TRANSPORTATION IMPACT STUDY

LISGAR DRIVE SUBDIVISION
RESIDENTIAL DEVELOPMENT
CITY OF MISSISSAUGA,
REGIONAL MUNICIPALITY OF PEEL

PREPARED FOR:
AVENIA CONSTRUCTION INC.

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
211 YONGE STREET, SUITE 600
TORONTO, ON
M5B 1M4

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CFCA FILE NO. 2531-6824

CROZIER
CONSULTING ENGINEERS

Appendix A

Certification Form

Individuals submitting reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Mississauga's Official Plan, Transportation Master Plan, and Transportation Impact Study Guidelines.

By submitting the attached report (and any associated documents) and signing this document, I acknowledge that:

- I have reviewed and have a sound understanding of the objectives, needs, and requirements of the City of Mississauga's Official Plan, Transportation Master Plan, and the Transportation Impact Study Guidelines as they apply to this submission;
- I have sound knowledge of industry standard practices pertaining to the preparation of development-related transportation study reports;
- I have substantial experience (more than five years) in completing development-related transportation studies and strong background knowledge of the transportation planning and engineering principles underpinning these studies; and
- I am registered as a Professional Engineer (P.Eng.), Licensed Engineering Technologist (LET), Certified Engineering Technologist (C.E.T.), or Registered Professional Planner (RPP) in good standing in the Province of Ontario with specific training in transportation planning and engineering.

Dated at Toronto (City) this 1st day of March, 2024.

Name: Peter Apasnore

Professional Title: MASc., P.Eng., PTOE

Signature:

Office Contact Information (Please Print)

Address: 211 Yonge Street, Suite 600

City/Postal Code: Toronto, ON M4M 2N4

Telephone/Extension: 416-842-0029

E-mail Address: papasnore@cfcrozier.ca

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Rev. 0	October 2023	Circulated for Coordination
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Rev.2	March 2024	Issued for 2nd Submission

Executive Summary

C.F. Crozier & Associates Inc. (Crozier) was retained by Avenia Construction Inc. to prepare a Transportation Impact Study in support of a proposed residential subdivision development application located northeast of Lisgar Drive and Doug Leavens Boulevard in the City of Mississauga, Regional Municipality of Peel. The purpose of the study is to evaluate the transportation-related impacts of the proposed development on the study road network and to recommend any required mitigation measures, if warranted. The study scope was confirmed through Terms of Reference correspondence with City staff, and includes the following study intersections:

- Lisgar Drive and Beacham Street
- Lisgar Drive and Indigo Crescent / Proposed Street "A"
- Lisgar Drive and Indigo Crescent / Proposed Street "C"
- Lisgar Drive and Doug Leavens Boulevard

Per the Draft Plan of Subdivision prepared by Glen Schnarr & Associates Inc. (dated August 1, 2023), the development proposal consists of 124 detached residential dwelling units, with external roadway connections to Lisgar Drive opposite the north and south legs of Indigo Crescent.

A turning movement count (TMC) survey was conducted in September 2023 to record vehicular movements at the study intersections. These volumes were applied for the existing conditions operational assessment of the study intersections. Future background traffic projections were also determined through application of growth rates and traffic additions from the Ninth Line Derry Britannia Subdivision background development. Intersection operations were modelled using Synchro 11 and SimTraffic modelling software, in accordance with relevant municipal guidelines and based on Highway Capacity Manual (HCM) 2010 criteria. The study intersections are operating well under existing and future background conditions, at a LOS "B" or better during the weekday peak hours, with no performance metrics indicating any notable capacity or operational constraints.

The development proposal is forecast to generate 91 and 122 two-way vehicle trips in the a.m. and p.m. peak hours, respectively. A warrants assessment was conducted at the study intersections to determine the need for traffic signal control, all-way stop control, and auxiliary left-turn lane improvements. Neither traffic signal control, all-way stop control, nor auxiliary left-turn lanes are warranted. This conclusion is consistent with the results of the future total traffic analysis, which projects a LOS "C" or better at the study intersections under 2028 future total conditions in the weekday a.m. and p.m. peak hours.

The site access connections to the proposed subdivision are optimally located as fourth legs opposite the existing Indigo Crescent connections to Lisgar Drive and have adequate sightlines to permit turning movements in conformance with the relevant guidelines The vehicle maneuverability diagrams do not demonstrate any maneuverability constraints within the site for the expected vehicles. A pavement marking and signage plan has also been prepared which outlines the required traffic signage and pavement markings to maintain traffic safety within the subdivision internal roadways for all road users.

Further, the proposed development is expected to take advantage of Transportation Demand Management opportunities to reduce dependency on single occupant vehicle trips. Beyond existing and planned active transportation infrastructure and transit service nearby, the site proposed internal sidewalks and garages for bicycle storage to promote transportation demand management for future residents of the proposed subdivision.

In conclusion, based on the findings of this study, the development proposal is supportable from a transportation operations and safety perspective.

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1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by Avenia Construction Inc. to prepare a Transportation Impact Study in support of the development application for the proposed Lisgar Drive subdivision development located in the City of Mississauga, Regional Municipality of Peel.

A Transportation Impact Study was originally submitted in March 2024 in support of the proposed development. This Traffic Impact Study addresses the City of Mississauga comments received on January 16, 2024. A separate comment response letter has been submitted separately and addresses each of the comments received from the City.

1.1 Development Lands

The subject lands are known as 0 Lisgar Drive, Block 356, Plan 43M-1052 and Block 366, Plan 43M-1066, and are located northeast of Lisgar Drive and Doug Leavens Boulevard in the City of Mississauga. The property is approximately 6.5 hectares in area and is bounded by Lisgar Drive to the west, residential uses off of Doug Leavens Boulevard to the south, and the Lisgar Fields community park to the east and north. The lands currently consist of a vacant, undeveloped lot, are zoned "Residential (R4)" per the City of Mississauga Zoning By-law No. 0225-2007, and are designated "Neighbourhood" per the City of Mississauga Official Plan.

1.2 Development Proposal

Per the Draft Plan of Subdivision prepared by Glen Schnarr & Associates Inc. (dated August 1, 2023), the development will consist of a total of 124 detached residential dwelling units, serviced by internal roadways with connections at Lisgar Drive opposite to both the north and south legs of Indigo Crescent. **Appendix A** contains the Draft Plan of Subdivision.

1.3 Purpose and Scope

The purpose of the study is to evaluate the transportation-related impacts of the proposed development on the boundary road network and to recommend any mitigation measures, if warranted. This Transportation Impact Study (TIS) is in support of a Draft Plan of Subdivision development application.

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

- Impacts of development traffic on the study road network through analyzing existing, future background, and future total traffic operations.
- Need for external roadway improvements to mitigate traffic impacts.
- Adequacy of the development plan to allow for anticipated vehicle access and internal circulation.
- Transportation safety components, including: sight distance at the site accesses, access spacing and restrictions, pavement markings and signage, and pedestrian circulation plan.
- Existing, future, and site-specific Transportation Demand Management opportunities.

The study has been completed in accordance with the City of Mississauga's Transportation Impact Study Guidelines (December 2022) and in accordance with a Terms of Reference established with the City of Mississauga staff (City staff). **Appendix B** contains the correspondence outlining the approved terms of reference.

The following intersections were confirmed with the City for consideration in the scope of this study:

- Lisgar Drive and Beacham Street
- Lisgar Drive and Indigo Crescent (north leg) / Proposed Street "A"
- Lisgar Drive and Indigo Crescent (south leg) / Proposed Street "C"
- Lisgar Drive and Doug Leavens Boulevard

Furthermore, the study considers the 2023 existing conditions and 2028 future conditions horizon years, in accordance with the City of Mississauga TIS guidelines.

2.0 Existing Conditions

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

2.1 Study Road Network

Given the confirmed study intersections in **Section 1.3**, The roadways included within the study road network are described in **Table 1**.

Table 1: Study Road Network

Feature	Roadway			
	Lisgar Drive	**Doug Leavens Boulevard**	**Beacham Street**	**Indigo Crescent**
Study Area Span	Beacham Street to Doug Leavens Boulevard	Immediately west and east of Lisgar Drive	Immediately west of Lisgar Drive	Immediately west of Lisgar Drive
Direction	Two-way (North-South)	Two-way (East-West)	Two-way (East-West)	Two-way (East-West)
Classification	Minor Collector	Minor Collector	Minor Collector	Local
Jurisdiction	City of Mississauga			
Speed Limit	50km/h (Unposted, assumed)			
Number of travel lanes	Two	Two	Two	Two

Figure 2 illustrates the existing study road network, including lane configurations, storage bay lengths of the auxiliary turn lanes, and intersection control.

2.2 Public Transit Services

There are several MiWay Transit and GO Transit routes that operate in the surrounding area of the subject property. **Table 2** outlines the existing transit routes, direction, days of operation, peak hour headways, and the location of bus stops in the study area.

Table 2: Existing Transit Services

Route	Start and End Points	Times of Operation	Peak Hour Headways (min)	Direction 1 Transit Stop[1]	Direction 2 Transit Stop[1]
Miway Transit					
39 Britannia	Meadowvale Town Centre to Renforth Station	Weekdays 5am – 1am Weekends 6am – 9pm	15 – 20	Lisgar Dr at Doug Leavens Blvd (~250m, 3.5min walk)	Lisgar Dr at Doug Leavens Blvd (~300m, 4min walk)
46 Tenth Line – Osprey	Meadowvale Town Centre to Erin Mills Station	Weekdays 5am – 1am Weekends 8am – 9pm	30	Trelawny Circle at Doug Leavens Blvd (~700m, 10min walk)	Trelawny Circle at Doug Leavens Blvd (~700m, 10min walk)
Go Transit					
27 Milton / North York	Milton GO Station to Finch Bus Terminal	Weekdays 5:00 a.m. to 9:00 a.m. & 5:00 p.m. to 8:00 p.m.[2]	30	Derry Road W. @ Ninth Line (~1.3km, ~5.5min bike)	Derry Road W. @ Ninth Line (1.3km, ~5.5min bike)
48 Hamilton / Pickering	University of Guelph to Hwy. 407 Bus Terminal	Weekdays 5:00 a.m. to 12:00 a.m.	60	Derry Road W. @ Ninth Line (~1.3km, ~5.5min bike)	Derry Road W. @ Ninth Line (1.3km, ~5.5min bike)

Note 1: Active transportation distance measured from intersection of Lisgar Drive and Indigo Crescent / proposed Street "A". Travel speeds of 1.2m/s and 4.0m/s for walking and cycling were assumed for travel time estimation, respectively.
Note 2: Commuter travel direction only.

Overall, there is a reasonable level of existing local transit service, with accessibility to the nearby destinations such as the Meadowvale Town Centre and Erin Mills Town Centre Shopping Malls, and the Erin Mills and Renforth Transitway Stations. These stations along with the noted GO Transit bus service along with train service the nearby Meadowvale and Lisgar GO Stations represent a relatively convenient commuter oriented peak period transit service for trips from or to the subject site.

Appendix C contains relevant transit information.

2.3 Active Transportation Network

There are a number of existing active transportation facilities in proximity to the subject lands that were considered in this study.

The minor collector roads of Lisgar Drive, Beacham Street, and Doug Leavens Boulevard possess 1.5m concrete sidewalks on both sides of the road, with approximately 3.0m of grass boulevard separating the sidewalks from the road that improves pedestrian experience. There is also a 1.5m sidewalk along Indigo Crescent on the north side at the north connection approaching Lisgar Drive, and on the south side at the south connection approaching Lisgar Drive.

While there is no existing cycling infrastructure along the study roadways, there is a multi-use path present near the subject site. The Lisgar Meadows Brook Trail is a dedicated active transportation route that spans between Buttonbush Park in the north to Britannia Road West in the south. The trail runs through the Lisgar Fields area, which is adjacent to the subject lands. The Lisgar Meadows Brook trail allows for recreational active transportation and also connects with some schools and other multi-use paths that allow access to some commercial areas. Further, while many nearby roadways

do not have delineated cycling facilities, many of these neighbourhood roads are expected to accommodate relatively low traffic volumes at low speeds, meaning cyclists can utilize many of these roads.

2.4 Transportation Data

Turning movement counts were conducted by Spectrum Traffic Data Inc. staff at the four study intersections on Wednesday September 13, 2023 between 6:00 a.m. – 10:00 a.m. and 3:00 p.m. – 7:00 p.m. These time periods are reflective of commuter peak hours and thus were considered appropriate for traffic analysis of the proposed development. These hours are also in-line with City of Mississauga standards for the a.m. and p.m. peak periods.

The turning movement count survey data is contained in **Appendix D**.

2.5 Traffic Modelling

The existing and subsequent future traffic analysis of the study road network was modelled in Synchro 11 based on "Highway Capacity Manual (HCM)" 2010 methodology and using the default Synchro parameters, unless otherwise noted below. Roadway geometrics were modelled based on the existing study road network description in **Section 2.1**.

The traffic volumes applied to the existing conditions model were the exact volumes recorded in the 2023 turning movement count survey discussed in **Section 2.5**. The survey data was also applied to model the heavy vehicle percentages. A peak hour factor of 0.92 is preferred in the City of Mississauga guidelines and was thus applied in the traffic modelling process. **Appendix D** contains the turning movement count data with the heavy vehicle percentages outlined.

The HCM 2010 methodology used for assessment prescribes a method for estimating the Level of Service, control delay, and volume-to-capacity performance metrics that were reported on in this study. The Level of Service (LOS) metric provides a general performance measure of the quality of the service from a driver's perspective and ranges in letter from "A" to "F"; "A" representing best performance and "F" representing worst performance. **Appendix E** contains the complete Level of Service definitions used in this study. Control delay is the additional time added per vehicle as a result of the intersection and its associated control (ie. Traffic Light / Stop Control) compared to the average speed on the adjoining roadway segments. The approach with the worst LOS and delay was reported on for the assessment herein as is typical for unsignalized intersections. Finally, while not a requirement for unsignalized intersection for City of Mississauga studies, volume-to-capacity ratios for intersection movements were reported on, which indicates the fraction of the capacity for a particular movement, approach, or the intersection itself used by traffic volumes at an intersection.

In addition to the HCM 2010 assessment, queuing was analyzed in this study using SimTraffic, a microsimulation tool within the Synchro 11 software. The 95th percentile queue length metric, which represents the 95th percentile queue length of the peak hour traffic simulated in SimTraffic, were considered in this study for the auxiliary turn storage lanes. In accordance with City of Mississauga guidelines, ten separate SimTraffic simulation runs were conducted per scenario, with a 15 minute seeding interval time and a 60 minute analysis period being used for the assessment.

2.6 Intersection Operations

Table 3 outlines the 2023 existing conditions traffic operations at the signalized and unsignalized study intersections, respectively**. Figure 3** illustrates the 2023 existing conditions traffic volumes used in the operations analysis. **Appendix F** contains the detailed capacity analysis worksheets.

Table 3: 2023 Existing Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay [1]	Critical v/c ratio [1]	95th Percentile Queue Length > Storage Length [1]
Lisgar Drive and Beacham Street	Stop (All-way)	A.M.	A	9.4s	0.29 (SBTR)	None
		P.M.	A	8.8s	0.23 (SBTR)	None
Lisgar Drive and Indigo Crescent (north leg)	Stop (Minor)	A.M.	B	10.1s	0.03 (EB)	None
		P.M.	A	9.7s	0.03 (EB)	None
Lisgar Drive and Indigo Crescent (south leg)	Stop (Minor)	A.M.	B	10.3s	0.03 (EB)	None
		P.M.	A	9.4s	0.02 (EB)	None
Lisgar Drive and Doug Leavens Boulevard	Stop (All-way)	A.M.	B	12.8s	0.42 (SB)	15.3m > 15.0m (WBL)
		P.M.	A	9.8s	0.28 (EBTR)	None

*Note 1: The methodology for calculating performance metrics is discussed in **Section 2.5**.*

Under existing conditions during the peak hours, the study intersections are operating below capacity at a LOS "B" or better, with minimal delays incurred to the associated movements. Furthermore, the 95th percentile queuing results do not indicate any expected queuing issues during the peak hours, with the storages of the auxiliary turn lanes being generally sufficient in length to accommodate peak traffic queues.

3.0 Future Background Conditions

This section summarizes the future background conditions on the study road network and provides details relating to growth rates, future transportation network improvements, and background developments considered in the study. As established in **Section 1.3** (per the Terms of Reference), this study considers the 2028 horizon year for the future background traffic analysis, the results of which are summarized herein in **Section 3.4**. Traffic modelling methodology in **Section 2.5** was kept consistent in the future background conditions herein compared to the existing conditions assessment.

3.1 Future Transportation Network

No future transportation improvements are currently planned for the study road network within the study horizons. However, the nearby Ninth Line, just outside the study area, is slated to be improved in the future. The planned Ninth Line corridor transportation improvements as described in the Ninth Line Class Environmental Assessment Study (2021) consists of widening of the road from two to four travel lanes, auxiliary turn storage lane improvements, signal control at various intersections, cycle tracks, sidewalks, and other non-transportation related public realm improvements. Based on the most

current City of Mississauga 2023 budget, the Ninth Line corridor transportation improvements project is anticipated to be completed by approximately 2027. Relevant excerpts of the Ninth Line EA are included in **Appendix G**.

While this project can be expected to induce travel demands for all transportation modes to the corridor, this resulting change is expected to have an immaterial impact on analysis results of this study. Few if any vehicle traffic diversions from Lisgar Drive are expected as a result of the Ninth Line widening. The active transportation improvements on Ninth Line are expected to improve the active transportation network in the vicinity of the subject site, and encourage active transportation in the area.

3.2 Growth Rate

Given the lands in the vicinity of the subject site are generally built out and lack of historical traffic data available along the collector roads of Lisgar Drive, Beacham Street and Doug Leavens Boulevard, a growth rate of 1% per annum along these minor collector roadways was assumed for the study. Additionally, background development traffic from the Mattamy Ninth Line Derry Britania Subdivision outlined in **Section 3.3** was added, consistent with the scope confirmed with City of Mississauga staff. **Figure 4** outline the growth rates applied to the existing conditions traffic volumes to forecast general background traffic growth to the 2028 horizon year.

3.3 Background Developments

Based on a review of the City of Mississauga website outlining active development applications, one background development was identified and confirmed for the study with City staff.

The Ninth Line Mattamy Derry Britannia Subdivision is an active development application located approximately 500m away from the subject property. The background development lands are bounded by Ninth Line to the east, Highway 407 corridor lands to the west, a Union Gas building to the north, and an existing church to the south. The background development proposes up to 1678 residential dwelling units consisting of a mix of detached dwellings, townhouses, and condo apartments, along with an elementary school.

A TIS update was prepared for the development proposal by Crozier (dated May 2023), and includes traffic volume forecasts for the site at the nearby intersection of Ninth Line and Doug Leavens Boulevard in the 2028 horizon year. Therefore, the traffic volumes of Ninth Line Mattamy Derry Britannia Subdivision at the Ninth Line and Doug Leavens Boulevard intersection in the 2028 horizon year were carried through the intersection of Lisgar Drive and Doug Leavens Boulevard as through movements on Doug Leavens Boulevard.

The Ninth Line Mattamy Derry Britannia Subdivision background development traffic volumes for this study are outlined in **Figure 5**. **Appendix H** contains the relevant background development excerpts.

3.4 Intersection Operations

Table 4 summarizes the traffic operations at the study intersections under the 2028 future background conditions. **Figure 6** outlines the 2028 future background traffic volumes used for the assessment, which were calculated by growing the existing conditions traffic volumes based on the growth rates in **Figure 4**, and adding the Ninth Line Mattamy Derry Britannia Subdivision traffic volumes in **Figure 5**. **Appendix F** contains the detailed capacity analysis reports for this assessment.

Table 4: 2028 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay [1]	Critical v/c ratio [1]	95th Percentile Queue Length > Storage Length [1]
Lisgar Drive and Beacham Street	Stop (All-way)	A.M.	A	9.5s	0.31 (SBTR)	None
		P.M.	A	8.9s	0.24 (SBTR)	None
Lisgar Drive and Indigo Crescent (north leg)	Stop (Minor)	A.M.	B	10.2s	0.03 (EB)	None
		P.M.	A	9.7s	0.03 (EB)	None
Lisgar Drive and Indigo Crescent (south leg)	Stop (Minor)	A.M.	B	10.5s	0.03 (EB)	None
		P.M.	A	9.5s	0.02 (EB)	None
Lisgar Drive and Doug Leavens Boulevard	Stop (All-way)	A.M.	B	13.8s	0.46 (SB)	15.1m > 15.0m (WBL)
		P.M.	B	10.2s	0.31 (EBTR)	None

*Note 1: The methodology for calculating performance metrics is discussed in **Section 2.5**.*

The study intersections are projected to operate at acceptable levels of service for the future background conditions scenario. A LOS "B" or better is forecast for each of the study intersections during the peak hours. The volume-to-capacity ratios and 95th percentile queues projected in the scenario do not suggest any notable operational constraints at the study intersections. Overall, the operational metrics indicate similar levels of traffic operations can be expected in the future background compared to the present situation.

4.0 Site Generated Traffic

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

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

4.1 Trip Generation

As noted in **Section 2.2**, the development proposal consists of 124 residential dwelling units.

The trip generation of the proposed residential dwelling units were forecasted using published data from the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition. It is acknowledged that the City of Mississauga Person Trip Generation Forecast was not employed for the traffic volume herein. However, a separate person trip generation forecast has been prepared in **Section 8.1** in accordance with the City guidance to forecast non-auto vehicle trips from the proposed development.

The Land Use Category (LUC) 210 "Single Family Detached Housing" was applied to the proposed residential dwelling units. The fitted curve equation was selected for the forecast given the large sample size of surveys within this LUC and high coefficients of determination (R^2) for each of the peak, indicating these equations provides good levels of accuracy.

Table 5 outlines the trip generation for the proposed development.

Table 5: Trip Generation

ITE Land Use Category	Units	Peak Hour	Trips Generated		
			Inbound	Outbound	Total
LUC 210 "Single Family Detached Housing"	124	A.M.	23	68	91
		P.M.	77	45	122

The full build-out of the proposed development is expected to generate a total of 91 and 122 two-way trips during the weekday a.m. and p.m. peak hours, respectively. Given the sole residential land use, no internal synergy trips or pass-by trips are expected for the proposed development.

4.2 Trip Distribution and Assignment

The trips generated by the proposed development were distributed to the study road network based on 2016 Transportation Tomorrow Survey (TTS) data and based on existing traffic patterns. TTS is a comprehensive survey of transportation characteristics of households in the Greater Toronto Area (GTA) and surrounding areas.

For the proposed development, TTS results were filtered to auto trips exiting and entering 2006 GTA Zones 3615, 3616, 3637 and 3638 during the weekday a.m. and p.m. peak periods, respectively. These consist of the residential zones surrounding the subject lands, and thus were considered to be appropriate for trip distribution analysis. An additional TTS query was undertaken to understand the proportion of trips that will use Highway 407. Approximately 5% of all peak period vehicle trips from the noted 2006 GTA Zones utilize Highway 407, with trips to and from Vaughan, Markham, Hamilton and northern areas of Toronto comprising most of all trips made on Highway 407. Trips were assigned to the study road network based on expected shortest travel times to the relevant destinations determined in the TTS query.

In addition to the results of the TTS query, existing travel patterns were relied upon to determine trip distribution. Based on the turning movement count survey outlined in **Section 2.4**, it was observed that approximately 43% of traffic from the dwellings accessed via Indigo Crescent travels to and from the north on Lisgar Drive, while the remaining 57% travels to and from the south on Lisgar Drive.

The trip distribution based on the TTS and existing travel patterns for the development proposal is outlined in **Table 6** below. **Appendix I** contains the TTS data and analysis.

Table 6: Trip Distribution

Arriving From / Departing To	Percentage
Ninth Line via Doug Leavens Boulevard (south)	**15%**
Ninth Line via Beacham Street (north)	**10%**
Lisgar Drive (north)	**45%**
Doug Leavens Boulevard (east)	**30%**
Total	**100%**

There are some residential dwelling units proposed along Lisgar Drive, however, for the purposes of a conservative analysis, all vehicle trips were assumed to originate or be destined to Street "A" or Street "C". A split of 70% and 30% of all vehicle trips were assigned to the Street "A" and Street "C" access, respectively, as the Street "A" access is closer to more residential dwellings than Street "C".

Applying the trip generation in **Section 5.1** to the trip distribution results in the trip assignment for the development proposal, which is outlined in **Figure 7**.

5.0 Future Total Conditions

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

- Future background traffic volumes from the 2028 horizon year.
- Site generated traffic volumes of the development proposal.

The resulting 2028 future total traffic volumes are outlined in **Figure 8**. These traffic volumes were applied for the signal and left-turn warrants assessment, along with the total traffic operations analysis.

5.1 Signal Warrants

The potential need for signal control was evaluated at the unsignalized study intersections under 2028 future total conditions. The signal warrant analysis followed the procedures specified in Chapter 4 of the "Ontario Traffic Manual – Book 12", March 2012. Justifications 1 (Minimum Vehicular Volume), 2 (Delay to Cross Traffic), 3 (Combination of Justifications 1 and 2), and 4 (4-Hour Volume) were selected as the most appropriate warrants with which to assess the site connections.

The average hour volume was determined using the following formula from OTM Book 12:

AHV = (amPHV + pmPHV) / 4

Where;

AHV = average hour volume
PHV = peak hour volume

An "urban" operating environment was applied to the signal warrant analysis to reflect the lower

speed limits along the study roadways.

Table 7 outlines the results of the signal warrant analysis at the intersection of Doug Leavens Boulevard and Lisgar Drive.

Table 7: Signal Warrant Analysis Results

Location	Operating Environment	Horizon Year	Number of lanes on major road	Traffic Signals Warranted?
Doug Leavens Boulevard and Lisgar Drive	Urban	2028 Future Total	One	No

For intersections with low number of traffic volumes, a simpler threshold can be used to confirm that traffic signals are not warranted under any of the four justifications considered for the signal warrant assessment. For an intersection with one lane per direction on all approaches in urban conditions, if the summation of the 2028 a.m. and p.m. peak hour traffic volumes at this intersection is no more than 3200 vehicles, and the busiest minor street approach traffic volume summation is no more than 320 vehicles, each of the four justifications for signal control will not be warranted.

As can be verified in **Figure 8**, the summation of the traffic volumes in the a.m. and p.m. peak hours at each of the remaining study intersections fall below the 3200 vehicle entire intersection and the 320 vehicle heaviest minor street approach thresholds required at a minimum to potentially trigger signal warrant Justifications 1 to 4. Therefore, by inspection, signal control at the remaining study intersections are not warranted in the 2028 Future Total scenario.

Appendix J contains the signal warrant sheets.

5.2 Auxiliary Left-Turn Lane Warrants

Auxiliary left-turn lane warrant analysis was conducted at the proposed site access connections to Lisgar Drive under 2028 future total conditions. The analysis was conducted using the Ministry of Transportation (MTO)'s "Design Supplement for TAC Geometric Design Guide for Canadian Roads – June 2017." The analysis was conducted using the warrant for "Left Turn Storage Lanes Two Lane Highways Unsignalized." As the proposed site access will be located on the east side of Lisgar Drive, the southbound left-turn movement was analyzed for left-turn lane requirements.

The design speed of a roadway in an urban neighbourhood environment is typically 10km/h greater than the posted speed limit. The assumed speed limit on Lisgar Drive is 50 km/h as noted in **Section 2.1**. Therefore, a design speed of 60 km/h was assumed for the left-turn lane warrant analysis.

Table 8 outlines the results of the left-turn lane warrant analysis.

Table 8: Left-Turn Lane Warrant Analysis Results

Location	Movement	Design Speed	Horizon Year	Number of lanes on major road	Left-Turn Lane Storage Requirement?
Lisgar Drive and Street "A" / Indigo Crescent	Southbound Left-Turn	60 km/h	2028 Future Total	One	No
Lisgar Drive and Street "C" / Indigo Crescent	Southbound Left-Turn				No

The results of the left-turn lane analysis indicate that an auxiliary southbound left-turn lane is not warranted at either of the site access connections under 2028 future total conditions.

Appendix J contains the warrants assessment for the auxiliary left-turn lanes.

5.3 All-Way Stop Control Warrants

The two proposed site access connections to Lisgar Drive opposite Indigo Crescent were evaluated for all-way stop control (AWSC) configuration using the methodology outlined in the OTM Book 5. The assessment used the 2028 future total traffic volumes outlined in **Figure 8** and used no pedestrian volumes, although it is acknowledged some pedestrian activity can be expected near the intersection. The AWSC calculations are included in **Appendix J**. **Table 9** summarizes the AWSC warrant results.

Table 9: All-Way Stop Control Warrants Assessment

Intersection	Major Street	ASWC Warranted?
Lisgar Drive and Indigo Crescent / Street "A"	Lisgar Drive	No
Lisgar Drive and Indigo Crescent / Street "C"	Lisgar Drive	No

The results of the warrants indicate that all-way stop control is not warranted at either of the site access intersections with Lisgar Drive. Therefore, the minor street (Indigo Crescent) stop controls remain adequate.

5.4 Intersection Operations

Table 10 outlines the 2028 future total traffic conditions associate with the study intersections, with detailed capacity analysis reports included in **Appendix F**.

Table 10: 2028 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay [1]	Critical v/c ratio [1]	95th Percentile Queue Length > Storage Length [1]
Lisgar Drive and Beacham Street	Stop (All-way)	A.M.	A	9.8s	0.33 (SBTR)	None
		P.M.	A	9.5s	0.29 (SBTR)	None
Lisgar Drive and Indigo Crescent (north leg)	Stop (Minor)	A.M.	B	11.5s	0.08 (WB)	None
		P.M.	B	10.7s	0.05 (WB)	None
Lisgar Drive and Indigo Crescent (south leg)	Stop (Minor)	A.M.	B	11.2s	0.04 (WB)	None
		P.M.	B	10.2s	0.02 (WB)	None
Lisgar Drive and Doug Leavens Boulevard	Stop (All-way)	A.M.	C	15.1s	0.52 (SB)	None
		P.M.	B	10.4s	0.32 (EB)	None

*Note 1: The methodology for calculating performance metrics is discussed in **Section 2.5**.*

Under 2028 future total traffic conditions, the study intersections are forecast to operate at a LOS "C" or better during the a.m. and p.m. peak hours, or the same as future background conditions. A control delay increment of 2 seconds or less is projected as a result of development traffic. Furthermore, the volume-to-capacity ratios and 95th percentile queues are forecast to be minorly impacted as a result of site traffic, with no operational concerns pertaining to these performance metrics being forecast.

6.0 Site Access Safety Review

The development proposal includes two site accesses via internal streets onto Lisgar Drive that will provide transportation servicing to and from the site. This section evaluates the suitability of the site accesses from a transportation safety perspective and recommends mitigation measures, if warranted. The safety review of the accesses includes an assessment of whether turning maneuvers can be made safely at the site accesses without issues related to sight lines and intersection spacing.

6.1 Site Access Intersections and Clear Throat Length

The proposed development includes two public roadway access connections to Lisgar Drive on the east side opposite to the existing Indigo Crescent connections. Connecting opposite to these existing intersections are logical vehicular servicing points for the proposed development. The new legs of these intersections are within the recommended 70 to 110 degree angle. The current intersection spacing of about 150m between these intersections, and about 150m and 115m to the nearest roadway north and south of the two intersections, respectively, are above the minimum suggested separation of 60m for collector roadways per TAC-GDGCR requirements. Therefore, no traffic safety issues due to geometry or alignment of the new legs are expected, and the two intersections are expected to remain functionally adequate.

Further, though Table 8.9.3 of the TAC-GDGCR identifies clear throat lengths for only residential apartment units, it will be applied herein. Given the number of units and double access

connections to Lisgar Drive, a 15m clear throat is identified. The internal roadway connections to Lisgar Drive both have clear throats greater than 15m and are satisfactory.

6.2 Sight Distance Analysis

While the proposed site access are situated opposite to the existing Indigo Crescent intersections with Lisgar Drive, the available sightlines at the proposed Lisgar Drive access connections were nevertheless measured and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). Sight distance was measured from the proposed site accesses using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car, and
- A 4.4 metre setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site.

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 of 60 km/h was assumed for the sight distance analysis given the assumed unposted speed limit of 50 km/h along Lisgar Drive.

Table 11 outlines the sight distance analysis for the proposed site access.

Table 11: Sight Distance Analysis

Feature	Street "A" Site Access	Street "C" Site Access
Access Type	Full-Moves	Full-Moves
Intersection Control	Stop (Minor Street)	Stop (Minor Street)
Posted Speed Limit of Roadway	50 km/h	
Assumed Design Speed	60 km/h	
Base Time Gap	7.5 s [1]	
Additional Time Gap	0.0s	
Grade of Roadway	Less than 3%	
Horizontal Alignment of Roadway	Straight	
Sight Distance Required	130 m	130 m
Measured Sight Distance	> 200 m (to north and south)	> 200 m (to north and south)
Minimum Sight Distance Satisfied?	Yes	Yes

Note 1: Time gap for left-turning vehicles from a stop onto a two-lane highway with no median and with a grade less than 3%. Value from Table 9.9.3 in the GDGCR.

As outlined in **Table 11**, minimum sight distance requirements are satisfied at the proposed Lisgar Drive connections. Therefore, the proposed development is supportable from a sight distance perspective.

6.3 Access Sight Triangle

The proposed Street A and Street C connections to Lisgar Drive at Indigo Crescent have 5m-by-5m sight triangles similar to the existing Indigo Crescent as measured from the Subdivision's base plan included in **Appendix A**. Given the accesses provide adequate sightlines and are stop-controlled with no need for traffic signal infrastructure under the current development proposal, the 5m-by-5m sight triangles are adequate for the proposed connections, similar to the existing Indigo Crescent legs on the west side of Lisgar Drive. A sightline figure is also included in **Appendix O** to highlight adequacy of the 5m-by-5m sight triangles.

7.0 Vehicle Maneuverability Review

This section considers the internal streets of the development proposal. The vehicles expected to operate within and service the development proposal are identified and assessed as to whether they can be safely accommodated without conflicts or constraints. The Auto-TURN vehicle turning software was used to assess the expected design vehicles onsite. In addition, the pavement marking and signage plan for the development proposal is outlined in this section to support vehicular circulation activities.

7.1 Waste Collection Servicing

Vehicle turning plans using a Region of Peel side load waste collection vehicle per the Region of Peel Waste Collection Design Standards Manual (WCDSM) were prepared. The vehicle is shown travelling along the entire property frontages of the proposed internal streets, meaning waste collection is feasible at each of the 124 proposed residential dwellings. **Appendix K** contains the vehicle turning diagrams.

7.2 Emergency Vehicle Servicing

A maneuvering assessment was conducted for emergency vehicles using a pumper fire truck design vehicle. **Appendix K** includes the vehicle turning diagrams that outline the fire truck navigating all of the internal roadways.

7.3 Pavement Marking and Signage Plan

To safely accommodate vehicular circulation, ensure traffic control and potential on-street parking on the proposed internal streets, a pavement marking and signage plan has been prepared to support the development proposal. **Appendix L** contains the pavement marking and signage plan.

8.0 Transportation Demand Management Plan

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

The following sections outline the existing and future TDM opportunities near to the subject site, and

the TDM measures to be implemented at the proposed development in accordance with the City of Mississauga TDM Checklist. The pedestrian circulation plan of the development proposal is also outlined in this section.

8.1 Assessment of TDM Environment

The existing and future non-auto transportation network described in **Sections 2.2, 2.3, and 3.1** outline a standard suburban pedestrian network with acceptable local transit service with connections to regional transit routes. The TDM environment is fairly typical for suburban Mississauga, with some available options for active transportation trips to nearby schools and commercial areas, and transit accessibility to nearby major trip generators such as the Meadowvale Town Centre and Erin Mills Town Centre shopping centres and the Erin Mills and Renforth Transitway Stations.

Using data from the Transportation Tomorrow Survey (TTS), the existing modal split of the area was determined. Results of the survey were filtered for the 2006 GTA Zones 3615, 3616, 3637 and 3638 for home based trips on a typical weekday. **Table 12** outlines the existing modal split in the study area. **Appendix I** contains the TTS Data. The combined modal split of 31% for non-single occupant trips in the area further highlights the viability and opportunity for enhancing TDM measures in the area and at the proposed development.

Table 12: Existing Modal Split

Transportation Mode	Modal Split
Auto Driver	69%
Auto Passenger	13%
Transit	11%
Cycling	1%
Walking	6%
Total	**100%**

8.2 Persons Trip Generation Forecast

In accordance with the City of Mississauga TIS Guidelines, a person trip generation forecast was prepared for the proposed development to understand non-vehicular travel demands on the transportation network.

Applying the typical suburban and low-density multiplier of 1.28 suggested by the City to vehicle trip generation in **Section 4.1** results in a person trip generation forecast for the proposed development. **Table 13** outlines the forecasted person trip generation for the proposed development.

Table 13: Person Trip Generation

Land Use Category	Units	Peak Hour	Trips Generated		
			Inbound	Outbound	Total
Residential Development	124	A.M.	29	87	116
		P.M.	99	57	156

Therefore, the proposed development is expected to generate 116 and 156 person trips in the a.m. and p.m. peak hours, respectively.

As noted in **Section 3.1** the only significant transportation improvement expected to impact travel demands in the area is the Ninth Line widening project, which will introduce enhanced transportation infrastructure for vehicles, transit, and active transportation. As noted earlier, the active transportation improvements are expected to materially improve the active transportation network in the vicinity of the subject site, and promote the active transportation modes in the area. Therefore, a small adjustment to the existing mode split to set a future mode share target for the forecast has been made. An increase in Cycling modal share from 1% to 2%, and in Pedestrian modal share from 6% to 8%, at the expense of single occupancy vehicle trips, has been applied for the trip generation forecast.

