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Transportation Impact Study

PROPOSED RESIDENTIAL DEVELOPMENT

12944 Albion-Vaughan Road
Town of Caledon, ON

January 21, 2026
Project No: NT-25-078

520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8
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NextEng Consulting Group Inc.

January 21, 2026

Mosaik Homes
c/o Rosemarie L. Humphries BA, MCIP, RPP, President
Humphries Planning Group Inc.
190 Pippin Road, Suite A
Vaughan, ON L4K 4X9

Attention: Goffredo Vitullo

Re: Engineering Service – Transportation Impact Study
Proposed Residential Development
12944 Albion-Vaughan Road, Town of Caledon
Our Project No. NT-25-078

Nextrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) is pleased to present the enclosed Transportation Impact Study in support of the Zoning By-law Amendment and Site Plan Approval applications for the above noted property.

The subject lands are located at the northwest corner of the Albion Vaughan Road and Queensgate Boulevard intersection, in the Town of Caledon. The subject lands currently consist of a single-family dwelling unit. The development proposal seeks to redevelop the subject lands to construct 49 3-storey townhouse units. Two (2) vehicle parking spaces will be provided to each unit, as well as 12 visitor parking spaces for the entire site, resulting in a total vehicle parking supply of 110 spaces. Vehicular access to the site is envisioned via a full movement driveway onto Queensgate Boulevard.

This study concludes that the proposed development will have a negligible traffic impact to the surrounding road network. We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

NEXTRANS CONSULTING ENGINEERS

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Issues and Revisions Registry

Identification	Date	Description of issued and/or revision
Transportation Impact Study	January 21, 2026	1st Submission

EXECUTIVE SUMMARY

Nextrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) is pleased to present the enclosed Transportation Impact Study in support of Zoning By-law Amendment application for a site located at the northwest corner of Albion Vaughan Road and Queensgate Boulevard.

Development Proposal

The subject lands are located at the northwest corner of the Albion Vaughan Road and Queensgate Boulevard intersection, in the Town of Caledon. The subject lands currently consist of a single-family dwelling unit. The development proposal seeks to redevelop the subject lands to construct 49 3-storey townhouse units. Two (2) vehicle parking spaces will be provided to each unit, as well as 12 visitor parking spaces for the entire site, resulting in a total vehicle parking supply of 110 spaces. Vehicular access to the site is envisioned via a full movement driveway onto Queensgate Boulevard.

Capacity Analysis

Under existing traffic conditions, most study area intersections operate with residual capacity, acceptable levels of service, and manageable delays and queues. Exceptions include Highway 50 and Queensgate Boulevard, where several movements are operating near capacity due to sequential signal phasing, and Albion Vaughan Road and Queensgate Boulevard, where the southbound shared through-left movement experiences extensive queues during the AM peak. Unsignalized intersections generally operate acceptably, except at Albion Vaughan Road/Dovaston Gate/King Vaughan Road, where minor-road movements are constrained by high major-road volumes.

Under 2030 and 2035 future background traffic conditions, most signalized intersections continue to operate with residual capacity, with operational deficiencies forecast for the southbound through-right movement at Albion Vaughan Road/Queensgate Boulevard during the AM peak and the northbound through movement at Highway 50/Queensgate Boulevard during the PM peak. At unsignalized intersections, significant peak-hour deficiencies are projected at Albion Vaughan Road/Dovaston Gate/King Vaughan Road, with eastbound and westbound minor-road movements operating near or above capacity. These deficiencies are expected to worsen with background traffic growth, indicating the need for mitigation measures.

Site-generated traffic from the proposed development is minimal, with 23 new two-way trips during the AM peak and 25 during the PM peak. Trip assignment indicates that site traffic will primarily use Albion Vaughan Road/Queensgate Boulevard, avoiding less direct routes such as Landsbridge Street/Dovaston Gate. Comparison of future background and future total traffic conditions demonstrates that the addition of site traffic has negligible impacts on critical signalized and unsignalized movements, with only minor increases in v/c, delay, and queue lengths.

Mitigation measures have been modeled and shown to address existing operational deficiencies. At Highway 50 and Queensgate Boulevard, concurrent phasing, optimized splits, and reduced cycle length resolved deficiencies while maintaining residual capacity. At Albion Vaughan Road and Queensgate Boulevard, separating the southbound through and right-turn movements addressed prior deficiencies. At Albion Vaughan Road/Dovaston Gate/King Vaughan Road, high conflicting volumes justified the installation of a semi-actuated traffic signal under 2035 conditions, which successfully resolves operational constraints for eastbound and westbound movements.

Parking Review

Based on the rates prescribed in the Town's Zoning By-law, a total of 110 vehicle parking spaces are required (98 resident spaces and 12 visitor spaces). In comparing the technical parking requirement with the proposed parking supply of 110 spaces, the proposed parking supply is compliant with the minimum requirements of the Zoning By-law.

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1.0 INTRODUCTION

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained through Humphries Planning Group Inc., on behalf of Mosaik Homes (the 'Client') to undertake a Transportation Impact Study in support of a Zoning By-law Amendment Application for a residential development. The subject lands are located at the northwest corner of the intersection of Albion Vaughan Road and Queensgate Boulevard, municipally addressed as 12944 Albion Vaughan Road, in the Town of Caledon (the 'Town').

The location of the subject lands is illustrated in **Figure 1-1**.

Figure 1-1 – Subject Site Location

The subject lands are located at the northwest corner of the Albion Vaughan Road and Queensgate Boulevard intersection, in the Town of Caledon. The subject lands currently consist of a single-family dwelling unit. The development proposal seeks to redevelop the subject lands to construct 49 3-storey townhouse units. Two (2) vehicle parking spaces will be provided to each unit, as well as 12 visitor parking spaces for the entire site, resulting in a total

vehicle parking supply of 110 spaces. Vehicular access to the site is envisioned via a full movement driveway onto Queensgate Boulevard.

The proposed site plan is illustrated in **Figure 1-2** and is enclosed in full detail in **Appendix A**.

Figure 1-2 – Proposed Site Plan

1.1. Study Approach

A Terms of Reference was submitted to municipal and regional staff which outlined the proposed work plan, prior to the preparation of this Study.

In accordance with the Terms of Reference provided to staff, weekday morning (AM) and weekday afternoon (PM) peak traffic periods were assessed. A baseline year of 2025 was selected for existing traffic conditions. Five (5) and 10 year horizons were requested by staff for the analysis and as such, 2030 and 2035 horizon years were analyzed.

Staff provided a response to our Terms of Reference on June 4, 2025 and requested an assessment of collision history. As such, Nextrans requested historical collision data from the Town; however, the data was not retrieved within the timeline of preparing this study and as such, this assessment was omitted.

It is to be noted that subsequent Staff to the initial response to our Terms of Reference on June 4, 2025, the Town's Transportation Coordinator provided additional comments on June 16, 2025, following an internal staff meeting, and requested that the intersection of Sant Farm Drive and Harvestview Avenue be included in the study area road

network. The intent of studying this intersection is to investigate the feasibility of providing additional access to the site via Esposito Drive. Notwithstanding this request, Nextrans opted to omit this intersection from our analysis as access via Esposito Drive is not being pursued by the Client as the boundaries of the site do not back directly onto the terminus of Esposito Drive. Further discussions of the feasibility of access via Esposito Drive are provided in Section 7; however, no quantitative analysis has been conducted in this Study.

The Terms of Reference and correspondence with the Town and the Region are enclosed in **Appendix B**.

2.0 EXISTING TRAFFIC CONDITIONS

2.1. Existing Road Network

The existing subject lands are located on the northwestern quadrant of the Albion Vaughan Road and Queensgate Boulevard intersection, in the Town of Caledon. The existing road network is described as follows:

Albion Vaughan Road is an arterial road under the jurisdiction of the Town of Caledon and travels generally in the north-south directions. Albion Vaughan Road has a two (2)-lane cross section (one (1) lane per direction) with auxiliary turning lanes at the intersection of Queensgate Boulevard and there is a posted speed limit of 60 km/h near the subject site.

Queensgate Boulevard is a collector road under the jurisdiction of the Town of Caledon. Queensgate Boulevard travels generally in the east-west directions and has a four (4)-lane cross section (two (2) lane per direction) with auxiliary turning lanes at the intersection of Albion Vaughan Road and there is a posted speed limit of 50 km/h near the subject site.

Sant Farm Drive is a local road under the jurisdiction of Town of Caledon. Sant Farm Drive travels generally in the north-south directions and has a two (2)-lane cross section (one (1) lanes per direction). There is a posted speed limit of 40 km/h near the subject site.Vehicular access is envisioned via a full movement driveway onto Queensgate Boulevard.

Landsbridge Street is a local road under the jurisdiction of Town of Caledon. Sant Farm Drive travels generally in the north-south directions and has a two (2)-lane cross section (one (1) lanes per direction). There is a posted speed limit of 40 km/h near the subject site.

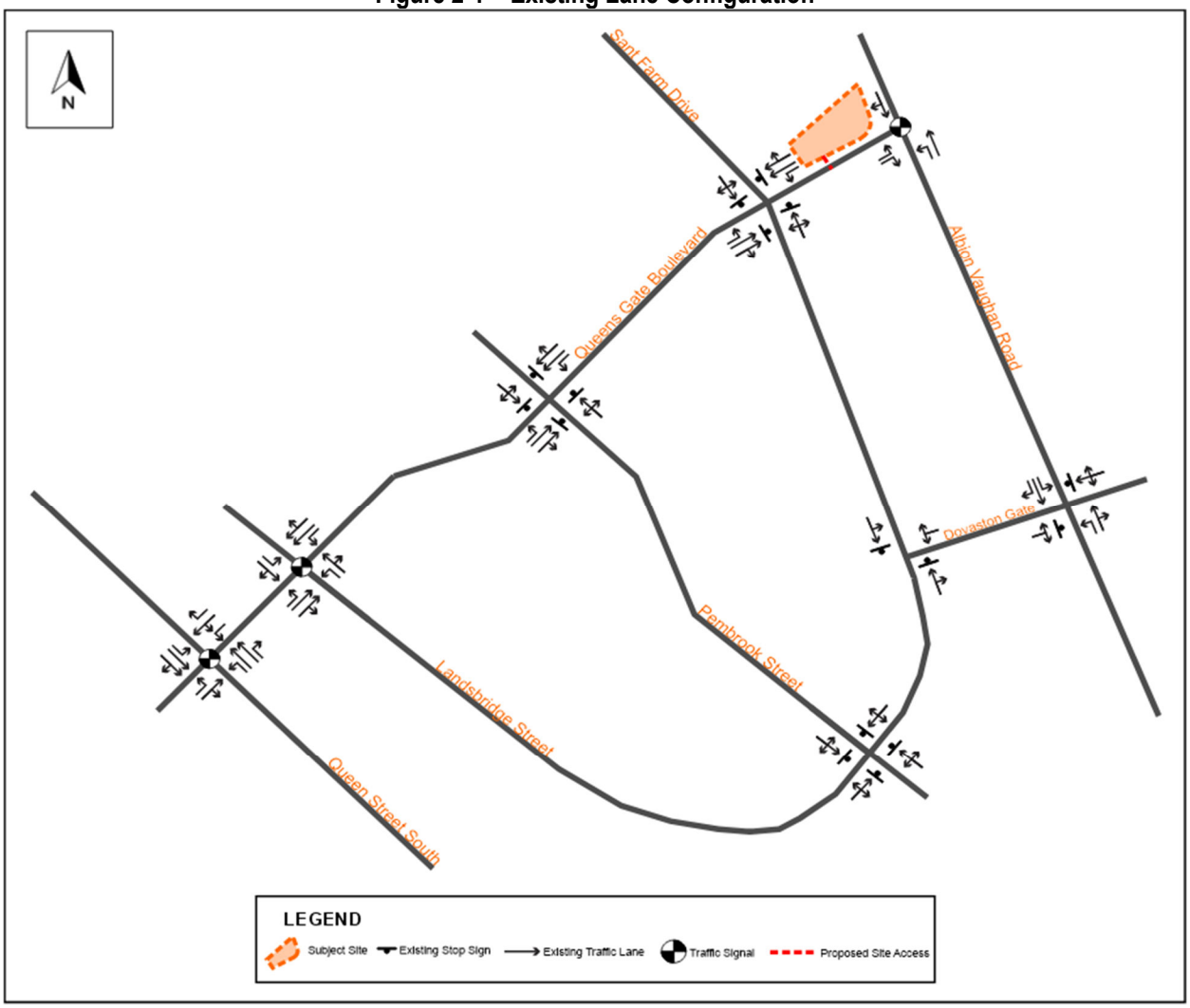
Dovaston Gate is a local road under the jurisdiction of Town of Caledon. Dovaston Gate travels generally in the east-west directions and has a two (2)-lane cross section (one (1) lanes per direction). There is a posted speed limit of 40 km/h near the subject site.

