TRANSPORTATION IMPACT STUDY

1303 LAKESHORE ROAD EAST

CITY OF MISSISSAUGA
REGION OF PEEL

PREPARED FOR:

HIGH STREET CAPITAL PARTNERS INC.

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
2800 HIGH POINT DRIVE, SUITE 100
MILTON, ON L9T 6P4

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CROZIER
CONSULTING ENGINEERS

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1.0 Executive Summary

C.F. Crozier & Associates Inc. (Crozier) was retained by High Street Capital Partners Inc. to undertake a Transportation Impact Study (TIS) in support of the planning applications for the development of property bounded by Lakeshore Road East to the south, Fergus Avenue to the west, residential buildings on the north and east, and Applewood Creek to the east in the City of Mississauga.

The proposed project includes a 10-storey residential building situated in the corner of Lakeshore Road East and Fergus Avenue, as well as 3-storeys of underground parking facilities. Furthermore, a full move site access is planned along Fergus Avenue.

The development is forecasted to generate 48 two-way trips (13 inbound and 35 outbound trips) during the weekday A.M. peak hour, and 58 two-way (35 inbound and 23 outbound) trips during the weekday P.M. peak hour.

Four Future developments located within the vicinity of the site were included in the analysis as part of the background developments. Future geometric changes along Lakeshore Road East and transit improvements were noted and commented on, but not included in calculations due to their early stage of development.

Under 2026 future background conditions, the movements that are over capacity are the A.M. northbound movement along Fergus Avenue at Lakeshore Road East and the P.M. eastbound movement left turn movement at Dixie Road and Lakeshore Road East. There is also increased delays for the southbound movement along Fergus Avenue at Lakeshore Road East and for the eastbound movement along St. James Avenue at Dixie Road.

The development is expected to generate 48 two-way (13 inbound and 35 outbound) trips during the weekday A.M. peak hour and 58 two-way (35 inbound and 53 outbound) trips during the weekday P.M. peak hour.

The proposed development is expected to have a negligible impact on the surrounding road network, especially along the major roads. Future total traffic is expected to operate similarly to the future background scenario in the horizon year 2026 except for a few movements along the minor roads.

200 parking spaces are provided on-site. With changes coming to the City of Mississauga's parking requirements and increased transit planned for the area, the proposed parking spaces are sufficient.

The proposed site accesses meet the Transportation Association of Canada's guidelines for site access spacing.

The planning applications can be supported from a transportation perspective as the site generated traffic will have a negligible effect on the public roadway system's operations, especially along the major routes.

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2.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by High Street Capital Partners Inc. to undertake a Transportation Impact Study (TIS) in support of the planning applications for the development of a 10-storey residential building and 3-storey underground parking facility. The purpose of the study is to evaluate the impacts of the proposed development on the surrounding road network and recommend mitigation measures if warranted. The following intersections were reviewed:

- Lakeshore Road East and Dixie Road (Signalized)
- Lakeshore Road East and Fergus Road (Stop Controlled)
- Proposed Site Access at Fergus Road

The following horizon timeframes were analyzed in this study, consistent with procedures set out in the City of Mississauga's Traffic Impact Study Guidelines:

- Existing traffic conditions
- Five-year horizon (2026) future conditions with and without the proposed development
- Weekday morning and afternoon peak hours

This study has been completed in accordance with the strategies set out in the City of Mississauga's Traffic Impact Study Guidelines, with the associated analysis and findings reported herein.

3.0 Existing Conditions

Transportation Impact Study Guidelines with the associated analysis and findings outlined herein.

3.1 Development Lands

The study area covers a developable area of 0.32 ha, and currently is occupied by a 2-storey motel. The property is situated in a mixed-use neighborhood and is bounded by Lakeshore Road East to the south, Fergus Avenue to the west, residential properties to the north and east, and Applewood Creek to the east. The Site Plan has been included in Appendix L.

3.2 Boundary Road Network

The directions of the surrounding road networks are skewed, and therefore ambiguous. As such, to facilitate clarity throughout this report and supplementary analysis, Fergus Avenue and Dixie Road have been oriented in the north-south direction, and Lakeshore Road East and St. James Avenue has been assigned to be in the east-west direction.

Lakeshore Road East is an east-west roadway with a four-lane urban cross-section. Lakeshore Road East is under the jurisdiction of Peel Region and is defined as a major road. The roadway has sidewalks available on both and has a speed limit of 50 km/h throughout the study area.

Dixie Road (Regional Road 4) is a north-south roadway with a two-lane (one way left-turn lane) urban cross section. Dixie Road is under the jurisdiction of Peel Region and is defined as a major road. The roadway has sidewalks available on both sides and has a posted speed limit of 50 km/h throughout the study area.

Fergus Avenue is a north-south roadway with a two-lane urban cross-section. Fergus Avenue is under the jurisdiction of the City of Mississauga and is defined as a minor road. The roadway has a sidewalk on one side (east side) of the road and has an assumed speed limit of 40 km/h throughout the study area.

St. James Avenue is an east-west roadway with a two-lane urban cross-section. St. James Avenue is under the jurisdiction of the City of Mississauga and is defined as a minor road. The roadway has a sidewalk on one side (south side) of the road and has an assumed speed limit of 40 km/h throughout the study area.

3.3 Public Transit

There are multiple transit stops located in the vicinity of the site. The study area is serviced by 3 buses in the immediate vicinity of the study area and GO train service within a reasonable distance. MiWay Transit Route 5 'Dixie', and Route 23 'Lakeshore' have stops within walkable distance and operate on daily schedules and provide connections to major intersections and transit nodes in Mississauga. Both MiWay Routes 5 and 23 have a stop at Lakeshore Road East and Dixie Road with the bus stop within 200 meters of the proposed development. The Toronto Transit Commission (TTC) Route 110 'Islington South' provide service to the City of Toronto and operates out of the Long Branch GO which falls within 1.1 km of the site. This station connects to major GO train stations along the Lakeshore West route from Toronto to Hamilton.

3.4 Traffic Data

Turning movement counts at the intersections of Lakeshore Road East at Dixie Road as well as Lakeshore Road East at Fergus Avenue were conducted by Spectrum on Thursday, March 8, 2018 between the weekday A.M. peak hours of 7:00 a.m. and 8:45 a.m., and weekday P.M. peak hours of 5:00 p.m. and 5:45 p.m.

Traffic Data contained in Appendix D provides a summary of the turning movement counts. Refer to Figure 5 for the existing traffic volumes. Peak hour factors used for analysis were determined based on existing traffic and are summarized in Table 1.

Table 1: Peak Hour Factors

Intersection	Weekday a.m. Peak Hour Factor	Weekday p.m. Peak Hour Factor
Dixie Road at Lakeshore Rd E	0.92	0.96
Dixie Road at St. James Ave	0.88	0.94
Fergus Ave at Lakeshore Rd E	0.94	0.94
Fergus Ave at St. James Ave	0.93	0.78

3.5 Traffic Modeling

The assessment of intersections is based on the method outlined in the "Highway Capacity Manual, 2010" using Synchro 11 modelling software. Intersections are assessed using the Level of Service (LOS) metric, with ranges of delay designated a letter ranging from "A" to "F". For stop-controlled intersections, a Level of Service "A" or "B" would typically be expected during off-peak hours when there are lower traffic volumes on roadways. Levels of Service "C" to "F" would characteristically be measured during commuter peak hours when greater traffic volumes produce longer travel times. The Level of Service definitions for signalized and stop-controlled intersections is included in Appendix C.

Per the City of Mississauga's Traffic Impact Study (TIS) Guidelines, saturation flow rates of 1860, 1900, and 1640 veh/hr/lane were used for advanced left, through and right movements respectively, as applicable to City-owned roads. A saturation flow rate of 1900 was used for left turns that did not have an advance signal. Also, as per City guidelines, a heavy vehicle factor of 2.0 PCUs was assumed for large vehicles. Pedestrian walking speeds were assumed to be 1.0 m/s for a conservative estimate in a residential neighborhood. The critical gap for City-owned roads was based on Highway Capacity Manual (HCM) 2010 guidelines as recommended by the City's TIS guide. As per City's TIS guidelines, the lost time was assumed to be 1.0 sec and 5.0 sec for the advanced green and main phase, respectively, for City-owned roads.

3.6 Intersection Operations

The traffic operations of the intersections of study were analyzed based on recorded traffic data during the A.M. and P.M. peak hours. The detailed capacity analysis is included in Appendix G. The operational analysis was conducted based on traffic volumes listed in Figure 4. Table 2 and Figure 4 outline the existing traffic operations.

Table 2: Existing Conditions

Intersection	Control	Peak Hour	Level of Service (Average Delay per Vehicles)	V/C Ratio(s) > 0.85 (Approach)
Fergus Avenue at St. James Avenue (Stop Control)	Stop Control	A.M.	A (9.1 s)	0.02 (WB)
		P.M.	A (9.1 s)	0.08 (WB)
Fergus Avenue at Lakeshore Road East (Stop Control)	Stop Control	A.M.	F (295.3 s)	0.98 (NB)
		P.M.	E (41.9 s)	0.31 (SB)
Dixie Road at St. James Avenue (Stop Control)	Stop Control	A.M.	C (21.7 s)	0.23 (EB)
		P.M.	B (18.0 s)	0.11 (EB)
Dixie Road at Lakeshore Road East (Stop Control)	Signal	A.M.	C (30.4 s)	0.76 (EBL)
		P.M.	C (30.5 s)	0.93 (WBT)

Note: Delay at stop-controlled intersections is based on the most critical minor approach.

As can be seen in Table 2, none of the movements are over capacity. However, the A.M. northbound movement along Fergus Avenue at Lakeshore Road East and the P.M. westbound movement through movement at Dixie Road and Lakeshore Road East are both approaching capacity. This is reflected in the delay for the northbound traffic at Fergus Avenue and Lakeshore Road East as the vehicles there are experiencing significant delays. The LOS during the A.M and P.M. peak periods are "F" and "E" respectively. These values are based on the northbound and southbound approaches as their delays as 295.3 and 41.9 seconds respectively.

The high volume along Lakeshore Road East that is leading to the high v/c ratio for the westbound through movement is of concern but has not created a significant delay at the intersection in this scenario.

4.0 Future Background Conditions

4.1 Study Horizons

Per the City of Mississauga's Transportation Impact Study Guidelines and confirmed with City of Mississauga staff per our Terms of Reference attached in Appendix A, a five-year horizon for the year of 2026 was considered for the analysis.

4.2 Background Developments

There are currently 4 active development applications in the vicinity of the proposed site. The first application located at 1082 Lakeshore Road East, pertains to Ontario Power Generation (OPG) lands to the east of Port Credit near Lakeshore East at Lakefront Promenade. The development of the 177-acre site includes 8,004 residential units ranging from townhouses to high-rise buildings. The Municipal Infrastructure Group Ltd. was retained for transportation advisory services in June 2020. Per the findings in the report, it is estimated the development will generate 2,261 two-way trips in the A.M. peak hour and 2,881 two-way trips in the P.M. peak hour. All relevant excerpts from the Traffic Considerations Report for the development are provided in Appendix K.

1345 Lakeshore Road East is an active application which fronts onto Dixie Road and Lakeshore Road East. This development features 474 residential condominium units and 930 m^2 of commercial/retail GFA. BA Group was retained to provide transportation considerations and provided a report in August 2020. Per this report, this development is expected to generate 160 two-way trips in the A.M. peak hour and 215 two-way trips in the P.M. peak hour. All relevant excerpts from the Traffic Considerations Report for the development are provided in Appendix K.

At 1381 Lakeshore Road East, the application is for a proposed mixed-use development including a 15-storey residential high-rise building with an 8-storey residential podium and ground floor retail. Furthermore, a 3-level underground parking facility with 6 surface-level spaces is included in the development. Cole Engineering Group Ltd. was retained to complete a Traffic Impact and Parking Study in August 2020. Per the findings in the report, it is estimated that the development will generate 66 two-way trips in the A.M. peak hour, and 46 two-way trips in the P.M. peak hour. All relevant excerpts from the Traffic Impact Study are provided in Appendix K.

1407 Lakeshore Road East consists of three (3) mixed used buildings in development by Booth Developments. A site plan was provided for this development and is included in Appendix K. Using the site data included as part of the site plan and the Institute of Transportation Engineers (ITE) trip generation manual, an estimate for the total number of trips was generated. For the A.M peak hour, 10 two-way trips were estimated while 17 two-way trips were estimated for the P.M. peak hour.

4.3 Planned Multi-modal Developments

The Hurontario Light Rail Transit (LRT) line is under construction and expected to finish in 2024. This LRT project will provide an expanded and reliable service north along Hurontario Road with stops at the major transit hubs up to the City of Brampton, including the Port Credit GO, the Cooksville GO, the City Centre and the Brampton Gateway Terminal. The Port Credit GO is one of the stops along the current MiWay Route 23.

The Lakeshore Connecting Communities Transportation Master Plan is a plan to redevelop Lakeshore Road in the City of Mississauga in a complete streets design which will provide increased access to all residents along this corridor.

The section of the corridor that includes this development has been designated as segment 7 by the plan and is planned to feature separated bike lanes in both directions as well as dedicated transit lanes. This planned work is expected to be completed in 2041 however, improvements to the existing transit services are planned along Lakeshore. These improvements include plans to:

- Increase local bus service by doubling the peak frequency of the local bus
- Upgrade local bus service from 40 ft to 60 ft buses to increase capacity
- Introduce express bus service layered on top of the local bus service

4.4 Traffic Growth Rates

Per the city's instructions, a growth rate of 1.5% was applied to the eastbound traffic on Lakeshore Road during the A.M. and P.M. peak periods and a growth rate of 0.0% and 1.0% was applied to the westbound traffic on Lakeshore Road during the A.M. and P.M. peak periods respectively. applied to all through traffic during the weekday peak periods along the road network in the study area. Figure 5 illustrates the future background traffic volumes for the 2026 horizon year and reflects the traffic growth rate applied to the traffic volumes at the intersection in addition to the background development's traffic.

4.5 Intersection Operations

Traffic operations at the study intersections were analyzed with the growth rates and traffic from background developments. Table 3 outlines the 2026 future background Levels of Service. Detailed capacity analysis worksheets for the Future Background conditions are included in Appendix H.

Table 3: 2026 Future Background Conditions

Intersection	Control	Peak Hour	Level of Service (Average Delay per Vehicles)	V/C Ratio(s) > 0.85 (Approach)
Fergus Avenue at St. James Avenue (Stop Control)	Stop Control	A.M.	A (5.4 s)	0.03 (WB)
		P.M.	A (9.5 s)	0.10 (WB)
Fergus Avenue at Lakeshore Road East (Stop Control)	Stop Control	A.M.	F (482.3 s)	1.32 (NB)
		P.M.	F (63.6 s)	0.44 (SB)
Dixie Road at St. James Avenue (Stop Control)	Stop Control	A.M.	E (45.3 s)	0.63 (EB)
		P.M.	D (29.1 s)	0.35 (EB)
Dixie Road at Lakeshore Road East (Signalized)	Signal	A.M.	C (31.9 s)	1.04 (EBL)
		P.M.	D (36.4 s)	0.96 (WBT)

Note: Delay at stop-controlled intersections is based on the most critical minor approach.

As can be seen in Table 3, the A.M. northbound movement along Fergus Avenue at Lakeshore Road East and the P.M. eastbound movement left turn movement at Dixie Road and Lakeshore Road East are both finding a lack of gaps along Lakeshore Road East. These movements require gaps in the opposing traffic and are waiting for one to appear. This is reflected in the delay for the northbound traffic at Fergus Avenue and Lakeshore Road East as the vehicles there are experiencing significant delays and giving an LOS of "F". The increased volume projected along Lakeshore Road East has continued to reduce the gaps that would allow for the turning movements to occur and has led to these delays and capacity issues.

The eastbound movement at Dixie Road and St. James Avenue is also experiencing an LOS of "E" during the A.M. peak period as vehicles try to avoid the intersection at Lakeshore Road East and Dixie Road. As the volume increases along Dixie Road, there are less gaps for the vehicles attempting to turn left and go northbound. The development at 1345 Lakeshore Road East also has a full moves access just west of the intersection which contributes significantly to the volume.

5.0 Development Proposal

The development covers a developable area of 0.32 ha, and currently is occupied by a 2-storey motel. The property is situated in a mixed-use neighborhood and is bounded by Lakeshore Road East to the south, Fergus Avenue to the west, residential properties to the north and east, and Applewood Creek to the east. The site is accessed by a full moves access along Fergus Avenue.

The elements envisioned for this development include:

- A 10-storey residential development with 169 units
- An underground parking area
- An aboveground parking area

5.1 Site Generated Traffic

The proposed development will result in additional vehicles to travel along the surrounding road network that previously was not present. The proposed development will also result in additional turning movements at the boundary road intersections.

The trip generation for the proposed development was estimated using rates provided in the ITE Trip Generation Manual, 10th Edition. The relevant excerpts from the manual can be found in Appendix E.

Land use category 221 "Multifamily Housing (Mid-rise)" was used to forecast the trips generated by the proposed development. The forecasted primary trips are included in Table 4 for both the A.M. and P.M. peak hours.

The existing modal split was determined using data from the 2016 Transportation Tomorrow Survey (TTS). According to available data, an 86% modal split was applied to all trips generated by the proposed development. The calculations that led to this determination can be found in Appendix D.

Table 4: Trip Generation

ITE Category	Units	Roadway Peak Hour	Rate/Equation Used	Number of Trips		
				Inbound	Outbound	Total
Multifamily Housing (Mid-Rise) (LUC 221)	169	Weekday A.M.	Ln(T) = 0.83 Ln(X) - 0.27	13	35	48
		Weekday P.M.	Ln(T) = 0.83 Ln(X) - 0.05	35	23	58

Note: Number of trips reflect the 14% non-auto modal reduction.

Overall, the development is expected to generate 48 two-way (13 inbound and 35 outbound) trips during the weekday A.M. peak hour and 58 two-way (35 inbound and 53 outbound) trips during the weekday P.M. peak hour.

5.2 Trip Distribution and Assignment

Data from the 2016 Transportation Tomorrow Survey (TTS), provided in Appendix D, was used to determine the trip distribution for the proposed development. The trip distribution for the proposed development, divided by time of travel and direction of travel, is included in Table 5 with detailed distributions shown in Figure 6.

The assumed trip assignment for the proposed development is summarized in Figure 7.

Table 5: Trip Distribution

	A.M. Peak Hour	P.M. Peak Hour
Direction	In (Out)	In (Out)
North	41% (46%)	45% (46%)
South	0% (0%)	0% (0%)
East	46% (50%)	48% (43%)
West	13% (4%)	7% (11%)

Given that the city centers of Mississauga and Toronto are to the north and east, respectively, of this development these distributions make sense. No traffic to or from the south is expected as there is very little between the development and Lake Ontario outside of the wastewater treatment facility.

6.0 Total Traffic Conditions

6.1 Intersection Operations

Traffic operations at the intersections of study were analyzed after the addition of site generated traffic. Total traffic volumes are illustrated in Figure 8. The 2026 total traffic Levels of Service are tabulated in Table 6. Appendix I includes detailed capacity analysis worksheets.

Table 6: 2026 Future Total Conditions

Intersection	Control	Peak Hour	Level of Service (Average Delay per Vehicles)	V/C Ratio(s) > 0.85 (Approach)
Fergus Avenue at St. James Avenue (Stop Control)	Stop Control	A.M.	A (9.2 s)	0.03 (WB)
		P.M.	A (9.5 s)	0.01 (WB)
Fergus Avenue at Lakeshore Road East (Stop Control)	Stop Control	A.M.	F (482.3 s)	1.32 (NB)
		P.M.	F (273.6 s)	1.16 (SB)
Dixie Road at St. James Avenue (Stop Control)	Stop Control	A.M.	E (46.8 s)	0.66 (EB)
		P.M.	D (30.4 s)	0.37 (EB)
Dixie Road at Lakeshore Road East (Signalized)	Signal	A.M.	C (34.0 s)	1.07 (EBL)
		P.M.	D (37.5 s)	0.97 (WBT)
Site Access at Fergus Avenue (Stop Control)	Stop Control	A.M.	A (9.0 s)	0.04 (WB)
		P.M.	A (9.4 s)	0.03 (WB)

Note: Delay at stop-controlled intersections is based on the most critical minor approach.

As can be seen in Table 6, the major areas of concern in terms of delay are along the minor roads of Fergus Avenue and St. James Avenue. These delays are caused by the increased traffic along Fergus Avenue and Lakeshore Road East. This increased traffic means that vehicles are waiting longer periods for an acceptable gap to appear to make the movements.

Both the southbound and northbound movements at Fergus Avenue and Lakeshore Road East have an LOS of "F" during the A.M and P.M. peak periods. The delay at the Dixie Road and St. James Avenue intersection has increased and caused the LOS to become an "E". This is a common occurrence for developments on minor streets that approach a major arterial road such as Lakeshore Road East as the priority needs to be given to the higher volumes on this major road.

The increased traffic going northbound along Dixie Road from the site are also adding to an existing issue for the eastbound left turn movement at the Lakeshore Road East Intersection. However, the intersection is still operating at an LOS of "C" and "D" during the A.M. and P.M. peak periods respectively.

7.0 Comparison

The effect of the site development can be seen Table 7 compares the future background and future total traffic operations on the boundary road network.

Table 7: 2026 Future Background and Future Total Conditions

Scenario		Future Background 2026		Future Total 2026	
Intersection	**Peak Hour**	**Level of Service (Average Delay per Vehicles)**	**V/C Ratio(s) > 0.85 (Approach)**	**Level of Service (Average Delay per Vehicles)**	**V/C Ratio(s) > 0.85 (Approach)**
Fergus Avenue at St. James Avenue (Stop Control)	A.M.	A (5.4 s)	0.03 (WB)	A (9.2 s)	0.03 (WB)
	P.M.	A (9.5 s)	0.10 (WB)	A (9.5 s)	0.01 (WB)
Fergus Avenue at Lakeshore Road East (Stop Control)	A.M.	F (482.3 s)	1.32 (NB)	F (482.3 s)	1.32 (NB)
	P.M.	F (63.6 s)	0.44 (SB)	F (273.6 s)	1.16 (SB)
Dixie Road at St. James Avenue (Stop Control)	A.M.	E (45.3 s)	0.63 (EB)	E (46.8 s)	0.66 (EB)
	P.M.	D (29.1 s)	0.35 (EB)	D (30.4 s)	0.37 (EB)
Dixie Road at Lakeshore Road East (Signalized)	A.M.	C (31.9 s)	1.04 (EBL)	C (34.0 s)	1.07 (EBL)
	P.M.	D (36.4 s)	0.96 (WBT)	D (37.5 s)	0.97 (WBT)

Note: Delay at stop-controlled intersections is based on the most critical minor approach.

As shown in Table 7, the average delay per vehicle and the volume to capacity ratios between the two scenarios are similar across most of the intersections for both peak periods. At Fergus Avenue and St. James Avenue, the difference during the A.M. peak hour is 3.8 s and does not reduce the LOS of "A" for the movement while the delay during the P.M. peak hour remains the same. At the Dixie road intersections at St. James Avenue and Lakeshore Road East the maximum delay increase is 2.1 s and none of the LOS values change.

The major difference occurs in the P.M. peak hour at the Fergus Avenue and Lakeshore Road East intersection. For the southbound approach, the delay increases from 63.6 s to 273.6 s.

8.0 Operations & Safety Assessment

The site was reviewed for several criteria, including sightlines, site access and site circulation, and there were no operational or safety issues from the transportation aspect.

8.1 Sightline Review

The available sightlines for the future intersection of Fergus Road and the Site Access was measured and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017.

Sight distance was measured from the proposed site accesses using the following assumptions:

- A standard driver eye height of 1.08 meters for a passenger car
- A 5.4-metre setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site

- A passenger car was used as the design vehicle
- The time gap was assumed for the design vehicle as per table 9.93 of the GDGCR

Intersection sight distance is calculated using equation 9.9.1 from the GDGCR as outlined below:

$$ISD = 0.278 * V\ major * tg$$

Where;
ISD = Intersection Sight Distance
V major = design speed of roadway (km/h)
tg = assumed time gap for vehicles to turn from stop onto roadway (s)

A design speed 20 km/h higher than the posted or assumed speeds of each road of study was assumed for the sight distance analysis. Table 8 summarizes the sight distance analysis for the intersection of Fergus Road and the Site Access.

Table 8: Site Access Sight Distance Calculations

Intersection	$V_{major\ (km/h)}$	ISD (m)
Fergus Road & Site Access	60	126

Table 8 demonstrates that the available sight distance achieved meets the minimum requirement for turning vehicles at the access. To the north, the sightlines are clear along Fergus Avenue and the stop signs at Fergus Avenue for the vehicles approaching along St. James Avenue prevent these vehicles from approaching the access at speed. To the south, there are no obstructions for the 126 m which meets the intersection of Fergus Avenue and Lakeshore Road East. As outlined in Table 8, the minimum sight distance requirements are fulfilled for the proposed site access. Therefore, the proposed subdivision is supported with regards to sight distance.

8.2 Access Spacing

The access along Fergus Avenue is approximately 50 m away from the two-way stop-controlled intersection at St. James Avenue and 125 m away from the two-way stop-controlled intersection at Lakeshore East. As Fergus Avenue is considered a local road, the requirements for access spacing outlined in Chapter 8 of the TAC GDGCR are met and there is no issue regarding the construction of this access.

8.3 Access Configuration

A full moves access is preferable as it allows drivers to choose their path out of the development along Fergus Avenue. A stop sign should be installed at the access for vehicles leaving the development to provide control for safety while minimizing the delay for the north-south traffic along Fergus Avenue. With no limitations due to the spacing of the access, this configuration is allowed and recommended.

8.4 Site Circulation Review

As shown in Figures 9 and 10, the site can accommodate delivery and moving vehicles for the residents. As the fire route is along Fergus Avenue, there are no restrictions on the movement of these vehicles while on site.

9.0 Parking Review

9.1 Parking Requirements – City of Mississauga's Zoning By-Law 0225-2007

Relevant Zoning By-Law Excerpts are included in Appendix M. It is noted that the Site is currently zoned as an apartment building in Zone C4. The parking requirements for the development are outlined in Table 9.

Table 9: City of Mississauga By-Law Parking Requirements

Land Use	Rate per Mississauga Zoning By-Law 0225-2007	Proposed Number of Units	Required Number of Parking Spaces	Proposed Number of Parking Spaces	Surplus/ Deficiency
Residential -169 Units	1.00 resident space per studio unit	5	5	200	-44
	1.18 resident spaces per one-bedroom unit	110	130		
	1.36 resident spaces per two-bedroom unit	45	61		
	1.5 resident spaces per three-bedroom unit	9	14		
	0.20 visitor spaces per unit	169	34		
Total			**244**		
Loading Space - 1 Apartment Building	1.0 loading space per apartment containing a minimum of 30 dwelling units	1	**1**	1	0

As can be seen in Table 9, the site has a planned deficiency of 44 parking spaces under the current by-laws with 200 parking spaces provided and 244 spaces required. The site meets the requirement for the 1 loading space per building for apartment buildings.

9.2 Parking Requirements – City of Mississauga's Parking Master Plan

The City of Mississauga recently released the latest 'Parking Regulations-Draft Policy Directions for Consultation' on May 14, 2021. While the parking rates outlined in the report are not approved, it gives us a look into the future of parking rates in the City. This policy change is currently on schedule for approval in 2021 and held a public forum on September 14, 2021. The proposed site is within "Precinct 3" which is contemplating 0.8 spaces/unit (no unit split) for apartments and Visitor is proposed at 0.15 spaces/unit. These rates are shown in Table 10.

Table 10: City of Mississauga Parking Master Plan Parking Spaces Requirements

Land Use	Proposed Parking Rates	Proposed Number of Units	Required Number of Parking Spaces	Proposed Number of Parking Spaces	Surplus/ Deficiency
Residential- 169 Units	0.8 resident space per unit	169	136	200	**+38**
	0.15 visitor spaces per unit	169	26		
Total			**162**		

Under these new regulations, the site would have an excess of 38 parking spaces. While these new regulations have not been approved as of the submission of this report, the proposed changes reflect the acknowledgement of the changing requirements for parking capacity.

9.3 ITE Parking Demand

The Institute of Transportation Engineers (ITE) Parking Generation (5th Edition) provides data on surveys across the USA and Canada of peak parking demands for different land uses. The land-use code 221 (Multifamily Housing – Mid Rise), which includes mid-rises. Typically, ITE rates include visitor parking; however, the City of Mississauga's Zoning By-Law 0225-2007 visitor parking rate was used to provide a more conservative rate.

The estimated parking demand calculations are summarized in Table 11.

Table 11: ITE Parking Demand Calculations

Land Use	Equation/Rate Used	Required Number of Parking Spaces	Proposed Number of Parking Spaces	Surplus/ Deficiency
Residential- 169 Units	P = 1.04(X) - 15.22	161	200	**+5**
	0.20 visitor spaces per unit (per Zoning By-law-0225-2007)	34		
Total		**195**		

Using the ITE parking generation formula and the City's visitor parking rate, the site would have sufficient parking for the proposed development.

With the proposed changes to the City of Mississauga's parking rate and the improvements to the transit network, the proposed parking supply should be sufficient.

10.0 Travel Demand Management (TDM)

Transportation Demand Management (TDM) refers to various strategies to reduce traffic congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system.

TDM strategies have multiple benefits, including the following:

- Reduced auto-related emissions to improve air quality
- Decreased traffic congestion to reduce travel time
- Increased travel options for residents and commuters
- Reduced personal transportation costs and energy consumption
- Support Provincial Smart Growth Objectives

The above-combined benefits will assist in creating a more active and livable community.

10.1 TDM Strategies Identification

The City of Mississauga is a pedestrian and cycling supportive community that embraces the "complete streets" concept by encouraging commuter and recreational travel by walking, cycling and using public transit through a safe and desirable Municipality-wide network of on-road and off-road pedestrian and cycling facilities.

Currently, there are sidewalks to the south of the proposed development along the north side of Lakeshore Road East that lead to the bus stops at Dixie Road.

As part of the Lakeshore Connecting Communities Transportation Master Plan, discussed later in this section, a separated bike lane will be included along Lakeshore Road East. This will promote the use of bicycle transportation as well as provide an increased sense of safety for pedestrians as the gap between the pedestrians and vehicles will be larger.

10.2 TDM Strategies Implementation

An increase in transit use is fund amental to the overall reduction of automobile use. People associate utilities with each mode of transportation (such as safety, reliability, comfort, accessibility, speed, cost and travel time). Their mode choice is based on the relative costs associated with one versus another mode. The two (2) characteristics that will most likely influence mode choice are monetary cost and travel time.

Transit productivity is a measure of return on investment in the transit system. It measures how many travelers use the transit service provided in a region. Local buses with few passengers suggest that transit systems are not providing transportation benefits consistent with their capital and operating costs. Having more passengers on each bus generates more revenue for transit agencies and can result in better air quality and less congestion. Moreover, transit service levels (i.e., network coverage and frequency) have a strong positive correlation with transit demand (i.e., ridership).

As an incentive to encourage residents to use the MiWay transit service, the Owner will consider providing and distributing (one time) prepaid and fee-waived complimentary PRESTO cards. This subsidized transit card will provide a financial incentive to encourage public transit, especially for 'first-time' users to try local transit services as a primary mode of transportation, which is in keeping with a recent incentive (offering free pre-loaded PRESTO cards) initiated by the City. Each PRESTO card is to be pre-loaded with $50 - $100. The PRESTO cards' total cost is estimated to be ($50 - $100 PRESTO card x 169 units) $8,450 - $16,900 to be borne by the Owner. Note that the amount and provision of PRESTO cards are subject to the Owner's discretion.

It is recommended that the Owner make an information package to inform new/prospective residents with alternative travelling options. It is recommended that the Owner consults with the City to provide the following materials to promote active transportation:

- Peel Region Transit Map
- City of Mississauga Trails Map
- Peel Region Cycling Map
- Peel Region Bike-to-Work Practical Guide

In addition to the above-noted materials, the information package will also include information on transit schedules (i.e., MiWay Transit, Go Transit) to assist residents in planning their trips (i.e., to/from work/school) utilizing the existing and growing transit network system. A location map will also be prepared to indicate the nearby facilities and points of interest (i.e., retail store, grocery store, school, community center and library) within convenience and comfortable walking distance to further discourage vehicle dependency.

The Owner's total approximate cost to compile the above information into an information package will be approximately $500 to be borne by the Owner. The above information is subject to availability and to be provided at the Owner's discretion.

10.3 TDM Monitoring

Monitoring a TDM program can be accomplished by conducting a biennial commuter survey to determine the TDM measures (individually or as a combination). It is recommended that the first survey be conducted at substantial occupancy (80%) and after that every two years.

A commuter survey typically gathers quantitative data (i.e., percentage use of the various modes of transportation) and qualitative data (i.e., respondents' perception of the alternative transportation programs). This survey will produce and collect essential information to understand the effectiveness of the proposed TDM strategies, which will provide valuable indications (if any) in determining adjustments to the TDM initiatives to be required to achieve or exceed the targeted outcomes. Moreover, the collected data can also focus on the marketing initiatives and efforts of the City.

The questionnaire is recommended to contain no more than five questions, as the length of the survey has a negative correlation with both respondent rate and accuracy. Keeping the survey short and simple to understand is the first principle in achieving essential survey data. In general, the survey should gather the following information:

- Trip Rate — to obtain information on how many people travel during the morning and afternoon peak hours.

- Modal Split —what is the primary transportation modes when travelling during peak hours.
- Trip Purpose — this is to test whether most trips are the journey-to-work trip or other trips, as the TDM strategies should be altered accordingly between work trips and non-work trips.
- Traveler's preference — to understand, aside from driving alone, which TDM measures have the most significant potential to reduce vehicle dependency further.
- Comments — to allow respondents to express any comments that can assist in improving the proposed/implemented TDM strategies.

A survey's statistical reliability depends on the response rate, which is the number of correctly completed surveys compared to the total number of distributed surveys. Therefore, it is essential to maximize the survey response rate. Some of the methods that can be used to maximize the response rate are listed as follows:

- Place a notice on a bulletin board and other high pedestrian locations and attach a cover memorandum to the questionnaire describing the purpose of the survey and requesting cooperation.
- Inform recipients of the duration it takes to respond to the questionnaire and note that their responses are strictly confidential.
- Offer prizes to respondents, and it is preferably based on a drawing to ensure un-biases.
- Offer a contact person and phone number to respond to any questions that survey recipients may have.
- Facilitate access to the survey questionnaire by posting it on a webpage. As an alternative, deliver the questionnaire and pick-up responses of the different tenants.
- Providing the survey in different languages to assist in non-English speaking residents to understand the survey.
- Send one or more reminders (e-mail and flyers) requesting to complete the survey by the due date.

As noted previously, allowing the completion of the survey on-line can help reduce the time and effort spent on circulating and administrating the survey.

It is recommended to conduct a baseline survey to residents before starting the TDM program. This can assist in evaluating the program's effectiveness (before and after comparative analysis). Besides, comparing the biennial survey results to previous years can evaluate the program's progress and potential modifications. It is possible to add survey questions to assess the new improvements. Furthermore, MiWay can be consulted for ridership statistics. The estimated cost to conduct the survey is $500.

10.4 TDM Communications Study

To facilitate the implementation of TDM strategies, information and incentives must be passed from the City to the public effectively.

The Owner is to contact the City, which will provide information packages with Site-specific information on nearby pedestrian, bicycle and transit facilities. These information packages are to be provided by the City and distributed by the Owner at the time of house closing.

The Owner is to prepare a TDM event, which occurs when the units are at a minimum of 50% occupancy. This event would provide an opportunity for Region and MiWay Staff to attend and promote sustainable transportation through presentations and question/answer sessions, to encourage engagement and participation in creating and maintaining a sustainable community. Distribution of PRESTO cards would take place at this event by City and MiWay Staff. City and MiWay Staff are to be provided with details and notice of the TDM event at least two months before the event's date. The estimated cost of the TDM event is $1,000 to be borne by the Owner.

10.5 Project Program Cost

The estimated cost to implement the TDM program components are outlined in Table 12. The estimated cost to administer the TDM plan would be $8,450 - $18,900.

Table 12: Travel Demand Management Plan Costs

TDM Measure	Unit Price	Quantity / Number of	Product Cost
PRESTO Cards	$50 - $100	169	$8,450 - $16,900
TDM Information Package	$500	1	$500
Travel Survey	$500	1	$500
TDM Event	$1,000	1	$1,000
Total Cost			$8,450 - $18,900

10.6 Lakeshore Connecting Communities Transportation Master Plan

The Lakeshore Connecting Communities Transportation Master Plan is a plan to redevelop Lakeshore Road in the City of Mississauga in a complete streets design which will provide increased access to all residents along this corridor.

The section of the corridor that includes this development has been designated as segment 7 by the plan and is planned to feature separated bike lanes in both directions as well as dedicated transit lanes. This planned work is expected to be completed in 2041 however, improvements to the existing transit services are planned along Lakeshore. These improvements include plans to:

- Increase local bus service by doubling the peak frequency of the local bus
- Upgrade local bus service from 40 ft to 60 ft buses to increase capacity
- Introduce express bus service layered on top of the local bus service

This plan would help increase the usage of non-auto travel methods by increasing the availability and attractiveness of the other methods. With increased bus service and safety for the bicyclists, the Lakeshore Connecting Communities Transportation Master Plan looks to increase the multi-modal aspects of this corridor.

10.7 Hurontario Light Rail Transit

MiWay Route 23 also includes a stop at the Port Credit GO station, the site of development of the Hurontario LRT line currently under construction and expected to finish in 2024. This LRT project will provide an expanded and reliable service north along Hurontario Road with stops at the major transit hubs up to the City of Brampton, including the Port Credit GO, the Cooksville GO, the City Centre and the Brampton Gateway Terminal.

While already a major GO station, connecting along the Lakeshore West GO Line, Port Credit GO will attract more passengers with the construction of this LRT line. The proposals outlined in the Lakeshore Connecting Communities Transportation Master Plan would increase the capacity of the transit network to move people from this development to the major hub.

These plans, along with our TDM proposals, will help increase the percentage of trips that are undertaken using non-auto modes. Our TDM methods should include information regarding these plans to all prospective residents as this could impact their decisions and travel patterns.

11.0 Community Impacts

A community meeting was held on September 8, 2021 to hear and address concerns from the community. The impacts on the community from a traffic perspective are the volume developments outlined in the earlier sections of this study as well as the increased traffic on the alternative methods of transportation outlined in the previous section.

As was shown earlier, the areas of concern in terms of delay are along the minor roads of Fergus Avenue and St. James Avenue as they approach the major roads of Lakeshore Road East and Dixie Road respectively. The delays at these intersections will increase but the intersection of Fergus Avenue and St. James Avenue did not suffer any significant increases due to this development.

12.0 Recommendations

The development does not significantly increase the delay for most of the intersections in the boundary road network. The increases are along the minor roads, especially Fergus Avenue, and do not impact the major arterial roads.

The TDM measures outlined in this report should help reduce the number of non-auto trips and change the current percentage from a 14%/86% split. These measures included:

- PRESTO Cards
- TDM Information Package

The measures that are currently either in process or are in planning by the City of Mississauga will also improve the network by reducing the non-auto trips. These measures include:

- Increases to the local bus service by doubling the peak frequency of the local bus
- Expresses bus service layered on top of the local bus service

- Lakeshore Road BRT Construction and road redesign
- Hurontario LRT

The usage of TDM strategies will aid in the performance of the intersections by reducing the auto trips generated by the site. With a reduction in vehicles, less time will be spent by vehicles as they wait for gaps on the major roads.