Table 14 outlines the existing modal split derived from TTS data, the future modal split targets, and the trip generation for the non-vehicular transportation modes.

Table 14: Non-SOV Trip Generation

	Existing Modal Split (TTS Data)	Assumed 2028 Modal Split	Trip Generation					
			A.M. Peak Hour			P.M. Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Auto Passenger	13%	**13%**	4	11	15	13	7	20
Transit	11%	**11%**	3	10	13	11	6	17
Cycling	1%	**3%**	1	3	4	3	2	5
Walking	6%	**8%**	2	7	9	8	5	13
Total			**10**	**31**	**41**	**35**	**20**	**55**

Therefore, the site is anticipated to generate some non-vehicular trips in the peak hours. Further, some site specific TDM measures are proposed as part of the development proposal to reduce dependency on single occupant vehicle trips (refer to **Section 8.3**).

8.3 Site Specific TDM Measures

Given the development type, there is less opportunity for a wide range of TDM measures. However, the design of the proposed development will allow the development to capitalize on the existing transit and active transportation in the neighbourhood and City. The proposed sidewalk throughout the development will enhance convenient pedestrian connection from the development to nearby transit and land uses in the area.

The garages can be used for bicycle storage and cyclist can bike within the internal roadway and onto the adjacent trails and low speed neighbourhood roads to nearby bikeable destinations.

In addition, the City of Mississauga TDM checklist has been completed for the development proposal and is included in **Appendix M.** While the development proposal does not meet the preferred minimum of 71% TDM score criterion, the City of Mississauga TDM checklist has many items

which are generally not applicable for residential subdivision developments. TDM measures outlined above for the development proposal are typical of residential subdivisions and thus the TDM measures are assessed to be appropriate. A higher TDM score can be achieved for the development proposal if desired by the City through implementation of an addition transit route with 15 minute or better headways during the peak periods and 30 minutes or better off peak.

8.4 Pedestrian Circulation Plan

There is provision for safe and appropriate pedestrian circulation within the site, as outlined on the Draft Plan in **Appendix A**. Sidewalks are proposed on at least one side of each of the internal roadways, per the City's approved cross-section, with the Street "A" and Street "C" connections to Lisgar Drive allowing for pedestrian connectivity from each unit to the municipal sidewalks on Lisgar Drive. In addition, there is a park at the north end of the property, expected to facilitate direct pedestrian access to the adjacent Lisgar Fields park and the nearby Lisgar Middle School. Therefore, adequate provision for pedestrian circulation within the site has been provided. **Appendix N** contains the pedestrian circulation plan.

9.0 Community Impacts

This TIS has identified and evaluated the critical transportation impacts expected as a result of the development proposal. The study has outlined how the development proposal does not materially alter traffic operations and safety both at the study intersections considered as well as within the development footprint. Therefore, community impacts of this development are expected to be minimal from a transportation planning perspective.

No formal public consultation session has been held regarding the development proposal, so potential community concerns related to the development proposal are not known. Therefore, to satisfy the City request to address community concerns, comments received from the nearby 5080 Ninth Line development (located less than 1km away) were reviewed to understand potential public concerns with this development proposal, though it is relatively a much smaller scale.

For the noted 5080 Ninth Line development proposal, comments pertaining to transportation received in these public meetings included concerns regarding increased traffic from the development proposal and wanting more information regarding the timing of the Ninth Line road widening.

For these two potential public concerns, our responses are as follows:

- As highlighted in **Section 5** of this report, traffic from the proposed development results in a maximum increment in delay per vehicle at a particular intersection of less than 2 seconds. Therefore, vehicles driving along Lisgar Drive or Doug Leavens Boulevard will not experience significant travel time increases due to this development.

- The Ninth Line widening project is currently expected to be completed in 2028 according to discussions with City staff. This completion date is reflected in the funding profile of the most recent City of Mississauga budgets.

10.0 Conclusions

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

- The study intersections are operating below capacity and at LOS "B" or better during the weekday a.m. and p.m. peak hours under 2023 existing conditions and 2028 future background conditions.
- The full buildout of the proposed development is expected to generate approximately 91 and 122 two-way vehicle trips in the a.m. and p.m. peak hours, respectively.
- Traffic signal control, auxiliary left-turn lane and all-way stop control warrant analyses were conducted at the unsignalized study intersection and proposed access connections. Under 2028 future conditions with the development proposal traffic, none of the noted road improvements were triggered.
- Based on the traffic operations analysis results of the 2028 future total conditions, the proposed development is expected to have a minor impact on traffic operations at the study intersections, with 2 seconds or less of delay increment at the study intersections.
- The available sight lines at the proposed access connections to Lisgar Drive are sufficient compared to the sight distance requirements of the TAC-GDGCR. Further, the access points are existing intersections and continue to satisfy spacing, corner clearance and conflict requirements.
- Vehicle Maneuverability is expected to be adequate within the site based on prepared vehicle swept path diagrams and a pavement marking and signage plan for the development proposal.
- Based on a review of the future transportation network and anticipated modal splits for the development proposal, the site is forecast to generate approximately 41 and 55 person trips in the a.m. and p.m. peak hours, respectively, which do not rely upon single occupancy vehicle trips.

The proposed development additionally provides compatible site specific TDM measures by design to further reduce dependency on single occupant vehicle (SOV) trips and increase the non-SOV person trips noted above.

The analysis contained within this report was prepared using the Draft Plan prepared by Glen Schnarr & Associates Inc. Any minor revisions to the development concept are not expected to affect the conclusions contained with this report. In conclusion, the proposed development can be supported from a transportation operations and safety perspective.

Prepared by,

C.F. CROZIER & ASSOCIATES INC.

Peter Apasnore, MASc., P.Eng., PTOE
Project Manager, Transportation

C.F. CROZIER & ASSOCIATES INC.

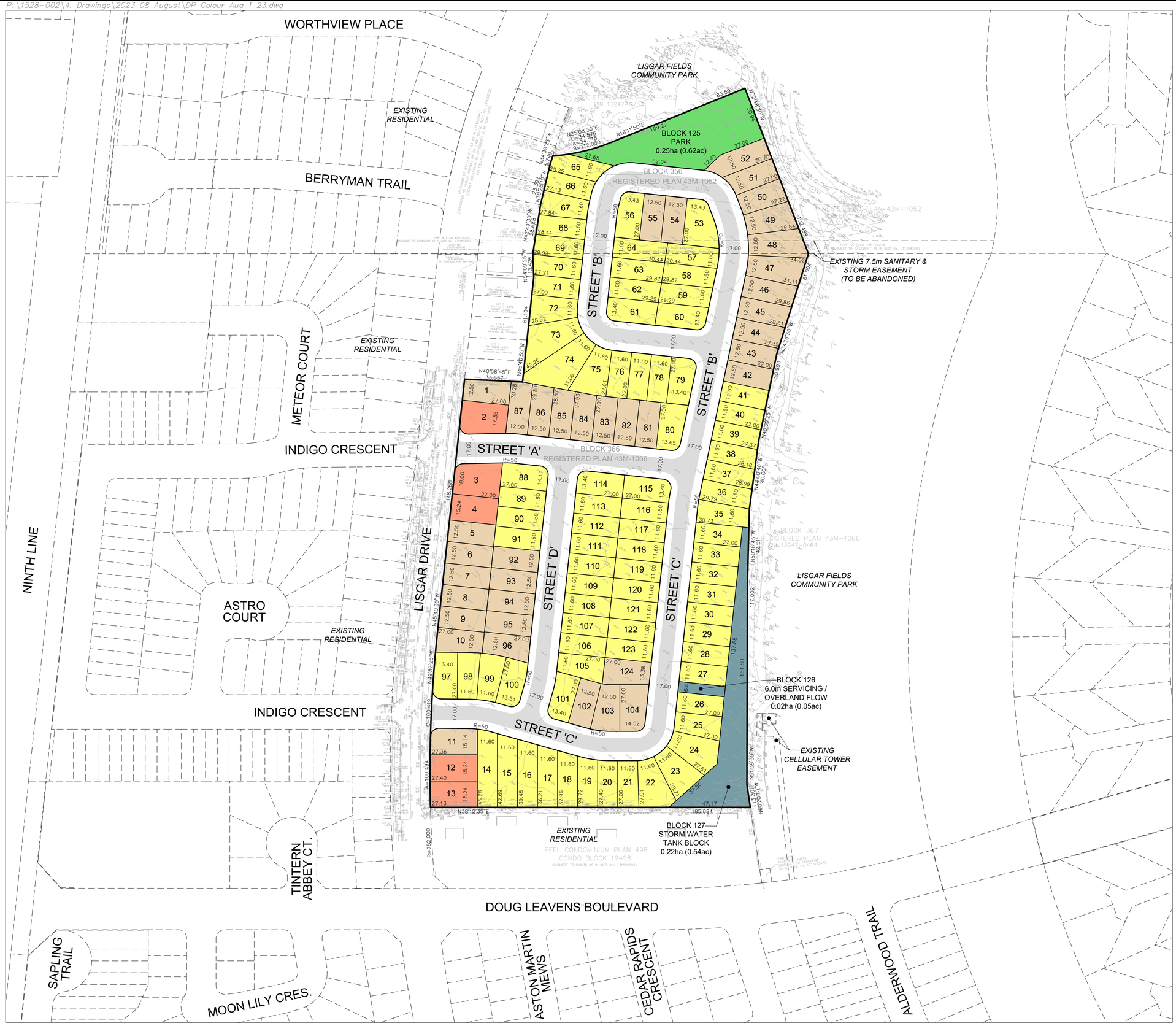
Aidan Hallsworth, EIT
Engineering Intern, Transportation

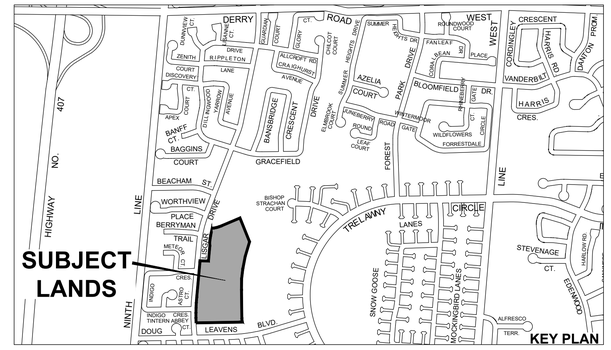
J:\2500\2531 - Avenia Construction Inc\6824 - Lisgar Drive Mississauga\Reports\2nd Submission\6824_2023.03.01_TIS.docx

APPENDIX A

Draft Plan of Subdivision

P:\1528-002\4. Drawings\2023 08 August\DP Colour Aug 1 23.dwg





DRAFT PLAN OF SUBDIVISION

FILE # 21T-M_____

AVENIA CONSTRUCTION INC.

BLOCK 356, REGISTERED PLAN 43M-1052 AND
BLOCK 366, REGISTERED PLAN 43M-1066,
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

OWNERS CERTIFICATE

I HEREBY AUTHORIZE GLEN SCHNARR & ASSOCIATES INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF MISSISSAUGA FOR APPROVAL.

SIGNED _____ DATE August 3/23.

CARLO BALDASSARRA, A.S.O.
AVENIA CONSTRUCTION INC.

SURVEYORS CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED _____ DATE AUGUST 2, 2023

DAN DZALDOV, O.L.S.
SCHAEFFER DZALDOV PURCELL LTD.
ONTARIO LAND SURVEYORS

ADDITIONAL INFORMATION

(UNDER SECTION 51(17) OF THE PLANNING ACT) INFORMATION REQUIRED BY CLAUSES A,B,C,D,E,F,G, J & L ARE SHOWN ON THE DRAFT AND KEY PLANS.

H) MUNICIPAL AND PIPED WATER TO BE PROVIDED
I) SANDY LOAM AND CLAY LOAM
K) SANITARY AND STORM SEWERS TO BE PROVIDED

LAND USE SCHEDULE

LAND USE	LOTS / BLOCKS	AREA (ha)	AREA (ac)	UNITS	DENSITY (UPHA)
DETACHED - 11.60m (38')	1-124	2.90	7.17	82	28.3
DETACHED - 12.50m (41')		1.34	3.31	37	27.6
DETACHED - 15.24m (50')		0.22	0.54	5	22.7
PARK	125	0.25	0.62		
SERVICING / OVERLAND FLOW	126	0.02	0.05		
STORM WATER TANK BLOCK	127	0.22	0.54		
17.0m ROW (934m)		1.59	3.92		
TOTAL	**127**	**6.54**	**16.15**	**124**	**27.8**

NOTES

- PAVEMENT ILLUSTRATION IS DIAGRAMMATIC
- ALL DAYLIGHT ROUNDINGS = 5m RADII

SCALE: 1:1000
(24 x 36)
AUGUST 1, 2023

GSAI
Glen Schnarr & Associates Inc.

EXISTING RESIDENTIAL

PARK

EX. LISGAR FIELDS COMMUNITY PARK

STREET 'B'

STREET 'A'

STREET 'C'

STREET 'D'

LISGAR DRIVE

CRESCENT

EXISTING MH IS ABANDONED

EXISTING STM SERVICE TO BE RE-ROUTED THROUGH PARK PERIMETER

EXISTING MHs & CB ARE ABANDONED

EXISTING FDC & SAN SERVICES ARE ABANDONED

EXISTING 7.5m SANITARY & STORM EASEMENT

EXISTING CELLULAR TOWER EASEMENT

6m WIDE BLOCK FOR SERVICING/ EMERGENCY OVERLAND FLOW

U/G SWM TANK BLOCK

1.5m CONC. SWK.

40.00m @ 0.60%

20.00m @ 1.00%

15.36m @ 1.00%

65.21m @ 0.50%

22.00m @ 1.00%

45.25m @ 0.50%

9.25m @ 0.50%

4.00m @ 2.00%

45.35m @ 0.50%

9.20m @ 0.50%

8.00m @ 0.50%

33.94m @ 0.50%

100.68m @ 0.50%

284.60m @ 0.50%

23.30m @ 0.50%

41.66m @ 0.50%

VERTICAL CURVE K=11.0, L=44.00m

18.70m @ 3.50%

10.00m @ 1.50%

9.60m @ 0.50%

5.75m @ 2.00%

5.50m @ 2.00%

8.68m @ 0.50%

22.50m @ 3.50%

APPENDIX B

Terms of Reference Correspondence

Aidan Hallsworth

From: Kate Vassilyev <Kate.Vassilyev@mississauga.ca>
Sent: Thursday, August 10, 2023 2:53 PM
To: Aidan Hallsworth
Cc: Peter Apasnore; Trans Projects
Subject: FW: Transportation Impact Study Terms of Reference - Lisgar Drive
Attachments: A001 Draft Plan of Subdivision.pdf; Lisgar-TIS-TOR-PreConsultation_Checklist Approved.pdf

Good afternoon Aidan,

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

- Certification Form - The Transportation Consultant must complete, sign, and seal (if appropriate) the attached Certification Form from the City's TIS Guidelines (2022) and submit the document with the application/report to ensure compliance with qualification requirements. The TIS Guidelines can be found at https://www.mississauga.ca/wp-content/uploads/2023/03/CMississauga-TIS-Guidelines-Version-5.1-Dec-2022.pdf . It must be ensured that the report conforms to the City's TIS Guidelines.

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

MISSISSAUGA

Kate (Jekaterina) Vassilyev
Traffic Planning Technologist
300 City Centre Drive, Mississauga
T 905-615-3200 ext.8171
kate.vassilyev@mississauga.ca

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

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: Friday, July 28, 2023 10:45 AM
To: Bo Yu <BoYang.Yu@mississauga.ca>
Cc: kate.vassilyev@mississsauga.ca; Peter Apasnore <papasnore@cfcrozier.ca>
Subject: FW: Transportation Impact Study Terms of Reference - Lisgar Drive

Hello Bo,

We received a bounce back (undeliverable error) on Kate's email while sending this. Kate is the Traffic Reviewer on this file (ie. DARC 23-69 W10) – Bo, we were wondering if you could kindly pass this along to Kate. This would be much appreciated.

Thanks,

Aidan Hallsworth, EIT
Engineering Intern, Transportation

Office: 416.477.3392
Collingwood | Milton | Toronto | Bradford | Guelph

Explore our full line of service offerings **here**.

LINKEDIN | INSTAGRAM | FACEBOOK | TWITTER

From: Aidan Hallsworth
Sent: Friday, July 28, 2023 9:29 AM
To: kate.vassilyev@mississsauga.ca
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: Transportation Impact Study Terms of Reference - Lisgar Drive

Happy Friday Kate,

To support a planning application, C.F Crozier & Associates (Crozier) has been retained by Avenia Construction Inc. to prepare a Transportation Impact Study in support of a development proposal located at 0 Lisgar Drive (Block 356, Plan 43M-1052 & Block 366, Plan 43M-1066), in the City of Mississauga. The subject property is bounded by Lisgar Drive to the West, residential uses off of Doug Leavens Boulevard to the south, and Lisgar Fields to the north and east. We would appreciate if the City could provide a response on our proposed scope in due time so we may proceed with our study.

Terms of Reference – Transportation Impact Study

The development proposal consists of 124 detached residential dwellings, serviced by internal roadways with connections at Lisgar Drive opposite Indigo Crescent (both the north and south connection). Refer to the attached Site Plan for further info. The proposed study scope is below:

- Time Periods: Existing study year (2023), five years from study date (2028). A.M. and P.M. peak hours.
- Study Intersections:
    - Lisgar Drive and Doug Leavens Boulevard
    - Lisgar Drive and Beacham Street
    - Lisgar Drive and Indigo Crescent (North) / Proposed Street “A”
    - Lisgar Drive and Indigo Crescent (South) / Proposed Street “C”
- We will commission a turning movement count (TMC) survey at and after confirmation of the study intersections.
- Synchro 11 and Sim Traffic will be used to model traffic operations under existing, future background, and future total conditions. LOS, delay, volume-to-capacity, and 95th percentile queuing operational metrics will be reported on.
- A review of the City’s development application portal yielded one nearby background development. This background development, the Mattamy Homes Derry Britania Ninth Line Subdivision (TIS by Crozier, May 2023) will be incorporated into the study.

- Given general buildout of the lands surrounding the subject property and the anticipated lack of historical traffic data, a growth rate of 1% per annum along the collector roadways (ie. Doug Leavens Boulevard and Lisgar Drive) is expected to be more than sufficient in capturing the remaining future background traffic growth in the area. **Please advise if this approach is acceptable**.
- Trip Generation will be forecasted using the 11th Edition of the Institute of Transportation Engineers' Trip Generation Manual. Trips will be distributed to the study intersections using 2016 Transportation Tommorow Survey Data.
- Auxiliary left-turn lane and traffic signal requirements will be analyzed using MTO's "Design Supplement for Geometric Design Guide for Canadian Roads (GDGCR)" and the "Ontario Traffic Manual Book 12", respectively.
- The two site accesses will be reviewed from a safety perspective with regards to driver sight lines, intersection spacing, and corner clearance. The Transportation Association of Canada (TAC) GDGCR will be used for the assessment.
- Design vehicle maneuverability via vehicle turning diagrams, and a pavement marking and signage plan will be prepared for the lands to confirm adequacy of the internal roadways.
- Existing and future Transportation Demand Management (TDM) opportunities will be reviewed along with site specific measures that may be implemented to reduce auto share and promote non-auto transportation.

Should you have any questions or concerns, please do not hesitate to contact me.

Thank you,

Appendix B

APPROVED

Pre-Study Consultation Checklist

Description	Information	Section Reference
Development Information		
Development Description (land use, size, and number of phases of development)	• Phase 1: 124 detached residential dwelling units • Phase 2: • Phase 3:	2.3.6
Transportation Impact Assessment		
Step 1 – Screening		
Type of Application (attach a drawing)	☐ Official Plan Amendment ☑ Zoning Amendment ☐ Site Plan Control Application ☑ Plan of Subdivision ☐ Other_____	2.3.5
Screening Criteria	☑ Trip Generation Trigger Satisfied ☐ Location Trigger Satisfied ☑ Operational/Safety Trigger Satisfied	2.2.1
Type of Study	☑ Transportation Impact Study ☐ Access Review ☐ No Additional Study Required	2.2.1
Step 2 – Scoping		

Study Area (intersections to be analyzed) Note: The Transportation Consultant is responsible to identify any further intersections impacted as the study progresses.	• Doug Leavens Blvd. & Lisgar Dr. • Lisgar Dr. and Beacham St. • Lisgar Dr. and Inidgo Crescent / Street "A" • Lisgar Dr. and Indigo Crescent / Street "C"	2.3.8

Description	Information	Section Reference
Horizon Years	☑ 5 years from date of TIS ☐ Interim years_____ ☐ Other_____	2.3.9
Analysis Periods	☑ AM weekday peak hour of adjacent roadway ☑ PM weekday peak hour of adjacent roadway ☐ Saturday peak hour of adjacent roadway ☐ AM weekday peak hour of development ☐ PM weekday peak hour of development ☐ Saturday peak hour of development ☐ Other _____	2.3.10
Input Parameters and Assumptions (potential deviations)		2.3.13
Existing Transportation Conditions	☐ City data sources ☑ New data collection_____ ☐ Other _____	2.3.14
Planned Network Improvements (with timing)		2.3.16
Other Planned Developments (per City's Website)	• Ninth Line Derry Britannia Subdivision (TIS by • Crozier, May 2023)	2.3.17
Identification of Mitigation Improvement Measures	☐ Neighbourhood Traffic Management Plan ☐ Other_____	2.3.23

Safety Analysis (any special issues)	☐ ☐ ☐ ☐	2.3.25
Site Access and Circulation (design vehicles)	☑ Passenger Car (P) ☐ Light Single Unit Truck (LSU) ☐ Medium Single Unit Truck (MSU) ☐ Heavy Single Unit Truck (HSU) ☑ Pumper Fire Truck ☐ WB-20 Tractor Semi-Trailer Truck ☑ Other_____ Waste Collection Vehicles	2.3.26
Impacts During Construction (any special issues)	☐ ☐ ☐ ☐	2.3.27
Description	**Information**	**Section Reference**
Step 3 – Forecasting		
Growth Rate	☐ Obtained from City ☐ Historical traffic counts ☐ Travel demand forecasts ☑ Proposed Growth Rate: _____1% on collector roads	2.3.15
Site Trip Generation	☑ ITE Trip Generation Manual ☐ "First Principles" ☐ Observed rates for similar developments in area ☐ Other _____	2.3.19
Trip Reductions	☐ Internal capture reductions for mixed-use developments ☐ Pass-by reductions ☐ Other _____	2.3.19
Trip Distribution	☐ Local traffic patterns ☑ TTS ☐ Travel demand model ☐ Population and employment distribution ☐ Market analysis of catchment area ☐ Other _____	2.3.20

Trip Assignment	☐ Local traffic patterns ☑ Shortest distance ☑ Site layout, access design and logical routing ☐ Existing turning movements ☐ Other _____	2.3.21
Transportation Demand Manageme Plan		
Format	☑ Within a TIA Report ☐ Standalone	3.2.1
Type of Transportation Demand Management Plan	☑ TDM Statement ☐ TDM Scheme	3.2.2
Pedestrian Circulation Plan		
Format	☑ Within a TIA Report ☐ Standalone	4.2.1
Additional Comments		
Step #3 Growth Rate: Please confirm rates with City's staff. Please contact Tyler Xuereb from the City's Transportation Planning Section (tyler.xuereb@mississauga.ca, Ext. 4783) Community Impacts: Any transportation related impacts on the existing community and comments from the public through the planning approvals process shall be addressed in the report. Access Review: Ensure that the site accesses conforms to all TAC standards (e.g. corner clearance, clear throat lengths, veh & ped sight line distances for ingress/egress, proximity/alignment to the driveways/roads, etc.); Provide confirmation and technical justification of whether the site access location(s) and design(s) are safe for all roadway users and why.		

APPENDIX C

Transit Information

39 Britannia

Local Route
Monday to Sunday

Eastbound to Renforth Station
Westbound to Meadowvale Town Centre

Legend

- Terminal
- Transitway Station
- High School, University or College
- TTC Subway Station
- GO Train Station
- Hospital
- Library
- Community Centre
- Shopping Centre

Effective: October 28, 2019

MiWAY MISSISSAUGA

Schedules

Schedules | Plan a trip | More

STOP SCHEDULES

Powered by

Scheduled Departure Times from this Stop

Meadowvale Town Centre Drop Off

Morning

4am	5am	6am	7am	8am	9am	10am	11am	12pm
	5:22 am 5:41 am	6:00 am 6:20 am 6:39 am 6:59 am	7:17 am 7:37 am 7:55 am	8:14 am 8:33 am 8:53 am	9:12 am 9:32 am 9:49 am	10:08 am 10:25 am 10:49 am	11:14 am 11:36 am 11:58 am	12:22 pm 12:46 pm

Afternoon/Evening

1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
1:10 pm 1:34 pm 1:56 pm	2:13 pm 2:30 pm 2:47 pm	3:06 pm 3:26 pm 3:45 pm	4:04 pm 4:21 pm 4:41 pm	5:01 pm 5:20 pm 5:38 pm 5:56 pm	6:14 pm 6:29 pm 6:46 pm	7:03 pm 7:19 pm 7:36 pm 7:54 pm	8:17 pm 8:42 pm	9:13 pm 9:46 pm	10:18 pm 10:51 pm	11:25 pm 11:59 pm

Evening

12am	1am
12:32 am	1:02 am

Lege

Report a problem or mistake on this page →

Schedules

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STOP SCHEDULES

Powered by

Scheduled Departure Times from this Stop

Renforth Station East Platform 7

Morning

4am	5am	6am	7am	8am	9am	10am	11am	12pm
	5:16 am	6:11 am	7:08 am	8:07 am	9:03 am	10:05 am	11:17 am	12:04 pm
	5:34 am	6:29 am	7:28 am	8:26 am	9:21 am	10:28 am	11:42 am	12:26 pm
	5:53 am	6:49 am	7:48 am	8:45 am	9:42 am	10:53 am		12:50 pm

Afternoon/Evening

1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
1:06 pm	2:15 pm	3:08 pm	4:00 pm	5:13 pm	6:09 pm	7:12 pm	8:24 pm	9:11 pm	10:13 pm	11:18 pm
1:21 pm	2:33 pm	3:25 pm	4:18 pm	5:32 pm	6:28 pm	7:36 pm	8:48 pm	9:41 pm	10:45 pm	11:50 pm
1:39 pm	2:51 pm	3:42 pm	4:36 pm	5:51 pm	6:48 pm	7:58 pm				
1:57 pm			4:54 pm							

Evening

12am	1am
12:22 am	1:25 am
12:55 am	

Lege

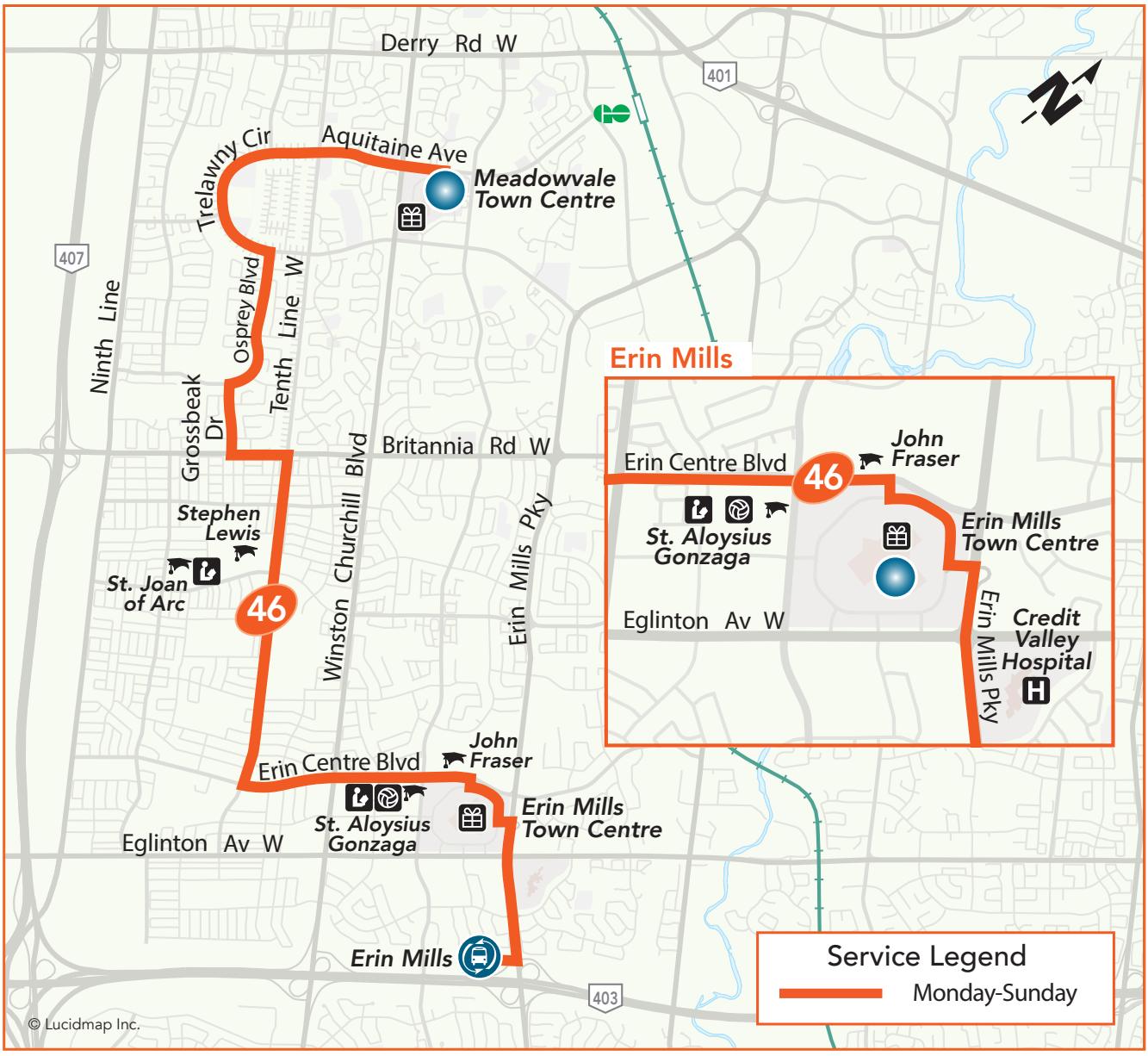
Leaflet | Map Tiles © 2023 HERE

Report a problem or mistake on this page →

46 Tenth Line-Osprey

Local Route
Monday to Sunday

Northbound to Meadowvale Town Centre
Southbound to Erin Mills Station



Legend

- Terminal
- Transitway Station
- High School, University or College
- TTC Subway Station
- GO Train Station
- Hospital
- Library
- Community Centre
- Shopping Centre

Effective: October 24, 2016

MiWAY MISSISSAUGA

Schedules

Schedules | Plan a trip | More

STOP SCHEDULES

Powered by

Scheduled Departure Times from this Stop

Erin Mills Station West Platform 3

Morning

4am	5am	6am	7am	8am	9am	10am	11am	12pm
4:45 am	5:18 am 5:55 am	6:31 am	7:04 am 7:37 am	8:10 am 8:43 am	9:16 am 9:49 am	10:22 am 10:56 am	11:30 am	12:04 pm 12:38 pm

Afternoon/Evening

1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
1:12 pm 1:46 pm	2:19 pm 2:53 pm	3:27 pm	4:01 pm 4:35 pm	5:10 pm 5:45 pm	6:20 pm 6:55 pm	7:30 pm	8:05 pm 8:39 pm	9:11 pm 9:42 pm	10:13 pm 10:44 pm	11:15 pm 11:45 pm

Evening

12am
12:16 am 12:47 am

Schedules are given as a guideline, and depend on traffic conditions.

Legend: Bus

Report a problem or mistake on this page →

Schedules

Schedules | Plan a trip | More

STOP SCHEDULES

Powered by

Scheduled Departure Times from this Stop

Meadowvale Town Centre Drop Off

Morning

4am	5am	6am	7am	8am	9am	10am	11am	12pm
	5:37 am	6:11 am 6:45 am	7:18 am 7:51 am	8:25 am 8:57 am	9:31 am	10:04 am 10:37 am	11:11 am 11:45 am	12:19 pm 12:53 pm

Afternoon/Evening

1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
1:27 pm	2:00 pm 2:34 pm	3:08 pm 3:42 pm	4:16 pm 4:51 pm	5:26 pm	6:01 pm 6:36 pm	7:09 pm 7:43 pm	8:18 pm 8:53 pm	9:23 pm 9:54 pm	10:25 pm 10:56 pm	11:27 pm 11:58 pm

Evening

12am	1am
12:29 am	1:00 am 1:31 am

Schedules are given as a guideline, and depend on traffic conditions.