Pembrook Street is a local road under the jurisdiction of Town of Caledon. Pembrook Street travels generally in the east-west directions and has a two (2)-lane cross section (one (1) lanes per direction). There is a posted speed limit of 40 km/h near the subject site.

Queen Street South is a arterial road also referred to as Peel Regional Road 50 under the jurisdiction of the Region of Peel. Queen Street South travels generally in the north-south direction and has a four (4)-lane cross section (two (2) lanes per direction). There is a posted speed limit of 60 km/h near the subject site.

The existing lane configurations relevant to the study area are illustrated in **Figure 2-1**.

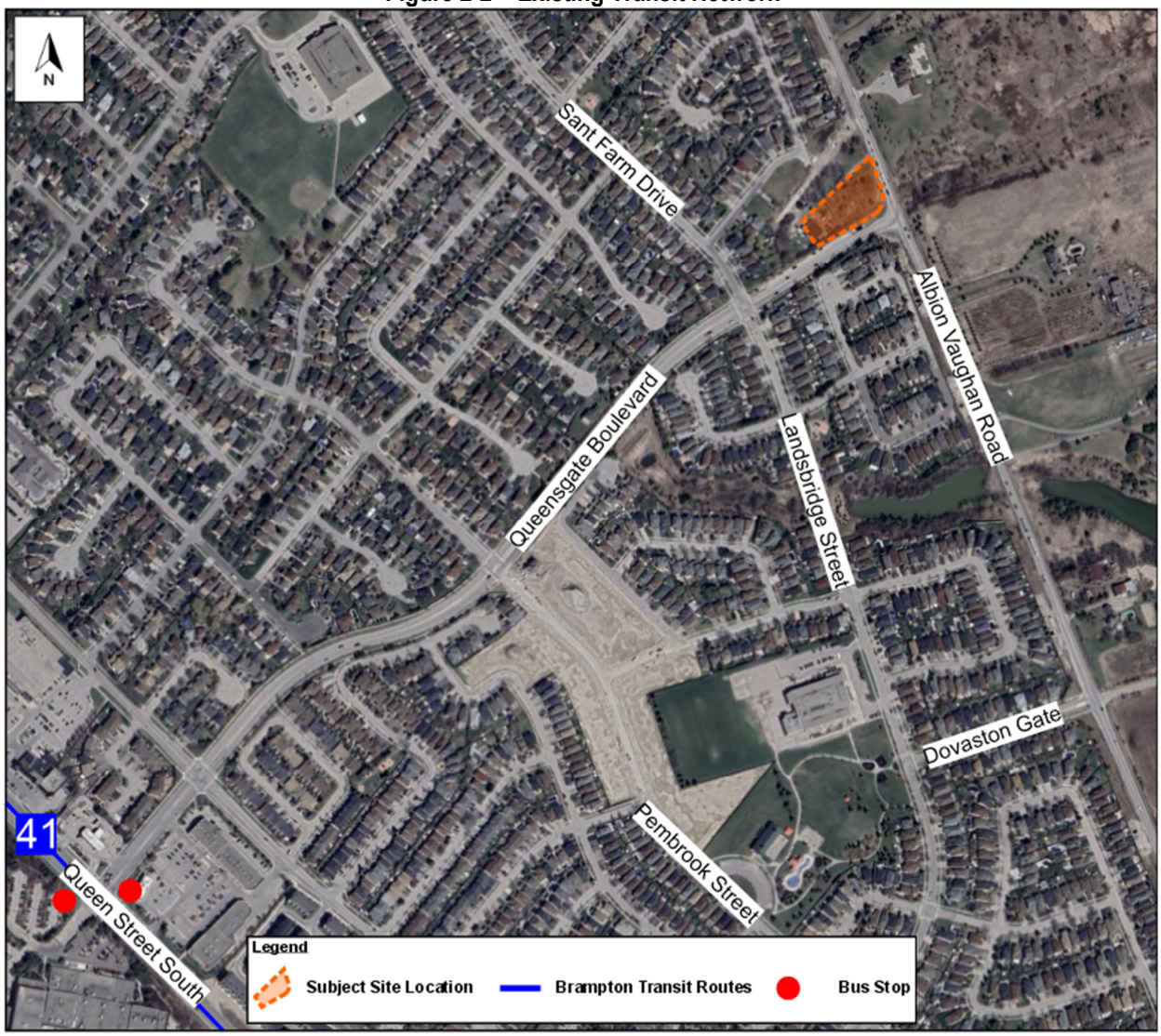
Figure 2-1 – Existing Lane Configuration



2.2. Existing Transit Network

The subject site is situated in an area with limited transit availability. It is noted that the Town of Caledon does not have a municipal transit system. As such, the only transit route available within the vicinity of the subject site is Brampton Transit Route #41. Based on the January 2025 Brampton Transit Rider guide, Brampton Transit Route #41 operates between Queen Street East in Brampton and Columbia Way in Caledon. The transit stops closest to the subject site are located at the intersection of Queensgate Boulevard and Queen Street South and is a 17-minute walk (approximately 1.3 km) from the subject site. Based on the January 2025 Route Frequency Guide, Route #41 operates during AM and PM peak periods from Monday to Friday with a frequency of 110 minutes.

Figure 2-2 – Existing Transit Network



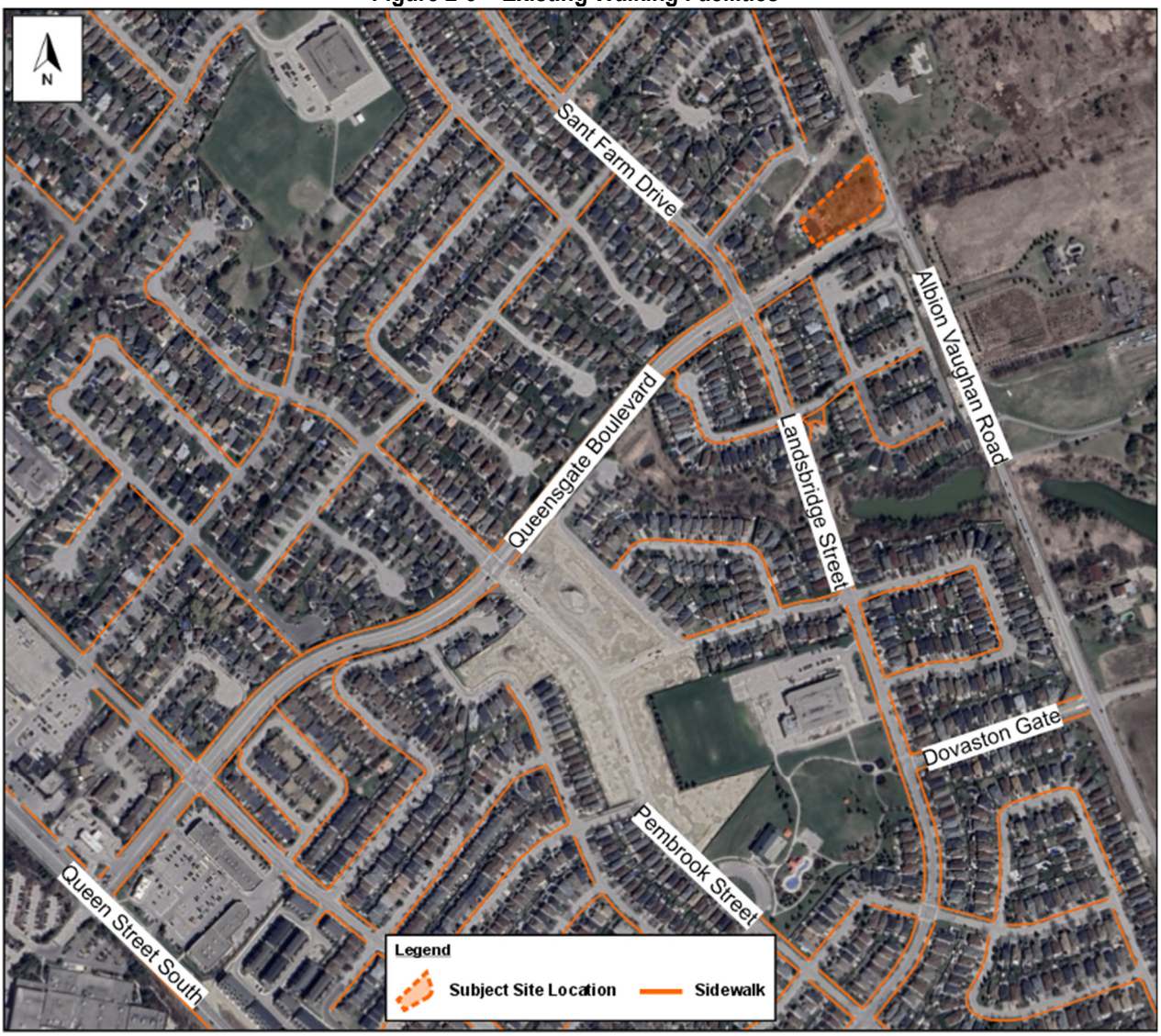
2.3. Existing Active Transportation Network

The area surrounding the proposed development is serviced with dedicated walkways. Currently, sidewalks are available as follows:

- Both sides of Queensgate Boulevard
- Both sides of Sant Farm Drive
- Both sides of Landsbridge Street
- Both sides of Dovaston Gate
- Throughout the nearby residential neighbourhoods

The existing walking facilities are illustrated in **Figure 2-2**.

Figure 2-3 – Existing Walking Facilities



Cycling

According to the Caledon Cycling Routes and Trails map, there is no multi use trails or signed bike routes within the vicinity of the subject site.

2.4. Existing Traffic Volumes

Weekday morning and afternoon peak period turning movement counts (TMC) were undertaken by Spectrum Traffic for all study area intersection during the weekday AM and PM peak periods. Existing traffic data, including TMC data, signal timing plans provided by Peel Region and AADT provided by the Town of Caledon, are enclosed in **Appendix C**. A summary of traffic data collection is provided in **Table 2.1**.

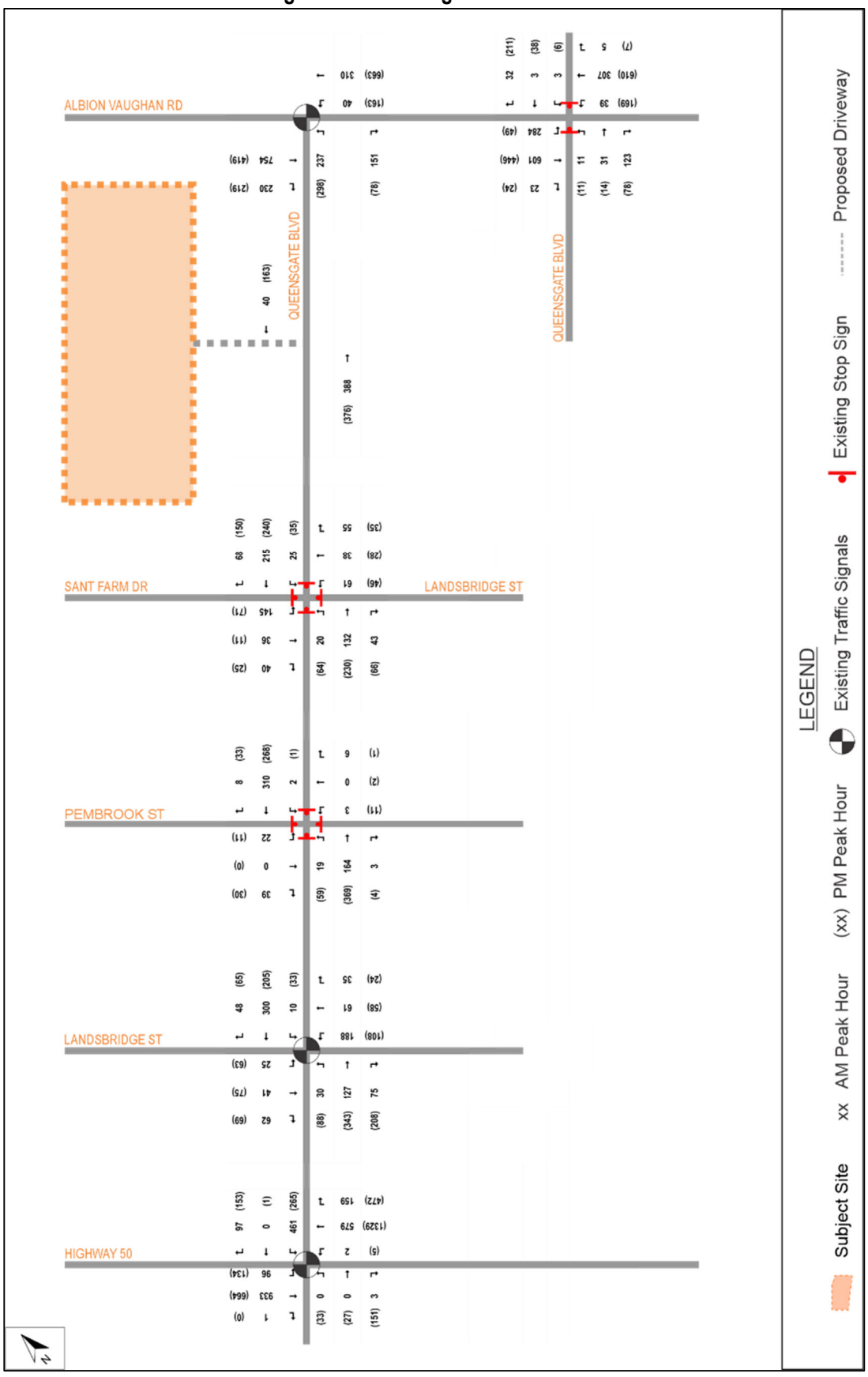
Table 2.1: Traffic Data Collection Summary