13.0 Conclusion

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

- The existing boundary road network is currently operating at a LOS "C" or better except for Fergus Avenue's intersection at Lakeshore Road East where the northbound and southbound movements are experiencing significant delays due to the high volume on the major road traffic.
- Growth rates were provided by the City of Mississauga and applied as directed.
- Four Future developments located within the vicinity of the site were included in the analysis as part of the background developments. Future geometric changes along Lakeshore Road East and transit improvements were noted and commented on, but not included in calculations due to their early stage of development.
- Under 2026 future background conditions, the movements that are over capacity are the A.M. northbound movement along Fergus Avenue at Lakeshore Road East and the P.M. eastbound movement left turn movement at Dixie Road and Lakeshore Road East. There is also increased delays for the southbound movement along Fergus Avenue at Lakeshore Road East and for the eastbound movement along St. James Avenue at Dixie Road.
- The development includes a 10-storey residential development with 169 units with an underground parking area and an aboveground parking area. The site is accessed by a full moves access along Fergus Avenue.
- The development is expected to generate 48 two-way (13 inbound and 35 outbound) trips during the weekday A.M. peak hour and 58 two-way (35 inbound and 53 outbound) trips during the weekday P.M. peak hour.
- The proposed development is expected to have a negligible impact on the surrounding road network, especially along the major roads. Future total traffic is expected to operate similarly to the future background scenario in the horizon year 2026 except for a few movements along the minor roads.
- 200 parking spaces are provided on-site. With changes coming to the City of Mississauga's parking requirements and increased transit planned for the area, the proposed parking spaces are sufficient.
- Several Transportation Demand Management opportunities and strategies are to be introduced to discourage single-occupant vehicle usage within the study area.

We trust that this review satisfies any transportation concerns associated with the proposed development. Please feel free to contact the undersigned for any further information required.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Ian Lindley

Ian Lindley, E.I.T.
Transportation

C.F. CROZIER & ASSOCIATES INC.

R. Aaron Wignall

R. Aaron Wignall
Associate, Transportation

IL/stm
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APPENDIX A

Relevant Correspondence

From: Kate Vassilyev <Kate.Vassilyev@mississauga.ca>
Sent: Wednesday, June 16, 2021 10:08 AM
To: Kavleen Sachdeva
Cc: Ryan Au
Subject: FW: TOR for 1303 Lakeshore Road East Traffic TIS

Hi Kavleen,

I apologize for the delay. Thank you for providing the Terms of Reference for 1303 Lakeshore Rd E. Staff have reviewed it and provided the following comments in blue:

1) The following intersections will be analyzed: Please update to include:

- Lakeshore Road East and Dixie Road (Signalized)
- Lakeshore Road East and Fergus Road (Stop Controlled)
- Fergus Ave St. and James Ave (Stop Controlled)
- St. James Ave and Dixie Rd (Stop Controlled)
- Proposed Site Access at Lakeshore Road East. Please note as identified in Official Plan, Chapter 1 the creation of new additional direct access to an arterial road will be discouraged. Please include a scenario with no access to Lakeshore Road East.
- Proposed Site Access at Fergus Road

2) Most recent traffic counts for the intersections of the study. Please contact the City first, if the counts are not available TMC's from background developments may be acceptable.
Growth rate applicable to intersections of study to reflect 2026 conditions. To obtain most recent counts and confirm growth rates please contact Tyler Xuereb, Transportation Planning Analyst (tyler.xuereb@mississauga.ca, Ext. 4783)

3) We kindly request to obtain the current signal timings of the existing intersection(s) of study for analysis. The signal timing plan for signalized intersections can be obtained from Jim Kartsomanis (Jim.Kartsomanis@mississauga.ca, Ext. 3964).

4) Any additional background developments and associated traffic impact studies to be included in the analysis. Please update to include 1345 Lakeshore Road East (HOZ 20/6 W1) and SP 11/174 – 1407 Lakeshore Road East.

5) Details of any planned roadway or transit improvement plans in the study area within the horizon years. Please refer to LAKESHORE CONNECTING COMMUNITIES at http://www.mississauga.ca/portal/residents/lakeshore-connecting-communities and Miway website for the planned roadway and transit improvements.

6) A comprehensive Transportation Demand Management Plan is to be part of the report. Provide a TDM plan to demonstrate measures to be implemented to reduce single occupancy vehicle (SOV) trips to the site in support of the city's vision of Lakeshore Road corridor.

7) Please include all applicable Synchro reports in the Appendix.

8) Include a section for Community Impacts. Any traffic related impacts on the existing community and comments from the public through the planning approvals process shall be addressed in this section.

Please feel free to contact me if you have any questions.
Regards,

Kate (Jekaterina) Vassilyev
Traffic Planning Technologist
T 905-615-3200 ext.8171
kate.vassilyev@mississauga.ca

City of Mississauga | Transportation and Works Department,
Infrustructure Planning Division

From: Kavleen Sachdeva
Sent: Thursday, May 27, 2021 2:29 PM
To: Kate Vassilyev <Kate.Vassilyev@mississauga.ca>
Cc: Farah Choudhury <fchoudhury@cfcrozier.ca>
Subject: 1303 Lakeshore Road East Traffic TIS

Dear Kate,

C.F. Crozier and Associates (Crozier) was retained for a Traffic Impact Study (TIS) to support the development applications for the site located at 1303 Lakeshore Road East, in the City of Mississauga. The proposed development includes a 10-storey residential building, three storeys of underground parking, as well as underground parking access.

We request your feedback regarding our study assumptions.

Study Methodology for the Transportation Impact Study

Study Area and Intersections to Assess

The following intersections will be analyzed: Please update to include:

- Lakeshore Road East and Dixie Road (Signalized)
- Lakeshore Road East and Fergus Road (Stop Controlled)
- Fergus Ave St. and James Ave (Stop Controlled)
- St. James Ave and Dixie Rd (Stop Controlled)
- Proposed Site Access at Lakeshore Road East
- Proposed Site Access at Fergus Road

Due to the impact of the ongoing COVID-19 pandemic, current travel within the road networks of interest is not reflective of typical commuter travel patterns. As such, we kindly request the most recent traffic data collected of the study intersection(s).

Alternatively, our sub-consultants have traffic counts available for the below intersections with the associated dates:

- Lakeshore Road East and Dixie Road (2018-03-08 Thursday, 7 am-9 am, 4 pm-6 pm)
- Lakeshore Road East and Fergus Road (2018-03-08 Thursday, 7 am-9 am, 4 pm-6 pm)

In the absence of more recent counts available, we recommend using the above counts for analysis.

We kindly request to obtain the current signal timings of the existing intersection(s) of study for analysis.

Analysis Periods and Scenarios

The weekday AM and PM peak hours for existing conditions in 2021 and a 5-year horizon year after full build-out (2026) will be considered for background and total traffic conditions. The horizon years outlined are consistent with the Region of Peel and the City of Mississauga's Traffic Impact Study Guidelines.

Given the residential nature of the development, traffic counts of the study intersections on a typical weekday during the morning and evening peak periods will be considered.

Future Background Traffic Growth

Future background traffic volume will be estimated for the study area to ensure that the analysis reflects background traffic growth and growth from other area developments.

As such, we kindly request a recommended growth rate applicable to traffic volumes in the study area, namely along Lakeshore Road East, Dixie Road, and Fergus Road, to sufficiently reflect future conditions in the years 2026. If a growth rate is not available, an industry standard of 2% is suggested to forecast future traffic growth in the intersection(s) of study.

Background Developments

Upon review of active development applications in the City of Mississauga within a reasonable distance from the proposed development at 1303 Lakeshore Road East, the following projects have been identified as part of our background developments:

- 1082 Lakeshore Road East (T 19/001, OZ 19/003, OPA 19/021)
- 1381 Lakeshore Road East (OZ 20/018 W1)

The traffic impact studies have been completed for the above-noted projects and can be found on the City's website under Active Development Applications (Ward 1). Kindly confirm that the above developments included are sufficient.

If not, please provide additional developments and the associated traffic impact studies that should be included in our analysis.

Trip Generation

Trip generation for the proposed development will be forecasted using the Trip Generation Manual, 10th Edition, prepared by the Institute of Transportation Engineers (ITE), for Multifamily Housing (Mid-rise) (land use code 221). The most conservative model, between the average rate and fitted curve, will be used.

Trip Distribution

Data from the 2016 Transportation Tomorrow Survey (TTS) will be used to determine trip distribution for the AM and PM periods to the proposed development in 2006 GTA Zone 3643. Based on TTS data, a modal split of 14% applies to the development. The TTS results have been attached for your reference.

Access Analysis

The proposed site accesses will be analyzed, including geometric analysis, sight distance, site circulation, and turning analysis. The analysis will be conducted regarding sight distance, access geometry, site circulation and truck turning analysis will be conducted according to the methodology set out in the Transportation Association of Canada (TAC) Manual.

Analysis Procedures

Weekday AM and PM peak hours will be analyzed for the intersections of study using Synchro 11 and Highway Capacity Manual (HCM) guidelines.

As per the City of Mississauga's Traffic Impact Study (TIS) Guidelines, saturation flow rates of 1860, 1900, and 1640 veh/hr/lane will be used for advanced left, through, and right movements, respectively, as applicable to City-owned roads. Also, as per City guidelines, a heavy vehicle factor of 2.0 PCUs will be assumed for large vehicles. Pedestrian walking speeds will be assumed at 1.0 m/s for a more conservative estimate in a residential neighbourhood. The critical gap for City-owned roads will be based on Highway Capacity Manual (HCM) 2010 guidelines as recommended by the City's TIS guide. As per City's TIS guidelines, the lost time will be assumed to be 1.0 sec and 5.0 sec for the advanced green and main phase, respectively, for City-owned roads.

For roads within the study area owned by the Region of Peel, guidance from the Region's Traffic Impact Study (TIS) guidelines will be taken. As per the Region's TIS guide, capacity analysis completed in Synchro will use HCM 2000 guidelines. In addition, a saturation flow rate of 1900 veh/hr, 7-meter lane width on regional roads, and 5-meter lane widths will be used on intersecting streets as per the Region's guidelines.

Could you please provide any comments you may have for the listed ToR and the following information for inclusion in the study:

7) Most recent traffic counts for the intersections of the study.
   Growth rate applicable to intersections of study to reflect 2026 conditions. To obtain most recent counts and confirm growth rates please contact Tyler Xuereb, Transportation Planning Analyst (tyler.xuereb@mississauga.ca, Ext. 4783)

8) We kindly request to obtain the current signal timings of the existing intersection(s) of study for analysis. The signal timing plan for signalized intersections can be obtained from Jim Kartsomanis (Jim.Kartsomanis@mississauga.ca, Ext. 3964).

- Any additional background developments and associated traffic impact studies to be included in the analysis. Please update to include 1345 Lakeshore Road East (HOZ 20/6 W1)

9) Details of any planned roadway or transit improvement plans in the study area within the horizon years. Please refer to LAKESHORE CONNECTING COMMUNITIES at http://www.mississauga.ca/portal/residents/lakeshore-connecting-communities and Miway website for the planned roadway and transit improvements.

10) A comprehensive Transportation Demand Management Plan is to be part of the report. Provide a TDM plan to demonstrate measures to be implemented to reduce single occupancy vehicle (SOV) trips to the site in support of the city's vision of Lakeshore Road corridor.

11) Please include all applicable Synchro reports in the Appendix.
12) The TIS should have a section addressing resident's complaints raised during public consultations if any.

I hope the above is acceptable. Should you have any questions or concerns, please feel free to contact me.

Regards,
Kavleen

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Monday, June 21, 2021 8:38 AM
To: Kavleen Sachdeva
Subject: RE: TMC and Growth Rates (CFCA 2109-6004)

Good Morning Kavleen,

Using the City's Travel Demand Model and supporting traffic count data, the City's Transportation Planning section has determined the projected growth along Lakeshore Road to be used as part of your study. The recommended projected growth is shown below.

Lakeshore Road

	Compounded Annual Growth from Existing to 2026	
	EB	WB
AM Peak Hour	1.5%	0.0%
PM Peak Hour	1.5%	1.0%

Regards,

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

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

From: Kavleen Sachdeva <ksachdeva@cfcrozier.ca>
Sent: Wednesday, June 16, 2021 2:29 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Subject: RE: TMC and Growth Rates (CFCA 2109-6004)

Thank you Tyler!

Regards,
Kavleen

Kavleen Sachdeva, P.Eng. | Project Engineer
2800 High Point Drive, Suite 100 | Milton, ON L9T 6P4
T: 905.875.0026

Crozier Connections:

Read our latest news and announcements here.

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: Wednesday, June 16, 2021 1:39 PM
To: Kavleen Sachdeva <ksachdeva@cfcrozier.ca>
Subject: RE: TMC and Growth Rates (CFCA 2109-6004)

Hello Kavleen,

Hope you are doing well.

Below are the counts that we have available.

- Lakeshore Road East and Dixie Road (Signalized) – Regional Road…Contact Region
- Lakeshore Road East and Fergus Road (Stop Controlled) - 2009
- Fergus Ave St. and James Ave (Stop Controlled) – No count
- St. James Ave and Dixie Rd (Stop Controlled) – Regional Road…Contact Region

In regards to growth rates to grow counts to 2021 volumes, you can contact whoever reviewed your submission and provided comments to you. I will work on the growth rates for your future horizon year.

Regards,

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

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

Please consider the environment before printing.

From: Kavleen Sachdeva <ksachdeva@cfcrozier.ca>
Sent: Wednesday, June 16, 2021 12:40 PM
To: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Subject: TMC and Growth Rates (CFCA 2109-6004)

Hello Tyler,

C.F. Crozier and Associates (Crozier) was retained for a Traffic Impact Study (TIS) to support the development applications for the site located at 1303 Lakeshore Road East, in the City of Mississauga. As part of the TIS, we have been asked to review the below intersections:

- Lakeshore Road East and Dixie Road (Signalized)
- Lakeshore Road East and Fergus Road (Stop Controlled)
- Fergus Ave St. and James Ave (Stop Controlled)
- St. James Ave and Dixie Rd (Stop Controlled)

Could you please let us know if the City has turning moving counts available (and what year) for the above intersections?

Additionally, if you could provide us with a growth rate to grow volumes to 2021 (if historical counts are available) and 2026, that would be very helpful. Thank you.

Regards,
Kavleen

Kavleen Sachdeva, P.Eng. | Project Engineer
2800 High Point Drive, Suite 100 | Milton, ON L9T 6P4
T: 905.875.0026

CROZIER
CONSULTING ENGINEERS

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APPENDIX B

Traffic Data

Spectrum

Turning Movement Count
Location Name: DIXIE RD & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

Turning Movement Count (5 . DIXIE RD & LAKESHORE RD E) CustID: 00400000 MioID: 501040

Start Time	N Approach DIXIE RD						E Approach LAKESHORE RD E						S Approach DIXIE RD						W Approach LAKESHORE RD E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	42	0	13	0	1	55	20	74	0	0	0	94	0	0	0	0	1	0	2	121	48	0	1	171	320	
07:15:00	32	1	23	0	3	56	29	83	0	0	0	112	0	0	0	0	0	0	0	177	79	0	0	256	424	
07:30:00	25	0	42	0	2	67	36	91	0	0	0	127	0	0	0	0	2	0	0	175	73	0	0	248	442	
07:45:00	31	0	41	0	4	72	52	132	0	0	0	184	0	0	0	0	1	0	1	237	94	0	1	332	588	1774
08:00:00	54	0	36	0	2	90	48	112	0	0	1	160	0	0	0	0	0	0	0	176	116	0	0	292	542	1996
08:15:00	48	0	25	0	3	73	45	149	0	0	0	194	0	0	0	0	0	0	0	186	93	0	0	279	546	2118
08:30:00	48	0	31	0	1	79	38	112	0	0	0	150	0	0	0	0	1	0	0	158	93	0	0	251	480	2156
08:45:00	42	0	21	0	2	63	32	106	1	0	0	139	0	0	1	0	0	1	0	170	84	0	1	254	457	2025
BREAK																										
16:00:00	56	0	45	0	1	101	43	212	0	0	0	255	0	0	0	0	1	0	0	114	80	0	3	194	550	
16:15:00	41	0	40	0	5	81	49	254	1	0	0	304	1	0	0	0	0	1	0	87	43	1	0	131	517	
16:30:00	55	0	40	0	5	95	60	276	1	0	0	337	2	0	0	0	1	2	1	92	51	0	1	144	578	
16:45:00	79	0	48	0	1	127	57	254	0	0	0	311	1	0	0	0	0	1	1	131	62	0	0	194	633	2278
17:00:00	71	0	40	0	2	111	59	272	0	0	0	331	0	0	0	0	0	0	0	118	55	0	1	173	615	2343
17:15:00	59	0	59	0	2	118	45	266	0	0	1	311	0	0	0	0	3	0	0	118	50	0	1	168	597	2423
17:30:00	65	0	45	0	4	110	58	272	0	0	0	330	0	0	0	0	1	0	0	107	50	0	1	157	597	2442
17:45:00	64	0	41	0	2	105	46	175	0	0	0	221	0	0	0	0	0	0	0	105	52	0	1	157	483	2292
Grand Total	812	1	590	0	40	1403	717	2840	3	0	2	3560	4	0	1	0	11	5	5	2272	1123	1	11	3401	**8369**	-
Approach%	57.9%	0.1%	42.1%	0%		-	20.1%	79.8%	0.1%	0%		-	80%	0%	20%	0%		-	0.1%	66.8%	33%	0%		-	**-**	-
Totals %	9.7%	0%	7%	0%		16.8%	8.6%	33.9%	0%	0%		42.5%	0%	0%	0%	0%		0.1%	0.1%	27.1%	13.4%	0%		40.6%	**-**	-
Heavy	42	0	5	0		-	16	95	0	0		-	0	0	0	0		-	0	100	26	0		-	**-**	-
Heavy %	5.2%	0%	0.8%	0%		-	2.2%	3.3%	0%	0%		-	0%	0%	0%	0%		-	0%	4.4%	2.3%	0%		-	**-**	-
Bicycles	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	0	1	0	0		-	**-**	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	**-**	-

Spectrum

Turning Movement Count
Location Name: DIXIE RD & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast (-3.4 °C)

Start Time	N Approach DIXIE RD						E Approach LAKESHORE RD E						S Approach DIXIE RD						W Approach LAKESHORE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	31	0	41	0	4	72	52	132	0	0	0	184	0	0	0	0	1	0	1	237	94	0	1	332	588
08:00:00	54	0	36	0	2	90	48	112	0	0	1	160	0	0	0	0	0	0	0	176	116	0	0	292	542
08:15:00	48	0	25	0	3	73	45	149	0	0	0	194	0	0	0	0	0	0	0	186	93	0	0	279	546
08:30:00	48	0	31	0	1	79	38	112	0	0	0	150	0	0	0	0	1	0	0	158	93	0	0	251	480
Grand Total	181	0	133	0	10	314	183	505	0	0	1	688	0	0	0	0	2	0	1	757	396	0	1	1154	**2156**
Approach%	57.6%	0%	42.4%	0%		-	26.6%	73.4%	0%	0%		-	0%	0%	0%	0%		-	0.1%	65.6%	34.3%	0%		-	**-**
Totals %	8.4%	0%	6.2%	0%		14.6%	8.5%	23.4%	0%	0%		31.9%	0%	0%	0%	0%		0%	0%	35.1%	18.4%	0%		53.5%	**-**
PHF	0.84	0	0.81	0		0.87	0.88	0.85	0	0		0.89	0	0	0	0		0	0.25	0.8	0.85	0		0.87	**-**
Heavy	22	0	0	0		22	6	35	0	0		41	0	0	0	0		0	0	34	13	0		47	**-**
Heavy %	12.2%	0%	0%	0%		7%	3.3%	6.9%	0%	0%		6%	0%	0%	0%	0%		0%	0%	4.5%	3.3%	0%		4.1%	**-**
Lights	159	0	133	0		292	177	470	0	0		647	0	0	0	0		0	1	723	383	0		1107	**-**
Lights %	87.8%	0%	100%	0%		93%	96.7%	93.1%	0%	0%		94%	0%	0%	0%	0%		0%	100%	95.5%	96.7%	0%		95.9%	**-**
Single-Unit Trucks	18	0	0	0		18	1	20	0	0		21	0	0	0	0		0	0	19	9	0		28	**-**
Single-Unit Trucks %	9.9%	0%	0%	0%		5.7%	0.5%	4%	0%	0%		3.1%	0%	0%	0%	0%		0%	0%	2.5%	2.3%	0%		2.4%	**-**
Buses	3	0	0	0		3	4	14	0	0		18	0	0	0	0		0	0	13	3	0		16	**-**
Buses %	1.7%	0%	0%	0%		1%	2.2%	2.8%	0%	0%		2.6%	0%	0%	0%	0%		0%	0%	1.7%	0.8%	0%		1.4%	**-**
Articulated Trucks	1	0	0	0		1	1	1	0	0		2	0	0	0	0		0	0	2	1	0		3	**-**
Articulated Trucks %	0.6%	0%	0%	0%		0.3%	0.5%	0.2%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.3%	0.3%	0%		0.3%	**-**
Pedestrians	-	-	-	-	10	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	71.4%		-	-	-	-	0%		-	-	-	-	7.1%		-	-	-	-	7.1%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	7.1%		-	-	-	-	7.1%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: DIXIE RD & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

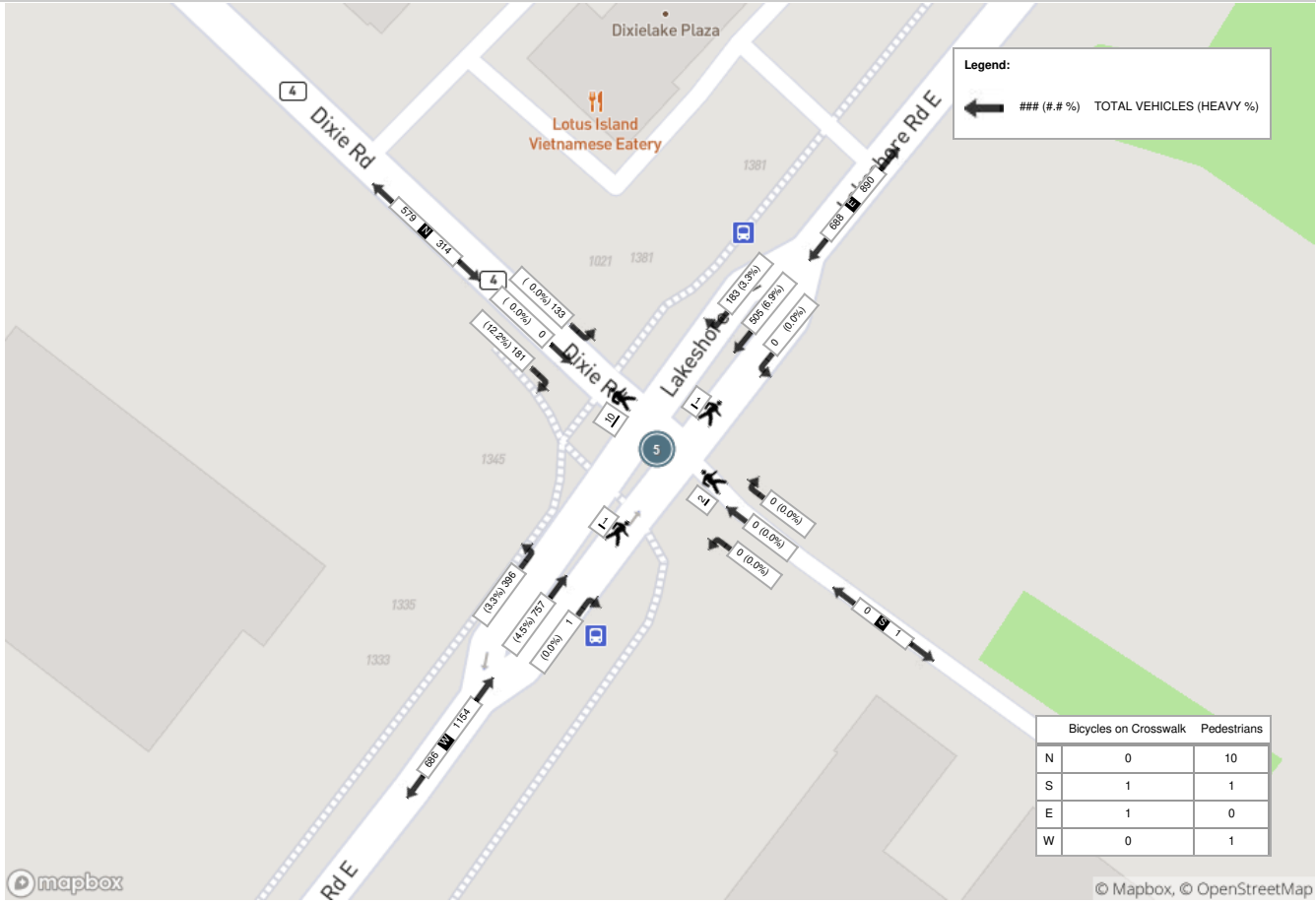
Peak Hour: 04:45 PM - 05:45 PM Weather: Snow (-0.4 °C)

Start Time	N Approach DIXIE RD						E Approach LAKESHORE RD E						S Approach DIXIE RD						W Approach LAKESHORE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	79	0	48	0	1	127	57	254	0	0	0	311	1	0	0	0	0	1	1	131	62	0	0	194	633
17:00:00	71	0	40	0	2	111	59	272	0	0	0	331	0	0	0	0	0	0	0	118	55	0	1	173	615
17:15:00	59	0	59	0	2	118	45	266	0	0	1	311	0	0	0	0	3	0	0	118	50	0	1	168	597
17:30:00	65	0	45	0	4	110	58	272	0	0	0	330	0	0	0	0	1	0	0	107	50	0	1	157	597
Grand Total	274	0	192	0	9	466	219	1064	0	0	1	1283	1	0	0	0	4	1	1	474	217	0	3	692	**2442**
Approach%	58.8%	0%	41.2%	0%		-	17.1%	82.9%	0%	0%		-	100%	0%	0%	0%		-	0.1%	68.5%	31.4%	0%		-	**-**
Totals %	11.2%	0%	7.9%	0%		19.1%	9%	43.6%	0%	0%		52.5%	0%	0%	0%	0%		0%	0%	19.4%	8.9%	0%		28.3%	**-**
PHF	0.87	0	0.81	0		0.92	0.93	0.98	0	0		0.97	0.25	0	0	0		0.25	0.25	0.9	0.88	0		0.89	**-**
Heavy	2	0	1	0		3	2	13	0	0		15	0	0	0	0		0	0	17	1	0		18	**-**
Heavy %	0.7%	0%	0.5%	0%		0.6%	0.9%	1.2%	0%	0%		1.2%	0%	0%	0%	0%		0%	0%	3.6%	0.5%	0%		2.6%	**-**
Lights	272	0	191	0		463	217	1051	0	0		1268	1	0	0	0		1	1	457	216	0		674	**-**
Lights %	99.3%	0%	99.5%	0%		99.4%	99.1%	98.8%	0%	0%		98.8%	100%	0%	0%	0%		100%	100%	96.4%	99.5%	0%		97.4%	**-**
Single-Unit Trucks	2	0	0	0		2	0	4	0	0		4	0	0	0	0		0	0	6	0	0		6	**-**
Single-Unit Trucks %	0.7%	0%	0%	0%		0.4%	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		0.9%	**-**
Buses	0	0	1	0		1	0	9	0	0		9	0	0	0	0		0	0	11	0	0		11	**-**
Buses %	0%	0%	0.5%	0%		0.2%	0%	0.8%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	2.3%	0%	0%		1.6%	**-**
Articulated Trucks	0	0	0	0		0	2	0	0	0		2	0	0	0	0		0	0	0	1	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0.9%	0%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0.5%	0%		0.1%	**-**
Pedestrians	-	-	-	-	8	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	3	-	**-**
Pedestrians%	-	-	-	-	47.1%		-	-	-	-	5.9%		-	-	-	-	11.8%		-	-	-	-	17.6%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	5.9%		-	-	-	-	0%		-	-	-	-	11.8%		-	-	-	-	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%		**-**

Spectrum

Turning Movement Count
Location Name: DIXIE RD & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

Peak Hour: 07:45 AM - 08:45 AM **Weather: Overcast (-3.4 °C)**

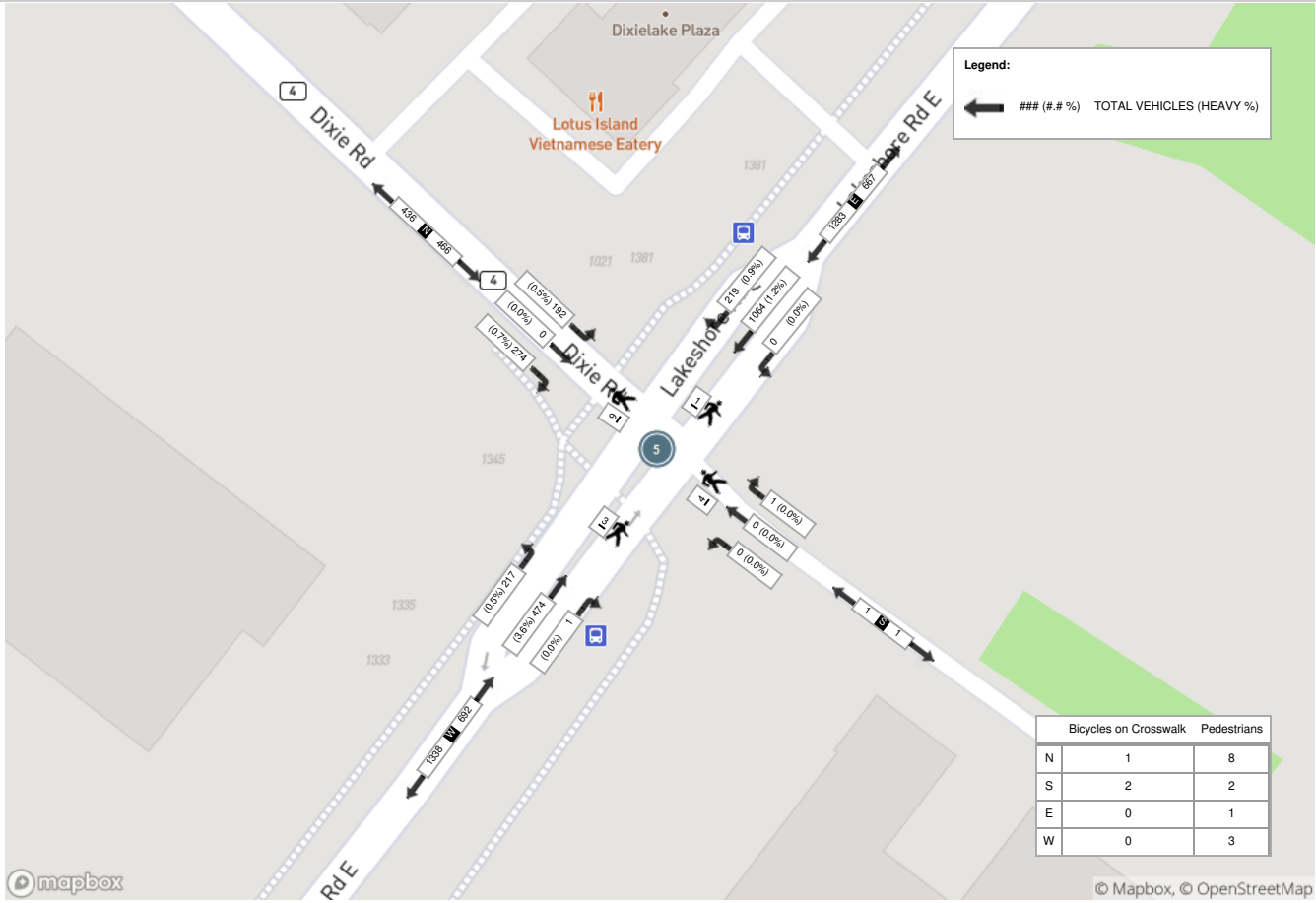


	Bicycles on Crosswalk	Pedestrians
N	0	10
S	1	1
E	1	0
W	0	1

Spectrum

Turning Movement Count
Location Name: DIXIE RD & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

Peak Hour: 04:45 PM - 05:45 PM **Weather: Snow (-0.4 °C)**



	Bicycles on Crosswalk	Pedestrians
N	1	8
S	2	2
E	0	1
W	0	3

Spectrum

Turning Movement Count
Location Name: FERGUS AVE & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

Turning Movement Count (4 . FERGUS AVE & LAKESHORE RD E)

Start Time	N Approach FERGUS AVE						E Approach LAKESHORE RD E						S Approach FERGUS AVE						W Approach LAKESHORE RD E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
07:00:00	7	0	2	0	0	9	3	101	6	0	0	110	0	0	3	0	0	3	4	177	2	0	0	183	305	
07:15:00	3	0	3	0	2	6	0	114	6	0	0	120	1	0	2	0	0	3	5	243	3	0	0	251	380	
07:30:00	9	0	2	0	2	11	1	109	3	0	0	113	1	0	2	0	0	3	13	264	2	0	0	279	406	
07:45:00	12	0	0	0	3	12	1	140	12	0	0	153	4	0	3	0	0	7	9	314	4	0	0	327	499	1590
08:00:00	17	0	2	0	2	19	1	146	14	0	0	161	3	0	3	0	0	6	9	288	3	0	0	300	486	1771
08:15:00	10	0	3	0	0	13	1	197	9	0	0	207	5	0	6	0	0	11	7	280	4	0	1	291	522	1913
08:30:00	12	0	1	0	1	13	4	150	11	0	0	165	5	0	7	0	0	12	5	248	6	0	0	259	449	1956
08:45:00	19	0	4	0	0	23	1	136	8	0	0	145	8	0	8	0	1	16	10	241	5	0	0	256	440	1897
BREAK																										
16:00:00	3	0	0	0	1	3	3	264	0	0	1	267	9	0	9	0	0	18	6	182	11	0	1	199	487	
16:15:00	1	0	0	0	4	1	6	298	4	0	0	308	9	0	5	0	0	14	2	129	5	0	0	136	459	
16:30:00	11	0	2	0	3	13	6	310	0	0	0	316	10	0	6	0	0	16	2	132	11	0	0	145	490	
16:45:00	6	0	1	0	1	7	2	321	0	1	0	324	8	0	1	0	0	9	4	176	4	0	1	184	524	1960
17:00:00	10	0	3	0	0	13	4	353	1	0	0	358	4	0	8	0	0	12	0	165	9	0	0	174	557	2030
17:15:00	10	0	3	0	3	13	4	314	1	0	0	319	4	0	3	0	0	7	1	164	6	0	1	171	510	2081
17:30:00	6	0	1	0	2	7	4	328	1	0	0	333	0	0	2	0	0	2	2	161	7	0	0	170	512	2103
17:45:00	8	0	3	0	3	11	3	252	1	0	0	256	1	0	2	0	0	3	0	148	6	0	0	154	424	2003
Grand Total	144	0	30	0	27	174	44	3533	77	1	1	3655	72	0	70	0	1	142	79	3312	88	0	4	3479	**7450**	-
Approach%	82.8%	0%	17.2%	0%		-	1.2%	96.7%	2.1%	0%		-	50.7%	0%	49.3%	0%		-	2.3%	95.2%	2.5%	0%		-	-	-
Totals %	1.9%	0%	0.4%	0%		2.3%	0.6%	47.4%	1%	0%		49.1%	1%	0%	0.9%	0%		1.9%	1.1%	44.5%	1.2%	0%		46.7%	-	-
Heavy	8	0	0	0		-	1	103	31	0		-	27	0	26	0		-	28	100	3	0		-	-	-
Heavy %	5.6%	0%	0%	0%		-	2.3%	2.9%	40.3%	0%		-	37.5%	0%	37.1%	0%		-	35.4%	3%	3.4%	0%		-	-	-
Bicycles	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	0	1	0	0		-	-	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	-	-

Spectrum

Turning Movement Count
Location Name: FERGUS AVE & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast (-3.4 °C)

Start Time	N Approach FERGUS AVE						E Approach LAKESHORE RD E						S Approach FERGUS AVE						W Approach LAKESHORE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	12	0	0	0	3	12	1	140	12	0	0	153	4	0	3	0	0	7	9	314	4	0	0	327	499
08:00:00	17	0	2	0	2	19	1	146	14	0	0	161	3	0	3	0	0	6	9	288	3	0	0	300	486
08:15:00	10	0	3	0	0	13	1	197	9	0	0	207	5	0	6	0	0	11	7	280	4	0	1	291	522
08:30:00	12	0	1	0	1	13	4	150	11	0	0	165	5	0	7	0	0	12	5	248	6	0	0	259	449
Grand Total	51	0	6	0	6	57	7	633	46	0	0	686	17	0	19	0	0	36	30	1130	17	0	1	1177	**1956**
Approach%	89.5%	0%	10.5%	0%		-	1%	92.3%	6.7%	0%		-	47.2%	0%	52.8%	0%		-	2.5%	96%	1.4%	0%		-	**-**
Totals %	2.6%	0%	0.3%	0%		2.9%	0.4%	32.4%	2.4%	0%		35.1%	0.9%	0%	1%	0%		1.8%	1.5%	57.8%	0.9%	0%		60.2%	**-**
PHF	0.75	0	0.5	0		0.75	0.44	0.8	0.82	0		0.83	0.85	0	0.68	0		0.75	0.83	0.9	0.71	0		0.9	**-**
Heavy	5	0	0	0		5	0	37	20	0		57	11	0	13	0		24	14	36	1	0		51	**-**
Heavy %	9.8%	0%	0%	0%		8.8%	0%	5.8%	43.5%	0%		8.3%	64.7%	0%	68.4%	0%		66.7%	46.7%	3.2%	5.9%	0%		4.3%	**-**
Lights	46	0	6	0		52	7	596	26	0		629	6	0	6	0		12	16	1094	16	0		1126	**-**
Lights %	90.2%	0%	100%	0%		91.2%	100%	94.2%	56.5%	0%		91.7%	35.3%	0%	31.6%	0%		33.3%	53.3%	96.8%	94.1%	0%		95.7%	**-**
Single-Unit Trucks	1	0	0	0		1	0	20	20	0		40	11	0	13	0		24	12	17	0	0		29	**-**
Single-Unit Trucks %	2%	0%	0%	0%		1.8%	0%	3.2%	43.5%	0%		5.8%	64.7%	0%	68.4%	0%		66.7%	40%	1.5%	0%	0%		2.5%	**-**
Buses	4	0	0	0		4	0	16	0	0		16	0	0	0	0		0	0	15	1	0		16	**-**
Buses %	7.8%	0%	0%	0%		7%	0%	2.5%	0%	0%		2.3%	0%	0%	0%	0%		0%	0%	1.3%	5.9%	0%		1.4%	**-**
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	2	4	0	0		6	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.1%	0%	0%	0%	0%		0%	6.7%	0.4%	0%	0%		0.5%	**-**
Pedestrians	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	85.7%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	14.3%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: FERGUS AVE & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