Legend: Bus

Report a problem or mistake on this page →

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APPENDIX D

Traffic Data

Spectrum

Turning Movement Count
Location Name: LISGAR DR & BEACHAM ST
Date: Wed, Sep 13, 2023 Deployment Lead: Walter Fugaj

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (1 . LISGAR DR & BEACHAM ST)

Start Time	N Approach LISGAR DR						E Approach BEACHAM ST						S Approach LISGAR DR						W Approach BEACHAM ST						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	5	4	1	0	0	10	0	0	0	0	0	0	0	4	1	0	1	5	0	0	0	0	0	0	15	
06:15:00	6	1	0	0	0	7	0	0	0	0	1	0	0	8	1	0	0	9	0	0	0	0	0	0	16	
06:30:00	7	4	1	0	0	12	0	0	0	0	1	0	0	7	2	0	1	9	0	0	0	0	0	0	21	
06:45:00	6	7	2	0	0	15	0	0	1	0	1	1	0	7	1	0	0	8	0	0	3	0	2	3	27	79
07:00:00	13	12	1	0	0	26	0	0	1	0	0	1	0	13	0	0	1	13	2	5	5	0	2	12	52	116
07:15:00	9	13	2	0	0	24	0	0	0	0	2	0	0	9	3	0	1	12	2	5	5	0	4	12	48	148
07:30:00	13	13	8	0	0	34	1	0	0	0	3	1	2	19	6	0	0	27	1	4	3	0	4	8	70	197
07:45:00	19	20	5	0	0	44	0	0	0	0	3	0	4	10	3	0	3	17	1	12	5	0	3	18	79	249
08:00:00	19	41	36	0	0	96	0	0	0	0	6	0	17	22	9	0	16	48	9	24	6	0	6	39	183	380
08:15:00	23	42	33	0	0	98	0	0	0	0	5	0	13	25	12	0	24	50	12	8	14	0	12	34	182	514
08:30:00	7	30	4	0	1	41	0	0	0	0	2	0	3	41	1	0	1	45	1	5	7	0	5	13	99	543
08:45:00	11	21	1	0	0	33	0	0	0	0	1	0	1	22	1	0	1	24	5	1	6	0	0	12	69	533
09:00:00	9	12	1	0	0	22	0	0	0	0	1	0	1	11	0	0	0	12	0	1	7	0	2	8	42	392
09:15:00	5	17	1	0	0	23	0	0	0	0	1	0	0	13	3	0	0	16	2	0	9	0	0	11	50	260
09:30:00	12	11	1	0	0	24	0	0	0	0	0	0	2	8	0	0	0	10	1	0	5	0	3	6	40	201
09:45:00	7	15	1	0	0	23	0	0	0	0	0	0	2	11	0	0	0	13	1	0	5	0	2	6	42	174
BREAK																										
15:00:00	8	23	1	0	0	32	0	2	0	0	3	2	1	27	1	0	0	29	5	1	12	0	2	18	81	
15:15:00	4	18	0	0	0	22	0	1	0	0	0	1	1	36	0	0	1	37	5	2	6	0	3	13	73	
15:30:00	8	19	0	0	0	27	0	0	0	0	0	0	1	15	0	0	0	16	3	0	7	0	0	10	53	
15:45:00	11	15	4	0	0	30	0	1	0	0	2	1	2	22	1	0	1	25	3	2	13	0	1	18	74	281
16:00:00	6	19	2	0	0	27	0	1	0	0	5	1	0	17	0	0	3	17	2	3	12	0	5	17	62	262
16:15:00	4	25	1	0	0	30	0	1	1	0	0	2	0	17	3	0	0	20	3	0	12	0	5	15	67	256
16:30:00	5	19	1	0	0	25	0	0	0	0	1	0	1	19	3	0	1	23	5	0	10	0	3	15	63	266
16:45:00	10	23	0	0	0	33	1	1	0	0	2	2	0	22	1	0	2	23	2	0	18	0	6	20	78	270
17:00:00	5	28	0	0	0	33	0	0	0	0	0	0	0	15	1	0	2	16	5	0	12	0	0	17	66	274
17:15:00	6	34	1	0	0	41	0	0	0	0	0	0	0	21	2	0	1	23	7	2	14	0	1	23	87	294
17:30:00	14	22	2	0	1	38	0	0	0	0	1	0	0	28	4	0	0	32	4	0	12	0	0	16	86	317
17:45:00	6	30	1	0	2	37	0	0	0	0	1	0	0	26	5	0	4	31	8	0	17	0	3	25	93	332
18:00:00	10	36	1	0	0	47	0	0	0	0	5	0	0	19	1	0	1	20	7	0	13	0	1	20	87	353
18:15:00	5	27	2	0	0	34	0	0	0	0	5	0	1	18	4	0	1	23	2	0	10	0	1	12	69	335
18:30:00	9	23	2	0	0	34	0	1	0	0	5	1	1	13	2	0	4	16	1	0	14	0	4	15	66	315
18:45:00	10	18	2	0	0	30	0	0	0	0	2	0	1	16	4	0	4	21	2	3	9	0	2	14	65	287
Grand Total	292	642	118	0	4	1052	2	8	3	0	59	13	54	561	75	0	74	690	101	78	271	0	82	450	**2205**	-
Approach%	27.8%	61%	11.2%	0%		-	15.4%	61.5%	23.1%	0%		-	7.8%	81.3%	10.9%	0%		-	22.4%	17.3%	60.2%	0%		-	-	-
Totals %	13.2%	29.1%	5.4%	0%		47.7%	0.1%	0.4%	0.1%	0%		0.6%	2.4%	25.4%	3.4%	0%		31.3%	4.6%	3.5%	12.3%	0%		20.4%	-	-
Heavy	6	39	5	0		-	1	0	0	0		-	7	34	0	0		-	2	6	8	0		-	-	-
Heavy %	2.1%	6.1%	4.2%	0%		-	50%	0%	0%	0%		-	13%	6.1%	0%	0%		-	2%	7.7%	3%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: LISGAR DR & BEACHAM ST
Date: Wed, Sep 13, 2023 Deployment Lead: Walter Fugaj

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Few Clouds (12.56 °C)**

Start Time	N Approach LISGAR DR						E Approach BEACHAM ST						S Approach LISGAR DR						W Approach BEACHAM ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	19	20	5	0	0	44	0	0	0	0	3	0	4	10	3	0	3	17	1	12	5	0	3	18	79
08:00:00	19	41	36	0	0	96	0	0	0	0	6	0	17	22	9	0	16	48	9	24	6	0	6	39	183
08:15:00	23	42	33	0	0	98	0	0	0	0	5	0	13	25	12	0	24	50	12	8	14	0	12	34	182
08:30:00	7	30	4	0	1	41	0	0	0	0	2	0	3	41	1	0	1	45	1	5	7	0	5	13	99
Grand Total	68	133	78	0	1	279	0	0	0	0	16	0	37	98	25	0	44	160	23	49	32	0	26	104	**543**
Approach%	24.4%	47.7%	28%	0%		-	0%	0%	0%	0%		-	23.1%	61.3%	15.6%	0%		-	22.1%	47.1%	30.8%	0%		-	**-**
Totals %	12.5%	24.5%	14.4%	0%		51.4%	0%	0%	0%	0%		0%	6.8%	18%	4.6%	0%		29.5%	4.2%	9%	5.9%	0%		19.2%	**-**
PHF	0.74	0.79	0.54	0		0.71	0	0	0	0		0	0.54	0.6	0.52	0		0.8	0.48	0.51	0.57	0		0.67	**-**
Heavy	0	9	2	0		11	0	0	0	0		0	4	3	0	0		7	0	3	1	0		4	**-**
Heavy %	0%	6.8%	2.6%	0%		3.9%	0%	0%	0%	0%		0%	10.8%	3.1%	0%	0%		4.4%	0%	6.1%	3.1%	0%		3.8%	**-**
Lights	68	124	76	0		268	0	0	0	0		0	33	95	25	0		153	23	46	31	0		100	**-**
Lights %	100%	93.2%	97.4%	0%		96.1%	0%	0%	0%	0%		0%	89.2%	96.9%	100%	0%		95.6%	100%	93.9%	96.9%	0%		96.2%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	9	2	0		11	0	0	0	0		0	4	3	0	0		7	0	3	1	0		4	**-**
Buses %	0%	6.8%	2.6%	0%		3.9%	0%	0%	0%	0%		0%	10.8%	3.1%	0%	0%		4.4%	0%	6.1%	3.1%	0%		3.8%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	16	-	-	-	-	-	44	-	-	-	-	-	26	-	**-**
Pedestrians%	-	-	-	-	1.1%		-	-	-	-	18.4%		-	-	-	-	50.6%		-	-	-	-	29.9%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: LISGAR DR & BEACHAM ST
Date: Wed, Sep 13, 2023 Deployment Lead: Walter Fugaj

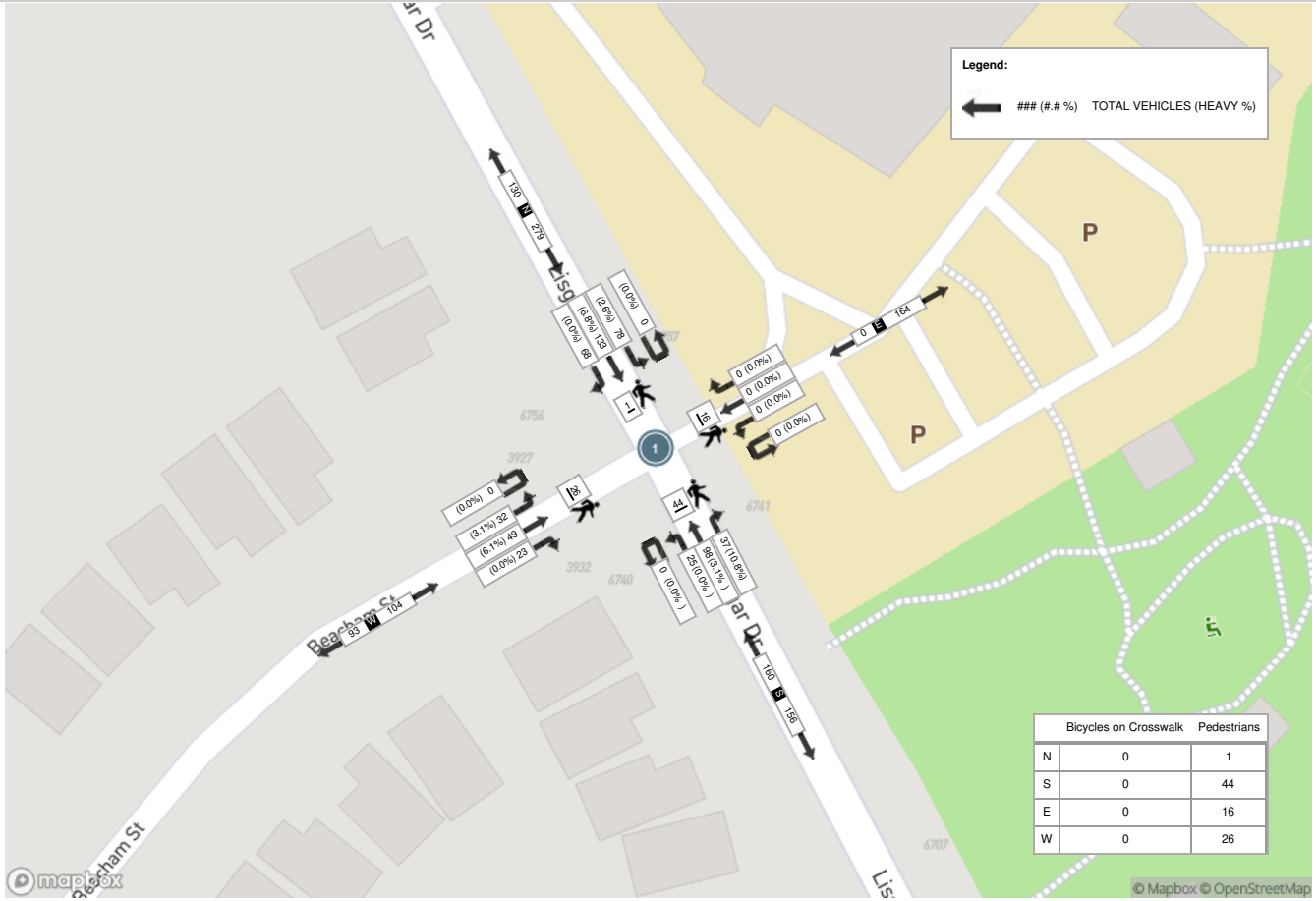
Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (18.13 °C)

Start Time	N Approach LISGAR DR						E Approach BEACHAM ST						S Approach LISGAR DR						W Approach BEACHAM ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:15:00	6	34	1	0	0	41	0	0	0	0	0	0	0	21	2	0	1	23	7	2	14	0	1	23	87
17:30:00	14	22	2	0	1	38	0	0	0	0	1	0	0	28	4	0	0	32	4	0	12	0	0	16	86
17:45:00	6	30	1	0	2	37	0	0	0	0	1	0	0	26	5	0	4	31	8	0	17	0	3	25	93
18:00:00	10	36	1	0	0	47	0	0	0	0	5	0	0	19	1	0	1	20	7	0	13	0	1	20	87
Grand Total	36	122	5	0	3	163	0	0	0	0	7	0	0	94	12	0	6	106	26	2	56	0	5	84	**353**
Approach%	22.1%	74.8%	3.1%	0%		-	0%	0%	0%	0%		-	0%	88.7%	11.3%	0%		-	31%	2.4%	66.7%	0%		-	**-**
Totals %	10.2%	34.6%	1.4%	0%		46.2%	0%	0%	0%	0%		0%	0%	26.6%	3.4%	0%		30%	7.4%	0.6%	15.9%	0%		23.8%	**-**
PHF	0.64	0.85	0.63	0		0.87	0	0	0	0		0	0	0.84	0.6	0		0.83	0.81	0.25	0.82	0		0.84	**-**
Heavy	1	4	0	0		5	0	0	0	0		0	0	3	0	0		3	1	1	0	0		2	**-**
Heavy %	2.8%	3.3%	0%	0%		3.1%	0%	0%	0%	0%		0%	0%	3.2%	0%	0%		2.8%	3.8%	50%	0%	0%		2.4%	**-**
Lights	35	118	5	0		158	0	0	0	0		0	0	86	12	0		98	25	1	56	0		82	**-**
Lights %	97.2%	96.7%	100%	0%		96.9%	0%	0%	0%	0%		0%	0%	91.5%	100%	0%		92.5%	96.2%	50%	100%	0%		97.6%	**-**
Single-Unit Trucks	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Single-Unit Trucks %	2.8%	0%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	50%	0%	0%		1.2%	**-**
Buses	0	4	0	0		4	0	0	0	0		0	0	3	0	0		3	1	0	0	0		1	**-**
Buses %	0%	3.3%	0%	0%		2.5%	0%	0%	0%	0%		0%	0%	3.2%	0%	0%		2.8%	3.8%	0%	0%	0%		1.2%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	5.3%	0%	0%		4.7%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	3	-	-	-	-	-	7	-	-	-	-	-	6	-	-	-	-	-	5	-	**-**
Pedestrians%	-	-	-	-	14.3%		-	-	-	-	33.3%		-	-	-	-	28.6%		-	-	-	-	23.8%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Few Clouds (12.56 °C)**



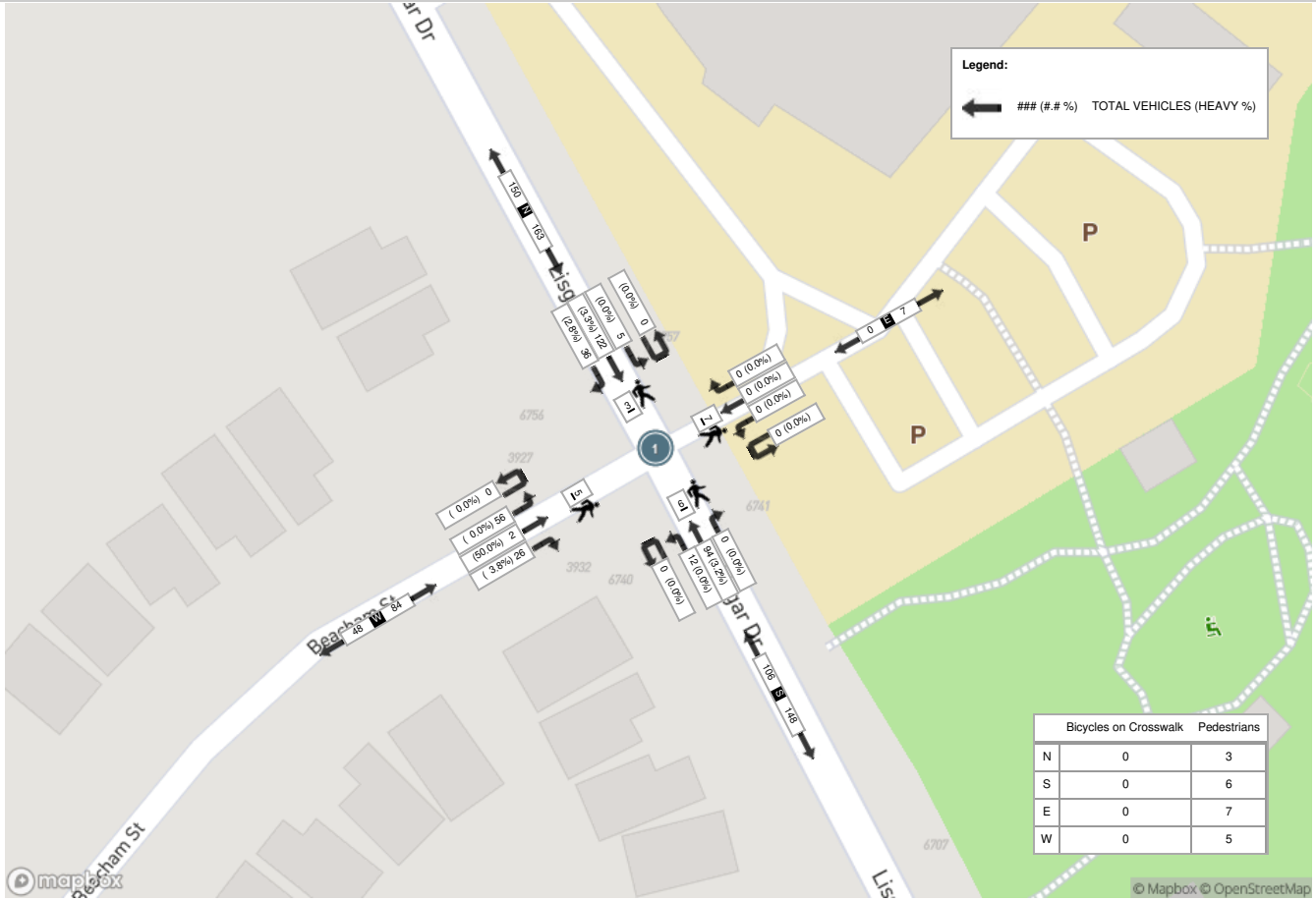
	Bicycles on Crosswalk	Pedestrians
N	0	1
S	0	44
E	0	16
W	0	26

Spectrum

Turning Movement Count
Location Name: LISGAR DR & BEACHAM ST
Date: Wed, Sep 13, 2023 Deployment Lead: Walter Fugaj

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 05:15 PM - 06:15 PM **Weather: Broken Clouds (18.13 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	3
S	0	6
E	0	7
W	0	5

Spectrum

Turning Movement Count
Location Name: LISGAR DR & DOUG LEAVENS BLVD
Date: Wed, Sep 13, 2023 Deployment Lead: Walter Fugaj

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (4 . LISGAR DR & DOUG LEAVENS BLVD)

Start Time	N Approach LISGAR DR						E Approach DOUG LEAVENS BLVD						S Approach LISGAR DR						W Approach DOUG LEAVENS BLVD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	2	4	0	0	6	0	4	1	0	0	5	4	2	13	0	0	19	0	3	0	0	0	3	33	
06:15:00	2	1	3	0	0	6	0	6	2	0	0	8	2	3	6	0	1	11	1	3	1	0	0	5	30	
06:30:00	4	1	4	0	0	9	3	9	1	0	0	13	7	1	9	0	0	17	1	5	0	0	0	6	45	
06:45:00	4	2	9	0	0	15	3	12	1	0	0	16	7	4	7	0	0	18	3	2	0	0	0	5	54	162
07:00:00	5	3	7	0	0	15	2	18	2	0	1	22	8	2	5	0	0	15	5	3	1	0	0	9	61	190
07:15:00	8	3	15	0	4	26	3	16	7	0	0	26	16	2	17	0	0	35	2	10	2	0	1	14	101	261
07:30:00	4	5	17	0	1	26	5	26	5	0	4	36	7	9	18	0	0	34	2	16	2	0	6	20	116	332
07:45:00	9	11	19	0	5	39	3	23	6	0	8	32	24	9	13	0	10	46	2	31	3	0	5	36	153	431
08:00:00	20	15	34	0	6	69	40	50	13	0	5	103	22	24	20	0	6	66	9	29	13	0	10	51	289	659
08:15:00	6	27	57	0	1	90	36	36	10	0	2	82	21	13	19	0	0	53	6	23	2	0	3	31	256	814
08:30:00	4	8	33	0	13	45	27	16	14	0	4	57	12	11	15	0	4	38	11	12	4	0	16	27	167	865
08:45:00	7	8	18	0	2	33	19	18	8	0	4	45	19	6	17	0	1	42	4	14	1	0	6	19	139	851
09:00:00	6	1	10	0	2	17	7	14	4	0	1	25	9	5	11	0	1	25	2	14	2	0	0	18	85	647
09:15:00	4	6	11	0	0	21	8	21	3	0	3	32	10	4	4	0	1	18	4	7	2	0	0	13	84	475
09:30:00	5	3	13	0	1	21	2	11	8	0	0	21	5	3	6	0	2	14	3	15	1	0	1	19	75	383
09:45:00	5	2	11	0	1	18	9	18	5	0	1	32	11	4	7	0	2	22	4	8	2	0	3	14	86	330
BREAK																										
15:00:00	12	9	12	0	3	33	23	16	16	0	8	55	17	7	5	0	5	29	13	16	4	1	7	34	151	
15:15:00	5	7	16	0	11	28	29	21	7	0	7	57	8	9	15	0	6	32	4	21	4	0	25	29	146	
15:30:00	7	8	4	0	2	19	12	13	9	0	3	34	16	7	7	0	3	30	7	18	4	0	9	29	112	
15:45:00	0	8	6	0	8	14	24	25	19	0	1	68	12	5	8	0	3	25	10	14	7	0	5	31	138	547
16:00:00	7	11	11	0	9	29	12	17	15	0	2	44	12	9	8	0	1	29	12	18	7	0	0	37	139	535
16:15:00	5	9	12	0	5	26	19	18	15	0	3	52	15	6	7	0	0	28	24	25	4	0	3	53	159	548
16:30:00	11	9	9	0	4	29	16	22	14	0	3	52	13	6	8	0	2	27	13	37	6	0	9	56	164	600
16:45:00	5	9	10	0	5	24	16	25	14	0	13	55	13	7	5	0	2	25	11	29	7	1	5	48	152	614
17:00:00	3	9	20	0	4	32	13	17	29	0	3	59	16	6	8	0	1	30	14	27	2	0	3	43	164	639
17:15:00	3	16	7	0	7	26	27	14	24	0	2	65	17	7	9	0	5	33	6	17	2	0	3	25	149	629
17:30:00	8	8	11	0	2	27	12	16	14	0	3	42	18	12	12	0	3	42	16	24	6	0	8	46	157	622
17:45:00	5	15	13	0	0	33	18	14	27	0	3	59	12	6	9	0	0	27	15	28	4	0	0	47	166	636
18:00:00	4	21	14	0	5	39	8	14	19	0	1	41	14	5	8	0	3	27	13	18	4	0	3	35	142	614
18:15:00	7	6	15	0	3	28	19	16	17	0	1	52	12	8	11	0	7	31	11	21	7	0	2	39	150	615
18:30:00	4	6	14	0	4	24	13	12	13	0	4	38	3	10	5	0	0	18	11	17	2	0	2	30	110	568
18:45:00	3	10	11	0	0	24	12	10	18	0	4	40	12	5	6	0	2	23	12	22	2	0	2	36	123	525
Grand Total	182	259	450	0	108	891	440	568	360	0	94	1368	394	217	318	0	71	929	251	547	108	2	137	908	**4096**	-
Approach%	20.4%	29.1%	50.5%	0%		-	32.2%	41.5%	26.3%	0%		-	42.4%	23.4%	34.2%	0%		-	27.6%	60.2%	11.9%	0.2%		-	-	-
Totals %	4.4%	6.3%	11%	0%		21.8%	10.7%	13.9%	8.8%	0%		33.4%	9.6%	5.3%	7.8%	0%		22.7%	6.1%	13.4%	2.6%	0%		22.2%	-	-
Heavy	3	32	15	0		-	13	7	7	0		-	10	32	3	0		-	5	5	1	0		-	-	-
Heavy %	1.6%	12.4%	3.3%	0%		-	3%	1.2%	1.9%	0%		-	2.5%	14.7%	0.9%	0%		-	2%	0.9%	0.9%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: LISGAR DR & DOUG LEAVENS BLVD
Date: Wed, Sep 13, 2023 Deployment Lead: Walter Fugaj

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Few Clouds (12.56 °C)**

Start Time	N Approach LISGAR DR						E Approach DOUG LEAVENS BLVD						S Approach LISGAR DR						W Approach DOUG LEAVENS BLVD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	9	11	19	0	5	39	3	23	6	0	8	32	24	9	13	0	10	46	2	31	3	0	5	36	153
08:00:00	20	15	34	0	6	69	40	50	13	0	5	103	22	24	20	0	6	66	9	29	13	0	10	51	289
08:15:00	6	27	57	0	1	90	36	36	10	0	2	82	21	13	19	0	0	53	6	23	2	0	3	31	256
08:30:00	4	8	33	0	13	45	27	16	14	0	4	57	12	11	15	0	4	38	11	12	4	0	16	27	167
Grand Total	39	61	143	0	25	243	106	125	43	0	19	274	79	57	67	0	20	203	28	95	22	0	34	145	**865**
Approach%	16%	25.1%	58.8%	0%		-	38.7%	45.6%	15.7%	0%		-	38.9%	28.1%	33%	0%		-	19.3%	65.5%	15.2%	0%		-	**-**
Totals %	4.5%	7.1%	16.5%	0%		28.1%	12.3%	14.5%	5%	0%		31.7%	9.1%	6.6%	7.7%	0%		23.5%	3.2%	11%	2.5%	0%		16.8%	**-**
PHF	0.49	0.56	0.63	0		0.68	0.66	0.63	0.77	0		0.67	0.82	0.59	0.84	0		0.77	0.64	0.77	0.42	0		0.71	**-**
Heavy	1	5	6	0		12	6	2	2	0		10	4	4	1	0		9	2	0	0	0		2	**-**
Heavy %	2.6%	8.2%	4.2%	0%		4.9%	5.7%	1.6%	4.7%	0%		3.6%	5.1%	7%	1.5%	0%		4.4%	7.1%	0%	0%	0%		1.4%	**-**
Lights	38	56	137	0		231	100	122	41	0		263	74	53	66	0		193	26	95	22	0		143	**-**
Lights %	97.4%	91.8%	95.8%	0%		95.1%	94.3%	97.6%	95.3%	0%		96%	93.7%	93%	98.5%	0%		95.1%	92.9%	100%	100%	0%		98.6%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.3%	0%	0%	0%		0.5%	0%	0%	0%	0%		0%	**-**
Buses	1	5	6	0		12	6	2	2	0		10	3	4	1	0		8	2	0	0	0		2	**-**
Buses %	2.6%	8.2%	4.2%	0%		4.9%	5.7%	1.6%	4.7%	0%		3.6%	3.8%	7%	1.5%	0%		3.9%	7.1%	0%	0%	0%		1.4%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	1	0	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.4%	1.3%	0%	0%	0%		0.5%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	22	-	-	-	-	-	19	-	-	-	-	-	17	-	-	-	-	-	31	-	**-**
Pedestrians%	-	-	-	-	22.4%		-	-	-	-	19.4%		-	-	-	-	17.3%		-	-	-	-	31.6%		**-**
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	**-**
Bicycles on Crosswalk%	-	-	-	-	3.1%		-	-	-	-	0%		-	-	-	-	3.1%		-	-	-	-	3.1%		**-**

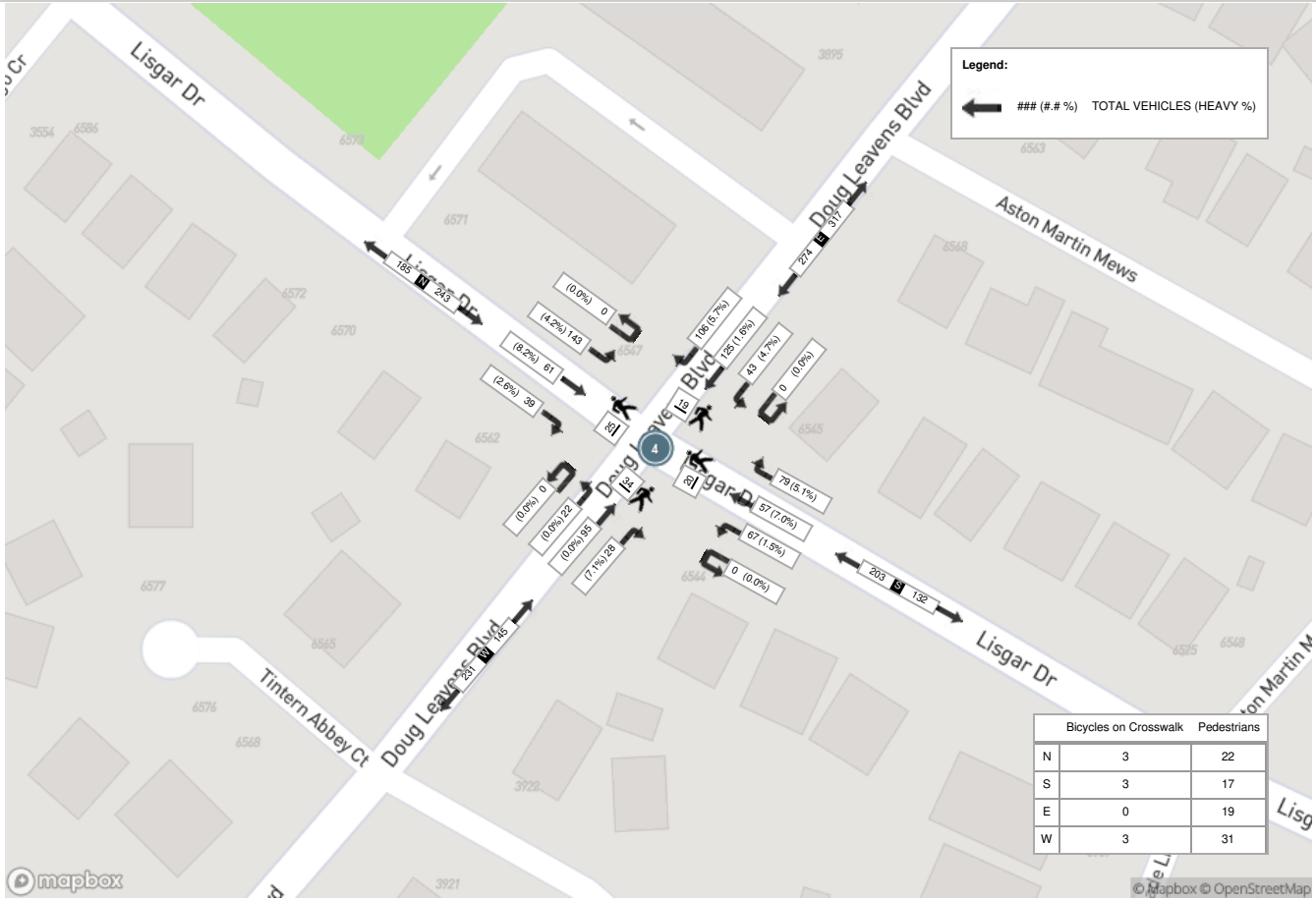
Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM **Weather: Broken Clouds (18.13 °C)**

Start Time	N Approach LISGAR DR						E Approach DOUG LEAVENS BLVD						S Approach LISGAR DR						W Approach DOUG LEAVENS BLVD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	5	9	12	0	5	26	19	18	15	0	3	52	15	6	7	0	0	28	24	25	4	0	3	53	159
16:30:00	11	9	9	0	4	29	16	22	14	0	3	52	13	6	8	0	2	27	13	37	6	0	9	56	164
16:45:00	5	9	10	0	5	24	16	25	14	0	13	55	13	7	5	0	2	25	11	29	7	1	5	48	152
17:00:00	3	9	20	0	4	32	13	17	29	0	3	59	16	6	8	0	1	30	14	27	2	0	3	43	164
Grand Total	24	36	51	0	18	111	64	82	72	0	22	218	57	25	28	0	5	110	62	118	19	1	20	200	**639**
Approach%	21.6%	32.4%	45.9%	0%		-	29.4%	37.6%	33%	0%		-	51.8%	22.7%	25.5%	0%		-	31%	59%	9.5%	0.5%		-	**-**
Totals %	3.8%	5.6%	8%	0%		17.4%	10%	12.8%	11.3%	0%		34.1%	8.9%	3.9%	4.4%	0%		17.2%	9.7%	18.5%	3%	0.2%		31.3%	**-**
PHF	0.55	1	0.64	0		0.87	0.84	0.82	0.62	0		0.92	0.89	0.89	0.88	0		0.92	0.65	0.8	0.68	0.25		0.89	**-**
Heavy	0	3	1	0		4	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	**-**
Heavy %	0%	8.3%	2%	0%		3.6%	0%	0%	0%	0%		0%	0%	12%	0%	0%		2.7%	0%	0%	0%	0%		0%	**-**
Lights	24	33	50	0		107	64	82	72	0		218	56	21	28	0		105	62	118	19	1		200	**-**
Lights %	100%	91.7%	98%	0%		96.4%	100%	100%	100%	0%		100%	98.2%	84%	100%	0%		95.5%	100%	100%	100%	100%		100%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	3	1	0		4	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	**-**
Buses %	0%	8.3%	2%	0%		3.6%	0%	0%	0%	0%		0%	0%	12%	0%	0%		2.7%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	1	1	0	0		2	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.8%	4%	0%	0%		1.8%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	18	-	-	-	-	-	19	-	-	-	-	-	5	-	-	-	-	-	17	-	**-**
Pedestrians%	-	-	-	-	27.7%		-	-	-	-	29.2%		-	-	-	-	7.7%		-	-	-	-	26.2%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	3	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	4.6%		-	-	-	-	0%		-	-	-	-	4.6%		**-**

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

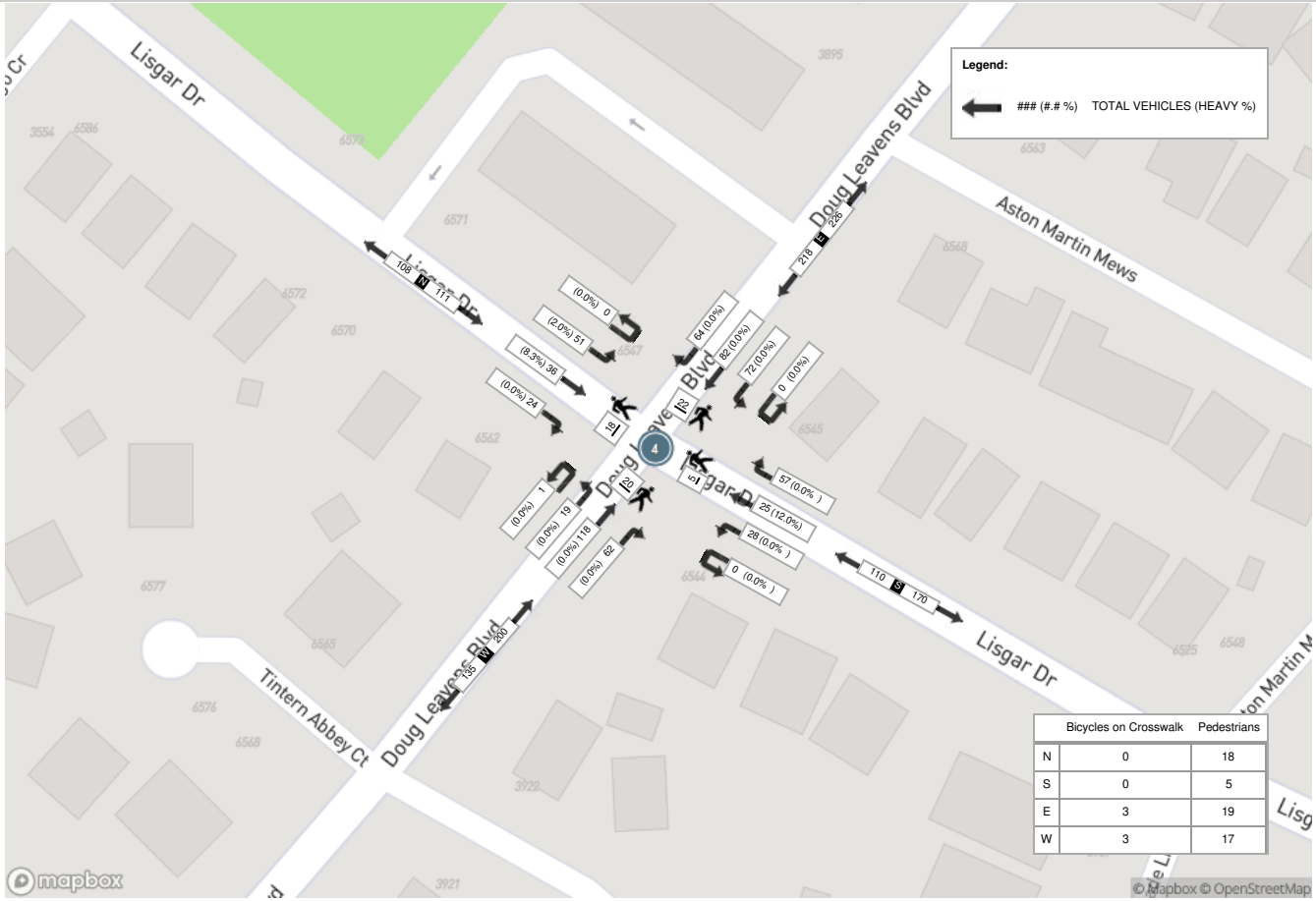
Peak Hour: 07:45 AM - 08:45 AM **Weather: Few Clouds (12.56 °C)**



	Bicycles on Crosswalk	Pedestrians
N	3	22
S	3	17
E	0	19
W	3	31

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM **Weather: Broken Clouds (18.13 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	18
S	0	5
E	3	19
W	3	17

Crozier & Associates
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TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (2 . LISGAR DR & INDIGO CRES (NORTH))

Start Time	N Approach LISGAR DR					S Approach LISGAR DR					W Approach INDIGO CRES (NORTH)					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	4	0	0	4	2	0	0	0	2	0	2	0	0	2	8	
06:15:00	0	2	0	0	2	5	0	0	0	5	2	2	0	0	4	11	
06:30:00	0	4	0	0	4	3	0	0	0	3	1	1	0	0	2	9	
06:45:00	1	10	0	1	11	6	0	0	0	6	3	2	0	0	5	22	50
07:00:00	2	12	0	0	14	11	0	0	1	11	0	0	0	0	0	25	67
07:15:00	1	15	0	0	16	5	1	0	0	6	5	1	0	2	6	28	84
07:30:00	1	18	0	0	19	15	1	0	0	16	2	2	0	6	4	39	114
07:45:00	1	26	0	0	27	12	2	0	0	14	4	0	0	3	4	45	137
08:00:00	1	59	0	0	60	75	1	0	0	76	6	4	0	4	10	146	258
08:15:00	0	87	0	2	87	50	2	0	0	52	2	1	0	8	3	142	372
08:30:00	0	33	0	1	33	40	1	0	0	41	5	1	0	5	6	80	413
08:45:00	2	26	0	2	28	26	1	0	0	27	1	0	0	5	1	56	424
09:00:00	0	12	0	1	12	12	0	0	0	12	0	0	0	2	0	24	302
09:15:00	2	16	0	0	18	12	0	0	0	12	3	0	0	0	3	33	193
09:30:00	0	16	0	0	16	8	0	0	0	8	0	0	0	0	0	24	137
09:45:00	2	18	0	1	20	14	1	0	0	15	1	2	0	1	3	38	119
BREAK																	
15:00:00	1	24	0	2	25	28	1	0	0	29	5	1	0	4	6	60	
15:15:00	2	26	0	0	28	36	2	0	0	38	0	1	0	4	1	67	
15:30:00	6	15	0	0	21	19	1	0	0	20	1	0	0	6	1	42	
15:45:00	2	12	0	0	14	30	1	0	0	31	1	1	0	0	2	47	216
16:00:00	2	22	0	1	24	19	5	0	0	24	2	1	0	1	3	51	207
16:15:00	1	25	0	0	26	24	1	0	0	25	0	1	0	5	1	52	192
16:30:00	3	21	0	0	24	20	0	0	0	20	3	3	0	0	6	50	200
16:45:00	2	18	0	1	20	22	4	0	0	26	2	3	0	5	5	51	204
17:00:00	2	32	0	2	34	15	5	0	0	20	2	1	0	3	3	57	210
17:15:00	4	32	0	2	36	25	2	1	0	28	2	1	0	5	3	67	225
17:30:00	5	15	0	3	20	23	3	1	0	27	3	5	0	4	8	55	230
17:45:00	5	34	0	0	39	25	3	0	1	28	0	5	0	1	5	72	251
18:00:00	3	33	0	0	36	15	3	0	0	18	2	1	0	1	3	57	251
18:15:00	5	26	0	2	31	26	2	0	0	28	2	2	0	9	4	63	247
18:30:00	2	19	0	0	21	23	2	0	0	25	0	2	0	7	2	48	240
18:45:00	1	17	0	0	18	18	3	0	0	21	0	3	0	3	3	42	210

Crozier & Associates
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CANADA

Grand Total	59	729	0	21	788	664	48	2	2	714	60	49	0	94	109	**1611**	-
Approach%	7.5%	92.5%	0%		-	93%	6.7%	0.3%		-	55%	45%	0%		-	**-**	-
Totals %	3.7%	45.3%	0%		48.9%	41.2%	3%	0.1%		44.3%	3.7%	3%	0%		6.8%	**-**	-
Heavy	1	44	0		-	45	1	0		-	1	1	0		-	**-**	-
Heavy %	1.7%	6%	0%		-	6.8%	2.1%	0%		-	1.7%	2%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

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CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Few Clouds (12.56 °C)