Intersection	Source	Survey Date
TMC Data		
Albion Vaughan Road & Queensgate Boulevard	Spectrum Traffic Inc.	June 20, 2024
Sant Farm Drive/Landsbridge Street and Queensgate Boulevard		
Pembrook Street and Queensgate Boulevard		
Landsbridge Street and Queensgate Boulevard		
Highway 50 and Queensgate Boulevard		
Dovaston Gate/King Vaughan Road and Albion-Vaughan Road		
Signal Timing Plans		
Albion Vaughan Road & Queensgate Boulevard	Peel Region	June 6, 2025
Landsbridge Street and Queensgate Boulevard		June 6, 2025
Highway 50 and Queensgate Boulevard		June 6, 2025
AADT Data		
Queensgate Boulevard	Town of Caledon	2020, 2022, 2023
Landsbridge Street		2019, 2022, 2023
Pembrook Street		2022, 2023, 2024
Sant Farm Drive		2021, 2022, 2023
Albion Vaughan Road		2022, 2023, 2024

2.5. Existing Traffic Assessment

The existing traffic volumes are illustrated in **Figure 2-4** and were analyzed using Synchro 10 software.

Figure 2-4 – Existing Traffic Volumes



The methodology used in Synchro follow the procedures described and outlined in the Highway Capacity Manual, published by the Transportation Research Board. The signalized intersections, as well as the partially controlled unsignalized intersections were assessed using HCM 2000 methodology, whereas the all-way stop-controlled (AWSC) intersections were assessed using HCM 2010 methodology. Intersection peak hour factor (PHF) was used for each study area intersection for weekday AM and PM peak hours, respectively. Storage lengths of turning lanes and link distances for through lanes are noted in the capacity analysis results table and were reflected in the Synchro model, measured back from the stop bars at each intersection.

The detailed results of the capacity analysis for weekday AM and PM peak hour are enclosed in **Appendix D** and the results of the signalized capacity analysis is summarized in **Table 2.2**.

Table 2.2: Level of Service – Existing Traffic Assessments (Signalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue 50th	Queue 95th	v/c	Delay (s)	LOS	Queue 50th	Queue 95th
Signalized Intersections												
Albion Vaughan Road & Queensgate Boulevard	-	**Overall**	**0.85**	**28.9**	**C**	-	-	**0.73**	**26.2**	**C**	-	-
	92	EBL	0.74	44.3	D	43.0	68.7	0.82	52.6	D	60.3	95.6
	92	EBR	0.10	31.8	C	0.0	15.4	0.05	32.6	C	0.0	11.6
	50	NBL	0.25	16.0	B	1.9	5.8	0.39	10.4	B	10.5	18.4
	500+	NBT	0.33	9.8	A	28.1	53.2	0.69	20.4	C	100.9	150.1
	500+	SBT	0.93	31.4	C	163.4	295.5	0.75	23.1	C	97.0	152.5
Landsbridge Street & Queensgate Boulevard	-	**Overall**	**0.34**	**14.6**	**B**	-	-	**0.36**	**14.6**	**B**	-	-
	50	EBL	0.09	12.7	B	2.7	7.5	0.19	13.8	B	7.3	16.1
	173	EBT	0.13	12.7	B	5.9	11.6	0.30	14.1	B	15.3	25.5
	60	WBL	0.02	12.1	B	0.8	3.4	0.10	13.0	B	2.7	7.8
	404	WBT	0.25	13.7	B	16.0	24.1	0.16	12.9	B	8.7	15.5
	30	NBL	0.43	19.0	B	20.8	37.1	0.43	21.4	C	10.7	24.7
	115	NBT	0.12	14.7	B	5.8	14.5	0.10	14.4	B	5.0	12.9
	30	SBL	0.06	14.1	B	2.3	6.7	0.12	14.8	B	5.5	12.8
	70	SBT	0.11	14.6	B	3.9	12.7	0.15	15.0	B	6.5	17.2
Highway 50 & Private Access/ Queensgate Boulevard	-	**Overall**	**0.60**	**27.2**	**C**	-	-	**0.79**	**38.2**	**D**	-	-
	60	EBL	0.85	63.0	E	50.0	107.4	0.58	65.3	E	8.2	22.0
	60	EBT	0.85	63.7	E	50.3	108.0	0.22	50.4	D	6.3	28.7
	70	WBL	0.07	35.9	D	0.0	8.5	0.75	66.4	E	36.1	61.3
	173	WBT	0.01	15.0	B	0.2	1.3	0.80	74.9	E	36.7	62.7
	173	WBR	0.37	19.3	B	40.7	71.4	0.10	46.0	D	0.0	18.6
	30	NBL	0.11	16.4	B	0.0	12.7	0.01	19.6	B	0.6	2.9
	740	NBT	0.22	11.0	B	7.5	19.3	0.87	39.3	D	180.0	251.8
	70	NBR	0.51	16.8	B	56.0	114.3	0.66	34.8	C	48.2	108.4
	90	SBL	0.85	63.0	E	50.0	107.4	0.68	36.2	D	18.8	45.4

Based on the capacity analysis results of the signalized intersections under existing traffic conditions, all movements of the study area intersections analyzed are currently operating with residual capacity, with acceptable levels of service, and with manageable delays and queue lengths, with the exception of the movements of the Highway 50 and Queensgate Boulevard intersection.

Based on the signal timing plans provided by Peel Region, the eastbound and westbound phases at the intersection of Highway 50 and Queensgate Boulevard do not operate concurrently but rather run sequentially. Serving eastbound and westbound movements in separate, sequential phases increases lost time and reduces effective green per direction, which can result in increased delay and longer queue dissipation times compared to concurrent

operations. This is reflected in the results of the capacity analysis during both AM and PM peak hour, as several movements of the Highway 50/Queensgate Boulevard intersection are projected to operate with a volume to capacity (v/c) ratio of 0.85 or higher. While movements are currently not fully saturated, it is expected that growth in the area may trigger operational deficiencies under future conditions.

Additionally, the southbound movement at the intersection of Albion Vaughan Road and Queensgate Boulevard is currently operating with a v/c ratio of 0.93, and with extensive queue lengths during AM peak hour. This is a result of the existing significant southbound volumes at the shared through-left movement. It is to be noted that the existing pavement width at the approach is adequate to accommodate both a southbound right turn lane and a southbound through lane, and based on field observations, drivers generally operate as though separate right-turn and through lanes are present. However, as separated turning facilities are not currently present, a shared through-right movement will continue to be modelled for the southbound approach of the intersection. **It is Nextrans' recommendation that the Town of Caledon and Peel Region consider the implementation of a separate right-turn late at the southbound approach of the Albion Vaughan Road and Queensgate Boulevard intersection.**

The results of the capacity analysis of the unsignalized intersections are summarized in **Table 2.3**.

Table 2.3: Level of Service – Existing Traffic Assessments (Unsignalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour				Weekday PM Peak Hour			
			v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	95th Queue (m)
Unsignalized Intersections										
Landsbridge Street/Sant Farm Drive & Queensgate Boulevard	115	NBLTR	0.31	12.2	B	1.3	0.23	11.6	B	0.9
	50	EBL	0.04	10.2	B	0.1	0.13	10.2	B	0.4
	405	EBT	0.18	10.8	B	0.7	0.29	11.2	B	1.2
	405	EBR	0.17	10.2	B	0.6	0.25	10.3	B	1
	40	WBL	0.05	9.9	A	0.2	0.07	9.7	A	0.2
	180	WBT	0.29	11.6	B	1.2	0.30	11.2	B	1.2
	180	WBTR	0.26	10.9	B	1	0.39	11.7	B	1.9
	62	SBLTR	0.45	14.7	B	2.3	0.23	11.9	B	0.9
Pembrook Street & Queensgate Boulevard	160	NBLTR	0.02	8.5	A	0.1	0.03	9.5	A	0.1
	60	EBL	0.04	8.5	A	0.1	0.10	8.8	A	0.3
	404	EBT	0.19	9.1	A	0.7	0.37	10.5	B	1.7
	404	EBR	0.10	8.4	A	0.3	0.19	8.8	A	0.7
	40	WBL	0.00	8.2	A	0	0.00	8.3	A	0
	405	WBT	0.34	10.3	B	1.5	0.27	9.7	A	1.1
	405	WBTR	0.19	9	A	0.7	0.18	8.7	A	0.6
	185	SBLTR	0.11	9	A	0.4	0.07	9	A	0.2
Albion Vaughan Road & Dovaston Gate/King Vaughan Road	212	EBLTR	0.93	100.5	F	55.7	0.78	91.3	F	35.4
	500+	WBLTR	0.21	29.4	D	5.9	0.94	81.2	F	67.5
	30	NBL	0.04	9.1	A	1.1	0.16	8.9	A	4.2
	30	SBL	0.24	8.9	A	7.3	0.05	9.0	A	1.2

Based on the capacity analysis results of the unsignalized intersections under existing traffic conditions, the unsignalized study area intersection are currently operating with residual capacity, with acceptable levels of service, and with manageable delays and queues lengths during weekday AM and PM peak hours, with the exception of the eastbound and westbound movements at the Albion Vaughan Road / Dovaston Gate / King Vaughan Road intersection.

Based on Nextrans' experience assessing unsignalized two-way stop-controlled intersections where the major road is a high-volume arterial road and the intersecting road is a local road; it is expected that the movements of the minor road experience operational deficiencies. This is due to Synchro being overly conservative when assessing levels of service under these conditions as factors such as platooning and gap opportunities are not considered in the analysis as these parameters are not available for modelling road networks in Synchro. It is expected that increased traffic volumes due to background growth along Albion Vaughan Road will continue to deteriorate the eastbound and westbound traffic operations. **Given the existing operation deficiencies, it is Nextrans' recommendation that the Town of Caledon and Peel Region continue to monitor the intersection operations at the Albion Vaughan Road / Dovaston Gate / King Vaughan Road intersection to explore opportunities for improvement.**

3.0 FUTURE BACKGROUND CONDITIONS

Five (5)-year and 10-year horizons were selected for this study in accordance with comments provided by Peel Region. As such, 2030 and 2035 future background traffic scenarios were assessed.

3.1. Future Corridor Growth

A 2% growth rate was established with reviewing agencies through our Terms of Reference, which was deemed acceptable to Town staff; however, the Transportation Coordinator advised that a 3-4% growth rate would be more appropriate on Queensgate Boulevard based on historical AADT data provided.

While Nextrans acknowledges that exponential growth calculations using the data provided by Town staff yield a 3-4% growth rate, it is crucial to note that data for each of the Queensgate Boulevard segments provided was collected during the years 2020, 2022 and 2023. It is to be noted that traffic volumes observed in 2020 were affected by travel behaviour changes associated with the COVID-19 pandemic and as such were not representative of typical traffic conditions. In reviewing the AADT data provided by the Town, growth rates established using only the 2022 and 2023 data sets yielded an average 0.5% growth rate, excluding the segment of Queensgate Boulevard between Pembrook Street and Sant Farms Drive, which saw over 11% growth with 2020 AADT and 23% growth without 2020 AADT – this is considered an outlier given the significant growth that does not align with growth in the area.

On this basis, a 2% growth rate was applied to the Highway 50 and Albion Vaughan Road corridors, as well as Queensgate Boulevard. Eastbound growth along Queensgate Boulelvard was derived from the inbound volumes resulting from the 2% growth rate applied to Highway 50, whereas westbound growth along Queensgate Boulevard was derived from inbound volumes resulting from the 2% growth rate applied to Albion Vaughan Road.

The additional 2030 and 2035 future background volumes resulting from the 2% growth rate are illustrated in **Figure 3-1** and **Figure 3-2**, respectively.