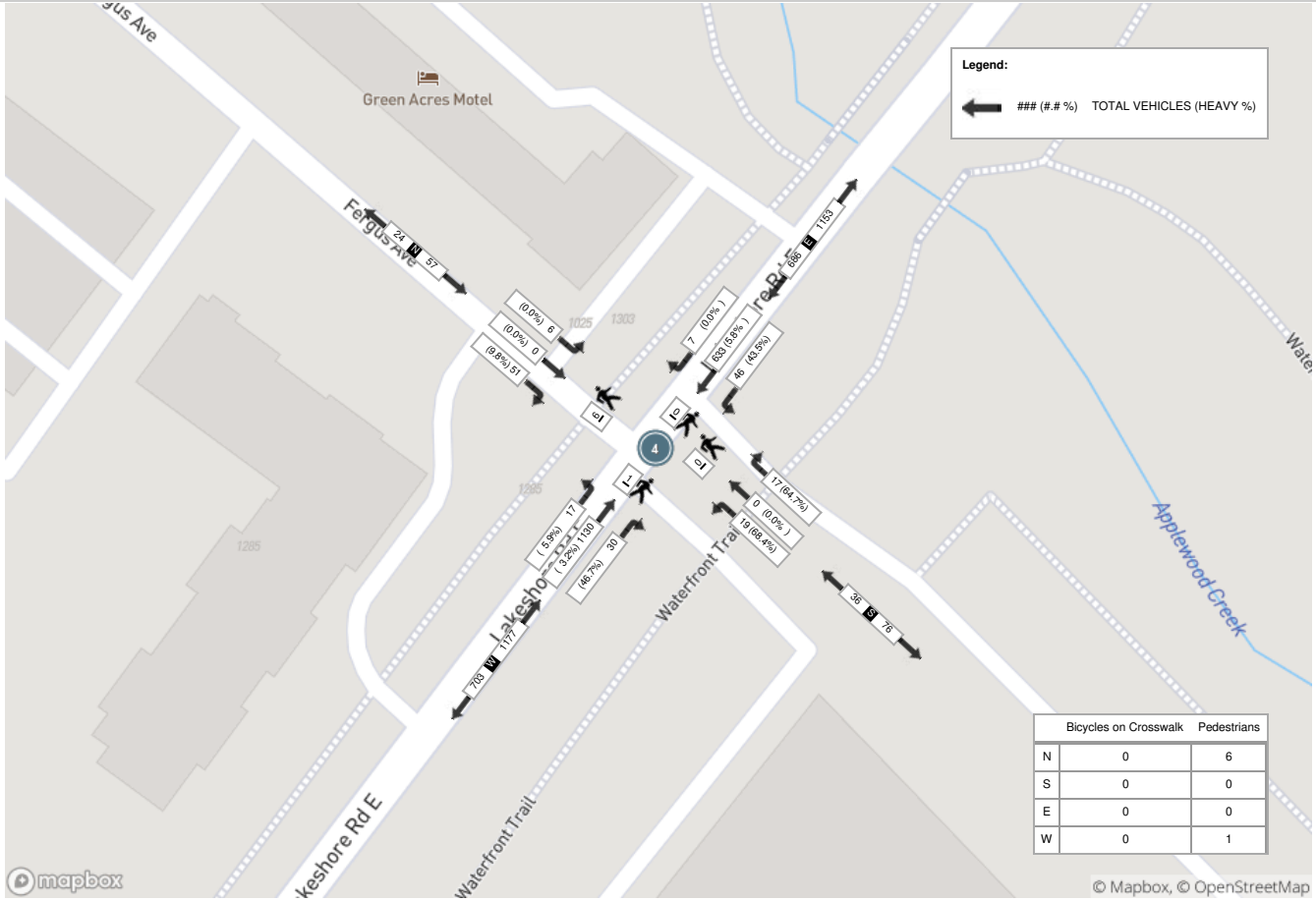
Peak Hour: 04:45 PM - 05:45 PM Weather: Snow (-0.4 °C)

Start Time	N Approach FERGUS AVE						E Approach LAKESHORE RD E						S Approach FERGUS AVE						W Approach LAKESHORE RD E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:45:00	6	0	1	0	1	7	2	321	0	1	0	324	8	0	1	0	0	9	4	176	4	0	1	184	524
17:00:00	10	0	3	0	0	13	4	353	1	0	0	358	4	0	8	0	0	12	0	165	9	0	0	174	557
17:15:00	10	0	3	0	3	13	4	314	1	0	0	319	4	0	3	0	0	7	1	164	6	0	1	171	510
17:30:00	6	0	1	0	2	7	4	328	1	0	0	333	0	0	2	0	0	2	2	161	7	0	0	170	512
Grand Total	32	0	8	0	6	40	14	1316	3	1	0	1334	16	0	14	0	0	30	7	666	26	0	2	699	**2103**
Approach%	80%	0%	20%	0%		-	1%	98.7%	0.2%	0.1%		-	53.3%	0%	46.7%	0%		-	1%	95.3%	3.7%	0%		-	**-**
Totals %	1.5%	0%	0.4%	0%		1.9%	0.7%	62.6%	0.1%	0%		63.4%	0.8%	0%	0.7%	0%		1.4%	0.3%	31.7%	1.2%	0%		33.2%	**-**
PHF	0.8	0	0.67	0		0.77	0.88	0.93	0.75	0.25		0.93	0.5	0	0.44	0		0.63	0.44	0.95	0.72	0		0.95	**-**
Heavy	0	0	0	0		0	0	14	0	0		14	0	0	0	0		0	0	18	1	0		19	**-**
Heavy %	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1%	0%	0%	0%	0%		0%	0%	2.7%	3.8%	0%		2.7%	**-**
Lights	32	0	8	0		40	14	1302	3	1		1320	16	0	14	0		30	7	648	25	0		680	**-**
Lights %	100%	0%	100%	0%		100%	100%	98.9%	100%	100%		99%	100%	0%	100%	0%		100%	100%	97.3%	96.2%	0%		97.3%	**-**
Single-Unit Trucks	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	0	6	1	0		7	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.9%	3.8%	0%		1%	**-**
Buses	0	0	0	0		0	0	9	0	0		9	0	0	0	0		0	0	11	0	0		11	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	1.7%	0%	0%		1.6%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.1%	**-**
Pedestrians	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	75%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	25%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	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%		**-**

Spectrum

Turning Movement Count
Location Name: FERGUS AVE & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

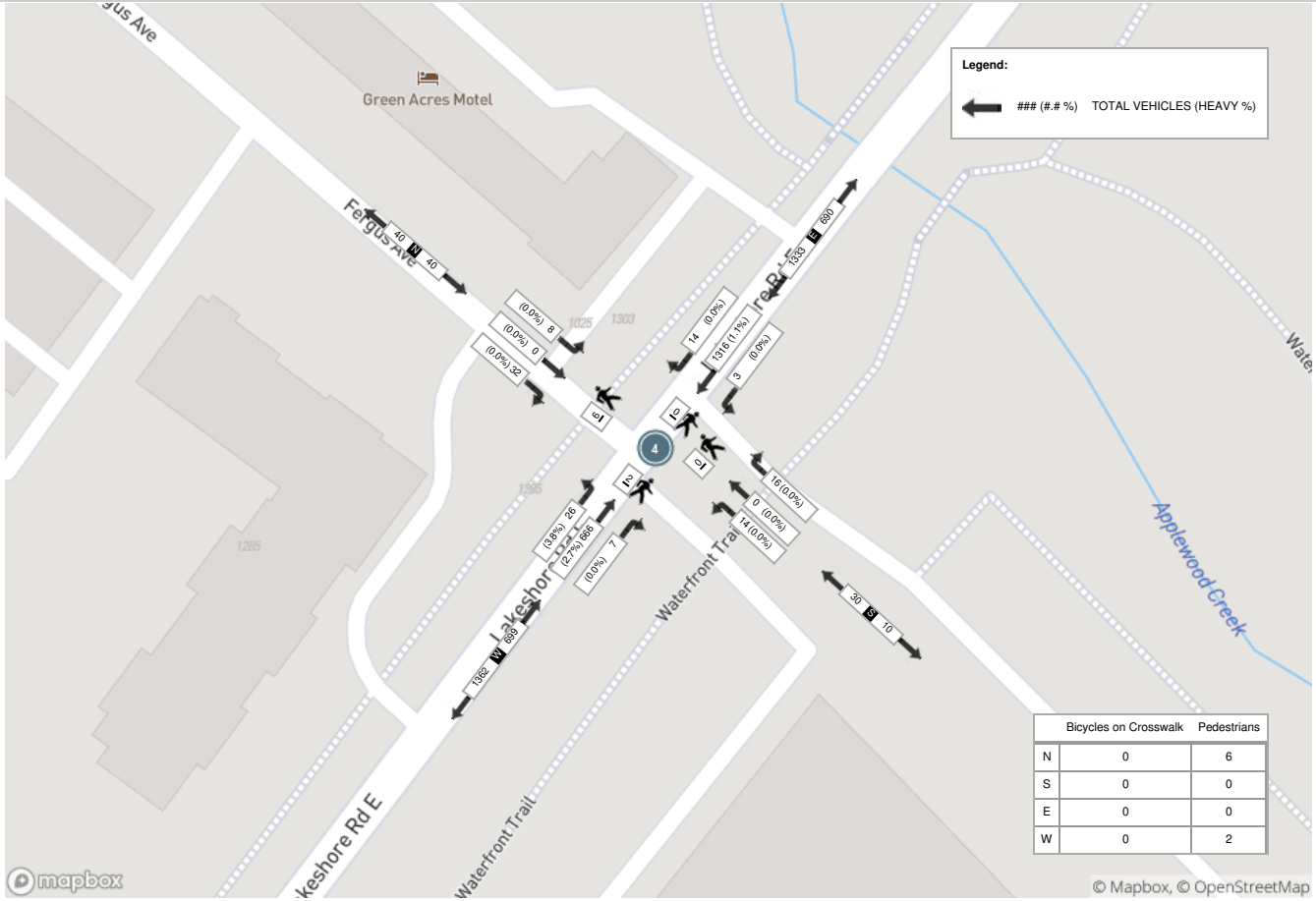
Peak Hour: 07:45 AM - 08:45 AM **Weather: Overcast (-3.4 °C)**



Spectrum

Turning Movement Count
Location Name: FERGUS AVE & LAKESHORE RD E
Date: Thu, Mar 08, 2018 Deployment Lead: Theo Daglis

Peak Hour: 04:45 PM - 05:45 PM **Weather: Snow (-0.4 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	6
S	0	0
E	0	0
W	0	2

	N Approach DIXIE RD						S Approach DIXIE RD			
START TIME	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left	Thru	U-Turn	Peds CCW
07:00:00	53	6	0	0	0	59	0	69	0	0
07:15:00	59	1	0	0	0	60	0	109	0	0
07:30:00	56	3	0	0	0	59	0	105	0	0
07:45:00	69	4	0	0	0	73	0	141	0	0
08:00:00	87	5	0	0	0	92	2	166	0	0
08:15:00	78	2	0	0	0	80	0	137	0	0
08:30:00	79	6	0	0	0	85	2	128	1	0
08:45:00	59	6	0	0	0	65	1	120	0	0
16:00:00	99	9	0	0	0	108	2	122	0	0
16:15:00	81	6	0	0	0	87	1	91	0	0
16:30:00	105	10	0	0	0	115	0	110	0	0
16:45:00	120	9	0	0	0	129	1	122	0	0
17:00:00	111	14	0	0	0	125	0	113	0	0
17:15:00	119	11	0	0	0	130	0	94	0	0
17:30:00	108	12	0	0	0	120	1	105	0	0
17:45:00	114	22	0	0	1	136	1	99	0	0
Grand Total	**1397**	**126**	**0**	**0**	**1**	**1523**	**11**	**1831**	**1**	**0**

		W Approach ST JAMES AVE					
Peds CW	**Approach Total**	**Left**	**Right**	**U-Turn**	**Peds CCW**	**Peds CW**	**Approach Total**
0	69	9	0	0	0	0	9
0	109	15	0	0	0	0	15
0	105	13	2	0	0	0	15
0	141	13	4	0	0	0	17
0	168	12	0	0	0	0	12
0	137	15	0	0	0	0	15
0	131	10	1	0	0	0	11
0	121	11	1	0	0	0	12
0	124	7	1	0	0	0	8
0	92	4	1	0	1	0	5
0	110	8	0	0	0	0	8
0	123	4	2	0	0	0	6
0	113	5	1	0	0	0	6
0	94	10	1	0	0	0	11
0	106	5	0	0	1	0	5
0	100	8	0	0	0	0	8
0	**1843**	**149**	**14**	**0**	**2**	**0**	**163**

	N Approach DIXIE RD							
START TIME	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left	Thru
07:45:00	69	4	0	0	0	73	0	141
08:00:00	87	5	0	0	0	92	2	166
08:15:00	78	2	0	0	0	80	0	137
08:30:00	79	6	0	0	0	85	2	128
Grand Total	313	17	0	0	0	330	4	572
Approach%	94.8%	5.2%	0.0%	-	-	-	0.7%	99.1%
Totals%	32.5%	1.8%	0.0%	-	-	34.3%	0.4%	59.5%
PHF	0.9	0.71	0	-	-	0.9	0.5	0.86
Heavy	24	0	0	-	-	24	3	15
Heavy%	7.7%	0.0%	0.0%	-	-	7.3%	75.0%	2.6%
Lights	289	17	0	-	-	306	1	557
Lights%	92.3%	100.0%	-	-	-	92.7%	25.0%	97.4%
Single-Unit Trucks	19	0	0	-	-	19	0	7
Single-Unit Trucks%	6.1%	0.0%	-	-	-	5.8%	0.0%	1.2%
Buses	4	0	0	-	-	4	3	3
Buses%	1.3%	0.0%	-	-	-	1.2%	75.0%	0.5%
Articulated Trucks	1	0	0	-	-	1	0	5
Articulated Trucks%	0.3%	0.0%	-	-	-	0.3%	0.0%	0.9%
Pedestrians	-	-	-	0	0	-	-	-
Pedestrians%	-	-	-			-	-	-

S Approach DIXIE RD				W Approach ST JAMES AVE						
U-Turn	Peds CCW	Peds CW	Approach Total	Left	Right	U-Turn	Peds CCW	Peds CW	Approach Total	
0	0	0	141	13	4	0	0	0	17	231
0	0	0	168	12	0	0	0	0	12	272
0	0	0	137	15	0	0	0	0	15	232
1	0	0	131	10	1	0	0	0	11	227
1	0	0	577	50	5	0	0	0	55	962
0.2%	-	-	-	90.9%	9.1%	0.0%	-	-	-	-
0.1%	-	-	60.0%	5.2%	0.5%	0.0%	-	-	5.7%	-
0.25	-	-	0.86	0.83	0.31	0	-	-	0.81	0.88
0	-	-	18	1	0	0	-	-	1	43
0.0%	-	-	3.1%	2.0%	0.0%	0.0%	-	-	1.8%	4.5%
1	-	-	559	49	5	0	-	-	54	919
100.0%	-	-	96.9%	98.0%	100.0%	-	-	-	98.2%	95.5%
0	-	-	7	0	0	0	-	-	0	26
0.0%	-	-	1.2%	0.0%	0.0%	-	-	-	0.0%	2.7%
0	-	-	6	1	0	0	-	-	1	11
0.0%	-	-	1.0%	2.0%	0.0%	-	-	-	1.8%	1.1%
0	-	-	5	0	0	0	-	-	0	6
0.0%	-	-	0.9%	0.0%	0.0%	-	-	-	0.0%	0.6%
-	0	0	-	-	-	-	0	0	-	-
-			-	-	-	-			-	-

	N Approach DIXIE RD							
START TIME	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left	Thru
16:30:00	105	10	0	0	0	115	0	110
16:45:00	120	9	0	0	0	129	1	122
17:00:00	111	14	0	0	0	125	0	113
17:15:00	119	11	0	0	0	130	0	94
Grand Total	455	44	0	0	0	499	1	439
Approach%	91.2%	8.8%	0.0%	-	-	-	0.2%	99.8%
Totals%	46.9%	4.5%	0.0%	-	-	51.4%	0.1%	45.3%
PHF	0.95	0.79	0	-	-	0.96	0.25	0.9
Heavy	3	0	0	-	-	3	0	7
Heavy%	0.7%	0.0%	0.0%	-	-	0.6%	0.0%	1.6%
Lights	452	44	0	-	-	496	1	432
Lights%	99.3%	100.0%	-	-	-	99.4%	100.0%	98.4%
Single-Unit Trucks	2	0	0	-	-	2	0	3
Single-Unit Trucks%	0.4%	0.0%	-	-	-	0.4%	0.0%	0.7%
Buses	1	0	0	-	-	1	0	1
Buses%	0.2%	0.0%	-	-	-	0.2%	0.0%	0.2%
Articulated Trucks	0	0	0	-	-	0	0	3
Articulated Trucks%	0.0%	0.0%	-	-	-	0.0%	0.0%	0.7%
Pedestrians	-	-	-	0	0	-	-	-
Pedestrians%	-	-	-			-	-	-

S Approach DIXIE RD				W Approach ST JAMES AVE						
U-Turn	Peds CCW	Peds CW	Approach Total	Left	Right	U-Turn	Peds CCW	Peds CW	Approach Total	
0	0	0	110	8	0	0	0	0	8	233
0	0	0	123	4	2	0	0	0	6	258
0	0	0	113	5	1	0	0	0	6	244
0	0	0	94	10	1	0	0	0	11	235
0	0	0	440	27	4	0	0	0	31	970
0.0%	-	-	-	87.1%	12.9%	0.0%	-	-	-	-
0.0%	-	-	45.4%	2.8%	0.4%	0.0%	-	-	3.2%	-
0	-	-	0.89	0.68	0.5	0	-	-	0.7	0.94
0	-	-	7	0	0	0	-	-	0	10
0.0%	-	-	1.6%	0.0%	0.0%	0.0%	-	-	0.0%	1.0%
0	-	-	433	27	4	0	-	-	31	960
-	-	-	98.4%	100.0%	100.0%	-	-	-	100.0%	99.0%
0	-	-	3	0	0	0	-	-	0	5
-	-	-	0.7%	0.0%	0.0%	-	-	-	0.0%	0.5%
0	-	-	1	0	0	0	-	-	0	2
-	-	-	0.2%	0.0%	0.0%	-	-	-	0.0%	0.2%
0	-	-	3	0	0	0	-	-	0	3
-	-	-	0.7%	0.0%	0.0%	-	-	-	0.0%	0.3%
-	0	0	-	-	-	-	0	0	-	-
-			-	-	-	-			-	-

	N Approach FERGUS AVE									
START TIME	**Left**	**Thru**	**Right**	**U-Turn**	**Peds CCW**	**Peds CW**	**Approach Total**	**Left**	**Thru**	**Right**
07:00:00	0	0	0	0	0	0	0	4	0	1
07:15:00	1	2	0	0	0	0	3	3	0	0
07:30:00	3	2	0	0	0	0	5	1	1	1
07:45:00	0	1	0	0	0	0	1	2	1	2
08:00:00	0	0	0	0	0	0	0	5	0	3
08:15:00	1	3	0	0	0	0	4	1	1	0
08:30:00	1	2	0	0	0	0	3	6	1	0
08:45:00	1	4	0	0	0	0	5	5	0	2
16:00:00	1	0	0	0	0	0	1	10	0	1
16:15:00	0	0	0	0	0	0	0	5	0	2
16:30:00	1	5	0	0	0	0	6	10	0	0
16:45:00	0	3	0	0	0	0	3	7	2	1
17:00:00	1	2	0	0	1	0	3	12	0	1
17:15:00	0	1	0	0	0	0	1	11	1	0
17:30:00	1	1	0	0	0	0	2	9	0	1
17:45:00	0	2	0	0	0	0	2	22	0	2
Grand Total	**11**	**28**	**0**	**0**	**1**	**0**	**39**	**113**	**7**	**17**

E Approach ST JAMES AVE				S Approach FERGUS AVE							
U-Turn	Peds CCW	Peds CW	Approach Total	Left	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left
0	0	0	5	0	0	7	0	0	0	7	0
0	0	0	3	0	0	10	0	0	0	10	0
0	0	0	3	0	2	12	0	0	1	14	0
0	0	0	5	0	2	14	0	0	2	16	1
0	0	1	8	0	0	12	0	1	0	12	0
0	0	0	2	0	0	13	0	0	1	13	0
0	0	0	7	1	0	6	0	0	5	7	0
0	0	0	7	0	0	11	0	2	1	11	0
0	0	0	11	0	1	9	0	2	1	10	0
0	0	0	7	1	2	4	0	1	1	7	0
0	0	0	10	1	2	9	0	0	2	12	0
0	0	0	10	0	3	4	0	1	1	7	1
0	0	1	13	1	3	6	1	0	0	11	0
0	0	0	12	0	2	7	1	0	0	10	0
1	0	0	11	1	2	4	0	0	0	7	0
0	0	0	24	0	0	8	0	1	0	8	0
1	**0**	**2**	**138**	**5**	**19**	**136**	**2**	**8**	**15**	**162**	**2**

W Approach ST JAMES AVE					
Thru	**Right**	**U-Turn**	**Peds CCW**	**Peds CW**	**Approach Total**
2	0	0	1	1	2
1	0	0	0	0	1
0	3	0	0	0	3
1	0	0	0	0	2
1	0	0	0	0	1
1	0	0	0	0	1
0	0	0	1	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	1	0
0	0	0	0	0	1
1	0	0	0	0	1
1	0	0	0	0	1
0	0	0	0	1	0
0	0	0	0	0	0
8	**3**	**0**	**2**	**3**	**13**

	N Approach FERGUS AVE							
START TIME	Left	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left
07:30:00	3	2	0	0	0	0	5	1
07:45:00	0	1	0	0	0	0	1	2
08:00:00	0	0	0	0	0	0	0	5
08:15:00	1	3	0	0	0	0	4	1
Grand Total	4	6	0	0	0	0	10	9
Approach%	40.0%	60.0%	0.0%	0.0%	-	-	-	52.9%
Totals%	4.5%	6.7%	0.0%	0.0%	-	-	11.2%	10.1%
PHF	0.33	0.5	0	0	-	-	0.5	0.45
Heavy	0	1	0	0	-	-	1	3
Heavy%	0.0%	16.7%	0.0%	0.0%	-	-	10.0%	33.3%
Lights	4	5	0	0	-	-	9	6
Lights%	100.0%	83.3%	-	-	-	-	90.0%	66.7%
Single-Unit Trucks	0	0	0	0	-	-	0	0
Single-Unit Trucks%	0.0%	0.0%	-	-	-	-	0.0%	0.0%
Buses	0	1	0	0	-	-	1	3
Buses%	0.0%	16.7%	-	-	-	-	10.0%	33.3%
Bicycles on Road	0	0	0	0	-	-	0	0
Bicycles on Road%	0.0%	0.0%	-	-	-	-	0.0%	0.0%
Pedestrians	-	-	-	-	0	0	-	-
Pedestrians%	-	-	-	-			-	-

E Approach ST JAMES AVE						S Approach FERGUS AVE				
Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left	Thru	Right	U-Turn	Peds CCW
1	0	0	0	0	2	0	2	12	0	0
1	2	0	0	0	5	0	2	14	0	0
0	3	0	0	1	8	0	0	12	0	1
1	0	0	0	0	2	0	0	13	0	0
3	5	0	0	1	17	0	4	51	0	1
17.6%	29.4%	0.0%	-	-	-	0.0%	7.3%	92.7%	0.0%	-
3.4%	5.6%	0.0%	-	-	19.1%	0.0%	4.5%	57.3%	0.0%	-
0.75	0.42	0	-	-	0.53	0	0.5	0.91	0	-
0	0	0	-	-	3	0	1	1	0	-
0.0%	0.0%	0.0%	-	-	17.6%	0.0%	25.0%	2.0%	0.0%	-
3	5	0	-	-	14	0	3	50	0	-
100.0%	100.0%	-	-	-	82.4%	-	75.0%	98.0%	-	-
0	0	0	-	-	0	0	0	0	0	-
0.0%	0.0%	-	-	-	0.0%	-	0.0%	0.0%	-	-
0	0	0	-	-	3	0	1	1	0	-
0.0%	0.0%	-	-	-	17.6%	-	25.0%	2.0%	-	-
0	1	0	-	-	1	0	0	0	0	-
0.0%	20.0%	-	-	-	5.9%	-	0.0%	0.0%	-	-
-	-	-	0	1	-	-	-	-	-	1
-	-	-		100.0%	-	-	-	-	-	100.0%

		W Approach ST JAMES AVE							
Peds CW	Approach Total	Left	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	
1	14	0	0	3	0	0	0	3	24
2	16	1	1	0	0	0	0	2	24
0	12	0	1	0	0	0	0	1	21
1	13	0	1	0	0	0	0	1	20
4	55	1	3	3	0	0	0	7	89
-	-	14.3%	42.9%	42.9%	0.0%	-	-	-	-
-	61.8%	1.1%	3.4%	3.4%	0.0%	-	-	7.9%	-
-	0.86	0.25	0.75	0.25	0	-	-	0.58	0.93
-	2	0	0	0	0	-	-	0	6
-	3.6%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	6.7%
-	53	1	3	3	0	-	-	7	83
-	96.4%	100.0%	100.0%	100.0%	-	-	-	100.0%	93.3%
-	0	0	0	0	0	-	-	0	0
-	0.0%	0.0%	0.0%	0.0%	-	-	-	0.0%	0.0%
-	2	0	0	0	0	-	-	0	6
-	3.6%	0.0%	0.0%	0.0%	-	-	-	0.0%	6.7%
-	0	0	0	0	0	-	-	0	1
-	0.0%	0.0%	0.0%	0.0%	-	-	-	0.0%	1.1%
4	-	-	-	-	-	0	0	-	-
100.0%	-	-	-	-	-			-	-

	N Approach FERGUS AVE							
START TIME	Left	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left
17:00:00	1	2	0	0	1	0	3	12
17:15:00	0	1	0	0	0	0	1	11
17:30:00	1	1	0	0	0	0	2	9
17:45:00	0	2	0	0	0	0	2	22
Grand Total	2	6	0	0	1	0	8	54
Approach%	25.0%	75.0%	0.0%	0.0%	-	-	-	90.0%
Totals%	1.9%	5.7%	0.0%	0.0%	-	-	7.5%	50.9%
PHF	0.5	0.75	0	0	-	-	0.67	0.61
Heavy	0	0	0	0	-	-	0	0
Heavy%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%
Lights	2	6	0	0	-	-	8	54
Lights%	100.0%	100.0%	-	-	-	-	100.0%	100.0%
Single-Unit Trucks	0	0	0	0	-	-	0	0
Single-Unit Trucks%	0.0%	0.0%	-	-	-	-	0.0%	0.0%
Buses	0	0	0	0	-	-	0	0
Buses%	0.0%	0.0%	-	-	-	-	0.0%	0.0%
Bicycles on Road	0	0	0	0	-	-	0	0
Bicycles on Road%	0.0%	0.0%	-	-	-	-	0.0%	0.0%
Pedestrians	-	-	-	-	1	0	-	-
Pedestrians%	-	-	-	-	100.0%		-	-

E Approach ST JAMES AVE						S Approach FERGUS AVE				
Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	Left	Thru	Right	U-Turn	Peds CCW
0	1	0	0	1	13	1	3	6	1	0
1	0	0	0	0	12	0	2	7	1	0
0	1	1	0	0	11	1	2	4	0	0
0	2	0	0	0	24	0	0	8	0	1
1	4	1	0	1	60	2	7	25	2	1
1.7%	6.7%	1.7%	-	-	-	5.6%	19.4%	69.4%	5.6%	-
0.9%	3.8%	0.9%	-	-	56.6%	1.9%	6.6%	23.6%	1.9%	-
0.25	0.5	0.25	-	-	0.63	0.5	0.58	0.78	0.5	-
0	0	0	-	-	0	0	1	0	0	-
0.0%	0.0%	0.0%	-	-	0.0%	0.0%	14.3%	0.0%	0.0%	-
1	4	1	-	-	60	2	6	25	2	-
100.0%	100.0%	100.0%	-	-	100.0%	100.0%	85.7%	100.0%	100.0%	-
0	0	0	-	-	0	0	1	0	0	-
0.0%	0.0%	0.0%	-	-	0.0%	0.0%	14.3%	0.0%	0.0%	-
0	0	0	-	-	0	0	0	0	0	-
0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	-
0	0	0	-	-	0	0	0	0	0	-
0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	-
-	-	-	0	1	-	-	-	-	-	1
-	-	-		100.0%	-	-	-	-	-	100.0%

		W Approach ST JAMES AVE							
Peds CW	Approach Total	Left	Thru	Right	U-Turn	Peds CCW	Peds CW	Approach Total	
0	11	0	1	0	0	0	0	1	28
0	10	0	1	0	0	0	0	1	24
0	7	0	0	0	0	0	1	0	20
0	8	0	0	0	0	0	0	0	34
0	36	0	2	0	0	0	1	2	106
-	-	0.0%	100.0%	0.0%	0.0%	-	-	-	-
-	34.0%	0.0%	1.9%	0.0%	0.0%	-	-	1.9%	-
-	0.82	0	0.5	0	0	-	-	0.5	0.78
-	1	0	0	0	0	-	-	0	1
-	2.8%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.9%
-	35	0	2	0	0	-	-	2	105
-	97.2%	-	100.0%	-	-	-	-	100.0%	99.1%
-	1	0	0	0	0	-	-	0	1
-	2.8%	-	0.0%	-	-	-	-	0.0%	0.9%
-	0	0	0	0	0	-	-	0	0
-	0.0%	-	0.0%	-	-	-	-	0.0%	0.0%
-	0	0	0	0	0	-	-	0	0
-	0.0%	-	0.0%	-	-	-	-	0.0%	0.0%
0	-	-	-	-	-	0	1	-	-
	-	-	-	-	-		100.0%	-	-

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**January 7, 2021**		**Prepared Date**	**June 17, 2021**
Database Rev	**iNet**		**Completed By**	**MA**
Timing Card / Field rev	**-**		**Checked By**	**BL**

Location — **Dixie Road @ Lakeshore Road East**

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	Not In Use	-	-	-	-	-	-	-	-
2	Lakeshore Road East - EB	8	10	15	4.0	2.3	85	65	85
3	Not In Use	-	-	-	-	-	-	-	-
4	Dixie Road - NB	8	0	0	4.0	2.3	35	35	35
5	Lakeshore Road East	5	0	0	3.0	0.0	24	20	19
6	Lakeshore Road East	8	10	15	4.0	2.3	61	45	66
7	Not In Use	-	-	-	-	-	-	-	-
8	Dixie Road - SB	8	9	14	4.0	2.3	35	35	35

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
06:00 - 09:30	AM	120	83
09:30 - 15:00 19:30 - 00:00	OFF	100	58
15:00 - 19:30	PM	120	83

APPENDIX C

Level of Service Definitions

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

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

APPENDIX D

Transportation Tomorrow Survey Calculations

Fri May 21 2021 11:21:39 GMT-0400 (Eastern Daylight Time) - Run Time: 2526ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA zone of destination - gta06_dest In 3643
and
Start time of trip - start_time In 700 - 900
and
Primary travel mode of trip - mode_prime In D

Trip 2016
Table:

,Auto driver
PD 7 of Toronto,32
PD 8 of Toronto,25
PD 11 of Toronto,12
King,23
Vaughan,41
Brampton,88
Mississauga,488
Milton,126
Oakville,79

TTS Detailed Distribution - AM Peak IN

		North		South		East		West	
	Auto driver	%	#	%	#	%	#	%	#
PD 7 of Toronto	32	0%	0	0%	0	100%	32	0%	0
PD 8 of Toronto	25	50%	12.5	0%	0	50%	12.5	0%	0
PD 11 of Toronto	12	30%	3.6	0%	0	70%	8.4	0%	0
King	23	0%	0	0%	0	100%	23	0%	0
Vaughan	41	0%	0	0%	0	100%	41	0%	0
Brampton	88	0%	0	0%	0	50%	44	50%	44
Mississauga	488	60%	292.8	0%	0	40%	195.2	0%	0
Milton	126	50%	63	0%	0	50%	63	0%	0
Oakville	79	0%	0	0%	0	0%	0	100%	79
TOTAL	914	41%	371.9	0%	0	46%	419.1	13%	123

Fri May 21 2021 11:26:38 GMT-0400 (Eastern Daylight Time) - Run Time: 2338ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Primary travel mode of trip - mode_prime

Filters:
(2006 GTA zone of origin - gta06_orig In 3643
and
Start time of trip - start_time In 700 - 900
and
Primary travel mode of trip - mode_prime In D)

Trip 2016
Table:

,Auto driver
PD 1 of Toronto,42
PD 2 of Toronto,43
PD 3 of Toronto,17
PD 6 of Toronto,27
PD 7 of Toronto,106
PD 8 of Toronto,181
PD 9 of Toronto,48
PD 13 of Toronto,27
Oshawa,69
King,23
Vaughan,63
Brampton,40
Mississauga,750
Oakville,18
Burlington,18

TTS Detailed Distribution - AM Peak OUT

		North		South		East		West	
	Auto driver	%	#	%	#	%	#	%	#
PD 1 of Toronto	42	100%	42	0%	0	0%	0	0%	0
PD 2 of Toronto	43	50%	21.5	0%	0	50%	21.5	0%	0
PD 3 of Toronto	17	50%	8.5	0%	0	50%	8.5	0%	0
PD 6 of Toronto	27	50%	13.5	0%	0	50%	13.5	0%	0
PD 7 of Toronto	106	0%	0	0%	0	100%	106	0%	0
PD 8 of Toronto	181	50%	90.5	0%	0	50%	90.5	0%	0
PD 9 of Toronto	48	50%	24	0%	0	50%	24	0%	0
PD 13 of Toronto	27	50%	13.5	0%	0	50%	13.5	0%	0
Oshawa	69	30%	20.7	0%	0	70%	48.3	0%	0
King	23	0%	0	0%	0	100%	23	0%	0
Vaughan	63	0%	0	0%	0	100%	63	0%	0
Brampton	40	0%	0	0%	0	50%	20	50%	20
Mississauga	750	60%	450	0%	0	40%	300	0%	0
Oakville	18	0%	0	0%	0	0%	0	100%	18
Burlington	18	0%	0	0%	0	0%	0	100%	18
TOTAL	1472	46%	684.2	0%	0	50%	731.8	4%	56

Fri May 21 2021 11:29:04 GMT-0400 (Eastern Daylight Time) - Run Time: 2177ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Primary travel mode of trip - mode_prime

Filters:
(2006 GTA zone of destination - gta06_dest In 3643
and
Start time of trip - start_time In 1600 - 1800
and
Primary travel mode of trip - mode_prime In D)

Trip 2016
Table:

,Auto driver
PD 1 of Toronto,57
PD 2 of Toronto,43
PD 3 of Toronto,26
PD 6 of Toronto,27
PD 7 of Toronto,139
PD 8 of Toronto,130
PD 9 of Toronto,48
PD 13 of Toronto,27
Vaughan,26
Brampton,84
Mississauga,533
Oakville,38

TTS Detailed Distribution - PM Peak IN

		North		South		East		West	
	Auto driver	%	#	%	#	%	#	%	#
PD 1 of Toronto	57	100%	57	0%	0	0%	0	0%	0
PD 2 of Toronto	43	50%	21.5	0%	0	50%	21.5	0%	0
PD 3 of Toronto	26	50%	13	0%	0	50%	13	0%	0
PD 6 of Toronto	27	50%	13.5	0%	0	50%	13.5	0%	0
PD 7 of Toronto	139	0%	0	0%	0	100%	139	0%	0
PD 8 of Toronto	130	50%	65	0%	0	50%	65	0%	0
PD 9 of Toronto	48	50%	24	0%	0	50%	24	0%	0
PD 13 of Toronto	27	50%	13.5	0%	0	50%	13.5	0%	0
Vaughan	26	0%	0	0%	0	100%	26	0%	0
Brampton	84	0%	0	0%	0	50%	42	50%	42
Mississauga	533	60%	319.8	0%	0	40%	213.2	0%	0
Oakville	38	0%	0	0%	0	0%	0	100%	38
TOTAL	1178	45%	527.3	0%	0	48%	570.7	7%	80

Fri May 21 2021 11:28:00 GMT-0400 (Eastern Daylight Time) - Run Time: 2390ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Primary travel mode of trip - mode_prime

Filters:
(2006 GTA zone of origin - gta06_orig In 3643
and
Start time of trip - start_time In 1600 - 1800
and
Primary travel mode of trip - mode_prime In D)

Trip 2016
Table:

,Auto driver
PD 6 of Toronto,32
PD 7 of Toronto,19
PD 8 of Toronto,40
PD 9 of Toronto,4
PD 10 of Toronto,41
PD 11 of Toronto,12
PD 14 of Toronto,14
Mississauga,499
Milton,126
Oakville,97
Innisfil,10

TTS Detailed Distribution - PM Peak OUT

		North		South		East		West	
	Auto driver	%	#	%	#	%	#	%	#
PD 6 of Toronto	32	50%	16	0%	0	50%	16	0%	0
PD 7 of Toronto	19	0%	0	0%	0	100%	19	0%	0
PD 8 of Toronto	40	50%	20	0%	0	50%	20	0%	0
PD 9 of Toronto	4	50%	2	0%	0	50%	2	0%	0
PD 10 of Toronto	41	0%	0	0%	0	100%	41	0%	0
PD 11 of Toronto	12	30%	3.6	0%	0	70%	8.4	0%	0
PD 14 of Toronto	14	30%	4.2	0%	0	70%	9.8	0%	0
Mississauga	499	60%	299.4	0%	0	40%	199.6	0%	0
Milton	126	50%	63	0%	0	50%	63	0%	0
Oakville	97	0%	0	0%	0	0%	0	100%	97
Innisfil	10	0%	0	0%	0	100%	10	0%	0
TOTAL	894	46%	408.2	0%	0	43%	388.8	11%	97

Fri May 21 2021 10:39:29 GMT-0400 (Eastern Daylight Time) - Run Time: 2106ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld
Column: Primary travel mode of trip - mode_prime

Filters:
2006 GTA zone of household - gta06_hhld In 3643
and
Start time of trip - start_time In 700 - 900, 1500 - 1900
and
Age of person - age In 18 - 99

Trip 2016
Table:

,Transit excluding GO rail,Auto driver,GO rail only,Joint GO rail and local transit,Auto passenger,Taxi passenger,Walk
3643,188,4221,299,44,272,23,199

Household Zone	Transit excluding GO rail	Auto driver	GO rail only	Joint GO rail and local transit	Auto passenger	Taxi passenger	Walk	TOTAL
3643	188	4221	299	44	272	23	199	5246
	4%	80%	6%	1%	5%	0%	4%	

Modal Split 14%

APPENDIX E

ITE Trip & Parking Generation Manual Excerpts

Land Use: 221
Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors). Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), off-campus student apartment (Land Use 225), and mid-rise residential with 1st-floor commercial (Land Use 231) are related land uses.

Additional Data

In prior editions of *Trip Generation Manual*, the mid-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of vehicle trip data found no clear differences in trip making patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

For the six sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.46 residents per occupied dwelling unit.

For the five sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 95.7 percent of the total dwelling units were occupied.

Time-of-day distribution data for this land use are presented in Appendix A. For the eight general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:00 and 8:00 a.m. and 4:45 and 5:45 p.m., respectively.

For the four dense multi-use urban sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:15 and 5:15 p.m., respectively. For the three center city core sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 6:45 and 7:45 a.m. and 5:00 and 6:00 p.m., respectively.

For the six sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.46 residents per occupied dwelling unit.

For the five sites for which data were provided for both occupied dwelling units and total dwelling units, an average of 95.7 percent of the units were occupied.

