82
55,28,48,6,0
56,26,7,0,0
57,55,12,39,37
59,19,0,0,0
63,0,0,46,0
65,20,4,6,9
66,0,0,0,19
67,0,0,18,0
68,0,5,0,0
70,0,33,0,0
71,0,22,0,0
75,0,0,0,34
77,0,0,0,15
89,10,0,0,0
90,0,31,0,0
98,12,0,0,0
110,41,0,0,0
141,0,17,0,0
146,0,0,21,14
147,14,0,0,0
157,0,0,0,32
161,0,0,0,26
204,20,0,0,0
210,0,8,0,0
211,18,0,0,0
218,0,0,0,26
222,11,0,0,0
231,0,0,7,0
243,0,58,0,0
254,0,0,12,0
258,19,0,0,0
286,0,0,19,0
290,13,0,9,0
292,7,57,13,37
295,11,0,0,0
296,34,0,0,0
298,0,7,0,0
299,12,28,19,0
307,0,0,0,32
308,0,0,18,0
309,25,17,32,52
310,0,0,0,19
311,33,0,0,13
312,0,82,22,0
313,40,0,0,27
315,14,0,0,0
321,64,0,0,0
323,23,0,0,0
326,10,0,0,0
327,7,0,0,0
328,0,19,0,0
331,0,11,0,0
332,42,0,0,0

335.0,8.0,29
337.0,23.0,0
353.0,53.0,0
355.0,26,11,14
357.0,0.0,14.0
358,36,0,0,0
359,14,0,0,0
361,19,0,0,0
369,0,17,0,0
371,12,33,0,20
378.0,0,24,0
382,0,8,0,0
383,0,0,0,38
386,14,0,0,0
387,19,0,0,0
388,25,0,0,0
391,37,42,0,20
393,0,0,0,17
401,0,0,0,20
403,25,0,0,0
415,0,9,0,0
435,0,0,0,36
439,19,0,0,0
443,0,0,29,0
450,8,0,0,0
454,0,15,0,0
465,16,0,0,0
484,0,0,72,0
487,0,12,0,0
2004,0,0,23,0
2027,0,0,12
2083,0,16,0,0
2088,0,0,0,31
2091,0,0,22,0
2111,0,26,0,0
2236,46,0,0,0
2368,17,0,0,0
2369,0,0,33,0
2370,0,0,0,10
2372,0,0,32,0
2400,34,0,0,0
2401,0,0,31,0
2422,4,0,0,0
2562,10,0,0,0
2656,22,0,0,33
2702,28,0,0,0
3105,0,0,25,0
3323,18,0,0,0
3325,0,0,0,19
3328,0,0,12,0
3332,0,0,0,19
3339,24,0,0,0
3343,0,0,78,32
3364,18,0,0,0
3366,0,0,14,0
3374,0,45,0,0
3435,0,17,0,0
3462,0,18,0,0
3466,0,0,14,0
3481,0,62,0,0
3518,0,0,21,0
3604,0,0,15,0
3605,24,0,0,0
3608,17,0,0,0
3609,0,0,21,57
3610,54,0,55,0
3611,0,36,0,0
3612,5,0,17,0
3613,11,34,0,0
3618,0,18,0,0
3620,0,20,39,0
3621,17,0,19,86
3626,35,0,8,0
3627,28,8,0,12
3631,0,0,15,44
3632,0,0,0,26
3634,0,31,11,0
3635,72,0,0,0
3639,15,0,0,0
3641,0,0,35,0
3643,0,0,66,0
3645,22,0,0,44
3649,66,0,106,54
3651,0,0,0,16
3653,15,0,0,0
3654,35,0,51,36
3655,52,11,0,0
3658,4,0,0,0
3659,0,18,0,0
3660,45,12,0,45
3661,33,15,0,62
3662,0,0,46,0
3664,13,0,0,0
3666,5,0,0,0
3668,0,0,25,0
3669,302,0,41,25
3670,0,149,0,182
3671,21,0,0,29
3674,183,42,186,0
3675,30,112,79,185
3680,28,0,0,25
3681,13,0,0,0
3682,32,53,102,19
3686,69,0,0,0
3688,7,0,0,0
3689,0,0,0,38
3692,64,0,0,0
3693,57,0,0,127
3696,17,48,0,17

3698,41,19,0,0
3699,0,0,23,20
3700,0,25,52,90
3701,69,61,17,8
3702,0,19,20,39
3703,45,0,0,0
3704,33,0,0,0
3705,35,18,26,42
3707,0,62,29,0
3709,50,0,13,52
3710,87,37,0,0
3711,0,53,0,0
3713,22,26,0,0
3715,22,0,0,0
3717,0,12,0,0
3720,0,0,0,25
3721,66,26,19,0
3815,0,0,21,0
3816,44,0,0,0
3819,0,0,0,37
3821,0,0,0,16
3822,0,0,0,14
3823,0,20,0,0
3825,0,18,12,17
3828,0,0,9,0
3831,10,0,0,0
3832,0,0,0,25
3835,0,0,24,0
3841,35,0,0,0
3844,19,0,0,0
3848,55,0,0,0
3851,40,0,95,46
3852,0,0,0,14
3856,0,0,0,22
3857,56,22,15,34
3858,10,0,23,0
3859,0,0,6,31
3860,57,23,100,51
3861,48,0,0,0
3862,11,0,7,0
3863,0,0,10,0
3868,0,0,32,0
3871,0,17,0,25
3874,41,69,42,69
3878,0,26,0,0
4009,0,0,17,0
4021,0,0,13,0
4022,0,8,0,0
4024,45,34,101,35
4027,11,0,0,0
4029,0,0,15,0
4030,0,0,18,0
4041,46,0,0,0
4069,11,0,32,0
4077,0,34,0,0
4087,0,41,0,0
4126,22,0,0,0
4192,0,0,0,14
4196,20,0,0,0
5112,12,0,0,0
5142,28,0,0,0
5198,19,0,0,0
6052,0,20,0,0
6258,46,0,0,0
7042,0,25,0,0
7302,14,0,0,0
8145,0,0,6,0
8910,0,0,17,0
9057,0,10,0,0

TTS Query Results

Distribution:PM OUT

Field	Selection	Value
Row variable:	2006 GTA zone of destination	-
Column variable:	2006 GTA zone of origin	-
Filter 1:	2006 GTA zone of origin	3669, 3670, 3674, 3675
Filter 2:	Start time of trip	1530-1830
Filter 3:	Trip purpose of origin	Home (H)

PM OUT	Internal											External								Totals
	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	Internal	External	External	External	External	External	External	External	External	
Direction	I	NW	N	NE	E	SE	S	SW	W			NW	N	NE	E	SE	S	SW	W	
Trips	1516	607	305	91	0	0	279	388	1332			72	198	191	364	187	0	74	182	5786
%	26.20%	10.49%	5.27%	1.57%	0.00%	0.00%	4.82%	6.71%	23.02%			1.24%	3.42%	3.30%	6.29%	3.23%	0.00%	1.28%	3.15%	99.99%
% w/o trips in subject TAZ	0.00%	14.22%	7.14%	2.13%	0.00%	0.00%	6.53%	9.09%	31.19%			1.69%	4.64%	4.47%	8.52%	4.38%	0.00%	1.73%	4.26%	99.99%

Fri Aug 02 2024 14:14:11 GMT-0400 (Eastern Daylight Time) - Run Time: 2887ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

Filters:
(2006 GTA zone of origin - gta06_orig In 3669,3670,3674,3675
and
Start time of trip - start_time In 1530-1830
and
Trip purpose of destination - purp_dest In H,)

Trip 2016
Table:

,3669,3670,3674,3675
97.0,35.0,0
105.0,5.0,0
107.0,0.0,5
124.0,16.0,0
126.0,25.0,0
128,18.0,0.0
191.0,13.0,0
271,25.0,0.0
280.0,16.0,0
287.0,11.0,0
305,13.0,0.0
306.0,55.0,13
307.0,0.27,0
324.0,15.0,18
328.0,28.0,28
332.0,46.0,0
336.0,0.0,80
337.0,0.0,18
338.0,0.0,15
339.0,16.0,0
340.0,36.0,0
345.0,19.0,0
351.0,0.10,0
363.0,21.6,0
364.0,0.15,0
380.0,0.26,0
1171,14.0,0.0
2209.0,8.0,0
2243.0,0.23,0
2455.0,8.0,0
3008.0,0.5,0
3151,11.0,0.0
3194.0,0.37,0
3196.0,10.0,0
3197.0,0.15,0
3337.0,0.0,15
3344.13.0,0.0
3355.0,14.0,0
3360.0,39.0,0
3362.0,0.0,20
3365.0,0.9,0
3367.0,0.0,4
3419.0,9.0,0
3500.0,0.7,0
3602.4.0,0.0
3603.10.0,0.11
3604.26.0,0.73
3606.36.0,0.26
3607.7.0,0.0
3610.98.0,82.0
3620.0,22.0,0
3622.0,0.23,21
3623.0,36.0,0
3641.0.0,0.14
3642.38.35.0,40
3644.37.0,0.0
3648.0,16.44,0
3649.13.0,0.38
3651.10.0,0.0
3653.57.42.0,0
3654.27.35.0,0
3655.0.0,11.89
3656.14.0,0.0
3662.0,18.0,11
3663.0,0.62,12
3667.8.0,0.0
3668.110.0,36.0
3669.302.0,183.30
3670.0,149.42,112
3671.0,24.0,16

3673,23,0,24,0
3674,41,0,186,79
3675,25,182,0,185
3677,11,0,0,0
3678,67,19,16,0
3679,0,0,5,0
3680,38,22,26,0
3681,31,0,29,24
3682,9,21,31,30
3684,0,0,0,18
3685,0,0,12,22
3686,0,23,13,0
3687,0,37,0,0
3688,0,0,0,37
3690,0,0,0,66
3691,31,0,0,0
3694,0,25,0,0
3714,0,39,0,81
3715,15,0,0,27
3716,15,0,19,0
3724,0,0,0,12
3809,65,0,0,0
3810,0,0,0,26
3812,0,69,19,0
3841,15,0,0,0
3856,0,0,18,0
3857,61,40,0,16
3859,0,42,0,0
3861,46,0,85,35
3863,116,24,0,0
3864,18,0,0,0
3866,28,0,0,0
3872,0,12,0,0
3879,7,11,0,0
4001,0,0,18,0
4005,15,0,0,0
4007,0,27,0,0
4020,0,14,0,0
4033,0,14,0,0
4040,0,30,0,0
4070,0,24,0,0
4083,0,18,0,0
4103,0,41,0,0
4119,0,0,11,0
4160,0,15,0,0
5229,0,44,0,0
7289,0,48,0,0
8607,0,0,14,0

[illegible]

APPENDIX J

Future Total Detailed Capacity Analysis Reports

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT AM
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	473	173	299	406	265	57	974	208	190	1185	100
Future Volume (vph)	137	473	173	299	406	265	57	974	208	190	1185	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.97		0.98	1.00		0.93	0.99	0.99		1.00		0.95
Frt			0.850			0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	3544	1617	1772	3444	1555	1722	4693	0	1722	4948	1555
Flt Permitted	0.496			0.241			0.203			0.136		
Satd. Flow (perm)	880	3544	1582	448	3444	1452	365	4693	0	246	4948	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			102			35			109
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			164.4			615.3			434.7	
Travel Time (s)		21.7			11.8			36.9			26.1	
Confl. Peds. (#/hr)	45		8	8		45	35		14	14		35
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 (%)	5%	3%	1%	3%	6%	5%	6%	9%	5%	6%	6%	5%
Adj. Flow (vph)	149	514	188	325	441	288	62	1059	226	207	1288	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	514	188	325	441	288	62	1285	0	207	1288	109
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT AM
12/06/2024

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		8		7	4			6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	7	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	10.0
Minimum Split (s)	46.4	46.4	46.4	10.0	46.4	46.4	46.9	46.9		12.0	46.9	46.9
Total Split (s)	51.0	51.0	51.0	15.0	66.0	66.0	71.0	71.0		23.0	94.0	94.0
Total Split (%)	31.9%	31.9%	31.9%	9.4%	41.3%	41.3%	44.4%	44.4%		14.4%	58.8%	58.8%
Maximum Green (s)	43.6	43.6	43.6	12.0	58.6	58.6	64.1	64.1		18.0	87.1	87.1
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.4	3.4	3.4	0.0	3.4	3.4	2.9	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.9	6.9		5.0	6.9	6.9
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0		10.0	10.0	10.0	10.0			10.0	10.0
Flash Dont Walk (s)	29.0	29.0	29.0		29.0	29.0	30.0	30.0			30.0	30.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0			0	0
Act Effect Green (s)	34.3	34.3	34.3	53.7	49.3	49.3	77.3	77.3		98.3	96.4	96.4
Actuated g/C Ratio	0.21	0.21	0.21	0.34	0.31	0.31	0.48	0.48		0.61	0.60	0.60
v/c Ratio	0.79	0.68	0.47	1.31	0.42	0.56	0.35	0.56		0.74	0.43	0.12
Control Delay	86.5	61.7	32.9	200.2	44.3	32.2	37.8	31.3		33.3	18.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	86.5	61.7	32.9	200.2	44.3	32.2	37.8	31.3		33.3	18.5	3.0
LOS	F	E	C	F	D	C	D	C		C	B	A
Approach Delay		59.7			89.1			31.6			19.3	
Approach LOS		E			F			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 45 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 44.9