Figure 3-1 – 2030 Base Future Background Traffic Volumes

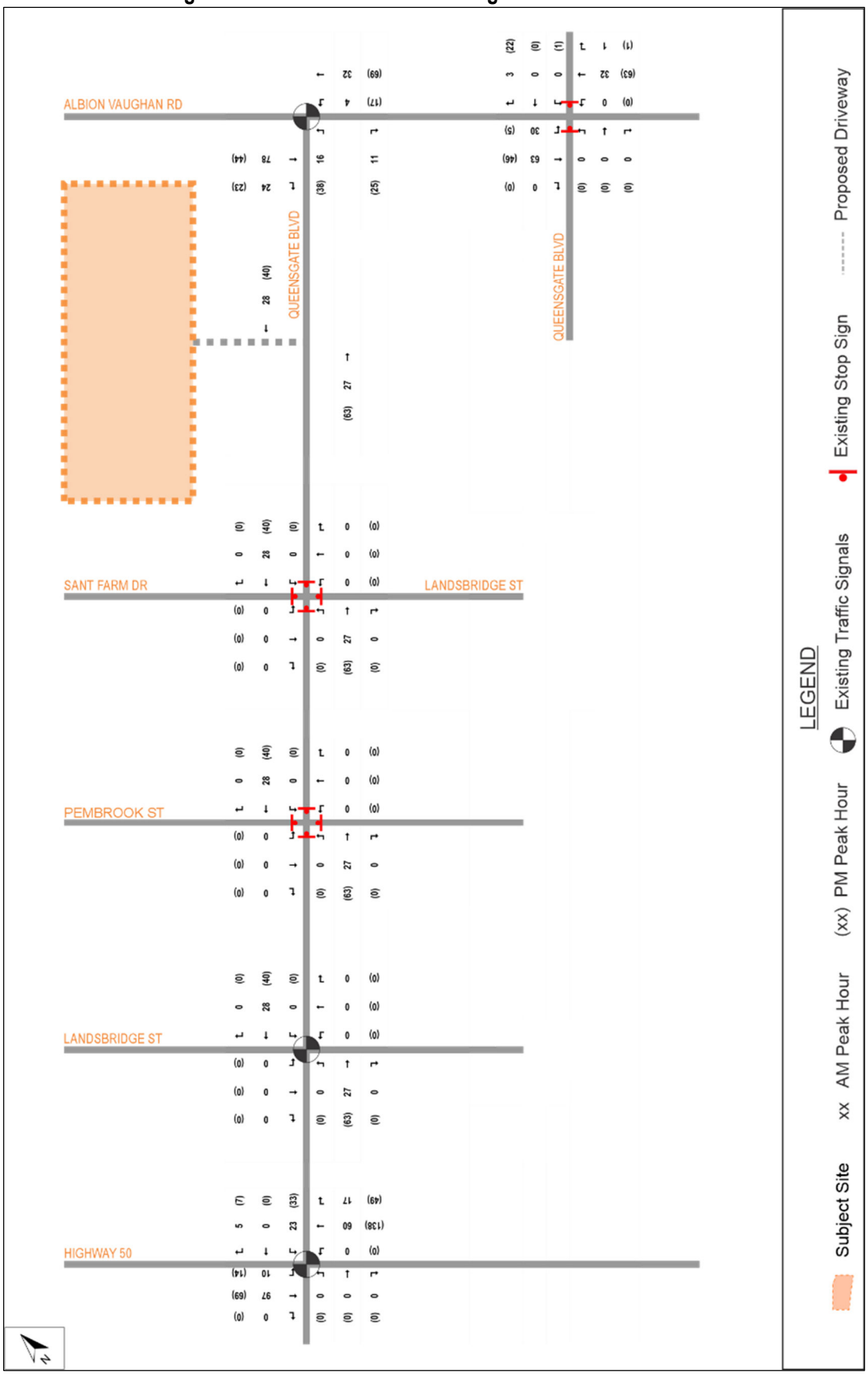
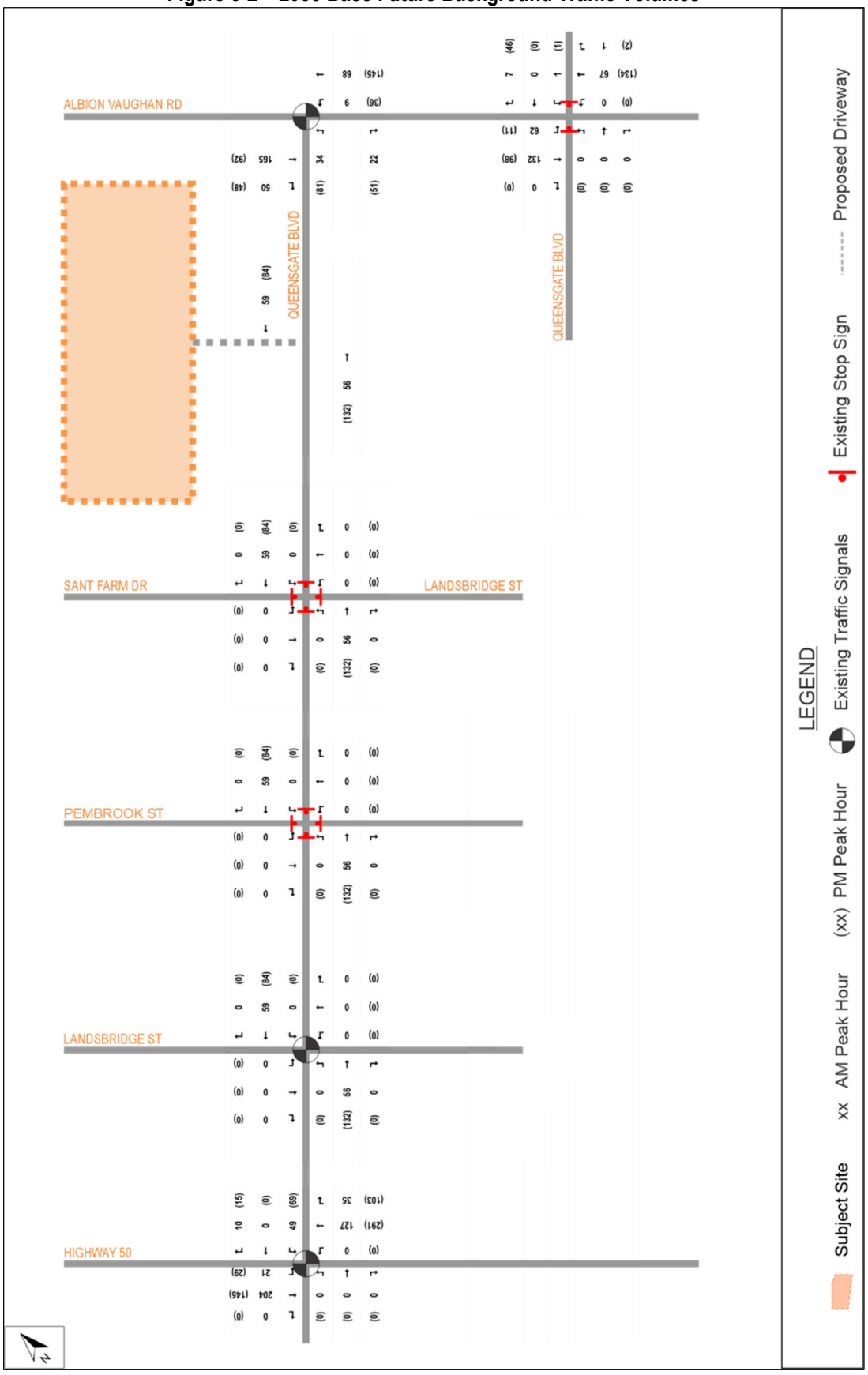


Figure 3-2 – 2035 Base Future Background Traffic Volumes



3.2. Planned Transportation Infrastructure Improvements

Based on Nextrans' review of the draft Bolton Secondary Plan, no road improvements were identified in the area.

While it is noted that the Town's Traffic Coordinator requested a sensitivity analysis for the George Bolton Parkway extension from Highway 50 to Albion Vaughan Road, it is difficult to determine the exact impacts without the forecasted EMME volumes. Given that the proposed extension of George Bolton Parkway is over 2km from the subject site, and is not within the study area road network, the impacts of the extension are estimated via the growth applied to both Highway 50 and Albion Vaughan Road.

Additionally, the Town's Traffic Coordinator requested a sensitivity analysis for the widening of Albion Vaughan Road to two lanes in each direction. While it is noted that a widening of the northbound and southbound lanes on Albion Vaughan Road will result in increased capacity for these movements at each of the Albion Vaughan Road intersections assessed in this Study, the results of the existing traffic assessment indicate that the movements of concern are the east/west movements at the Dovaston Gate/King Vaughan Road intersection and the southbound movement at the Queensgate Boulevard intersection. Accordingly, there are more appropriate mitigation measures that can be applied to address the existing operational deficiencies, which will be explored in Section 5 of this study.

3.3. Background Developments

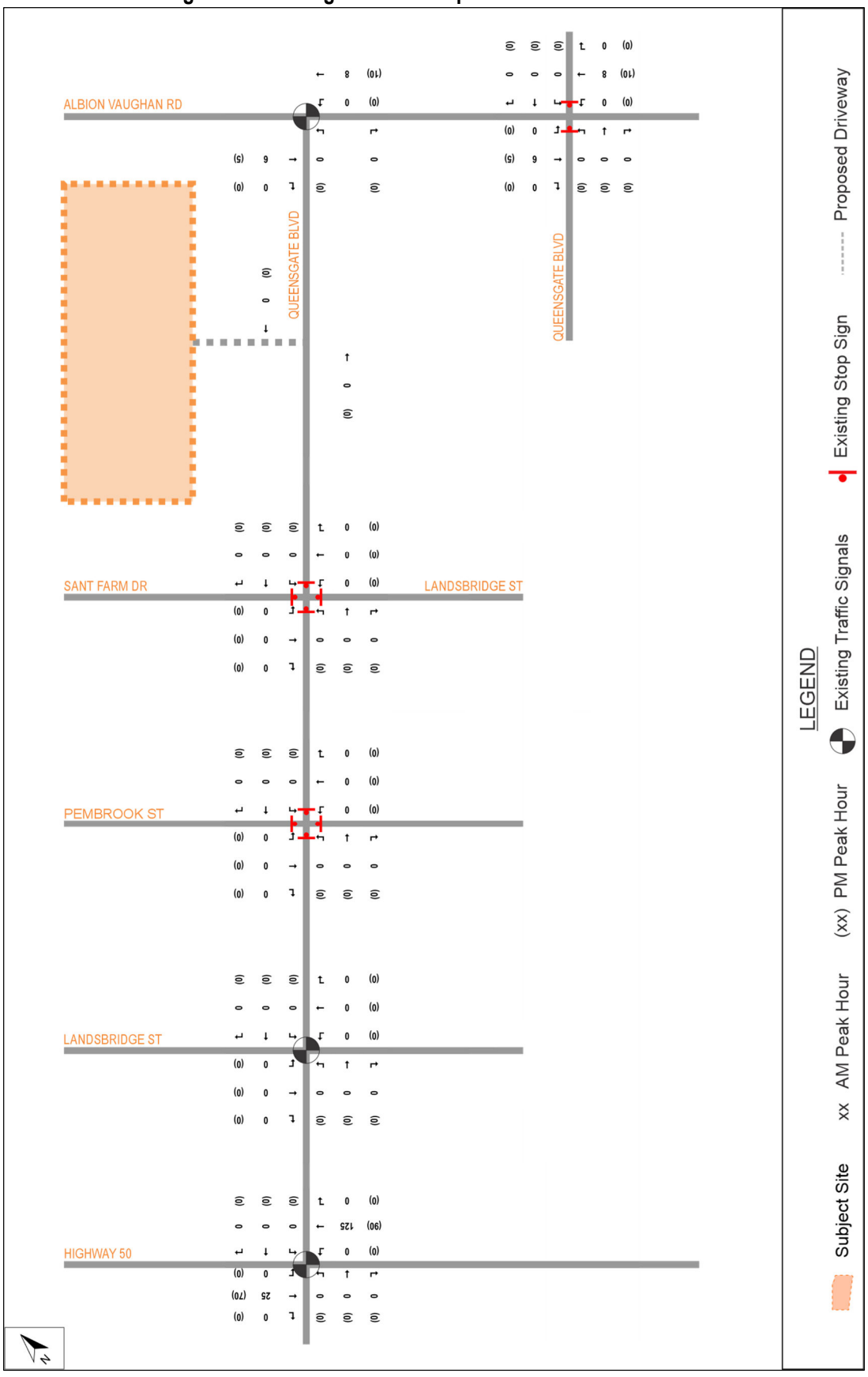
Based on correspondence with Town staff, two (2) background developments within the study area were identified and were included in our assessment. The details of the background developments are summarized in **Table 3.1**.

Table 3.1: Background Developments

Site Address	Description	Traffic Study Author
12148 Albion Vaughan Road	2 residential towers with 264 dwelling units	Paradigm Transportation Solutions Ltd. September 2024
12563 & 12599 Highway 50	5 mixed-use buildings inclusive of 2,238 residential units and 3,179m^2 of retail	BA Group January 2022

The sum of the background development site traffic volumes assigned to the road network is illustrated in **Figure 3-3** and the site traffic excerpts from the respective traffic studies for each of the background developments are enclosed in **Appendix E**.