The average numbers of person trips per vehicle trip at the five center city core sites at which both person trip and vehicle trip data were collected were as follows:

- 1.84 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.94 during Weekday, AM Peak Hour of Generator
- 2.07 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.59 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 32 dense multi-use urban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.90 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.90 during Weekday, AM Peak Hour of Generator
- 2.00 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.08 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 13 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.56 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.88 during Weekday, AM Peak Hour of Generator
- 1.70 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.07 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), British Columbia (CAN), California, Delaware, District of Columbia, Florida, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, Ontario, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Virginia, and Wisconsin.

Source Numbers

168, 188, 204, 305, 306, 321, 357, 390, 436, 525, 530, 579, 638, 818, 857, 866, 901, 904, 910, 912, 918, 934, 936, 939, 944, 947, 948, 949, 959, 963, 964, 966, 967, 969, 970

Multifamily Housing (Mid-Rise)
(221)

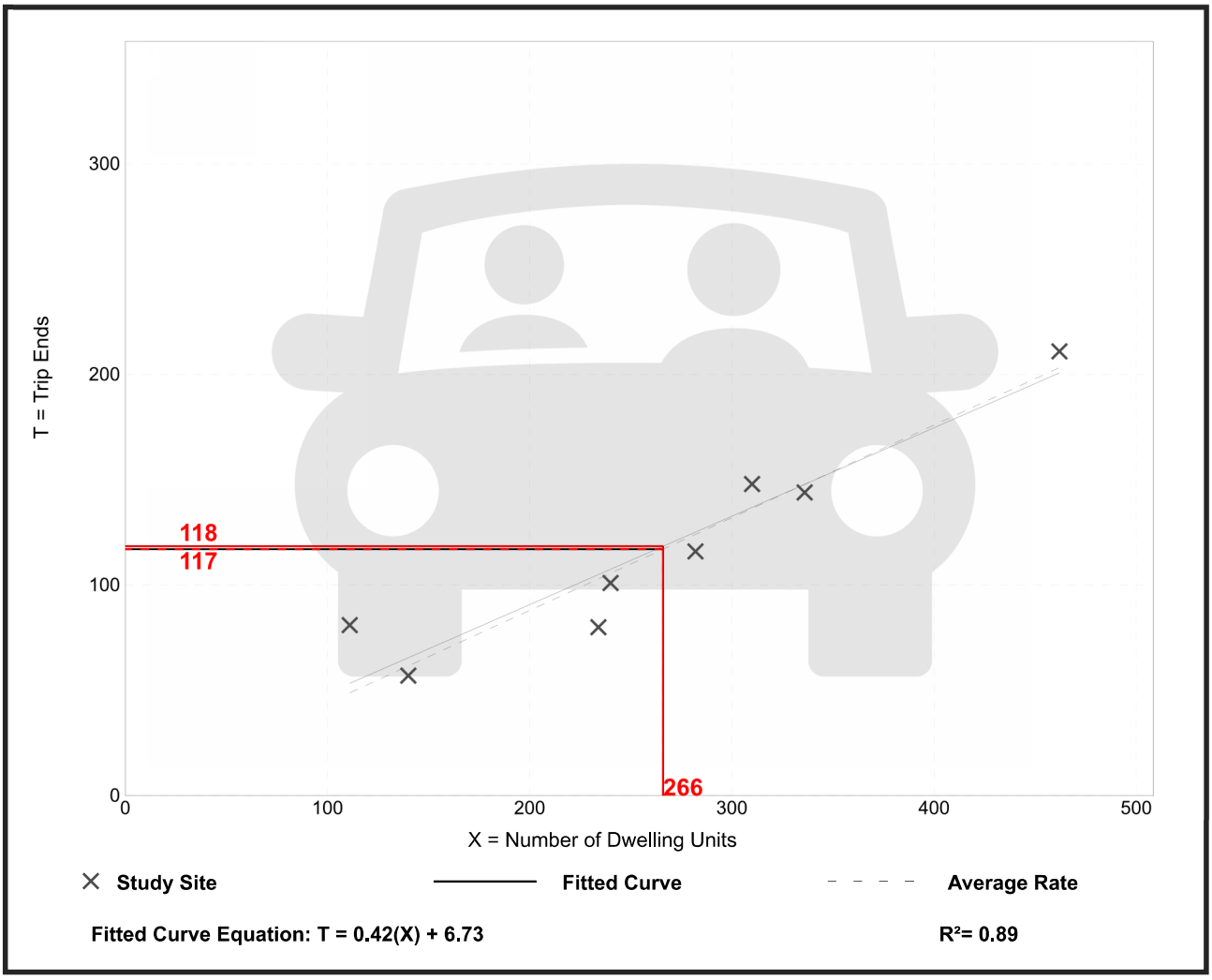
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 8
Avg. Num. of Dwelling Units: 264
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.34 - 0.73	0.08

Data Plot and Equation



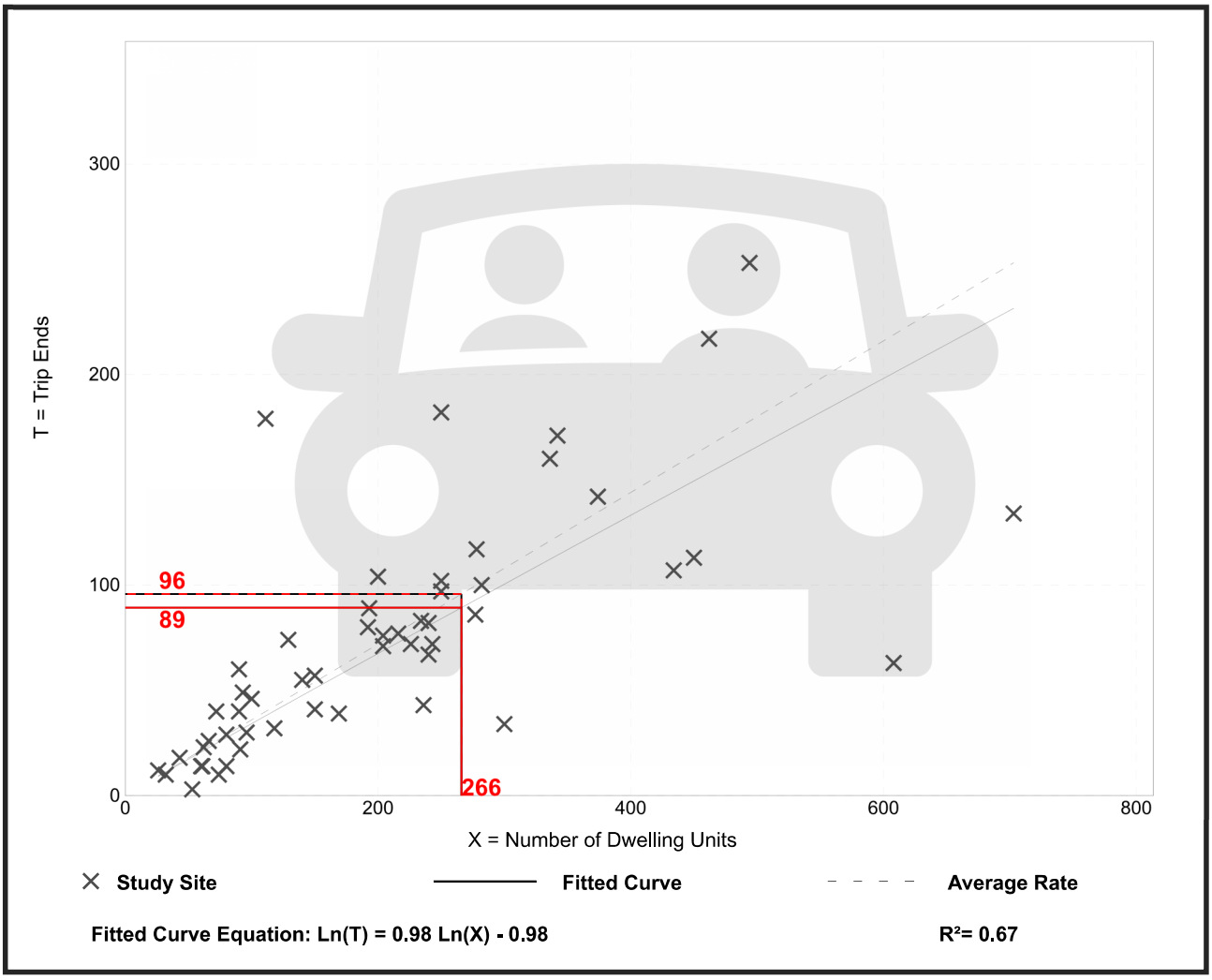
Multifamily Housing (Mid-Rise)
(221)

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:	53
Avg. Num. of Dwelling Units:	207
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

Data Plot and Equation



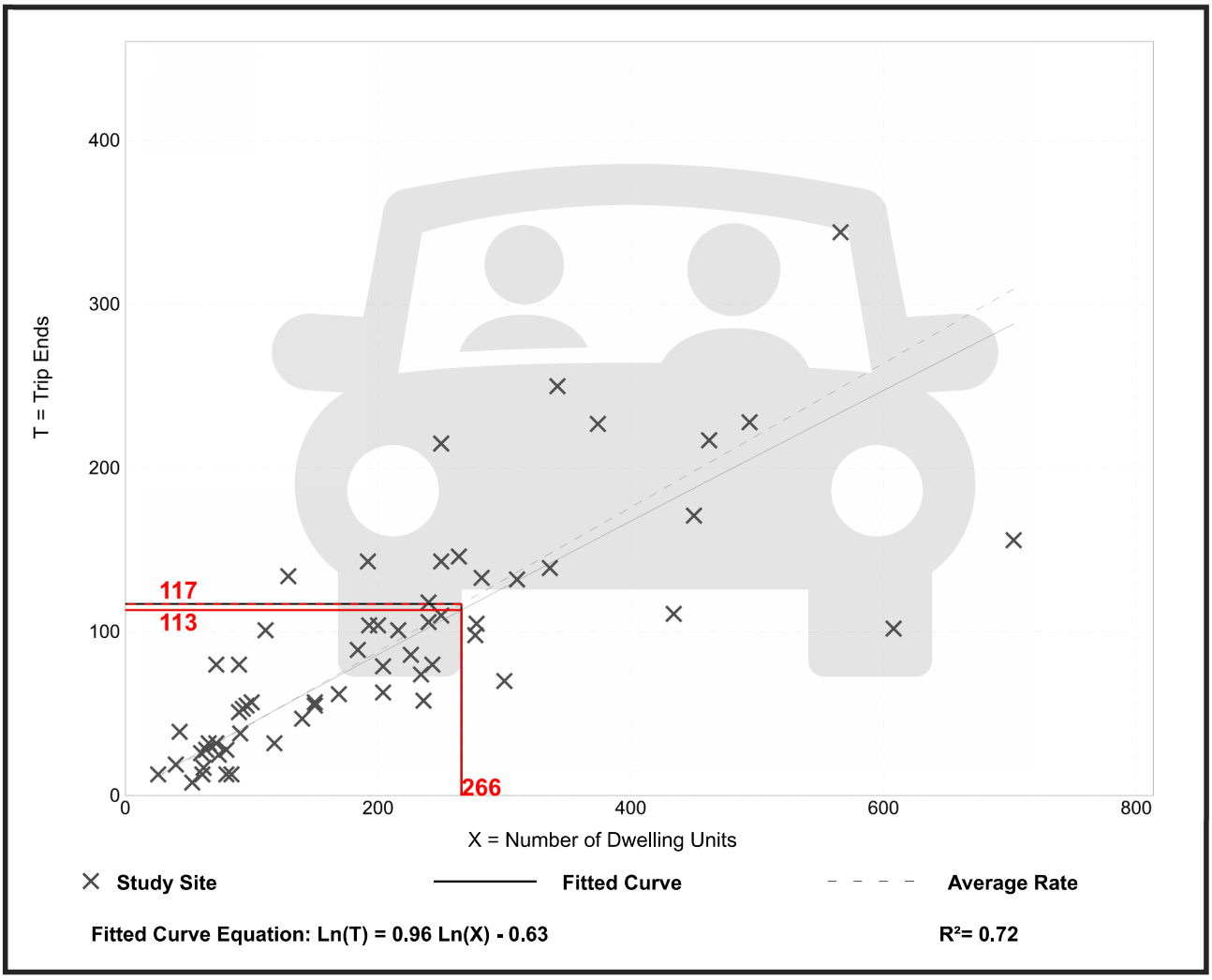
Multifamily Housing (Mid-Rise)
(221)

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:	60
Avg. Num. of Dwelling Units:	208
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

Data Plot and Equation



Land Use: 221 Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and with between three and 10 levels (floors) of residence. Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), and affordable housing (Land Use 223) are related land uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday (one general urban/suburban study site), a Saturday (two general urban/suburban study sites), and a Sunday (one dense multi-use urban study site).

	Percent of Peak Parking Demand		
Hour Beginning	Weekday	Saturday	Sunday
12:00–4:00 a.m.	100	100	100
5:00 a.m.	94	99	–
6:00 a.m.	83	97	–
7:00 a.m.	71	95	–
8:00 a.m.	61	88	–
9:00 a.m.	55	83	–
10:00 a.m.	54	75	–
11:00 a.m.	53	71	–
12:00 p.m.	50	68	–
1:00 p.m.	49	66	33
2:00 p.m.	49	70	40
3:00 p.m.	50	69	27
4:00 p.m.	58	72	13
5:00 p.m.	64	74	33
6:00 p.m.	67	74	60
7:00 p.m.	70	73	67
8:00 p.m.	76	75	47
9:00 p.m.	83	78	53
10:00 p.m.	90	82	73
11:00 p.m.	93	88	93

Additional Data

In prior editions of *Parking Generation*, the mid-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of parking demand data found no clear differences in parking demand between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

The average parking supply ratios for the study sites with parking supply information are shown in the table below.

		Parking Supply Ratio	
Setting	**Proximity to Rail Transit**	**Per Dwelling Unit**	**Per Bedroom**
Center City Core	Within ½ mile of rail transit	1.1 (15 sites)	1.0 (12 sites)
Dense Multi-Use Urban	Within ½ mile of rail transit	1.2 (39 sites)	0.9 (34 sites)
	Not within ½ mile of rail transit	1.2 (65 sites)	0.8 (56 sites)
General Urban/ Suburban	Within ½ mile of rail transit	1.5 (25 sites)	0.8 (12 sites)
	Not within ½ mile of rail transit	1.7 (62 sites)	1.0 (39 sites)

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Colorado, District of Columbia, Maryland, Massachusetts, New Jersey, New York, Oregon, Virginia, Washington, and Wisconsin.

It is expected that the number of bedrooms and number of residents are likely correlated to the parking demand generated by a residential site. Parking studies of multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex). Future parking studies should also indicate the number of levels contained in the residential building.

Source Numbers

21, 209, 247, 255, 277, 401, 402, 419, 505, 512, 522, 533, 535, 536, 537, 538, 545, 546, 547, 575, 576, 577, 579, 580, 581, 583, 584, 585, 587

Land Use: 820
Shopping Center

Description

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Factory outlet center (Land Use 823) is a related use.

Additional Data

Shopping centers, including neighborhood centers, community centers, regional centers, and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs, and recreational facilities (for example, ice skating rinks or indoor miniature golf courses).

Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.

The vehicle trips generated at a shopping center are based upon the total GLA of the center. In cases of smaller centers without an enclosed mall or peripheral buildings, the GLA could be the same as the gross floor area of the building.

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:15 and 1:15 p.m., respectively.

The average numbers of person trips per vehicle trip at the 27 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.31 during Weekday, AM Peak Hour of Generator
- 1.43 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.46 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), British Columbia (CAN), California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, and Wisconsin.

Source Numbers

105, 110, 154, 156, 159, 186, 190, 198, 199, 202, 204, 211, 213, 239, 251, 259, 260, 269, 294, 295, 299, 300, 301, 304, 305, 307, 308, 309, 310, 311, 314, 315, 316, 317, 319, 358, 365, 376, 385, 390, 400, 404, 414, 420, 423, 428, 437, 440, 442, 444, 446, 507, 562, 580, 598, 629, 658, 702, 715, 728, 868, 870, 871, 880, 899, 908, 912, 915, 926, 936, 944, 946, 960, 961, 962, 973, 974, 978

Shopping Center
(820)

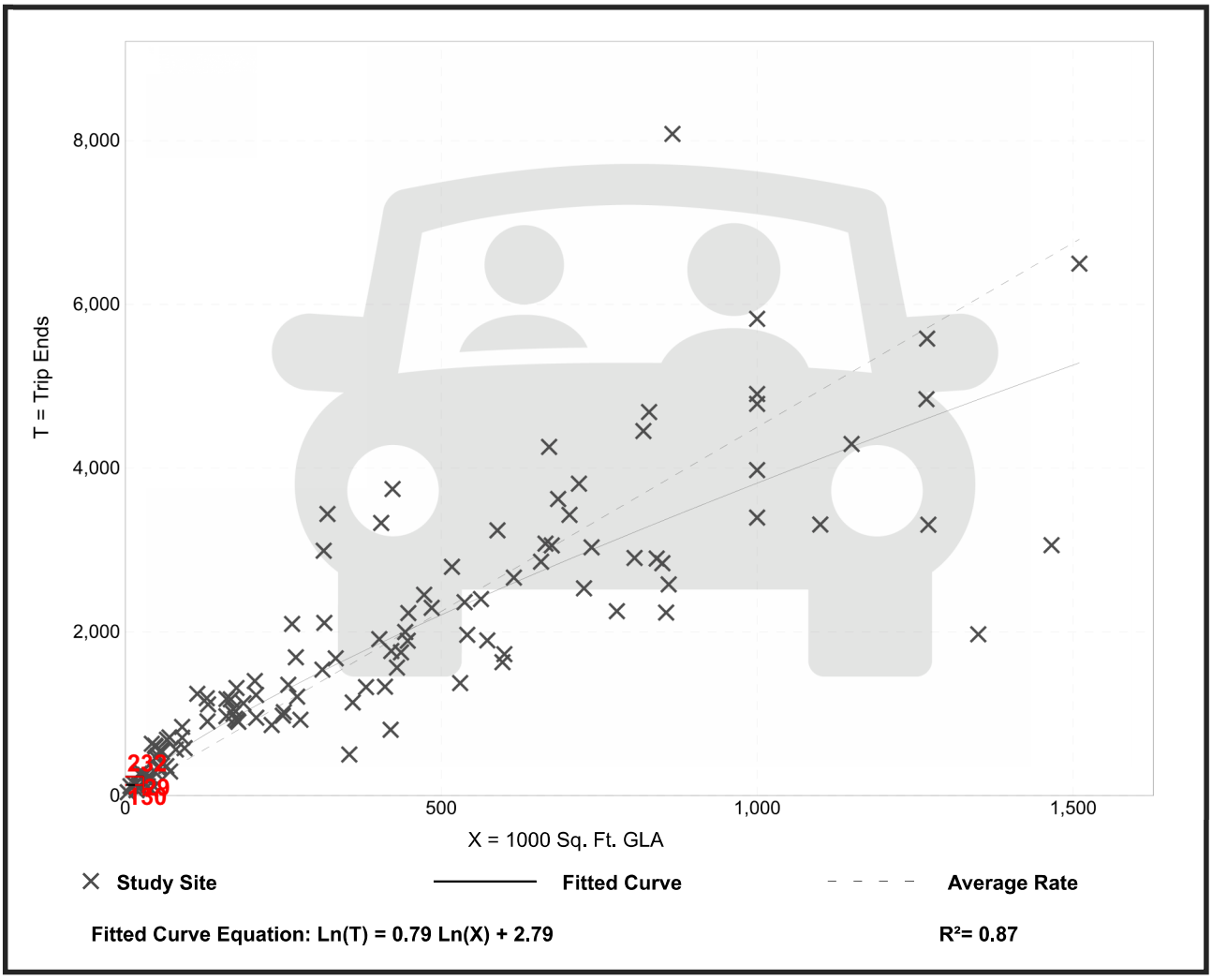
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 119
Avg. 1000 Sq. Ft. GLA: 416
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.50	1.42 - 15.10	1.88

Data Plot and Equation



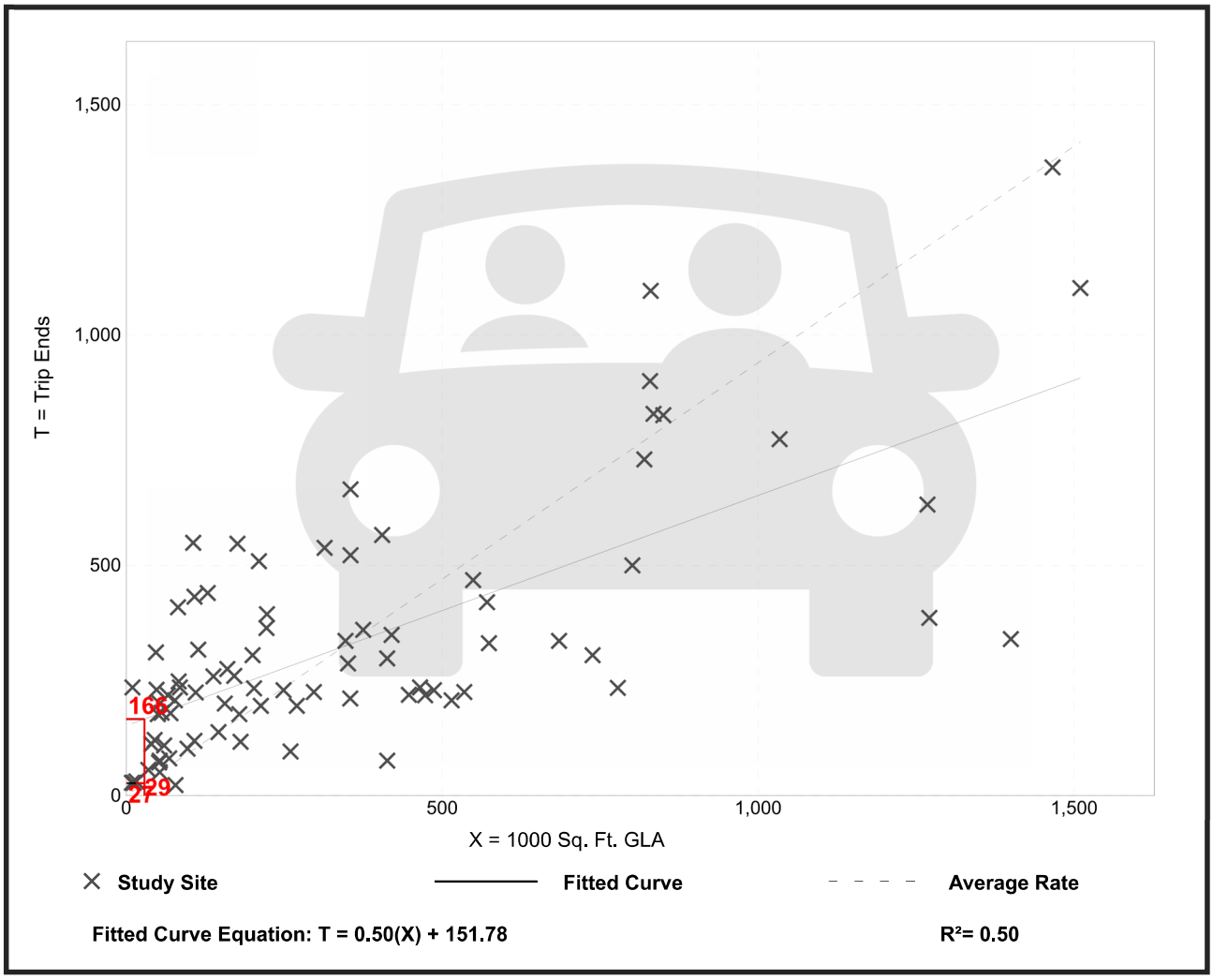
Shopping Center
(820)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GLA**
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:	84
Avg. 1000 Sq. Ft. GLA:	351
Directional Distribution:	62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



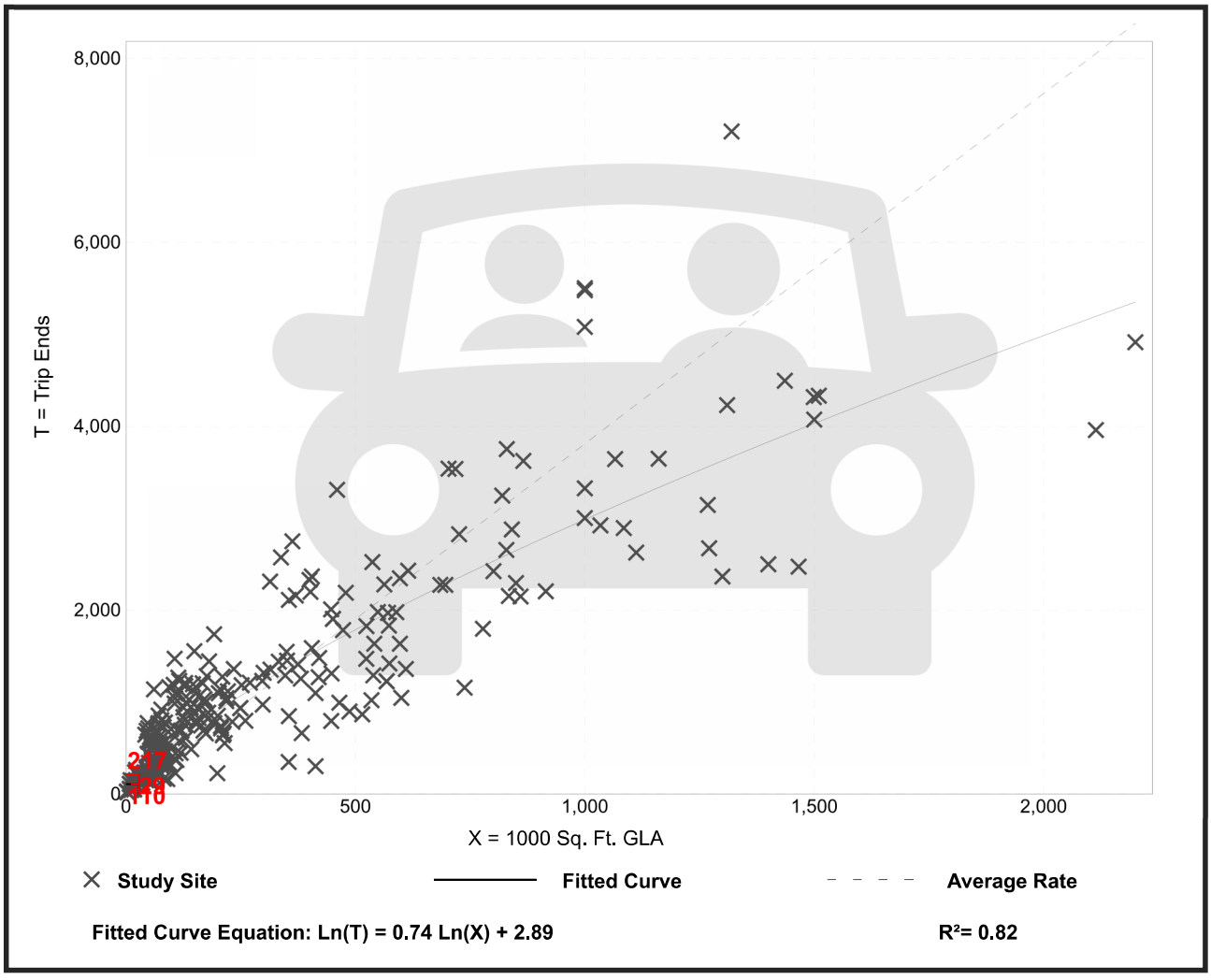
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
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: 261
Avg. 1000 Sq. Ft. GLA: 327
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



APPENDIX F

Signal Warrants

Signal Warrant Calculation

Justification 7 - Projected Volumes

Major Street: Lakeshore Road East — East/West

Minor Street: Fergus Avenue — North/South

Traffic Condition: 2026 Future Total AM

Number of Approaches: 2

Tee Intersection: No

Existing Intersection: Yes

Flow Condition: Restricted Flow (Urban)

No. of Peak Hours: 1

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	2191	0	2	1096
1B - Minor	134	0	2	67
2A - Major	2057	0	2	1029
2B - Crossing	55	0	2	28

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 39% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	1096	122%
B.	Vehicle volume, along minor streets (average hour)	170	67	39%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 16% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	1029	114%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	170	28	16%

Overall Warrant => 39% Satsified

Result => No signals are warranted nor provision for undergrounds needed.

Signal Warrant Calculation

Justification 7 - Projected Volumes

Major Street: Lakeshore Road East — East/West

Minor Street: Fergus Avenue — North/South

Traffic Condition: 2026 Future Total AM

Number of Approaches: 2 — Flow Condition: Restricted Flow (Urban)

Tee Intersection: No — No. of Peak Hours: 1

Existing Intersection: Yes

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	2428	0	2	1215
1B - Minor	101	0	2	51
2A - Major	2327	0	2	1164
2B - Crossing	40	0	2	20

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 30% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	1215	135%
B.	Vehicle volume, along minor streets (average hour)	170	51	30%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 12% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	1164	129%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	170	20	12%

Overall Warrant => 30% Satsified

Result => No signals are warranted nor provision for undergrounds needed.

Signal Warrant Calculation

Justification 7 - Projected Volumes

Major Street: Dixie Road — North/South

Minor Street: St. James Avenue — East/West

Traffic Condition: 2026 Future Total AM

Number of Approaches: 2 — Flow Condition: Restricted Flow (Urban)

Tee Intersection: No — No. of Peak Hours: 1

Existing Intersection: Yes

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	1139	0	2	570
1B - Minor	133	0	2	67
2A - Major	1006	0	2	503
2B - Crossing	128	0	2	64

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 39% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	570	63%
B.	Vehicle volume, along minor streets (average hour)	170	67	39%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 38% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	503	56%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	170	64	38%

Overall Warrant => 39% Satsified

Result => No signals are warranted nor provision for undergrounds needed.

Signal Warrant Calculation

Justification 7 - Projected Volumes

Major Street: Dixie Road — North/South

Minor Street: St. James Avenue — East/West

Traffic Condition: 2026 Future Total PM

Number of Approaches: 2 — Flow Condition: Restricted Flow (Urban)

Tee Intersection: No — No. of Peak Hours: 1

Existing Intersection: Yes

Volume	1st Hour	2nd Hour	Factor	Average Hour
1A - All	1186	0	2	593
1B - Minor	78	0	2	39
2A - Major	1108	0	2	554
2B - Crossing	74	0	2	37

WARRANT 1 - MINIMUM VEHICULAR VOLUME => 23% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	593	66%
B.	Vehicle volume, along minor streets (average hour)	170	39	23%

WARRANT 2 - DELAY TO CROSS TRAFFIC => 22% Satisfied

		Restricted Flow	Average Hour	Percent Satisfied
A.	Vehicle volume all approaches (average hour)	900	554	62%
B.	Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	170	37	22%

Overall Warrant => 23% Satsified

Result => No signals are warranted nor provision for undergrounds needed.

APPENDIX G

Existing Detailed Capacity Analysis

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	3	9	3	5	0	4	51	4	6	0
Future Vol, veh/h	1	3	3	9	3	5	0	4	51	4	6	0
Conflicting Peds, #/hr	0	0	5	5	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	33	0	0	0	25	2	0	17	0
Mvmt Flow	1	3	3	10	3	5	0	4	55	4	6	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	50	74	11	55	47	33	6	0	0	60	0	0
Stage 1	14	14	-	33	33	-	-	-	-	-	-	-
Stage 2	36	60	-	22	14	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	955	820	1076	871	849	1046	1628	-	-	1556	-	-
Stage 1	1011	888	-	909	872	-	-	-	-	-	-	-
Stage 2	985	849	-	922	888	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	945	817	1071	860	846	1045	1628	-	-	1555	-	-
Mov Cap-2 Maneuver	945	817	-	860	846	-	-	-	-	-	-	-
Stage 1	1011	885	-	908	871	-	-	-	-	-	-	-
Stage 2	976	848	-	909	885	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.1	0	2.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	929	904	1555	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.02	0.003	-	-
HCM Control Delay (s)	0	-	-	8.9	9.1	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	1186	31	46	633	7	19	0	17	6	0	51
Future Vol, veh/h	17	1186	31	46	633	7	19	0	17	6	0	51
Conflicting Peds, #/hr	6	0	0	0	0	6	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	3	47	44	6	0	68	0	65	0	0	10
Mvmt Flow	18	1262	33	49	673	7	20	0	18	6	0	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	686	0	0	1295	0	0	1751	2099	648	1448	2112	347
Stage 1	-	-	-	-	-	-	1315	1315	-	781	781	-
Stage 2	-	-	-	-	-	-	436	784	-	667	1331	-
Critical Hdwy	4.22	-	-	4.98	-	-	8.86	6.5	8.2	7.5	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.26	-	-	2.64	-	-	4.18	4	3.95	3.5	4	3.4
Pot Cap-1 Maneuver	877	-	-	352	-	-	27	53	291	94	52	626
Stage 1	-	-	-	-	-	-	95	230	-	358	408	-
Stage 2	-	-	-	-	-	-	424	407	-	419	226	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	873	-	-	352	-	-	22	44	291	77	44	622
Mov Cap-2 Maneuver	-	-	-	-	-	-	22	44	-	77	44	-
Stage 1	-	-	-	-	-	-	93	225	-	349	350	-
Stage 2	-	-	-	-	-	-	333	349	-	385	221	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	295.3	17.2
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	39	873	-	-	352	-	-	356
HCM Lane V/C Ratio	0.982	0.021	-	-	0.139	-	-	0.17
HCM Control Delay (s)	295.3	9.2	-	-	16.9	-	-	17.2
HCM Lane LOS	F	A	-	-	C	-	-	C
HCM 95th %tile Q(veh)	3.7	0.1	-	-	0.5	-	-	0.6

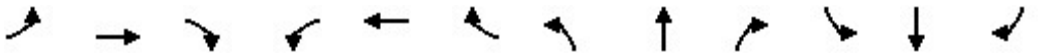
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	5	4	572	313	17
Future Vol, veh/h	50	5	4	572	313	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	0	75	3	8	0
Mvmt Flow	57	6	5	650	356	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1016	356	375	0	-	0
Stage 1	356	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Critical Hdwy	6.42	6.2	4.85	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	2.875	-	-	-
Pot Cap-1 Maneuver	264	693	874	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	262	693	874	-	-	-
Mov Cap-2 Maneuver	262	-	-	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.7	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	874	-	278	-	-
HCM Lane V/C Ratio	0.005	-	0.225	-	-
HCM Control Delay (s)	9.1	-	21.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

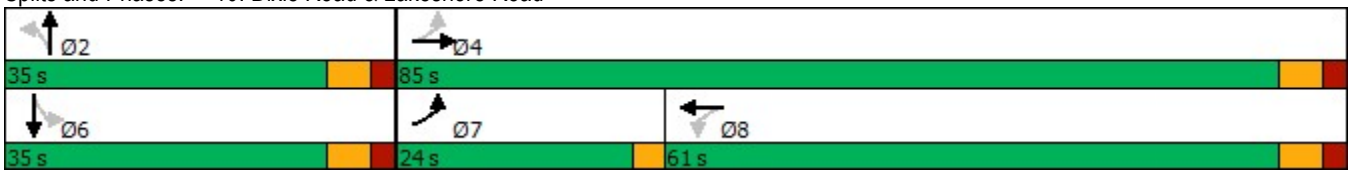


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	794	1	0	505	183	0	0	0	133	0	181
Future Volume (vph)	415	794	1	0	505	183	0	0	0	133	0	181
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	100.0		0.0	0.0		0.0	75.0		0.0
Storage Lanes	1		0	2		0	0		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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	1.00	1.00			0.99						0.99	
Frt					0.960						0.850	
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1677	3394	0	1858	3176	0	0	1858	0	1765	1391	0
Flt Permitted	0.174									0.757		
Satd. Flow (perm)	306	3394	0	1858	3176	0	0	1858	0	1406	1391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					56						457	
Link Speed (k/h)		50			40			40			50	
Link Distance (m)		198.2			101.4			58.3			153.5	
Travel Time (s)		14.3			9.1			5.2			11.1	
Confl. Peds. (#/hr)	10		1	1		10	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	4%	0%	0%	7%	3%	0%	0%	0%	0%	0%	12%
Adj. Flow (vph)	451	863	1	0	549	199	0	0	0	145	0	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	451	864	0	0	748	0	0	0	0	145	197	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)		3.4			3.4			3.4			3.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	0.6		2.0	0.6	
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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA					Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	85.0		36.3	36.3		35.0	35.0		35.0	35.0	
Total Split (s)	24.0	85.0		61.0	61.0		35.0	35.0		35.0	35.0	
Total Split (%)	20.0%	70.8%		50.8%	50.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	21.0	78.7		54.7	54.7		28.7	28.7		28.7	28.7	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.3		6.3	6.3			6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		10.0		10.0	10.0					9.0	9.0	
Flash Dont Walk (s)		15.0		15.0	15.0					14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	52.5	49.2			25.4					28.8	28.8	
Actuated g/C Ratio	0.58	0.54			0.28					0.32	0.32	
v/c Ratio	0.92	0.47			0.80					0.33	0.26	
Control Delay	45.9	13.5			35.1					27.8	0.8	
Queue Delay	0.0	0.0			0.0					0.0	0.0	
Total Delay	45.9	13.5			35.1					27.8	0.8	
LOS	D	B			D					C	A	
Approach Delay		24.6			35.1						12.3	
Approach LOS		C			D						B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 90.7			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: Dixie Road & Lakeshore Road



Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	0	55	1	4	2	7	25	2	6	0
Future Vol, veh/h	0	2	0	55	1	4	2	7	25	2	6	0
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	14	0	0	0	0
Mvmt Flow	0	3	0	71	1	5	3	9	32	3	8	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	50	63	10	49	47	27	9	0	0	42	0	0
Stage 1	15	15	-	32	32	-	-	-	-	-	-	-
Stage 2	35	48	-	17	15	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	955	832	1077	956	849	1054	1624	-	-	1580	-	-
Stage 1	1010	887	-	990	872	-	-	-	-	-	-	-
Stage 2	986	859	-	1008	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	944	827	1075	949	844	1052	1623	-	-	1579	-	-
Mov Cap-2 Maneuver	944	827	-	949	844	-	-	-	-	-	-	-
Stage 1	1007	884	-	987	869	-	-	-	-	-	-	-
Stage 2	977	856	-	1002	884	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.1	0.4	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1623	-	-	827	953	1579	-	-
HCM Lane V/C Ratio	0.002	-	-	0.003	0.081	0.002	-	-
HCM Control Delay (s)	7.2	0	-	9.4	9.1	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	699	7	4	1355	14	14	0	16	8	0	32
Future Vol, veh/h	27	699	7	4	1355	14	14	0	16	8	0	32
Conflicting Peds, #/hr	6	0	0	0	0	6	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	3	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	29	744	7	4	1441	15	15	0	17	9	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1462	0	0	751	0	0	1537	2276	376	1893	2272	736
Stage 1	-	-	-	-	-	-	806	806	-	1463	1463	-
Stage 2	-	-	-	-	-	-	731	1470	-	430	809	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	448	-	-	868	-	-	81	41	627	44	41	366
Stage 1	-	-	-	-	-	-	346	398	-	137	195	-
Stage 2	-	-	-	-	-	-	384	193	-	579	396	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	446	-	-	868	-	-	69	38	627	40	38	364
Mov Cap-2 Maneuver	-	-	-	-	-	-	69	38	-	40	38	-
Stage 1	-	-	-	-	-	-	324	372	-	127	193	-
Stage 2	-	-	-	-	-	-	346	191	-	527	370	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	41.1	41.9
HCM LOS			E	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	131	446	-	-	868	-	-	139
HCM Lane V/C Ratio	0.244	0.064	-	-	0.005	-	-	0.306
HCM Control Delay (s)	41.1	13.6	-	-	9.2	-	-	41.9
HCM Lane LOS	E	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0	-	-	1.2