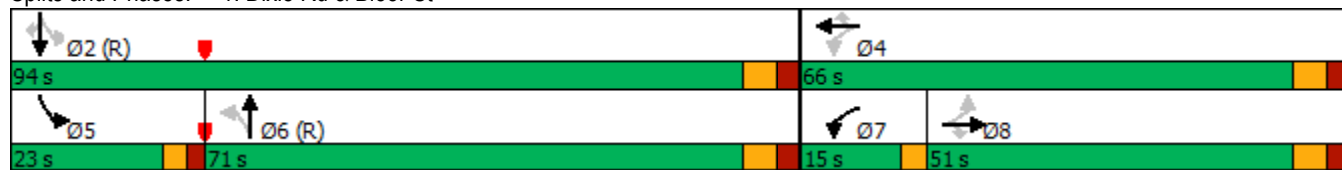
Intersection LOS: D

Intersection Capacity Utilization 102.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Timings
1: Dixie Rd & Bloor St

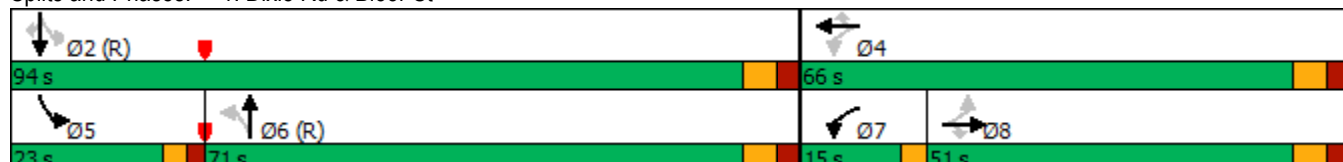
2029 FT AM
12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	137	473	173	299	406	265	57	974	190	1185	100
Future Volume (vph)	137	473	173	299	406	265	57	974	190	1185	100
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm
Protected Phases		8		7	4			6	5	2	
Permitted Phases	8		8	4		4	6		2		2
Detector Phase	8	8	8	7	4	4	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	46.4	46.4	46.4	10.0	46.4	46.4	46.9	46.9	12.0	46.9	46.9
Total Split (s)	51.0	51.0	51.0	15.0	66.0	66.0	71.0	71.0	23.0	94.0	94.0
Total Split (%)	31.9%	31.9%	31.9%	9.4%	41.3%	41.3%	44.4%	44.4%	14.4%	58.8%	58.8%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.4	3.4	3.4	0.0	3.4	3.4	2.9	2.9	2.0	2.9	2.9
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
Total Lost Time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.9	6.9	5.0	6.9	6.9
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	34.3	34.3	34.3	53.7	49.3	49.3	77.3	77.3	98.3	96.4	96.4
Actuated g/C Ratio	0.21	0.21	0.21	0.34	0.31	0.31	0.48	0.48	0.61	0.60	0.60
v/c Ratio	0.79	0.68	0.47	1.31	0.42	0.56	0.35	0.56	0.74	0.43	0.12
Control Delay	86.5	61.7	32.9	200.2	44.3	32.2	37.8	31.3	33.3	18.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	61.7	32.9	200.2	44.3	32.2	37.8	31.3	33.3	18.5	3.0
LOS	F	E	C	F	D	C	D	C	C	B	A
Approach Delay		59.7			89.1			31.6		19.3	
Approach LOS		E			F			C		B	

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 45 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 44.9
Intersection Capacity Utilization 102.2%
Analysis Period (min) 15
Intersection LOS: D
ICU Level of Service G

Splits and Phases: 1: Dixie Rd & Bloor St



Queues

2029 FT AM

1: Dixie Rd & Bloor St

12/06/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	149	514	188	325	441	288	62	1285	207	1288	109
v/c Ratio	0.79	0.68	0.47	1.31	0.42	0.56	0.35	0.56	0.74	0.43	0.12
Control Delay	86.5	61.7	32.9	200.2	44.3	32.2	37.8	31.3	33.3	18.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	61.7	32.9	200.2	44.3	32.2	37.8	31.3	33.3	18.5	3.0
Queue Length 50th (m)	45.0	79.4	29.3	~112.1	58.3	49.3	12.2	102.9	28.1	78.6	0.0
Queue Length 95th (m)	68.4	92.5	50.6	#164.9	68.6	73.4	30.3	136.2	54.7	102.1	9.1
Internal Link Dist (m)	278.0			140.4			591.3			410.7	
Turn Bay Length (m)	40.0		15.0	60.0		10.0	75.0		100.0		85.0
Base Capacity (vph)	239	965	490	249	1261	596	176	2285	317	2981	930
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.53	0.38	1.31	0.35	0.48	0.35	0.56	0.65	0.43	0.12

Intersection Summary

~ 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.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT AM
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	748	62	58	729	34	68	61	60	52	86	136
Future Volume (vph)	73	748	62	58	729	34	68	61	60	52	86	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. 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
Ped Bike Factor		1.00			0.99		0.87	0.86		0.78	0.88	
Frt		0.989			0.993			0.926			0.908	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1818	0	1722	1823	0	1690	1505	0	1722	1449	0
Flt Permitted	0.247			0.220			0.431			0.673		
Satd. Flow (perm)	465	1818	0	399	1823	0	669	1505	0	954	1449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4			53			86	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		175.4			281.3			137.1			111.7	
Travel Time (s)		12.6			20.3			16.5			10.1	
Confl. Peds. (#/hr)	70		25	25		70	127		178	178		127
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%	4%	4%	6%	4%	4%	8%	2%	2%	6%	6%	5%
Adj. Flow (vph)	79	813	67	63	792	37	74	66	65	57	93	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	880	0	63	829	0	74	131	0	57	241	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT AM
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		41.5	41.5		41.5	41.5	
Total Split (s)	59.0	59.0		59.0	59.0		41.0	41.0		41.0	41.0	
Total Split (%)	59.0%	59.0%		59.0%	59.0%		41.0%	41.0%		41.0%	41.0%	
Maximum Green (s)	53.0	53.0		53.0	53.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.5	7.5		7.5	7.5	

Lead/Lag

Lead-Lag Optimize?

Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	68.7	68.7		68.7	68.7		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.18	0.18		0.18	0.18	
v/c Ratio	0.25	0.70		0.23	0.66		0.63	0.42		0.34	0.73	
Control Delay	10.2	15.1		10.5	13.8		58.7	24.3		38.7	37.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.2	15.1		10.5	13.8		58.7	24.3		38.7	37.1	
LOS	B	B		B	B		E	C		D	D	
Approach Delay		14.7			13.5			36.7			37.4	
Approach LOS		B			B			D			D	

Intersection Summary

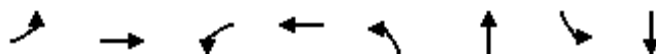
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 39 (39%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 110.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Havenwood Dr & Bloor St



Timings 2: Havenwood Dr & Bloor St

2029 FT AM
12/06/2024



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	73	748	58	729	68	61	52	86
Future Volume (vph)	73	748	58	729	68	61	52	86
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	35.0	35.0	41.5	41.5	41.5	41.5
Total Split (s)	59.0	59.0	59.0	59.0	41.0	41.0	41.0	41.0
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0
All-Red Time (s)	2.5	2.5	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.5	7.5	7.5	7.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effect Green (s)	68.7	68.7	68.7	68.7	17.8	17.8	17.8	17.8
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.18	0.18	0.18	0.18
v/c Ratio	0.25	0.70	0.23	0.66	0.63	0.42	0.34	0.73
Control Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
LOS	B	B	B	B	E	C	D	D
Approach Delay		14.7		13.5		36.7		37.4
Approach LOS		B		B		D		D

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 39 (39%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 19.1

Intersection LOS: B

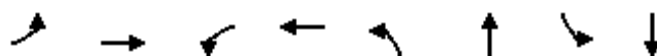
Intersection Capacity Utilization 110.8%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 2: Havenwood Dr & Bloor St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	79	880	63	829	74	131	57	241
v/c Ratio	0.25	0.70	0.23	0.66	0.63	0.42	0.34	0.73
Control Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
Queue Length 50th (m)	4.9	87.6	3.9	78.4	13.5	13.4	9.9	28.9
Queue Length 95th (m)	16.2	183.5	13.7	162.4	25.7	26.8	19.2	48.9
Internal Link Dist (m)		151.4		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	319	1250	274	1253	224	539	319	542
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.70	0.23	0.66	0.33	0.24	0.18	0.44
Intersection Summary								

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2029 FT AM

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13
Future Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.931			0.954			0.983			0.992	
Flt Protected		0.989			0.982			0.991			0.994	
Satd. Flow (prot)	0	1734	0	0	1764	0	0	1835	0	0	1857	0
Flt Permitted		0.989			0.982			0.991			0.994	
Satd. Flow (perm)	0	1734	0	0	1764	0	0	1835	0	0	1857	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		195.5			52.0			111.7			74.0	
Travel Time (s)		17.6			4.7			10.1			6.7	
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
Adj. Flow (vph)	26	32	60	37	30	35	36	135	24	30	187	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	118	0	0	102	0	0	195	0	0	231	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.0%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

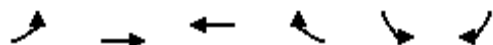
3: Havenwood Dr & Williamsport Drive

2029 FT AM
12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13
Future Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13
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)	26	32	60	37	30	35	36	135	24	30	187	14
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	118	102	195	231								
Volume Left (vph)	26	37	36	30								
Volume Right (vph)	60	35	24	14								
Hadj (s)	-0.23	-0.10	0.00	0.02								
Departure Headway (s)	4.9	5.0	4.8	4.7								
Degree Utilization, x	0.16	0.14	0.26	0.30								
Capacity (veh/h)	670	649	716	718								
Control Delay (s)	8.8	8.8	9.4	9.8								
Approach Delay (s)	8.8	8.8	9.4	9.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.3									
Level of Service			A									
Intersection Capacity Utilization			30.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Williamsport Dr & Gulledden Dr

2029 FT AM
12/06/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	28	15	89	65	61
Future Volume (vph)	60	28	15	89	65	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.884		0.935	
Flt Protected		0.967			0.975	
Satd. Flow (prot)	0	1821	1665	0	1717	0
Flt Permitted		0.967			0.975	
Satd. Flow (perm)	0	1821	1665	0	1717	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		66.3	69.8		85.7	
Travel Time (s)		6.0	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	30	16	97	71	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	95	113	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 25.5%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis

4: Williamsport Dr & Gulleden Dr

2029 FT AM
12/06/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	28	15	89	65	61
Future Volume (Veh/h)	60	28	15	89	65	61
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	30	16	97	71	66
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	113				224	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				224	64
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				90	93
cM capacity (veh/h)	1476				730	1000
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	95	113	137			
Volume Left	65	0	71			
Volume Right	0	97	66			
cSH	1476	1700	839			
Volume to Capacity	0.04	0.07	0.16			
Queue Length 95th (m)	1.0	0.0	4.4			
Control Delay (s)	5.3	0.0	10.1			
Lane LOS	A		B			
Approach Delay (s)	5.3	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization			25.5%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
5: Site Access & Williamsport Drive

2029 FT AM
12/06/2024

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	66	5	18	60	24	36
Future Volume (vph)	66	5	18	60	24	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.919	
Flt Protected				0.988	0.980	
Satd. Flow (prot)	1866	0	0	1861	1696	0
Flt Permitted				0.988	0.980	
Satd. Flow (perm)	1866	0	0	1861	1696	0
Link Speed (k/h)	40			40	30	
Link Distance (m)	48.9			195.5	61.5	
Travel Time (s)	4.4			17.6	7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	5	20	65	26	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	0	0	85	65	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

5: Site Access & Williamsport Drive

2029 FT AM
12/06/2024

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	66	5	18	60	24	36
Future Volume (Veh/h)	66	5	18	60	24	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	5	20	65	26	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			77		180	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		180	74
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	96
cM capacity (veh/h)			1522		799	987
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	77	85	65			
Volume Left	0	20	26			
Volume Right	5	0	39			
cSH	1700	1522	902			
Volume to Capacity	0.05	0.01	0.07			
Queue Length 95th (m)	0.0	0.3	1.8			
Control Delay (s)	0.0	1.8	9.3			
Lane LOS		A	A			
Approach Delay (s)	0.0	1.8	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization			21.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT PM
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Traffic Volume (vph)	132	477	179	325	726	200	272	1311	416	136	1435	219
Future Volume (vph)	132	477	179	325	726	200	272	1311	416	136	1435	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.98		0.96	0.99		0.90		0.99				0.93
Frt			0.850			0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3544	1601	1789	3579	1617	1825	4895	0	1789	5092	1617
Flt Permitted	0.119			0.311			0.063			0.066		
Satd. Flow (perm)	219	3544	1530	578	3579	1451	121	4895	0	124	5092	1502
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			81		57				172
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			164.4			615.3			434.7	
Travel Time (s)		21.7			11.8			36.9			26.1	
Confl. Peds. (#/hr)	75		27	27		75	50		24	24		50
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%	2%	2%	2%	1%	0%	3%	0%	2%	3%	1%
Adj. Flow (vph)	143	518	195	353	789	217	296	1425	452	148	1560	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	518	195	353	789	217	296	1877	0	148	1560	238
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT PM
12/06/2024

												
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		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	3	8	8	7	4	4	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	46.4	46.4	10.0	46.4	46.4	11.5	46.9		12.0	46.9	46.9
Total Split (s)	13.0	58.0	58.0	13.0	58.0	58.0	24.0	66.0		23.0	65.0	65.0
Total Split (%)	8.1%	36.3%	36.3%	8.1%	36.3%	36.3%	15.0%	41.3%		14.4%	40.6%	40.6%
Maximum Green (s)	10.0	50.6	50.6	10.0	50.6	50.6	21.0	59.1		18.0	58.1	58.1
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	3.4	3.4	0.0	3.4	3.4	0.0	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.9		5.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		10.0	10.0		10.0	10.0		10.0			10.0	10.0
Flash Dont Walk (s)		29.0	29.0		29.0	29.0		30.0			30.0	30.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	56.5	42.1	42.1	56.5	42.1	42.1	94.1	72.5		75.9	60.9	60.9
Actuated g/C Ratio	0.35	0.26	0.26	0.35	0.26	0.26	0.59	0.45		0.47	0.38	0.38
v/c Ratio	0.82	0.56	0.42	1.27	0.84	0.49	0.83	0.83		0.76	0.81	0.35
Control Delay	68.1	52.7	29.7	181.7	64.1	33.5	64.8	42.2		61.9	48.8	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	68.1	52.7	29.7	181.7	64.1	33.5	64.8	42.2		61.9	48.8	12.1
LOS	E	D	C	F	E	C	E	D		E	D	B
Approach Delay		50.0			89.8			45.3			45.3	
Approach LOS		D			F			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 74 (46%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.27