Figure 3-3 – Background Development Site Traffic Volumes

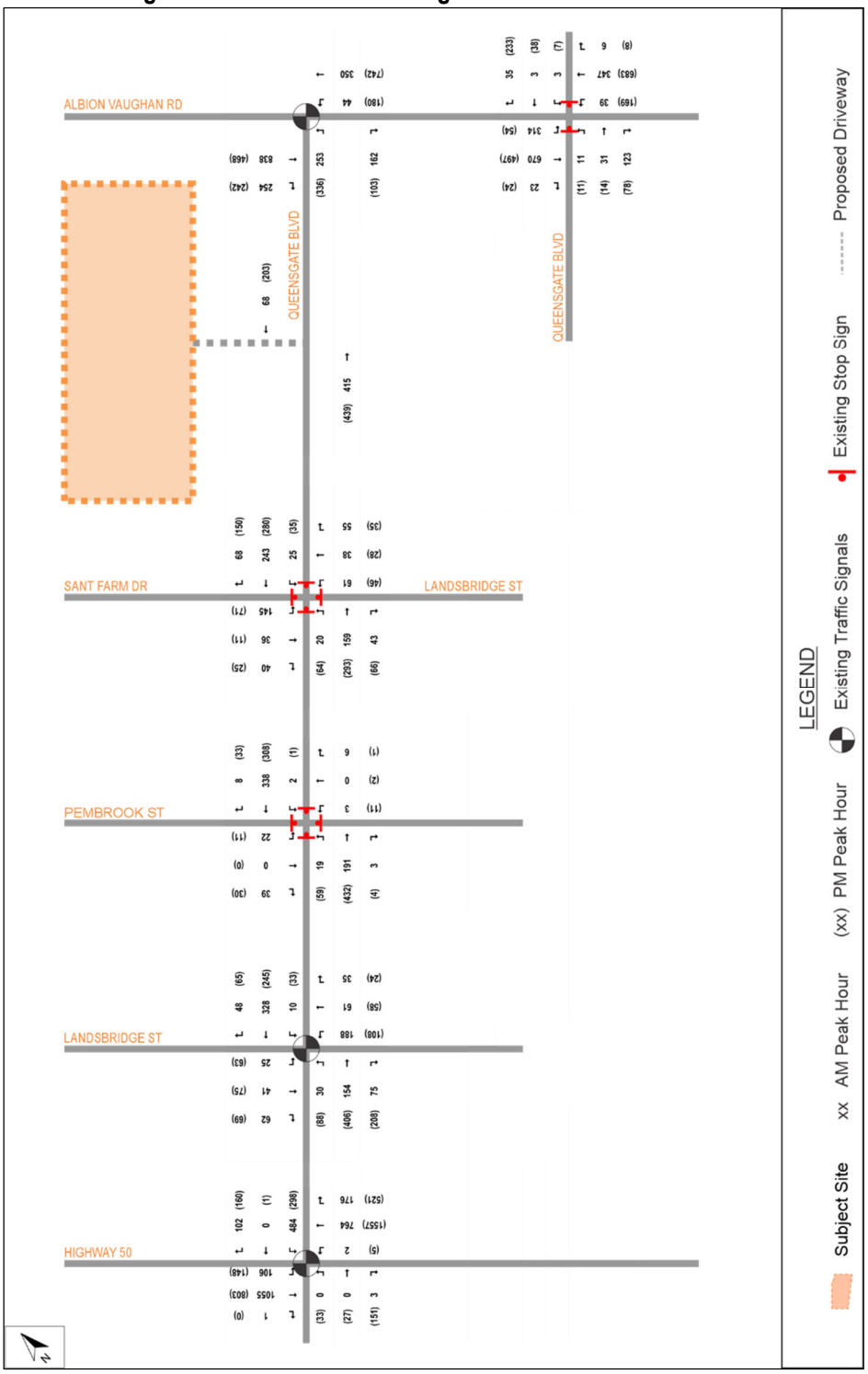


3.4. Future Background Traffic Assessment

3.4.1. 2030 Future Background Traffic Conditions

The estimated 2030 future background total traffic volumes (i.e., future background growth volumes + background development site traffic volumes) are illustrated in **Figure 3-4.**

Figure 3-4 – 2030 Future Background Total Traffic Volumes



The detailed results of the 2030 future background traffic analysis are enclosed in **Appendix F** and the results of the assessment of signalized intersections are summarized in **Table 3.2**.

Table 3.2: Level of Service – 2030 Future Background Traffic Assessments (Signalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue		v/c	Delay (s)	LOS	Queue	
						50th	95th				50th	95th
Signalized Intersections												
Albion Vaughan Road & Queensgate Boulevard	-	**Overall**	**0.94**	**44.3**	**D**	-	-	**0.82**	**31.5**	**C**	-	-
	92	EBL	0.76	45.4	D	46.3	73.5	0.88	58.5	E	69.4	115.2
	92	EBR	0.10	31.6	C	0.0	15.7	0.07	32.2	C	0.0	13.2
	50	NBL	0.32	23.0	C	2.2	6.3	0.51	13.7	B	12.4	20.3
	500+	NBT	0.37	10.6	B	34.0	61.5	0.79	25.0	C	125.1	181.7
	500+	SBT	1.04	57.6	E	236.2	344.8	0.85	30.0	C	122.3	203.8
Landsbridge Street & Queensgate Boulevard	-	**Overall**	**0.35**	**14.7**	**B**	-	-	**0.39**	**14.8**	**B**	-	-
	50	EBL	0.09	12.8	B	2.7	7.5	0.20	13.9	B	7.4	16.2
	173	EBT	0.15	12.9	B	7.2	13.3	0.37	14.7	B	21.3	33.1
	60	WBL	0.03	12.1	B	0.8	3.4	0.11	13.2	B	2.7	7.9
	404	WBT	0.28	13.9	B	17.7	26.2	0.19	13.2	B	11.0	18.4
	30	NBL	0.43	19.0	B	20.8	37.1	0.43	21.4	C	10.7	24.7
	115	NBT	0.12	14.7	B	5.8	14.5	0.10	14.4	B	5.0	12.9
	30	SBL	0.06	14.1	B	2.3	6.7	0.12	14.8	B	5.5	12.8
	70	SBT	0.11	14.6	B	3.9	12.7	0.15	15.0	B	6.5	17.2
Highway 50 & Private Access/ Queensgate Boulevard	-	**Overall**	**0.65**	**28.1**	**C**	-	-	**0.89**	**53.7**	**D**	-	-
	60	EBL	0.86	64.2	E	53.4	115.0	0.59	67.7	E	8.5	22.2
	60	EBT	0.86	64.2	E	53.4	115.0	0.22	51.4	D	6.6	28.7
	70	WBL	0.07	35.7	D	0.0	10.1	0.78	69.8	E	41.4	72.1
	173	WBT	0.01	16.0	B	0.2	1.3	0.84	79.1	E	42.3	77.1
	173	WBR	0.50	22.0	C	58.4	99.0	0.11	45.7	D	0.0	19.1
	30	NBL	0.12	17.2	B	0.0	13.4	0.02	20.7	C	0.6	2.9
	740	NBT	0.31	12.5	B	8.3	21.0	1.04	71.1	E	269.8	323.5
	70	NBR	0.59	18.6	B	66.8	135.4	0.79	43.9	D	77.6	157.7
	90	SBL	0.86	64.2	E	53.4	115.0	0.73	45.4	D	24.4	56.3

The capacity analysis results of the signalized intersections under 2030 future background conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following critical movements:

- Albion Vaughan Road/Queensgate Boulevard during AM peak hour: southbound through-right (v/c = 1.04)
- Highway 50/Queensgate Boulevard during PM peak hour: northbound through (v/c = 1.04)

As the identified critical movements were already operating near full saturation under existing traffic conditions, future corridor growth and background development traffic volumes were expected to introduce operational deficiencies. These conditions are expected to worsen with the additional growth forecasted under the 10-year horizon.

The results of the 2030 future background capacity analysis of the unsignalized intersections are summarized in **Table 3.3**.

Table 3.3: Level of Service – 2030 Future Background Traffic Assessments (Unsignalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour				Weekday PM Peak Hour			
			v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	95th Queue (m)
Unsignalized Intersections										
Landsbridge Street/Sant Farm Drive & Queensgate Boulevard	115	NBLTR	0.32	12.6	B	1.4	0.24	12.1	B	0.9
	50	EBL	0.04	10.3	B	0.1	0.13	10.4	B	0.5
	405	EBT	0.22	11.3	B	0.8	0.37	12.5	B	1.7
	405	EBR	0.19	10.5	B	0.7	0.30	11	B	1.2
	40	WBL	0.05	10.1	B	0.2	0.07	9.8	A	0.2
	180	WBT	0.33	12.4	B	1.4	0.36	12.2	B	1.6
	180	WBTR	0.29	11.3	B	1.2	0.43	12.6	B	2.1
	62	SBLTR	0.47	15.3	C	2.4	0.24	12.3	B	0.9
Pembrook Street & Queensgate Boulevard	160	NBLTR	0.02	8.6	A	0.1	0.03	9.7	A	0.1
	60	EBL	0.04	8.6	A	0.1	0.10	8.9	A	0.3
	404	EBT	0.22	9.4	A	0.8	0.43	11.5	B	2.2
	404	EBR	0.11	8.5	A	0.4	0.22	9.1	A	0.8
	40	WBL	0.00	8.2	A	0	0.00	8.4	A	0
	405	WBT	0.38	10.8	B	1.8	0.32	10.3	B	1.4
	405	WBTR	0.21	9.2	A	0.8	0.20	9	A	0.8
	185	SBLTR	0.12	9.2	A	0.4	0.07	9.2	A	0.2
Albion Vaughan Road & Dovaston Gate/King Vaughan Road	212	EBLTR	1.21	203.3	F	77.4	1.21	252.8	F	56.8
	500+	WBLTR	0.33	46.3	D	10.1	1.19	162.4	F	101.7
	30	NBL	0.05	9.4	A	1.1	0.16	9.1	A	4.4
	30	SBL	0.28	9.2	A	8.7	0.06	9.3	A	1.5

The capacity analysis results of the unsignalized intersections under 2030 future background conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following critical movements at the intersection of Albion Vaughan Road/Dovaston Gate/King Vaughan Road

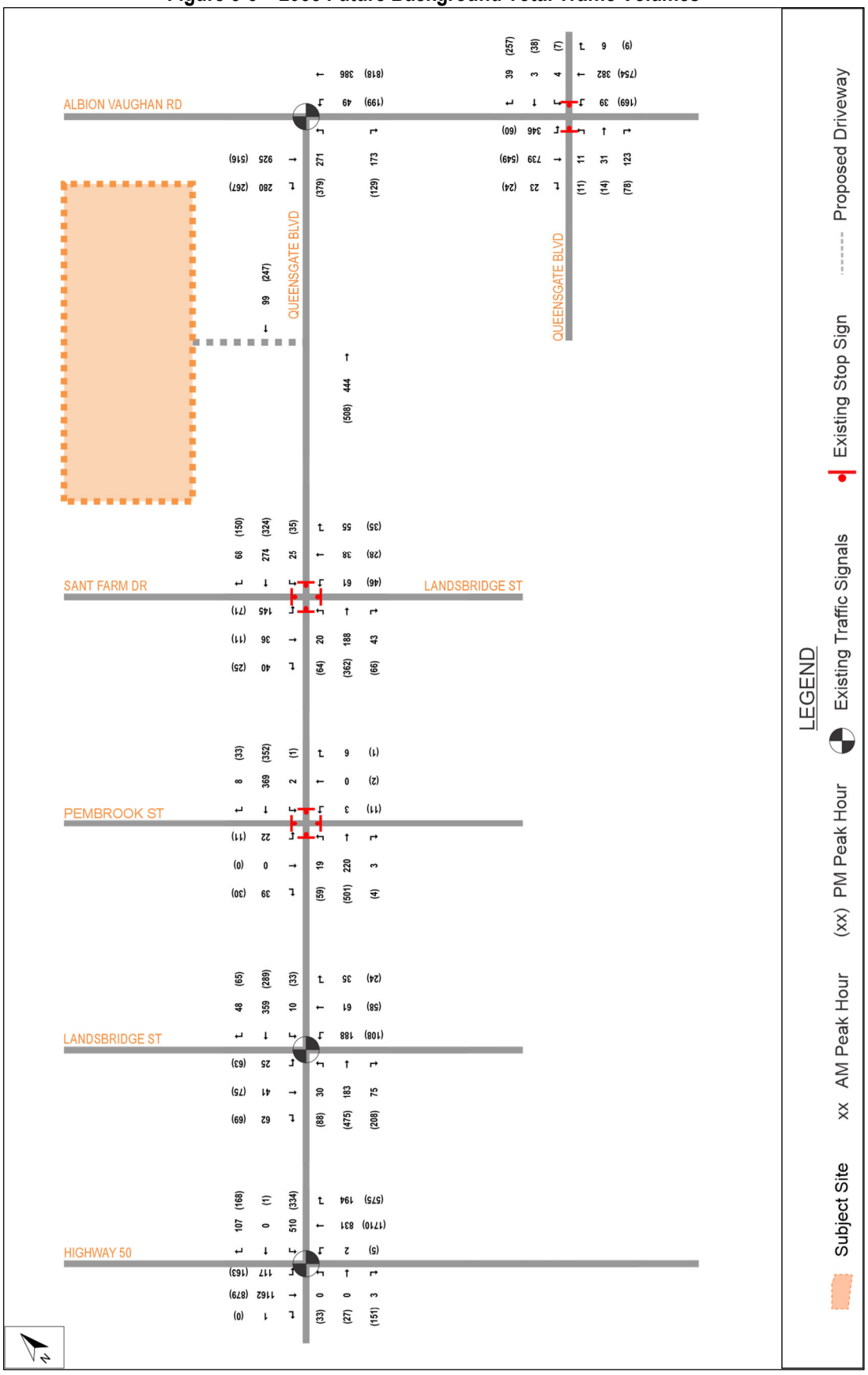
- AM peak hour: eastbound movement (v/c = 1.21)
- PM peak hour: eastbound movement (v/c = 1.21), westbound movement (v/c = 1.19)

It should be noted that a v/c ratio greater than 1.00 is theoretically impossible, as it implies a traffic demand exceeding the physical capacity of the movement. As the identified critical movements were already operating near full saturation under existing traffic conditions, future corridor growth and background development traffic volumes were expected to introduce operational deficiencies. These conditions are also expected to worsen with the additional growth forecasted under the 10-year horizon.