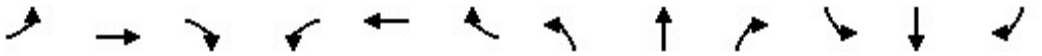
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	4	1	439	455	44
Future Vol, veh/h	27	4	1	439	455	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	29	4	1	467	484	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	953	484	531	0	-	0
Stage 1	484	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	290	587	1047	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	290	587	1047	-	-	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	634	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1047	-	310	-	-
HCM Lane V/C Ratio	0.001	-	0.106	-	-
HCM Control Delay (s)	8.4	-	18	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

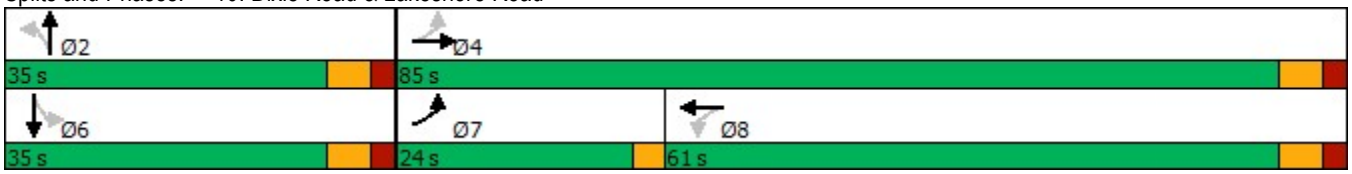


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	497	1	0	1095	225	0	0	1	192	0	274
Future Volume (vph)	227	497	1	0	1095	225	0	0	1	192	0	274
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	100.0		0.0	0.0		0.0	75.0		0.0
Storage Lanes	1		0	2		0	0		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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		1.00			1.00			0.99		1.00	0.98	
Frt					0.974			0.865			0.850	
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1711	3394	0	1858	3390	0	0	1586	0	1747	1538	0
Flt Permitted	0.078									0.757		
Satd. Flow (perm)	140	3394	0	1858	3390	0	0	1586	0	1390	1538	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					26			390			328	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		198.2			101.4			58.3			153.5	
Travel Time (s)		14.3			7.3			4.2			11.1	
Confl. Peds. (#/hr)	8		2	2		8	3		1	1		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	0%	0%	1%	1%	0%	0%	0%	1%	0%	1%
Adj. Flow (vph)	236	518	1	0	1141	234	0	0	1	200	0	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	519	0	0	1375	0	0	1	0	200	285	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)		3.4			3.4			3.4			3.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	0.6		2.0	0.6	
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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA			NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	85.0		36.3	36.3		35.0	35.0		35.0	35.0	
Total Split (s)	24.0	85.0		61.0	61.0		35.0	35.0		35.0	35.0	
Total Split (%)	20.0%	70.8%		50.8%	50.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	21.0	78.7		54.7	54.7		28.7	28.7		28.7	28.7	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.3		6.3	6.3			6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		10.0		10.0	10.0					9.0	9.0	
Flash Dont Walk (s)		15.0		15.0	15.0					14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	72.7	69.3			48.1			29.0		29.0	29.0	
Actuated g/C Ratio	0.65	0.62			0.43			0.26		0.26	0.26	
v/c Ratio	0.68	0.25			0.93			0.00		0.55	0.44	
Control Delay	34.3	9.3			41.2			0.0		44.8	4.4	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay	34.3	9.3			41.2			0.0		44.8	4.4	
LOS	C	A			D			A		D	A	
Approach Delay		17.1			41.2						21.0	
Approach LOS		B			D						C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.1			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 30.5		Intersection LOS: C	
Intersection Capacity Utilization 83.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 10: Dixie Road & Lakeshore Road



APPENDIX H

Future Background Detailed Capacity Analysis

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	3	19	3	5	0	4	56	4	6	0
Future Vol, veh/h	1	3	3	19	3	5	0	4	56	4	6	0
Conflicting Peds, #/hr	0	0	5	5	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	33	0	0	0	25	2	0	17	0
Mvmt Flow	1	3	3	20	3	5	0	4	60	4	6	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	52	79	11	57	49	35	6	0	0	65	0	0
Stage 1	14	14	-	35	35	-	-	-	-	-	-	-
Stage 2	38	65	-	22	14	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	952	815	1076	868	846	1044	1628	-	-	1550	-	-
Stage 1	1011	888	-	907	870	-	-	-	-	-	-	-
Stage 2	982	845	-	922	888	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	942	812	1071	857	843	1043	1628	-	-	1549	-	-
Mov Cap-2 Maneuver	942	812	-	857	843	-	-	-	-	-	-	-
Stage 1	1011	885	-	906	869	-	-	-	-	-	-	-
Stage 2	973	844	-	909	885	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.2	0	2.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	926	885	1549	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.033	0.003	-	-
HCM Control Delay (s)	0	-	-	8.9	9.2	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	9.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	1286	34	46	648	7	19	0	17	6	0	61
Future Vol, veh/h	24	1286	34	46	648	7	19	0	17	6	0	61
Conflicting Peds, #/hr	6	0	0	0	0	6	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	3	47	44	6	0	68	0	65	0	0	10
Mvmt Flow	26	1368	36	49	689	7	20	0	18	6	0	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	702	0	0	1404	0	0	1882	2238	702	1533	2253	355
Stage 1	-	-	-	-	-	-	1438	1438	-	797	797	-
Stage 2	-	-	-	-	-	-	444	800	-	736	1456	-
Critical Hdwy	4.22	-	-	4.98	-	-	8.86	6.5	8.2	7.5	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.26	-	-	2.64	-	-	4.18	4	3.95	3.5	4	3.4
Pot Cap-1 Maneuver	865	-	-	313	-	-	21	43	264	81	42	619
Stage 1	-	-	-	-	-	-	77	200	-	351	401	-
Stage 2	-	-	-	-	-	-	418	400	-	381	196	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	861	-	-	313	-	-	~ 16	35	264	65	34	615
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	35	-	65	34	-
Stage 1	-	-	-	-	-	-	75	194	-	339	336	-
Stage 2	-	-	-	-	-	-	315	336	-	344	190	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.2	$ 482.3	17.9
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	29	861	-	-	313	-	-	350
HCM Lane V/C Ratio	1.321	0.03	-	-	0.156	-	-	0.204
HCM Control Delay (s)	$ 482.3	9.3	-	-	18.6	-	-	17.9
HCM Lane LOS	F	A	-	-	C	-	-	C
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0.5	-	-	0.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

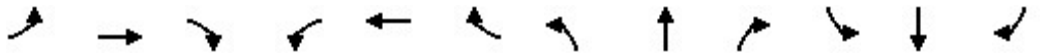
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	125	5	14	603	344	27
Future Vol, veh/h	125	5	14	603	344	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	0	75	3	8	0
Mvmt Flow	142	6	16	685	391	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1108	391	422	0	-	0
Stage 1	391	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Critical Hdwy	6.42	6.2	4.85	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	2.875	-	-	-
Pot Cap-1 Maneuver	232	662	835	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	228	662	835	-	-	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	43.5	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	835	-	234	-	-
HCM Lane V/C Ratio	0.019	-	0.631	-	-
HCM Control Delay (s)	9.4	-	43.5	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.1	-	3.8	-	-

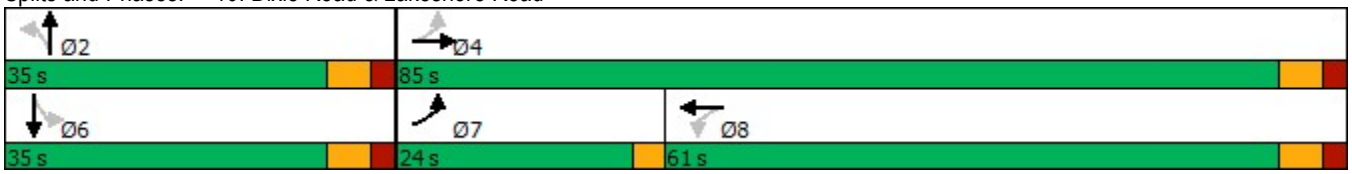


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	462	865	1	0	539	192	0	0	0	159	0	220
Future Volume (vph)	462	865	1	0	539	192	0	0	0	159	0	220
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	100.0		0.0	0.0		0.0	75.0		0.0
Storage Lanes	1		0	2		0	0		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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	1.00	1.00			0.99						0.99	
Frt					0.961						0.850	
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1677	3394	0	1858	3180	0	0	1858	0	1765	1391	0
Flt Permitted	0.162									0.757		
Satd. Flow (perm)	285	3394	0	1858	3180	0	0	1858	0	1406	1391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					55						441	
Link Speed (k/h)		50			40			40			50	
Link Distance (m)		198.2			101.4			58.3			153.5	
Travel Time (s)		14.3			9.1			5.2			11.1	
Confl. Peds. (#/hr)	10		1	1		10	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	4%	0%	0%	7%	3%	0%	0%	0%	0%	0%	12%
Adj. Flow (vph)	502	940	1	0	586	209	0	0	0	173	0	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	502	941	0	0	795	0	0	0	0	173	239	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)		3.4			3.4			3.4			3.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	0.6		2.0	0.6	
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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA					Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	85.0		36.3	36.3		35.0	35.0		35.0	35.0	
Total Split (s)	24.0	85.0		61.0	61.0		35.0	35.0		35.0	35.0	
Total Split (%)	20.0%	70.8%		50.8%	50.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	21.0	78.7		54.7	54.7		28.7	28.7		28.7	28.7	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.3		6.3	6.3			6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		10.0		10.0	10.0					9.0	9.0	
Flash Dont Walk (s)		15.0		15.0	15.0					14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	55.1	51.8			27.7					28.8	28.8	
Actuated g/C Ratio	0.59	0.56			0.30					0.31	0.31	
v/c Ratio	1.04	0.50			0.81					0.40	0.33	
Control Delay	76.2	13.6			35.0					30.3	1.2	
Queue Delay	0.0	0.0			0.0					0.0	0.0	
Total Delay	76.2	13.6			35.0					30.3	1.2	
LOS	E	B			D					C	A	
Approach Delay		35.4			35.0						13.4	
Approach LOS		D			D						B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 93.3			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 31.9		Intersection LOS: C	
Intersection Capacity Utilization 80.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: Dixie Road & Lakeshore Road



Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	0	65	1	4	2	7	40	2	6	0
Future Vol, veh/h	0	2	0	65	1	4	2	7	40	2	6	0
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	14	0	0	0	0
Mvmt Flow	0	3	0	83	1	5	3	9	51	3	8	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	60	82	10	59	57	37	9	0	0	61	0	0
Stage 1	15	15	-	42	42	-	-	-	-	-	-	-
Stage 2	45	67	-	17	15	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	941	812	1077	942	838	1041	1624	-	-	1555	-	-
Stage 1	1010	887	-	978	864	-	-	-	-	-	-	-
Stage 2	974	843	-	1008	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	931	807	1075	935	833	1039	1623	-	-	1554	-	-
Mov Cap-2 Maneuver	931	807	-	935	833	-	-	-	-	-	-	-
Stage 1	1007	884	-	975	861	-	-	-	-	-	-	-
Stage 2	965	840	-	1002	884	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	9.2	0.3	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1623	-	-	807	939	1554	-	-
HCM Lane V/C Ratio	0.002	-	-	0.003	0.096	0.002	-	-
HCM Control Delay (s)	7.2	0	-	9.5	9.2	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	780	7	4	1443	15	14	0	16	8	0	42
Future Vol, veh/h	44	780	7	4	1443	15	14	0	16	8	0	42
Conflicting Peds, #/hr	6	0	0	0	0	6	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	3	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	47	830	7	4	1535	16	15	0	17	9	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1557	0	0	837	0	0	1706	2493	419	2066	2488	784
Stage 1	-	-	-	-	-	-	928	928	-	1557	1557	-
Stage 2	-	-	-	-	-	-	778	1565	-	509	931	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	412	-	-	806	-	-	60	30	589	32	30	340
Stage 1	-	-	-	-	-	-	292	349	-	120	175	-
Stage 2	-	-	-	-	-	-	360	174	-	520	348	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	410	-	-	806	-	-	47	26	589	28	26	338
Mov Cap-2 Maneuver	-	-	-	-	-	-	47	26	-	28	26	-
Stage 1	-	-	-	-	-	-	258	309	-	106	173	-
Stage 2	-	-	-	-	-	-	310	172	-	447	308	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	63.6	55.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	92	410	-	-	806	-	-	122
HCM Lane V/C Ratio	0.347	0.114	-	-	0.005	-	-	0.436
HCM Control Delay (s)	63.6	14.9	-	-	9.5	-	-	55.6
HCM Lane LOS	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.4	0.4	-	-	0	-	-	1.9

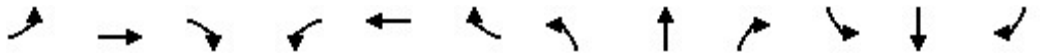
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	72	4	36	453	525	69
Future Vol, veh/h	72	4	36	453	525	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	77	4	38	482	559	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1117	559	632	0	-	0
Stage 1	559	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	231	532	960	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	222	532	960	-	-	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	577	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.1	0.7	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	960	-	229	-	-
HCM Lane V/C Ratio	0.04	-	0.353	-	-
HCM Control Delay (s)	8.9	-	29.1	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.5	-	-

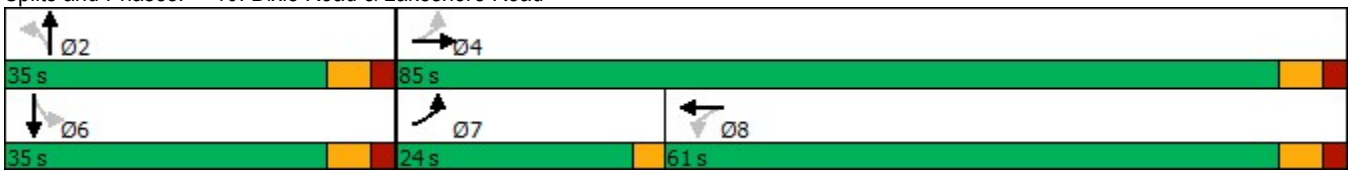


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	561	1	0	1161	250	0	0	1	217	0	298
Future Volume (vph)	310	561	1	0	1161	250	0	0	1	217	0	298
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	100.0		0.0	0.0		0.0	75.0		0.0
Storage Lanes	1		0	2		0	0		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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		1.00			1.00			0.99		1.00	0.98	
Frt					0.973			0.865			0.850	
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1711	3394	0	1858	3386	0	0	1586	0	1747	1538	0
Flt Permitted	0.072									0.757		
Satd. Flow (perm)	130	3394	0	1858	3386	0	0	1586	0	1390	1538	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					28			341			323	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		198.2			101.4			58.3			153.5	
Travel Time (s)		14.3			7.3			4.2			11.1	
Confl. Peds. (#/hr)	8		2	2		8	3		1	1		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	0%	0%	1%	1%	0%	0%	0%	1%	0%	1%
Adj. Flow (vph)	323	584	1	0	1209	260	0	0	1	226	0	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	323	585	0	0	1469	0	0	1	0	226	310	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)		3.4			3.4			3.4			3.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	0.6		2.0	0.6	
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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA			NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	85.0		36.3	36.3		35.0	35.0		35.0	35.0	
Total Split (s)	24.0	85.0		61.0	61.0		35.0	35.0		35.0	35.0	
Total Split (%)	20.0%	70.8%		50.8%	50.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	21.0	78.7		54.7	54.7		28.7	28.7		28.7	28.7	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.3		6.3	6.3			6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		10.0		10.0	10.0					9.0	9.0	
Flash Dont Walk (s)		15.0		15.0	15.0					14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	80.1	76.8			52.9			28.7		28.7	28.7	
Actuated g/C Ratio	0.68	0.65			0.45			0.24		0.24	0.24	
v/c Ratio	0.88	0.27			0.96			0.00		0.67	0.50	
Control Delay	57.4	9.1			46.5			0.0		52.1	6.5	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay	57.4	9.1			46.5			0.0		52.1	6.5	
LOS	E	A			D			A		D	A	
Approach Delay		26.2			46.5						25.7	
Approach LOS		C			D						C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.1			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 36.4		Intersection LOS: D	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 10: Dixie Road & Lakeshore Road



APPENDIX I

Future Total Detailed Capacity Analysis

Intersection	
Int Delay, s/veh	11.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	1286	34	46	648	17	19	0	17	36	0	62
Future Vol, veh/h	25	1286	34	46	648	17	19	0	17	36	0	62
Conflicting Peds, #/hr	6	0	0	0	0	6	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	3	47	44	6	0	68	0	65	0	0	10
Mvmt Flow	27	1368	36	49	689	18	20	0	18	38	0	66

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	713	0	0	1404	0	0	1884	2251	702	1540	2260	361
Stage 1	-	-	-	-	-	-	1440	1440	-	802	802	-
Stage 2	-	-	-	-	-	-	444	811	-	738	1458	-
Critical Hdwy	4.22	-	-	4.98	-	-	8.86	6.5	8.2	7.5	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.26	-	-	2.64	-	-	4.18	4	3.95	3.5	4	3.4
Pot Cap-1 Maneuver	857	-	-	313	-	-	21	42	264	80	42	613
Stage 1	-	-	-	-	-	-	76	200	-	348	399	-
Stage 2	-	-	-	-	-	-	418	396	-	380	196	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	853	-	-	313	-	-	~ 16	34	264	64	34	609
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	34	-	64	34	-
Stage 1	-	-	-	-	-	-	74	194	-	335	335	-
Stage 2	-	-	-	-	-	-	314	332	-	343	190	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.2	$ 482.3	73
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	29	853	-	-	313	-	-	148
HCM Lane V/C Ratio	1.321	0.031	-	-	0.156	-	-	0.704
HCM Control Delay (s)	$ 482.3	9.4	-	-	18.6	-	-	73
HCM Lane LOS	F	A	-	-	C	-	-	F
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0.5	-	-	4.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	3	31	11	1	28
Future Vol, veh/h	31	3	31	11	1	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	3	34	12	1	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	72	40	0	0	46	0
Stage 1	40	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	932	1031	-	-	1562	-
Stage 1	982	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	931	1031	-	-	1562	-
Mov Cap-2 Maneuver	931	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	990	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	939	1562	-
HCM Lane V/C Ratio	-	-	0.039	0.001	-
HCM Control Delay (s)	-	-	9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	3	20	3	5	0	4	59	4	6	0
Future Vol, veh/h	1	3	3	20	3	5	0	4	59	4	6	0
Conflicting Peds, #/hr	0	0	5	5	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	33	0	0	0	25	2	0	17	0
Mvmt Flow	1	3	3	22	3	5	0	4	63	4	6	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	54	82	11	59	51	37	6	0	0	68	0	0
Stage 1	14	14	-	37	37	-	-	-	-	-	-	-
Stage 2	40	68	-	22	14	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	949	812	1076	866	844	1041	1628	-	-	1546	-	-
Stage 1	1011	888	-	905	868	-	-	-	-	-	-	-
Stage 2	980	842	-	922	888	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	940	809	1071	855	841	1040	1628	-	-	1545	-	-
Mov Cap-2 Maneuver	940	809	-	855	841	-	-	-	-	-	-	-
Stage 1	1011	885	-	904	867	-	-	-	-	-	-	-
Stage 2	971	841	-	909	885	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.2	0	2.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1628	-	-	924	881	1545	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.034	0.003	-	-
HCM Control Delay (s)	0	-	-	8.9	9.2	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	11.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	1286	34	46	648	17	19	0	17	36	0	62
Future Vol, veh/h	25	1286	34	46	648	17	19	0	17	36	0	62
Conflicting Peds, #/hr	6	0	0	0	0	6	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	6	3	47	44	6	0	68	0	65	0	0	10
Mvmt Flow	27	1368	36	49	689	18	20	0	18	38	0	66

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	713	0	0	1404	0	0	1884	2251	702	1540	2260	361
Stage 1	-	-	-	-	-	-	1440	1440	-	802	802	-
Stage 2	-	-	-	-	-	-	444	811	-	738	1458	-
Critical Hdwy	4.22	-	-	4.98	-	-	8.86	6.5	8.2	7.5	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	7.86	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.26	-	-	2.64	-	-	4.18	4	3.95	3.5	4	3.4
Pot Cap-1 Maneuver	857	-	-	313	-	-	21	42	264	80	42	613
Stage 1	-	-	-	-	-	-	76	200	-	348	399	-
Stage 2	-	-	-	-	-	-	418	396	-	380	196	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	853	-	-	313	-	-	~ 16	34	264	64	34	609
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	34	-	64	34	-
Stage 1	-	-	-	-	-	-	74	194	-	335	335	-
Stage 2	-	-	-	-	-	-	314	332	-	343	190	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.2	$ 482.3	73
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	29	853	-	-	313	-	-	148
HCM Lane V/C Ratio	1.321	0.031	-	-	0.156	-	-	0.704
HCM Control Delay (s)	$ 482.3	9.4	-	-	18.6	-	-	73
HCM Lane LOS	F	A	-	-	C	-	-	F
HCM 95th %tile Q(veh)	4.4	0.1	-	-	0.5	-	-	4.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

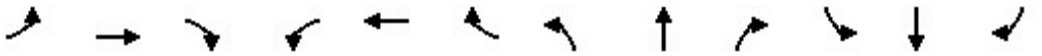
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	128	5	14	615	348	28
Future Vol, veh/h	128	5	14	615	348	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	0	75	3	8	0
Mvmt Flow	145	6	16	699	395	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1126	395	427	0	-	0
Stage 1	395	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Critical Hdwy	6.42	6.2	4.85	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	2.875	-	-	-
Pot Cap-1 Maneuver	227	659	831	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	223	659	831	-	-	-
Mov Cap-2 Maneuver	223	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	46.8	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	831	-	229	-	-
HCM Lane V/C Ratio	0.019	-	0.66	-	-
HCM Control Delay (s)	9.4	-	46.8	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.1	-	4.1	-	-

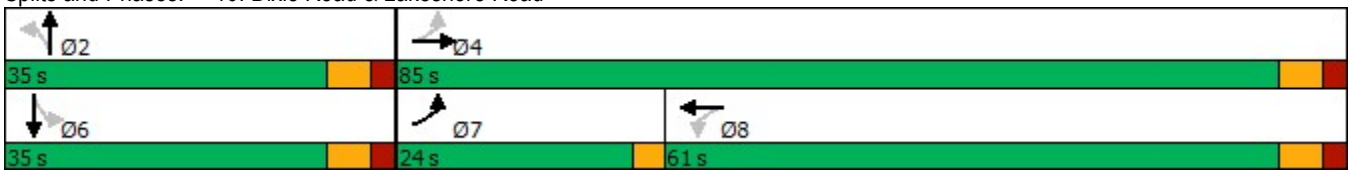


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	882	1	0	544	192	0	0	0	159	0	224
Future Volume (vph)	475	882	1	0	544	192	0	0	0	159	0	224
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	100.0		0.0	0.0		0.0	75.0		0.0
Storage Lanes	1		0	2		0	0		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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		1.00			0.99						0.99	
Frt					0.961						0.850	
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1677	3394	0	1858	3180	0	0	1858	0	1765	1391	0
Flt Permitted	0.159									0.757		
Satd. Flow (perm)	281	3394	0	1858	3180	0	0	1858	0	1406	1391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					54						439	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		198.2			101.4			58.3			153.5	
Travel Time (s)		14.3			7.3			4.2			11.1	
Confl. Peds. (#/hr)	10		1	1		10	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	4%	0%	0%	7%	3%	0%	0%	0%	0%	0%	12%
Adj. Flow (vph)	516	959	1	0	591	209	0	0	0	173	0	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	516	960	0	0	800	0	0	0	0	173	243	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)		3.4			3.4			3.4			3.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	0.6		2.0	0.6	
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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA					Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	85.0		36.3	36.3		35.0	35.0		35.0	35.0	
Total Split (s)	24.0	85.0		61.0	61.0		35.0	35.0		35.0	35.0	
Total Split (%)	20.0%	70.8%		50.8%	50.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	21.0	78.7		54.7	54.7		28.7	28.7		28.7	28.7	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.3		6.3	6.3			6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		10.0		10.0	10.0					9.0	9.0	
Flash Dont Walk (s)		15.0		15.0	15.0					14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	55.1	51.8			27.7					28.8	28.8	
Actuated g/C Ratio	0.59	0.56			0.30					0.31	0.31	
v/c Ratio	1.07	0.51			0.81					0.40	0.33	
Control Delay	86.3	13.8			35.4					30.3	1.2	
Queue Delay	0.0	0.0			0.0					0.0	0.0	
Total Delay	86.3	13.8			35.4					30.3	1.2	
LOS	F	B			D					C	A	
Approach Delay		39.1			35.4						13.3	
Approach LOS		D			D						B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 93.3			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 81.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: Dixie Road & Lakeshore Road



Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	780	7	4	1443	44	14	0	16	26	0	44
Future Vol, veh/h	46	780	7	4	1443	44	14	0	16	26	0	44
Conflicting Peds, #/hr	6	0	0	0	0	6	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	3	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	49	830	7	4	1535	47	15	0	17	28	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1588	0	0	837	0	0	1710	2528	419	2086	2508	799
Stage 1	-	-	-	-	-	-	932	932	-	1573	1573	-
Stage 2	-	-	-	-	-	-	778	1596	-	513	935	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	400	-	-	806	-	-	60	28	589	31	29	333
Stage 1	-	-	-	-	-	-	291	348	-	117	172	-
Stage 2	-	-	-	-	-	-	360	168	-	517	347	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	398	-	-	806	-	-	46	24	589	~ 27	25	331
Mov Cap-2 Maneuver	-	-	-	-	-	-	46	24	-	~ 27	25	-
Stage 1	-	-	-	-	-	-	255	305	-	102	170	-
Stage 2	-	-	-	-	-	-	307	166	-	440	304	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	65.5	273.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	90	398	-	-	806	-	-	64
HCM Lane V/C Ratio	0.355	0.123	-	-	0.005	-	-	1.164
HCM Control Delay (s)	65.5	15.3	-	-	9.5	-	-	273.6
HCM Lane LOS	F	C	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.4	0.4	-	-	0	-	-	6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	2	59	31	3	71
Future Vol, veh/h	20	2	59	31	3	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	2	64	34	3	77

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	164	81	0	0	98	0
Stage 1	81	-	-	-	-	-
Stage 2	83	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	827	979	-	-	1495	-
Stage 1	942	-	-	-	-	-
Stage 2	940	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	825	979	-	-	1495	-
Mov Cap-2 Maneuver	825	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	938	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	837	1495	-
HCM Lane V/C Ratio	-	-	0.029	0.002	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	0	68	1	4	2	7	42	2	6	0
Future Vol, veh/h	0	2	0	68	1	4	2	7	42	2	6	0
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	14	0	0	0	0
Mvmt Flow	0	3	0	87	1	5	3	9	54	3	8	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	61	85	10	60	58	38	9	0	0	64	0	0
Stage 1	15	15	-	43	43	-	-	-	-	-	-	-
Stage 2	46	70	-	17	15	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	939	809	1077	941	837	1040	1624	-	-	1551	-	-
Stage 1	1010	887	-	976	863	-	-	-	-	-	-	-
Stage 2	973	841	-	1008	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	929	804	1075	934	832	1038	1623	-	-	1550	-	-
Mov Cap-2 Maneuver	929	804	-	934	832	-	-	-	-	-	-	-
Stage 1	1007	884	-	973	860	-	-	-	-	-	-	-
Stage 2	964	838	-	1002	884	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	9.3	0.3	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1623	-	-	804	938	1550	-	-
HCM Lane V/C Ratio	0.002	-	-	0.003	0.1	0.002	-	-
HCM Control Delay (s)	7.2	0	-	9.5	9.3	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	780	7	4	1443	44	14	0	16	26	0	44
Future Vol, veh/h	46	780	7	4	1443	44	14	0	16	26	0	44
Conflicting Peds, #/hr	6	0	0	0	0	6	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	500	-	-	500	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	4	3	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	49	830	7	4	1535	47	15	0	17	28	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1588	0	0	837	0	0	1710	2528	419	2086	2508	799
Stage 1	-	-	-	-	-	-	932	932	-	1573	1573	-
Stage 2	-	-	-	-	-	-	778	1596	-	513	935	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.24	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	400	-	-	806	-	-	60	28	589	31	29	333
Stage 1	-	-	-	-	-	-	291	348	-	117	172	-
Stage 2	-	-	-	-	-	-	360	168	-	517	347	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	398	-	-	806	-	-	46	24	589	~ 27	25	331
Mov Cap-2 Maneuver	-	-	-	-	-	-	46	24	-	~ 27	25	-
Stage 1	-	-	-	-	-	-	255	305	-	102	170	-
Stage 2	-	-	-	-	-	-	307	166	-	440	304	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	65.5	273.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	90	398	-	-	806	-	-	64
HCM Lane V/C Ratio	0.355	0.123	-	-	0.005	-	-	1.164
HCM Control Delay (s)	65.5	15.3	-	-	9.5	-	-	273.6
HCM Lane LOS	F	C	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.4	0.4	-	-	0	-	-	6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

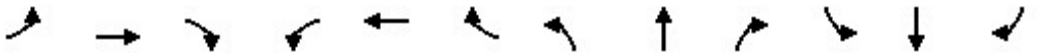
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	74	4	36	461	537	72
Future Vol, veh/h	74	4	36	461	537	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	130
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	79	4	38	490	571	77

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1137	571	648	0	-	0
Stage 1	571	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	225	524	947	-	-	-
Stage 1	569	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	216	524	947	-	-	-
Mov Cap-2 Maneuver	216	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	572	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.4	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	947	-	223	-	-
HCM Lane V/C Ratio	0.04	-	0.372	-	-
HCM Control Delay (s)	9	-	30.4	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.6	-	-

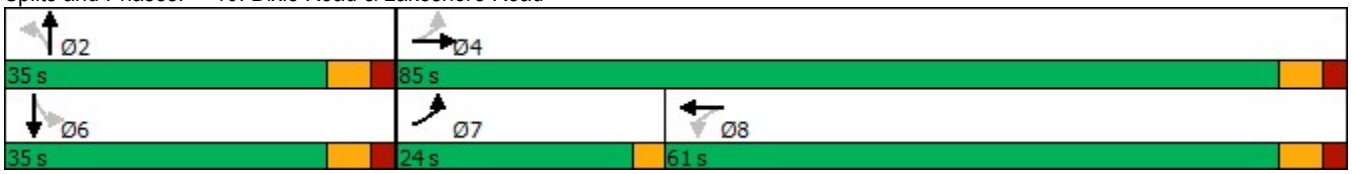


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	571	1	0	1178	250	0	0	1	217	0	310
Future Volume (vph)	318	571	1	0	1178	250	0	0	1	217	0	310
Ideal Flow (vphpl)	1860	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	100.0		0.0	0.0		0.0	75.0		0.0
Storage Lanes	1		0	2		0	0		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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		1.00			1.00			0.99		1.00	0.98	
Frt					0.974			0.865			0.850	
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1711	3394	0	1858	3390	0	0	1586	0	1747	1538	0
Flt Permitted	0.071									0.757		
Satd. Flow (perm)	128	3394	0	1858	3390	0	0	1586	0	1390	1538	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					27			334			322	
Link Speed (k/h)		50			50			60			50	
Link Distance (m)		198.2			101.4			58.3			153.5	
Travel Time (s)		14.3			7.3			3.5			11.1	
Confl. Peds. (#/hr)	8		2	2		8	3		1	1		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	0%	0%	1%	1%	0%	0%	0%	1%	0%	1%
Adj. Flow (vph)	331	595	1	0	1227	260	0	0	1	226	0	323
Shared Lane Traffic (%)												
Lane Group Flow (vph)	331	596	0	0	1487	0	0	1	0	226	323	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)		3.4			3.4			3.4			3.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	0.6		2.0	0.6	
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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA			NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	24.0	85.0		36.3	36.3		35.0	35.0		35.0	35.0	
Total Split (s)	24.0	85.0		61.0	61.0		35.0	35.0		35.0	35.0	
Total Split (%)	20.0%	70.8%		50.8%	50.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	21.0	78.7		54.7	54.7		28.7	28.7		28.7	28.7	
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.3		2.3	2.3		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.3		6.3	6.3			6.3		6.3	6.3	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)		10.0		10.0	10.0					9.0	9.0	
Flash Dont Walk (s)		15.0		15.0	15.0					14.0	14.0	
Pedestrian Calls (#/hr)		0		0	0					0	0	
Act Effct Green (s)	80.7	77.4			53.4			28.7		28.7	28.7	
Actuated g/C Ratio	0.68	0.65			0.45			0.24		0.24	0.24	
v/c Ratio	0.90	0.27			0.97			0.00		0.67	0.53	
Control Delay	61.4	9.1			47.9			0.0		52.4	7.5	
Queue Delay	0.0	0.0			0.0			0.0		0.0	0.0	
Total Delay	61.4	9.1			47.9			0.0		52.4	7.5	
LOS	E	A			D			A		D	A	
Approach Delay		27.7			47.9						26.0	
Approach LOS		C			D						C	

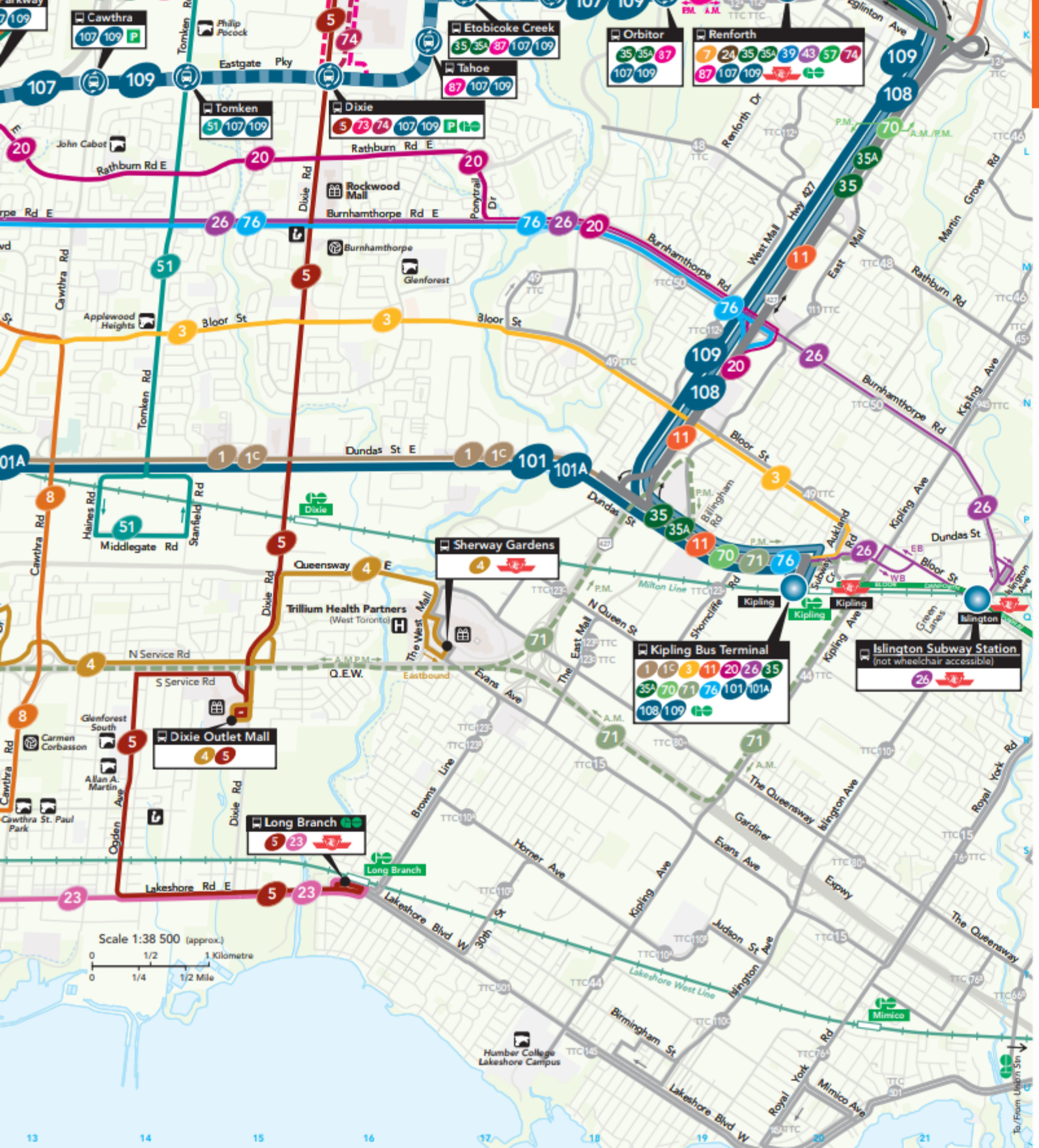
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.7			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 37.5		Intersection LOS: D	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 10: Dixie Road & Lakeshore Road



APPENDIX J

Transit Excerpts



Weekday Service Map

Effective: September 6, 2021

MiWay Route Service Types

- Regular Route
- Rush Hour (Peak) Route
- Non-Rush Hour (Off Peak) Route
- MiExpress Route All Day Service
- MiExpress Route AM/PM Rush Hour Service
- Route Number

Connecting Transit Services

- Oakville Transit Route
- Brampton Transit Route
- TTC Bus Route
- TTC Subway & Station
- GO Train & Station

Map Symbols

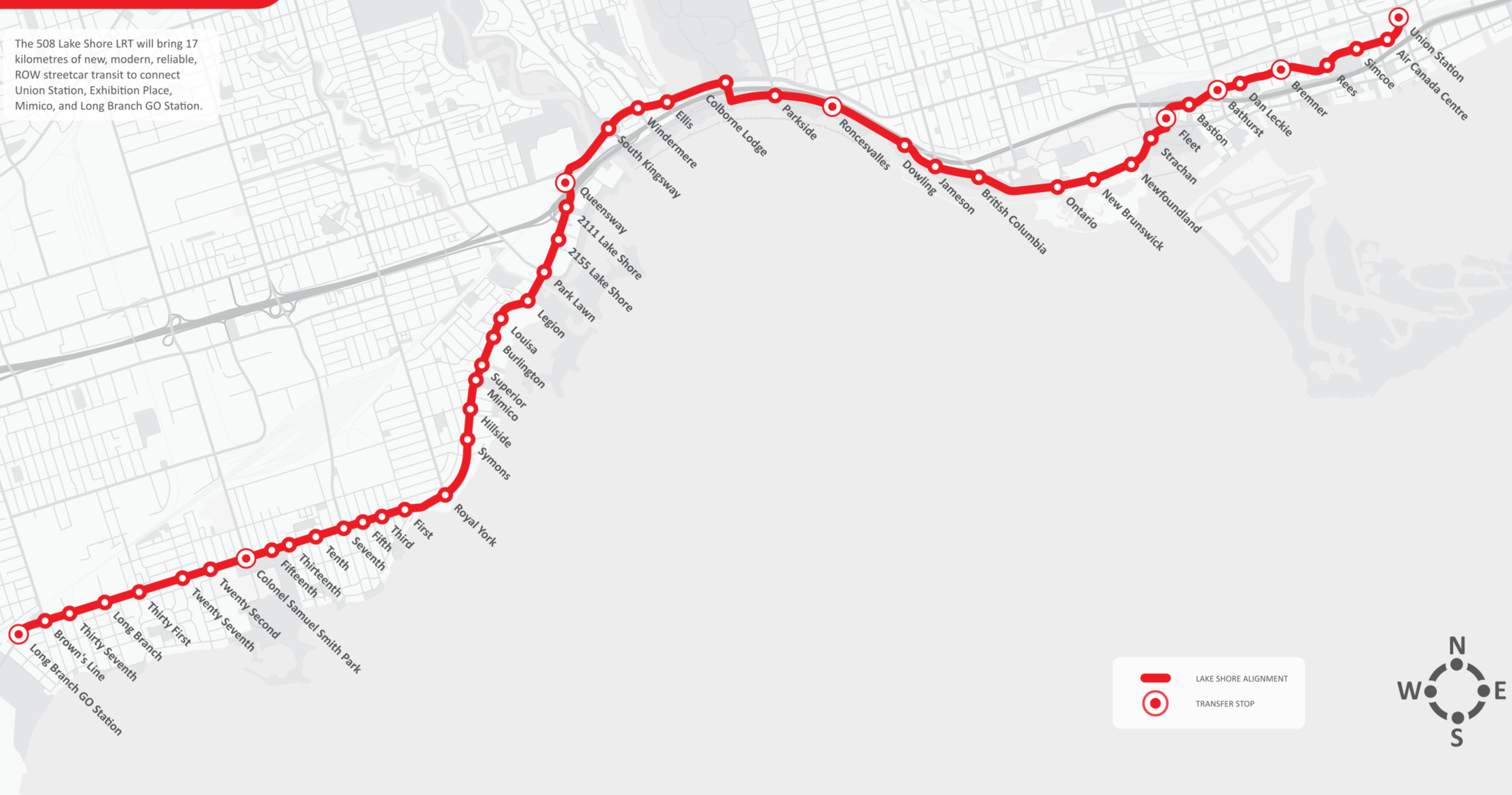
- Major Transit Terminal
- Transitway Station
- Mississauga Transitway
- Key Transit Stops
- Hospital
- Shopping Centre
- High School, University or College
- Recreation or Community Centre
- Ice Rink
- Public Library
- Living Arts Centre
- Civic Centre (City Hall)
- Court House

All MiWay routes are fully accessible with low floor, wheelchair accessible buses

508

Lake Shore

The 508 Lake Shore LRT will bring 17 kilometres of new, modern, reliable, ROW streetcar transit to connect Union Station, Exhibition Place, Mimico, and Long Branch GO Station.