Intersection Signal Delay: 55.5

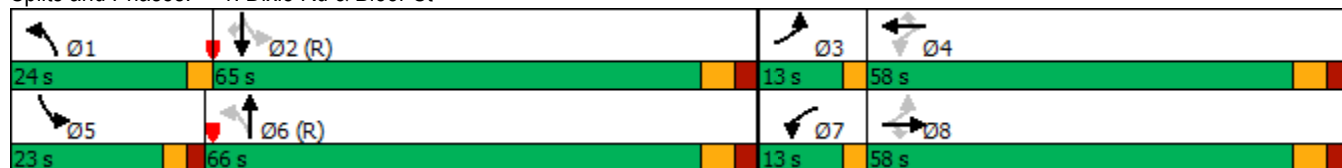
Intersection LOS: E

Intersection Capacity Utilization 109.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Timings
1: Dixie Rd & Bloor St

2029 FT PM
12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	132	477	179	325	726	200	272	1311	136	1435	219
Future Volume (vph)	132	477	179	325	726	200	272	1311	136	1435	219
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6	5	2	
Permitted Phases	8		8	4		4	6		2		2
Detector Phase	3	8	8	7	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	46.4	46.4	10.0	46.4	46.4	11.5	46.9	12.0	46.9	46.9
Total Split (s)	13.0	58.0	58.0	13.0	58.0	58.0	24.0	66.0	23.0	65.0	65.0
Total Split (%)	8.1%	36.3%	36.3%	8.1%	36.3%	36.3%	15.0%	41.3%	14.4%	40.6%	40.6%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	3.4	3.4	0.0	3.4	3.4	0.0	2.9	2.0	2.9	2.9
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
Total Lost Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.9	5.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effect Green (s)	56.5	42.1	42.1	56.5	42.1	42.1	94.1	72.5	75.9	60.9	60.9
Actuated g/C Ratio	0.35	0.26	0.26	0.35	0.26	0.26	0.59	0.45	0.47	0.38	0.38
v/c Ratio	0.82	0.56	0.42	1.27	0.84	0.49	0.83	0.83	0.76	0.81	0.35
Control Delay	68.1	52.7	29.7	181.7	64.1	33.5	64.8	42.2	61.9	48.8	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	52.7	29.7	181.7	64.1	33.5	64.8	42.2	61.9	48.8	12.1
LOS	E	D	C	F	E	C	E	D	E	D	B
Approach Delay		50.0			89.8			45.3		45.3	
Approach LOS		D			F			D		D	

Intersection Summary

Cycle Length: 160
Actuated Cycle Length: 160
Offset: 74 (46%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 55.5
Intersection Capacity Utilization 109.6%
Analysis Period (min) 15
Intersection LOS: E
ICU Level of Service H

Splits and Phases: 1: Dixie Rd & Bloor St

 Ø1	 Ø2 (R)	 Ø3	 Ø4
24 s	65 s	13 s	58 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
23 s	66 s	13 s	58 s

Queues

2029 FT PM

1: Dixie Rd & Bloor St

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	143	518	195	353	789	217	296	1877	148	1560	238
v/c Ratio	0.82	0.56	0.42	1.27	0.84	0.49	0.83	0.83	0.76	0.81	0.35
Control Delay	68.1	52.7	29.7	181.7	64.1	33.5	64.8	42.2	61.9	48.8	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	52.7	29.7	181.7	64.1	33.5	64.8	42.2	61.9	48.8	12.1
Queue Length 50th (m)	30.9	75.2	29.6	~116.0	125.4	36.5	73.3	187.0	30.8	166.8	14.0
Queue Length 95th (m)	#53.1	87.9	50.5	#170.1	140.5	59.1	#142.4	#254.7	53.4	186.2	35.9
Internal Link Dist (m)	278.0				140.4				591.3		410.7
Turn Bay Length (m)	40.0			15.0	60.0			10.0	75.0	100.0	85.0
Base Capacity (vph)	175	1120	539	279	1131	514	355	2248	251	1937	677
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.46	0.36	1.27	0.70	0.42	0.83	0.83	0.59	0.81	0.35

Intersection Summary

~ 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.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT PM

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	860	58	47	1086	79	38	39	39	75	44	140
Future Volume (vph)	139	860	58	47	1086	79	38	39	39	75	44	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. 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
Ped Bike Factor		1.00			0.99		0.96	0.95		0.93	0.95	
Frt		0.991			0.990			0.925			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1860	0	1825	1857	0	1825	1690	0	1755	1611	0
Flt Permitted	0.057			0.170			0.514			0.702		
Satd. Flow (perm)	110	1860	0	327	1857	0	949	1690	0	1205	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			6			42			46	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		175.4			281.3			137.1			111.7	
Travel Time (s)		12.6			20.3			16.5			10.1	
Confl. Peds. (#/hr)	36		30	30		36	35		54	54		35
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 (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	151	935	63	51	1180	86	41	42	42	82	48	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	998	0	51	1266	0	41	84	0	82	200	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT PM
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		41.5	41.5		41.5	41.5	
Total Split (s)	59.0	59.0		59.0	59.0		41.0	41.0		41.0	41.0	
Total Split (%)	59.0%	59.0%		59.0%	59.0%		41.0%	41.0%		41.0%	41.0%	
Maximum Green (s)	53.0	53.0		53.0	53.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.5	7.5		7.5	7.5	

Lead/Lag

Lead-Lag Optimize?

Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	70.5	70.5		70.5	70.5		16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.70	0.70		0.70	0.70		0.16	0.16		0.16	0.16	
v/c Ratio	1.96	0.76		0.22	0.97		0.27	0.28		0.43	0.68	
Control Delay	493.0	15.6		9.6	34.1		39.3	21.4		43.3	41.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	493.0	15.6		9.6	34.1		39.3	21.4		43.3	41.2	
LOS	F	B		A	C		D	C		D	D	
Approach Delay		78.4			33.2			27.3			41.8	
Approach LOS		E			C			C			D	

Intersection Summary

Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 77 (77%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.96	
Intersection Signal Delay: 51.8	Intersection LOS: D
Intersection Capacity Utilization 118.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Havenwood Dr & Bloor St



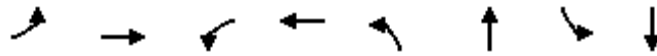
Timings 2: Havenwood Dr & Bloor St

2029 FT PM
12/06/2024

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	139	860	47	1086	38	39	75	44
Future Volume (vph)	139	860	47	1086	38	39	75	44
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	35.0	35.0	41.5	41.5	41.5	41.5
Total Split (s)	59.0	59.0	59.0	59.0	41.0	41.0	41.0	41.0
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0
All-Red Time (s)	2.5	2.5	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.5	7.5	7.5	7.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	70.5	70.5	70.5	70.5	16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.16	0.16	0.16	0.16
v/c Ratio	1.96	0.76	0.22	0.97	0.27	0.28	0.43	0.68
Control Delay	493.0	15.6	9.6	34.1	39.3	21.4	43.3	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	493.0	15.6	9.6	34.1	39.3	21.4	43.3	41.2
LOS	F	B	A	C	D	C	D	D
Approach Delay		78.4		33.2		27.3		41.8
Approach LOS		E		C		C		D
Intersection Summary								
Cycle Length: 100								
Actuated Cycle Length: 100								
Offset: 77 (77%), Referenced to phase 2:EBWB, Start of Green								
Natural Cycle: 150								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 1.96								
Intersection Signal Delay: 51.8				Intersection LOS: D				
Intersection Capacity Utilization 118.3%				ICU Level of Service H				
Analysis Period (min) 15								

Splits and Phases: 2: Havenwood Dr & Bloor St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	151	998	51	1266	41	84	82	200
v/c Ratio	1.96	0.76	0.22	0.97	0.27	0.28	0.43	0.68
Control Delay	493.0	15.6	9.6	34.1	39.3	21.4	43.3	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	493.0	15.6	9.6	34.1	39.3	21.4	43.3	41.2
Queue Length 50th (m)	~30.4	104.1	3.0	192.5	7.1	7.2	14.6	28.5
Queue Length 95th (m)	#73.0	#209.7	10.6	#353.5	15.6	18.4	26.4	47.2
Internal Link Dist (m)		151.4		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	77	1313	230	1311	317	594	403	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.96	0.76	0.22	0.97	0.13	0.14	0.20	0.35

Intersection Summary

~ 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.

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2029 FT PM

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
Future Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.934			0.956			0.990			0.984	
Flt Protected		0.991			0.986			0.992			0.994	
Satd. Flow (prot)	0	1743	0	0	1775	0	0	1850	0	0	1842	0
Flt Permitted		0.991			0.986			0.992			0.994	
Satd. Flow (perm)	0	1743	0	0	1775	0	0	1850	0	0	1842	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		195.5			52.0			111.7			74.0	
Travel Time (s)		17.6			4.7			10.1			6.7	
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
Adj. Flow (vph)	23	45	66	23	32	27	48	216	22	28	167	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	134	0	0	82	0	0	286	0	0	222	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	35.6%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

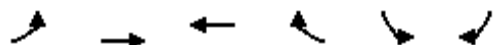
3: Havenwood Dr & Williamsport Drive

2029 FT PM
12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
Future Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
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)	23	45	66	23	32	27	48	216	22	28	167	27
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	134	82	286	222								
Volume Left (vph)	23	23	48	28								
Volume Right (vph)	66	27	22	27								
Hadj (s)	-0.23	-0.11	0.02	-0.01								
Departure Headway (s)	5.0	5.2	4.8	4.8								
Degree Utilization, x	0.19	0.12	0.38	0.30								
Capacity (veh/h)	642	607	718	702								
Control Delay (s)	9.2	9.0	10.7	9.9								
Approach Delay (s)	9.2	9.0	10.7	9.9								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay				10.0								
Level of Service				A								
Intersection Capacity Utilization				35.6%	ICU Level of Service	A						
Analysis Period (min)				15								

Lanes, Volumes, Timings
4: Williamsport Dr & Gulledden Dr

2029 FT PM
12/06/2024

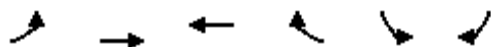


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	28	30	60	88	79
Future Volume (vph)	65	28	30	60	88	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.910		0.936	
Flt Protected		0.966			0.974	
Satd. Flow (prot)	0	1819	1714	0	1717	0
Flt Permitted		0.966			0.974	
Satd. Flow (perm)	0	1819	1714	0	1717	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		66.3	69.8		85.7	
Travel Time (s)		6.0	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	30	33	65	96	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	101	98	0	182	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97			97	97	97
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 28.1%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis

4: Williamsport Dr & Gulleden Dr

2029 FT PM
12/06/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	28	30	60	88	79
Future Volume (Veh/h)	65	28	30	60	88	79
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	30	33	65	96	86
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	98				238	66
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	98				238	66
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				87	91
cM capacity (veh/h)	1495				715	998
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	101	98	182			
Volume Left	71	0	96			
Volume Right	0	65	86			
cSH	1495	1700	826			
Volume to Capacity	0.05	0.06	0.22			
Queue Length 95th (m)	1.1	0.0	6.4			
Control Delay (s)	5.4	0.0	10.6			
Lane LOS	A		B			
Approach Delay (s)	5.4	0.0	10.6			
Approach LOS			B			
Intersection Summary						
Average Delay			6.5			
Intersection Capacity Utilization			28.1%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
5: Site Access & Williamsport Drive

2029 FT PM
12/06/2024

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	108	14	47	71	15	23
Future Volume (vph)	108	14	47	71	15	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985				0.918	
Flt Protected				0.980	0.981	
Satd. Flow (prot)	1855	0	0	1846	1696	0
Flt Permitted				0.980	0.981	
Satd. Flow (perm)	1855	0	0	1846	1696	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	48.9			195.5	61.5	
Travel Time (s)	3.7			14.7	4.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	15	51	77	16	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	0	0	128	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		97	97		97	97
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