3.4.2. 2035 Future Background Traffic Conditions

The estimated 2030 future background total traffic volumes (i.e., future background growth volumes + background development site traffic volumes) are illustrated in **Figure 3-5.**

Figure 3-5 – 2035 Future Background Total Traffic Volumes



The detailed results of the 2035 future background traffic analysis are enclosed in **Appendix G** and the results of the assessment of signalized intersections are summarized in **Table 3.4**.

Table 3.4: Level of Service – 2035 Future Background Traffic Assessments (Signalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue 50th	Queue 95th	v/c	Delay (s)	LOS	Queue 50th	Queue 95th
Signalized Intersections												
Albion Vaughan Road & Queensgate Boulevard	**-**	**Overall**	**1.03**	**76.4**	**E**	**-**	**-**	**0.92**	**42.2**	**D**	**-**	**-**
	92	EBL	0.78	47.7	D	50.4	79.0	0.94	69.7	E	81.2	137.5
	92	EBR	0.11	32.0	C	0.0	16.3	0.08	32.0	C	0.0	14.6
	50	NBL	0.31	22.7	C	2.6	6.7	0.69	23.0	C	13.9	31.0
	500+	NBT	0.42	12.4	B	40.2	69.7	0.88	33.1	C	151.2	235.3
	500+	SBT	1.18	112.0	F	290.3	397.6	0.95	44.9	D	151.2	239.4
Landsbridge Street & Queensgate Boulevard	**-**	**Overall**	**0.36**	**14.7**	**B**	**-**	**-**	**0.43**	**15.1**	**B**	**-**	**-**
	50	EBL	0.09	12.8	B	2.7	7.5	0.21	14.0	B	7.4	16.3
	173	EBT	0.17	13.0	B	8.7	15.3	0.43	15.4	B	27.5	40.7
	60	WBL	0.03	12.1	B	0.8	3.4	0.13	13.5	B	2.7	8.1
	404	WBT	0.30	14.1	B	19.6	28.6	0.22	13.4	B	13.6	21.7
	30	NBL	0.43	19.0	B	20.8	37.1	0.43	21.4	C	10.7	24.7
	115	NBT	0.12	14.7	B	5.8	14.5	0.10	14.4	B	5.0	12.9
	30	SBL	0.06	14.1	B	2.3	6.7	0.12	14.8	B	5.5	12.8
	70	SBT	0.11	14.6	B	3.9	12.7	0.15	15.0	B	6.5	17.2
Highway 50 & Private Access/ Queensgate Boulevard	**-**	**Overall**	**0.71**	**29.6**	**C**	**-**	**-**	**0.97**	**78.3**	**E**	**-**	**-**
	60	EBL	0.87	65.7	E	57.5	124.2	0.60	70.3	E	8.7	22.4
	60	EBT	0.87	65.7	E	57.5	124.2	0.23	52.5	D	6.7	28.7
	70	WBL	0.07	35.5	D	0.0	11.4	0.83	75.1	E	47.5	86.1
	173	WBT	0.01	17.2	B	0.2	1.3	0.89	89.2	F	48.5	91.1
	173	WBR	0.56	23.9	C	66.1	109.9	0.11	45.4	D	0.0	19.4
	30	NBL	0.14	18.2	B	1.0	15.4	0.02	21.8	C	0.7	2.9
	740	NBT	0.37	13.9	B	9.3	22.8	1.16	120.2	F	322.2	371.3
	70	NBR	0.65	20.7	C	77.3	155.9	0.91	60.1	E	106.5	192.3
	90	SBL	0.87	65.7	E	57.5	124.2	0.80	54.7	D	29.6	67.4

The capacity analysis results of the signalized intersections under 2035 future background conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following critical movements:

- Albion Vaughan Road/Queensgate Boulevard during AM peak hour: southbound through-right (v/c = 1.18)
- Highway 50/Queensgate Boulevard during PM peak hour: northbound through (v/c = 1.16)

The results of the 2035 future background capacity analysis of the unsignalized intersections are summarized in **Table 3.3**.

Table 3.5: Level of Service – 2035 Future Background Traffic Assessments (Unsignalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour				Weekday PM Peak Hour			
			v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	95th Queue (m)
Unsignalized Intersections										
Landsbridge Street/Sant Farm Drive & Queensgate Boulevard	115	NBLTR	0.33	13.1	B	1.4	0.25	12.6	B	1
	50	EBL	0.05	10.4	B	0.1	0.14	10.5	B	0.5
	405	EBT	0.27	12	B	1.1	0.47	14.5	B	2.5
	405	EBR	0.22	11	B	0.8	0.35	11.9	B	1.5
	40	WBL	0.06	10.2	B	0.2	0.07	10	A	0.2
	180	WBT	0.38	13.3	B	1.7	0.42	13.5	B	2.1
	180	WBTR	0.31	11.8	B	1.3	0.47	13.6	B	2.5
	62	SBLTR	0.48	16	C	2.6	0.25	12.8	B	1
Pembrook Street & Queensgate Boulevard	160	NBLTR	0.02	8.8	A	0.1	0.03	10	A	0.1
	60	EBL	0.04	8.6	A	0.1	0.10	8.9	A	0.3
	404	EBT	0.26	9.8	A	1	0.51	12.8	B	2.9
	404	EBR	0.13	8.7	A	0.5	0.26	9.5	A	1
	40	WBL	0.00	8.3	A	0	0.00	8.5	A	0
	405	WBT	0.42	11.3	B	2	0.37	11.1	B	1.7
	405	WBTR	0.23	9.5	A	0.9	0.23	9.3	A	0.9
	185	SBLTR	0.12	9.4	A	0.4	0.08	9.5	A	0.2
Albion Vaughan Road & Dovaston Gate/King Vaughan Road	212	EBLTR	1.59	375.0	F	99.4	2.24	755.7	F	82.1
	500+	WBLTR	0.85	194.5	D	28.5	1.48	281.7	F	140.6
	30	NBL	0.05	9.7	A	1.2	0.17	9.3	A	4.7
	30	SBL	0.32	9.6	A	10.4	0.07	9.7	A	1.8

The capacity analysis results of the unsignalized intersections under 2035 future background conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following critical movements at the intersection of Albion Vaughan Road/Dovaston Gate/King Vaughan Road:

- AM peak hour: eastbound movement (v/c = 1.59)
- PM peak hour: eastbound movement (v/c = 2.24), westbound movement (v/c = 1.48)

As previously noted, v/c ratio's greater than 1.00 are theoretically impossible; however, the critical movements identified throughout the study area indicate that mitigation will be required under the forecasted future background traffic conditions, prior to the addition of the site traffic generated by the proposed development.

Given the constrained traffic operations under existing conditions at the study area intersections, which are projected to experience continued deterioration under forecasted future background traffic conditions, we maintain our previous recommendation that the Town of Caledon and Peel Region review the identified critical movements to determine appropriate mitigation.

4.0 SITE TRAFFIC

4.1. Trip Generation

As previously identified, the development proposal is to construct 49 3-storey townhouse units. Trip rates and site generated trips were derived from the information contained in the *Trip Generation Manual, 12th Edition* published by the Institute of Transportation Engineers (ITE) for "Single-Family Attached Housing" (LUC 215).

The trip generation summary is detailed in **Table 4.1**.

Table 4.1 – Site Traffic Trip Generation

ITE Land Use	Unit Count	Parameter	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
LUC 215	49	Gross Trips	6	17	23	14	11	25

Based on the trip generation calculations, the proposed development is projected to generate a total of 23 new two-way trips (six (6) inbound and 17 outbound) and 25 new two-way trips (14 inbound and 11 outbound) during the weekday AM peak hour and PM peak hour, respectively.

4.2. Trip Distribution

The distribution of residential site-generated traffic was estimated using data extracted from the 2022 Transportation Tomorrow Survey (TTS) for Traffic Analysis Zone (TAZ) 3192. as well as assumptions based on existing road configuration and routes that travellers would be likely to take when accessing the subject site. Trip distribution is summarized in **Table 4.2** and TTS data extraction is provided in **Appendix H**.

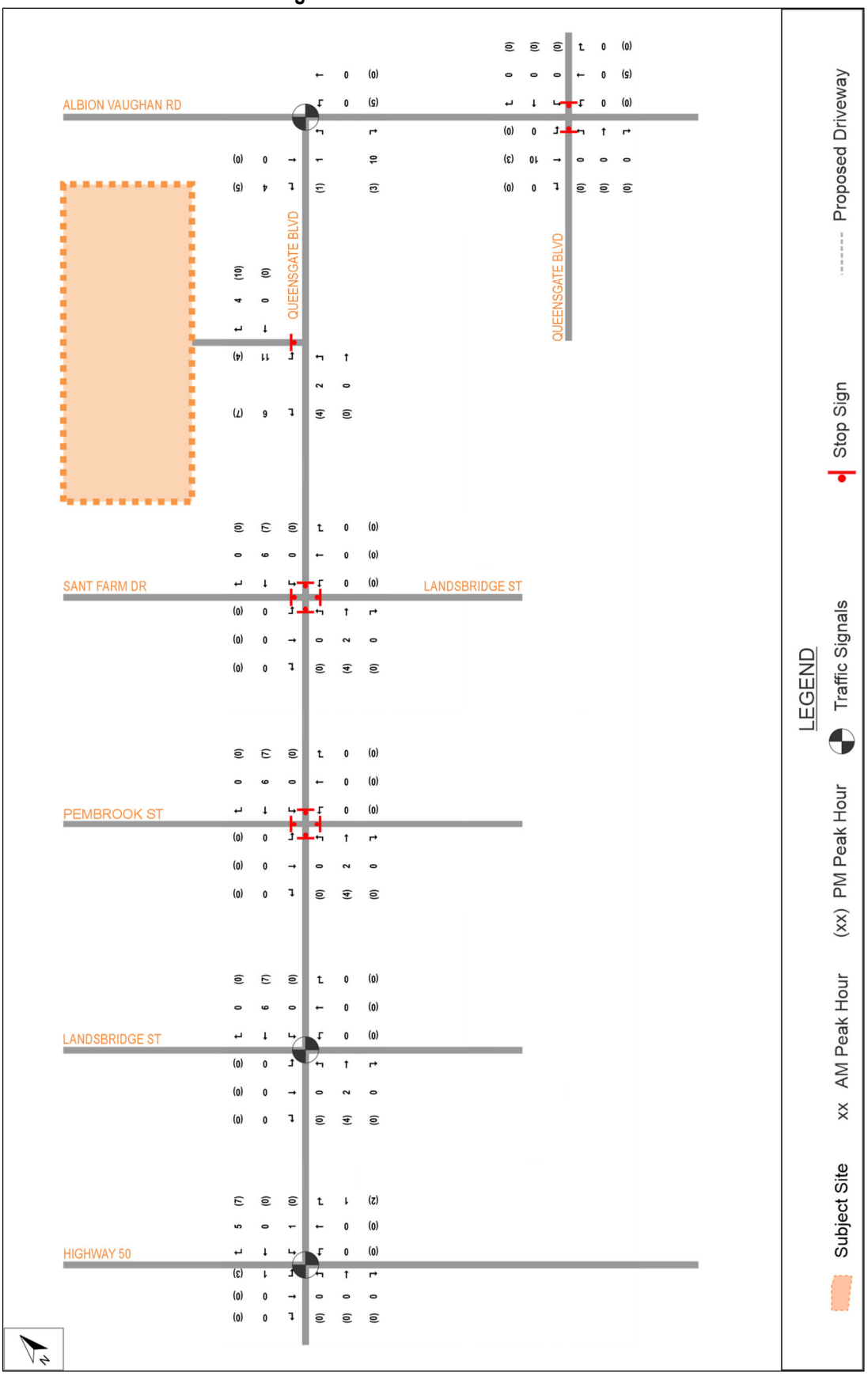
Table 4.2 – Site Traffic Trip Distribution

Corridor	Direction	AM		PM	
		Inbound	Outbound	Inbound	Outbound
Albion Vaughan Road	North	62%	5%	32%	7%
	South	3%	58%	36%	28%
Highway 50	North	23%	30%	20%	65%
	South	12%	8%	12%	0%
Total		**100%**	**100%**	**100%**	**100%**

The June 16th comments provided by staff on our Terms of Reference requested trip assignment at the Landsbridge Street and Dovaston Gate intersection; however, based on our review of the study area, the most logical route for traveling to/from the south along Albion Vaughan Road is via the Albion Vaughan Road/Queensgate Boulevard intersection as this is the fastest and most convenient route. Additionally, the future background traffic assessments indicate that there is an abundance of residual capacity at the eastbound right and northbound left movements of this intersection (i.e., the movements that would facilitate the inbound/outbound trips in this direction). On this basis, trip assignment at the Landsbridge and Dovaston Gate intersection was not included in the analysis.