Start Time	N Approach LISGAR DR					S Approach LISGAR DR					W Approach INDIGO CRES (NORTH)					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
08:00:00	1	59	0	0	60	75	1	0	0	76	6	4	0	4	10	146
08:15:00	0	87	0	2	87	50	2	0	0	52	2	1	0	8	3	142
08:30:00	0	33	0	1	33	40	1	0	0	41	5	1	0	5	6	80
08:45:00	2	26	0	2	28	26	1	0	0	27	1	0	0	5	1	56
Grand Total	3	205	0	5	208	191	5	0	0	196	14	6	0	22	20	**424**
Approach%	1.4%	98.6%	0%		-	97.4%	2.6%	0%		-	70%	30%	0%		-	**-**
Totals %	0.7%	48.3%	0%		49.1%	45%	1.2%	0%		46.2%	3.3%	1.4%	0%		4.7%	**-**
PHF	0.38	0.59	0		0.6	0.64	0.63	0		0.64	0.58	0.38	0		0.5	**-**
Heavy	0	10	0		10	11	0	0		11	0	1	0		1	**-**
Heavy %	0%	4.9%	0%		4.8%	5.8%	0%	0%		5.6%	0%	16.7%	0%		5%	**-**
Lights	3	195	0		198	180	5	0		185	14	5	0		19	**-**
Lights %	100%	95.1%	0%		95.2%	94.2%	100%	0%		94.4%	100%	83.3%	0%		95%	**-**
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Buses	0	10	0		10	11	0	0		11	0	1	0		1	**-**
Buses %	0%	4.9%	0%		4.8%	5.8%	0%	0%		5.6%	0%	16.7%	0%		5%	**-**
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	5	-	-	-	-	0	-	-	-	-	20	-	**-**
Pedestrians%	-	-	-	18.5%		-	-	-	0%		-	-	-	74.1%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	7.4%		**-**

Crozier & Associates
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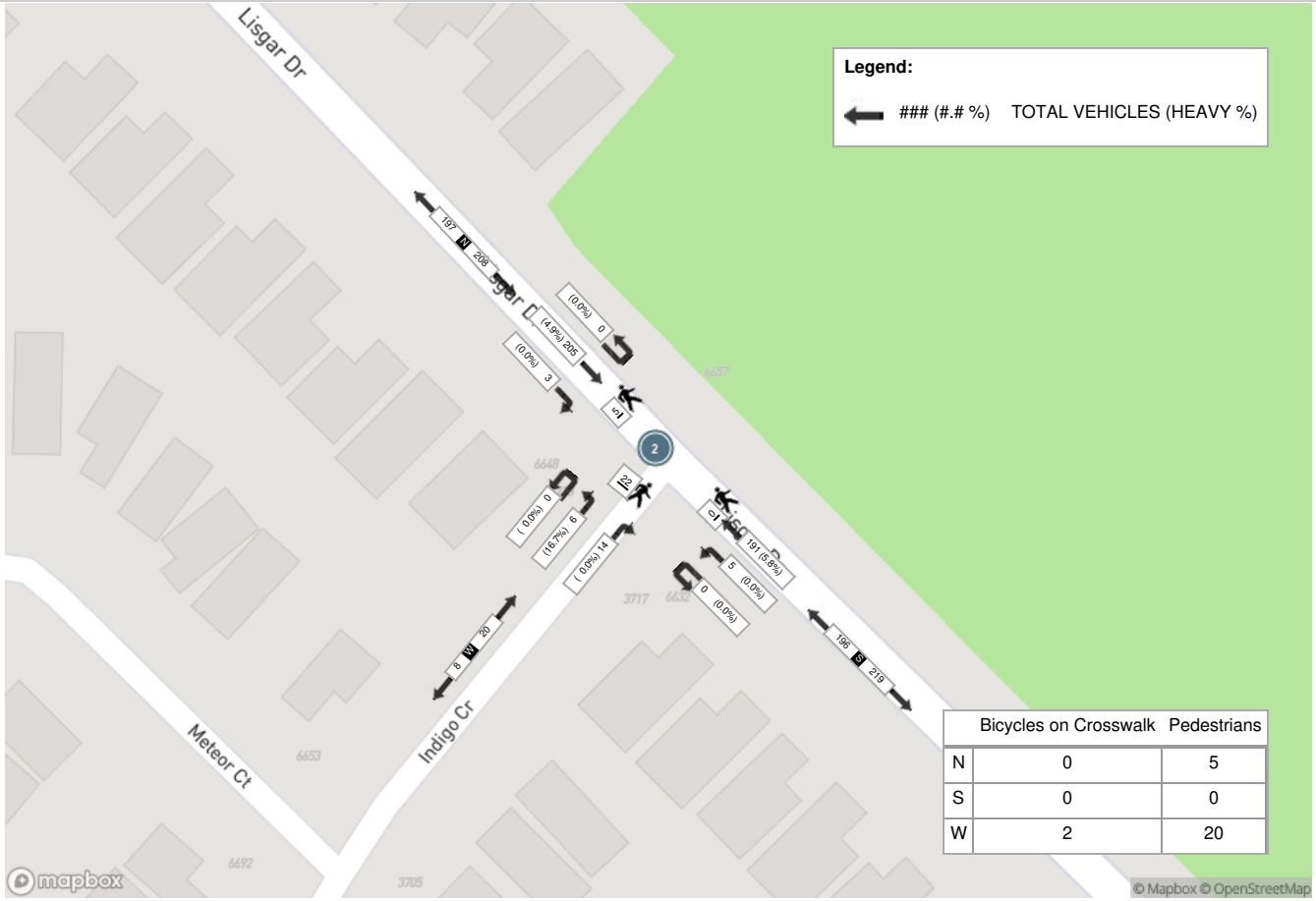
CANADA

Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (18.13 °C)

Start Time	N Approach LISGAR DR					S Approach LISGAR DR					W Approach INDIGO CRES (NORTH)					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
17:15:00	4	32	0	2	36	25	2	1	0	28	2	1	0	5	3	67
17:30:00	5	15	0	3	20	23	3	1	0	27	3	5	0	4	8	55
17:45:00	5	34	0	0	39	25	3	0	1	28	0	5	0	1	5	72
18:00:00	3	33	0	0	36	15	3	0	0	18	2	1	0	1	3	57
Grand Total	17	114	0	5	131	88	11	2	1	101	7	12	0	11	19	**251**
Approach%	13%	87%	0%		-	87.1%	10.9%	2%		-	36.8%	63.2%	0%		-	**-**
Totals %	6.8%	45.4%	0%		52.2%	35.1%	4.4%	0.8%		40.2%	2.8%	4.8%	0%		7.6%	**-**
PHF	0.85	0.84	0		0.84	0.88	0.92	0.5		0.9	0.58	0.6	0		0.59	**-**
Heavy	1	4	0		5	3	0	0		3	0	0	0		0	**-**
Heavy %	5.9%	3.5%	0%		3.8%	3.4%	0%	0%		3%	0%	0%	0%		0%	**-**
Lights	16	110	0		126	84	11	2		97	7	9	0		16	**-**
Lights %	94.1%	96.5%	0%		96.2%	95.5%	100%	100%		96%	100%	75%	0%		84.2%	**-**
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Buses	1	4	0		5	3	0	0		3	0	0	0		0	**-**
Buses %	5.9%	3.5%	0%		3.8%	3.4%	0%	0%		3%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0		0	1	0	0		1	0	3	0		3	**-**
Bicycles on Road %	0%	0%	0%		0%	1.1%	0%	0%		1%	0%	25%	0%		15.8%	**-**
Pedestrians	-	-	-	5	-	-	-	-	1	-	-	-	-	10	-	**-**
Pedestrians%	-	-	-	29.4%		-	-	-	5.9%		-	-	-	58.8%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	5.9%		**-**

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Few Clouds (12.56 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	5
S	0	0
W	2	20

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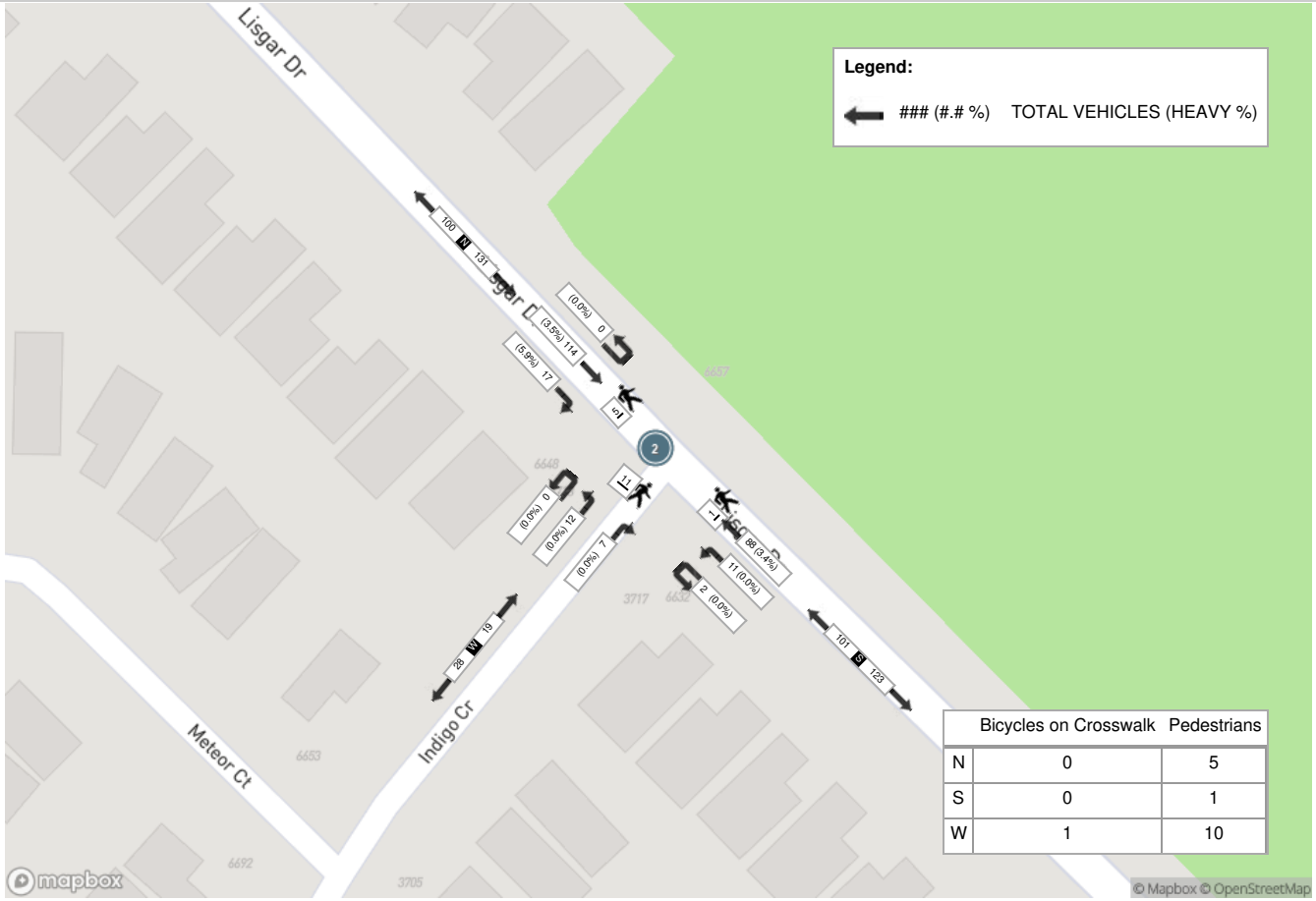
CANADA

Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (18.13 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	5
S	0	1
W	1	10

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Turning Movement Count (3 . LISGAR DR & INDIGO CRES (SOUTH))

Start Time	N Approach LISGAR DR					S Approach LISGAR DR					W Approach INDIGO CRES (SOUTH)					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	4	0	0	4	3	0	0	0	3	0	0	0	0	0	7	
06:15:00	0	4	0	0	4	4	0	0	0	4	1	1	0	0	2	10	
06:30:00	0	5	0	0	5	2	1	0	0	3	4	0	0	0	4	12	
06:45:00	0	14	0	0	14	6	1	0	1	7	1	1	0	0	2	23	52
07:00:00	1	11	0	0	12	6	0	0	0	6	4	3	0	0	7	25	70
07:15:00	0	21	0	0	21	6	0	1	3	7	4	1	0	3	5	33	93
07:30:00	0	19	0	0	19	15	3	0	0	18	6	2	0	4	8	45	126
07:45:00	0	30	0	0	30	13	1	0	3	14	8	0	0	6	8	52	155
08:00:00	2	66	0	0	68	77	3	0	1	80	1	3	0	6	4	152	282
08:15:00	0	91	0	0	91	47	2	0	0	49	3	2	0	3	5	145	394
08:30:00	0	38	0	0	38	38	2	0	5	40	3	1	0	7	4	82	431
08:45:00	0	27	0	0	27	27	0	0	1	27	4	0	0	10	4	58	437
09:00:00	0	13	0	0	13	11	1	1	1	13	1	0	0	2	1	27	312
09:15:00	1	17	0	0	18	13	1	0	0	14	4	0	0	0	4	36	203
09:30:00	1	15	0	0	16	6	1	0	0	7	3	1	0	0	4	27	148
09:45:00	1	19	0	0	20	15	1	0	0	16	1	0	0	1	1	37	127
BREAK																	
15:00:00	1	28	0	0	29	30	4	1	0	35	4	0	0	2	4	68	
15:15:00	3	23	0	0	26	35	6	2	2	43	5	0	0	6	5	74	
15:30:00	3	13	0	0	16	20	4	0	1	24	3	0	0	5	3	43	
15:45:00	1	12	0	0	13	32	5	0	1	37	2	0	0	3	2	52	237
16:00:00	0	24	0	0	24	25	2	0	0	27	5	0	0	2	5	56	225
16:15:00	1	22	0	0	23	24	4	0	0	28	3	0	0	10	3	54	205
16:30:00	0	26	0	0	26	21	8	0	0	29	2	1	0	1	3	58	220
16:45:00	1	20	0	0	21	26	5	0	0	31	3	0	0	5	3	55	223
17:00:00	3	29	0	0	32	19	2	0	0	21	2	0	0	3	2	55	222
17:15:00	4	29	0	0	33	31	6	0	0	37	1	1	0	5	2	72	240
17:30:00	0	21	0	0	21	25	4	1	4	30	3	0	0	5	3	54	236
17:45:00	1	34	0	0	35	27	2	0	0	29	2	1	0	1	3	67	248
18:00:00	3	32	0	0	35	16	2	0	6	18	4	3	0	2	7	60	253
18:15:00	0	26	0	0	26	29	5	0	3	34	4	2	0	8	6	66	247
18:30:00	1	21	0	0	22	24	1	0	4	25	2	1	0	6	3	50	243
18:45:00	1	18	0	0	19	19	1	0	0	20	5	0	0	3	5	44	220

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Grand Total	29	772	0	0	801	692	78	6	36	776	98	24	0	109	122	**1699**	-
Approach%	3.6%	96.4%	0%		-	89.2%	10.1%	0.8%		-	80.3%	19.7%	0%		-	**-**	-
Totals %	1.7%	45.4%	0%		47.1%	40.7%	4.6%	0.4%		45.7%	5.8%	1.4%	0%		7.2%	**-**	-
Heavy	1	44	0		-	39	1	0		-	2	0	0		-	**-**	-
Heavy %	3.4%	5.7%	0%		-	5.6%	1.3%	0%		-	2%	0%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

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SUITE 301 211 YONGE
STREET
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CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Few Clouds (12.56 °C)

Start Time	N Approach LISGAR DR					S Approach LISGAR DR					W Approach INDIGO CRES (SOUTH)					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
08:00:00	2	66	0	0	68	77	3	0	1	80	1	3	0	6	4	152
08:15:00	0	91	0	0	91	47	2	0	0	49	3	2	0	3	5	145
08:30:00	0	38	0	0	38	38	2	0	5	40	3	1	0	7	4	82
08:45:00	0	27	0	0	27	27	0	0	1	27	4	0	0	10	4	58
Grand Total	2	222	0	0	224	189	7	0	7	196	11	6	0	26	17	**437**
Approach%	0.9%	99.1%	0%		-	96.4%	3.6%	0%		-	64.7%	35.3%	0%		-	**-**
Totals %	0.5%	50.8%	0%		51.3%	43.2%	1.6%	0%		44.9%	2.5%	1.4%	0%		3.9%	**-**
PHF	0.25	0.61	0		0.62	0.61	0.58	0		0.61	0.69	0.5	0		0.85	**-**
Heavy	1	11	0		12	10	0	0		10	0	0	0		0	**-**
Heavy %	50%	5%	0%		5.4%	5.3%	0%	0%		5.1%	0%	0%	0%		0%	**-**
Lights	1	211	0		212	179	7	0		186	11	6	0		17	**-**
Lights %	50%	95%	0%		94.6%	94.7%	100%	0%		94.9%	100%	100%	0%		100%	**-**
Buses	1	11	0		12	10	0	0		10	0	0	0		0	**-**
Buses %	50%	5%	0%		5.4%	5.3%	0%	0%		5.1%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	7	-	-	-	-	26	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	21.2%		-	-	-	78.8%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

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STREET
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CANADA

Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (18.13 °C)

Start Time	N Approach LISGAR DR					S Approach LISGAR DR					W Approach INDIGO CRES (SOUTH)					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
17:15:00	4	29	0	0	33	31	6	0	0	37	1	1	0	5	2	72
17:30:00	0	21	0	0	21	25	4	1	4	30	3	0	0	5	3	54
17:45:00	1	34	0	0	35	27	2	0	0	29	2	1	0	1	3	67
18:00:00	3	32	0	0	35	16	2	0	6	18	4	3	0	2	7	60
Grand Total	8	116	0	0	124	99	14	1	10	114	10	5	0	13	15	**253**
Approach%	6.5%	93.5%	0%		-	86.8%	12.3%	0.9%		-	66.7%	33.3%	0%		-	**-**
Totals %	3.2%	45.8%	0%		49%	39.1%	5.5%	0.4%		45.1%	4%	2%	0%		5.9%	**-**
PHF	0.5	0.85	0		0.89	0.8	0.58	0.25		0.77	0.63	0.42	0		0.54	**-**
Heavy	0	4	0		4	2	0	0		2	1	0	0		1	**-**
Heavy %	0%	3.4%	0%		3.2%	2%	0%	0%		1.8%	10%	0%	0%		6.7%	**-**
Lights	8	112	0		120	96	14	1		111	9	5	0		14	**-**
Lights %	100%	96.6%	0%		96.8%	97%	100%	100%		97.4%	90%	100%	0%		93.3%	**-**
Buses	0	4	0		4	2	0	0		2	1	0	0		1	**-**
Buses %	0%	3.4%	0%		3.2%	2%	0%	0%		1.8%	10%	0%	0%		6.7%	**-**
Bicycles on Road	0	0	0		0	1	0	0		1	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%		0%	1%	0%	0%		0.9%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	10	-	-	-	-	12	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	43.5%		-	-	-	52.2%		**-**
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	4.3%		**-**

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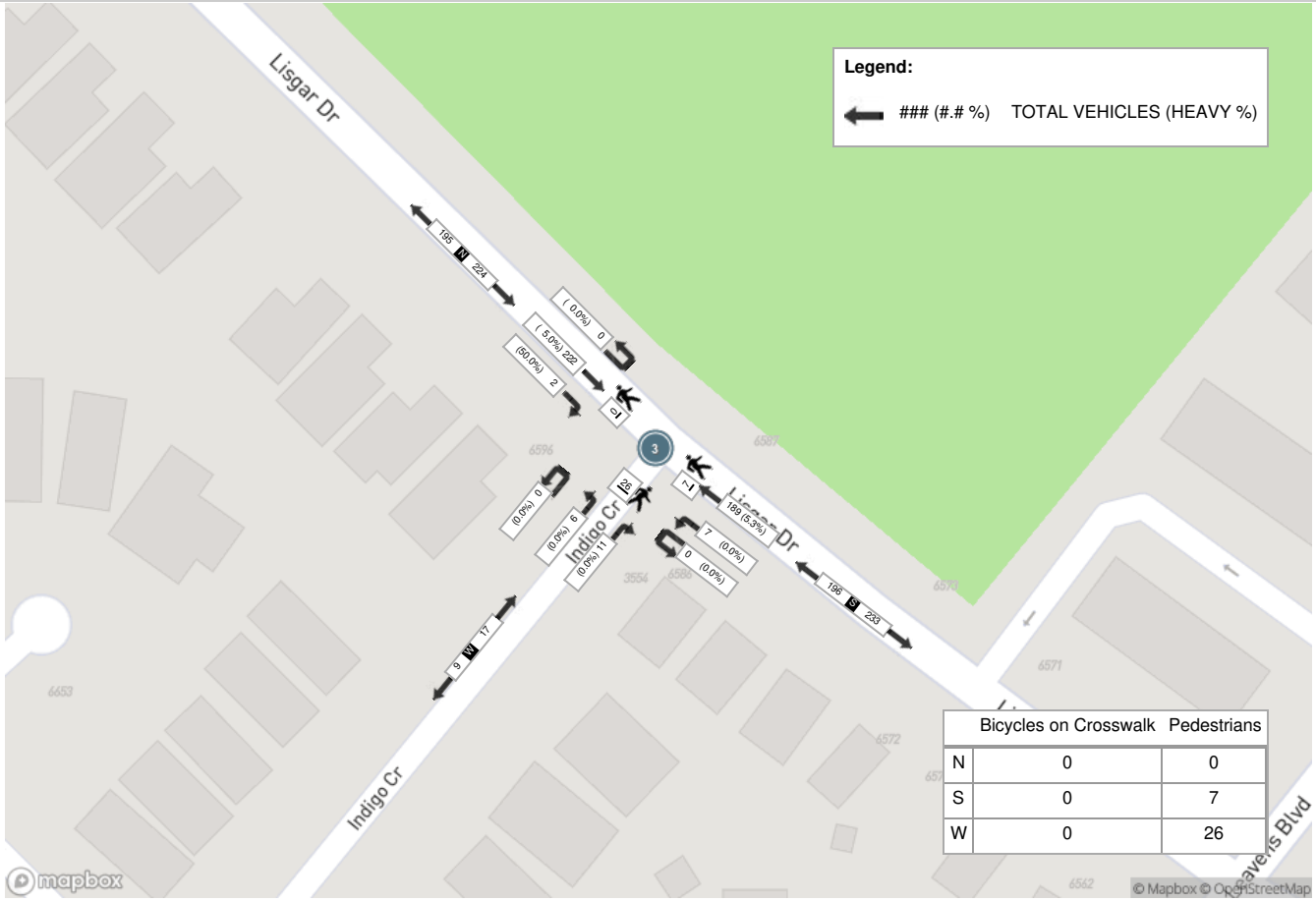
CANADA

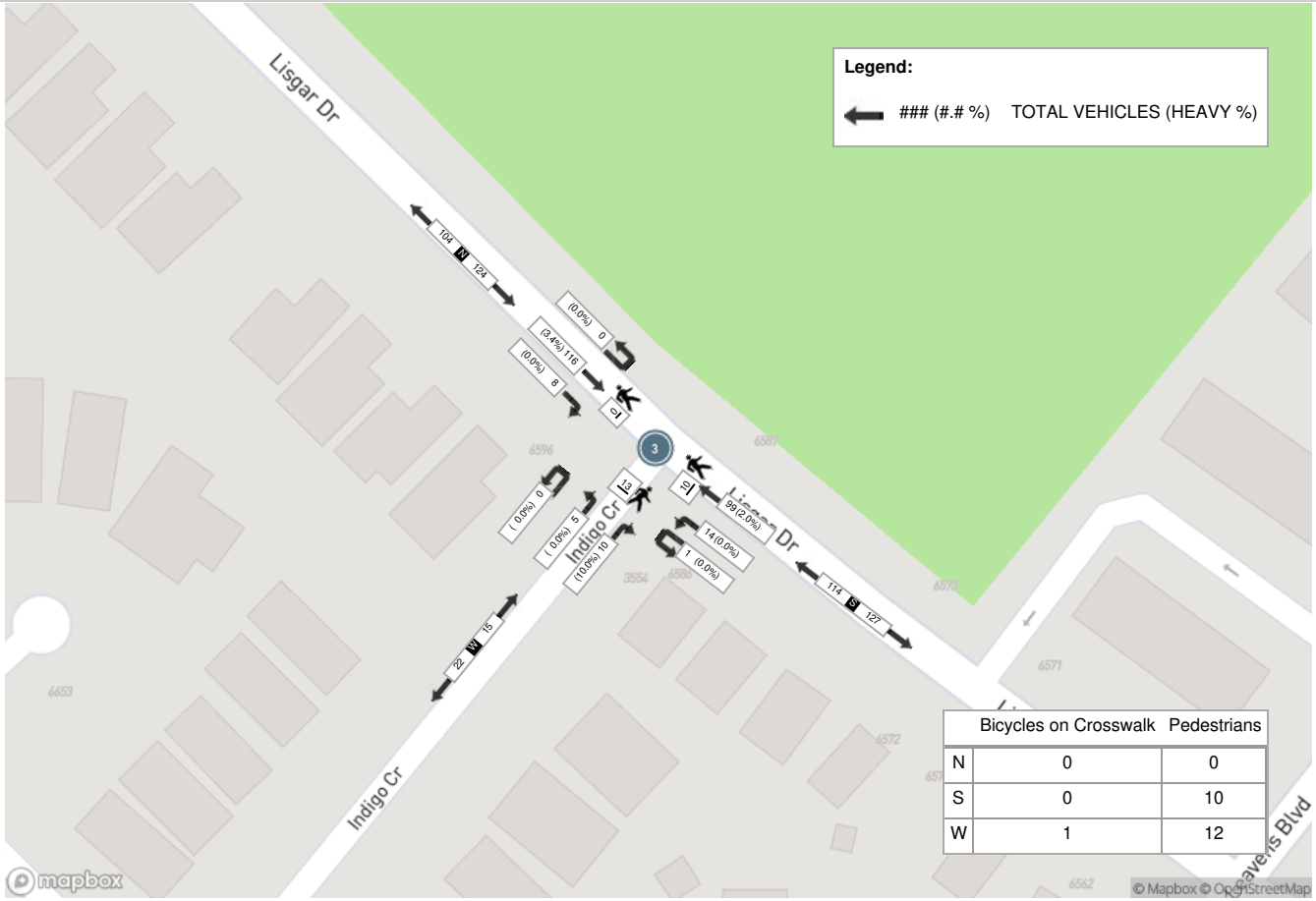
Peak Hour: 08:00 AM - 09:00 AM Weather: Few Clouds (12.56 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	7
W	0	26

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 05:15 PM - 06:15 PM Weather: Broken Clouds (18.13 °C)



APPENDIX E

Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

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

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Level of Service Definitions

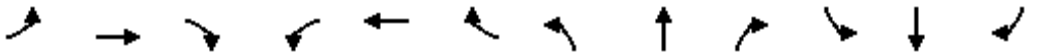
Signalized Intersections

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

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX F

Detailed Capacity Analysis Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	49	23	0	0	0	25	98	37	78	133	68
Future Volume (vph)	32	49	23	0	0	0	25	98	37	78	133	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970						0.959			0.949	
Flt Protected		0.985					0.950			0.950		
Satd. Flow (prot)	0	1769	0	0	0	0	1825	1752	0	1772	1742	0
Flt Permitted		0.985					0.950			0.950		
Satd. Flow (perm)	0	1769	0	0	0	0	1825	1752	0	1772	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		52.7			32.2			97.6			102.5	
Travel Time (s)		3.8			2.3			7.0			7.4	
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%	6%	0%	0%	0%	0%	0%	3%	11%	3%	7%	0%
Adj. Flow (vph)	35	53	25	0	0	0	27	107	40	85	145	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	0	0	27	147	0	85	219	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

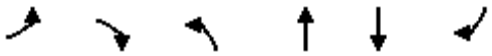
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	49	23	0	0	0	25	98	37	78	133	68
Future Vol, veh/h	32	49	23	0	0	0	25	98	37	78	133	68
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	6	0	0	0	0	0	3	11	3	7	0
Mvmt Flow	35	53	25	0	0	0	27	107	40	85	145	74
Number of Lanes	0	1	0	0	0	0	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.9	8.8	9.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	31%	100%	0%
Vol Thru, %	0%	73%	47%	0%	66%
Vol Right, %	0%	27%	22%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	135	104	78	201
LT Vol	25	0	32	78	0
Through Vol	0	98	49	0	133
RT Vol	0	37	23	0	68
Lane Flow Rate	27	147	113	85	218
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.042	0.201	0.156	0.129	0.293
Departure Headway (Hd)	5.567	4.922	4.972	5.495	4.823
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	643	729	721	653	745
Service Time	3.3	2.655	3.004	3.225	2.552
HCM Lane V/C Ratio	0.042	0.202	0.157	0.13	0.293
HCM Control Delay	8.5	8.9	8.9	9	9.6
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.7	0.6	0.4	1.2



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	14	5	191	205	3
Future Volume (vph)	6	14	5	191	205	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.908				0.998	
Flt Protected	0.984			0.999		
Satd. Flow (prot)	1716	0	0	1813	1827	0
Flt Permitted	0.984			0.999		
Satd. Flow (perm)	1716	0	0	1813	1827	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	74.6			158.8	139.5	
Travel Time (s)	5.4			11.4	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	5%	0%
Adj. Flow (vph)	7	15	5	208	223	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	213	226	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.1%		ICU Level of Service A	
Analysis Period (min) 15			

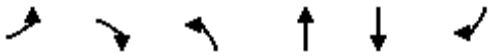
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	14	5	191	205	3
Future Vol, veh/h	6	14	5	191	205	3
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, %	0	0	0	6	5	0
Mvmt Flow	7	15	5	208	223	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	443	225	226	0	-	0
Stage 1	225	-	-	-	-	-
Stage 2	218	-	-	-	-	-
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	576	819	1354	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	823	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	574	819	1354	-	-	-
Mov Cap-2 Maneuver	574	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	823	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1354	-	726	-	-
HCM Lane V/C Ratio	0.004	-	0.03	-	-
HCM Control Delay (s)	7.7	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	11	7	189	222	2
Future Volume (vph)	6	11	7	189	222	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.915				0.999	
Flt Protected	0.982			0.998		
Satd. Flow (prot)	1726	0	0	1829	1821	0
Flt Permitted	0.982			0.998		
Satd. Flow (perm)	1726	0	0	1829	1821	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	68.5			114.1	158.8	
Travel Time (s)	4.9			8.2	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	5%	50%
Adj. Flow (vph)	7	12	8	205	241	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	213	243	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.6%		ICU Level of Service A	
Analysis Period (min) 15			

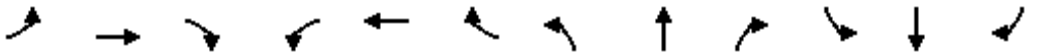
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	11	7	189	222	2
Future Vol, veh/h	6	11	7	189	222	2
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, %	0	0	0	5	5	50
Mvmt Flow	7	12	8	205	241	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	463	242	243	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	221	-	-	-	-	-
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	561	802	1335	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	557	802	1335	-	-	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	821	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1335	-	694	-	-
HCM Lane V/C Ratio	0.006	-	0.027	-	-
HCM Control Delay (s)	7.7	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	95	28	43	125	106	67	57	79	143	61	39
Future Volume (vph)	22	95	28	43	125	106	67	57	79	143	61	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.931			0.947			0.978	
Flt Protected	0.950			0.950				0.984			0.971	
Satd. Flow (prot)	1825	1827	0	1738	1723	0	0	1712	0	0	1740	0
Flt Permitted	0.950			0.950				0.984			0.971	
Satd. Flow (perm)	1825	1827	0	1738	1723	0	0	1712	0	0	1740	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		85.3			99.6			131.3			114.1	
Travel Time (s)		6.1			7.2			9.5			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	7%	5%	2%	6%	2%	7%	5%	4%	8%	3%
Adj. Flow (vph)	24	103	30	47	136	115	73	62	86	155	66	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	133	0	47	251	0	0	221	0	0	263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	95	28	43	125	106	67	57	79	143	61	39
Future Vol, veh/h	22	95	28	43	125	106	67	57	79	143	61	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	7	5	2	6	2	7	5	4	8	3
Mvmt Flow	24	103	30	47	136	115	73	62	86	155	66	42
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	10.8	12.2	11.5	12.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	100%	0%	100%	0%	59%
Vol Thru, %	28%	0%	77%	0%	54%	25%
Vol Right, %	39%	0%	23%	0%	46%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	203	22	123	43	231	243
LT Vol	67	22	0	43	0	143
Through Vol	57	0	95	0	125	61
RT Vol	79	0	28	0	106	39
Lane Flow Rate	221	24	134	47	251	264
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.34	0.046	0.231	0.088	0.409	0.417
Departure Headway (Hd)	5.553	6.883	6.211	6.746	5.858	5.684
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	644	518	575	530	613	631
Service Time	3.616	4.65	3.977	4.503	3.615	3.743
HCM Lane V/C Ratio	0.343	0.046	0.233	0.089	0.409	0.418
HCM Control Delay	11.5	10	10.9	10.2	12.6	12.8
HCM Lane LOS	B	A	B	B	B	B
HCM 95th-tile Q	1.5	0.1	0.9	0.3	2	2.1

Intersection: 1: Lisgar Drive & Beacham Street/School Access

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR
Maximum Queue (m)	21.9	13.6	20.3	14.1	26.9
Average Queue (m)	10.6	5.2	11.4	7.6	13.0
95th Queue (m)	17.9	12.9	17.8	11.8	21.4
Link Distance (m)	41.4		81.1		92.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		15.0		40.0	
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 2: Lisgar Drive & Indigo Crescent (N)

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	12.8	7.2
Average Queue (m)	5.1	0.5
95th Queue (m)	12.5	4.0
Link Distance (m)	64.2	140.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Lisgar Drive & Indigo Crescent (S)

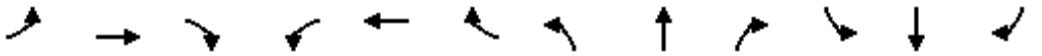
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	10.4	5.5
Average Queue (m)	3.9	0.4
95th Queue (m)	11.3	3.3
Link Distance (m)	59.9	96.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Lisgar Drive & Doug Leavens Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	8.5	21.5	19.6	33.0	33.0	31.6
Average Queue (m)	4.3	10.0	7.5	14.5	14.1	16.5
95th Queue (m)	11.0	17.1	15.3	24.8	24.5	26.2
Link Distance (m)		76.0		89.3	119.2	96.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	15.0		15.0			
Storage Blk Time (%)		1	0	4		
Queuing Penalty (veh)		0	1	2		

Network Summary

Network wide Queuing Penalty: 3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	2	26	0	0	0	12	94	0	5	122	36
Future Volume (vph)	56	2	26	0	0	0	12	94	0	5	122	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958									0.966	
Flt Protected		0.968					0.950			0.950		
Satd. Flow (prot)	0	1741	0	0	0	0	1825	1865	0	1825	1802	0
Flt Permitted		0.968					0.950			0.950		
Satd. Flow (perm)	0	1741	0	0	0	0	1825	1865	0	1825	1802	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		52.7			32.2			97.6			102.5	
Travel Time (s)		3.8			2.3			7.0			7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	50%	4%	0%	0%	0%	0%	3%	0%	0%	3%	3%
Adj. Flow (vph)	61	2	28	0	0	0	13	102	0	5	133	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	0	0	0	0	13	102	0	5	172	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

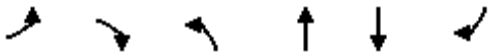
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	2	26	0	0	0	12	94	0	5	122	36
Future Vol, veh/h	56	2	26	0	0	0	12	94	0	5	122	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	50	4	0	0	0	0	3	0	0	3	3
Mvmt Flow	61	2	28	0	0	0	13	102	0	5	133	39
Number of Lanes	0	1	0	0	0	0	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.2	8.4	8.8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	67%	100%	0%
Vol Thru, %	0%	100%	2%	0%	77%
Vol Right, %	0%	0%	31%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	94	84	5	158
LT Vol	12	0	56	5	0
Through Vol	0	94	2	0	122
RT Vol	0	0	26	0	36
Lane Flow Rate	13	102	91	5	172
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.019	0.139	0.115	0.008	0.225
Departure Headway (Hd)	5.361	4.91	4.548	5.329	4.718
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	670	733	791	676	766
Service Time	3.075	2.624	2.562	3.029	2.418
HCM Lane V/C Ratio	0.019	0.139	0.115	0.007	0.225
HCM Control Delay	8.2	8.4	8.2	8.1	8.8
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.5	0.4	0	0.9



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	7	13	88	114	17
Future Volume (vph)	12	7	13	88	114	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.983	
Flt Protected	0.970			0.994		
Satd. Flow (prot)	1768	0	0	1861	1811	0
Flt Permitted	0.970			0.994		
Satd. Flow (perm)	1768	0	0	1861	1811	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	74.6			158.8	139.5	
Travel Time (s)	5.4			11.4	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	3%	4%	6%
Adj. Flow (vph)	13	8	14	96	124	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	110	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.6%		ICU Level of Service A	
Analysis Period (min) 15			

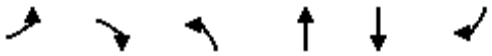
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	7	13	88	114	17
Future Vol, veh/h	12	7	13	88	114	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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	3	4	6
Mvmt Flow	13	8	14	96	124	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	257	133	142	0	-	0
Stage 1	133	-	-	-	-	-
Stage 2	124	-	-	-	-	-
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	736	922	1453	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	729	922	1453	-	-	-
Mov Cap-2 Maneuver	729	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1453	-	790	-	-
HCM Lane V/C Ratio	0.01	-	0.026	-	-
HCM Control Delay (s)	7.5	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	10	15	99	116	8
Future Volume (vph)	5	10	15	99	116	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.907				0.991	
Flt Protected	0.985			0.994		
Satd. Flow (prot)	1606	0	0	1877	1852	0
Flt Permitted	0.985			0.994		
Satd. Flow (perm)	1606	0	0	1877	1852	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	68.5			114.1	158.8	
Travel Time (s)	4.9			8.2	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	10%	0%	2%	3%	0%
Adj. Flow (vph)	5	11	16	108	126	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	124	135	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.0%		ICU Level of Service A	
Analysis Period (min) 15			