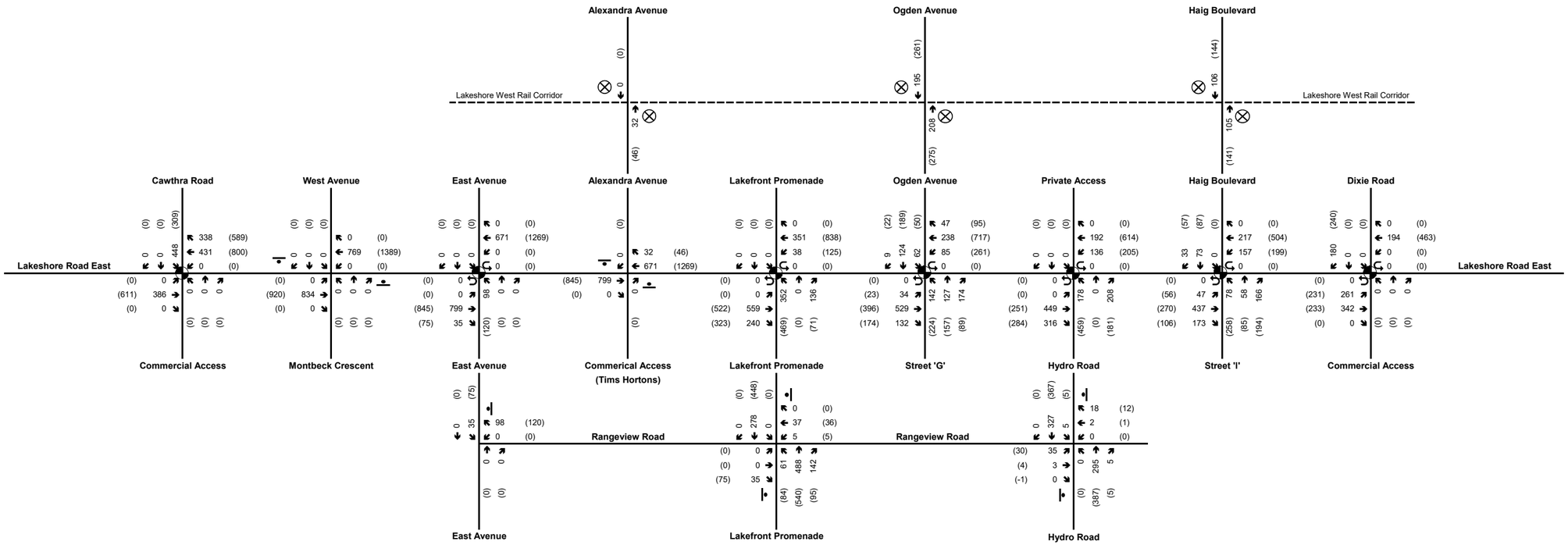



LEGEND
Existing Local Stop
Future Express Stop
Express Stop Walkshed (400 m)
Existing Stop Walkshed (400 m)
0
Meters
500
INDIAN RD
MINEOLA RD E
ATWATER AV
MISSISSAUGA RD
HURONTARIO ST
CAWTHRA RD
OGDEN AV
DIXIE RD
LAKESHORE RD W
LAKESHORE RD E
LONG BRANCH GO
QUEEN ST E
PARK ST E
HIGH ST E
PORT ST E
FOREST AV
FIRST ST
THIRD ST
GARDNER AV
SAINT JAMES AV
SAINT MARY S AV
BYNGMOUNT AV
RANGEVIEW RD
CURZON AV
MINNEWAWA RD
WANITA RD
ONAWAY RD
CUMBERLAND DR
LAKEFRONT PM
STAVEBANK RD
HALLIDAY AV
SIXTH ST
FOURTH ST
PELHAM AV
VILLAGE GREEN BV
RAPHAEL AV
CLAREDALE RD
EAGLEWOOD BV
TROY ST
ANGELENE ST
VERONICA DR
COTTON DR
INGLEWOOD DR
MINEOLA RD W
RENSHAW CT
KANE RD
QUEEN ST W
HIGH ST W
PORT ST W

APPENDIX K

Relevant Background Development Excerpts

2031 SITE TRAFFIC VOLUMES

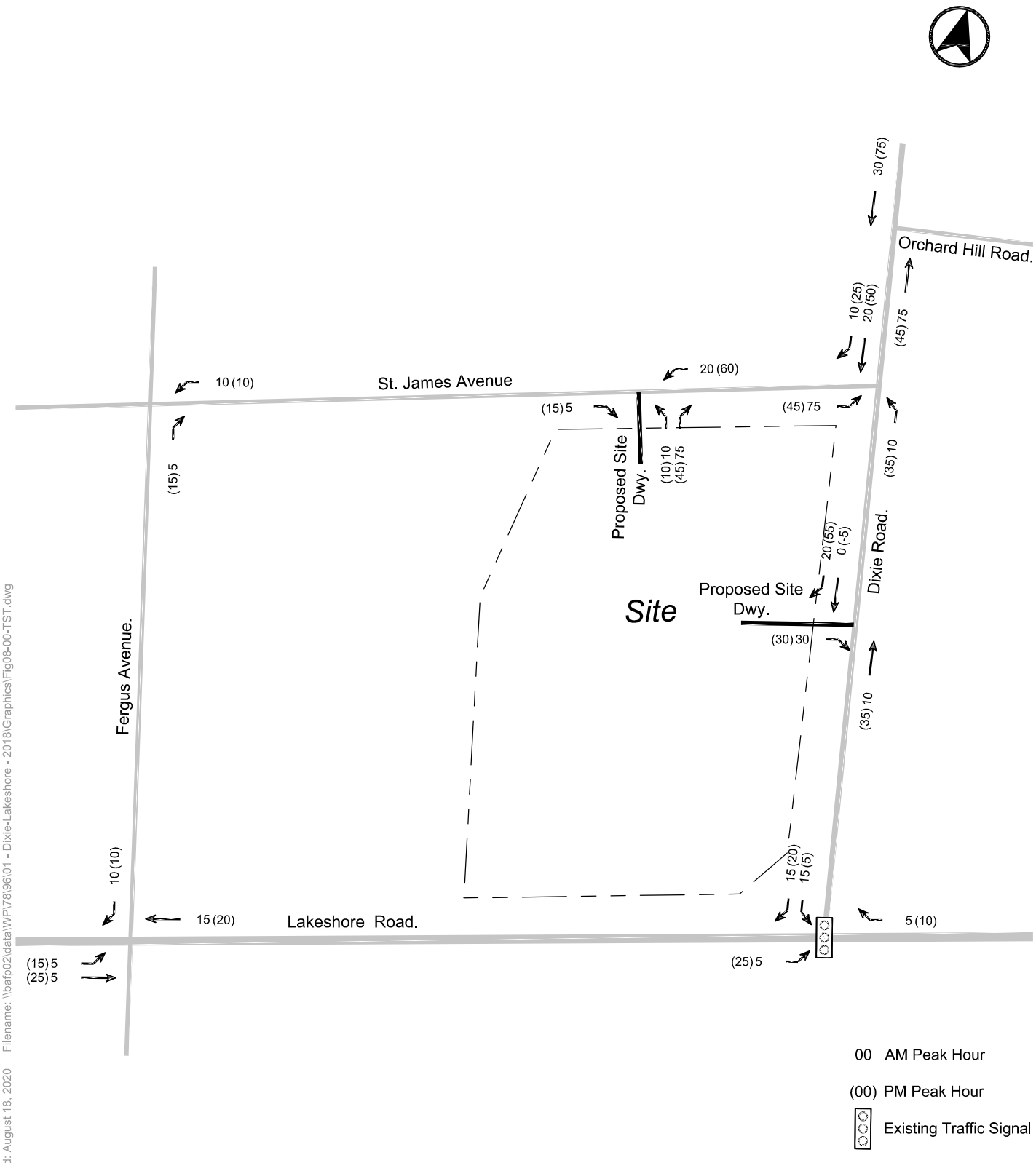


LEGEND

XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection
Stop Control
Railroad Crossing

NOT TO SCALE

Figure 11-1 – 2031 Site Traffic Volumes



Date Plotted: August 18, 2020 Filename: \\bafp02\data\WP\78\96\01 - Dixie-Lakeshore - 2018\Graphics\Fig08-00-TST.dwg

TOTAL SITE TRAFFIC VOLUMES

BA Group

Dixie-Lakeshore Condominiums, Mississauga
7896-01 August 2020

Figure 8

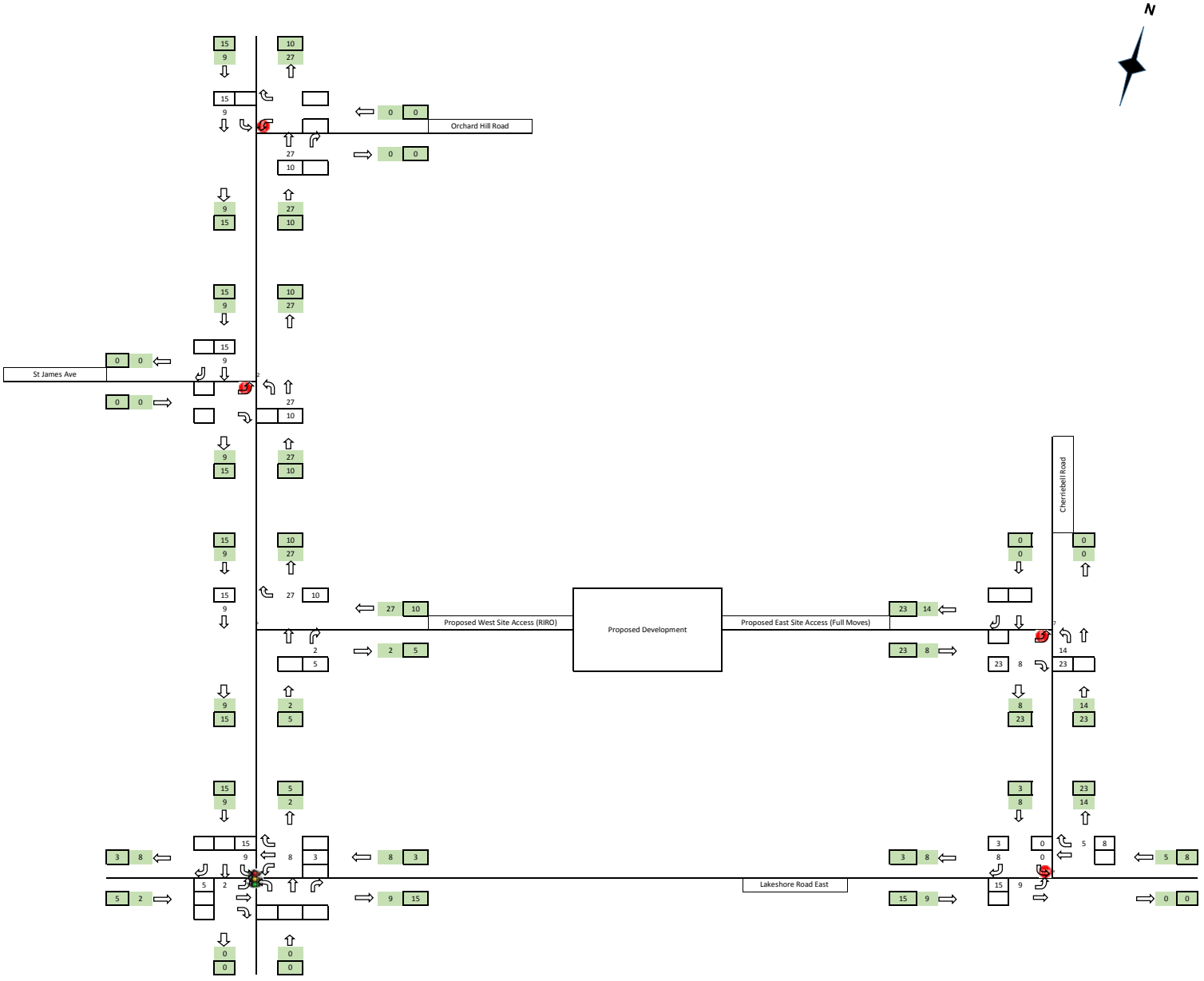


Figure 5-1: Site Generated Traffic Volumes
Traffic Impact Study - Mixed-Use Development
1381 Lakeshore Road East, City of Mississauga
2019-0263

Site Statistics for
1407 LAKESHORE ROAD, EAST
1007 CHERRIEBELL ROAD,
1015 CHERRIEBELL ROAD,

SITE DATA

Zoning = "C-4" (Mainstreet Commercial)
Amended as per Committee of Adjustment "A" 415/15

Lot Area:	1827.5 sq.m.
Landscape Area:	133.1 sq.m.
Building 1 Area:	371 sq.m.
Building 2 Area:	479 sq.m.
Building 3 (Garage):	167.0 sq.m.
Total Building Area (Bldgs. 1+2+3):	1017 sq.m.
Building 1:	2 Commercial Units 6 Residential Units
Building 2:	18 Residential Units

BUILDING DATA

	1 BED	2 BED	3 BED	UNITS
Building 1	0	4	2	6
Building 2	6	12	0	18
Total				24

Mixed Use Building 1 (3 storeys + Mechanical Suite) = 9.27m
Residential Building 2 (4 storeys + Mechanical Suite) = 12.06m

BUILDING 1:

Residential Ground Floor Area	210.5 sq.m.
Amended as per Committee of Adjustment "A" 415/15	
Commercial Ground Floor Area	139.2 sq.m.
Commercial Garbage	10.4 sq.m.
Residential Second Floor Area	344.5 sq.m.
Residential Third Floor Area	344.5 sq.m.
Mechanical Suite	108.4 sq.m.
Total Building 1 GFA	1,157.5 sq.m.

BUILDING 2:

Residential Ground Floor Area	462.9 sq.m.
Amended as per Committee of Adjustment "A" 415/15	
Residential Second Floor Area	409.3 sq.m.
Residential Third Floor Area	449.5 sq.m.
Residential Fourth Floor Area	441.0 sq.m.
Mechanical Suite	135.7 sq.m.
Total Building 2 GFA	1,898.4 sq.m.
Building 3 (Garage):	167.0 sq.m.

PARKING:

BUILDING 1 - Dwelling Above Commercial
Amended as per Committee of Adjustment "A" 415/15

Residential Parking Required: 1.25/unit x 6 units = 8 spaces

BUILDING 2 - Horizontal Multiple Dwelling
Amended as per Committee of Adjustment "A" 415/15

Residential Parking Required:	1.1 per 1 BR x 6 units = 6.6 spaces
	1.5 per 2 BR x 12 units = 18 spaces
Visitor Parking Required:	0.25/unit x 18 units = 4.5 spaces
Commercial Parking Ratio:	4.0/100 sq.m.
Commercial Parking Required: [4*(116)]/100 =	4.64 spaces

TOTAL AGGREGATE PARKING REQUIRED: 34 spaces
TOTAL PARKING PROVIDED: 34 spaces
Amended as per Committee of Adjustment "A" 415/15
Residential req'd 28 + Commercial req'd 6 =34 total

Barrier Free Parking Required:	1 space
Barrier Free Parking Provided:	1 space
Loading Provided:	0 spaces
Bicycle Parking Internal	24 spaces
Bicycle Parking External	6 spaces

Standard Signed Condominium Declaration for Multiple Family Residential Developments:

I hereby certify that the Landscape Plan conforms to the Site Grading and Drainage Plan for this application.

As follows:

DOMINIUM OF CANADA) IN THE MATTER OF A
PROVINCE OF ONTARIO) MULTIPLE RESIDENTIAL
) BUILDING DEVELOPMENT

REGIONAL MUNICIPALITY) ON THE PROPERTY LOCATED IN
OF PEEL) THE CITY OF MISSISSAUGA
) BEING KNOWN AS
TO WIT:)
)
)

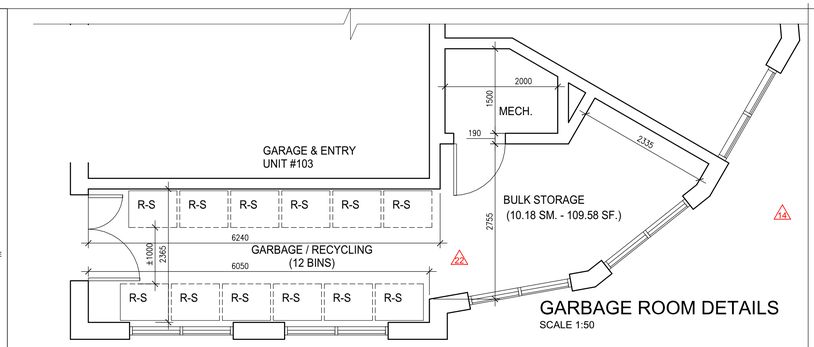
I, _____

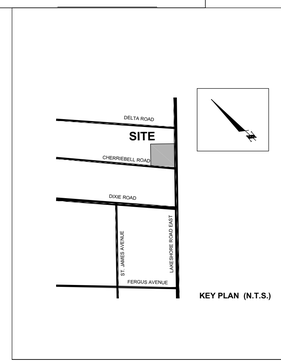
MAKE OATH AND SAY AS FOLLOWS:

1. I AM THE PRESIDENT OF _____ WHICH IS THE OWNER AND BUILDER OF MULTI RESIDNIAL BUILDING(S) ON THE PROPERTY DESCRIBED ABOVE.
2. THAT THE SAID MULTI RESIDENTIAL BUILDING(S) IS BEING BUILT TO BE SOLD / RENTED AS CONDOMINIUM / RENTAL TOWNHOUSES / APARTMENTS (AS APPLICABLE).

AND I MAKE THIS SOLEMN DECLARATION CONSCIENTIOUSLY BELIEVING IT TO BE TRUE AND KNOWING THAT IT IS ON THE SAME FORCE AND EFFECT AS IF I MAKE IT UNDER OATH.

DECLARED BEFORE ME AT THE)
_____)
)
IN THE MUNICIPALITY OF)
_____)
)
THIS_____ DAY OF _____)
20 _____.)
)
A COMMISSIONER ETC.





1407 Lakehsore Road East
Established Grade Calculation

Building 1 FFE = 84.90

Length	Begin Elevation	End Elevation	Length	Calculation
1	84.81	85.15	25.93m	2203.53
2	85.15	85.3	7.6m	647.71
3	85.3	85.4	7.48m	638.42
4	85.4	85.35	31.205m	2664.13
5	85.35	84.81	10.59m	901
		Total	82.805m	7054.79
			7054.79/82.805	**85.2**

Building 2 FFE = 86.40

Length	Begin Elevation	End Elevation	Length	Calculation
1	86.25	85.85	15.24m	1311.4
2	85.85	85.9	31.185m	2678.01
3	85.9	86	7.62m	654.94
4	86	86.25	7.62m	656.27
5	86.25	86.25	31.185m	2689.71
		Total	92.85m	7990.33
			7990.33/92.85	**86.06**

ZONING MATRIX:

ZONE = C4 Mainstreet Commercial
Amended as per Committee of Adjustment "A" 415/15

SETBACKS	Required	Provided
Minimum Front Yard (Lakeshore Road East)	0m	0m
Minimum Exterior Side Yard (Cherriebell Road) Amended as per Committee of Adjustment "A" 415/15	0m	0m
Lot Abutting Residential North Property Line Amended as per Committee of Adjustment "A" 415/15	4.5m	4.55m
Lot Abutting C4 Zone East Property Line	0m	1.2m

Contractor must verify all dimensions on the job and report any discrepancy to the Architect before proceeding with the work.
Drawings are NOT to be scaled.

All drawings and specifications are instruments of service and the copyright property of the Architect and must be returned upon request. Q4 Architects Inc. retains the copyright in all drawings, plans, sketches, and all digital information. They may not be copied or used for any other projects or purposes or distributed without the written consent of Q4 Architects Inc.

SYMBOLS:

- MAIN PUBLIC ENTRY DOOR
- SECONDARY & SERVICE ENTRY DOOR
- PRIVATE ENTRY DOOR
- LP LIGHT POLE
- H HYDRANT
- CB CATCH BASIN
- MAIL SUPER MAIL BOX

NOTES:

I hereby certify that this drawing conforms in all respects to the site development plans as prepared by Q4 Architects Inc. and approved by the City of Mississauga under file number SP11-174 W1

PROFESSIONAL STAMP

Architects Signed Seal

ii. "The City of Mississauga requires that all working drawings submitted to the Building Division as part of an application for the issuance of a building permit shall be certified by the architect or engineer as being in conformity with the site development plan as approved by the City of Mississauga."

iii. "All exterior lighting will be directed onto the site and will not infringe upon the adjacent properties."

iv. "All roof top mechanical units shall be screened from view by the applicant."

v. "Parking spaces reserved for people with disabilities must be identified by a sign, installed at the applicant's expense, in accordance with the design specifications of Schedules 2 & 3 of By-law 001-2009."

vi. "The applicant will be responsible for ensuring that all plans conform to Transport Canada's restrictions."

vii. "Grades will be met within a 33% maximum slope at the property lines and within the site."
viii. "All damaged areas ar e to be reinstated with topsoil and sod prior to the release of securities."

ix. "Signage shown on the site development plans is for information purposes only. All signs will be subject to the provisions of Sign By-law 0054-2002, as amended, and a separate sign application will be required through the Building Division."

x. "Any fencing adjacent to municipal lands is to be located 15 cm (6.0 in.) inside the property line."

xi. Only "shielded" lighting fixtures are permitted for all development, except for detached and semi-detached dwellings within 60 m (196.8 ft.) of a residentially zoned property and must conform to the Engineer Certified Lighting Plan.

xii. The Engineer Certified Lighting Plan must be signed by the consulting Engineer.

xiii. The Owner covenants and agrees to construct and install "shielded" lighting fixtures on the subject lands, in conformity with the Site Plan and Engineer Certified Lighting Plan to the satisfaction of the City of Mississauga.

xiv. The applicant will be responsible for ensuring that all plans conform to Transport Canada's restrictions.

xv. Where planting is to be located in landscaped areas on top of an underground parking structure, it is the responsibility of the applicant to arrange the coordination of the design of the underground parking structure with the Landscape Architect and the Consulting Engineer. Underground parking structures with landscaping are to be capable of supporting the following loads:
- 15 cm of drainage gravel plus 40 cm topsoil for sod
- 15 cm of drainage gravel plus 60 cm topsoil for shrubs
- 15 cm of drainage gravel plus 90 cm topsoil for trees

OR

- Prefabricated sheet drain system* with a compressive strength of 1003 Kpa plus 40 cm topsoil for sod
- Prefabricated sheet drain system* with a compressive strength of 1003 Kpa plus 60 cm topsoil for shrubs
- Prefabricated sheet drain system* with a compressive strength of 1003 Kpa plus 90 cm topsoil for trees

* Terradrain 900 or approved equal.

xvi. The structural design of any retaining wall over 0.6 m in height or any retaining wall located on a property line is to be shown on the Site Grading Plan for this project and is to be approved by the Consulting Engineer for the project.

xvii. Continuous 15 cm high barrier type poured concrete curbing will be provided between all asphalt and landscaped areas throughout the site.

xviii. Tree Protection Note:
The applicant is responsible for ensuring that tree protection hoarding (Section 4.8.2) is maintained throughout all phases of demolition and construction in the location and condition as approved by the Planning and Building Department. No materials (building materials, soil, etc.) may be stockpiled within the area of hoarding. Failure to maintain the hoarding as originally approved or the storage of materials within the hoarding will be cause for the Letter of Credit to be held for two years following completion of all site works. Hoarding must be inspected prior to the removal of any tree hoarding from the site.

Owner's Signature: _____

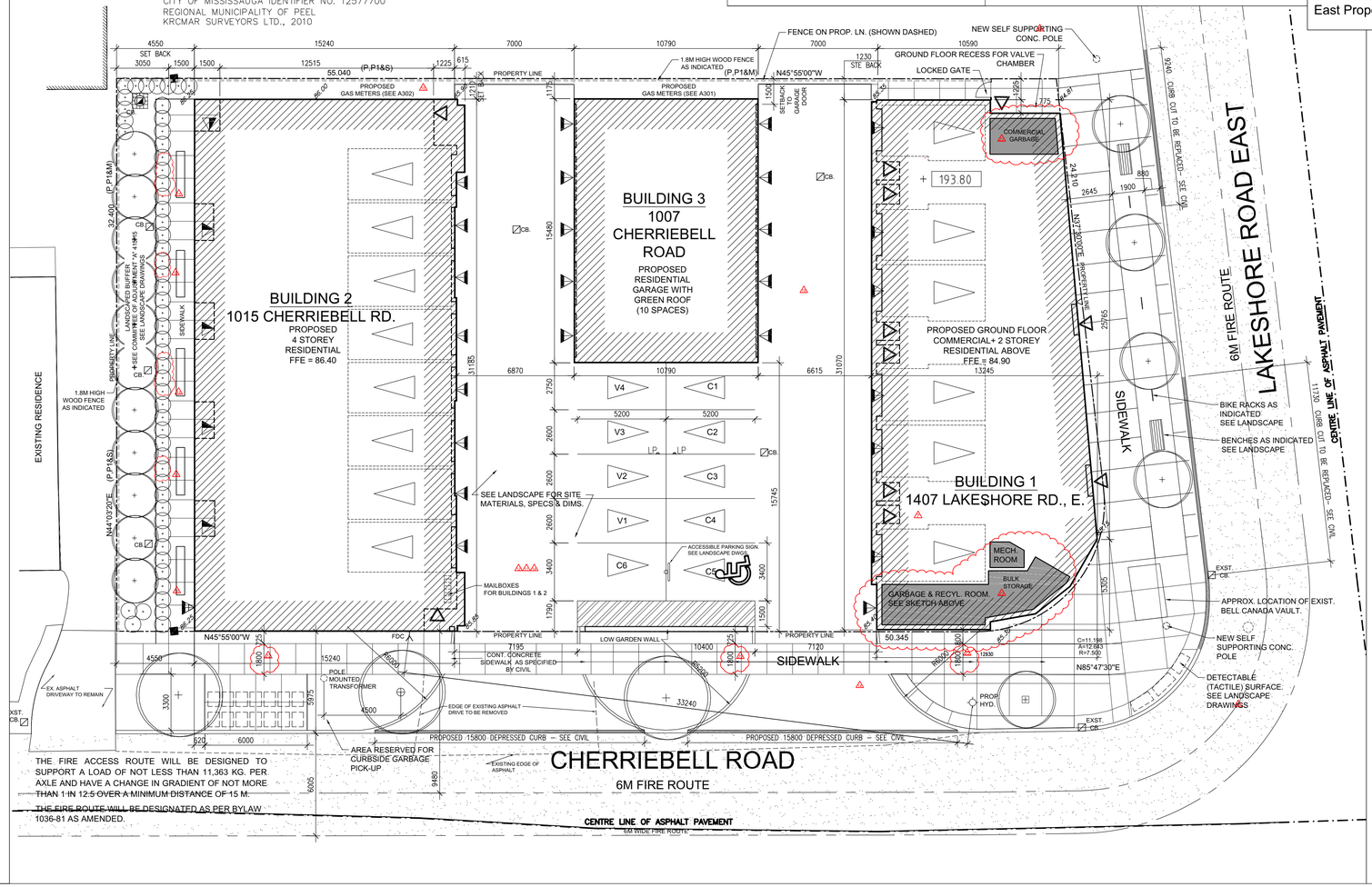
Date: _____

SURVEY INFORMATION TAKEN FROM

BOUNDARY AND TOPOGRAPHIC SURVEY OF
LOT 4, PART OF LOT 5
AND PART OF LANE
(CLOSED BY BY-LAW 4239, INSTRUMENT BY-LAW No. 790)
REGISTERED PLAN A-20
CITY OF MISSISSAUGA
CITY OF MISSISSAUGA IDENTIFIER NO. 12577700
REGIONAL MUNICIPALITY OF PEEL
KROMAR SURVEYORS LTD., 2010

BEARING
BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE NORTHEASTERLY LIMIT OF CHERRIEBELL ROAD, BY REGISTERED PLAN A-20 AND AS SHOWN ON PLAN 43R-9284 HAVING A BEARING OF N45°55'00"W

MISSISSAUGA ELEVATION NOTE
ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO BENCH MARK No. 102 HAVING AN ELEVATION OF 84.522 METRES.



ADDITIONAL NOTES

1. THE SITE PLAN IS TO BE READ IN CONJUNCTION WITH THE GRADING PLAN PREPARED BY CROZIER & ASSOC.
2. BUILDER TO VERIFY SERVICE CONNECTION ELEVATIONS PRIOR TO CONSTRUCTING FOUNDATIONS.
3. BUILDER TO VERIFY LOCATION OF ALL HYDRANTS, STREET LIGHTS, TRANSFORMERS AND OTHER SERVICES. IF MINIMUM DIMENSIONS ARE NOT MAINTAINED, BUILDER IS TO RELOCATE AT HIS OWN EXPENSE
4. ALL SURFACE DRAINAGE WILL BE SELF CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
5. THE PORTIONS OF THE DRIVEWAY WITHIN THE MUNICIPAL BOULEVARD WILL BE PAVED BY THE APPLICANT.
6. AT THE ENTRANCES TO THE SITE, THE MUNICIPAL CURB AND SIDEWALK WILL BE CONTINUOUS THROUGH THE DRIVEWAY AND A CURB DEPRESSION WILL BE PROVIDED FOR EACH ENTRANCE.
7. ALL PROPOSED CURBING WITHIN THE MUNICIPAL BOULEVARD AREA FOR THE SITE IS TO SUIT AS FOLLOWS:
   A) FOR ALL SINGLE FAMILY RESIDENTIAL PROPERTIES INCLUDING ON STREET TOWNHOUSES, ALL CURBING IS TO STOP AT THE PROPERTY LIMIT OR THE BACK OF THE MUNICIPAL SIDEWALK, WHICHEVER IS APPLICABLE, OR,
   B) FOR ALL OTHER PROPOSALS INCLUDING INDUSTRIAL, COMMERCIAL AND CONDOMINIUM DEVELOPMENTS, ALL ENTRANCES TO THE SITE ARE TO BE IN ACCORDANCE WITH O.P.S.D. 350.010
8. ALL EXCESS EXCAVATED MATERIAL WILL BE REMOVED FROM THE SITE.
9. THE APPLICANT WILL BE REQUIRED TO CONTACT ALL UTILITY COMPANIES TO OBTAIN ALL REQUIRED LOCATES PRIOR TO THE INSTALLATION OF HOARDING WITHIN THE MUNICIPAL RIGHT OF WAY.
10. THE APPLICANT WILL BE RESPONSIBLE FOR THE COST OF ANY UTILITY RELOCATIONS NECESSITATED BY THE SITE PLAN.
11. PRIOR TO CONSTRUCTION TAKING PLACE, ALL REQUIRED HOARDING IN ACCORDANCE WITH THE ONTARIO OCCUPATIONAL HEALTH & SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS MUST BE ERECTED AND THEN MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION
12. ALL SURFACE DRAINAGE WILL BE SELF CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
13. THE STRUCTURAL DESIGN OF ANY RETAINING WALL OVER 0.60 METERS IN HEIGHT OR ANY RETAINING WALL LOCATED ON A PROPERTY LINE, IS TO BE SHOWN ON THE SITE GRADING PLAN FOR THIS PROJECT, AND IS TO BE APPROVED BY THE CONSULTING ENGINEER FOR THE PROJECT.
14. BOLLARDS ARE NOT REMOVABLE.