Trip assignment for all site generated traffic is illustrated in **Figure 4-1**.

Figure 4-1 – Site Traffic Volumes

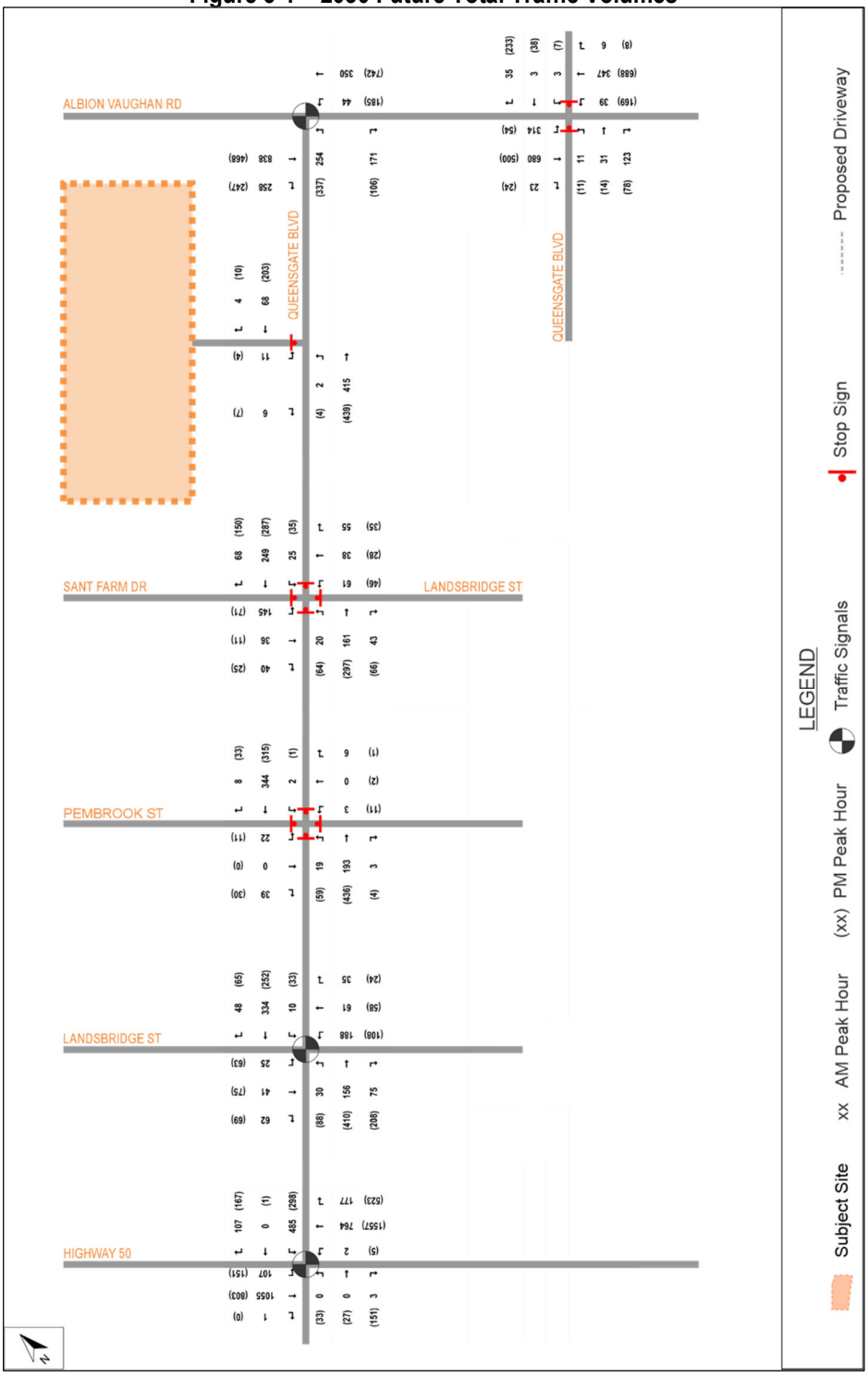


5.0 FUTURE TOTAL CONDITIONS

5.1. 2030 Future Total Traffic Assessment

The forecasted 2030 future total traffic volumes (2030 future background traffic volumes plus site generated traffic volumes) are illustrated in **Figure 5-1**.

Figure 5-1 – 2030 Future Total Traffic Volumes



The detailed results of the 2030 future total traffic analysis are enclosed in **Appendix I** and the results of the assessment of the signalized intersections are summarized in **Table 5.1**.

Table 5.1: Level of Service – 2030 Future Total Traffic Assessments (Signalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue		v/c	Delay (s)	LOS	Queue	
						50th	95th				50th	95th
Signalized Intersections												
Albion Vaughan Road & Queensgate Boulevard	-	**Overall**	**0.94**	**45.0**	**D**	-	-	**0.83**	**31.8**	**C**	-	-
	92	EBL	0.76	45.6	D	46.5	73.8	0.88	59.2	E	69.6	116.1
	92	EBR	0.11	31.7	C	0.0	16.1	0.07	32.2	C	0.0	13.4
	50	NBL	0.32	23.0	C	2.2	6.3	0.53	14.2	B	12.8	20.8
	500+	NBT	0.37	10.6	B	34.0	61.5	0.79	25.0	C	125.3	181.7
	500+	SBT	1.04	58.7	E	238.5	347.2	0.85	30.5	C	124.1	206.3
Landsbridge Street & Queensgate Boulevard	-	**Overall**	**0.35**	**14.7**	**B**	-	-	**0.40**	**14.8**	**B**	-	-
	50	EBL	0.09	12.8	B	2.7	7.5	0.20	13.9	B	7.4	16.2
	173	EBT	0.15	12.9	B	7.3	13.4	0.37	14.8	B	21.7	33.6
	60	WBL	0.03	12.1	B	0.8	3.4	0.11	13.2	B	2.7	7.9
	404	WBT	0.28	13.9	B	18.2	26.7	0.20	13.2	B	11.4	18.9
	30	NBL	0.43	19.0	B	20.8	37.1	0.43	21.4	C	10.7	24.7
	115	NBT	0.12	14.7	B	5.8	14.5	0.10	14.4	B	5.0	12.9
	30	SBL	0.06	14.1	B	2.3	6.7	0.12	14.8	B	5.5	12.8
	70	SBT	0.11	14.6	B	3.9	12.7	0.15	15.0	B	6.5	17.2
Highway 50 & Private Access/ Queensgate Boulevard	-	**Overall**	**0.65**	**28.2**	**C**	-	-	**0.89**	**53.9**	**D**	-	-
	60	EBL	0.86	63.8	E	53.5	115.0	0.59	67.8	E	8.5	22.2
	60	EBT	0.86	64.2	E	53.7	115.5	0.23	51.5	D	6.6	28.7
	70	WBL	0.07	35.7	D	0.0	11.4	0.78	69.8	E	41.4	72.1
	173	WBT	0.01	16.0	B	0.2	1.3	0.84	80.3	F	42.3	77.1
	173	WBR	0.50	22.1	C	58.6	99.0	0.11	45.8	D	0.0	19.4
	30	NBL	0.12	17.3	B	0.0	13.4	0.02	20.8	C	0.6	2.9
	740	NBT	0.31	12.6	B	8.4	21.2	1.04	71.4	E	269.8	323.5
	70	NBR	0.59	18.7	B	66.8	135.4	0.79	44.3	D	78.3	159.1
	90	SBL	0.86	63.8	E	53.5	115.0	0.74	46.8	D	25.2	58.6

The capacity analysis results of the signalized intersections under 2035 future total traffic conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following critical movements:

- Albion Vaughan Road/Queensgate Boulevard during AM peak hour: southbound through-right (v/c = 1.04)
- Highway 50/Queensgate Boulevard during PM peak hour: northbound through (v/c = 1.04)

It is to be noted that in comparing the results of the 2030 future total traffic analysis with the results of the 2030 future background traffic analysis, there is a negligible difference in the overall traffic operations. At the critical southbound through-right movement at the Albion Vaughan Road/Queesngate Boulevard intersection, the forecasted site traffic will result in no increase to v/c or change in LOS and will increase delay by less than one (1) second and will increase the average and 95th percentile queue lengths by less than 3m. Similarly, at the critical northbound through movement at the Highway 50 and Queensgate Boulevard intersection, the forecasted site traffic will result in only a 0.3 second increase in projected delay.

The results of the 2035 future background capacity analysis of the unsignalized intersections are summarized in **Table 3.3**.

Table 5.2: Level of Service – 2030 Future Total Traffic Assessments (Unsignalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour				Weekday PM Peak Hour			
			v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	95th Queue (m)
Unsignalized Intersections										
Landsbridge Street/Sant Farm Drive & Queensgate Boulevard	115	NBLTR	0.32	12.6	B	1.4	0.24	12.1	B	0.9
	50	EBL	0.04	10.3	B	0.1	0.13	10.4	B	0.5
	405	EBT	0.23	11.4	B	0.8	0.38	12.6	B	1.8
	405	EBR	0.19	10.6	B	0.7	0.30	11.1	B	1.3
	40	WBL	0.05	10.1	B	0.2	0.07	9.8	A	0.2
	180	WBT	0.34	12.5	B	1.5	0.37	12.3	B	1.7
	180	WBTR	0.29	11.4	B	1.2	0.44	12.7	B	2.2
	62	SBLTR	0.47	15.4	C	2.5	0.24	12.4	B	0.9
Pembrook Street & Queensgate Boulevard	160	NBLTR	0.02	8.7	A	0.1	0.03	9.7	A	0.1
	60	EBL	0.04	8.6	A	0.1	0.10	8.9	A	0.3
	404	EBT	0.23	9.5	A	0.9	0.44	11.6	B	2.2
	404	EBR	0.12	8.5	A	0.4	0.22	9.2	A	0.8
	40	WBL	0.00	8.2	A	0	0.00	8.4	A	0
	405	WBT	0.38	10.9	B	1.8	0.33	10.4	B	1.4
	405	WBTR	0.21	9.3	A	0.8	0.21	9	A	0.8
	185	SBLTR	0.12	9.2	A	0.4	0.07	9.2	A	0.2
Albion Vaughan Road & Dovaston Gate/King Vaughan Road	212	EBLTR	1.23	211.8	F	78.8	1.24	265.9	F	58.0
	500+	WBLTR	0.34	48.1	E	10.5	1.20	167.3	F	103.2
	30	NBL	0.05	9.4	A	1.1	0.16	9.1	A	4.4
	30	SBL	0.28	9.2	A	8.7	0.06	9.3	A	1.5
Queensgate Boulevard & Site Access	95	EBL	0.00	0.1	A	0.0	0.00	0.2	A	0.1
	52	SBLR	0.02	9.8	A	0.6	0.02	10.0	A	0.4

The capacity analysis results of the unsignalized intersections under 2030 future total traffic conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following critical movements at the intersection of Albion Vaughan Road/Dovaston Gate/King Vaughan Road