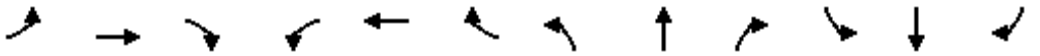
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	10	15	99	116	8
Future Vol, veh/h	5	10	15	99	116	8
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, %	0	10	0	2	3	0
Mvmt Flow	5	11	16	108	126	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	271	131	135	0	-	0
Stage 1	131	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.4	6.3	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.39	2.2	-	-	-
Pot Cap-1 Maneuver	723	898	1462	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	714	898	1462	-	-	-
Mov Cap-2 Maneuver	714	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	892	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1462	-	827	-	-
HCM Lane V/C Ratio	0.011	-	0.02	-	-
HCM Control Delay (s)	7.5	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	118	62	72	82	64	28	25	57	51	36	24
Future Volume (vph)	20	118	62	72	82	64	28	25	57	51	36	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.948			0.934			0.930			0.971	
Flt Protected	0.950			0.950				0.988			0.978	
Satd. Flow (prot)	1825	1821	0	1825	1794	0	0	1718	0	0	1762	0
Flt Permitted	0.950			0.950				0.988			0.978	
Satd. Flow (perm)	1825	1821	0	1825	1794	0	0	1718	0	0	1762	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		85.3			99.6			131.3			114.1	
Travel Time (s)		6.1			7.2			9.5			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	12%	0%	2%	8%	0%
Adj. Flow (vph)	22	128	67	78	89	70	30	27	62	55	39	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	195	0	78	159	0	0	119	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	118	62	72	82	64	28	25	57	51	36	24
Future Vol, veh/h	20	118	62	72	82	64	28	25	57	51	36	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	12	0	2	8	0
Mvmt Flow	22	128	67	78	89	70	30	27	62	55	39	26
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.8	9.3	8.9	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	25%	100%	0%	100%	0%	46%
Vol Thru, %	23%	0%	66%	0%	56%	32%
Vol Right, %	52%	0%	34%	0%	44%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	20	180	72	146	111
LT Vol	28	20	0	72	0	51
Through Vol	25	0	118	0	82	36
RT Vol	57	0	62	0	64	24
Lane Flow Rate	120	22	196	78	159	121
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.163	0.035	0.277	0.127	0.221	0.173
Departure Headway (Hd)	4.904	5.854	5.106	5.826	5.012	5.151
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	725	608	698	612	711	691
Service Time	2.977	3.627	2.879	3.597	2.783	3.224
HCM Lane V/C Ratio	0.166	0.036	0.281	0.127	0.224	0.175
HCM Control Delay	8.9	8.8	9.9	9.5	9.2	9.3
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0.1	1.1	0.4	0.8	0.6

Intersection: 1: Lisgar Drive & Beacham Street/School Access

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR
Maximum Queue (m)	19.5	12.0	19.4	7.9	21.0
Average Queue (m)	9.3	2.6	10.2	1.3	11.1
95th Queue (m)	15.8	9.6	16.6	6.0	17.2
Link Distance (m)	41.4		81.1		92.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		15.0		40.0	
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 2: Lisgar Drive & Indigo Crescent (N)

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	8.7	5.4
Average Queue (m)	4.2	0.4
95th Queue (m)	11.2	3.3
Link Distance (m)	64.2	140.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Lisgar Drive & Indigo Crescent (S)

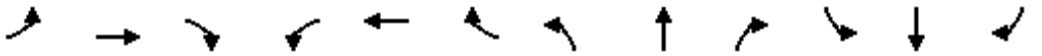
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	16.4	9.1
Average Queue (m)	3.5	0.5
95th Queue (m)	11.7	3.8
Link Distance (m)	59.9	96.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Lisgar Drive & Doug Leavens Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	8.5	21.8	14.6	16.5	20.2	22.9
Average Queue (m)	4.0	11.3	8.0	9.4	9.7	10.6
95th Queue (m)	10.8	18.3	12.9	14.9	15.4	17.2
Link Distance (m)		76.0		89.3	119.2	96.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	15.0		15.0			
Storage Blk Time (%)		1	0	0		
Queuing Penalty (veh)		0	0	0		

Network Summary

Network wide Queuing Penalty: 1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	49	25	0	0	0	27	103	37	78	140	72
Future Volume (vph)	34	49	25	0	0	0	27	103	37	78	140	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969						0.961			0.949	
Flt Protected		0.984					0.950			0.950		
Satd. Flow (prot)	0	1767	0	0	0	0	1825	1757	0	1772	1743	0
Flt Permitted		0.984					0.950			0.950		
Satd. Flow (perm)	0	1767	0	0	0	0	1825	1757	0	1772	1743	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		52.7			32.2			97.6			102.5	
Travel Time (s)		3.8			2.3			7.0			7.4	
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%	6%	0%	0%	0%	0%	0%	3%	11%	3%	7%	0%
Adj. Flow (vph)	37	53	27	0	0	0	29	112	40	85	152	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	117	0	0	0	0	29	152	0	85	230	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

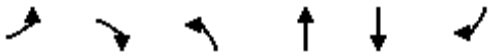
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	49	25	0	0	0	27	103	37	78	140	72
Future Vol, veh/h	34	49	25	0	0	0	27	103	37	78	140	72
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	6	0	0	0	0	0	3	11	3	7	0
Mvmt Flow	37	53	27	0	0	0	29	112	40	85	152	78
Number of Lanes	0	1	0	0	0	0	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9	8.9	9.5
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	31%	100%	0%
Vol Thru, %	0%	74%	45%	0%	66%
Vol Right, %	0%	26%	23%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	27	140	108	78	212
LT Vol	27	0	34	78	0
Through Vol	0	103	49	0	140
RT Vol	0	37	25	0	72
Lane Flow Rate	29	152	117	85	230
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.046	0.209	0.163	0.13	0.31
Departure Headway (Hd)	5.594	4.956	5.009	5.517	4.844
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	640	723	715	650	742
Service Time	3.329	2.691	3.045	3.248	2.575
HCM Lane V/C Ratio	0.045	0.21	0.164	0.131	0.31
HCM Control Delay	8.6	9	9	9.1	9.7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.6	0.4	1.3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	14	5	201	216	3
Future Volume (vph)	6	14	5	201	216	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.908				0.998	
Flt Protected	0.984			0.999		
Satd. Flow (prot)	1716	0	0	1813	1827	0
Flt Permitted	0.984			0.999		
Satd. Flow (perm)	1716	0	0	1813	1827	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	74.6			158.8	139.5	
Travel Time (s)	5.4			11.4	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	5%	0%
Adj. Flow (vph)	7	15	5	218	235	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	223	238	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.6%		ICU Level of Service A	
Analysis Period (min) 15			

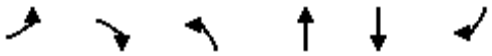
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	14	5	201	216	3
Future Vol, veh/h	6	14	5	201	216	3
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, %	0	0	0	6	5	0
Mvmt Flow	7	15	5	218	235	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	465	237	238	0	-	0
Stage 1	237	-	-	-	-	-
Stage 2	228	-	-	-	-	-
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	559	807	1341	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	557	807	1341	-	-	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	815	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1341	-	711	-	-
HCM Lane V/C Ratio	0.004	-	0.031	-	-
HCM Control Delay (s)	7.7	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	11	7	199	234	2
Future Volume (vph)	6	11	7	199	234	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.915				0.999	
Flt Protected	0.982			0.998		
Satd. Flow (prot)	1726	0	0	1829	1822	0
Flt Permitted	0.982			0.998		
Satd. Flow (perm)	1726	0	0	1829	1822	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	68.5			114.1	158.8	
Travel Time (s)	4.9			8.2	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	5%	50%
Adj. Flow (vph)	7	12	8	216	254	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	224	256	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.1%		ICU Level of Service A	
Analysis Period (min) 15			

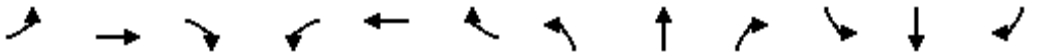
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	11	7	199	234	2
Future Vol, veh/h	6	11	7	199	234	2
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, %	0	0	0	5	5	50
Mvmt Flow	7	12	8	216	254	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	487	255	256	0	-	0
Stage 1	255	-	-	-	-	-
Stage 2	232	-	-	-	-	-
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	543	789	1321	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	539	789	1321	-	-	-
Mov Cap-2 Maneuver	539	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1321	-	678	-	-
HCM Lane V/C Ratio	0.006	-	0.027	-	-
HCM Control Delay (s)	7.7	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	106	30	46	134	112	71	60	84	151	65	41
Future Volume (vph)	24	106	30	46	134	112	71	60	84	151	65	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967			0.932			0.947			0.978	
Flt Protected	0.950			0.950				0.984			0.972	
Satd. Flow (prot)	1825	1829	0	1738	1725	0	0	1712	0	0	1742	0
Flt Permitted	0.950			0.950				0.984			0.972	
Satd. Flow (perm)	1825	1829	0	1738	1725	0	0	1712	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		85.3			99.6			131.3			114.1	
Travel Time (s)		6.1			7.2			9.5			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	7%	5%	2%	6%	2%	7%	5%	4%	8%	3%
Adj. Flow (vph)	26	115	33	50	146	122	77	65	91	164	71	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	148	0	50	268	0	0	233	0	0	280	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	106	30	46	134	112	71	60	84	151	65	41
Future Vol, veh/h	24	106	30	46	134	112	71	60	84	151	65	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	7	5	2	6	2	7	5	4	8	3
Mvmt Flow	26	115	33	50	146	122	77	65	91	164	71	45
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.3	13.1	12.2	13.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	100%	0%	100%	0%	59%
Vol Thru, %	28%	0%	78%	0%	54%	25%
Vol Right, %	39%	0%	22%	0%	46%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	215	24	136	46	246	257
LT Vol	71	24	0	46	0	151
Through Vol	60	0	106	0	134	65
RT Vol	84	0	30	0	112	41
Lane Flow Rate	234	26	148	50	267	279
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.372	0.051	0.262	0.096	0.447	0.454
Departure Headway (Hd)	5.734	7.06	6.391	6.906	6.019	5.856
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	624	504	559	517	596	612
Service Time	3.811	4.843	4.173	4.677	3.79	3.929
HCM Lane V/C Ratio	0.375	0.052	0.265	0.097	0.448	0.456
HCM Control Delay	12.2	10.2	11.5	10.4	13.6	13.8
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	1.7	0.2	1	0.3	2.3	2.4

Intersection: 1: Lisgar Drive & Beacham Street/School Access

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR
Maximum Queue (m)	21.4	12.1	23.1	15.2	25.5
Average Queue (m)	10.8	5.6	12.3	8.2	14.0
95th Queue (m)	17.8	13.2	19.4	12.3	22.1
Link Distance (m)	41.4		81.1		92.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		15.0		40.0	
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 2: Lisgar Drive & Indigo Crescent (N)

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	11.1	3.5
Average Queue (m)	4.9	0.1
95th Queue (m)	11.9	1.8
Link Distance (m)	64.2	140.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Lisgar Drive & Indigo Crescent (S)

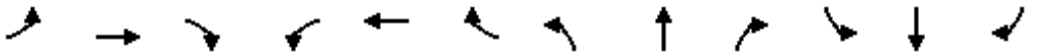
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	10.3	7.3
Average Queue (m)	4.3	0.4
95th Queue (m)	11.7	3.3
Link Distance (m)	59.9	96.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Lisgar Drive & Doug Leavens Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	11.8	26.2	21.0	31.9	28.1	35.5
Average Queue (m)	4.9	10.8	6.7	15.5	15.1	17.2
95th Queue (m)	11.9	19.0	15.1	26.7	23.7	27.7
Link Distance (m)		76.0		89.3	119.2	96.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	15.0		15.0			
Storage Blk Time (%)	0	2	0	6		
Queuing Penalty (veh)	0	0	0	3		

Network Summary

Network wide Queuing Penalty: 4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	2	28	0	0	0	13	99	0	5	129	38
Future Volume (vph)	59	2	28	0	0	0	13	99	0	5	129	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958									0.966	
Flt Protected		0.968					0.950			0.950		
Satd. Flow (prot)	0	1742	0	0	0	0	1825	1865	0	1825	1802	0
Flt Permitted		0.968					0.950			0.950		
Satd. Flow (perm)	0	1742	0	0	0	0	1825	1865	0	1825	1802	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		52.7			32.2			97.6			102.5	
Travel Time (s)		3.8			2.3			7.0			7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	50%	4%	0%	0%	0%	0%	3%	0%	0%	3%	3%
Adj. Flow (vph)	64	2	30	0	0	0	14	108	0	5	140	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	0	0	0	0	14	108	0	5	181	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

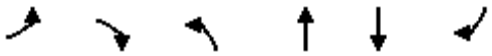
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	2	28	0	0	0	13	99	0	5	129	38
Future Vol, veh/h	59	2	28	0	0	0	13	99	0	5	129	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	50	4	0	0	0	0	3	0	0	3	3
Mvmt Flow	64	2	30	0	0	0	14	108	0	5	140	41
Number of Lanes	0	1	0	0	0	0	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.2	8.5	8.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	66%	100%	0%
Vol Thru, %	0%	100%	2%	0%	77%
Vol Right, %	0%	0%	31%	0%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	99	89	5	167
LT Vol	13	0	59	5	0
Through Vol	0	99	2	0	129
RT Vol	0	0	28	0	38
Lane Flow Rate	14	108	97	5	182
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.021	0.147	0.123	0.008	0.239
Departure Headway (Hd)	5.384	4.933	4.584	5.353	4.742
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	667	729	784	673	762
Service Time	3.101	2.65	2.6	3.053	2.442
HCM Lane V/C Ratio	0.021	0.148	0.124	0.007	0.239
HCM Control Delay	8.2	8.5	8.2	8.1	8.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.5	0.4	0	0.9



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	7	13	93	120	17
Future Volume (vph)	12	7	13	93	120	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.984	
Flt Protected	0.970			0.994		
Satd. Flow (prot)	1768	0	0	1861	1813	0
Flt Permitted	0.970			0.994		
Satd. Flow (perm)	1768	0	0	1861	1813	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	74.6			158.8	139.5	
Travel Time (s)	5.4			11.4	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	3%	4%	6%
Adj. Flow (vph)	13	8	14	101	130	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	115	148	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.8%		ICU Level of Service A	
Analysis Period (min) 15			

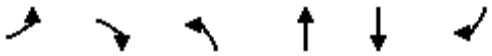
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	7	13	93	120	17
Future Vol, veh/h	12	7	13	93	120	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	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	3	4	6
Mvmt Flow	13	8	14	101	130	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	268	139	148	0	-	0
Stage 1	139	-	-	-	-	-
Stage 2	129	-	-	-	-	-
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	726	915	1446	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	719	915	1446	-	-	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	902	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1446	-	781	-	-
HCM Lane V/C Ratio	0.01	-	0.026	-	-
HCM Control Delay (s)	7.5	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	10	15	105	122	8
Future Volume (vph)	5	10	15	105	122	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.907				0.991	
Flt Protected	0.985			0.994		
Satd. Flow (prot)	1606	0	0	1877	1852	0
Flt Permitted	0.985			0.994		
Satd. Flow (perm)	1606	0	0	1877	1852	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	68.5			114.1	158.8	
Travel Time (s)	4.9			8.2	11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	10%	0%	2%	3%	0%
Adj. Flow (vph)	5	11	16	114	133	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	130	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.6%		ICU Level of Service A	
Analysis Period (min) 15			

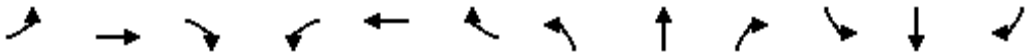
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	10	15	105	122	8
Future Vol, veh/h	5	10	15	105	122	8
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, %	0	10	0	2	3	0
Mvmt Flow	5	11	16	114	133	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	284	138	142	0	-	0
Stage 1	138	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.4	6.3	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.39	2.2	-	-	-
Pot Cap-1 Maneuver	710	889	1453	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	701	889	1453	-	-	-
Mov Cap-2 Maneuver	701	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	886	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1453	-	816	-	-
HCM Lane V/C Ratio	0.011	-	0.02	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	129	66	76	94	68	30	27	60	54	38	26
Future Volume (vph)	22	129	66	76	94	68	30	27	60	54	38	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.949			0.937			0.931			0.970	
Flt Protected	0.950			0.950				0.987			0.977	
Satd. Flow (prot)	1825	1823	0	1825	1800	0	0	1718	0	0	1759	0
Flt Permitted	0.950			0.950				0.987			0.977	
Satd. Flow (perm)	1825	1823	0	1825	1800	0	0	1718	0	0	1759	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		85.3			99.6			131.3			114.1	
Travel Time (s)		6.1			7.2			9.5			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	12%	0%	2%	8%	0%
Adj. Flow (vph)	24	140	72	83	102	74	33	29	65	59	41	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	212	0	83	176	0	0	127	0	0	128	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	129	66	76	94	68	30	27	60	54	38	26
Future Vol, veh/h	22	129	66	76	94	68	30	27	60	54	38	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	12	0	2	8	0
Mvmt Flow	24	140	72	83	102	74	33	29	65	59	41	28
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	10.2	9.6	9.2	9.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	26%	100%	0%	100%	0%	46%
Vol Thru, %	23%	0%	66%	0%	58%	32%
Vol Right, %	51%	0%	34%	0%	42%	22%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	22	195	76	162	118
LT Vol	30	22	0	76	0	54
Through Vol	27	0	129	0	94	38
RT Vol	60	0	66	0	68	26
Lane Flow Rate	127	24	212	83	176	128
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.177	0.039	0.305	0.135	0.249	0.187
Departure Headway (Hd)	5.021	5.93	5.186	5.898	5.097	5.261
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	706	599	687	603	697	675
Service Time	3.11	3.715	2.971	3.682	2.88	3.349
HCM Lane V/C Ratio	0.18	0.04	0.309	0.138	0.253	0.19
HCM Control Delay	9.2	9	10.3	9.6	9.6	9.6
HCM Lane LOS	A	A	B	A	A	A
HCM 95th-tile Q	0.6	0.1	1.3	0.5	1	0.7

Intersection: 1: Lisgar Drive & Beacham Street/School Access

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR
Maximum Queue (m)	19.7	10.6	20.7	7.9	20.8
Average Queue (m)	9.6	3.2	10.5	1.3	11.3
95th Queue (m)	16.2	10.4	17.2	6.1	17.7
Link Distance (m)	41.4		81.1		92.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		15.0		40.0	
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 2: Lisgar Drive & Indigo Crescent (N)

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	8.6	7.4
Average Queue (m)	4.3	0.5
95th Queue (m)	11.3	3.8
Link Distance (m)	64.2	140.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Lisgar Drive & Indigo Crescent (S)

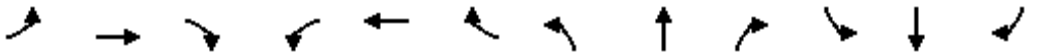
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	12.4	9.1
Average Queue (m)	3.2	0.7
95th Queue (m)	10.7	4.6
Link Distance (m)	59.9	96.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Lisgar Drive & Doug Leavens Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	9.7	20.4	16.0	18.3	23.1	18.9
Average Queue (m)	4.5	11.4	8.1	10.3	10.5	10.4
95th Queue (m)	11.3	18.4	12.7	16.6	17.9	16.2
Link Distance (m)		76.0		89.3	119.2	96.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	15.0		15.0			
Storage Blk Time (%)	0	2	0	1		
Queuing Penalty (veh)	0	0	0	1		

Network Summary

Network wide Queuing Penalty: 1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	49	27	0	0	0	34	134	37	78	150	72
Future Volume (vph)	34	49	27	0	0	0	34	134	37	78	150	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967						0.968			0.951	
Flt Protected		0.985					0.950			0.950		
Satd. Flow (prot)	0	1766	0	0	0	0	1825	1776	0	1772	1744	0
Flt Permitted		0.985					0.950			0.950		
Satd. Flow (perm)	0	1766	0	0	0	0	1825	1776	0	1772	1744	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		52.7			32.2			97.6			102.5	
Travel Time (s)		3.8			2.3			7.0			7.4	
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%	6%	0%	0%	0%	0%	0%	3%	11%	3%	7%	0%
Adj. Flow (vph)	37	53	29	0	0	0	37	146	40	85	163	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	0	0	0	0	37	186	0	85	241	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

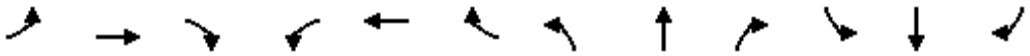
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	49	27	0	0	0	34	134	37	78	150	72
Future Vol, veh/h	34	49	27	0	0	0	34	134	37	78	150	72
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	6	0	0	0	0	0	3	11	3	7	0
Mvmt Flow	37	53	29	0	0	0	37	146	40	85	163	78
Number of Lanes	0	1	0	0	0	0	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.2	9.4	9.8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	31%	100%	0%
Vol Thru, %	0%	78%	45%	0%	68%
Vol Right, %	0%	22%	25%	0%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	171	110	78	222
LT Vol	34	0	34	78	0
Through Vol	0	134	49	0	150
RT Vol	0	37	27	0	72
Lane Flow Rate	37	186	120	85	241
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.058	0.259	0.17	0.131	0.329
Departure Headway (Hd)	5.618	5.013	5.114	5.567	4.904
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	637	716	699	643	731
Service Time	3.359	2.754	3.159	3.306	2.643
HCM Lane V/C Ratio	0.058	0.26	0.172	0.132	0.33
HCM Control Delay	8.7	9.5	9.2	9.1	10
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.2	1	0.6	0.4	1.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	14	20	0	25	5	214	7	8	220	3
Future Volume (vph)	6	0	14	20	0	25	5	214	7	8	220	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.908			0.926			0.996			0.998	
Flt Protected		0.984			0.978			0.999			0.998	
Satd. Flow (prot)	0	1716	0	0	1740	0	0	1809	0	0	1826	0
Flt Permitted		0.984			0.978			0.999			0.998	
Satd. Flow (perm)	0	1716	0	0	1740	0	0	1809	0	0	1826	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		74.6			58.0			158.8			139.5	
Travel Time (s)		5.4			4.2			11.4			10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	17%	0%	0%	0%	0%	0%	6%	0%	0%	5%	0%
Adj. Flow (vph)	7	0	15	22	0	27	5	233	8	9	239	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	49	0	0	246	0	0	251	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.5%		ICU Level of Service A	
Analysis Period (min) 15			

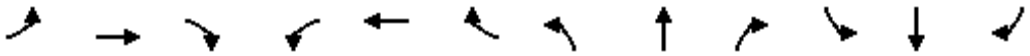
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	14	20	0	25	5	214	7	8	220	3
Future Vol, veh/h	6	0	14	20	0	25	5	214	7	8	220	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	17	0	0	0	0	0	6	0	0	5	0
Mvmt Flow	7	0	15	22	0	27	5	233	8	9	239	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	520	510	241	513	507	237	242	0	0	241	0	0
Stage 1	259	259	-	247	247	-	-	-	-	-	-	-
Stage 2	261	251	-	266	260	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.67	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.67	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.153	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	470	446	803	475	471	807	1336	-	-	1337	-	-
Stage 1	750	667	-	761	706	-	-	-	-	-	-	-
Stage 2	748	672	-	744	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	450	441	803	462	465	807	1336	-	-	1337	-	-
Mov Cap-2 Maneuver	450	441	-	462	465	-	-	-	-	-	-	-
Stage 1	747	662	-	758	703	-	-	-	-	-	-	-
Stage 2	720	669	-	724	691	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	11.5	0.2	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1336	-	-	650	606	1337	-	-
HCM Lane V/C Ratio	0.004	-	-	0.033	0.081	0.007	-	-
HCM Control Delay (s)	7.7	0	-	10.7	11.5	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	11	10	0	13	7	206	3	4	254	2
Future Volume (vph)	6	0	11	10	0	13	7	206	3	4	254	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.915			0.924			0.998			0.999	
Flt Protected		0.982			0.978			0.998			0.999	
Satd. Flow (prot)	0	1726	0	0	1736	0	0	1826	0	0	1822	0
Flt Permitted		0.982			0.978			0.998			0.999	
Satd. Flow (perm)	0	1726	0	0	1736	0	0	1826	0	0	1822	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.5			58.1			114.1			158.8	
Travel Time (s)		4.9			4.2			8.2			11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	50%
Adj. Flow (vph)	7	0	12	11	0	14	8	224	3	4	276	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	25	0	0	235	0	0	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.1%		ICU Level of Service A	
Analysis Period (min) 15			

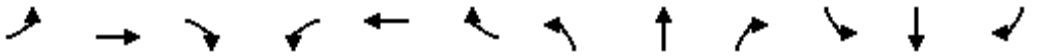
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	11	10	0	13	7	206	3	4	254	2
Future Vol, veh/h	6	0	11	10	0	13	7	206	3	4	254	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	5	50
Mvmt Flow	7	0	12	11	0	14	8	224	3	4	276	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	534	528	277	533	528	226	278	0	0	227	0	0
Stage 1	285	285	-	242	242	-	-	-	-	-	-	-
Stage 2	249	243	-	291	286	-	-	-	-	-	-	-
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	460	459	767	461	459	818	1296	-	-	1353	-	-
Stage 1	727	679	-	766	709	-	-	-	-	-	-	-
Stage 2	759	708	-	721	679	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	449	454	767	450	454	818	1296	-	-	1353	-	-
Mov Cap-2 Maneuver	449	454	-	450	454	-	-	-	-	-	-	-
Stage 1	722	677	-	761	704	-	-	-	-	-	-	-
Stage 2	741	703	-	708	677	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	11.2	0.3	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1296	-	-	614	603	1353	-	-
HCM Lane V/C Ratio	0.006	-	-	0.03	0.041	0.003	-	-
HCM Control Delay (s)	7.8	0	-	11	11.2	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	106	30	46	134	119	71	60	84	171	65	51
Future Volume (vph)	27	106	30	46	134	119	71	60	84	171	65	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967			0.930			0.947			0.976	
Flt Protected	0.950			0.950				0.984			0.971	
Satd. Flow (prot)	1825	1829	0	1738	1720	0	0	1712	0	0	1738	0
Flt Permitted	0.950			0.950				0.984			0.971	
Satd. Flow (perm)	1825	1829	0	1738	1720	0	0	1712	0	0	1738	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		85.3			99.6			131.3			114.1	
Travel Time (s)		6.1			7.2			9.5			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	7%	5%	2%	6%	2%	7%	5%	4%	8%	3%
Adj. Flow (vph)	29	115	33	50	146	129	77	65	91	186	71	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	148	0	50	275	0	0	233	0	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	106	30	46	134	119	71	60	84	171	65	51
Future Vol, veh/h	27	106	30	46	134	119	71	60	84	171	65	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	7	5	2	6	2	7	5	4	8	3
Mvmt Flow	29	115	33	50	146	129	77	65	91	186	71	55
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	11.6	13.7	12.6	15.1
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	100%	0%	100%	0%	60%
Vol Thru, %	28%	0%	78%	0%	53%	23%
Vol Right, %	39%	0%	22%	0%	47%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	215	27	136	46	253	287
LT Vol	71	27	0	46	0	171
Through Vol	60	0	106	0	134	65
RT Vol	84	0	30	0	119	51
Lane Flow Rate	234	29	148	50	275	312
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.381	0.059	0.269	0.098	0.469	0.512
Departure Headway (Hd)	5.865	7.213	6.543	7.04	6.142	5.911
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	608	493	544	506	583	605
Service Time	3.959	5.011	4.34	4.825	3.926	3.998
HCM Lane V/C Ratio	0.385	0.059	0.272	0.099	0.472	0.516
HCM Control Delay	12.6	10.5	11.8	10.6	14.3	15.1
HCM Lane LOS	B	B	B	B	B	C
HCM 95th-tile Q	1.8	0.2	1.1	0.3	2.5	2.9

Intersection: 1: Lisgar Drive & Beacham Street/School Access

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR
Maximum Queue (m)	25.6	9.2	22.8	17.2	25.8
Average Queue (m)	11.3	5.8	12.4	8.1	15.4
95th Queue (m)	19.7	12.8	19.2	14.3	24.1
Link Distance (m)	41.4		81.1		92.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		15.0		40.0	
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 2: Lisgar Drive & Indigo Crescent (N)/Street "A"

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.9	12.7	5.9	6.0
Average Queue (m)	4.2	6.9	0.2	0.2
95th Queue (m)	11.3	13.3	2.6	2.2
Link Distance (m)	64.1	48.5	137.7	121.5
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Lisgar Drive & Indigo Crescent (S)/Street "C"

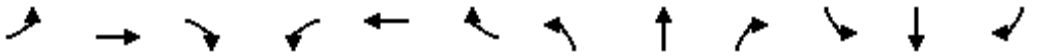
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	12.0	8.5	7.3	3.0
Average Queue (m)	3.9	4.8	0.5	0.1
95th Queue (m)	11.5	11.6	4.0	1.9
Link Distance (m)	60.1	47.5	94.6	137.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Lisgar Drive & Doug Leavens Boulevard

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	12.5	22.7	21.1	29.2	30.8	37.3
Average Queue (m)	5.8	10.8	7.4	15.0	15.4	18.5
95th Queue (m)	12.4	19.1	14.8	24.7	25.9	29.9
Link Distance (m)		76.0		89.3	119.2	94.6
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	15.0		15.0			
Storage Blk Time (%)	0	2	0	4		
Queuing Penalty (veh)	0	0	1	2		

Network Summary

Network wide Queuing Penalty: 4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	2	36	0	0	0	18	119	0	5	163	38
Future Volume (vph)	59	2	36	0	0	0	18	119	0	5	163	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.950									0.972	
Flt Protected		0.970					0.950			0.950		
Satd. Flow (prot)	0	1728	0	0	0	0	1825	1865	0	1825	1813	0
Flt Permitted		0.970					0.950			0.950		
Satd. Flow (perm)	0	1728	0	0	0	0	1825	1865	0	1825	1813	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		52.7			32.2			97.6			102.5	
Travel Time (s)		3.8			2.3			7.0			7.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	50%	4%	0%	0%	0%	0%	3%	0%	0%	3%	3%
Adj. Flow (vph)	64	2	39	0	0	0	20	129	0	5	177	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	105	0	0	0	0	20	129	0	5	218	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

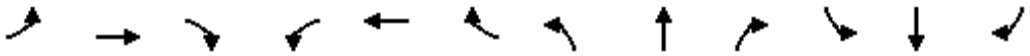
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	2	36	0	0	0	18	119	0	5	163	38
Future Vol, veh/h	59	2	36	0	0	0	18	119	0	5	163	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	50	4	0	0	0	0	3	0	0	3	3
Mvmt Flow	64	2	39	0	0	0	20	129	0	5	177	41
Number of Lanes	0	1	0	0	0	0	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	1
HCM Control Delay	8.5	8.7	9.5
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	61%	100%	0%
Vol Thru, %	0%	100%	2%	0%	81%
Vol Right, %	0%	0%	37%	0%	19%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	119	97	5	201
LT Vol	18	0	59	5	0
Through Vol	0	119	2	0	163
RT Vol	0	0	36	0	38
Lane Flow Rate	20	129	105	5	218
Geometry Grp	7	7	2	7	7
Degree of Util (X)	0.03	0.179	0.138	0.008	0.292
Departure Headway (Hd)	5.442	4.991	4.695	5.389	4.805
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	659	719	764	665	749
Service Time	3.167	2.716	2.717	3.111	2.527
HCM Lane V/C Ratio	0.03	0.179	0.137	0.008	0.291
HCM Control Delay	8.3	8.8	8.5	8.2	9.5
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.1	0.6	0.5	0	1.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	0	7	16	0	17	13	101	17	28	134	17
Future Volume (vph)	12	0	7	16	0	17	13	101	17	28	134	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.949			0.931			0.983			0.987	
Flt Protected		0.970			0.976			0.995			0.992	
Satd. Flow (prot)	0	1768	0	0	1746	0	0	1836	0	0	1816	0
Flt Permitted		0.970			0.976			0.995			0.992	
Satd. Flow (perm)	0	1768	0	0	1746	0	0	1836	0	0	1816	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		74.6			58.0			158.8			139.5	
Travel Time (s)		5.4			4.2			11.4			10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	6%
Adj. Flow (vph)	13	0	8	17	0	18	14	110	18	30	146	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	0	0	35	0	0	142	0	0	194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.9%		ICU Level of Service A	
Analysis Period (min) 15			

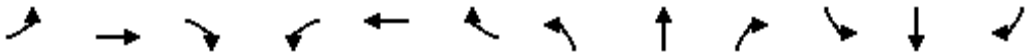
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	0	7	16	0	17	13	101	17	28	134	17
Future Vol, veh/h	12	0	7	16	0	17	13	101	17	28	134	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	4	6
Mvmt Flow	13	0	8	17	0	18	14	110	18	30	146	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	371	371	155	366	371	119	164	0	0	128	0	0
Stage 1	215	215	-	147	147	-	-	-	-	-	-	-
Stage 2	156	156	-	219	224	-	-	-	-	-	-	-
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	589	562	896	594	562	938	1427	-	-	1470	-	-
Stage 1	792	729	-	860	779	-	-	-	-	-	-	-
Stage 2	851	772	-	788	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	562	543	896	574	543	938	1427	-	-	1470	-	-
Mov Cap-2 Maneuver	562	543	-	574	543	-	-	-	-	-	-	-
Stage 1	783	712	-	851	770	-	-	-	-	-	-	-
Stage 2	825	764	-	763	705	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	10.3	0.7	1.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1427	-	-	651	717	1470	-	-
HCM Lane V/C Ratio	0.01	-	-	0.032	0.05	0.021	-	-
HCM Control Delay (s)	7.5	0	-	10.7	10.3	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	10	8	0	8	15	122	9	14	138	8
Future Volume (vph)	5	0	10	8	0	8	15	122	9	14	138	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.907			0.932			0.992			0.993	
Flt Protected		0.985			0.976			0.995			0.996	
Satd. Flow (prot)	0	1606	0	0	1748	0	0	1865	0	0	1852	0
Flt Permitted		0.985			0.976			0.995			0.996	
Satd. Flow (perm)	0	1606	0	0	1748	0	0	1865	0	0	1852	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		68.5			58.1			114.1			158.8	
Travel Time (s)		4.9			4.2			8.2			11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	10%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	5	0	11	9	0	9	16	133	10	15	150	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	18	0	0	159	0	0	174	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			

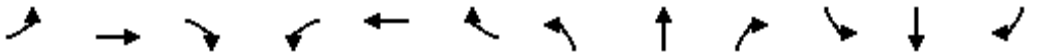
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	10	8	0	8	15	122	9	14	138	8
Future Vol, veh/h	5	0	10	8	0	8	15	122	9	14	138	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	10	0	0	0	0	2	0	0	3	0
Mvmt Flow	5	0	11	9	0	9	16	133	10	15	150	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	360	360	155	360	359	138	159	0	0	143	0	0
Stage 1	185	185	-	170	170	-	-	-	-	-	-	-
Stage 2	175	175	-	190	189	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.3	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	3.39	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	599	570	870	599	571	916	1433	-	-	1452	-	-
Stage 1	821	751	-	837	762	-	-	-	-	-	-	-
Stage 2	832	758	-	816	748	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	583	557	870	581	558	916	1433	-	-	1452	-	-
Mov Cap-2 Maneuver	583	557	-	581	558	-	-	-	-	-	-	-
Stage 1	811	743	-	827	753	-	-	-	-	-	-	-
Stage 2	814	749	-	797	740	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	10.2	0.8	0.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1433	-	-	747	711	1452	-	-
HCM Lane V/C Ratio	0.011	-	-	0.022	0.024	0.01	-	-
HCM Control Delay (s)	7.5	0	-	9.9	10.2	7.5	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	129	66	76	94	91	30	27	60	68	38	36
Future Volume (vph)	25	129	66	76	94	91	30	27	60	68	38	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	15.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.949			0.926			0.931			0.966	
Flt Protected	0.950			0.950				0.987			0.977	
Satd. Flow (prot)	1825	1823	0	1825	1779	0	0	1718	0	0	1759	0
Flt Permitted	0.950			0.950				0.987			0.977	
Satd. Flow (perm)	1825	1823	0	1825	1779	0	0	1718	0	0	1759	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		85.3			99.6			131.3			114.1	
Travel Time (s)		6.1			7.2			9.5			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	12%	0%	2%	8%	0%
Adj. Flow (vph)	27	140	72	83	102	99	33	29	65	74	41	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	212	0	83	201	0	0	127	0	0	154	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
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	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	129	66	76	94	91	30	27	60	68	38	36
Future Vol, veh/h	25	129	66	76	94	91	30	27	60	68	38	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	12	0	2	8	0
Mvmt Flow	27	140	72	83	102	99	33	29	65	74	41	39
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	10.4	10	9.5	10.1
HCM LOS	B	A	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	26%	100%	0%	100%	0%	48%
Vol Thru, %	23%	0%	66%	0%	51%	27%
Vol Right, %	51%	0%	34%	0%	49%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	25	195	76	185	142
LT Vol	30	25	0	76	0	68
Through Vol	27	0	129	0	94	38
RT Vol	60	0	66	0	91	36
Lane Flow Rate	127	27	212	83	201	154
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.185	0.046	0.318	0.14	0.292	0.233
Departure Headway (Hd)	5.247	6.144	5.399	6.089	5.235	5.423
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	684	584	668	590	688	662
Service Time	3.276	3.87	3.124	3.813	2.959	3.45
HCM Lane V/C Ratio	0.186	0.046	0.317	0.141	0.292	0.233
HCM Control Delay	9.5	9.2	10.6	9.8	10.1	10.1
HCM Lane LOS	A	A	B	A	B	B
HCM 95th-tile Q	0.7	0.1	1.4	0.5	1.2	0.9