ISSUED		YYYY.MM.DD	
1	SITE PLAN SUBMISSION	MAR. 18/15	MT
2	REVISED AS PER CITY COMMENTS	OCT. 14/15	MT
3	ISSUED FOR COMMITTEE OF ADJUST	NOV. 12/15	MT
4	SITE PLAN SUBMISSION	DEC 21/15	MKT
5	ISSUED FOR SPA NO.2	FEB. 11/16	MKT
6	ISSUED FOR SPA RESUBMISSION	APR. 4/16	MKT
7	ISSUED FOR SPA RESUBMISSION	APR. 7/16	MKT
8	ISSUED TO ENBRIDGE	APR. 19/16	MT
9	RE-ISSUED FOR SPA	APR. 27/16	MKT
10	RE-ISSUED FOR SPA	JUNE 2/16	MKT
11	ISSUED FOR SPA	JULY 22/16	MKT
12	ISSUED FOR TENDER	SEP 15/16	MKT
15	ISSUED FOR TENDER	MAR 23/17	MKT
16	REISSUED FOR TENDER	NOV. 23/16	MKT
17	ISSUED FOR INFO & COORD.	JAN. 19/17	MKT
18	ISSUED TO CLIENT	AUG. 28/20	SW
19	ISSUED FOR SITE PLAN APPROVAL	OCT. 05/20	SW

No.	Revision	Date	By
1	REVISED FOR COORDINATION	AUG. 28/20	SW
2	REVISED FOR INFO & COORD.	JAN. 13/17	MKT
3	REVISED FOR MECHANICAL	NOV. 16/16	MKT
4	REVISED FOR SPA	JULY 6/16	MKT
5	REVISED FOR SPA (STATISTICS & COORD	MAY 18/16	MKT
6	REVISED FOR SPA	MAY 17/16	MKT
7	REVISED FOR SPA	APR. 29/16	MKT
8	REVISED FOR MECHANICAL	APR. 7/16	MKT

ONTARIO ASSOCIATION of ARCHITECTS
MARCELO JORGE GRACA
LICENCE
4363

PROJECT NORTH
TRUE NORTH
GRID NORTH

Q4 Architects Inc.
2171 Avenue Road, Suite 302
Toronto, Ont, M5M 4B4
tel: (416) 322-6334
fax: (416) 322-7294
email: info@q4architects.com

Client
BOOTH DEVELOPMENTS

Project Name
ANTHEM A
1407 LAKESHORE ROAD, EAST
1007 CHERRIEBELL ROAD,
1015 CHERRIEBELL ROAD,
MISSISSAUGA, ONTARIO

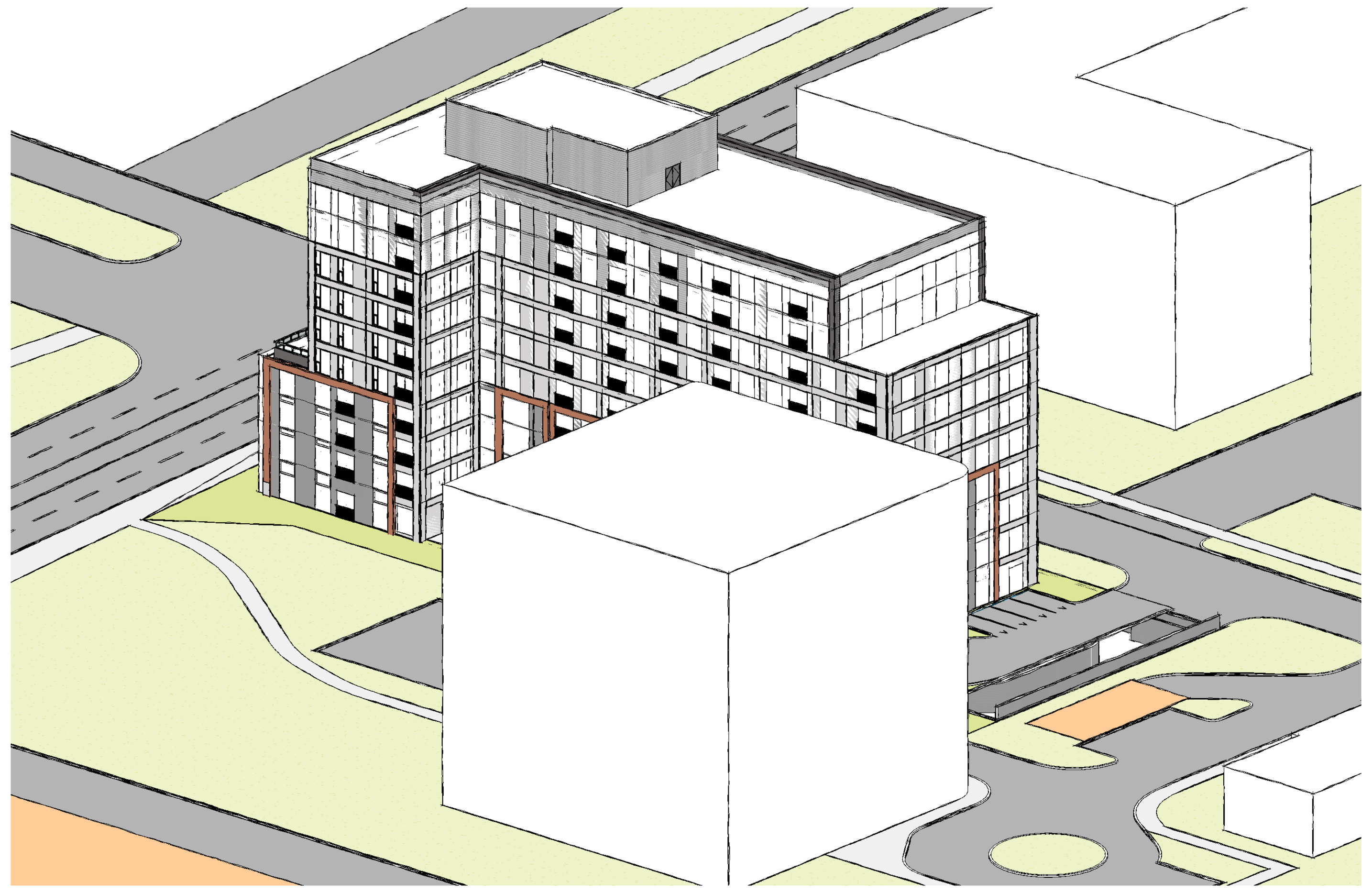
Municipal ePlan Temp. Project #: BPA-4650 - Building 1
Municipal ePlan Temp. Project #: BPA-4651 - Building 2
Municipal ePlan Temp. Project #: BPA-4652 - Building 3

Sheet Title
MASTER SITE PLAN
SP 11/174 (W1)

Drawn By	MT	Checked By:	SW
Project No.	20018	Scale	1:150
Date	2020-10-05	Drawing No.	A100

APPENDIX L

Site Plan



3 AXO 1 A001

4 AXO 2 A001

SITE PLAN LEGEND

ENTRANCE / EXIT	MH MANHOLE
BUILDING SETBACK LINE	CB CATCHBASIN
LANDSCAPE BUFFER SETBACK LINE	DESIGNATED BARRIER-FREE PARKING SPACE
SIAMESE CONNECTION	PROPOSED MECHANICAL CONDENSING UNIT ON CONCRETE HOUSEKEEPING PAD - SEE MECH DWGS
PROPOSED FIRE HYDRANT	HEAVY DUTY ASPHALT
LIGHT STANDARD	
PROPOSED PAD MOUNTED TRANSFORMER (REFER TO ELECTRICAL DRAWINGS	LANDSCAPE / SOD AREA
DEPRESSED CURB	CONCRETE SIDEWALK

GROSS FLOOR AREA

Level	Area (SM)	Area (SF)
GROUND FLOOR	1437.15 m²	15469 SF
LVL 2	1437.15 m²	15469 SF
LVL 3	1437.15 m²	15469 SF
LVL 4	1437.15 m²	15469 SF
LVL 5	1293.09 m²	13919 SF
LVL 6	1293.09 m²	13919 SF
LVL 7	1293.09 m²	13919 SF
LVL 8	1293.09 m²	13919 SF
LVL 9	1171.17 m²	12606 SF
LVL 10	1171.17 m²	12606 SF
Grand total	13263.29 m²	142765 SF

PARKING GARAGE AREA

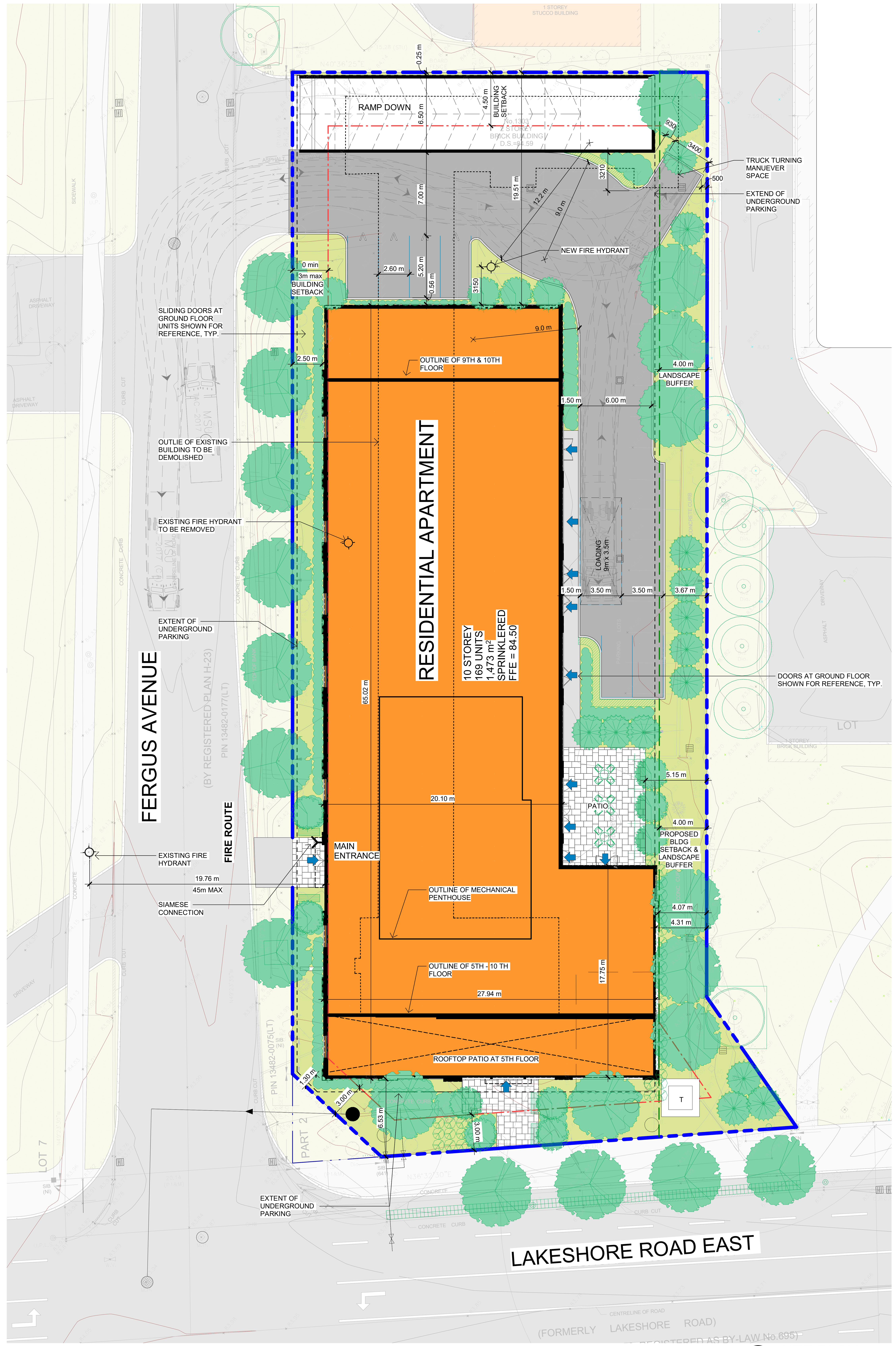
Level	Area (SM)	Area (SF)
PARKING LEVEL P3	2572.11 m²	27686 SF
PARKING LEVEL P2	2572.11 m²	27686 SF
PARKING LEVEL P1	2572.11 m²	27686 SF
Grand total	7716.32 m²	83058 SF

SITE STATISTICS

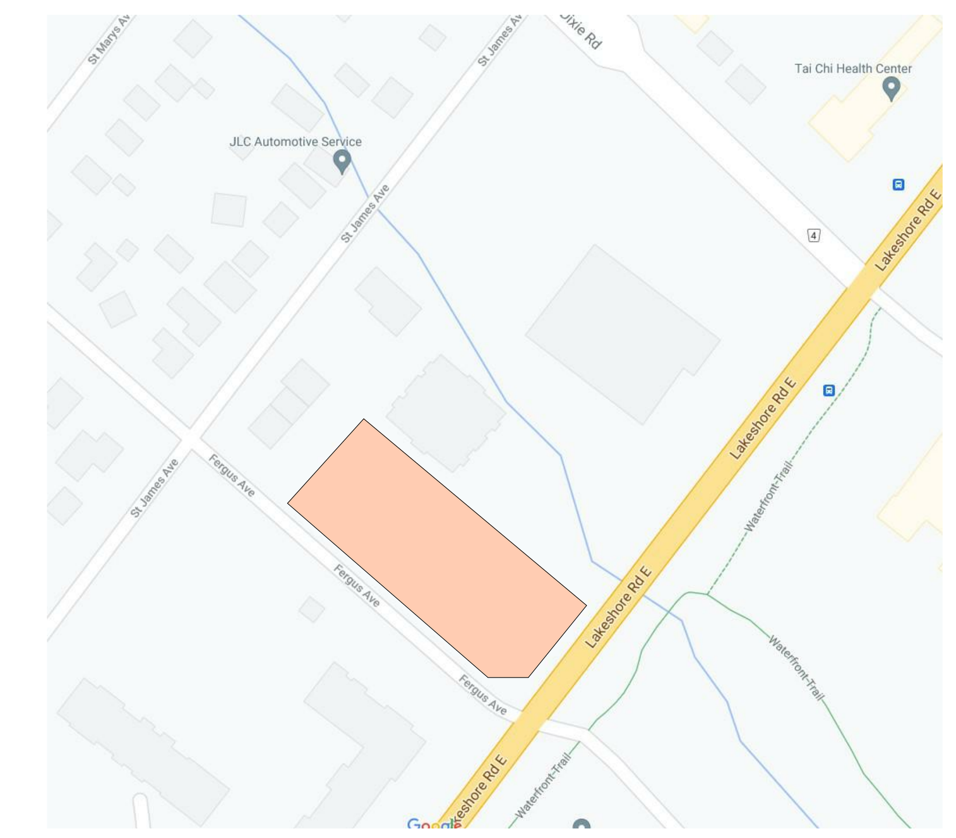
DESCRIPTION	AREA (SM)	AREA (SF)	PERCENTAGE
BUILDING FOOTPRINT			
BLDG FOOTPRINT	1437.15 m²	15469 ft²	48.1%
	1437.15 m²	15469 ft²	48.1%
HARD LANDSCAPE			
ASPHALT	541.63 m²	5830 ft²	18.1%
CURB	36.87 m²	397 ft²	1.2%
PAVER	110.48 m²	1189 ft²	3.7%
SIDEWALK	37.35 m²	402 ft²	1.2%
	726.33 m²	7818 ft²	24.3%
SOFT LANDSCAPE			
LANDSCAPE	825.82 m²	8889 ft²	27.6%
	825.82 m²	8889 ft²	27.6%
	2989.29 m²	32176 ft²	100.0%

PARKING SCHEDULE

Level	DESCRIPTION	COUNT
GROUND FLOOR	TYPICAL SPACE 2.6m x 5.2m	6
GROUND FLOOR: 6		6
PARKING LEVEL P1	TYPE A ACC. SPACE 3.4m x 5.2m	1
PARKING LEVEL P1	TYPE B ACC. SPACE 2.4m x 5.2m	1
PARKING LEVEL P1	TYPICAL SPACE 2.6m x 5.2m	51
PARKING LEVEL P1	TYPICAL SPACE 2.75m x 5.2m	9
PARKING LEVEL P1: 62		62
PARKING LEVEL P2	TYPICAL SPACE 2.6m x 5.2m	58
PARKING LEVEL P2	TYPICAL SPACE 2.75m x 5.2m	7
PARKING LEVEL P2: 65		65
PARKING LEVEL P3	TYPICAL SPACE 2.6m x 5.2m	60
PARKING LEVEL P3	TYPICAL SPACE 2.75m x 5.2m	7
PARKING LEVEL P3: 67		67
Grand total		200



1 SITE PLAN A001 1 : 200



KEY PLAN

LEGAL DESCRIPTION

PARTOF LOTS 5, 6, AND 19
REGISTERED PLAN H-23
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

CREDIT NOTES:
THIS SITE PLAN IS BASED UPON AND MUST BE READ IN CONJUNCTION WITH THE SURVEY PLAN PREPARED BY MANDARIN SURVEYORS LIMITED, DATED JUNE 30, 2021, JOB No. 2021-282.

CHAMBERLAIN ARCHITECT SERVICES LIMITED ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA SUPPLIED AND SUCH DATA IS NOT INCLUDED UNDER SEALS OF CERTIFICATION, IF ANY.

ZONING DATA

ZONING BY-LAW 0225-2007
ZONE: C4
SITE AREA = 3170.61 m2

REGULATIONS		C4 ZONE	PROPOSED
MINIMUM LOT FRONTAGE		N/A	-
MINIMUM FRONT YARD		3.0 metres	1.3 metres 6.5 metres(Site Specific Zoning Required)
MINIMUM EXTERIOR SIDE YARD		0.0 metres	2.8 metres
MAXIMUM EXTERIOR SIDE YARD		3.0 metres	2.8 metres
MINIMUM INTERIOR SIDE YARD LOT	LOT ABUTTING RESIDENTIAL ZONE	4.5 metres	3.67 metres (Site Specific Zoning Required)
MINIMUM REAR YARD	LOT ABUTTING RESIDENTIAL ZONE	4.5 metres	19.5 metres
MINIMUM HEIGHT (Flat Roof)		2 storeys	10 storeys
MAXIMUM HEIGHT (Flat Roof)		12.5 metres & 3 storeys	32 metres & 10 storeys (Site Specific Zoning Required)
MINUMUM LANDSCAPE BUFFER	FROM A LOT LINE (STREET LINE)	0.0 metres	2.5 metres West & 1.3 metres South
	FROM A LOT LINE (STREET LINE) & PARKING AREA	3.0 meters	-
	ANY OTHER LOT LINE	4.5 metres	4.0 meters for most of lot line 3.67 metres at one section & 0.5m at turning maneuver space for trucks Site Specific Zoning Required
PARKING AND LOADING SPACES SHALL NOT BE LOCATED BETWEEN A STREETWALL AND A LOT LINE THAT IS A STREETLINE			as shown on the site plan
MAXIMUM LENGTH OF A BUILDING STREETWALL ON THE FIRST STOREY THAT MAY BE USED FOR ACCESSING RESIDENTIAL USES LOCATED ABOVE THE FIRST STOREY		25%	-
MAXIMUM LENGTH OF A STREETWALL THAT MAY BE SETBACK BEYOND THE MAXIMUM FRONT AND MAXIMUM EXTERIOR SIDE YARD		30%	-
GENERAL PROVISIONS			
MINIMUM CENTRELINE SETBACK	DESIGNATED ROW: 35 meters	17.5 metres + required yard/ setback	11.3 m (Fergus Ave.) 18.7 m (LakeshoreRoad E)
ENCROACHMENT OF EAVES		Maximum of 0.45 metres into any required yard	N/A
ROOFTOP BALCONY		Shall be setback 1.2 metres from all exterior edges of a building structure	N/A
		May be 0.0 metres where the exterior edge of the building faces a street and the building is located in a non-residential zone or the exterior edge of the balcony does not abut a Residential Zone and the building is located in a non-residential zone	N/A
PARKING			
MINIMUM PARKING SPACE DIMENSIONS	W/ A PARKING ANGLE EXCEEDING 15 DEGREES	2.6 x 5.2 metres	SEE PROPOSED PARKING REQUIREMENTS
	PARALLEL PARKING SPACE W/ A PARKING ANGLE NOT EXCEEDING 15 DEGREES	2.6 x 6.7 metres	
	THE MINIMUM WIDTH, OTHER THAN ACCESSIBLE OR PARALLEL PARKING SPACE SHALL BE INCREASED TO 2.75 metres WHERE THE LENGTH OF ONE SIDE ABUTS A BUILDING		
	ACCESSIBLE PARKING SPACE	TYPE A: 3.4 X 5.2 metres TYPE B: 2.4 X 5.2 metres	1 PROVIDED 1 PROVIDED
MINIMUM AISLE WIDTH			7.0 metres

PROPOSED PARKING REQUIREMENTS
169 UNITS x 1.18 PARKING SPACES / UNIT = **199.42 (200) PARKING SPACES REQUIRED**

PARKING PROVIDED
194 UNDERGROUND PARKING
6 SURFACE PARKING
200 TOTAL PARKING SPACES PROVIDED

SIZES:
- DRIVE AISLE = 7.0 m
- TYPICAL PARKING = 2.6 x 5.2m
- ABUTTING STRUCTURE (ONE SIDE) = 2.75 x 5.2m
- ABUTTING STRUCTURE (TWO SIDES) = 2.9 x 5.2m

LOADING SPACES

1 LOADING SPACE REQUIRED (1 / APARTMENT BUILDING WITH MORE THAN 30 DWELLING UNITS)

SIZE: 3.5 x 9.0m

Chamberlain Architects Constructors Managers

Chamberlain Architect Services Limited

4671 Palladium Way (Unit 1)
Burlington, Ontario, L7M 0W9
CANADA

Phone: 905.631.7777

www.chamberlainIPD.com

NO.	ISSUED	DATE

SEAL

CONSTRUCTION NORTH   TRUE NORTH

RESIDENTIAL MID-RISE

1303 LAKESHORE RD E
MISSISSAUGA, ON

SHEET NAME

SITE PLAN

START DATE	JUNE 2021
DRAWN BY	KO/GP
CHECKED BY	LC
SCALE	As indicated
PROJECT NO.	121027
DRAWING	A001

C:\Users\tpilcher\OneDrive - Chamberlain Group of Companies\Documents\121027 - 1303 Lakeshore MISS - 2021.09.15_traceyp24.rvt
2021-09-28 8:30:06 AM

APPENDIX M

Zoning By-Law Excerpts

TABLE OF CONTENTS
Part 3: Parking, Loading and Stacking Lane Regulations

3.1.2 Required Number of Parking Spaces

3.1.2.1 Required Number of Parking Spaces for Residential Uses

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

Table 3.1.2.1 - Required Number of Parking Spaces for Residential Uses

Column	**A**	**B**
Line 1.0	**TYPE OF USE**	**MINIMUM OFF-STREET PARKING REGULATIONS**
2.0	Condominium **Apartment** *(0207-2008), (0174-2017), (0179-2018)*	1.00 resident space per studio unit 1.25 resident spaces per one-bedroom unit 1.40 resident spaces per two-bedroom unit 1.75 resident spaces per three-bedroom unit 0.20 visitor spaces per unit
3.0	Rental **Apartment** *(0207-2008), (0174-2017), (0179-2018)*	1.00 resident space per studio unit 1.18 resident spaces per one-bedroom unit 1.36 resident spaces per two-bedroom unit 1.50 resident spaces per three-bedroom unit 0.20 visitor spaces per unit
4.0	**Apartment** (within CC1 to CC4 zones) *(0207-2008), (0174-2017)*	1.0 resident space per unit 0.15 visitor spaces per unit (1) For the visitor component, a shared parking arrangement may be used for the calculation of required visitor/non-residential parking in accordance with the following: the greater of 0.15 visitor spaces per unit (1)(2) or 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**. (1) (2) Parking for **banquet hall/conference centre/convention centre**, **entertainment establishment**, **overnight accommodation**, **place of religious assembly**, **recreational establishment** and **restaurant** 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.
5.0	**Detached Dwelling**, **Linked Dwelling**, **Semi-Detached**, **Street Townhouse** *(0297-2013), (0174-2017), (0181-2018/ LPAT Order 2019 February 15)*	2.0 spaces per unit
6.0	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** *(0174-2017), (0181-2018/LPAT Order 2019 February 15)*	2.0 resident spaces per unit 0.25 visitor spaces per unit
7.0	**Duplex**, **Triplex** *(0174-2017)*	1.25 spaces per unit
8.0	**Dwelling units** located above a commercial development with a maximum **height** of three **storeys**	1.25 spaces per unit
9.0	**Group Home**	2.0 spaces

Table 3.1.2.1 continued on next page

Column	**A**	**B**
Line 1.0	**TYPE OF USE**	**MINIMUM OFF-STREET PARKING REGULATIONS**
Table 3.1.2.1 continued from previous page		
10.0	Condominium **Back to Back** and **Stacked Townhouse** *(0179-2018), (0181-2018/LPAT Order 2019 February 15)*	Without exclusive use **garage** and **driveway**: 1.10 resident spaces per studio/one-bedroom unit 1.5 resident spaces per two-bedroom unit 1.75 resident spaces per three-bedroom unit 2.0 resident spaces per four-bedroom unit 0.25 visitor spaces per unit With exclusive use **garage** and **driveway**: 2.0 resident spaces per unit 0.25 visitor spaces per unit
11.0	Rental **Back to Back** and **Stacked Townhouse**, Rental **Townhouse** *(0179-2018), (0181-2018/LPAT Order 2019 February 15)*	Without exclusive use **garage** and **driveway**: 1.10 resident spaces per studio/one-bedroom unit 1.25 resident spaces per two-bedroom unit 1.41 resident spaces per three-bedroom unit 1.95 resident spaces per four-bedroom unit 0.25 visitor spaces per unit With exclusive use **garage** and **driveway**: 2.0 resident spaces per unit 0.25 visitor spaces per unit
12.0	**Long-Term Care Building** *(0174-2017)*	0.33 spaces per bed
13.0	Resident **Physician**, **Dentist, Drugless Practitioner or Health Professional**	5.0 spaces for **office** and **detached dwelling**, 4.0 of which may be tandem
14.0	**Retirement Building** *(0174-2017)*	0.50 spaces per unit
15.0	All other housing forms not identified above with more than two **dwelling units**	2.0 resident spaces per unit 0.25 visitor spaces per unit

NOTES: (1) Visitor **parking spaces** shall not be required for an **apartment** for which a building permit has been issued on or before May 29, 2009. *(0207-2008), (0174-2017)*

(2) All required **parking spaces** must be accessible to all users participating in the shared parking arrangements and may not be reserved for a particular use or occupant. *(0207-2008)*

3.1.2.2 Required Number of Parking Spaces for Non-Residential Uses

Off-street **parking spaces** for non-residential **uses** shall be provided in accordance with Table 3.1.2.2. - Required Number of Parking Spaces for Non-Residential Uses.

Table 3.1.2.2 - Required Number of Parking Spaces for Non-Residential Uses

Column	A	B
Line 1.0	**TYPE OF USE**	**MINIMUM OFF-STREET PARKING REGULATIONS**
2.0	**Active Recreational Use**	4.5 spaces per 100 m^2 **GFA - non-residential**, except for an arena or a **marina**
3.0	**Adult Entertainment Establishment**	16.3 spaces per 100 m^2 **GFA - non-residential**
4.0	Animal Services:	
4.1	**Animal Boarding Establishment**	3.6 spaces per 100 m^2 **GFA - non-residential**
4.2	**Animal Care Establishment**	5.4 spaces per 100 m^2 **GFA - non-residential**
4.3	**Animal Care Establishment** (in a C4 zone)	4.0 spaces per 100 m^2 **GFA - non-residential**
5.0	Arena	1.0 space per 4 seats of permanent fixed seating (1)
6.0	Art Gallery, Museum	3.6 spaces per 100 m^2 **GFA - non-residential**
7.0	**Banquet Hall/Conference Centre/ Convention Centre**	10.8 spaces per 100 m^2 **GFA - non-residential**
8.0	**Commercial School**	5.0 spaces per 100 m^2 **GFA - non-residential**
9.0	**Community Centre**	4.5 spaces per 100 m^2 **GFA - non-residential,** except for an arena
10.0	**Composting Facility**	1.6 spaces per 100 m^2 **GFA - non-residential** up to 2 325 m^2 **GFA - non-residential**; and 1.1 spaces per 100 m^2 **GFA - non-residential** between 2 325 m^2 and 9 300 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 9 300 m^2 **GFA - non-residential**
10A.0	Contractor Service Shop *(0190-2014)*	1.1 spaces per 100 m^2 **GFA - non-residential**
10B.0	Contractor's Yard *(0190-2014)*	0.6 spaces per 100 m^2 **GFA - non-residential**
11.0	**Convenience Retail and Service Kiosk** *(0018-2015)*	5.4 spaces per 100 m^2 **GFA - non-residential** plus a **stacking lane** where a drive-through is provided (2)
12.0	**Day Care**	2.5 spaces per 100m^2 **GFA - non-residential**
13.0	**Education and Training Facility**	5.0 spaces per 100 m^2 **GFA - non-residential**
14.0	**Entertainment Establishment**	1.0 space per 5 seats of permanent fixed seating (1) or 10.0 spaces per 100 m^2 **GFA - non-residential**, whichever is greater
15.0	**Essential Emergency Service**	1.0 space per staff on duty with a minimum of 2.0 spaces
16.0	**Financial Institution** *(0018-2015)*	5.5 spaces per 100 m^2 **GFA - non-residential** plus a **stacking lane** where a drive-through is provided (2)
16A.0	**Food Bank** *(0325-2008)*	3.0 spaces per 100 m^2 **GFA - non-residential**
17.0	**Funeral Establishment**	7.5 spaces per 100 m^2 **GFA - non-residential** for the area accessible to the public
18.0	**Garden Centre**	3.2 spaces per 100 m^2 **GFA - non-residential** used for retail sales and display of products and/or **office**; and 1.1 spaces per 100 m^2 **GFA - non-residential** used for warehousing and/or wholesaling
19.0	**Golf Course**	10.0 spaces per hole

Table 3.1.2.2 continued on next page

Column	A	B
Line 1.0	**TYPE OF USE**	**MINIMUM OFF-STREET PARKING REGULATIONS**
Table 3.1.2.2 continued from previous page		
20.0	*deleted by 0212-2015*	
21.0	**Hospital**	2.5 spaces per 100 m^2 **GFA - non-residential**
22.0	**Library**	3.2 spaces per 100 m^2 **GFA - non-residential**
23.0	**Manufacturing Facility** (Single-Occupancy **Building**) (6) *(0308-2011)*	1.6 spaces per 100 m^2 **GFA - non-residential** up to 2 325 m^2 **GFA - non-residential**; and 1.1 spaces per 100 m^2 **GFA - non-residential** between 2 325 m^2 and 9 300 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 9 300 m^2 **GFA - non-residential**
24.0	**Manufacturing Facility** (Multiple-Occupancy Mixed Use **Building**) (4)	1.6 spaces per 100 m^2 **GFA - non-residential** Parking for **restaurant**, **convenience restaurant**, **banquet hall/conference centre/convention centre**, **night club**, and **adult entertainment establishment** will be provided in accordance with the applicable regulations contained in Table 3.1.2.2 of this By-law. Parking for individual manufacturing occupancies which exceed a **GFA - non-residential** of 2 325 m^2 shall be calculated in accordance with the provisions applicable to **manufacturing facility** (Single-Occupancy **Building**). Parking for individual warehouse/distribution occupancies, and wholesaling occupancies which exceed a **GFA - non-residential** of 6 975 m^2 shall be calculated in accordance with the regulations applicable to **warehouse/distribution facilities, wholesaling facilities** (Single-Occupancy **Building**).
25.0	**Marina**	0.6 spaces per slip or berth
25A.0	**Medicinal Product Manufacturing Facility** *(0055-2015)*	1.6 spaces per 100 m^2 **GFA - non-residential** up to 2 325 m^2 **GFA - non-residential**; and 1.1 spaces per 100 m^2 **GFA - non-residential** between 2 325 m^2 and 9 300 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 9 300 m^2 **GFA - non-residential**
25B.0	**Medicinal Product Manufacturing Facility - Restricted** *(0055-2015)*	1.6 spaces per 100 m^2 **GFA - non-residential** up to 2 325 m^2 **GFA - non-residential**; and 1.1 spaces per 100 m^2 **GFA - non-residential** between 2 325 m^2 and 9 300 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 9 300 m^2 **GFA - non-residential**
26.0	**Motor Vehicle Body Repair Facility**, **Motor Vehicle Repair Facility - Commercial Motor Vehicle, Motor Vehicle Repair Facility - Restricted** *(0379-2009)*	4.3 spaces per 100 m^2 **GFA - non-residential**, of which 50% of the required spaces may be **tandem parking spaces**
27.0	**Motor Vehicle Sales, Leasing and/or Rental Facility - Commercial Motor Vehicles; Motor Vehicle Sales, Leasing and/or Rental Facility - Restricted**	4.3 spaces per 100 m^2 **GFA - non-residential** (exclusive of display and storage parking)
28.0	**Motor Vehicle Service Station**	5.4 spaces per 100 m^2 **GFA - non-residential**
29.0	**Motor Vehicle Wash Facility - Commercial Motor Vehicle, Motor Vehicle Wash Facility - Restricted** *(0379-2009)*	4.0 spaces per wash bay, of which 2.0 spaces can be located at vacuum stations, plus a stacking lane (2)
30.0	**Night Club**	25.2 spaces per 100 m^2 **GFA - non-residential**

Table 3.1.2.2 continued on next page

Column	A	B
Line 1.0	**TYPE OF USE**	**MINIMUM OFF-STREET PARKING REGULATIONS**
Table 3.1.2.2 continued from previous page		
31.0	**Office**:	
31.1	**Office** [6] *(0308-2011)*	3.2 spaces per 100 m^2 **GFA - non-residential** Where the non-**office uses**, including **medical office** and real estate **office**, are greater than 10% of the total **GFA - non-residential** of the **building**, separate parking will be required for all of such **uses** in accordance with the regulations contained in Table 3.1.2.2 of this By-law
31.2	**Medical Office**	6.5 spaces per 100 m^2 **GFA - non-residential**
31.3	**Medical Office - Restricted**	6.5 spaces per 100 m^2 **GFA - non-residential**
31.4	Real Estate **Office**	6.5 spaces per 100 m^2 **GFA - non-residential**
32.0	**Overnight Accommodation** *(0379-2009)*	0.8 space per guest room; plus 10.0 spaces per 100 m^2 **GFA - non-residential** used for public **use** areas including meeting rooms, conference rooms, recreational facilities, dining and lounge areas and other commercial facilities, but excluding bedrooms, kitchens, laundry rooms, washrooms, lobbies, hallways, elevators, stairways and recreational facilities directly related to the function of the **overnight accommodation**
33.0	**Personal Service Establishment:**	
33.1	**Personal Service Establishment**	5.4 spaces per 100 m^2 **GFA - non-residential**
33.2	**Personal Service Establishment** (in C4 zone)	4.0 spaces per 100 m^2 **GFA - non-residential**
33.3	**Personal Service Establishment** (in CC2 to CC4 zones) *(0207-2008)*	4.3 spaces per 100 m^2 **GFA - non-residential**
34.0	**Pilot Plant,** **Prototype Production Facility** *(0325-2008)*	1.6 spaces per 100 m^2 **GFA - non-residential** up to 2 325 m^2 **GFA - non-residential**; and 1.1 spaces per 100 m^2 **GFA - non-residential** between 2 325 m^2 and 9 300 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 9 300 m^2 **GFA - non-residential**
35.0	**Place of Religious Assembly**	1.0 space per 4.5 seats for permanent fixed seating [1]; plus 27.1 spaces for any non-fixed moveable seating per 100 m^2 **GFA - non-residential**, all in the **worship area** or 27.1 spaces for all non-fixed moveable seating per 100 m^2 **GFA - non-residential**, in the **worship area** or 10.0 spaces per 100 m^2 **GFA - non-residential**, whichever is greater Where the **worship area** of a **place of religious assembly** includes permanent fixed seating or non-fixed moveable seating for clergy, leaders, choirs, or musicians, such seating or area shall be included in the calculation of seating for the purpose of calculating required parking. Where a community/multi use hall is equal to or less than the **gross floor area** of the **worship area**, no additional parking shall be required for that **use**.
36.0	**Power Generating Facility**	1.0 space per staff on duty with a minimum of 2.0 spaces
37.0	**Private Club**	4.5 spaces per 100 m^2 **GFA - non-residential**
38.0	**Recreational Establishment**	4.5 spaces per 100 m^2 **GFA - non-residential**, except for an arena

Table 3.1.2.2 continued on next page

Column	A	B
Line 1.0	**TYPE OF USE**	**MINIMUM OFF-STREET PARKING REGULATIONS**
Table 3.1.2.2 continued from previous page		
39.0	Repair:	
39.1	**Repair Establishment**	5.4 spaces per 100 m^2 **GFA - non-residential**
39.2	**Repair Establishment** (in a C4 zone)	4.0 spaces per 100 m^2 **GFA - non-residential**
40.0	Retail Centre:	
40.1	Retail Centre (Less than or equal to 2 000 m^2 **GFA - non-residential**) *(0325-2008), (0379-2009)*	4.3 spaces per 100 m^2 **GFA - non-residential** Parking for **restaurant**, **convenience restaurant**, **place of religious assembly**, **funeral establishment**, **overnight accommodation**, **banquet hall/conference centre/convention centre** and **entertainment establishment uses** will be provided in accordance with the applicable regulations contained in Table 3.1.2.2 of this By-law
40.2	Retail Centre (Greater than 2 000 m^2 **GFA - non-residential**) *(0379-2009)*	5.4 spaces per 100 m^2 **GFA - non-residential**
40.3	CC1 - Retail Core Commercial (lands bounded by City Centre Drive, Duke of York Boulevard and Rathburn Road West)	4.57 spaces per 100 m^2 **GFA - non-residential**
41.0	Retail:	
41.1	**Retail Store**	5.4 spaces per 100 m^2 **GFA - non-residential**
41.2	**Retail Store** (in a C4 zone)	4.0 spaces per 100 m^2 **GFA - non-residential**
41.3	**Retail Store** (in a CC2 to CC4 zones) *(0207-2008)*	4.3 spaces per 100 m^2 **GFA - non-residential**
42.0	**Restaurants**:	
42.1	**Convenience Restaurant** *(0212-2015)*	16.0 spaces per 100 m^2 **GFA - non-residential** plus a **stacking lane** (2)
42.2	**Restaurant** *(0212-2015)*	16.0 spaces per 100 m^2 **GFA - non-residential**
42.3	**Take-out Restaurant** *(0212-2015)*	6.0 spaces per 100 m^2 **GFA - non-residential**
42.4	**Restaurant** (in a C4 zone) *(0308-2011), (0212-2015)*	9.0 spaces per 100 m^2 **GFA - non-residential**
43.0	Schools:	
43.1	College, University	1.1 spaces per 100 m^2 **GFA - non-residential** used for academic purposes; plus 0.15 spaces per resident student and/or staff
43.2	**Public/Private School** (up to and including Grade 8)	1.0 space per 100 m^2 **GFA - non-residential** (excluding portables) plus 1.0 spaces per portable classroom (3)
43.3	**Public/Private School** (Grade 9 and above)	1.5 spaces per 100 m^2 **GFA - non-residential** (excluding portables) plus 1.0 spaces per portable classroom (3)
43A.0	**Science and Technology Facility** *(0325-2008)*	3.2 spaces per 100 m^2 **GFA - non residential**
43B.0	Self Storage Facility *(0308-2011)*	0.6 spaces per 100 m^2 **GFA - non-residential** (exclusive of storage parking)
44.0	**Transit Terminal**	1.0 space per staff on duty with a minimum of 2.0 spaces
45.0	**Truck Terminal**	3.2 spaces per 100 m^2 **GFA - non-residential** used for **office** purposes, and/or 1.1 spaces per 100 m^2 **GFA - non-residential** used for **warehouse/distribution facility**

Table 3.1.2.2 continued on next page

Column	**A**	**B**
Line 1.0	**TYPE OF USE**	**MINIMUM OFF-STREET PARKING REGULATIONS**
Table 3.1.2.2 continued from previous page		
46.0	Utility:	
46.1	**Utility Building**	1.0 space per staff on duty with a minimum of 2.0 spaces
46.2	**Water Treatment Facility**	1.0 space per staff on duty with a minimum of 2.0 spaces
46.3	**Sewage Treatment Plant**	1.0 space per staff on duty with a minimum of 2.0 spaces
46.4	**Electric Transformer and Distribution Facility**	1.0 space per staff on duty with a minimum of 2.0 spaces
46A.0	**Vehicle Pound Facility** *(0358-2007)*	3.2 spaces per 100 m^2 **GFA - non-residential** used for **office**, with a minimum of 4 spaces
47.0	**Veterinary Clinic**	3.6 spaces per 100 m^2 **GFA - non-residential**
48.0	**Warehouse/Distribution Facility, Wholesaling Facility** (Single-Occupancy **Building**) (6) *(0308-2011)*	1.1 spaces per 100 m^2 **GFA - non-residential** up to 6 975 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 6 975 m^2 **GFA - non-residential**
49.0	**Warehouse/Distribution Facility, Wholesaling Facility** (Multiple-Occupancy **Building**) (5)	1.1 spaces per 100 m^2 **GFA - non-residential** Parking for individual warehouse/distribution occupancies and wholesaling occupancies which exceed a **GFA - non-residential** of 6 975 m^2 shall be calculated in accordance with the regulations applicable to **warehouse/distribution facilities**, **wholesaling facilities** (Single-Occupancy **Building**).
50.0	**Waste Processing Station**	1.6 spaces per 100 m^2 **GFA - non-residential** up to 2 325 m^2 **GFA - non-residential**; and 1.1 spaces per 100 m^2 **GFA - non-residential** between 2 325 m^2 and 9 300 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 9 300 m^2 **GFA - non-residential**
51.0	**Waste Transfer Station**	1.1 spaces per 100 m^2 **GFA - non-residential** up to 6 975 m^2 **GFA - non-residential**; and 0.6 spaces per 100 m^2 **GFA - non-residential** over 6 975 m^2 **GFA - non-residential**
52.0	Other Non-Residential **Uses** Not Specified Above	5.4 spaces per 100 m^2 **GFA - non-residential**

NOTES:

(1) Where permanent fixed seating is open-style bench or pew, each 0.5 m of bench or pew space is equal to one (1) seat for the purpose of calculating required parking.

(2) See also Subsection 3.1.5 of this By-law.

(3) See also Article 3.1.1.11 of this By-law.

(4) **Manufacturing Facility** (Multiple-Occupancy Mixed Use **Building**) a **building(s)** occupied by more than one (1) occupant located on one (1) **lot**, primarily used for **manufacturing**, **warehouse/distribution** and/or **wholesaling facilities**, but may contain other non-manufacturing, non-warehouse/distribution and/or non-wholesaling facilities. Where the non-manufacturing, non-warehouse/distribution and/or non-wholesaling facilities exceed 50% of the total **gross floor area - non-residential** of the site, separate parking will be required for all **uses** in accordance with the regulations contained in Table 3.1.2.2 of this By-law. *(0325-2008), (0379-2009, (0190-2014)*

(5) **Warehouse/Distribution Facility**, **Wholesaling Facility** (Multiple-Occupancy **Building**) a **building(s)** occupied by more than one (1) occupant located on one (1) **lot**, where the primary function of all occupants is warehousing, distribution or wholesaling. *(0379-2009)*

(6) Where a single occupant **office building** includes a **manufacturing, warehouse/distribution** and/or **wholesaling facility** component and the **GFA - non-residential** of the **manufacturing, warehouse/distribution** and/or **wholesaling facility** component is greater than 10% of the total **GFA - non-residential** of the **building**, parking for the **manufacturing, warehouse/distribution** and/or **wholesaling facility** component shall be calculated in accordance with the applicable **manufacturing, warehouse/distribution** and/or **wholesaling facility** (single occupancy) regulations contained in Table 3.1.2.2 of this By-law. *(0308-2011)*

3.1.2.3 Mixed Use Development Shared Parking

A shared parking formula may be used for the calculation of required parking for a mixed use development. A mixed use development means the following:

(1) Non-office **uses** in an **office** or **medical office building** or group of **buildings** on the same **lot**;
(2) **Office** or **medical office** space in a **building** or group of **buildings** on the same **lot** primarily occupied by retail **uses**;
(3) A **building** or group of **buildings** on the same **lot** containing a mix of **office** or **medical office**, commercial **uses** and **dwelling units**;
(4) Non-residential **uses** in an **apartment**. *(0174-2017)*

Shared parking is to be calculated in compliance with Table 3.1.2.3 - Mixed Use Development Shared Parking Formula. All required **parking spaces** must be accessible to all users participating in the shared parking arrangement and may not be reserved for specific users.