5: Site Access & Williamsport Drive

2029 FT PM
12/06/2024

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	108	14	47	71	15	23
Future Volume (Veh/h)	108	14	47	71	15	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	15	51	77	16	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			132		304	124
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			132		304	124
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		98	97
cM capacity (veh/h)			1453		664	926
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	132	128	41			
Volume Left	0	51	16			
Volume Right	15	0	25			
cSH	1700	1453	803			
Volume to Capacity	0.08	0.04	0.05			
Queue Length 95th (m)	0.0	0.8	1.2			
Control Delay (s)	0.0	3.2	9.7			
Lane LOS		A	A			
Approach Delay (s)	0.0	3.2	9.7			
Approach LOS			A			
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			26.2%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT AM OPT
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	473	173	299	406	265	57	974	208	190	1185	100
Future Volume (vph)	137	473	173	299	406	265	57	974	208	190	1185	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.97		0.98	1.00		0.93	0.99	0.99		1.00		0.95
Flt			0.850			0.850		0.974				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1738	3544	1617	1772	3444	1555	1722	4693	0	1722	4948	1555
Flt Permitted	0.496			0.237			0.203			0.114		
Satd. Flow (perm)	880	3544	1582	440	3444	1452	365	4693	0	206	4948	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			111			32			109
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			164.4			615.3			434.7	
Travel Time (s)		21.7			11.8			36.9			26.1	
Confl. Peds. (#/hr)	45		8	8		45	35		14	14		35
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 (%)	5%	3%	1%	3%	6%	5%	6%	9%	5%	6%	6%	5%
Adj. Flow (vph)	149	514	188	325	441	288	62	1059	226	207	1288	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	514	188	325	441	288	62	1285	0	207	1288	109
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT AM OPT
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases		8		7	4			6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	8	8	8	7	4	4	6	6		5	2	2
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	10.0
Minimum Split (s)	46.4	46.4	46.4	10.0	46.4	46.4	46.9	46.9		12.0	46.9	46.9
Total Split (s)	49.0	49.0	49.0	25.0	74.0	74.0	64.0	64.0		22.0	86.0	86.0
Total Split (%)	30.6%	30.6%	30.6%	15.6%	46.3%	46.3%	40.0%	40.0%		13.8%	53.8%	53.8%
Maximum Green (s)	41.6	41.6	41.6	22.0	66.6	66.6	57.1	57.1		17.0	79.1	79.1
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	3.4	3.4	3.4	0.0	3.4	3.4	2.9	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.9	6.9		5.0	6.9	6.9
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0		10.0	10.0	10.0	10.0			10.0	10.0
Flash Dont Walk (s)	29.0	29.0	29.0		29.0	29.0	30.0	30.0			30.0	30.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0			0	0
Act Effect Green (s)	33.8	33.8	33.8	63.2	58.8	58.8	66.3	66.3		88.8	86.9	86.9
Actuated g/C Ratio	0.21	0.21	0.21	0.40	0.37	0.37	0.41	0.41		0.56	0.54	0.54
v/c Ratio	0.81	0.69	0.47	0.91	0.35	0.48	0.41	0.65		0.79	0.48	0.13
Control Delay	89.1	62.5	33.4	66.0	36.8	24.7	47.8	40.1		46.3	24.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	89.1	62.5	33.4	66.0	36.8	24.7	47.8	40.1		46.3	24.2	3.8
LOS	F	E	C	E	D	C	D	D		D	C	A
Approach Delay		60.7			42.5			40.4			25.6	
Approach LOS		E			D			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 45 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 39.5

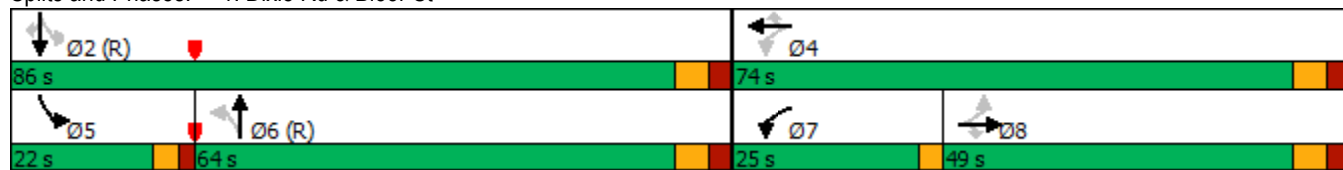
Intersection LOS: D

Intersection Capacity Utilization 102.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Timings
1: Dixie Rd & Bloor St

2029 FT AM OPT
12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	137	473	173	299	406	265	57	974	190	1185	100
Future Volume (vph)	137	473	173	299	406	265	57	974	190	1185	100
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+pt	NA	Perm
Protected Phases		8		7	4			6	5	2	
Permitted Phases	8		8	4		4	6		2		2
Detector Phase	8	8	8	7	4	4	6	6	5	2	2
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	46.4	46.4	46.4	10.0	46.4	46.4	46.9	46.9	12.0	46.9	46.9
Total Split (s)	49.0	49.0	49.0	25.0	74.0	74.0	64.0	64.0	22.0	86.0	86.0
Total Split (%)	30.6%	30.6%	30.6%	15.6%	46.3%	46.3%	40.0%	40.0%	13.8%	53.8%	53.8%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	3.4	3.4	3.4	0.0	3.4	3.4	2.9	2.9	2.0	2.9	2.9
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
Total Lost Time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.9	6.9	5.0	6.9	6.9
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	33.8	33.8	33.8	63.2	58.8	58.8	66.3	66.3	88.8	86.9	86.9
Actuated g/C Ratio	0.21	0.21	0.21	0.40	0.37	0.37	0.41	0.41	0.56	0.54	0.54
v/c Ratio	0.81	0.69	0.47	0.91	0.35	0.48	0.41	0.65	0.79	0.48	0.13
Control Delay	89.1	62.5	33.4	66.0	36.8	24.7	47.8	40.1	46.3	24.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.1	62.5	33.4	66.0	36.8	24.7	47.8	40.1	46.3	24.2	3.8
LOS	F	E	C	E	D	C	D	D	D	C	A
Approach Delay		60.7			42.5			40.4		25.6	
Approach LOS		E			D			D		C	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 45 (28%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 39.5

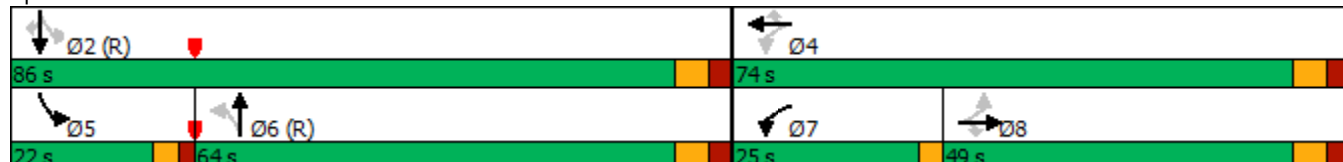
Intersection LOS: D

Intersection Capacity Utilization 102.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Queues

2029 FT AM OPT

1: Dixie Rd & Bloor St

12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	149	514	188	325	441	288	62	1285	207	1288	109
v/c Ratio	0.81	0.69	0.47	0.91	0.35	0.48	0.41	0.65	0.79	0.48	0.13
Control Delay	89.1	62.5	33.4	66.0	36.8	24.7	47.8	40.1	46.3	24.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.1	62.5	33.4	66.0	36.8	24.7	47.8	40.1	46.3	24.2	3.8
Queue Length 50th (m)	45.1	79.5	29.3	75.3	52.7	42.1	14.4	121.7	33.2	91.9	0.0
Queue Length 95th (m)	69.6	94.2	51.6	#105.8	62.8	64.7	32.6	147.2	#74.0	114.2	10.2
Internal Link Dist (m)	278.0			140.4			591.3			410.7	
Turn Bay Length (m)	40.0		15.0	60.0		10.0	75.0		100.0		85.0
Base Capacity (vph)	228	921	471	357	1433	669	151	1963	280	2687	849
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.56	0.40	0.91	0.31	0.43	0.41	0.65	0.74	0.48	0.13

Intersection Summary

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT AM OPT

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	748	62	58	729	34	68	61	60	52	86	136
Future Volume (vph)	73	748	62	58	729	34	68	61	60	52	86	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. 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
Ped Bike Factor		1.00			0.99		0.87	0.86		0.78	0.88	
Frt		0.989			0.993			0.926			0.908	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1818	0	1722	1823	0	1690	1505	0	1722	1449	0
Flt Permitted	0.247			0.220			0.431			0.673		
Satd. Flow (perm)	465	1818	0	399	1823	0	669	1505	0	954	1449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4			53			86	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		175.4			281.3			137.1			111.7	
Travel Time (s)		12.6			20.3			16.5			10.1	
Confl. Peds. (#/hr)	70		25	25		70	127		178	178		127
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%	4%	4%	6%	4%	4%	8%	2%	2%	6%	6%	5%
Adj. Flow (vph)	79	813	67	63	792	37	74	66	65	57	93	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	880	0	63	829	0	74	131	0	57	241	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Detector Phase	2	2		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT AM OPT
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	35.0	35.0		35.0	35.0		41.5	41.5		41.5	41.5	
Total Split (s)	59.0	59.0		59.0	59.0		41.0	41.0		41.0	41.0	
Total Split (%)	59.0%	59.0%		59.0%	59.0%		41.0%	41.0%		41.0%	41.0%	
Maximum Green (s)	53.0	53.0		53.0	53.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.5	7.5		7.5	7.5	

Lead/Lag

Lead-Lag Optimize?

Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	68.7	68.7		68.7	68.7		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.18	0.18		0.18	0.18	
v/c Ratio	0.25	0.70		0.23	0.66		0.63	0.42		0.34	0.73	
Control Delay	10.2	15.1		10.5	13.8		58.7	24.3		38.7	37.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.2	15.1		10.5	13.8		58.7	24.3		38.7	37.1	
LOS	B	B		B	B		E	C		D	D	
Approach Delay		14.7			13.5			36.7			37.4	
Approach LOS		B			B			D			D	

Intersection Summary

Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 39 (39%), Referenced to phase 2:EBWB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 110.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: Havenwood Dr & Bloor St



Timings
2: Havenwood Dr & Bloor St

2029 FT AM OPT
12/06/2024

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	73	748	58	729	68	61	52	86
Future Volume (vph)	73	748	58	729	68	61	52	86
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	35.0	35.0	35.0	35.0	41.5	41.5	41.5	41.5
Total Split (s)	59.0	59.0	59.0	59.0	41.0	41.0	41.0	41.0
Total Split (%)	59.0%	59.0%	59.0%	59.0%	41.0%	41.0%	41.0%	41.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.0	3.0	3.0
All-Red Time (s)	2.5	2.5	2.5	2.5	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.5	7.5	7.5	7.5
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	68.7	68.7	68.7	68.7	17.8	17.8	17.8	17.8
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.18	0.18	0.18	0.18
v/c Ratio	0.25	0.70	0.23	0.66	0.63	0.42	0.34	0.73
Control Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
LOS	B	B	B	B	E	C	D	D
Approach Delay		14.7		13.5		36.7		37.4
Approach LOS		B		B		D		D
Intersection Summary								
Cycle Length: 100								
Actuated Cycle Length: 100								
Offset: 39 (39%), Referenced to phase 2:EBWB, Start of Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.73								
Intersection Signal Delay: 19.1				Intersection LOS: B				
Intersection Capacity Utilization 110.8%				ICU Level of Service H				
Analysis Period (min) 15								

Splits and Phases: 2: Havenwood Dr & Bloor St



Queues
2: Havenwood Dr & Bloor St

2029 FT AM OPT
12/06/2024

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	79	880	63	829	74	131	57	241
v/c Ratio	0.25	0.70	0.23	0.66	0.63	0.42	0.34	0.73
Control Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	15.1	10.5	13.8	58.7	24.3	38.7	37.1
Queue Length 50th (m)	4.9	87.6	3.9	78.4	13.5	13.4	9.9	28.9
Queue Length 95th (m)	16.2	183.5	13.7	162.4	25.7	26.8	19.2	48.9
Internal Link Dist (m)		151.4		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	319	1250	274	1253	224	539	319	542
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.70	0.23	0.66	0.33	0.24	0.18	0.44
Intersection Summary								

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2029 FT AM OPT
12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13
Future Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.931			0.954			0.983			0.992	
Flt Protected		0.989			0.982			0.991			0.994	
Satd. Flow (prot)	0	1734	0	0	1764	0	0	1835	0	0	1857	0
Flt Permitted		0.989			0.982			0.991			0.994	
Satd. Flow (perm)	0	1734	0	0	1764	0	0	1835	0	0	1857	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		195.5			52.0			111.7			74.0	
Travel Time (s)		17.6			4.7			10.1			6.7	
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
Adj. Flow (vph)	26	32	60	37	30	35	36	135	24	30	187	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	118	0	0	102	0	0	195	0	0	231	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.0%											
Analysis Period (min)	15											
ICU Level of Service A												

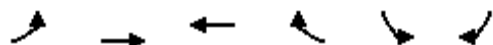
HCM Unsignalized Intersection Capacity Analysis 3: Havenwood Dr & Williamsport Drive

2029 FT AM OPT
12/06/2024

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Sign Control		Stop			Stop			Stop			Stop									
Traffic Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13								
Future Volume (vph)	24	29	55	34	28	32	33	124	22	28	172	13								
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)	26	32	60	37	30	35	36	135	24	30	187	14								
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total (vph)	118	102	195	231																
Volume Left (vph)	26	37	36	30																
Volume Right (vph)	60	35	24	14																
Hadj (s)	-0.23	-0.10	0.00	0.02																
Departure Headway (s)	4.9	5.0	4.8	4.7																
Degree Utilization, x	0.16	0.14	0.26	0.30																
Capacity (veh/h)	670	649	716	718																
Control Delay (s)	8.8	8.8	9.4	9.8																
Approach Delay (s)	8.8	8.8	9.4	9.8																
Approach LOS	A	A	A	A																
Intersection Summary																				
Delay			9.3																	
Level of Service			A																	
Intersection Capacity Utilization			30.0%	ICU Level of Service						A										
Analysis Period (min)			15																	

Lanes, Volumes, Timings
4: Williamsport Dr & Gulledden Dr

2029 FT AM OPT
12/06/2024



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	28	15	89	65	61
Future Volume (vph)	60	28	15	89	65	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.884		0.935	
Flt Protected		0.967			0.975	
Satd. Flow (prot)	0	1821	1665	0	1717	0
Flt Permitted		0.967			0.975	
Satd. Flow (perm)	0	1821	1665	0	1717	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		66.3	69.8		85.7	
Travel Time (s)		6.0	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	30	16	97	71	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	95	113	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

4: Williamsport Dr & Gulleden Dr

2029 FT AM OPT
12/06/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Traffic Volume (veh/h)	60	28	15	89	65	61
Future Volume (Veh/h)	60	28	15	89	65	61
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	30	16	97	71	66
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	113				224	64
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				224	64
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				90	93
cM capacity (veh/h)	1476				730	1000
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	95	113	137			
Volume Left	65	0	71			
Volume Right	0	97	66			
cSH	1476	1700	839			
Volume to Capacity	0.04	0.07	0.16			
Queue Length 95th (m)	1.0	0.0	4.4			
Control Delay (s)	5.3	0.0	10.1			
Lane LOS	A		B			
Approach Delay (s)	5.3	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization		25.5%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings
5: Site Access & Williamsport Drive