Intersection: 1: Lisgar Drive & Beacham Street/School Access

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	L	TR	L	TR
Maximum Queue (m)	19.1	9.2	20.4	7.9	22.7
Average Queue (m)	9.6	4.1	11.0	1.6	12.0
95th Queue (m)	15.9	11.5	16.8	6.8	19.0
Link Distance (m)	41.4		81.1		92.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)		15.0		40.0	
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 2: Lisgar Drive & Indigo Crescent (N)/Street "A"

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.9	16.8	7.5	9.6
Average Queue (m)	4.4	5.9	0.8	0.9
95th Queue (m)	11.5	14.0	4.7	5.3
Link Distance (m)	64.1	48.5	137.7	121.5
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Lisgar Drive & Indigo Crescent (S)/Street "C"

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	14.1	8.6	7.1	10.1
Average Queue (m)	3.6	3.9	0.4	0.8
95th Queue (m)	12.2	10.8	3.2	5.0
Link Distance (m)	60.1	47.5	94.6	137.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Lisgar Drive & Doug Leavens Boulevard

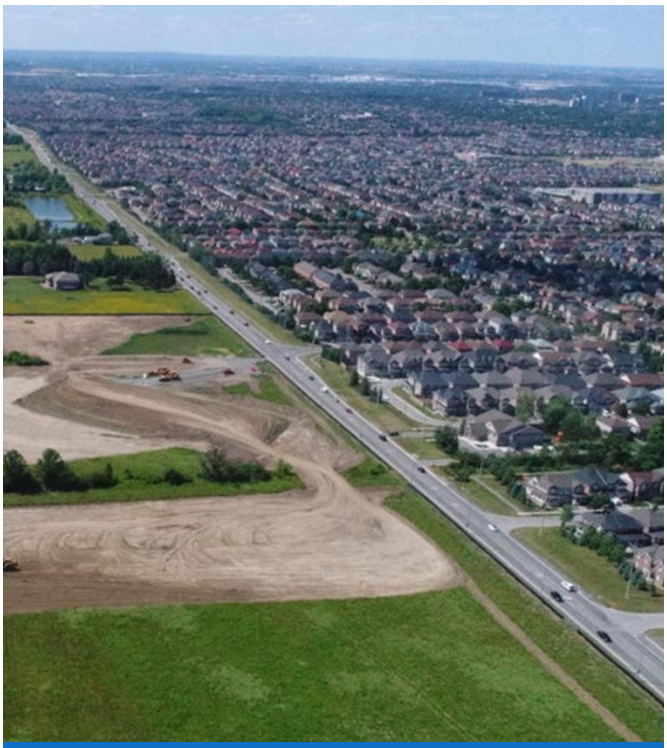
Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (m)	9.8	25.6	14.4	15.9	21.3	20.9
Average Queue (m)	5.0	11.4	8.3	10.1	10.6	11.3
95th Queue (m)	11.7	19.1	11.9	15.8	17.4	17.9
Link Distance (m)		76.0		89.3	119.2	94.6
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	15.0		15.0			
Storage Blk Time (%)	0	1	0	1		
Queuing Penalty (veh)	0	0	0	1		

Network Summary

Network wide Queuing Penalty: 1

APPENDIX G

Ninth Line Environmental Assessment Excerpts



Environmental Study Report

Schedule ‘C’ Class Environmental Assessment for Ninth Line from Eglinton Avenue West to Derry Road West

City of Mississauga

June 2021

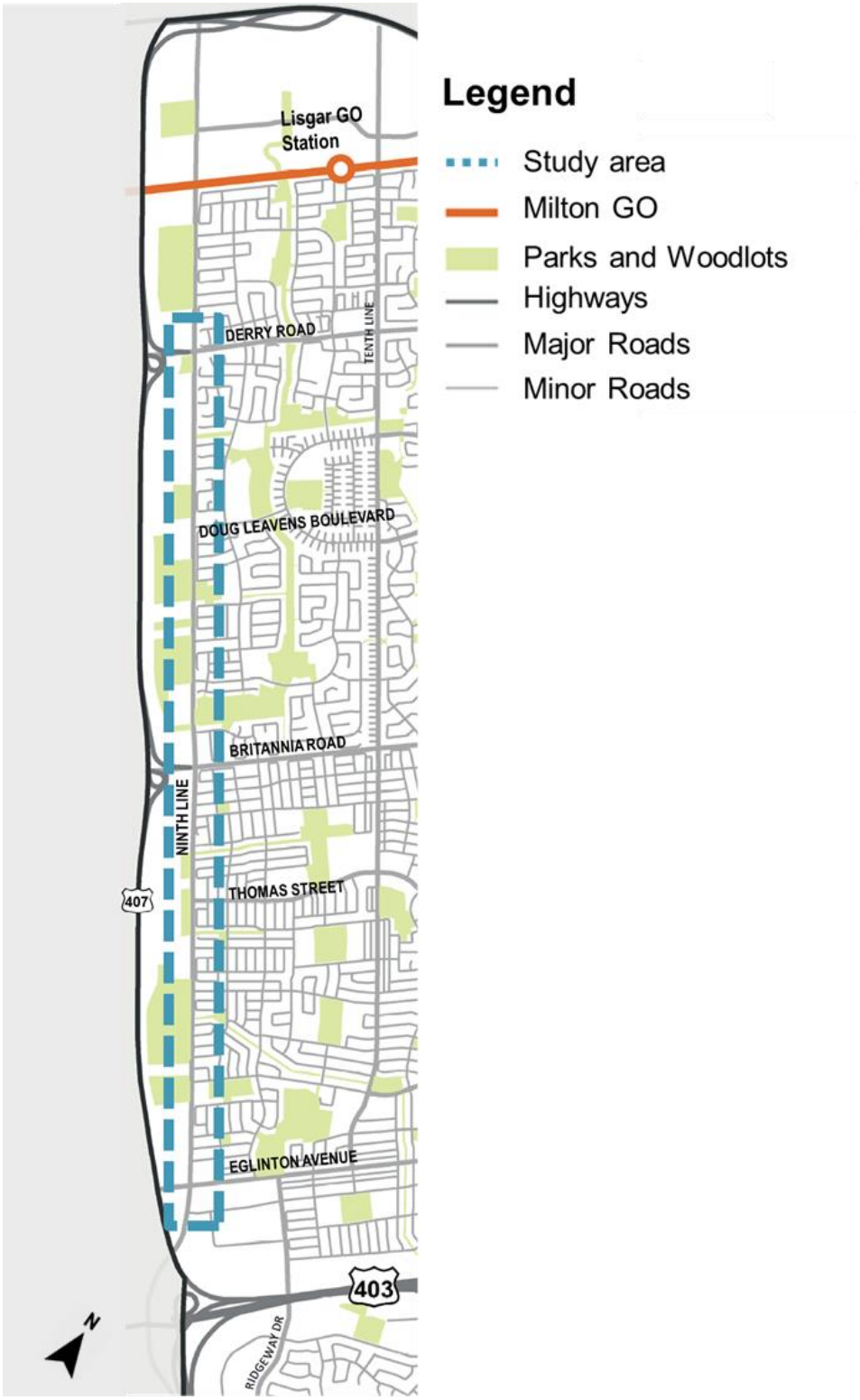


Exhibit 1-1: Ninth Line Study Area and Corridor

10 Recommended Design Concept

10.1 Description of the Recommended Design Concept

The recommended design for Ninth Line Improvements includes the following elements:

- Four general purpose lanes (two in each direction). Through lanes will be 3.35m and curb lanes will be 3.5m
- Separated 2.0m boulevard cycle tracks (traveling in the same direction as the road) and 2.0m sidewalks on both sides of the road
- 5.0m centre median (either painted or raised with landscaping). The median width also accommodates left turns at intersections
- 0.5m curb and gutter with 0.5m rounding buffer
- Accessibility for Ontarians with Disabilities (AODA) compliant intersections
- New traffic signals proposed at Skyview Street, Tacc Drive, McDowell Drive and Beacham Street
- Extension of Osprey Marsh culvert
- Illumination along the corridor
- Opportunities for streetscaping
- Property requirements with grading generally contained within the proposed right-of-way on the east side where feasible. Temporary and permanent easements for construction, maintenance, and grading purposes
- Utility relocations

10.1.1 Design Criteria

The geometric design for this road project was designed in accordance with the approved design criteria, standards and manuals. If there is any difference between the approved design criteria and standards and manuals, the following shall apply in descending order of precedence:

1. The approved design criteria for this road design;
2. Alternative Design Stakeholder Workshop #1 (August 27, 2020);
3. City of Mississauga (CoM) T&W Standard Drawings (August 12, 2020);
4. TAC Geometric Design Guidelines (June 2017);
5. OTM Book 18 (2015); and
6. MTO Design Supplement for TAC Geometric Design Guidelines (June 2017).

A stakeholder workshop with internal City Staff was held in August 2020 to determine the typical section. This feedback was used to review and update the design parameters identified in **Section 9.1.1** where applicable and establish the EA Study identified design criteria presented in the following tables. Key discussions from the workshop used to inform the design criteria for the study include:

The vertical alignment aims to minimize impacts to existing entrances and driveways, minimize impacts on watercourse crossings, and reduce grading impacts to adjacent properties and features. The proposed vertical alignment is illustrated on the preliminary design drawings in **Appendix M.**

During Detailed Design, when additional drainage and hydraulic information is available, opportunities to raise the proposed roadway profile at the Osprey Marsh structure to mitigate / reduce / eliminate overtopping of Ninth Line will be considered. Additional discussion is outlined in **Section 10.1.12**.

10.1.3 Typical Cross-Section

Using the Official Plan ROW of 35m for the study corridor, the EA Study approved design criteria, feedback from the City of Mississauga staff during the stakeholder workshop, and feedback from the public, the following midblock typical section was developed for the preferred design as presented in **Exhibit 10-1.**

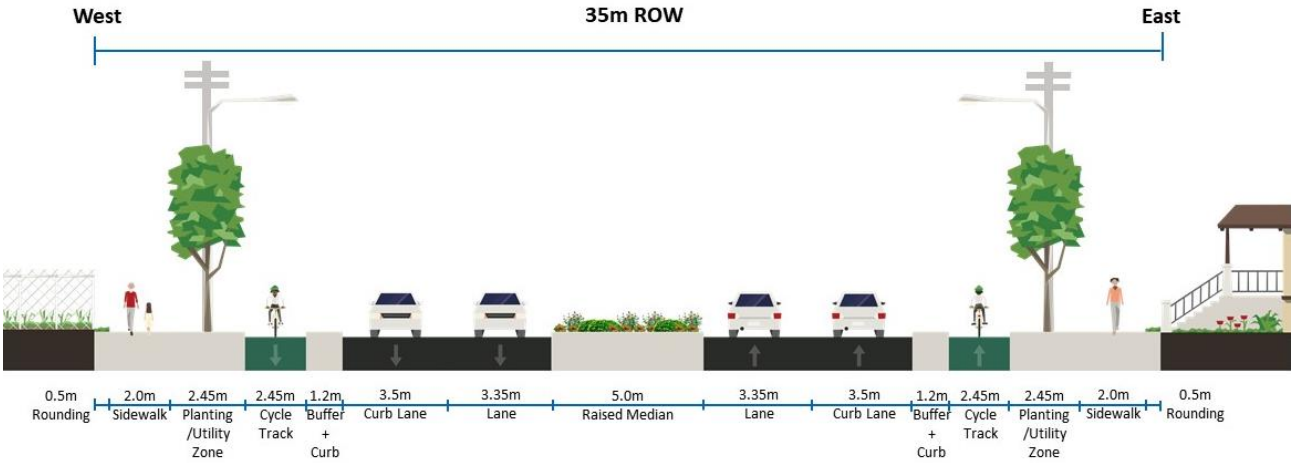


Exhibit 10-1: Typical cross-section

Key features of the cross-section include:

- Four general purpose lanes, two lanes in each direction (3.35m inner lanes and 3.5m curb lanes)
- 2.0m Boulevard Cycle Tracks, both sides of the road
- 2.0m Sidewalks on both sides
- 5.0m raised / painted centre median where feasible (the median width also accommodates left-turn lanes at intersections)
- Landscaping within the boulevards (where feasible), generally allocated between the sidewalk and cycle track where available right-of-way exists. A minimum tree planting opportunity is shown in the boulevard where 2.45m planting zone is available
- Landscaping within the median as feasible
- Utility zones for overhead utilities (streetlights and hydro poles) designated either between the cycle track and curb or within the planting zone between the cycle track and sidewalk, and underground utility corridors

APPENDIX H

Ninth Line Derry Britannia Subdivision Background TIS Excerpts

Through coordination with the Peel District School Board (PDSB) staff, it is estimated that the elementary school will have a capacity of 850 students. The catchment area for the school as confirmed with the PDSB staff is expected to include the entire north and south draft plans and the residential community west of Ninth Line. For the analysis herein, we have assumed that 50% of the school trips will be from the proposed draft plans, therefore, will be internal trips. The remaining 50% of the school's capacity is external and assumed to be from communities outside the Draft Plan area.

Table 19 outlines the trip generation for the proposed development by development phase.

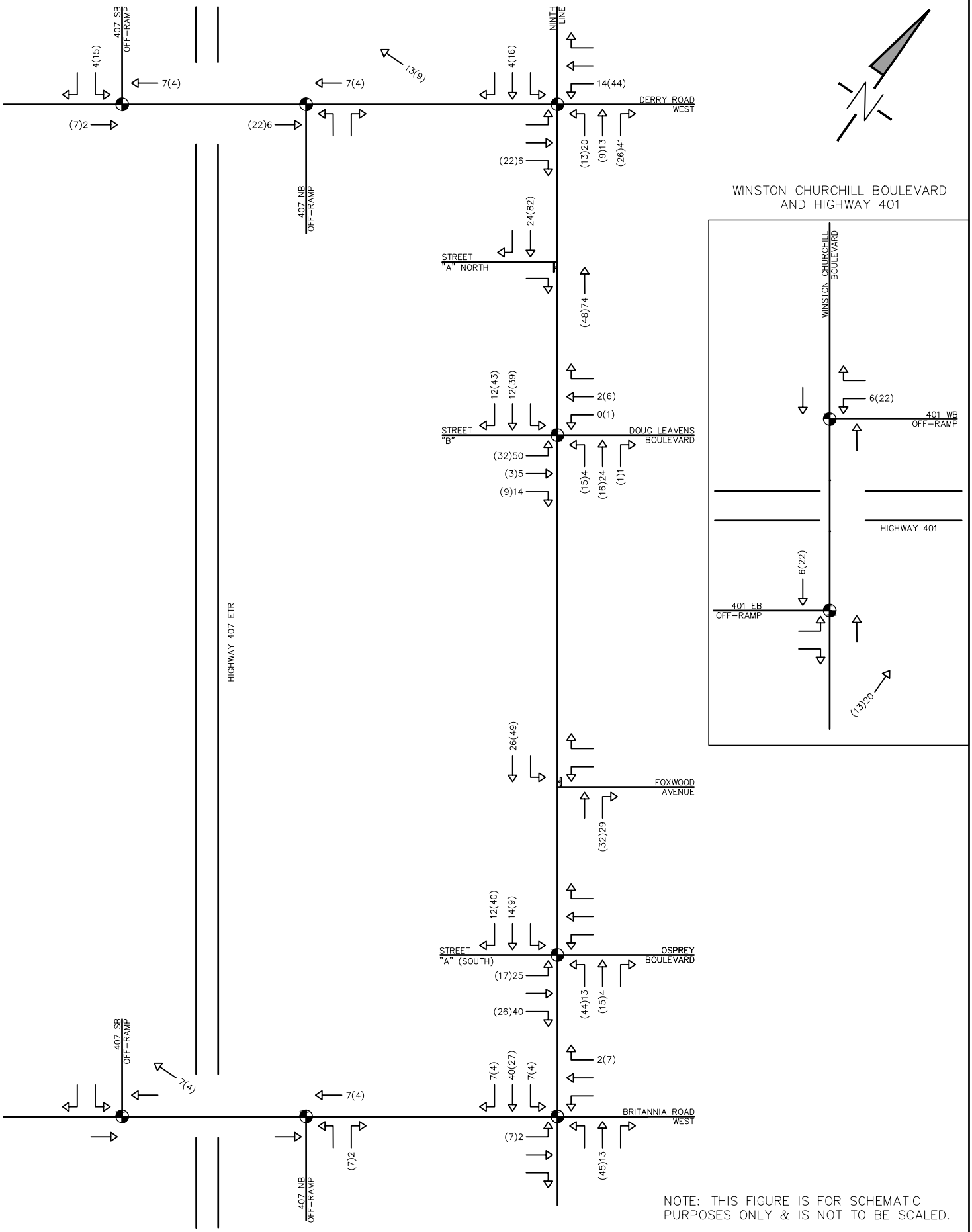
Table 19: Trip Generation

South Phase (2026-2028)					
ITE Land Use Category	**Units**	**Peak Hour**	**Trips Generated**		
			Inbound	**Outbound**	**Total**
LUC 220 "Multifamily Housing (Low-Rise)"	498	A.M.	43	134	177
		P.M.	148	87	325
Total	**498**	**A.M.**	**43**	**134**	**177**
		P.M.	**148**	**87**	**325**
North Phase and Future Development (2031)					
ITE Land Use Category	**Units**	**Peak Hour**	**Trips Generated**		
			Inbound	**Outbound**	**Total**
LUC 222 "Multifamily Housing (High-Rise)"	200 [1]	A.M.	16	47	63
		P.M.	47	28	75
LUC 210 "Single-Family Detached Housing"	27	A.M.	6	17	23
		P.M.	18	11	29
LUC 220 "Multifamily Housing (Low-Rise)"	303	A.M.	28	89	117
		P.M.	95	56	151
LUC 222 "Multifamily Housing (High-Rise)"[1]	650 [2]	A.M.	46	134	180
		P.M.	134	82	216
LUC 520 "Elementary School"	425 Students (External)[3]	A.M.	170	145	315
		P.M.	31	37	68
Total	**1180**	**A.M.**	**266**	**432**	**698**
		P.M.	**325**	**214**	**539**
Full Build-Out (2031)					
ITE Land Use Category		**Peak Hour**	**Trips Generated**		
			Inbound	**Outbound**	**Total**
Entire Development Total		**A.M.**	**309**	**566**	**875**
		P.M.	**473**	**301**	**774**

Note 1: These units apply to the future residential development located at the southwest corner of Ninth Line and Osprey Boulevard / Street "A" (South).

Note 2: These units apply to the residential townhouse/apartments proposed in the northwest and southwest corners of Ninth Line and Doug Leavens Boulevard / Street "B".

Note 3: The school capacity as forecasted by Peel District School Board is 850 students with 50% assumed as generated within the Draft Plans.



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) WEEKDAY A.M. (WEEKDAY P.M.) PEAK HOUR VOLUMES

Project

NINTH LINE (DERRY–BRITANNIA) CITY OF MISSISSAUGA

Drawing

TRIP ASSIGNMENT (SOUTH DRAFT PLAN)

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	Design By	Project
R.L.	A.H.	780–5227
Scale	Date	Check By	Drawing
N.T.S.	APR. 25, 2023	A.H.	FIG 17

APPENDIX I

TTS Data

Mon Jul 31 2023 14:27:50 GMT-0400 (Eastern Daylight Time) - Run Time: 2532ms

Cross Tabulation Query Form - Trip - 2016 v1.1

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

Filters:
Start time of trip - start_time In 600-900
and
2006 GTA zone of origin - gta06_orig In 3615,3616,3637,3638
and
Primary travel mode of trip - mode_prime In D, M,
and
Trip purpose of origin - purp_orig In H,

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Cross Tabulation Query Form - Trip - 2016 v1.1

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APPENDIX J

Warrants Assessments

Input Data Sheet

Analysis Sheet | Results Sheet | Proposed Collision

GO TO Justification:

What are the intersecting roadways? Doug Leavens Boulevard and Lisgar Drive

What is the direction of the Main Road street? North-South

When was the data collected? 2028 Future Total Traffic

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 1

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 4

d.- What is the operating environment? Urban **Population >= 10,000 AND Speed < 70 km/hr**

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	25	22	36	13	59	24	60	26	22	31	57	53	0
8:00	25	22	36	13	59	24	60	26	22	31	57	53	0
9:00	25	22	36	13	59	24	60	26	22	31	57	53	0
12:00	25	22	36	13	59	24	60	26	22	31	57	53	0
13:00	25	22	36	13	59	24	60	26	22	31	57	53	0
16:00	25	22	36	13	59	24	60	26	22	31	57	53	0
17:00	25	22	36	13	59	24	60	26	22	31	57	53	0
18:00	25	22	36	13	59	24	60	26	22	31	57	53	0
Total	**200**	**176**	**288**	**104**	**472**	**192**	**480**	**208**	**176**	**248**	**456**	**424**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume									
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

Analysis Sheet

Input Sheet | Results Sheet | Proposed Collision

GO TO Justification:

Intersection: Doug Leavens Boulevard and Lisgar Drive

Count Date: 2028 Future Total Traffic

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
1A	480	720	600	900	428	428	428	428	428	428	428	428		
	COMPLIANCE %				59	59	59	59	59	59	59	59	476	59
1B	120	170	120	170	237	237	237	237	237	237	237	237		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Restricted Flow Signal Justification 1:					**Both 1A and 1B 100% Fullfilled each of 8 hours**					**Yes** ☐		**No** ☑		
					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours					**Yes** ☐		**No** ☑		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
2A	480	720	600	900	191	191	191	191	191	191	191	191		
	COMPLIANCE %				27	27	27	27	27	27	27	27	212	27
2B	50	75	50	75	103	103	103	103	103	103	103	103		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Restricted Flow Signal Justification 2:					**Both 2A and 2B 100% Fullfilled each of 8 hours**					**Yes** ☐		**No** ☑		
					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours					**Yes** ☐		**No** ☑		

Justification 3: Combination

Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimun Vehicular Volume	YES ☐	NO ☑	YES ☐	NO ☑
Justification 2	Delay Cross Traffic	YES ☑	NO ☐		**NOT JUSTIFIED**

Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	191	141	421	34 %	34 %
	8:00	191	141	421	34 %	
	9:00	191	141	421	34 %	
	12:00	191	141	421	34 %	

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision

Intersection: Doug Leavens Boulevard and Lisgar Drive Count Date: 2028 Future Total Traffic

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	59	%		
	B	Crossing Volume	100	%	☐	☑
2. Delay to Cross Traffic	A	Main Road	27	%		
	B	Crossing Road	100	%	☐	☑
3. Combination	A	Justificaton 1	59	%		
	B	Justification 2	27	%	☐	☑
4. 4-Hr Volume			34	%	☐	☑
5. Collision Experience			0	%	☐	☑
6. Pedestrians	A	Volume	Justification not met			
	B	Delay	Justification not met		☐	☑

ALL-WAY STOP CONTROL (AWSC) WARRANTS (OTM BOOK 5)

Horizon Year and Analysis Period **2028 Future Total**

PROJECT INFORMATION

Analyst	Aidan H	**Jurisdiction**	City of Markham
Company	C.F. Crozier & Associates	**Project Name**	Mattamy Phase 3
Date	2028 FT	**Project No.**	0780-4870

ROADWAY INFORMATION

East-West Street	Indigo Crescent / Street "A"	**Major Street**	North-South
North-South Street	Lisgar Drive	**Number of legs**	4

Roadway Classification (Minor Street) Local Roads

TRAFFIC VOLUMES

Peak Hour	Major Road Approaches							Minor Road Approaches							Pedestrian Crossing Major Road	Pedestrian Crossing Minor Road
	Northbound			Southbound			Total	Eastbound			Westbound			Total		
	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT			
AM	5	214	7	8	220	3	**457**	6	0	14	20	0	25	**65**	0	0
PM	13	101	17	28	134	17	**310**	12	0	7	16	0	17	**52**	0	0
AHV	**5**	**79**	**6**	**9**	**89**	**5**	**192**	**5**	**0**	**5**	**9**	**0**	**11**	**29**	**0**	**0**

Parameter	AM	PM	AHV	Threshold	
Total vehicle volume on all intersection approaches	522	362	223	**200**	**veh**
Combined vehicle and pedestrian volumes on minor street	65	52	30	**75**	**veh**
Combined vehicle and pedestrian volumes on minor street				**N/A**	**veh**
+ minor street delay*	0	0	0	**N/A**	**s**
Volume Split, Minor Road (vehicles only)	0.12	0.14	0.13	**0.30**	

Justification 1: Total Vehicle Volume on all Intersection Approaches **Justified? YES**
Justification 2A: Combined Vehicle and Pedestrian Volumes on minor street **Justified? NO**
Justification 2B: Combined Vehicle and Pedestrian Volumes + Delay on minor stree **Justified? NO**
Justification 3: Volume Split (vehicles only) **Justified? NO**

Conclusion: The results of the calculations show that All-Way Stop Control at this intersection is not justified for the 2028 Future Total analysis period.

* Minor Approach Delay under minor stop control using the "AHV" volumes. Delay must be >30s not just for the AM/PM peak, but for the busiest 8 hours of the day to trigger the threshold for Justification 2.
The All-Way Stop Control justification was done per criteria defined within the Ontario Traffic Manual, Book 5 (December 2021), "All-Way Stop Minimum Volume Warrants"

ALL-WAY STOP CONTROL (AWSC) WARRANTS (OTM BOOK 5)

Horizon Year and Analysis Period **2028 Future Total**

PROJECT INFORMATION

Analyst	Aidan H	**Jurisdiction**	City of Markham
Company	C.F. Crozier & Associates	**Project Name**	Mattamy Phase 3
Date	2028 FT	**Project No.**	0780-4870

ROADWAY INFORMATION

East-West Street Indigo Crescent / Street "C"
North-South Street Lisgar Drive
Roadway Classification (Minor Street) Local Roads

Major Street North-South
Number of legs 4

TRAFFIC VOLUMES

Peak Hour	Major Road Approaches							Minor Road Approaches							Pedestrian Crossing Major Road	Pedestrian Crossing Minor Road
	Northbound			Southbound			Total	Eastbound			Westbound			Total		
	LT	TH	RT	LT	TH	RT		LT	TH	RT	LT	TH	RT			
AM	7	206	3	4	254	2	**476**	6	0	11	10	0	13	**40**	0	0
PM	15	122	9	14	138	8	**306**	5	0	10	8	0	8	**31**	0	0
AHV	**6**	**82**	**3**	**5**	**98**	**3**	**196**	**3**	**0**	**5**	**5**	**0**	**5**	**18**	**0**	**0**

Parameter	AM	PM	AHV	Threshold	
Total vehicle volume on all intersection approaches	516	337	215	**200**	**veh**
Combined vehicle and pedestrian volumes on minor street	40	31	18	**75**	**veh**
Combined vehicle and pedestrian volumes on minor street				**N/A**	**veh**
+ minor street delay*	0	0	0	**N/A**	**s**
Volume Split, Minor Road (vehicles only)	0.08	0.09	0.08	**0.30**	

Justification 1: Total Vehicle Volume on all Intersection Approaches **Justified? YES**
Justification 2A: Combined Vehicle and Pedestrian Volumes on minor street **Justified? NO**
Justification 2B: Combined Vehicle and Pedestrian Volumes + Delay on minor stree **Justified? NO**
Justification 3: Volume Split (vehicles only) **Justified? NO**

Conclusion: The results of the calculations show that All-Way Stop Control at this intersection is not justified for the 2028 Future Total analysis period.

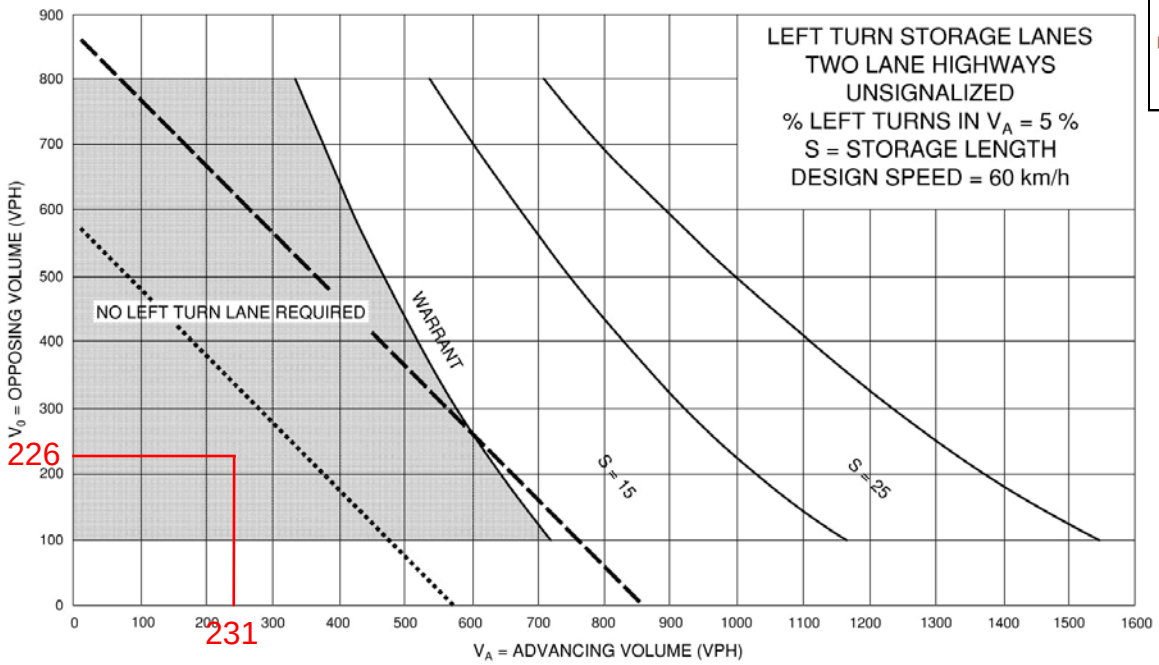
* Minor Approach Delay under minor stop control using the "AHV" volumes. Delay must be >30s not just for the AM/PM peak, but for the busiest 8 hours of the day to trigger the threshold for Justification 2.
The All-Way Stop Control justification was done per criteria defined within the Ontario Traffic Manual, Book 5 (December 2021), "All-Way Stop Minimum Volume Warrants"

Exhibit 9A-7

Design Speed = 60kph

LT Warrants

		AM	PM
I#2	La	231	(179)
	Lo	226	(131)
	Lt	8	(28)
	L%	3%	16%



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

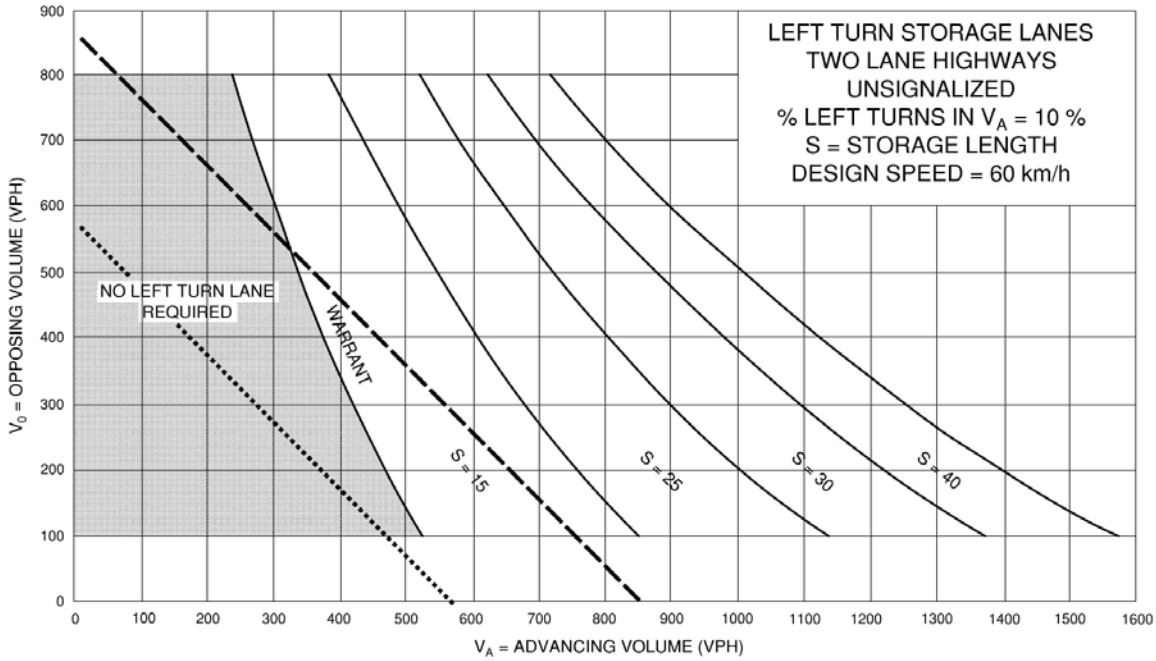
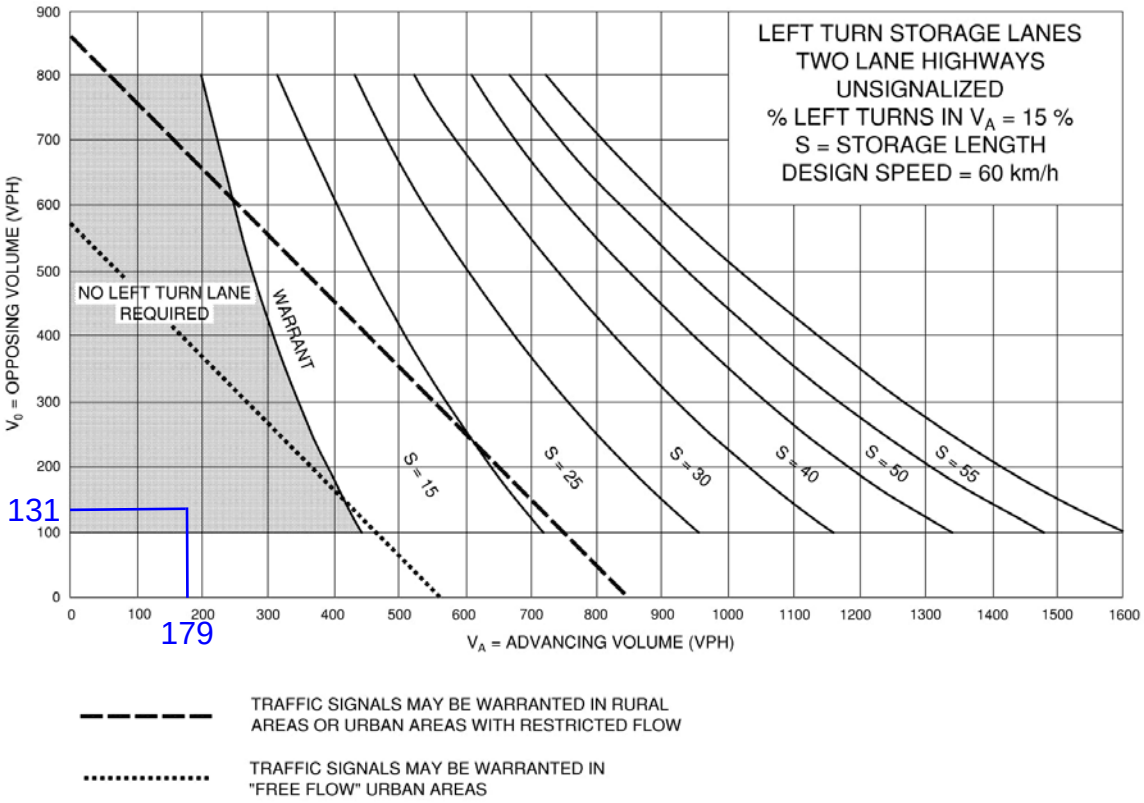


Exhibit 9A-8


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 15 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
131
179
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