The initial step in determining required parking for a mixed use development is to calculate the parking requirement for each **use** in the development as if these **uses** were free-standing **buildings**. The parking requirement for each **use** is then multiplied by the percent of the peak period for each time period (i.e. noon), contained in Table 3.1.2.3 - Mixed Use Development Shared Parking Formula. Each column is totalled for weekday and weekend. The highest figure obtained from all time periods shall become the required parking for the mixed use development.

Table 3.1.2.3 - Mixed Use Development Shared Parking Formula

Column	**A**	**B**	**C**	**D**	**E**
Line 1.0	**TYPE OF USE**	**PERCENTAGE OF PEAK PERIOD (WEEKDAY)**			
		Morning	**Noon**	**Afternoon**	**Evening**
1.1	**Office/Medical Office/Financial Institution**	100	90	95	10
1.2	Retail Centre/**Retail Store/Personal Service Establishment** *(0379-2009)*	80	90	90	90
1.3	**Restaurant/ Convenience Restaurant/ Take-out Restaurant**	20	100	30	100
1.4	**Overnight Accommodation**	70	70	70	100
1.5	Residential - Resident [(1)] Residential - Visitor	90 20	65 20	90 60	100 100
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/Personal Service Establishment** *(0379-2009)*	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

NOTE: (1) Excludes resident **physicians**, **dentists**, **drugless practitioners**, **health professionals**, **retirement buildings** and **long-term care buildings**. *(0174-2017)*

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)

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 (3)**
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) Where only 1 **accessible parking space** is required, a Type A **accessible parking space** shall be provided.

(2) Where more than 1 **accessible parking space** is required:

(2.1) if an even number of **accessible parking spaces** are required, an equal number of Type A and Type B **accessible parking spaces** must be provided;

(2.2) if an odd number of **accessible parking spaces** are 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**.

(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)*

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 C4 Zone Exception

Accessible parking spaces shall not be required in C4 zones where the required number of on-site **parking spaces** is 15 or less.

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

Column	**A**	**B**
Line 1.0	**GROSS FLOOR AREA - NON-RESIDENTIAL OF BUILDING** *(0297-2013)*	**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 space
4.0	Greater than 11 600 m^2	1 space plus 1 additional space for each 9 300 m^2 **gross floor area - non-residential** or portion thereof

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

Column	**A**	**B**
Line 1.0	**GROSS FLOOR AREA - NON-RESIDENTIAL OF BUILDING** *(0297-2013)*	**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 space
4.0	Greater than 2 350 m^2 but less than or equal to 7 500 m^2	2 spaces
5.0	Greater than 7 500 m^2 but less than or equal to 14 000 m^2	3 spaces
6.0	Greater than 14 000 m^2	3 spaces plus 1 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 spaces
3.0	**Convenience Retail and Service Kiosk**	5 spaces
4.0	**Financial Institution**	5 spaces
5.0	**Motor Vehicle Wash Facility - Commercial Motor Vehicle** *(0379-2009)*	10 spaces per wash bay
6.0	**Motor Vehicle Wash Facility - Restricted**	10 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.

3.1.5.1.3 A **stacking lane** associated with a **financial institution** shall be measured from a point located 2.0 m beyond the middle of the drive-through bank machine.

3.1.5.1.4 A **stacking lane** associated with a **motor vehicle wash facility - commercial motor vehicle** or **motor vehicle wash facility - restricted** shall be measured from the entrance to the wash bay. *(0379-2009)*

FIGURES

1303 LAKESHORE ROAD EAST
CITY OF MISSISSAUGA

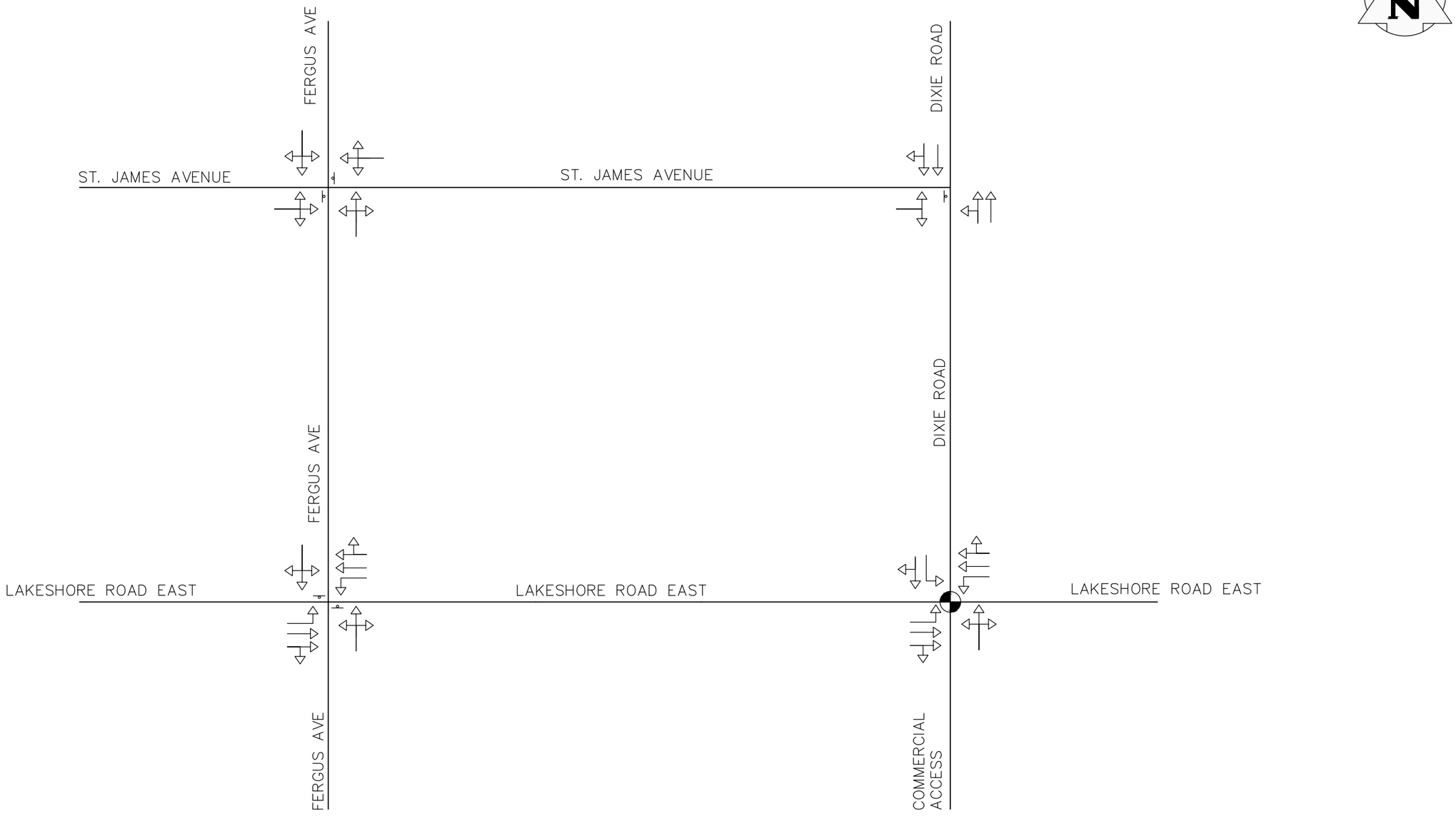
SITE LOCATION

CROZIER
CONSULTING ENGINEERS

2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca

Drawn	Design	Project No.	
I.L.	I.L.		2109-6004
Date	Check	Scale	Dwg.
2021/08/31	R.A.W.	N.T.S	FIG. 01

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- AM(PM) WEEKDAY AM(PM) TRIP DISTRIBUTION

1303 LAKESHORE ROAD EAST
CITY OF MISSISSAUGA

EXISTING LANE CONFIGURATION

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
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2021/08/31	R.A.W.	N.T.S	FIG. 02

NOTE:
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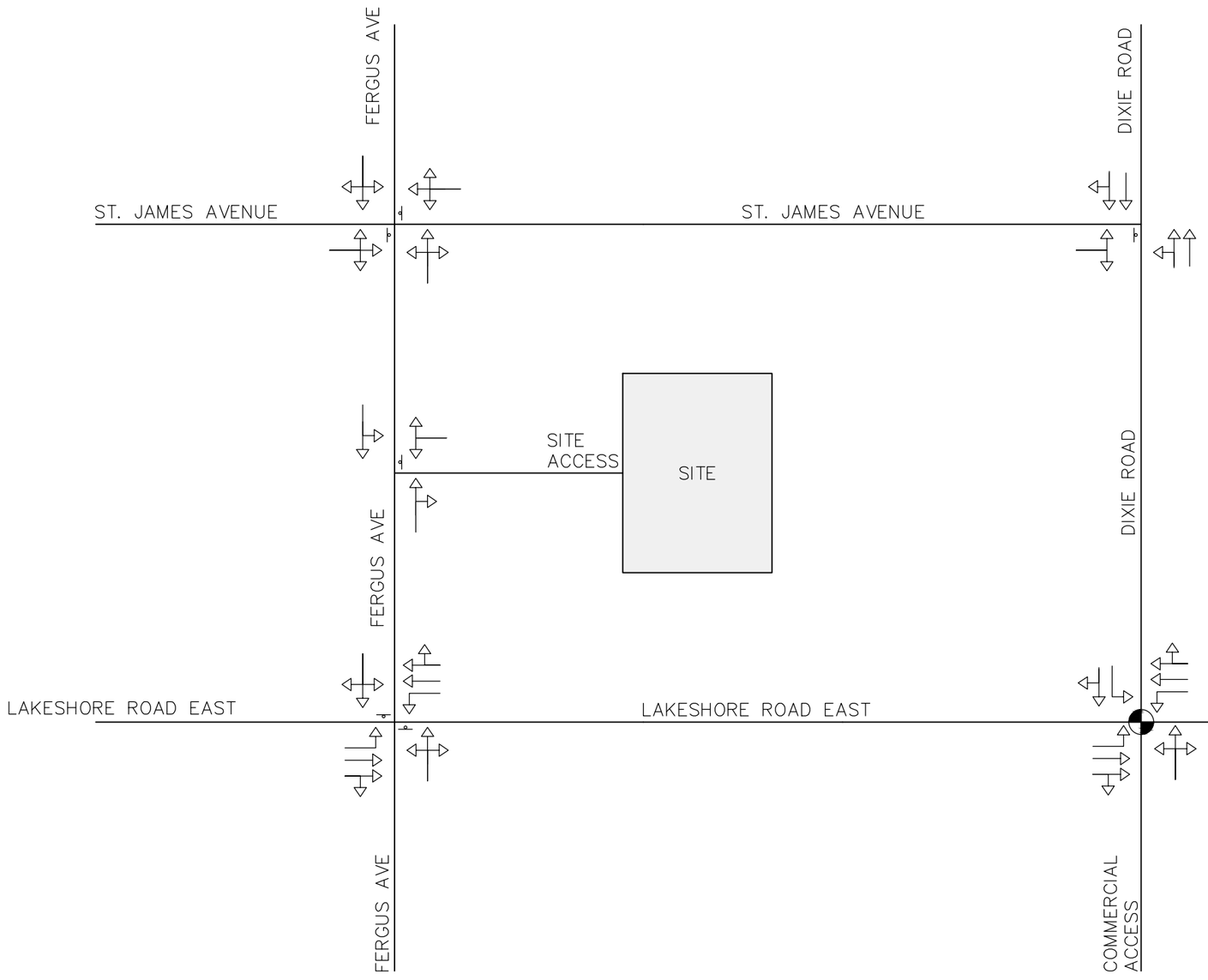

LEGEND:

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FUTURE LANE CONFIGURATION

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2021/08/31	R.A.W.	N.T.S	FIG. 03

NOTE:
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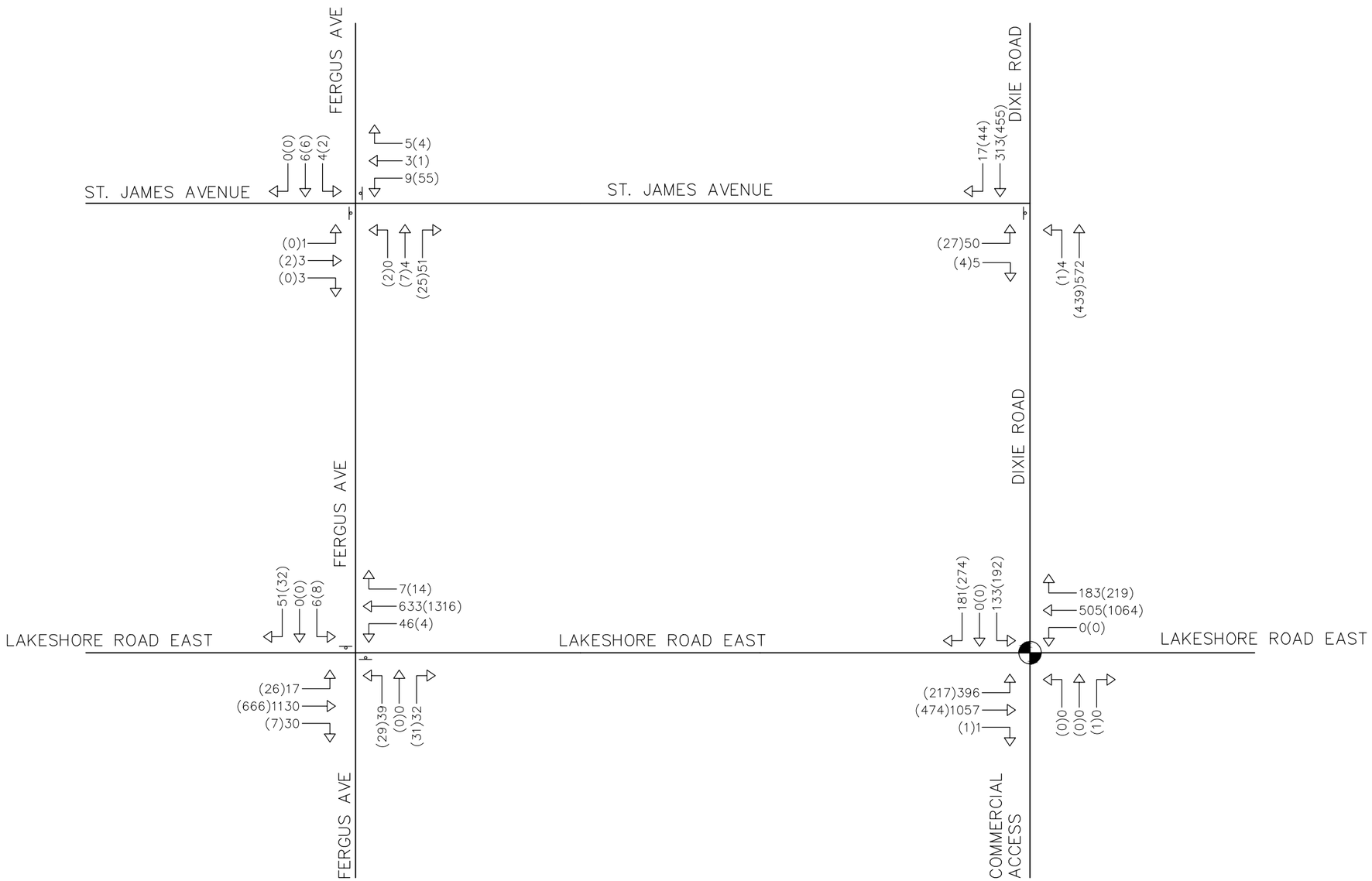

LEGEND:

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EXISTING TRAFFIC VOLUMES

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Date	Check	Scale	Dwg.
2021/08/31	R.A.W.	N.T.S	FIG. 04

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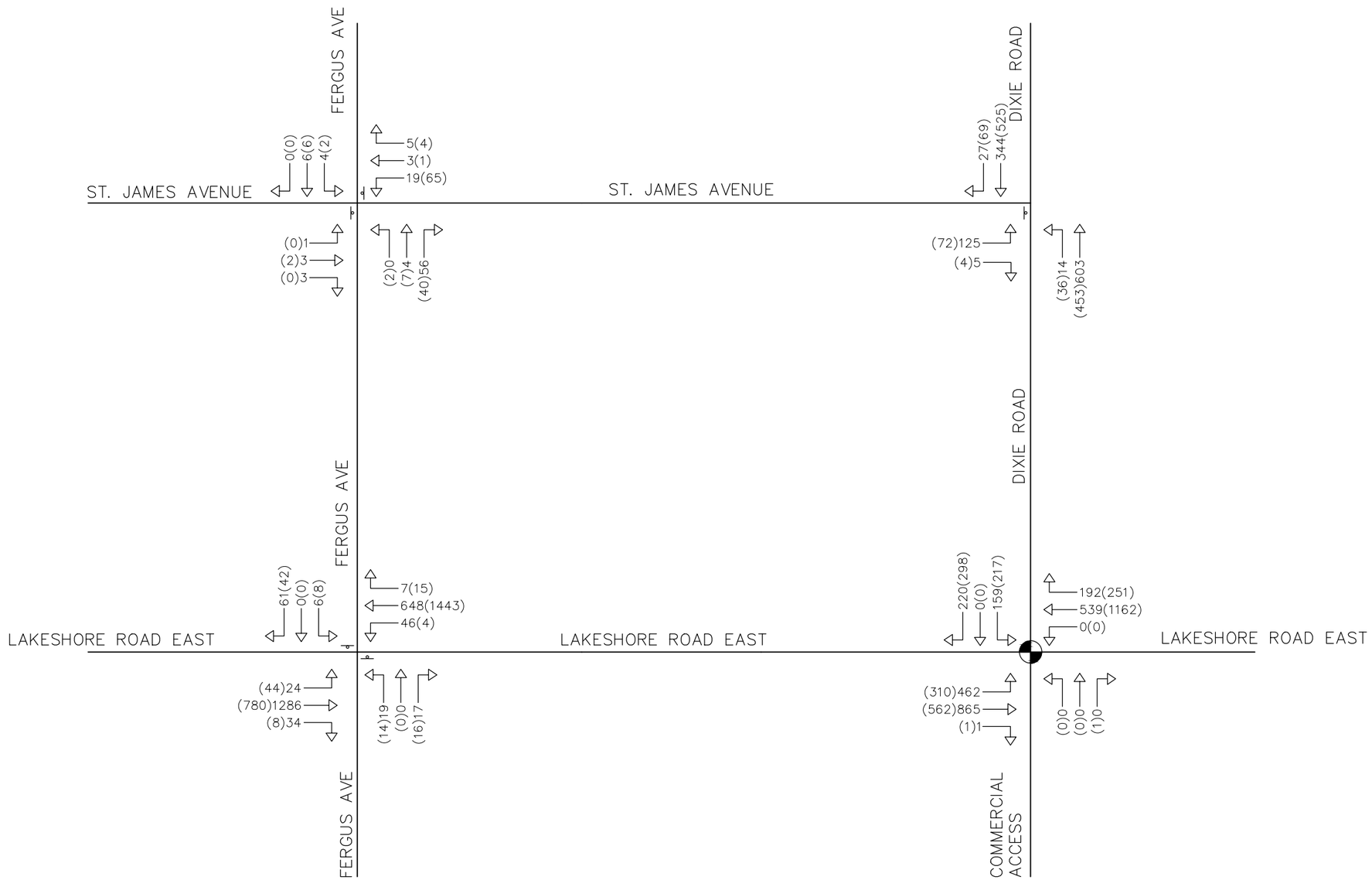

LEGEND:

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FUTURE BACKGROUND 2026 TRAFFIC VOLUMES

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2021/08/31	R.A.W.	N.T.S	FIG. 05

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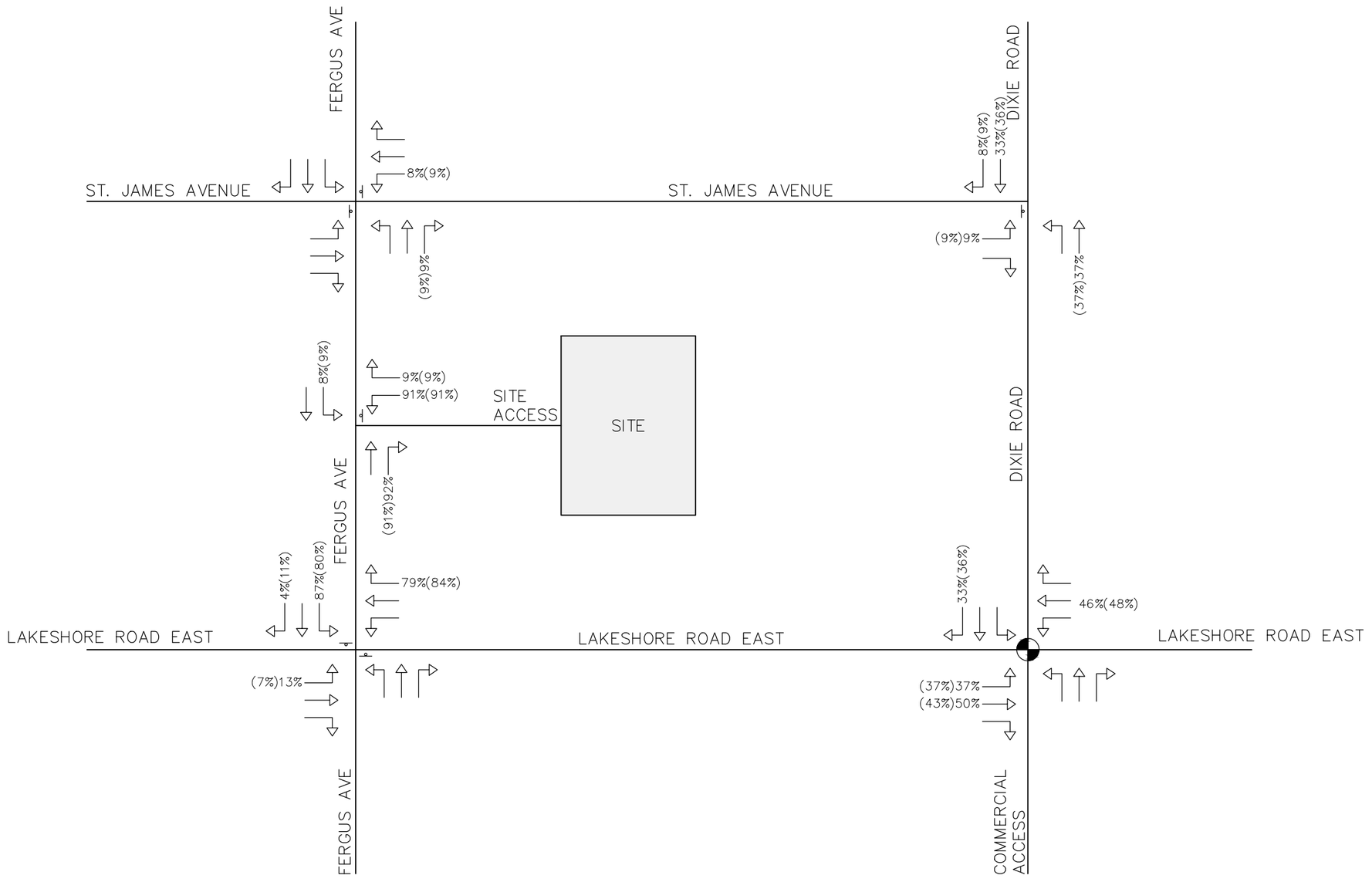

LEGEND:

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2021/08/31	R.A.W.	N.T.S	FIG. 06

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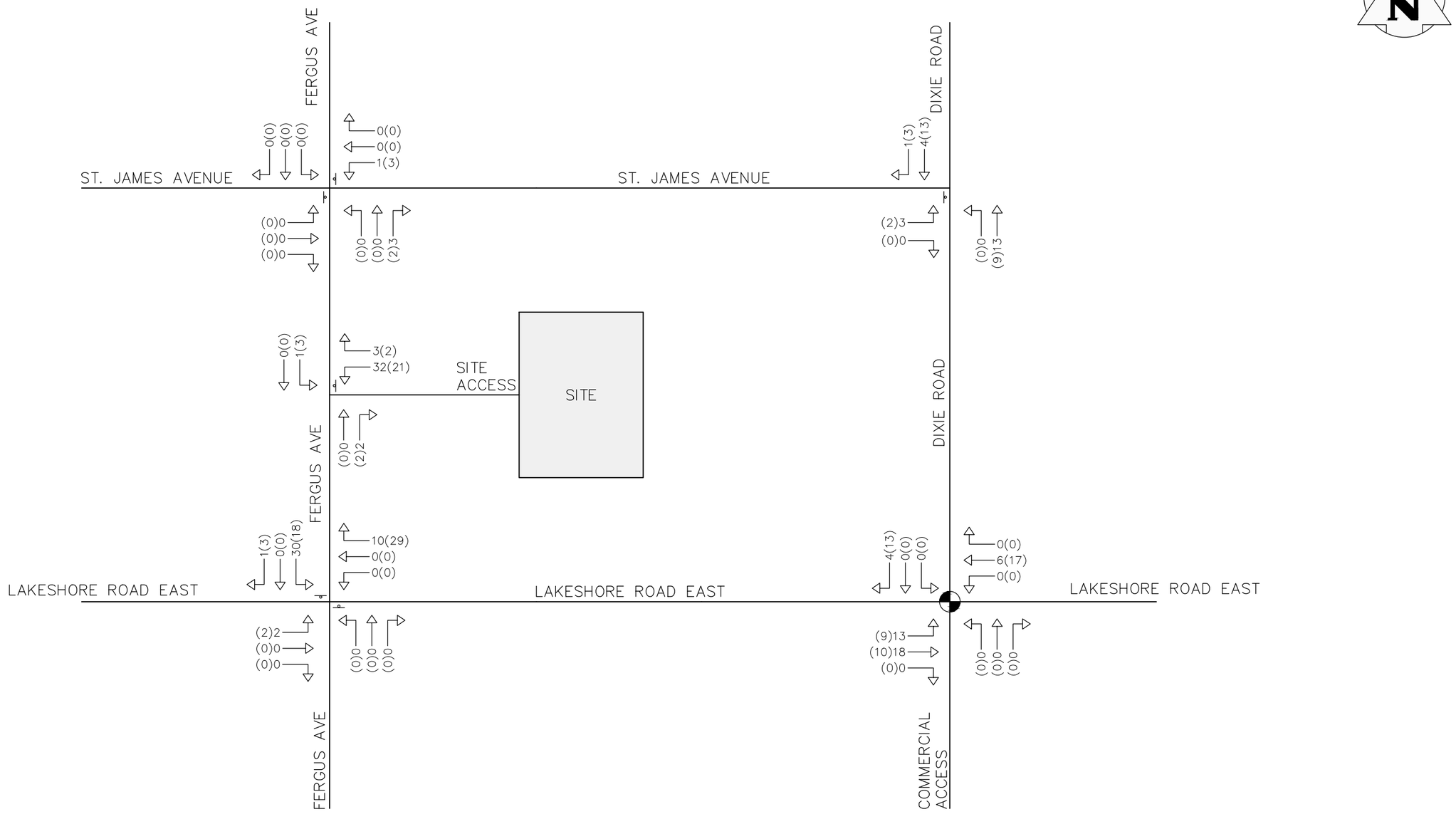

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SITE TRAFFIC VOLUMES

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2021/08/31	R.A.W.	N.T.S	FIG. 07

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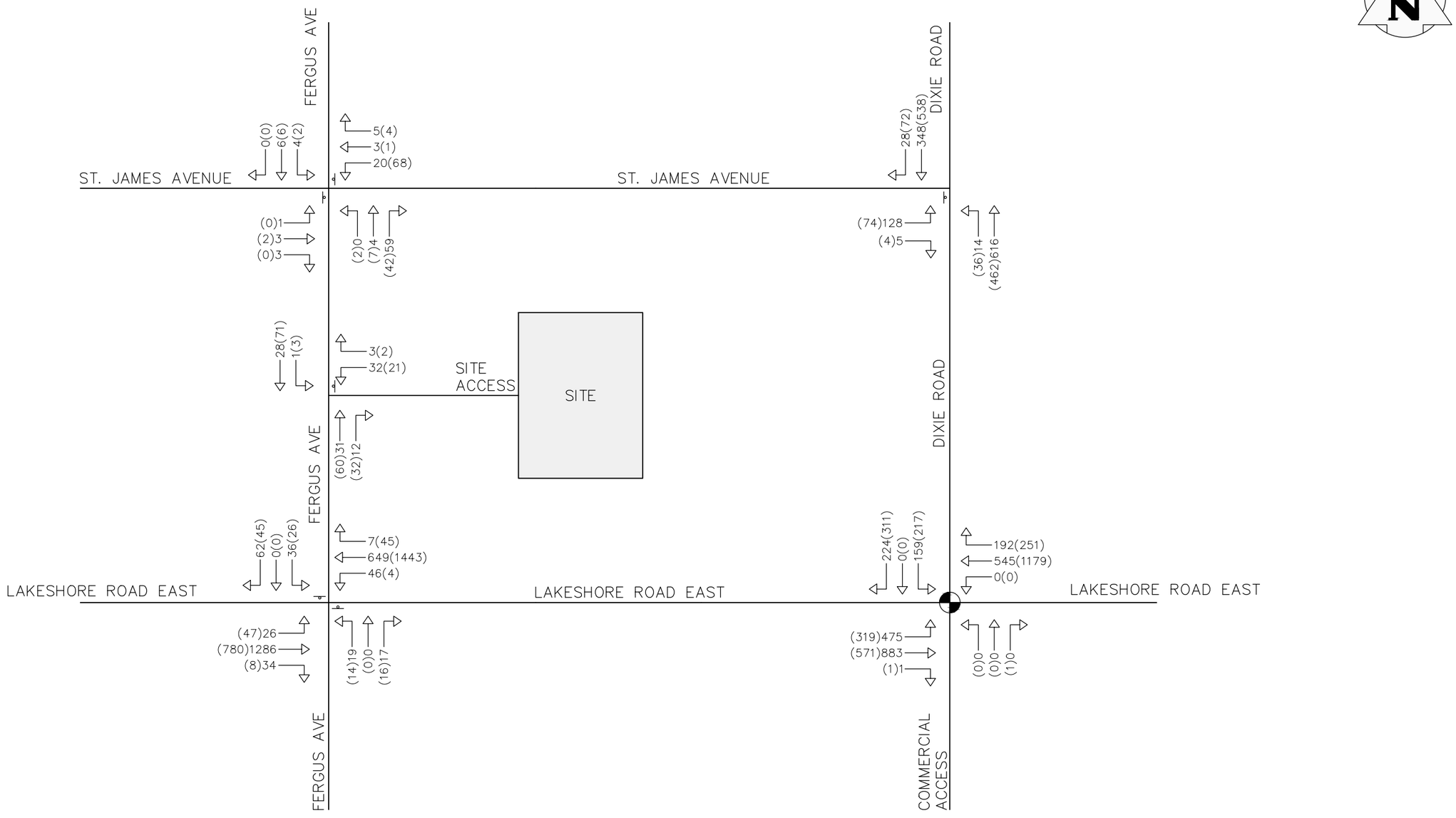

LEGEND:

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FUTURE TOTAL 2026
TRAFFIC VOLUMES

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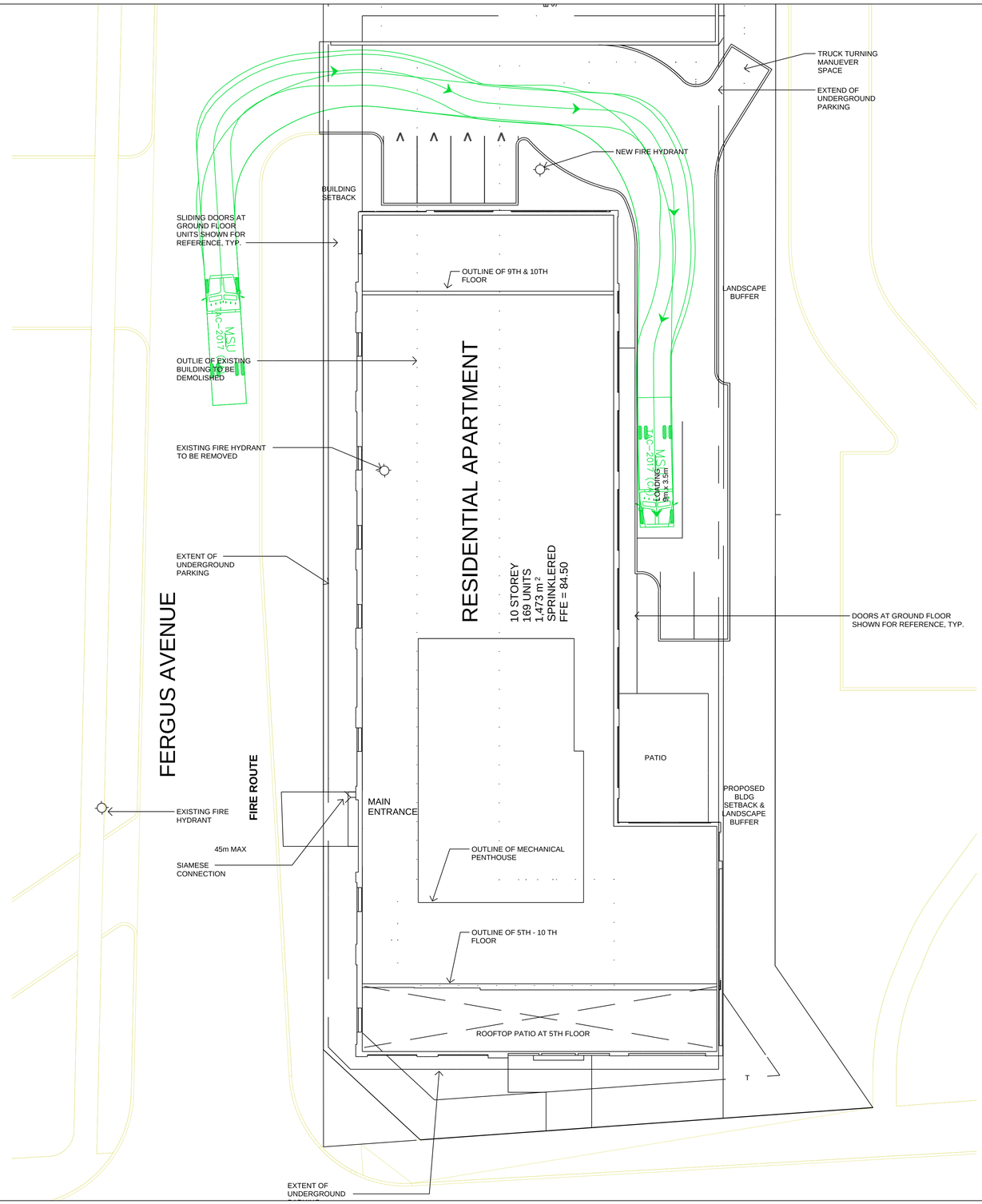
2021/08/31	R.A.W.	N.T.S	FIG. 08



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1303 LAKESHORE ROAD EAST MISSISSAUGA

Drawing

SITE CIRCULATION DIAGRAM – ENTERING

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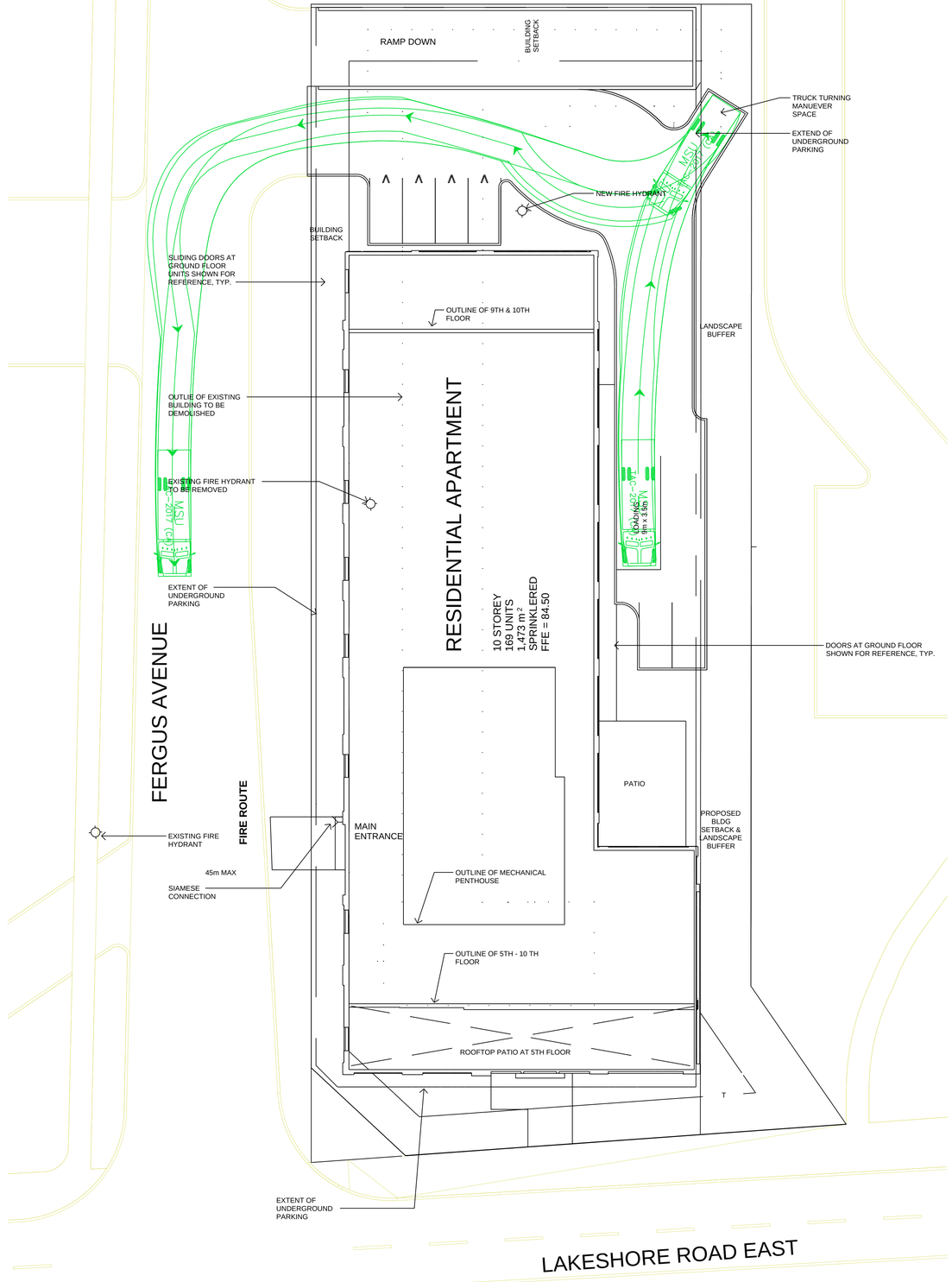
Check By	Check By	Scale	Drawing
A.W.	A.W.	N.T.S	FIG. 09



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Drawing

SITE CIRCULATION DIAGRAM – EXITING

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Check By	Check By	Scale	Drawing
A.W.	A.W.	N.T.S	FIG. 10