2029 FT AM OPT
12/06/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	66	5	18	60	24	36
Future Volume (vph)	66	5	18	60	24	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.919	
Flt Protected				0.988	0.980	
Satd. Flow (prot)	1866	0	0	1861	1696	0
Flt Permitted				0.988	0.980	
Satd. Flow (perm)	1866	0	0	1861	1696	0
Link Speed (k/h)	40			40	30	
Link Distance (m)	48.9			195.5	61.5	
Travel Time (s)	4.4			17.6	7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	5	20	65	26	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	0	0	85	65	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

5: Site Access & Williamsport Drive

2029 FT AM OPT
12/06/2024

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↗	
Traffic Volume (veh/h)	66	5	18	60	24	36
Future Volume (Veh/h)	66	5	18	60	24	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	5	20	65	26	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			77		180	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			77		180	74
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	96
cM capacity (veh/h)			1522		799	987
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	77	85	65			
Volume Left	0	20	26			
Volume Right	5	0	39			
cSH	1700	1522	902			
Volume to Capacity	0.05	0.01	0.07			
Queue Length 95th (m)	0.0	0.3	1.8			
Control Delay (s)	0.0	1.8	9.3			
Lane LOS		A	A			
Approach Delay (s)	0.0	1.8	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization			21.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT PM OPT

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Traffic Volume (vph)	132	477	179	325	726	200	272	1311	416	136	1435	219
Future Volume (vph)	132	477	179	325	726	200	272	1311	416	136	1435	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		15.0	60.0		10.0	75.0		0.0	100.0		85.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	85.0			60.0			90.0			50.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.97		0.96	0.99		0.90		0.99				0.93
Frt			0.850			0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3544	1601	1789	3579	1617	1825	4895	0	1789	5092	1617
Flt Permitted	0.183			0.193			0.066			0.069		
Satd. Flow (perm)	335	3544	1530	359	3579	1451	127	4895	0	130	5092	1502
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			122			102		60				171
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		302.0			164.4			615.3			434.7	
Travel Time (s)		21.7			11.8			36.9			26.1	
Confl. Peds. (#/hr)	75		27	27		75	50		24	24		50
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%	2%	2%	2%	1%	0%	3%	0%	2%	3%	1%
Adj. Flow (vph)	143	518	195	353	789	217	296	1425	452	148	1560	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	518	195	353	789	217	296	1877	0	148	1560	238
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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane					Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	1	1	1	1	1	1	0		1	0	0
Detector Template								Thru			Thru	Right
Leading Detector (m)	24.0	7.0	7.0	22.0	7.0	7.0	24.0	0.0		24.0	0.0	0.0
Trailing Detector (m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Position(m)	-2.5	-2.0	-2.0	12.0	-2.0	-2.0	14.0	0.0		14.0	0.0	0.0
Detector 1 Size(m)	10.0	9.0	9.0	10.0	9.0	9.0	10.0	0.6		10.0	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
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
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
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
Detector 2 Position(m)	14.0											
Detector 2 Size(m)	10.0											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lanes, Volumes, Timings
1: Dixie Rd & Bloor St

2029 FT PM OPT
12/06/2024

												
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		pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8	4		4	6			2		2
Detector Phase	3	8	8	7	4	4	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	11.5	46.4	46.4	10.0	46.4	46.4	11.5	46.9		12.0	46.9	46.9
Total Split (s)	14.0	48.0	48.0	28.0	62.0	62.0	24.0	71.0		13.0	60.0	60.0
Total Split (%)	8.8%	30.0%	30.0%	17.5%	38.8%	38.8%	15.0%	44.4%		8.1%	37.5%	37.5%
Maximum Green (s)	11.0	40.6	40.6	25.0	54.6	54.6	21.0	64.1		8.0	53.1	53.1
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	3.4	3.4	0.0	3.4	3.4	0.0	2.9		2.0	2.9	2.9
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
Total Lost Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.9		5.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)		10.0	10.0		10.0	10.0		10.0			10.0	10.0
Flash Dont Walk (s)		29.0	29.0		29.0	29.0		30.0			30.0	30.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effect Green (s)	44.7	29.4	29.4	61.2	43.0	43.0	92.8	67.9		75.6	57.8	57.8
Actuated g/C Ratio	0.28	0.18	0.18	0.38	0.27	0.27	0.58	0.42		0.47	0.36	0.36
v/c Ratio	0.74	0.79	0.51	0.99	0.82	0.47	0.80	0.89		0.65	0.85	0.37
Control Delay	57.8	71.6	26.1	85.4	62.3	27.6	59.9	47.9		51.0	53.0	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	57.8	71.6	26.1	85.4	62.3	27.6	59.9	47.9		51.0	53.0	13.3
LOS	E	E	C	F	E	C	E	D		D	D	B
Approach Delay		58.9			62.8			49.5			48.0	
Approach LOS		E			E			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 74 (46%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 53.2

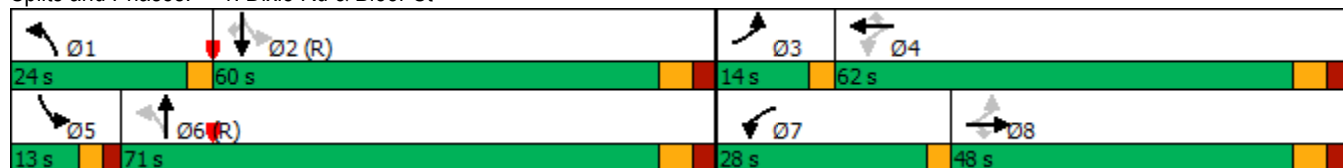
Intersection LOS: D

Intersection Capacity Utilization 109.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Timings
1: Dixie Rd & Bloor St

2029 FT PM OPT
12/06/2024

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		 			 			  		  	
Traffic Volume (vph)	132	477	179	325	726	200	272	1311	136	1435	219
Future Volume (vph)	132	477	179	325	726	200	272	1311	136	1435	219
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6	5	2	
Permitted Phases	8		8	4		4	6		2		2
Detector Phase	3	8	8	7	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	46.4	46.4	10.0	46.4	46.4	11.5	46.9	12.0	46.9	46.9
Total Split (s)	14.0	48.0	48.0	28.0	62.0	62.0	24.0	71.0	13.0	60.0	60.0
Total Split (%)	8.8%	30.0%	30.0%	17.5%	38.8%	38.8%	15.0%	44.4%	8.1%	37.5%	37.5%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	0.0	3.4	3.4	0.0	3.4	3.4	0.0	2.9	2.0	2.9	2.9
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
Total Lost Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.9	5.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effect Green (s)	44.7	29.4	29.4	61.2	43.0	43.0	92.8	67.9	75.6	57.8	57.8
Actuated g/C Ratio	0.28	0.18	0.18	0.38	0.27	0.27	0.58	0.42	0.47	0.36	0.36
v/c Ratio	0.74	0.79	0.51	0.99	0.82	0.47	0.80	0.89	0.65	0.85	0.37
Control Delay	57.8	71.6	26.1	85.4	62.3	27.6	59.9	47.9	51.0	53.0	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	71.6	26.1	85.4	62.3	27.6	59.9	47.9	51.0	53.0	13.3
LOS	E	E	C	F	E	C	E	D	D	D	B
Approach Delay		58.9			62.8			49.5		48.0	
Approach LOS		E			E			D		D	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 74 (46%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 53.2

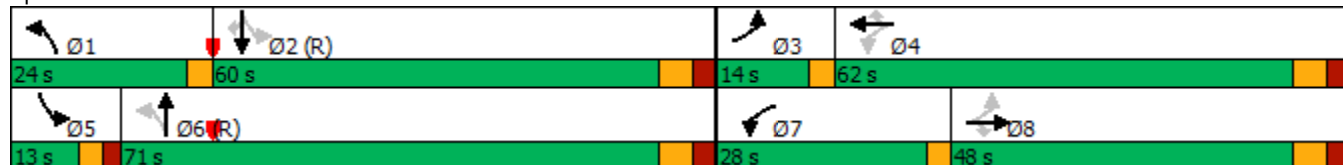
Intersection LOS: D

Intersection Capacity Utilization 109.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dixie Rd & Bloor St



Queues

2029 FT PM OPT

12/06/2024

1: Dixie Rd & Bloor St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	143	518	195	353	789	217	296	1877	148	1560	238
v/c Ratio	0.74	0.79	0.51	0.99	0.82	0.47	0.80	0.89	0.65	0.85	0.37
Control Delay	57.8	71.6	26.1	85.4	62.3	27.6	59.9	47.9	51.0	53.0	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	71.6	26.1	85.4	62.3	27.6	59.9	47.9	51.0	53.0	13.3
Queue Length 50th (m)	30.2	83.8	20.2	85.3	124.0	30.0	72.7	199.9	29.7	172.1	14.7
Queue Length 95th (m)	#44.6	99.3	44.1	#139.5	139.9	52.7	#129.0	226.4	#69.9	195.8	38.2
Internal Link Dist (m)	278.0				140.4				591.3		410.7
Turn Bay Length (m)	40.0			15.0	60.0			10.0	75.0	100.0	85.0
Base Capacity (vph)	193	899	479	360	1221	562	371	2111	227	1838	651
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.58	0.41	0.98	0.65	0.39	0.80	0.89	0.65	0.85	0.37

Intersection Summary

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT PM OPT

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	860	58	47	1086	79	38	39	39	75	44	140
Future Volume (vph)	139	860	58	47	1086	79	38	39	39	75	44	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	25.0		0.0	25.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	65.0			80.0			40.0			35.0		
Lane Util. 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
Ped Bike Factor		1.00			0.99		0.96	0.94		0.92	0.94	
Frt		0.991			0.990			0.925			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1860	0	1825	1857	0	1825	1678	0	1755	1600	0
Flt Permitted	0.062			0.239			0.474			0.702		
Satd. Flow (perm)	119	1860	0	459	1857	0	870	1678	0	1189	1600	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			5			42			135	
Link Speed (k/h)		50			50			30			40	
Link Distance (m)		175.4			281.3			137.1			111.7	
Travel Time (s)		12.6			20.3			16.5			10.1	
Confl. Peds. (#/hr)	36		30	30		36	35		54	54		35
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 (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	151	935	63	51	1180	86	41	42	42	82	48	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	998	0	51	1266	0	41	84	0	82	200	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)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	0		0	0		1	1		1	1	
Detector Template		Thru		Left	Thru							
Leading Detector (m)	0.0	0.0		0.0	0.0		7.0	7.0		8.0	8.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Position(m)	11.5	0.0		0.0	0.0		-2.0	-2.0		-2.0	-2.0	
Detector 1 Size(m)	9.0	0.6		2.0	0.6		9.0	9.0		10.0	10.0	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1	6			2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	1	6		2	2		4	4		4	4	
Switch Phase												

Lanes, Volumes, Timings
2: Havenwood Dr & Bloor St

2029 FT PM OPT

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	8.0	35.0		35.0	35.0		36.5	36.5		36.5	36.5	
Total Split (s)	8.0	63.5		55.5	55.5		36.5	36.5		36.5	36.5	
Total Split (%)	8.0%	63.5%		55.5%	55.5%		36.5%	36.5%		36.5%	36.5%	
Maximum Green (s)	5.0	60.0		52.0	52.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	3.0	3.5		3.5	3.5		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		4.5	4.5		4.5	4.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	3.5		3.5	3.5		7.5	7.5		7.5	7.5	
Lead/Lag	Lead			Lag								
Lead-Lag Optimize?	Yes			Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		10.0		10.0	10.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		19.0		19.0	19.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effect Green (s)	76.2	75.7		61.9	61.9		13.3	13.3		13.3	13.3	
Actuated g/C Ratio	0.76	0.76		0.62	0.62		0.13	0.13		0.13	0.13	
v/c Ratio	0.55	0.71		0.18	1.10		0.35	0.32		0.52	0.61	
Control Delay	22.8	10.7		12.3	80.2		46.7	24.2		51.2	22.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.8	10.7		12.3	80.2		46.7	24.2		51.2	22.2	
LOS	C	B		B	F		D	C		D	C	
Approach Delay		12.3			77.6			31.6			30.6	
Approach LOS		B			E			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 44.9

Intersection LOS: D

Intersection Capacity Utilization 114.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 2: Havenwood Dr & Bloor St



Timings
2: Havenwood Dr & Bloor St

2029 FT PM OPT
12/06/2024

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	139	860	47	1086	38	39	75	44
Future Volume (vph)	139	860	47	1086	38	39	75	44
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	1	6		2		4		4
Permitted Phases	6		2		4		4	
Detector Phase	1	6	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	35.0	35.0	35.0	36.5	36.5	36.5	36.5
Total Split (s)	8.0	63.5	55.5	55.5	36.5	36.5	36.5	36.5
Total Split (%)	8.0%	63.5%	55.5%	55.5%	36.5%	36.5%	36.5%	36.5%
Yellow Time (s)	3.0	3.5	3.5	3.5	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	0.0	0.0	0.0	4.5	4.5	4.5	4.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	3.5	3.5	3.5	7.5	7.5	7.5	7.5
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	Max	C-Max	C-Max	None	None	None	None
Act Effect Green (s)	76.2	75.7	61.9	61.9	13.3	13.3	13.3	13.3
Actuated g/C Ratio	0.76	0.76	0.62	0.62	0.13	0.13	0.13	0.13
v/c Ratio	0.55	0.71	0.18	1.10	0.35	0.32	0.52	0.61
Control Delay	22.8	10.7	12.3	80.2	46.7	24.2	51.2	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	10.7	12.3	80.2	46.7	24.2	51.2	22.2
LOS	C	B	B	F	D	C	D	C
Approach Delay		12.3		77.6		31.6		30.6
Approach LOS		B		E		C		C

Intersection Summary

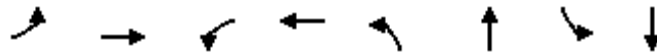
Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 44.9
 Intersection Capacity Utilization 114.4%
 Analysis Period (min) 15

Intersection LOS: D

ICU Level of Service H

Splits and Phases: 2: Havenwood Dr & Bloor St





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	151	998	51	1266	41	84	82	200
v/c Ratio	0.55	0.71	0.18	1.10	0.35	0.32	0.52	0.61
Control Delay	22.8	10.7	12.3	80.2	46.7	24.2	51.2	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	10.7	12.3	80.2	46.7	24.2	51.2	22.2
Queue Length 50th (m)	10.8	79.0	3.8	~276.6	7.4	7.4	15.2	11.7
Queue Length 95th (m)	31.5	164.0	12.4	#393.8	16.6	19.5	28.0	31.3
Internal Link Dist (m)		151.4		257.3		113.1		87.7
Turn Bay Length (m)	50.0		50.0		25.0		25.0	
Base Capacity (vph)	274	1408	283	1150	252	516	344	559
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.71	0.18	1.10	0.16	0.16	0.24	0.36

Intersection Summary

~ 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.