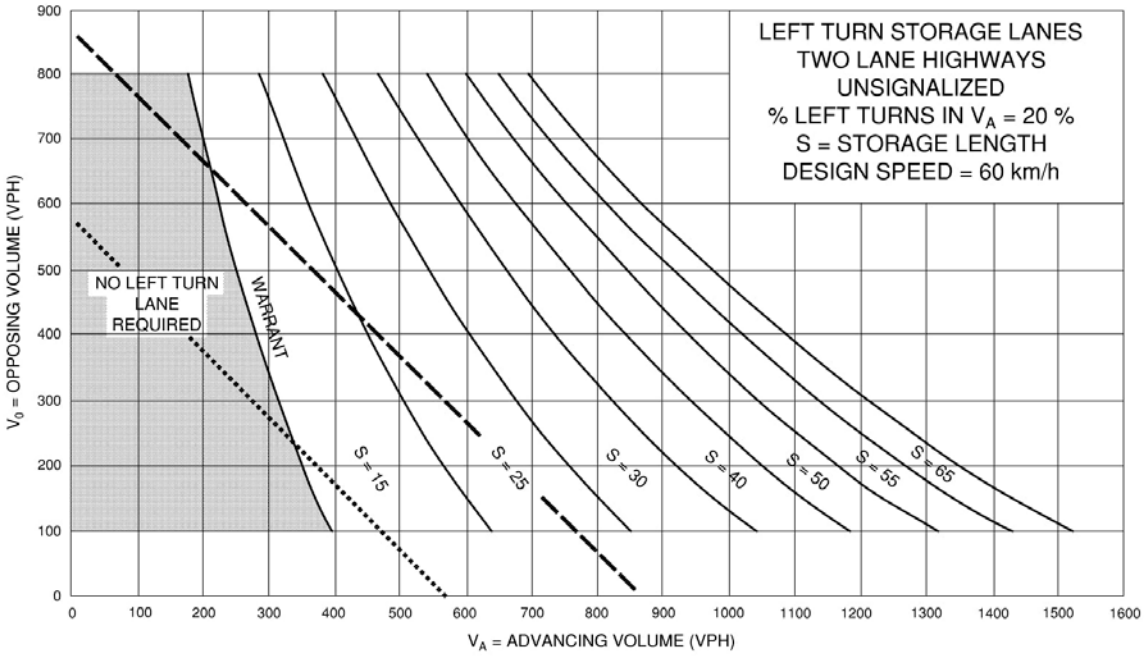
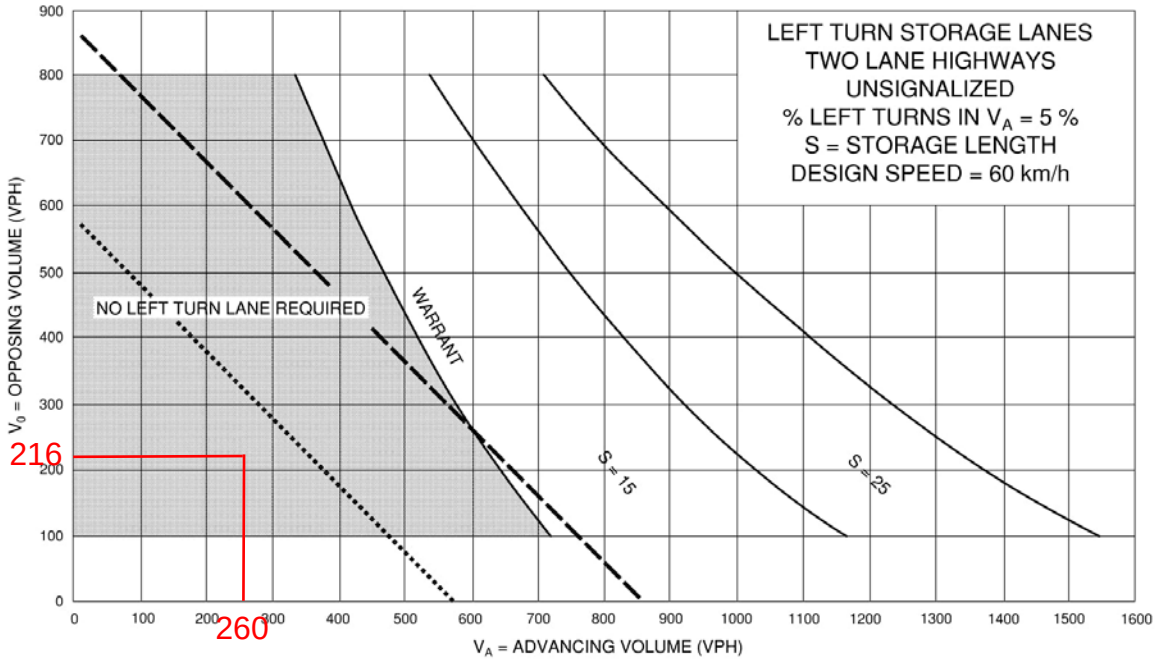
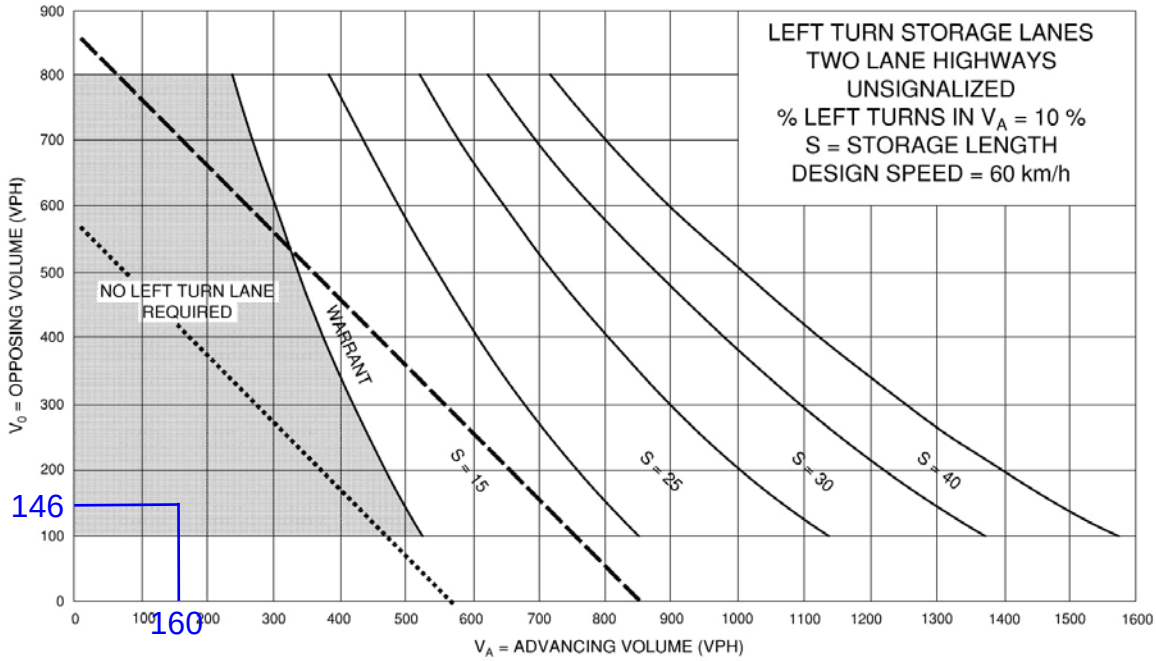

LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 20 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)

Exhibit 9A-7

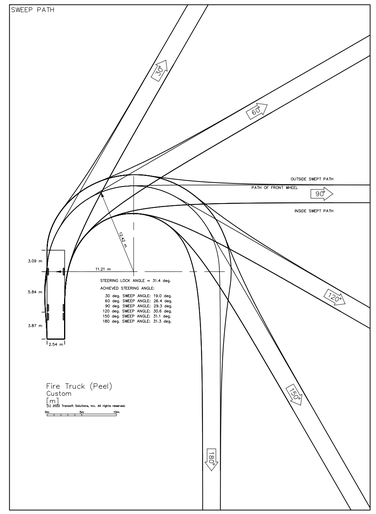
LT Warrants		AM	PM
I#3	La	260	(160)
	Lo	216	(146)
	Lt	4	(14)
	L%	2%	9%

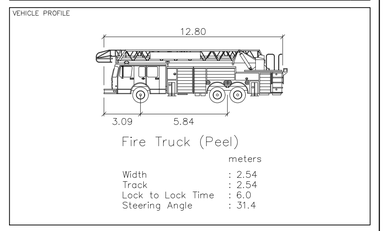




APPENDIX K

Vehicle Turning Diagrams





No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	10/26/2023
2	ISSUED FOR 2nd SUBMISSION	02/29/2024

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

VEHICLE TURNING ANALYSIS
FIRE TRUCK

CROZIER CONSULTING ENGINEERS
211 YONGE STREET
SUITE 600
TORONTO, ON, M5B 1M4
416.477.3392 T
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	Design By	Project
T.D.S.	T.D.S.	2531-6824
Check By	Check By	Scale / Drawing
A.H.	P.A.	1:750 / T300

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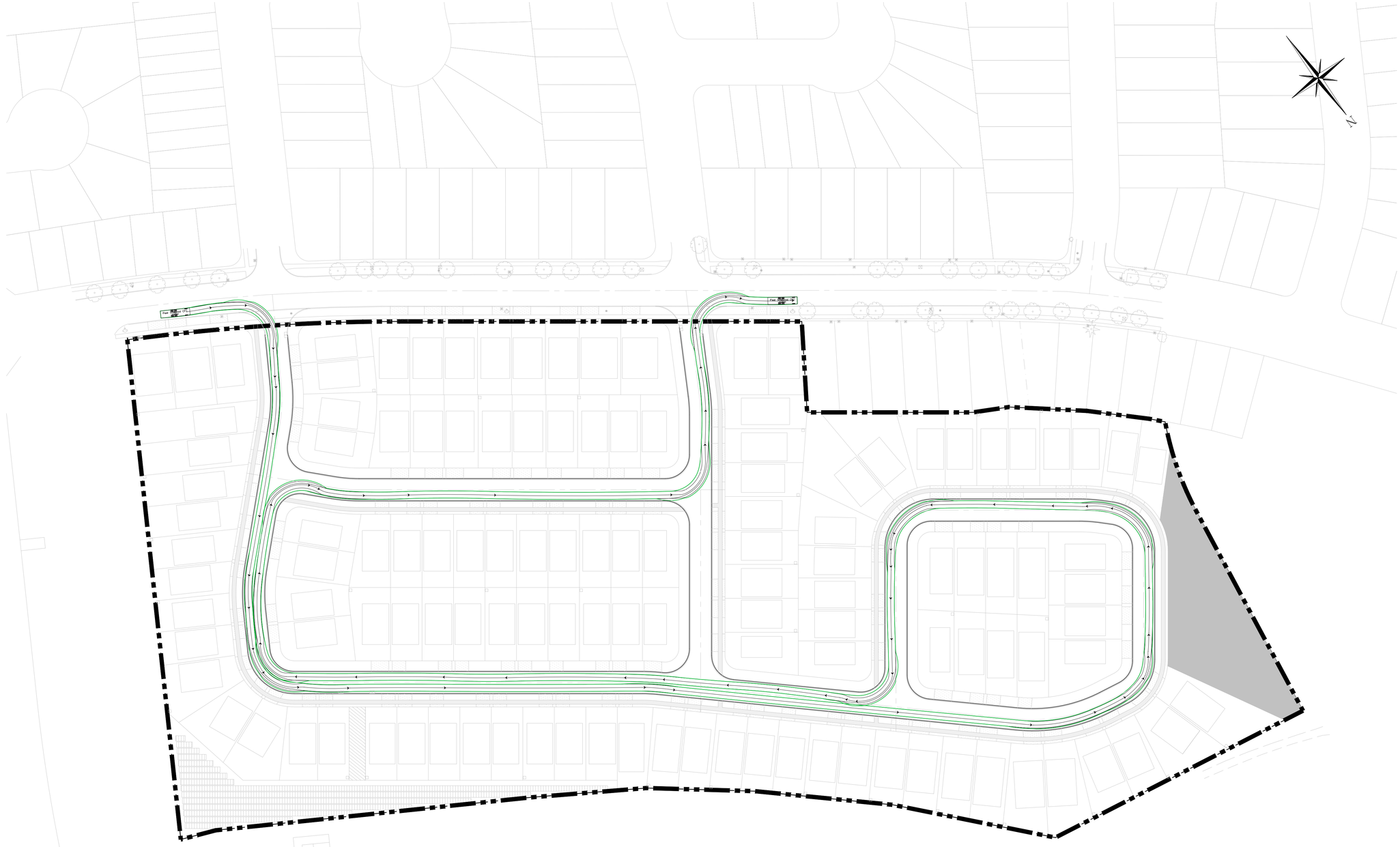
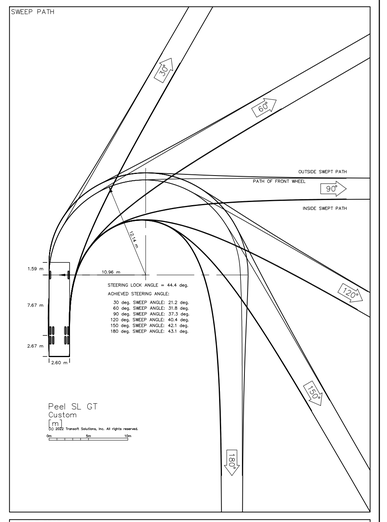
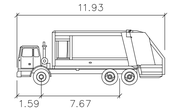
SCALE: 1:750





VEHICLE PROFILE



Peel SL GT

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 44.4

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	10/26/2023
2	ISSUED FOR 2nd SUBMISSION	02/29/2024

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

VEHICLE TURNING ANALYSIS
GARBAGE TRUCK

CROZIER CONSULTING ENGINEERS
211 YONGE STREET
SUITE 600
TORONTO, ON, M5B 1M4
416-477-3392 T
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	Design By	Project	
T.D.S.	T.D.S.		2531-6824
Check By	Check By	Scale	Drawing
A.H.	P.A.	1:750	T300

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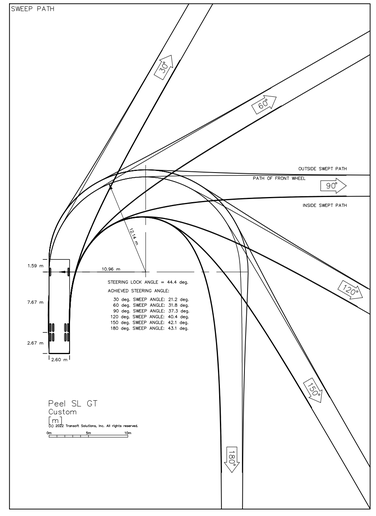
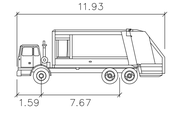


VEHICLE PROFILE



Peel SL GT

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 44.4

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	10/26/2023
2	ISSUED FOR 2nd SUBMISSION	02/29/2024

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

VEHICLE TURNING ANALYSIS
GARBAGE TRUCK

CROZIER
CONSULTING ENGINEERS
211 YONGE STREET
SUITE 600
TORONTO, ON, M5B 1M4
416-477-3392 T
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	Design By	Project
T.D.S.	T.D.S.	2531-6824
Check By	Check By	Scale / Drawing
A.H.	P.A.	1:750 / T300

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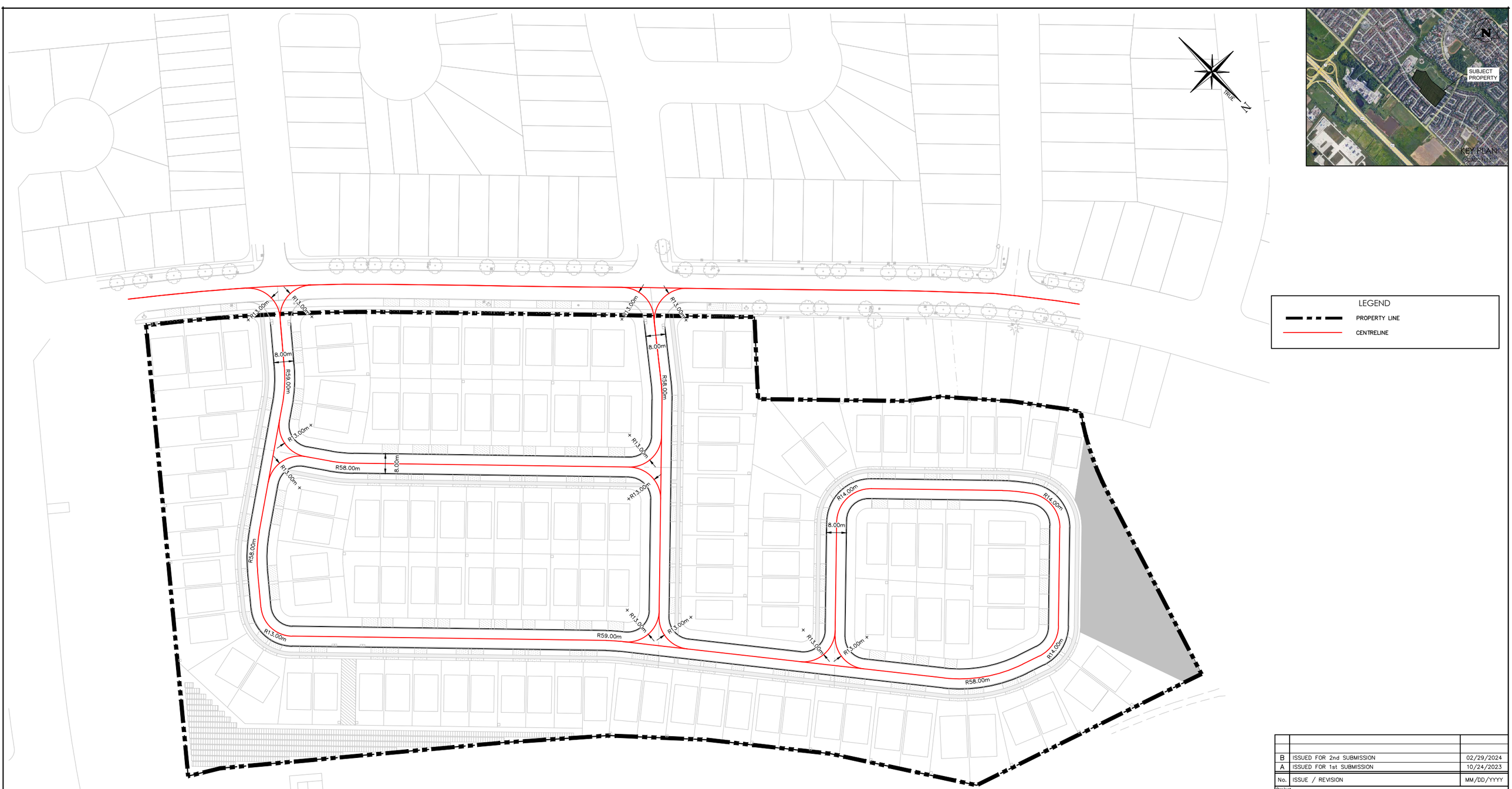


No.	ISSUE / REVISION	MM/DD/YYYY
B	ISSUED FOR 2nd SUBMISSION	02/29/2024
A	ISSUED FOR 1st SUBMISSION	10/24/2023

Project

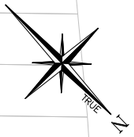
LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

WASTE COLLECTION PLAN (DIMENSIONS)

CROZIER & ASSOCIATES Consulting Engineers
211 YONGE STREET
SUITE 600
TORONTO, ON M5B 1M4
416 477-3392 T
WWW.CFCROZIER.CA

Drawn	Design	Project No.
R.L.		2531-6824
Check	Check	Scale / Dwg.
A.H.		1:750 / DIM-1



LEGEND

- PROPERTY LINE
- PROPOSED COLLECTION ROUTE
- COLLECTION POINT (3 m²)
- MEDIUM RECYCLING/GARBAGE CART (240 L)
- SMALL ORGANICS CART (100 L)

15 0m 15 30 45 60

SCALE: 1:750

Notes

1. EACH SINGLE DETACHED RESIDENCE WILL RECEIVE A DEDICATED BLUE BOX RECYCLABLE (BB) AND GARBAGE CART (240 L VOLUME EACH) AND ORGANICS CART (100 L VOLUME).
2. OWNERS OF SINGLE DETACHED RESIDENCES TO BE RESPONSIBLE FOR TRANSPORTING CARTS TO DESIGNATED COLLECTION AREAS ADJACENT TO EACH RESIDENCE ON COLLECTION DAY.
3. ORGANICS TO BE COLLECTED ON A WEEKLY BASIS. RECYCLING AND GARBAGE TO BE COLLECTED ON ALTERNATING WEEKS.
4. OWNERS OF SINGLE DETACHED RESIDENCES TO BE RESPONSIBLE FOR TRANSPORTING BULKY ITEMS TO THE DESIGNATED COLLECTION AREA ON COLLECTION DAY.
5. OWNERS OF SINGLE DETACHED RESIDENCES FRONTING THE SIDEWALKS SHALL BE ADVISED TO PLACE GARBAGE CARTS IN BOULEVARDS, THUS OFF THE ROADWAY AND SIDEWALKS.
6. ROUTE SEQUENCE ARE TEMPORARY AND FOR COORDINATION ONLY. PEEL REGION WASTE COLLECTION TO CONFIRM MOST FEASIBLE ROUTE AND SEQUENCE FOR THE DEVELOPMENT.
7. WASTE COLLECTION VEHICLE TURNING DIAGRAMS ARE APPENDED TO THIS PLAN.

No.	ISSUE / REVISION	MM/DD/YYYY
B	ISSUED FOR 2nd SUBMISSION	02/29/2024
A	ISSUED FOR 1st SUBMISSION	10/24/2023

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

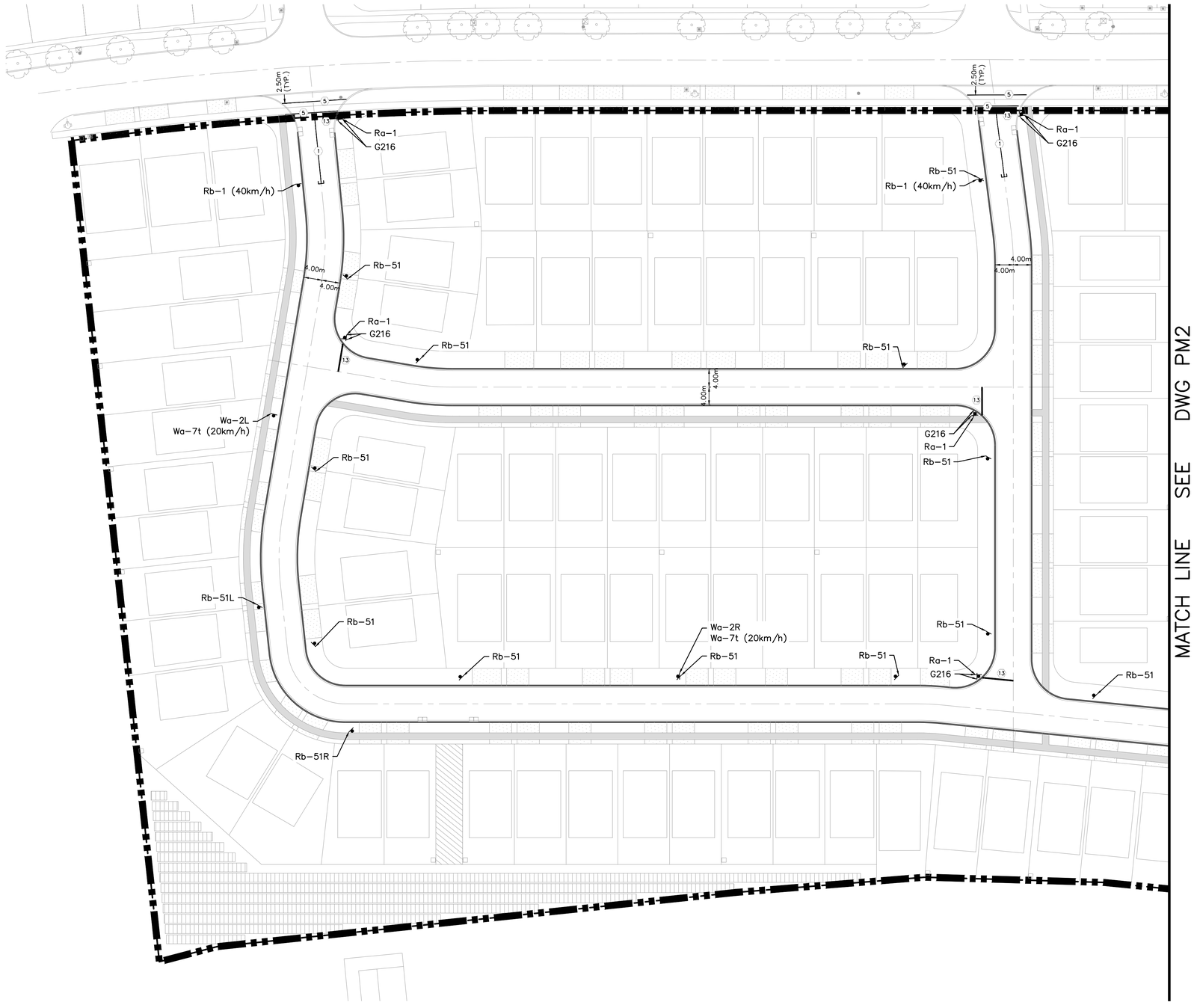
WASTE COLLECTION PLAN

CROZIER & ASSOCIATES Consulting Engineers
211 YONGE STREET
SUITE 600
TORONTO, ON M5B 1M4
416 477-3392 T
WWW.CFCROZIER.CA

Drawn	Design	Project No.	2531-6824
R.L.			
Check	Check	Scale	Dwg.
A.H.		1:750	WCP-1

APPENDIX L

Pavement Marking & Signage Plan



TRUE N

LEGEND

PROPOSED SIGN

SIGNAGE LEGEND

SIGN NAME	SIGN NUMBER	SIZE (cm)	OTM BOOK	SECTION
STOP	Ra-1	60x60	5	2
MAXIMUM SPEED	Rb-1	60x75	5	6
NO PARKING (LEFT/RIGHT)	Rb-51 (L/R)	30x30	5	10
SHARP CURVE (LEFT/RIGHT)	Wa-2(L/R)	60x60	6	2
ADVISORY SPEED	Wa-7t	45x45	6	2
ROAD ID STREET NAME BLADE	G216	20xVARIABLE WIDTH	8	8

PAVEMENT MARKINGS LEGEND

1	SOLID YELLOW, 10cm
5	SOLID WHITE, 10cm
13	SOLID WHITE, 30cm
][	LIMITS OF MARKINGS

NOTES:

1. USE (X) TO DENOTE DURABLE PAVEMENT MARKING

10 0m 10 20 30 40
SCALE: 1:500

Notes

1. PAVEMENT MARKINGS TO BE COMPLETED IN ACCORDANCE WITH ONTARIO TRAFFIC MANUAL (OTM) BOOK 11 (PAVEMENT, HAZARDS AND DELINEATION MARKING).
2. SIGNAGE SHALL ADHERE TO ONTAIRIO TRAFFIC MANUAL (OTM) BOOK 5 (REGULATORY SIGNS), BOOK 6 (WARNING SIGNS), AND BOOK 15 (PEDESTRIAN CROSSING TREATMENTS).
3. THIS PLAN IS INTENDED TO SHOW PAVEMENT MARKING AND SIGNAGE DETAILS ONLY. THIS DRAWING IS TO BE READ AND UNDERSTOOD WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
4. TACTILE PLATES AND SIDEWALK RAMPS TO BE PROVIDED AT ALL PEDESTRIAN CROSSING LOCATIONS, CONSISTENT WITH THE AODA REQUIREMENTS.
5. WHERE POSSIBLE, CLOSELY PLACED SIGNS MAY BE MOUNTED ON THE SAME POST.

City: MISSISSAUGA

No.	ISSUE	DATE: MMM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	OCT/26/2023
2	ISSUED FOR 2nd SUBMISSION	FEB/29/2024

Engineer

Engineer

Project

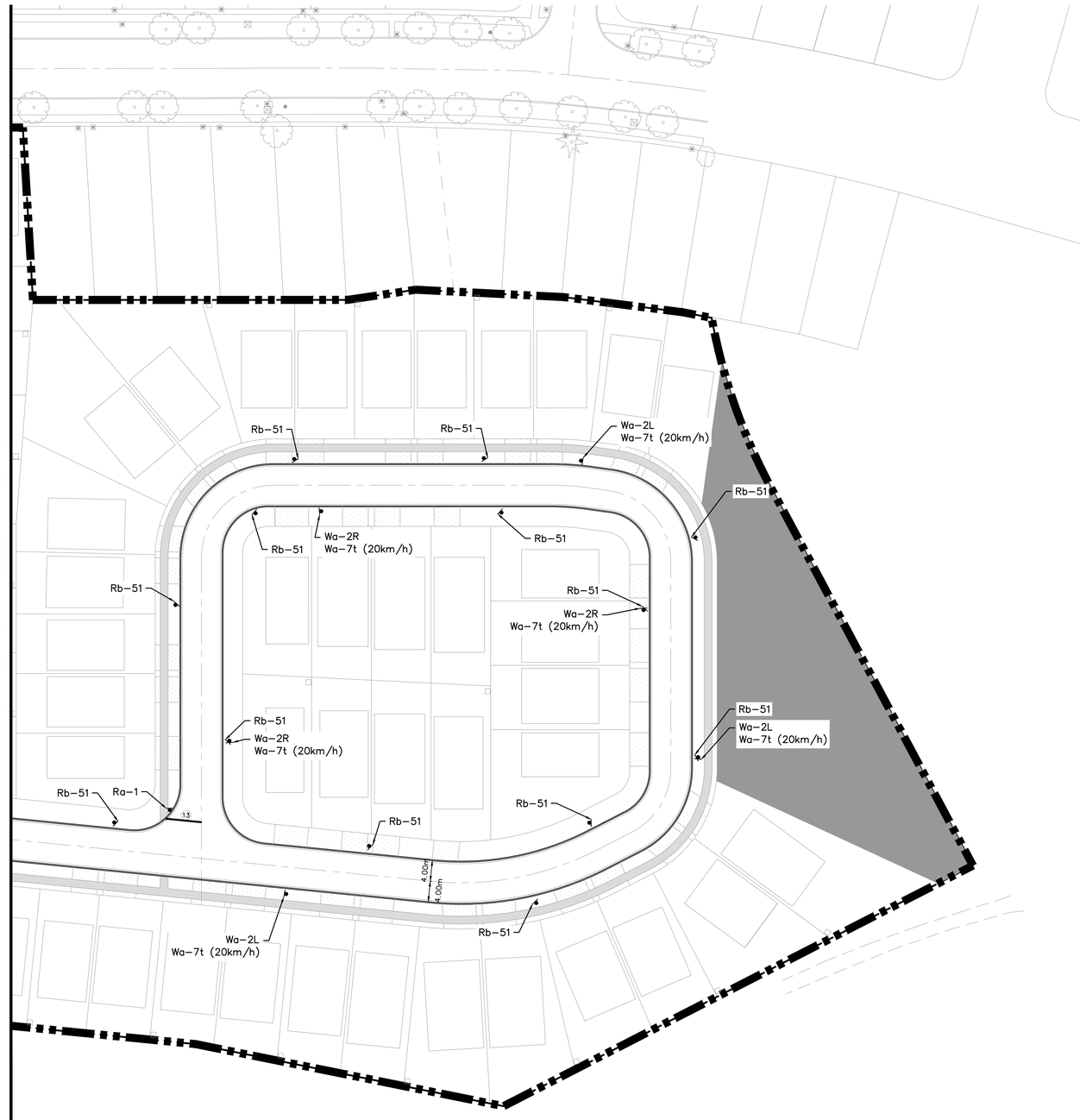
LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

PAVEMENT MARKING AND SIGNAGE PLAN

CROZIER CONSULTING ENGINEERS
211 YONGE STREET
SUITE 600
TORONTO, ON, M5B 1M4
416-477-3392 T
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	Design By	Project	
R.L.	R.L.		2531-6824
Check By	Check By	Scale	Drawing
A.H.	P.A.	1:500	PM1



LEGEND

PROPOSED SIGN

SIGNAGE LEGEND

SIGN NAME	SIGN NUMBER	SIZE (cm)	OTM BOOK	SECTION
STOP	Ra–1	60x60	5	2
MAXIMUM SPEED	Rb–1	60x75	5	6
NO PARKING (LEFT/RIGHT)	Rb–51 (L/R)	30x30	5	10
SHARP CURVE (LEFT/RIGHT)	Wa–2(L/R)	60x60	6	2
ADVISORY SPEED	Wa–7t	45x45	6	2
ROAD ID STREET NAME BLADE	G216	20xVARIABLE WIDTH	8	8

PAVEMENT MARKINGS LEGEND

1	SOLID YELLOW, 10cm
5	SOLID WHITE, 10cm
13	SOLID WHITE, 30cm
][	LIMITS OF MARKINGS

NOTES:

1. USE (X) TO DENOTE DURABLE PAVEMENT MARKING

10 0m 10 20 30 40
SCALE: 1:500

Notes

1. PAVEMENT MARKINGS TO BE COMPLETED IN ACCORDANCE WITH ONTARIO TRAFFIC MANUAL (OTM) BOOK 11 (PAVEMENT, HAZARDS AND DELINEATION MARKING).
2. SIGNAGE SHALL ADHERE TO ONTAIRIO TRAFFIC MANUAL (OTM) BOOK 5 (REGULATORY SIGNS), BOOK 6 (WARNING SIGNS), AND BOOK 15 (PEDESTRIAN CROSSING TREATMENTS).
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City: MISSISSAUGA

No.	ISSUE	DATE: MMM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	OCT/26/2023
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Engineer

Engineer

Project
LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing
PAVEMENT MARKING
AND SIGNAGE PLAN

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211 YONGE STREET
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416-477-3392 T
WWW.CFCROZIER.CA
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Drawn By	Design By	Project	
R.L.	R.L.		2531–6824
Check By	Check By	Scale	Drawing
A.H.	P.A.	1:500	PM2

APPENDIX M

Transportation Demand Management Checklist

Appendix E

Transportation Demand Management and Pedestrian Circulation Checklist

This checklist is designed to evaluate the incorporation of Transportation Demand Management (TDM) measures, including pedestrian circulation techniques, into development proposals. The template is modelled on the prototype Class 2: Medium Density/Moderate Congestion (TDM Moderate) checklist contained in *TDM Supportive Guidelines for Development Approvals* (ACT Canada, 2008).

The applicant must complete and return this checklist with their **Transportation Demand Management Plan** (TDMP) and/or **Pedestrian Circulation Plan** (PCP).

Application Summary

Development Application No:	Date:
Lisgar Residential Subdivision	October 5, 2023
Applicant:	Staff:
Avenia Construction Inc.	Kate Vassilyev
SCORE AND RATING:	**TDM SUPPORTIVE?**
56% (1 star)	Yes _____ No ✓

The provision for more local transit offered by Miway would results in the development becoming TDM supportive per this checklist.

Scorecard

Use the scorecard below to determine the TDM rating and supportiveness of the development proposal based on the final score calculated on page E-5. If the proposal does not satisfy the minimum threshold, review and enhance the TDM measures.

Final Score	Rating	TDM Supportive?
91% - 100%	***** (5 Star)	YES
81% - 90%	**** (4 Star)	
71% - 80%	*** (3 Star)	
61% - 70%	** (2 Star)	NO (Review and Enhance TDM Measures)
50% - 60%	* (1 Star)	
Less than 50%	(None)	

CATEGORY A – Pedestrian Circulation					
In creating an environment that facilitates and supports pedestrian activity, the public realm needs to be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s).					
	Features	**Yes**	**No**	**N/A**	**Comments**
A1	Development located within 800 m walking distance of residential (if employment) or employment (if residential) uses	✓			Lisgar Neighbourhood Square
A2	Development located within 400 m walking distance of retail, restaurant, or other pedestrian-oriented uses or similar services provided on-site	✓			Lisgar Neighbourhood Square & Lisgar Middle School
A3	At least one functional building entrance oriented towards public space (i.e., street, park, square)			✓	N/A to residential subdivisions
A4	At least one functional building entrance located close to on-site or adjacent street transit stop			✓	
A5	Nearest functional building entrance located within 50 m of (and connected to) public street with sidewalk			✓	
A6	Accessible on-site pedestrian routes provided and connected to surrounding network and transit	✓			
A7	Continuous sidewalks (1.5 m min. width) provided along all on-site roads and both sides of adjacent public streets	✓			
A8	No conflict points between pedestrians and other users (i.e., vehicles, cyclists)		✓		
A9	Adequate and properly designed pedestrian crossings provided on-site			✓	Internal local street with minimal traffic don't require pedestrian crossings, similar to other Mississauga Subdivisions.
A10	Off-site road works designed to maximize pedestrian safety and minimize pedestrian crossing distances (e.g., no right turn channelization)			✓	
A11	Amenities provided along pedestrian routes (i.e., benches, street furniture)			✓	Internal local streets do not typically contain street furniture, similar to other Mississauga Subdivisions.
A11	Shelters and benches provided at transit stops			✓	
A12	Wayfinding provided to guide pedestrians			✓	N/A to residential subdivisions / street signs expected
A13	Lighting provided along pedestrian routes	✓			Street Lamps Expected
A14	Weather protection provided along pedestrian routes			✓	
A15	Vehicle parking areas located away from street and pedestrian routes			✓	N/A to residential subdivisions
A16	Protected pedestrian routes provided through vehicle parking lots and linked to building(s)			✓	

CATEGORY A – Pedestrian Circulation					
In creating an environment that facilitates and supports pedestrian activity, the public realm needs to be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s).					
	Features	**Yes**	**No**	**N/A**	**Comments**
A17	Passenger pick-up and drop-off areas located to side or rear of buildings, downstream from major building entrance points, but no more than 30 m away			✓	
A18	Loading areas located away from street and pedestrian routes			✓	
	Sub-Total	5	1	13	

CATEGORY B – Cycling Orientation					
In creating an environment that facilitates and supports cycling activity, the public realm needs to be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s).					
	Features	**Yes**	**No**	**N/A**	**Comments**
B1	On-site cycling routes provided and connected to surrounding network			✓	No direct external cycling connections available
B2	Class A (long-term) and Class B (short-term) bicycle parking spaces provided per City of Mississauga Zoning By-law (reproduced at end of this checklist for reference)			✓	N/A to residential subdivisions
B3	Bicycle repair station provided at-grade or within underground structure close to long-term bicycle parking			✓	
B4	Wayfinding provided to guide cyclists			✓	
B5	Other amenities provided for cyclists (e.g., showers, change rooms)			✓	
	Sub-Total	0	0	5	

CATEGORY C – Transit Service					
The availability and proximity of convenient public transit service with direct pedestrian linkages to the building expands the range of viable travel options for employees, visitors, and residents.					
	Features	**Yes**	**No**	**N/A**	**Comments**
C1	Development located within 800 m walking distance of a rapid transit station (existing or planned) or within 400 m of two or more public bus routes with minimum 15-minute headway service during peak commuter periods and every 30 minutes throughout the remainder of the day		✓		Two public bus routes within 500m, one with 15min/30min peak/off-peak headways
C2	Information about public transit routes, schedules, and fares provided in accessible and visible location on-site and in adjacent bus stops			✓	
C3	Sufficient capacity available to accommodate transit riders generated by development	✓			
	Sub-Total	1	1	1	

CATEGORY D – Motor Vehicle Parking					
The location and design of motor vehicle parking facilities can affect the character and cost of a development. Avoiding the oversupply of parking can also help reduce single occupant vehicle travel.					
	Features	**Yes**	**No**	**N/A**	**Comments**
D1	No more than the minimum number of parking spaces required by the Zoning By-law provided			✓	N/A to residential subdivisions
D2	Priority parking equivalent to 10% of employee spaces provided for carpooling/vanpooling			✓	
D3	Priority parking equivalent to 3% of full-time building occupants provided for auto share and hybrid/alternative fuel vehicles			✓	
D4	Priority parking equivalent to 1% of the parking stalls provided for mopeds, motorcycles, and minicars			✓	
D5	Parking shared for different uses on-site and/or adjoining properties			✓	
D6	50% of parking located underground or in structured parking			✓	
	Sub-Total	0	0	6	

CATEGORY E – Incentives

Building owners and tenants can offer occupants Transportation Demand Management incentives that help reduce single occupant vehicle travel.