Lanes, Volumes, Timings
3: Havenwood Dr & Williamsport Drive

2029 FT PM OPT

12/06/2024

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
Future Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.934			0.956			0.990			0.984	
Flt Protected		0.991			0.986			0.992			0.994	
Satd. Flow (prot)	0	1743	0	0	1775	0	0	1850	0	0	1842	0
Flt Permitted		0.991			0.986			0.992			0.994	
Satd. Flow (perm)	0	1743	0	0	1775	0	0	1850	0	0	1842	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		195.5			52.0			111.7			74.0	
Travel Time (s)		17.6			4.7			10.1			6.7	
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
Adj. Flow (vph)	23	45	66	23	32	27	48	216	22	28	167	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	134	0	0	82	0	0	286	0	0	222	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			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	35.6%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

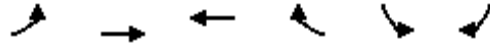
3: Havenwood Dr & Williamsport Drive

2029 FT PM OPT
12/06/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
Future Volume (vph)	21	41	61	21	29	25	44	199	20	26	154	25
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)	23	45	66	23	32	27	48	216	22	28	167	27
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	134	82	286	222								
Volume Left (vph)	23	23	48	28								
Volume Right (vph)	66	27	22	27								
Hadj (s)	-0.23	-0.11	0.02	-0.01								
Departure Headway (s)	5.0	5.2	4.8	4.8								
Degree Utilization, x	0.19	0.12	0.38	0.30								
Capacity (veh/h)	642	607	718	702								
Control Delay (s)	9.2	9.0	10.7	9.9								
Approach Delay (s)	9.2	9.0	10.7	9.9								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay			10.0									
Level of Service			A									
Intersection Capacity Utilization			35.6%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Williamsport Dr & Gulledden Dr

2029 FT PM OPT
12/06/2024

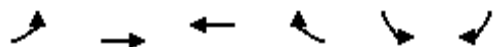


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	65	28	30	60	88	79
Future Volume (vph)	65	28	30	60	88	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.910		0.936	
Flt Protected		0.966			0.974	
Satd. Flow (prot)	0	1819	1714	0	1717	0
Flt Permitted		0.966			0.974	
Satd. Flow (perm)	0	1819	1714	0	1717	0
Link Speed (k/h)		40	30		40	
Link Distance (m)		66.3	69.8		85.7	
Travel Time (s)		6.0	8.4		7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	30	33	65	96	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	101	98	0	182	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	97			97	97	97
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 28.1%						
ICU Level of Service A						
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis

4: Williamsport Dr & Gulleden Dr

2029 FT PM OPT
12/06/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	28	30	60	88	79
Future Volume (Veh/h)	65	28	30	60	88	79
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	30	33	65	96	86
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	98				238	66
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	98				238	66
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				87	91
cM capacity (veh/h)	1495				715	998
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	101	98	182			
Volume Left	71	0	96			
Volume Right	0	65	86			
cSH	1495	1700	826			
Volume to Capacity	0.05	0.06	0.22			
Queue Length 95th (m)	1.1	0.0	6.4			
Control Delay (s)	5.4	0.0	10.6			
Lane LOS	A		B			
Approach Delay (s)	5.4	0.0	10.6			
Approach LOS			B			
Intersection Summary						
Average Delay			6.5			
Intersection Capacity Utilization			28.1%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
5: Site Access & Williamsport Drive

2029 FT PM OPT
12/06/2024

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↗	↘
Traffic Volume (vph)	108	14	47	71	15	23
Future Volume (vph)	108	14	47	71	15	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985				0.918	
Flt Protected				0.980	0.981	
Satd. Flow (prot)	1855	0	0	1846	1696	0
Flt Permitted				0.980	0.981	
Satd. Flow (perm)	1855	0	0	1846	1696	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	48.9			195.5	61.5	
Travel Time (s)	3.7			14.7	4.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	15	51	77	16	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	0	0	128	41	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		97	97		97	97
Sign Control	Stop			Stop	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 26.2%				ICU Level of Service A		
Analysis Period (min) 15						

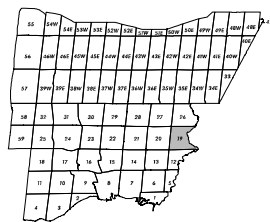
HCM Unsignalized Intersection Capacity Analysis 5: Site Access & Williamsport Drive

2029 FT PM OPT
12/06/2024

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	108	14	47	71	15	23
Future Volume (vph)	108	14	47	71	15	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	15	51	77	16	25
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	132	128	41			
Volume Left (vph)	0	51	16			
Volume Right (vph)	15	0	25			
Hadj (s)	-0.03	0.11	-0.25			
Departure Headway (s)	4.1	4.2	4.2			
Degree Utilization, x	0.15	0.15	0.05			
Capacity (veh/h)	863	835	800			
Control Delay (s)	7.8	8.0	7.4			
Approach Delay (s)	7.8	8.0	7.4			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.8			
Level of Service			A			
Intersection Capacity Utilization			26.2%	ICU Level of Service	A	
Analysis Period (min)			15			

APPENDIX K

City of Mississauga Zoning By-Law Excerpts



Zoning Notation Example:
R4-12 = R4-Exception 12

Revised: 2023 January 31

3.1.2 Required Number of Parking Spaces

3.1.2.1 Required Number of Parking Spaces for Residential Uses

3.1.2.1.1 Off-street **parking spaces** for residential **uses** shall be provided in accordance with Table 3.1.2.1 - Required Number of Off-Street Parking Spaces for Residential Uses. (0117-2022)

Table 3.1.2.1 - Required Number of Off-Street Parking Spaces for Residential Uses
(0207-2008), (0297-2013), (0174-2017), (0179-2018), (0181-2018/LPAT Order 2019 February 15), (0111-2019/LPAT Order 2021 March 09), (0018-2021), (0117-2022), (0213-2022)

Column	A	B	C	D	E	F
Line 1.0	TYPE OF USE	UNIT OF MEASUREMENT	PRECINCT 1	PRECINCT 2	PRECINCT 3	PRECINCT 4
2.0	Condominium Apartment	resident spaces per unit	0.8	0.9	1.0	1.1
		visitor spaces per unit	0.2	0.2	0.2	0.2
3.0	Rental Apartment	resident spaces per unit	0.8	0.8	0.9	1.0
		visitor spaces per unit	0.2	0.2	0.2	0.2
4.0	Public authority dwelling unit or dwelling unit provided by a non-profit housing provider in a rental apartment	resident spaces per unit	0.4	0.6	0.65	0.7
		visitor spaces per unit	0.2	0.2	0.2	0.2
5.0	Apartment (within CC1 to CC4 zones)	0.8 resident spaces per unit 0.15 visitor spaces per unit ⁽¹⁾				
6.0	Detached Dwelling, Linked Dwelling, Semi-Detached, Street Townhouse	spaces per unit	2.0	2.0	2.0	2.0
7.0	Condominium Detached Dwelling, Condominium Semi-Detached, Condominium Townhouse, Detached Dwelling on a CEC - Road, Semi-Detached on a CEC - Road, Townhouse on a CEC - Road	resident spaces per unit	2.0	2.0	2.0	2.0
		visitor spaces per unit	0.25	0.25	0.25	0.25
8.0	Duplex, Triplex	spaces per unit	1.25	1.25	1.25	1.25
9.0	Dwelling units located above a commercial development with a maximum height of three storeys	spaces per unit	1.0	1.0	1.0	1.0
10.0	Group Home	spaces per unit	2.0	2.0	2.0	2.0
11.0	Back to Back and Stacked Townhouse without exclusive use garage and driveway	resident spaces per unit	1.0	1.1	1.3	1.5
		visitor spaces per unit	0.25	0.25	0.25	0.25

Table 3.1.2.1 continued on next page

Column	A	B	C	D	E	F
Line 1.0	TYPE OF USE	UNIT OF MEASUREMENT	PRECINCT 1	PRECINCT 2	PRECINCT 3	PRECINCT 4
Table 3.1.2.1 continued from previous page						
12.0	Back to Back and Stacked Townhouse with exclusive use garage and driveway	resident spaces per unit	2.0	2.0	2.0	2.0
		visitor spaces per unit	0.25	0.25	0.25	0.25
13.0	Long-Term Care Building	spaces per bed	0.33	0.33	0.33	0.33
14.0	Retirement Building	spaces per unit	0.5	0.5	0.5	0.5
15.0	Public authority dwelling unit or dwelling unit provided by a non-profit housing provider in a retirement building	spaces per unit	0.25	0.35	0.35	0.35
16.0	Transitional Housing	spaces per unit or sleeping rooms, whichever is greater	0.1	0.1	0.1	0.1
17.0	All other housing forms not identified above with more than two dwelling units	resident spaces per unit	2.0	2.0	2.0	2.0
		visitor spaces per unit	0.25	0.25	0.25	0.25

- NOTES:** (1) See Sentence 3.1.2.1.2 of this By-law.
(2) *deleted by 0117-2022*

3.1.2.1.2 Visitor **parking spaces** shall not be required for an **apartment** legally **existing** within CC1 to CC4 zones for which a building permit has been issued on or before May 29, 2009. *(0207-2008), (0174-2017), (0018-2021), (0117-2022)*

3.1.2.1.3 Shared Arrangement for Residential Visitor and Non-Residential Parking Component

For the purpose of Article 3.1.2.1 of this By-law, a shared parking arrangement may be used for the calculation of required residential visitor/non-residential parking in accordance with the following:
(0117-2022)

the greater of

- (1) Visitor spaces per unit in accordance with applicable regulations contained in Table 3.1.2.1 of this By-law;
or
- (2) Parking required for all non-residential **uses**, located in the same **building** or on the same **lot** as the residential **use**, except **banquet hall/conference centre/convention centre, entertainment establishment, overnight accommodation, place of religious assembly, recreational establishment and restaurant over 220 m² GFA - non-residential**.

Parking for **banquet hall/conference centre/convention centre, entertainment establishment, overnight accommodation, place of religious assembly, recreational establishment and restaurant over 220 m² GFA - non-residential** shall not be included in the above shared parking arrangement and shall be provided in accordance with applicable regulations contained in Table 3.1.2.2 of this By-law.

- 3.1.2.1.4 Notwithstanding the regulations contained in Table 3.1.2.1 of this By-law, the required number of off-street **parking spaces** for **dwelling units** that are **affordable ownership housing units** or **affordable rental housing units** located within the Inclusionary Zoning Overlay Area boundaries identified on Schedule B of Part 13 of this By-law shall be subject to a parking rate of:
(0213-2022)
- (1) Precinct 1: 50% of the required number of **parking spaces** for the corresponding residential **uses** as otherwise required pursuant to this By-law;
 - (2) Precincts 2, 3 and 4: 70% of the required number of **parking spaces** for the corresponding residential **use** as otherwise required pursuant to this By-law.

Column A		B	C	D	E
Line 1.0	TYPE OF USE	PERCENTAGE OF PEAK PERIOD (WEEKDAY)			
Table 3.1.2.4 continued from previous page					
2.0	TYPE OF USE	PERCENTAGE OF PEAK PERIOD (SATURDAY)			
		Morning	Noon	Afternoon	Evening
2.1	Office/Medical Office/Financial Institution	10	10	10	10
2.2	Retail Centre/ Retail Store/Service Establishment	80	100	100	70
2.3	Restaurant/ Convenience Restaurant/ Take-out Restaurant	20	100	50	100
2.4	Overnight Accommodation	70	70	70	100
2.5	Residential - Resident ⁽¹⁾ Residential - Visitor	90 20	65 20	90 60	100 100

NOTES: (1) See Sentence 3.1.2.4.1 of this By-law.
(2) See Sentence 3.1.1.1.7 of this By-law.

3.1.2.4.1 For the purpose of Article 3.1.2.4 of this By-law, the calculation for residential **uses** shall exclude **retirement buildings** and **long-term care buildings**. (0174-2017), (0111-2019/ LPAT Order 2021 March 09), (0117-2022)

3.1.3 Accessible Parking Spaces

3.1.3.1 Required Number of Accessible Parking Spaces

3.1.3.1A **Accessible parking spaces** for non-residential **uses** shall be provided in compliance with Table 3.1.3.1 - Accessible Parking Regulations. (0144-2016)

3.1.3.1B **Accessible parking spaces** for residential **uses** shall only apply to the total number of visitor **parking spaces** required and shall be provided in compliance with Table 3.1.3.1 - Accessible Parking Regulations. (0144-2016)

Table 3.1.3.1 - Accessible Parking Regulations
(0190-2014), (0144-2016), (0018-2021)

Column	A	B	C
Line 1.0	TOTAL NUMBER OF REQUIRED NON-RESIDENTIAL PARKING SPACES	TOTAL NUMBER OF REQUIRED VISITOR PARKING SPACES	MINIMUM NUMBER OF REQUIRED ACCESSIBLE PARKING SPACES
2.0	1-12	1-12	1.0 space ⁽¹⁾
3.0	13-100	13-100	4% of the total ⁽¹⁾⁽²⁾
4.0	101-200	101-200	1.0 space plus 3% of the total ⁽²⁾
5.0	201-1 000	201-1 000	2.0 spaces plus 2% of the total ⁽²⁾
6.0	1 001 and greater	1 001 and greater	11.0 spaces plus 1% of the total ⁽²⁾

NOTES: (1) See Sentence 3.1.3.1.1 of this By-law.
(2) See Sentence 3.1.3.1.2 of this By-law.
(3) *deleted by 0018-2021.*

3.1.3.1.1 Where only one **accessible parking space** is required, a Type A **accessible parking space** shall be provided. (0018-2021)

3.1.3.1.2 Where more than one **accessible parking space** is required:
(0018-2021)

- (1) if an even number of **accessible parking spaces** is required, an equal number of Type A and Type B **accessible parking spaces** must be provided;
- (2) if an odd number of **accessible parking spaces** is required, an equal number of Type A and Type B **accessible parking spaces** must be provided and the odd space may be a Type B **accessible parking space**.

See Illustration No. 15 - Section 1.3 - Illustrations

3.1.3.1.3 Where a shared parking arrangement is used for the calculation of required visitor/non-residential parking, the required **accessible parking space** requirement will be calculated on either the visitor component or non-residential component. (0144-2016), (0018-2021)

3.1.3.2 **Location of Accessible Parking Spaces**

Accessible parking spaces shall be provided and maintained on the same **lot** in proximity to the main entrances to a **building** or **structure**.

3.1.3.3 *deleted by 0117-2022*

3.1.4 **Loading Regulations**

3.1.4.1 **Loading Space Regulations**

Loading spaces shall be required for the following **uses**:

- (1) **Retail Store**
- (2) Retail Centre (0379-2009)
- (3) **Office**
- (4) **Medical Office**
- (5) **Overnight Accommodation**
- (6) **Restaurant**
- (7) **Convenience Restaurant**
- (8) **Manufacturing Facility**
- (9) **Warehouse/Distribution Facility**
- (10) **Wholesaling Facility**

3.1.4.2 **Required Number of Loading Spaces for Office and/or Medical Office Buildings**

Where required for **office** and/or **medical office uses**, **loading spaces** shall be provided in accordance with Table 3.1.4.2 - Required Number of Loading Spaces for Office and/or Medical Office Buildings.

Table 3.1.4.2 - Required Number of Loading Spaces for Office and/or Medical Office Buildings
(0297-2013)

Column A		Column B
Line 1.0	GROSS FLOOR AREA - NON-RESIDENTIAL OF BUILDING	MINIMUM NUMBER OF OFF - STREET LOADING SPACES
2.0	Less than or equal to 2 350 m ²	None Required
3.0	Greater than 2 350 m ² but less than or equal to 11 600 m ²	1.0 space
4.0	Greater than 11 600 m ²	1.0 space plus 1.0 additional space for each 9 300 m ² gross floor area - non-residential or portion thereof

3.1.6.5 Required Number of Bicycle Parking Spaces

3.1.6.5.1 Required Number of Bicycle Parking Spaces for Residential Uses

Off-street **bicycle parking spaces** for residential **uses** shall be provided in accordance with Table 3.1.6.5.1 - Required Number of Bicycle Parking Spaces for Residential Uses.

Table 3.1.6.5.1 - Required Number of Bicycle Parking Spaces for Residential Uses

Column A		B	C
Line 1.0	TYPE OF USE	BICYCLE PARKING - CLASS A	BICYCLE PARKING - CLASS B
2.0	Apartment and stacked townhouse without exclusive garages	0.6 spaces per unit	The greater of 0.05 spaces per unit or 6.0 spaces
3.0	Apartment and stacked townhouse without exclusive garages (within CC1 to CC4 and CCO zones)	0.8 spaces per unit	The greater of 0.1 spaces per unit or 6.0 spaces
4.0	Long-Term Care Building	0.2 spaces per 100 m ² GFA - residential	0.2 spaces per 100 m ² GFA - residential
5.0	Long-Term Care Building (within CC1 to CC4 and CCO zones)	0.3 spaces per 100 m ² GFA - residential	0.3 spaces per 100 m ² GFA - residential
6.0	Retirement Building	0.3 spaces per unit	The greater of 0.03 spaces per unit or 6.0 spaces
7.0	Retirement Building (within CC1 to CC4 and CCO zones)	0.4 spaces per unit	The greater of 0.05 spaces per unit or 6.0 spaces

3.1.6.6 Required Number of Bicycle Parking Spaces for Non-Residential Uses

Off-street **bicycle parking spaces** for non-residential **uses** shall be provided in accordance with Table 3.1.6.6 - Required Number of Bicycle Parking Spaces for Non-Residential Uses.

Table 3.1.6.6 - Required Number of Bicycle Parking Spaces for Non-Residential Uses

Column A		B	C
Line 1.0	TYPE OF USE	BICYCLE PARKING - CLASS A	BICYCLE PARKING - CLASS B
2.0	Active Recreational Use, Community Centre, Hospital, Library, Place of Religious Assembly, and Recreational Establishment	0.1 spaces per 100 m ² GFA - non-residential	0.1 spaces per 100 m ² GFA - non-residential
3.0	Active Recreational Use, Community Centre, Hospital, Library, Place of Religious Assembly, and Recreational Establishment (within CC1 to CC4 and CCO zones)	0.3 spaces per 100 m ² GFA - non-residential	0.3 spaces per 100 m ² GFA - non-residential

Table 3.1.6.6 continued on next page

3.1.4.3 Required Number of Loading Spaces

Where required, **loading spaces** for **uses** other than **office** and/or **medical office uses**, shall be provided in accordance with Table 3.1.4.3 - Required Number of Loading Spaces.

Table 3.1.4.3 - Required Number of Loading Spaces
(0297-2013)

Column A		B
Line 1.0	GROSS FLOOR AREA - NON-RESIDENTIAL OF BUILDING	MINIMUM NUMBER OF OFF-STREET LOADING SPACES
2.0	Less than or equal to 250 m ²	None required
3.0	Greater than 250 m ² but less than or equal to 2 350 m ²	1.0 space
4.0	Greater than 2 350 m ² but less than or equal to 7 500 m ²	2.0 spaces
5.0	Greater than 7 500 m ² but less than or equal to 14 000 m ²	3.0 spaces
6.0	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

3.1.4.4 Loading Space Dimensions

Required **loading spaces** shall have an unobstructed rectangular area with a minimum width of 3.5 m and a minimum length of 9.0 m.

3.1.4.5 Required Number of Loading Spaces for Apartment and/or Retirement Buildings

One **loading space** per **apartment** and/or **retirement building** containing a minimum of 30 **dwelling units**, shall be required. (0174-2017)

3.1.5 Stacking Lane Regulations

3.1.5.1 The following regulations shall apply to **uses** that have a **stacking lane** component:

3.1.5.1.1 A **stacking lane** associated with a **convenience restaurant**, **convenience retail and service kiosk**, **financial institution**, **motor vehicle wash facility - commercial motor vehicle** or a **motor vehicle wash facility - restricted** shall be provided in accordance with Table 3.1.5.1.1 - Required Number of Stacking Lane Parking Spaces. (0379-2009)

Table 3.1.5.1.1 - Required Number of Stacking Lane Parking Spaces

Column A		B
Line 1.0	TYPE OF USE	MINIMUM NUMBER OF STACKING LANE TANDEM PARKING SPACES REQUIRED
2.0	Convenience Restaurant	10.0 spaces
3.0	Convenience Retail and Service Kiosk	5.0 spaces
4.0	Financial Institution	5.0 spaces
5.0	Motor Vehicle Wash Facility - Commercial Motor Vehicle (0379-2009)	10.0 spaces per wash bay
6.0	Motor Vehicle Wash Facility - Restricted	10.0 spaces per wash bay

3.1.5.1.2 A **stacking lane** associated with a **convenience restaurant** or **convenience retail and service kiosk** shall be measured from a point located 2.0 m beyond the middle of the drive-through window used for the receipt of goods.

APPENDIX L

Parking Survey Methodology Correspondence

Anthony De Rango

From: Anthony De Rango
Sent: February 4, 2025 10:28 AM
To: Anthony De Rango
Subject: FW: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

Anthony De Rango
Engineering Intern, Transportation
DID: 289.212.3450

From: Aarzo Dhanani <adhanani@cfcrozier.ca>
Sent: Wednesday, August 21, 2024 10:13 AM
To: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>; Evan Pu <Evan.Pu@mississauga.ca>
Cc: Brandon Bradt <bbradt@cfcrozier.ca>
Subject: RE: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

Hi Evan,

Thank you for your feedback and for sharing the details of 1785 Bloor Street.

For the survey at the subject site, we are planning to conduct it on the following dates:

- Thursday, August 29 & September 5, 2024 - 6:00 am to 2:00 pm & 6:00 pm to 1:00 am
- Friday, August 30 & September 6, 2024 - 6:00 pm to 1:00 am
- Saturday, August 31 & September 7, 2024 - 2:00 pm – 1:00 am

Please let us know if the above dates and times are suitable.

Kind Regards,

Aarzo Dhanani, M.Eng., EIT
Engineering Intern, Transportation
DID: 416.842.0020

From: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>
Sent: Tuesday, August 20, 2024 4:32 PM
To: Aarzo Dhanani <adhanani@cfcrozier.ca>; Parkingstudy Review <Parkingstudy.Review@mississauga.ca>; Evan Pu <Evan.Pu@mississauga.ca>
Cc: Brandon Bradt <bbradt@cfcrozier.ca>
Subject: RE: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

Hi Aarzo,

Thanks for your reply. Please confirm the dates and timing of survey with staff before commencing the parking study at the subject site.

I reviewed the parking study for this OPA/ZBA at 1785 Bloor when the application came in last year.

Given that the overall parking rate of the proposed development at 1470 Williamsport is 0.86, and the overall peak parking demand rate at 1785 Bloor is 0.97, the results do not support your proposal. In addition, the visitor parking component at 1785 Bloor is a paid parking system, which was also a key factor that influenced the survey results. If the visitor parking at the subject site is not paid parking, this parking study should not be used as an appropriate reference for your application.

Regards,



Evan Pu

Transportation Planner, Municipal Parking
T 905-615-3200 ext. 4705
evan.pu@mississauga.ca

[City of Mississauga](#) | Transportation and Works Department,
Traffic Management and Municipal Parking Division | Municipal Parking Section

From: Aarzoo Dhanani <adhanani@cfcrozier.ca>
Sent: Thursday, August 15, 2024 9:27
To: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>; Evan Pu <Evan.Pu@mississauga.ca>
Cc: Brandon Bradt <bbradt@cfcrozier.ca>
Subject: [EXTERNAL] RE: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

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Hey Evan,

We would like to proceed with surveying the subject site for now and will confirm with the City if we obtain permission to survey any other similar sites.

Additionally, the proposed development at 1785 Bloor Street recently received OPA/ZBA approval for a combined parking ratio of 0.97 spaces per unit (0.92 residential spaces and 0.05 visitor spaces). The existing building at 1785 Bloor Street is a 10-storey rental apartment with 76 units. A parking survey was conducted in September 2023 over six days in two consecutive weeks at 30-minute intervals (see the snapshot below). The report has also been attached.

The parking methodology was discussed with City staff, and the surveys were conducted two consecutive weeks. A surveyor was on-site to conduct spot counts every 30-min residential and visitor parking demand. The following survey dates were conducted:

- Friday September 8 and September 15, 2023 – 6:00pm – 1:00am
- Saturday September 9 and September 16, 2023 – 2:00pm – 1:00am

Please let me know if this survey is acceptable, considering that the building has the same tenure, and the survey is within the 2-year period.

Kind Regards,
Aarzoo

Aarzoo Dhanani, M.Eng., EIT
Engineering Intern, Transportation
Office: 416.842.0020
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>
Sent: Wednesday, August 14, 2024 2:19 PM
To: Aarzoo Dhanani <adhanani@cfcrozier.ca>; Parkingstudy Review <Parkingstudy.Review@mississauga.ca>
Cc: Brandon Bradt <bbradt@cfcrozier.ca>
Subject: RE: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

Hi Aarzoo,

Thanks for the confirmation.

Condominium apartments typically have higher parking demand compared to rental apartments, especially in an area like Parking Precinct 4, where it is less walkable and there is less availability of public transit. That is one of the reasons the zoning bylaw stipulates different minimum required parking rates for these two types of property in Precinct 4.

If you are having difficulty obtaining permission from certain rental properties, please continue to identify other buildings with the same tenure to ensure the most accurate results are generated in the parking study.

Thank you,



Evan Pu
Transportation Planner, Municipal Parking
T 905-615-3200 ext. 4705
evan.pu@mississauga.ca

[City of Mississauga](#) | Transportation and Works Department,
Traffic Management and Municipal Parking Division | Municipal Parking Section

From: Aarzoo Dhanani <adhanani@cfcrozier.ca>
Sent: Tuesday, August 13, 2024 15:07
To: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>
Cc: Brandon Bradt <bbradt@cfcrozier.ca>
Subject: [EXTERNAL] RE: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

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Hey Evan,

Just following up on the email below. Could you please confirm the sites? It will take a while to conduct the parking surveys once we have the confirmation. Also, I wanted to confirm that the existing 6-storey residential rental building on the subject property, which contains 53 residential units, will be replaced with a new building with rental units.