	Features	Yes	No	N/A	Comments
E1	TDM Plan prepared that targets a 10% reduction in peak hour trips using forecast trip generation with status quo travel characteristics		✓		
E2	Building owner/tenant will provide a ride matching service for car/vanpooling			✓	
E3	Building owner/tenant will provide emergency ride home options			✓	
E4	Building owner/tenant will provide subsidized transit passes for all occupants for a period of at least two years			✓	
E5	Building owner/tenant will charge for parking as an unbundled cost to occupants			✓	
E6	Building owner/tenant will reduce cost for users of car/van pool, bicycle, moped/motorcycle/minicar spaces			✓	
E7	Building owner/tenant will become a member of a local TMA and appoint a TDM Coordinator to oversee and coordinate promotional opportunities and events on site			✓	
	Sub-Total	0	1	6	

SCORING SUMMARY

Count the number of applicable features for each category (items not assigned "N/A") and enter under the column "Applicable" in the table below.

Assign 1 point to each "Yes" answer, except for Category A (Pedestrian Circulation) where each "Yes" answer is worth ½ a point and Category C (Transit Service) where each "Yes" answer is worth 2 points. Award 0 points for a "No" answer. Tally the points for each category under the column "Points" in the table below.

Calculate "Final Score" as a percentage by dividing total "Points" by the total "Applicable" and enter in the table below and in the "SCORE AND RATING" field on page E-1.

Category	Possible	Applicable	Points	Comments
A – Pedestrian Circulation	9 (18/2)	3 (6/2)	2.5 (5/2)	
B – Cyclist Orientation	5	0	0	
C – Transit Service	6 (3x2)	4 (2*2)	2 (1*2)	Provision for more Miway Transit by City would result in score of 4/4 for Transit Service
D – Motor Vehicle Parking	6	0	0	
E – Incentives	7	1	0	
TOTAL	**33**	8	4.5	
Score% (Points/Applicable)			56%	Provision for more Miway Transit would result in target being met

APPENDIX N

Pedestrian Circulation Plan

ASTRO COURT
METEOR COURT
TINTERN ABBEY COURT
DOUG LEAVENS BOULEVARD
INDIGO CRESCENT
BERRYMAN TRAIL
LISGAR DRIVE
STREET 'A'
STREET 'B'
STREET 'C'
STREET 'D'
PARK
ASTON MARTIN MEWS
CEDAR RAPIDS CRESCENT
ALDERWOOD TRAIL
TRAIL BROOK MEADOW LISGAR

LEGEND
- PROPERTY LINE
- EXISTING SIDEWALK
- EXISTING MULTI-USE PATH
- PROPOSED SIDEWALK
- PEDESTRIAN CONNECTION
- TRANSIT STOP
- PEDESTRIAN CROSSWALK

SCALE: 1:1000

No.	ISSUE / REVISION	MMM/DD/YYYY
B	ISSUED FOR REVIEW	OCT/11/2023
A	ISSUED FOR DISCUSSION	OCT/05/2023

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

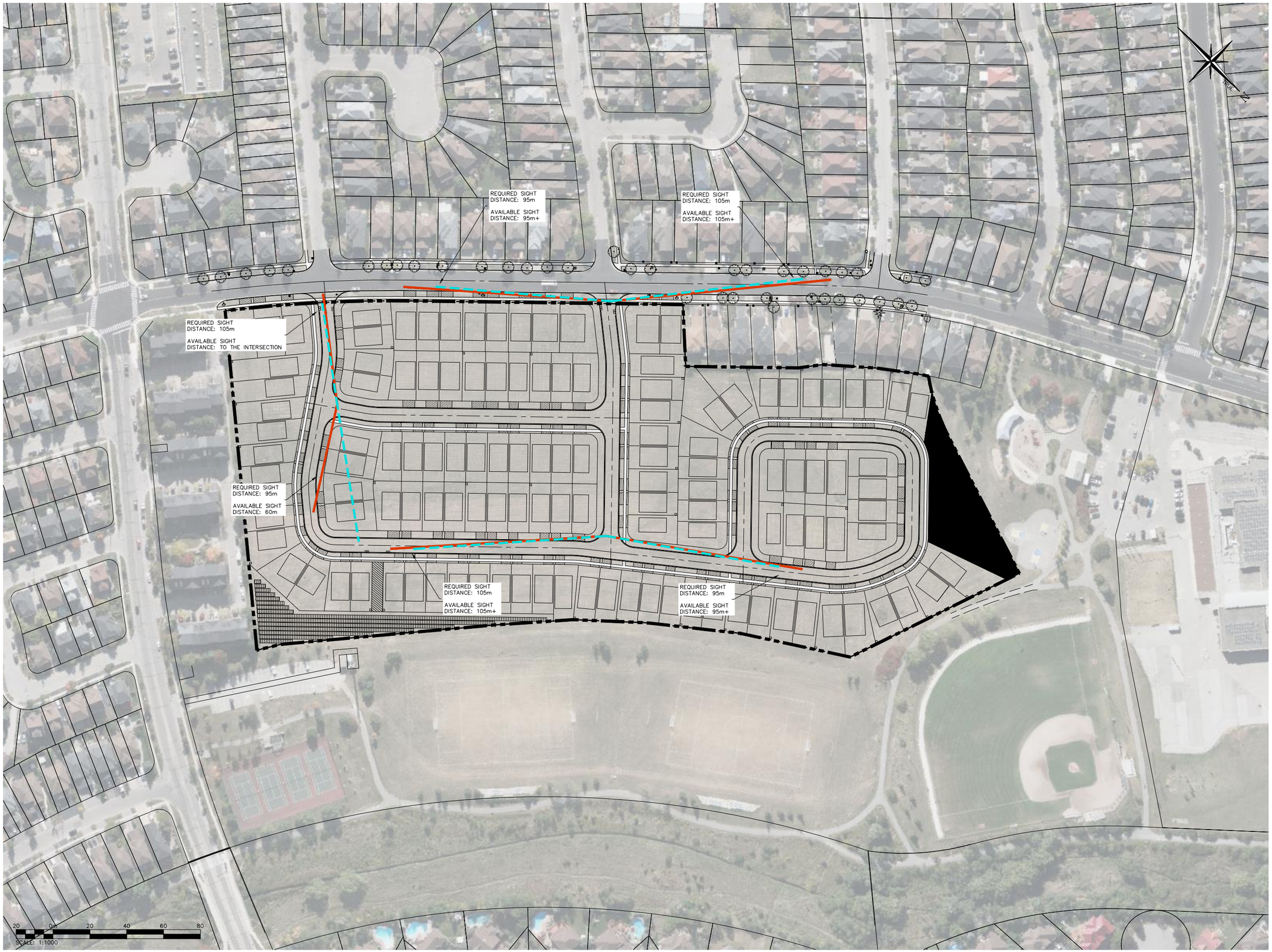
PEDESTRIAN CIRCULATION PLAN

CROZIER & ASSOCIATES Consulting Engineers
211 YONGE STREET
SUITE 600
TORONTO, ON M5B 1M4
416 477-3392 T
WWW.CFCROZIER.CA

Drawn	Design	Project No.	2531-6824
R.L.			
Check	Check	Scale	Dwg.
A.H.	P.A.	1:1000	C01

APPENDIX O

Sight Line Figures



LEGEND

- PROPERTY LINE
- AVAILABLE SIGHT DISTANCE
- REQUIRED SIGHT DISTANCE

No.	ISSUE / REVISION	MMM/DD/YYYY
B	ISSUED FOR 2nd SUBMISSION	FEB/29/2024
A	ISSUED FOR 1st SUBMISSION	OCT/26/2023

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

SIGHT DISTANCE ASSESSMENT

CROZIER & ASSOCIATES Consulting Engineers
211 YONGE STREET
SUITE 600
TORONTO, ON M5B 1M4
416 477-3392 T
WWW.CFCROZIER.CA

Drawn	Design	Project No.	2531-6824
R.L.			
Check	Check	Scale	Dwg.
A.H.	P.A.	1:1000	T100

REQUIRED SIGHT DISTANCE: 95m

AVAILABLE SIGHT DISTANCE: 95m+

REQUIRED SIGHT DISTANCE: 105m

AVAILABLE SIGHT DISTANCE: 105m+

REQUIRED SIGHT DISTANCE: 95m

AVAILABLE SIGHT DISTANCE: TO THE INTERSECTION

REQUIRED SIGHT DISTANCE: 105m

AVAILABLE SIGHT DISTANCE: TO THE INTERSECTION

TRUE N

20 0 20 40 60 80

SCALE: 1:1000

LEGEND

PROPERTY LINE

AVAILABLE SIGHT DISTANCE

REQUIRED SIGHT DISTANCE

No.	ISSUE / REVISION	MMM/DD/YYYY
B	ISSUED FOR 2nd SUBMISSION	FEB/29/2024
A	ISSUED FOR 1st SUBMISSION	OCT/26/2023

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

Drawing

SIGHT DISTANCE ASSESSMENT

CROZIER & ASSOCIATES Consulting Engineers
211 YONGE STREET
SUITE 600
TORONTO, ON M5B 1M4
416 477-3392 T
WWW.CFCROZIER.CA

Drawn	R.L.	Design		Project No.	2531-6824
Check	A.H.	Check	P.A.	Scale 1:1000	Dwg. T101

FIGURES

Legend

= SUBJECT LANDS

Project

LISGAR DRIVE SUBDIVISION
CITY OF MISSISSAUGA

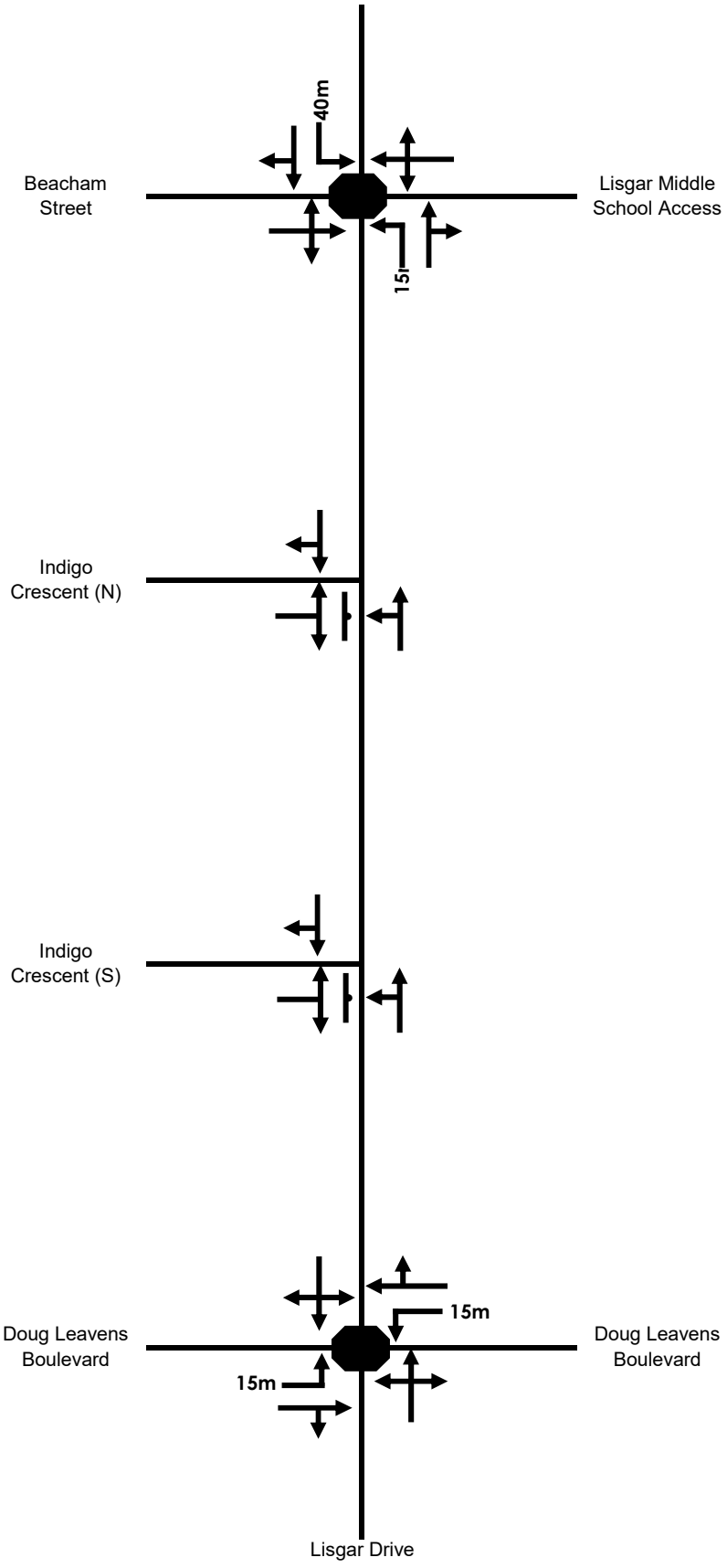
Drawing

SITE LOCATION

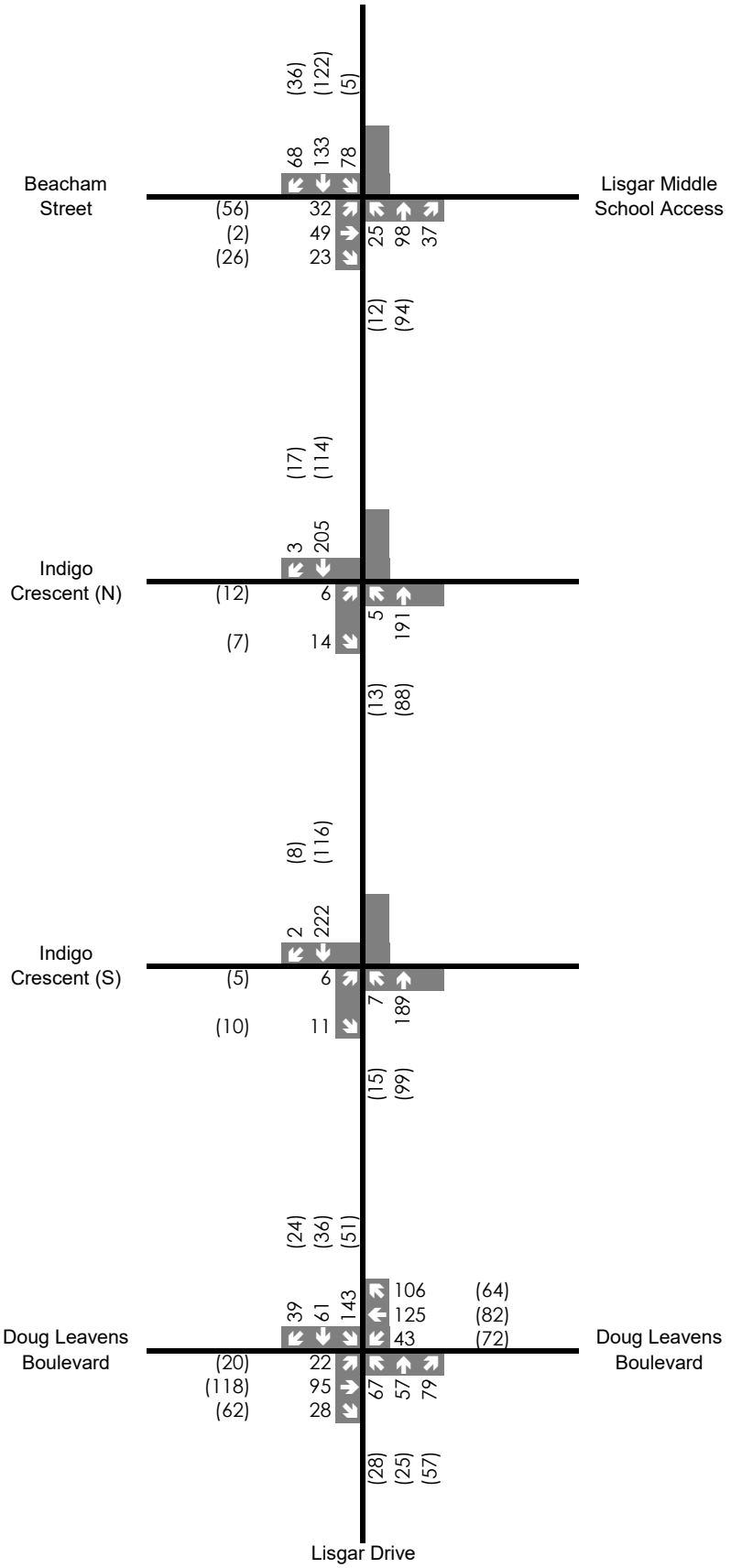
CROZIER CONSULTING ENGINEERS
2800 High Point Drive
Suite 100
Milton, ON, L9T 6P4
905-875-0026 T
905-875-4915 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.D.S.	T.D.S.	2531-6824

Scale	Date	Check By	Drawing
N.T.S.	10/03/2023	A.H.	FIGURE 1



Legend	Lisgar Subdivision	CROZIER CONSULTING ENGINEERS	Figure 2
All-way Stop Control Minor Street Stop Control	Study Road Network		Project No. 2531-6824 Date. 45201 Analyst. Aidan Hallsworth



Legend

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

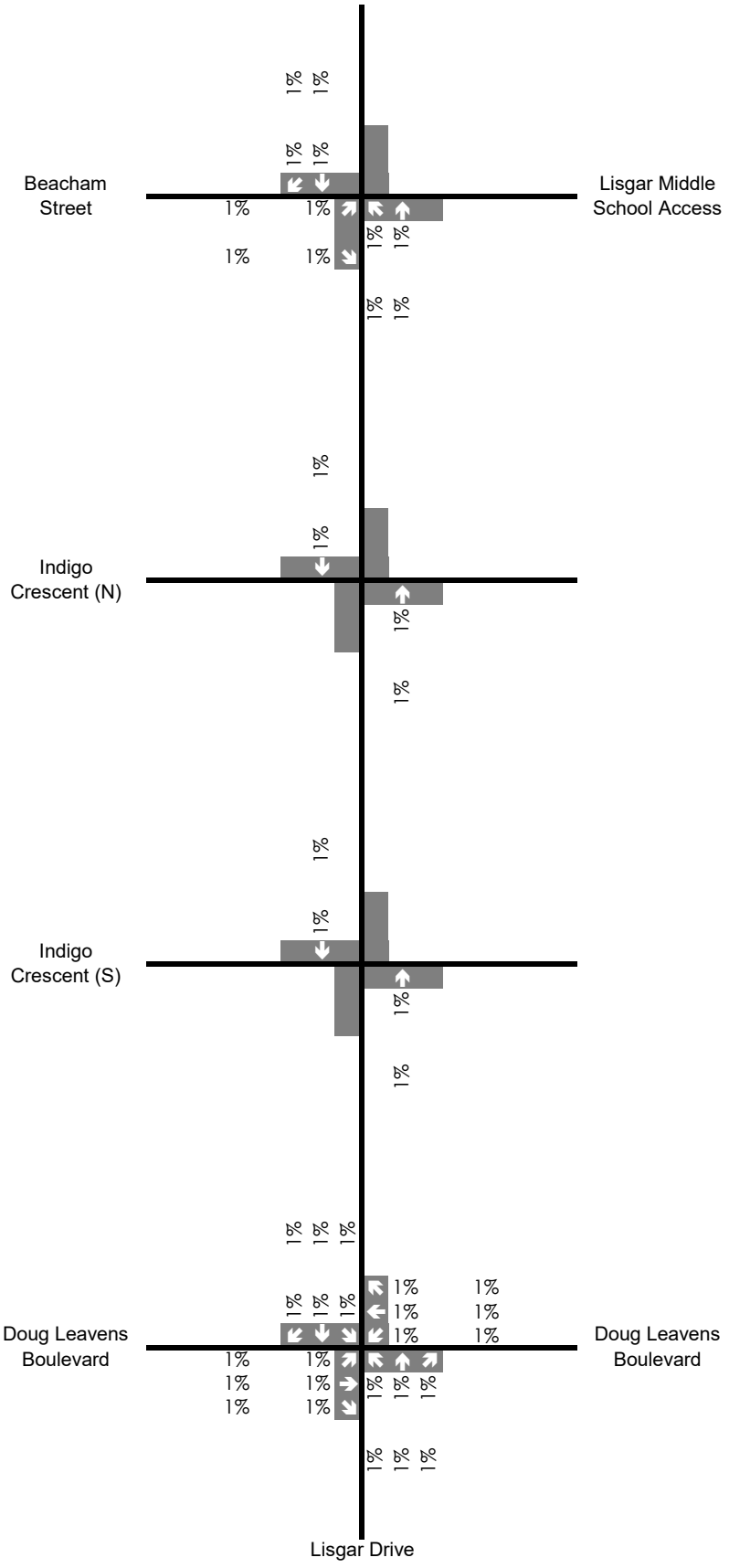
Lisgar Subdivision

Existing Traffic Volumes

CROZIER CONSULTING ENGINEERS

Figure 3

Project No. 2531-6824
Date. 45201
Analyst. Aidan Hallsworth



Legend

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

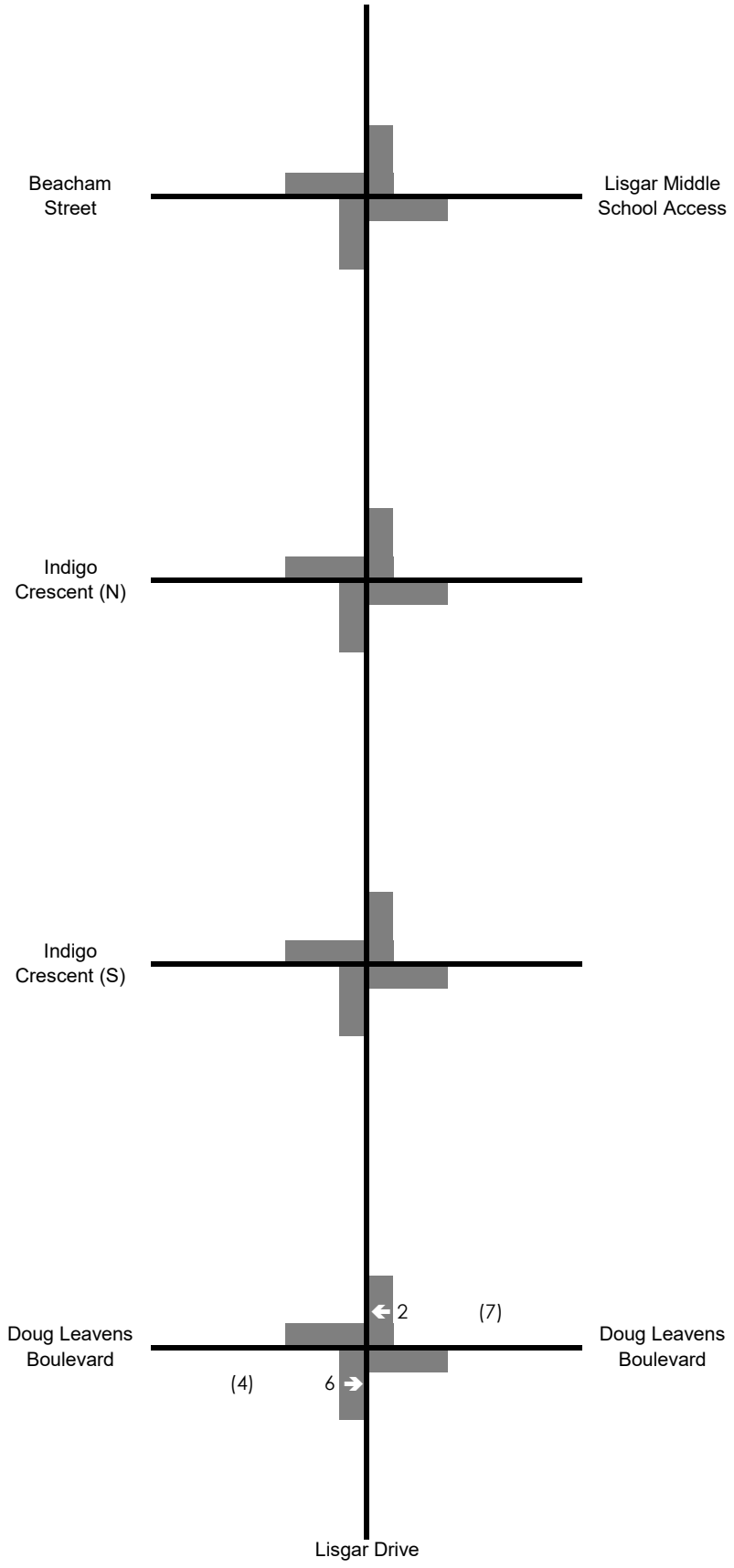
Lisgar Subdivision

Growth Rates

CROZIER CONSULTING ENGINEERS

Figure 4

Project No. 2531-6824
Date. 45201
Analyst. Aidan Hallsworth



Legend

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

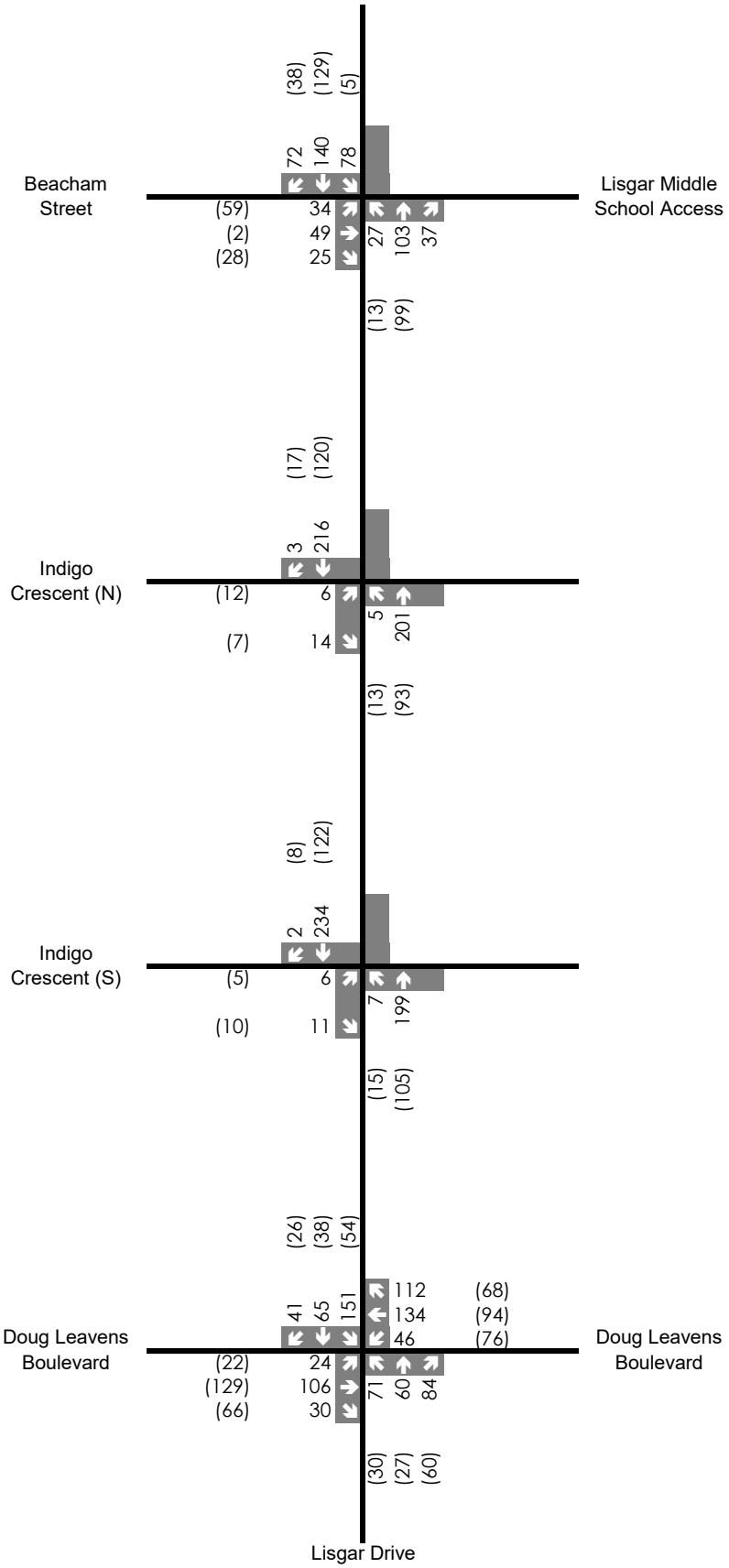
Lisgar Subdivision

Background Development Traffic Volumes

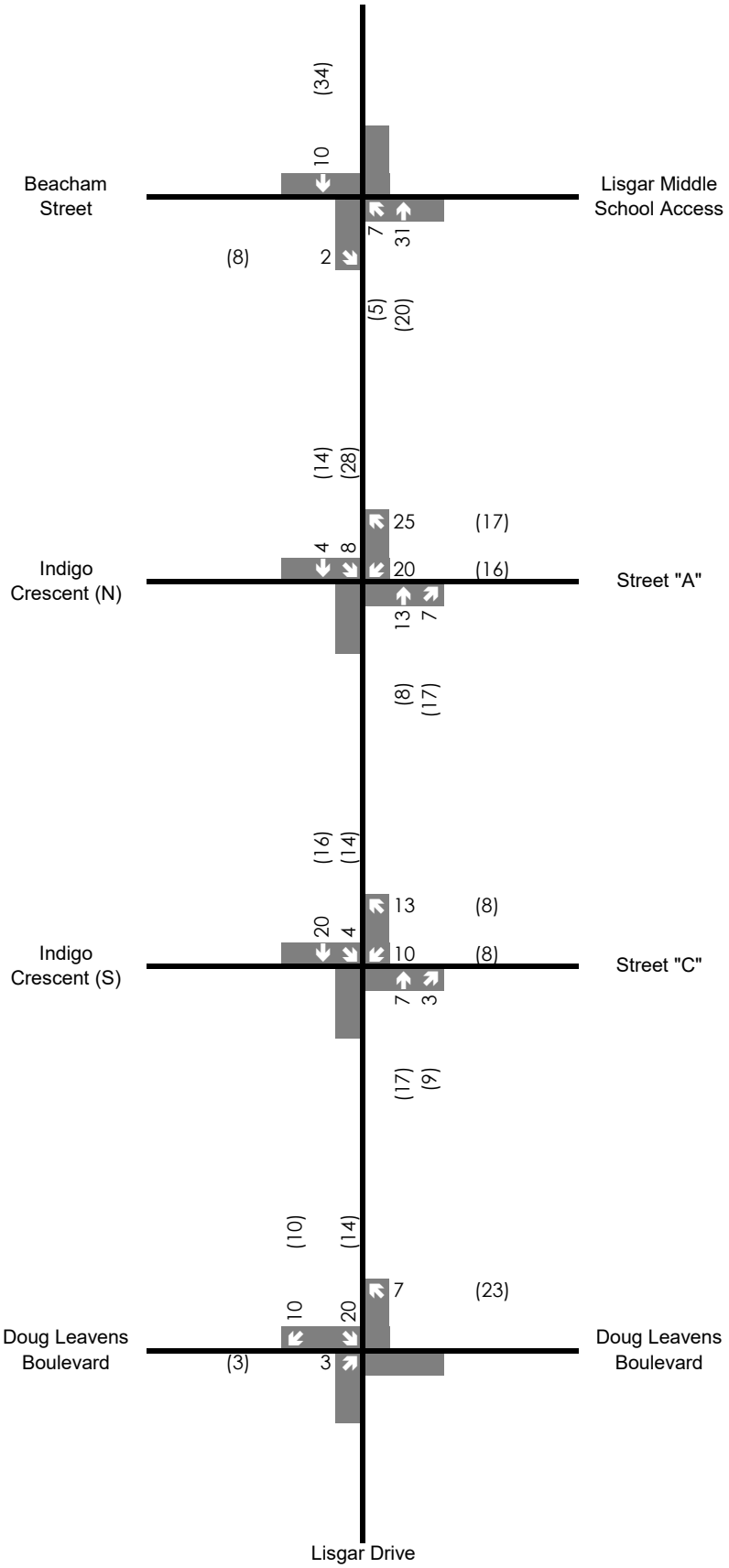
CROZIER CONSULTING ENGINEERS

Figure 5

Project No. 2531-6824
Date. 45201
Analyst. Aidan Hallsworth



Legend	Lisgar Subdivision	CROZIER CONSULTING ENGINEERS	Figure 6
xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	2028 Future Background Traffic Volumes		Project No. 2531-6824 Date. 45201 Analyst. Aidan Hallsworth



Legend

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

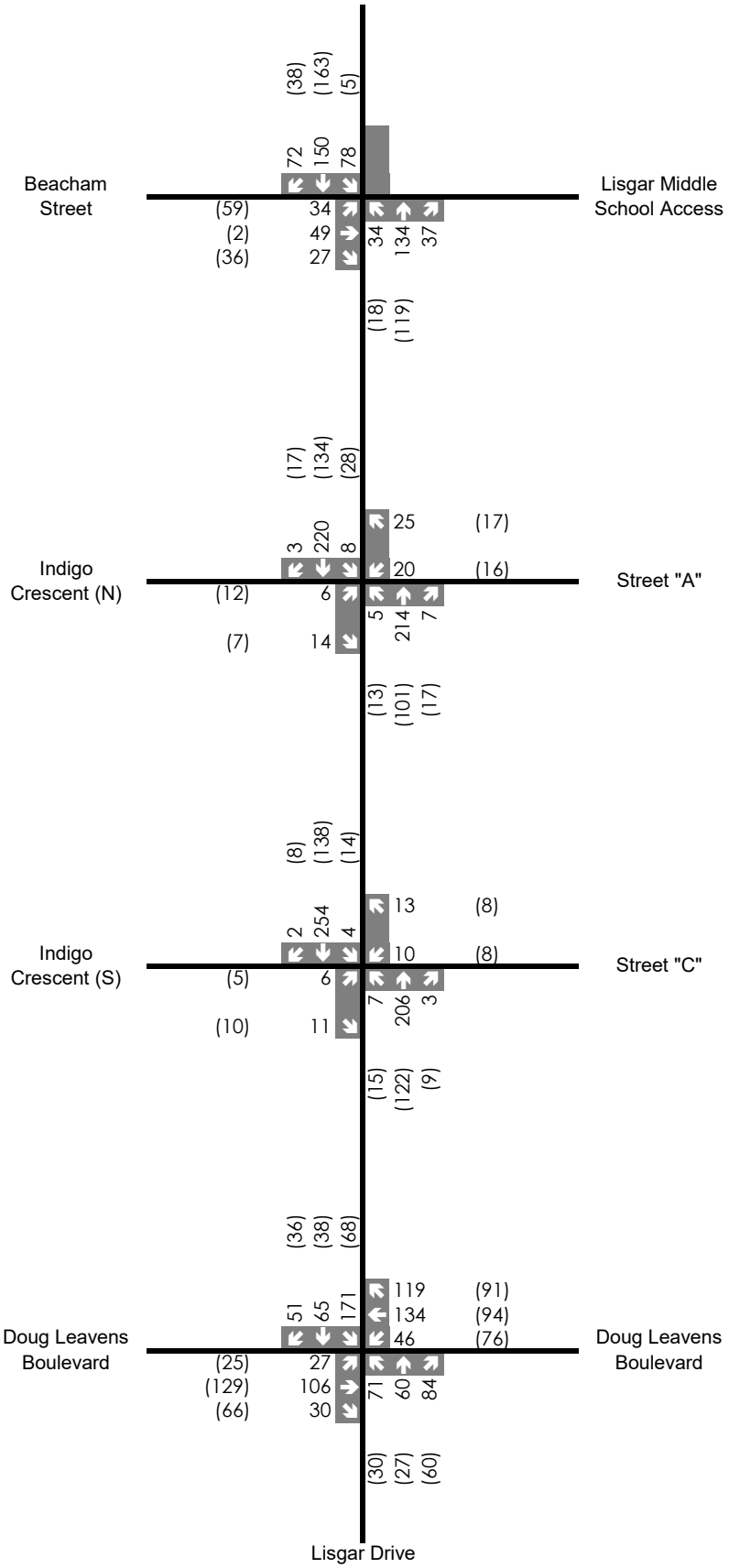
Lisgar Subdivision

Site Traffic Volumes

CROZIER CONSULTING ENGINEERS

Figure 7

Project No. 2531-6824
Date. 45201
Analyst. Aidan Hallsworth



Legend	Lisgar Subdivision	CROZIER CONSULTING ENGINEERS	Figure 8
xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	2028 Future Total Traffic Volumes		Project No. 2531-6824 Date. 45201 Analyst. Aidan Hallsworth