Kind Regards,
Aarzo

Aarzo Dhanani, M.Eng., EIT
Engineering Intern, Transportation
Office: 416.842.0020
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Aarzo Dhanani <adhanani@cfcrozier.ca>
Sent: Wednesday, August 7, 2024 9:34 AM
To: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>
Cc: Brandon Bradt <bbradt@cfcrozier.ca>
Subject: RE: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

Good morning Evan,

Thanks for reviewing the scope. The recommended sites are condominium apartment buildings. We expect that the condominium rates would be more conservative compared to the rental buildings. Additionally, the sites are in close proximity to the subject site and have a similar context in terms of proximity to transit and amenities, which is why we plan to survey these sites.

We have contacted a few property managers to conduct the surveys, but it has been challenging to get permission to survey a site with similar land-use and proximity to transit and amenities.

Please let us know your thoughts, and hopefully, City is okay with parking survey at these sites.

Kind regards,
Aarzo

Aarzo Dhanani, M.Eng., EIT
Engineering Intern, Transportation
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From: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>

Sent: Tuesday, August 6, 2024 3:12 PM

To: Aarzo Dhanani <adhanani@cfcrozier.ca>; Parkingstudy Review <Parkingstudy.Review@mississauga.ca>

Cc: Brandon Bradt <bbradt@cfcrozier.ca>

Subject: RE: Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

Hello Aarzo,

Thanks for sending the proposed parking study terms of reference.

Please confirm if the following statement from the Cover Letter provided by Sajecki Planning of the previous DARC file 24-30 is still applicable:

"The proposal contemplates the demolition of the existing 6-storey residential rental building on the subject property, which contains 53 residential units, and the replacement of the existing rental units in the new buildings."

The previous parking study conducted at 4095 Tomken Road can not be accepted at this time as the survey dates are more than two years old.

Staff agree with the approach of conducting a parking survey at the subject site to assess the current parking demand. However, please confirm the building tenures of the two proxy sites identified (1300 Bloor Street and 1333 Bloor Street). If they are condominium apartment buildings, they may not be appropriate proxy sites for this parking study, and new sites will need to be identified.

With regards to the survey parameters, the following is recommended:

- A minimum of 4-6 days over two consecutive weeks is recommended, accounting for different survey times that are appropriate for the residential and visitor components. Per the proposal, no non-residential uses are included.
- **4 days in Week 1, and then the 2 busiest days from Week 1 would be surveyed again the following week for Week 2.**
- **Suggested times to survey residential parking are Sunday, Monday and Tuesday evenings and nights, 6pm-1am. Spot counts are not acceptable.**
- **Suggested times to survey visitor parking are Friday evenings (6pm-1am), and Saturday and Sunday afternoons and evenings (2pm-1am).**
- Observations are to be made every half hour, and surveys should also note illegally parked vehicles on site and vehicles street parked adjacent to the site.
- Please ensure that the proposed survey does not occur on a holiday weekend (i.e. Canada Day, Civic Holiday weekend).

Please continue to refer to the [Parking Study Terms of Reference](#) for survey guidance.

Please reach out if you have further questions.

Thank you,



Evan Pu

Transportation Planner, Municipal Parking
T 905-615-3200 ext. 4705
evan.pu@mississauga.ca

[City of Mississauga](#) | Transportation and Works Department,
Traffic Management and Municipal Parking Division | Municipal Parking Section

From: Aarzoo Dhanani <adhanani@cfcrozier.ca>
Sent: Tuesday, July 30, 2024 14:41
To: Parkingstudy Review <Parkingstudy.Review@mississauga.ca>
Cc: Brandon Bradt <bbradt@cfcrozier.ca>
Subject: [EXTERNAL] Parking Study - Terms of Reference for 1470 Williamsport Drive (CFC#2719-7179)

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Good afternoon,

We are kindly requesting you to review the following Terms of Reference for our Parking Utilization Study in support of the residential development located at 1470 Williamsport Drive, Mississauga, Region of Peel.

Site Description

The subject property includes a residential apartment building with an underground parking lot, located in a mixed-use residential and commercial neighborhood. It is bordered by residential properties to the north and east, commercial properties to the south, and Williamsport Drive. The existing surface parking will be replaced by underground parking as part of the proposed development.

Please see the attached concept plan for proposed development.

The development site includes:

- A total of approximately 290 dwelling units.
- Two levels of underground parking with a proposed blended resident and visitor parking ratio of 0.86 spaces per unit.
- The site proposes access via Williamsport Drive.

Parking Requirements and Proposed Supply for Entire Development

Zoning By-Law 0225-2007	Use	Required Parking Ratio (Precinct 4 Rates)	Proposed Parking Ratio	Surplus/Deficit
	Rental Apartment Units	Resident: 1.0 spaces/unit (290 Spaces)		-99 Spaces

	Visitor: 0.2 spaces/unit (58 Spaces)	0.86 spaces/unit (249 Spaces)	
Total	348 spaces	249 spaces	(~28.4% reduction)

Comparing the existing By-law requirements and the proposed parking supply rates, the proposed site is expected to be approximately ~28.4% deficient to the zoning by-law requirements and therefore a Parking Utilization Study is expected to be required.

Parking Utilization Study (PUS)

The parking study will be prepared in accordance with the City of Mississauga Parking Utilization Studies for Site Specific Applications Terms of Reference and following methodology is proposed to be used as part of the study:

- Review the minimum vehicle and bicycle parking requirements per the City of Mississauga's Zoning By-Law and compare them with the proposed supply.
- Estimate peak parking demand based on the ITE Parking Generation Manual 6th Edition, which acts as a North American benchmark.
- Identify and compare the site to any recently proposed developments within Mississauga that include a similar land use context such as:
 - **3480 Havenwood Drive and 1450 Williamsport Drive Infill Building** (~650 metres from subject site) consisting of approximately 202 units in addition to the existing apartment buildings. The development proposed a resident parking rates of **0.56** spaces/unit and visitor parking rate of **0.10** space/unit.
- Identify previous conducted parking utilization surveys for residential developments within Mississauga to determine peak parking demand on the subject site. We recommend using proxy surveys conducted by BA Group for their respective parking justification studies at sites with similar conditions as shown below:
 - **4095 Tomken Road** consist of one residential rental apartment having a total of 68 units The peak residential parking demand observed was **0.63** spaces per unit, with surveys conducted over a four-month period. On-site parking was counted on the following dates in 2022: Tuesday, March 22; Wednesday, March 23; Thursday, March 24; Sunday, March 27; Monday, June 27; Tuesday, June 28; Wednesday, July 6; and Thursday, July 7. The site is located only approximately 3.5 km from the subject site and is within the same precinct.

Please confirm if this previously conducted parking survey is sufficient for use within the parking study.

- Conduct parking surveys at:
 - The existing six-story apartment building on the site. We believe this survey will reflect the practical parking demand, given the similar land use context of the proposed development.
 - **1300 Bloor Street** which is a 26-storey high-rise condominium building consisting of approximately 299 units and located approximately 400 metres from the subject site.
 - **1333 Bloor Street** which is a 25-storey high-rise condominium building consisting of approximately 441 units and located approximately 400 metres from the subject site.

Please provide details regarding the survey method.

- Identify Transportation Demand Management (TDM) opportunities available at the site to assess potential site-specific measures that may be used to further support the proposed parking supply.
- Based on the findings, confirm the adequacy of the proposed parking supply to support the development.
- Document all analysis and recommendations in a Parking Utilization Study for submission to the City of Mississauga

I hope the proposed scope and workplan are acceptable. Should you have any questions of concerns, please feel free to let me know.

Kind Regards,

Aarzo

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Engineering Intern, Transportation
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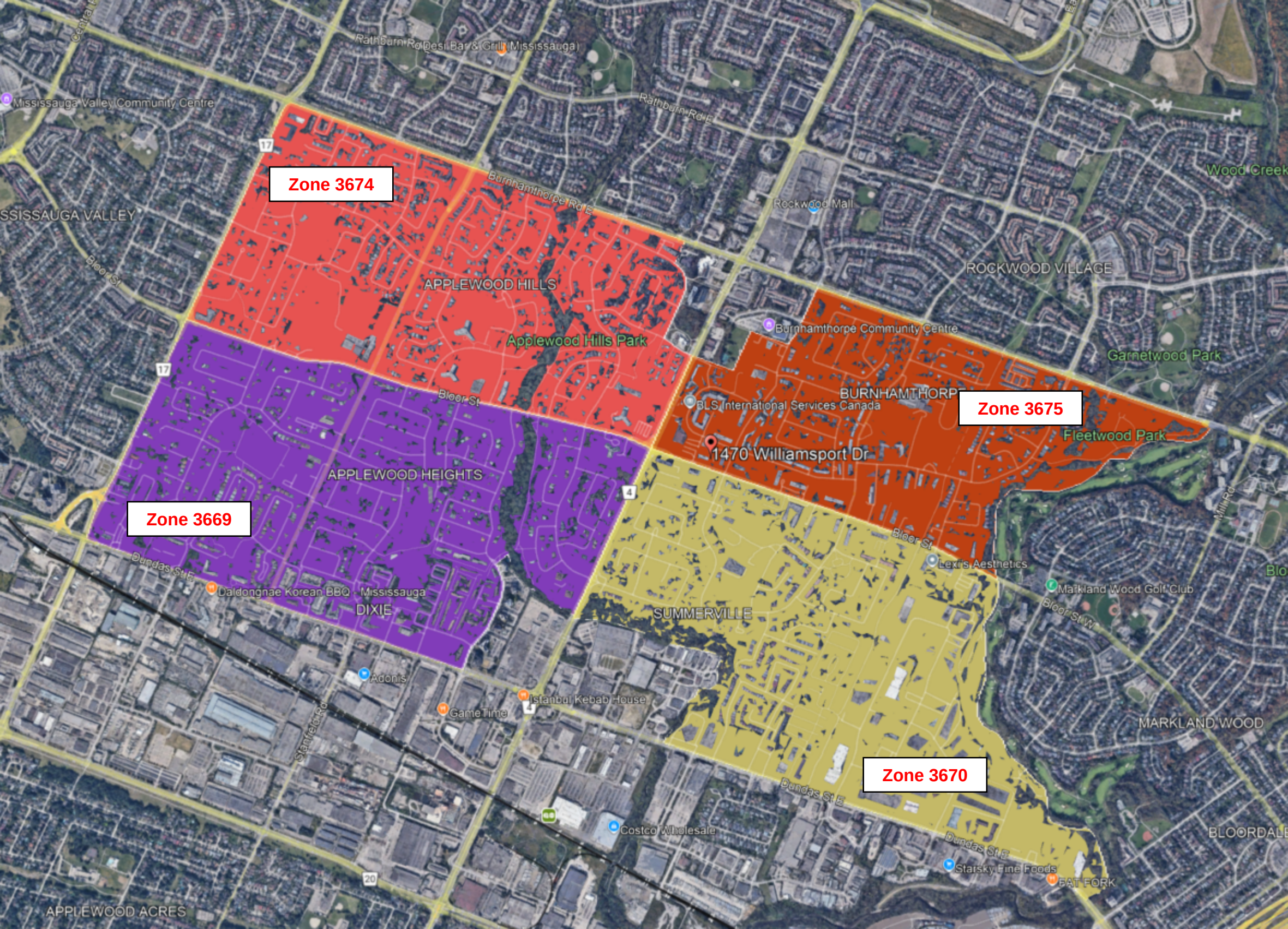
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APPENDIX M

Vehicle Ownership and Modal Split TTS Query



Zone 3674

Zone 3675

Zone 3669

Zone 3670

Frequency Distribution Query Form - Household - 2006,2011,2016,2022

Field: No. of vehicles in household - n_vehicle

Filters:

2006 GTA zone of household - gta06_hhld In 3675,3674,3670,3669

and

Type of dwelling unit - dwell_type In 2,

Table: Household 2006

Row:,Count:,Expanded:

0,62,1310

11,703,646

2,43,916

Total:,275,5872

Table: Household 2011

Row:,Count:,Expanded:

0,52,988

11,783,496

2,40,840

3,1,24

Total:,271,5348

Table: Household 2016

Row:,Count:,Expanded:

0,64,1329

11,964,680

2,40,1012

3,3,79

Total:,303,7101

Table: Household 2022

Row:,Count:,Expanded:

0,43,1782

11,104,040

2,31,1367

3,3,85

Total:,187,7274

Mon Feb 03 2025 10:41:59 GMT-0500 (Eastern Standard Time)

Frequency Distribution Query Form - Trip - 2011,2016,2022

Field: Primary travel mode of trip - mode_prime

Filters:

2006 GTA zone of household - gta06_hhld In 3675,3674,3670,3669

Table: Trip 2011

Row:,Count:,Expanded:

Transit excluding GO rail,411,9311

Cycle,7,149

Auto driver,2407,49596

GO rail only,53,1205

Joint GO rail and local transit,9,217

Other,1,22

Auto passenger,613,12596

School bus,34,726

Taxi passenger,6,108

Walk,196,4140

Total:,3737,78069

Table: Trip 2016

Row:,Count:,Expanded:

Transit excluding GO rail,319,7691

Cycle,11,223

Auto driver,2104,41689

GO rail only,52,780

Joint GO rail and local transit,15,265

Other,2,24

Auto passenger,432,8602

School bus,25,722

Taxi passenger,17,337

Paid rideshare,11,319

Walk,231,6427

Total:,3219,67077

Table: Trip 2022

Row:,Count:,Expanded:

Transit excluding GO rail,191,6832

Cycle,29,357

Auto driver,1654,38808

E-scooter,2,101
GO rail only,25,362
Joint GO rail and local transit,7,35
Other,2,21
Auto passenger,426,11105
School bus,47,2169
Taxi passenger,13,464
Paid rideshare,4,100
Walk,249,8158
Total:,2649,68511