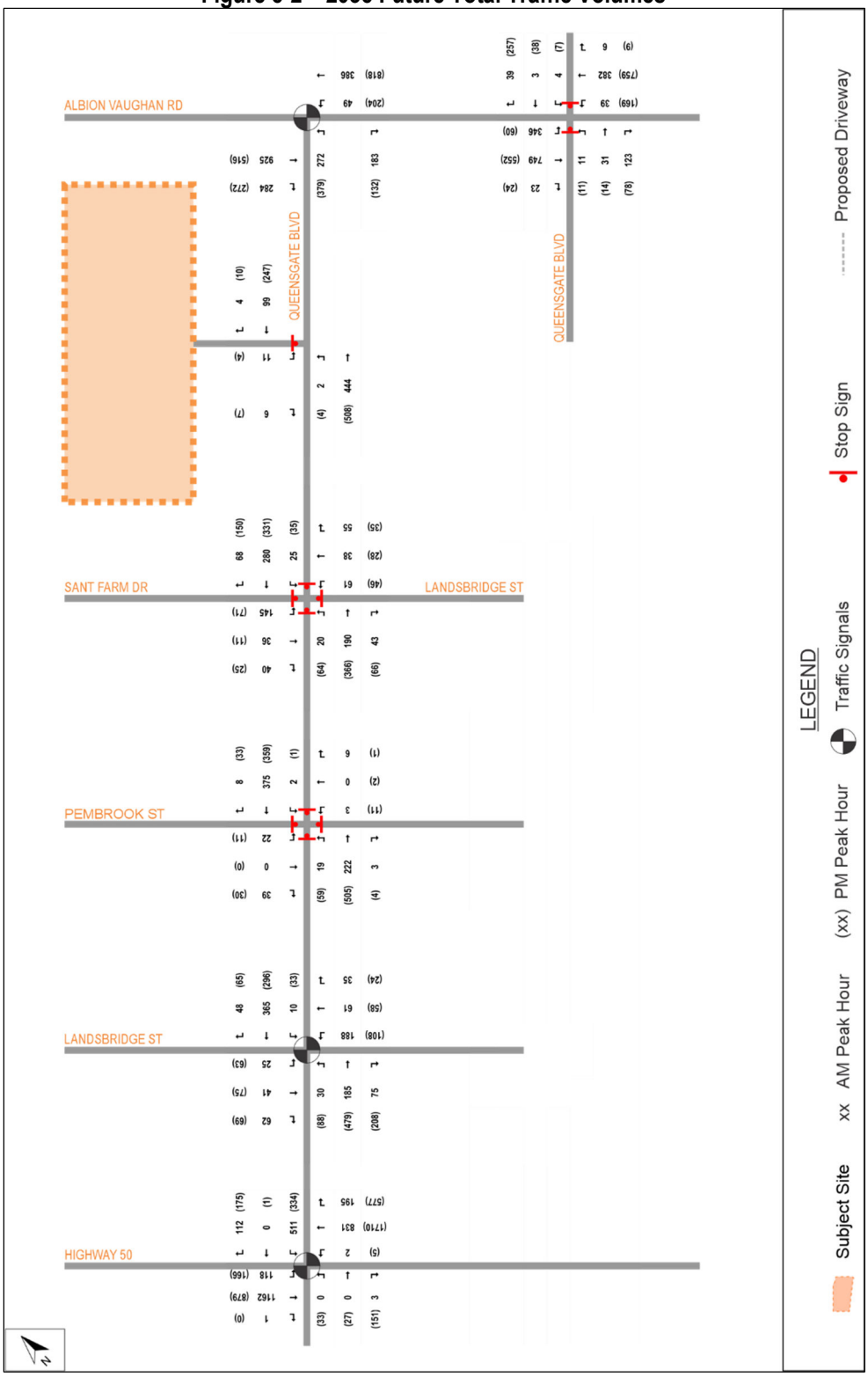
- AM peak hour: eastbound movement (v/c = 1.23)
- PM peak hour: eastbound movement (v/c = 1.24), westbound movement (v/c = 1.20)

In comparing the capacity analysis results of the unsignalized intersections under 2030 future total and future background conditions, there are minor increases in v/c ratio, delay and queue lengths. It is to be noted that once demand exceeds available capacity, intersection operations become increasingly volatile to incremental increases in traffic volumes. Under oversaturated conditions, additional traffic results in disproportionate increases in delay and queue lengths due to acceptable gaps in the major-road traffic stream occurring infrequently, which results in rapidly increasing delay and queue lengths on the minor approach. As previously noted, this condition is expected to deteriorate under 2035 future total traffic conditions; however, the impacts of the forecasted site traffic are measurably less impactful than the impacts on the intersection than the projected growth and background development traffic volumes.

5.2. 2035 Future Total Traffic Assessment

The forecasted 2035 future total traffic volumes (2035 future background traffic volumes plus site generated traffic volumes) are illustrated in **Figure 5-2**.

Figure 5-2 – 2035 Future Total Traffic Volumes



The detailed results of the 2035 future total traffic analysis are enclosed in **Appendix J** and the results of the assessment of the signalized intersections are summarized in **Table 5.3**.

Table 5.3: Level of Service – 2035 Future Total Traffic Assessments (Signalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue 50th	Queue 95th	v/c	Delay (s)	LOS	Queue 50th	Queue 95th
Signalized Intersections												
Albion Vaughan Road & Queensgate Boulevard	-	**Overall**	**1.03**	**77.2**	**E**	-	-	**0.93**	**42.8**	**D**	-	-
	92	EBL	0.79	47.8	D	50.6	79.6	0.94	70.2	E	81.3	137.5
	92	EBR	0.12	32.0	C	0.0	16.7	0.08	32.0	C	0.0	14.8
	50	NBL	0.31	22.7	C	2.6	6.7	0.71	24.8	C	14.3	34.5
	500+	NBT	0.42	12.4	B	40.2	69.7	0.88	33.3	C	151.5	235.3
	500+	SBT	1.19	113.6	F	292.2	400.0	0.96	46.0	D	153.3	241.8
Landsbridge Street & Queensgate Boulevard	-	**Overall**	**0.36**	**14.7**	**B**	-	-	**0.43**	**15.1**	**B**	-	-
	50	EBL	0.09	12.8	B	2.7	7.6	0.21	14.1	B	7.4	16.3
	173	EBT	0.17	13.0	B	8.7	15.3	0.43	15.4	B	27.8	41.1
	60	WBL	0.03	12.1	B	0.8	3.4	0.13	13.5	B	2.7	8.1
	404	WBT	0.30	14.1	B	20.0	29.0	0.23	13.5	B	14.0	22.2
	30	NBL	0.43	19.0	B	20.8	37.1	0.43	21.4	C	10.7	24.7
	115	NBT	0.12	14.7	B	5.8	14.5	0.10	14.4	B	5.0	12.9
	30	SBL	0.06	14.1	B	2.3	6.7	0.12	14.8	B	5.5	12.8
	70	SBT	0.11	14.6	B	3.9	12.7	0.15	15.0	B	6.5	17.2
Highway 50 & Private Access/ Queensgate Boulevard	-	**Overall**	**0.71**	**29.6**	**C**	-	-	**0.98**	**78.1**	**E**	-	-
	60	EBL	-	-	-	-	-	0.60	70.4	E	8.7	22.4
	60	EBT	-	-	-	-	-	0.23	52.5	D	6.7	28.7
	70	WBL	0.87	65.8	E	57.5	124.2	0.83	75.2	E	47.5	86.1
	173	WBT	0.87	66.2	E	57.8	124.7	0.89	89.2	F	48.5	91.1
	173	WBR	0.08	35.5	D	0.0	13.0	0.12	45.5	D	0.0	19.9
	30	NBL	0.01	17.2	B	0.2	1.3	0.02	21.8	C	0.7	2.9
	740	NBT	0.56	23.9	C	66.2	109.9	1.16	119.6	F	322.2	371.3
	70	NBR	0.14	18.2	B	1.0	15.6	0.91	60.6	E	107.2	193.1
	90	SBL	0.37	13.9	B	9.3	23.1	0.81	57.3	E	30.5	69.7
	170	SBT	0.65	20.7	C	77.3	155.9	0.51	23.5	C	87.0	123.3

The capacity analysis results of the signalized intersections under 2035 future total traffic conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following previously identified critical movements:

- Albion Vaughan Road/Queensgate Boulevard during AM peak hour: southbound through-right (v/c = 1.19)
- Highway 50/Queensgate Boulevard during PM peak hour: northbound through (v/c = 1.16)

It is to be noted that in comparing the results of the 2035 future total traffic analysis with the results of the 2035 future background traffic analysis, there is a negligible difference in the overall traffic operations. At the critical southbound through-right movement at the Albion Vaughan Road/Queesngate Boulevard intersection, the forecasted site traffic will result in a 0.01 increase to v/c, delay is projected to increase by less than two (2) seconds and the average and 95th percentile queue lengths are projected to increase by less than 3m. Similarly, at the critical northbound through movement at the Highway 50 and Queensgate Boulevard intersection, the forecasted site traffic will result in only a 0.6 second increase in projected delay.

The results of the 2035 future total capacity analysis of the unsignalized intersections are summarized in **Table 5.4**.

Table 5.4: Level of Service – 2035 Future Total Traffic Assessments (Unsignalized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour				Weekday PM Peak Hour			
			v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	95th Queue (m)
Unsignalized Intersections										
Landsbridge Street/Sant Farm Drive & Queensgate Boulevard	115	NBLTR	0.34	13.2	B	1.5	0.25	12.6	B	1
	50	EBL	0.05	10.5	B	0.1	0.14	10.6	B	0.5
	405	EBT	0.27	12.1	B	1.1	0.48	14.6	B	2.6
	405	EBR	0.22	11.1	B	0.8	0.35	12	B	1.6
	40	WBL	0.06	10.2	B	0.2	0.07	10	A	0.2
	180	WBT	0.39	13.5	B	1.8	0.43	13.7	B	2.1
	180	WBTR	0.32	12	B	1.4	0.48	13.8	B	2.5
	62	SBLTR	0.48	16.2	C	2.6	0.25	12.9	B	1
Pembrook Street & Queensgate Boulevard	160	NBLTR	0.02	8.8	A	0.1	0.03	10	A	0.1
	60	EBL	0.04	8.6	A	0.1	0.10	9	A	0.3
	404	EBT	0.26	9.9	A	1	0.51	13	B	2.9
	404	EBR	0.14	8.7	A	0.5	0.26	9.6	A	1
	40	WBL	0.00	8.3	A	0	0.00	8.5	A	0
	405	WBT	0.42	11.5	B	2.1	0.38	11.2	B	1.7
	405	WBTR	0.23	9.5	A	0.9	0.23	9.4	A	0.9
	185	SBLTR	0.12	9.4	A	0.4	0.08	9.5	A	0.2
Albion Vaughan Road & Dovaston Gate/King Vaughan Road	212	EBLTR	1.62	386.4	F	100.6	2.32	794.7	F	83.2
	500+	WBLTR	0.90	217.1	F	29.8	1.49	288.7	F	142.1
	30	NBL	0.05	9.7	A	1.2	0.17	9.4	A	4.7
	30	SBL	0.32	9.6	A	10.4	0.07	9.7	A	1.8
Queensgate Boulevard & Site Access	95	EBL	0.00	0.1	A	0.0	0.00	0.2	A	0.1
	52	SBLR	0.03	10.1	B	0.6	0.02	10.4	B	0.4

The capacity analysis results of the unsignalized intersections under 2035 future total traffic conditions indicate that generally, intersection movements are projected to operate with residual capacity, with acceptable levels of service and with manageable delays and queue lengths, with the exception of the following previously identified critical movements at the intersection of Albion Vaughan Road/Dovaston Gate/King Vaughan Road

- AM peak hour: eastbound movement (v/c = 1.62)
- PM peak hour: eastbound movement (v/c = 2.32), westbound movement (v/c = 1.49)

In comparing the capacity analysis results of the Albion Vaughan Road/Dovaston Gate/King Vaughan Road intersection between 2035 future total and future background conditions, there are minor increases in v/c ratio, delay and queue lengths. As noted throughout this Study, operational deficiencies within the study area road network were already identified under existing conditions and are expected to worsen with the addition of forecasted background growth within the area. In comparison, the site traffic generated by the proposed development is projected to have a negligible impact in comparison to the forecasted background growth and as such, it is Nextrans' recommendation that the Town of Caledon and Peel Region review the identified critical movements to determine appropriate mitigation; however, potential mitigation measures are explored in the following section.

5.3. Mitigation Measures

As noted previously in this Study, the southbound movement at the intersection of Albion Vaughan Road/Queensgate Boulevard is currently operating near full saturation levels during AM peak hour. Similarly, the northbound through movement during PM peak hour at the intersection of Highway 50/Queesngate Boulevard is also currently operating near full saturation levels. Furthermore, eastbound and westbound movements at the intersection of Albion Vaughan Road and Dovaston Gate/King Vaughan Road are projected to exceed capacity levels due to the excessive delay at these movements. Mitigation for each of the critical movements identified throughout the study area road network are as follows.

5.3.1. Highway 50 and Queensgate Boulevard

The signal timing plans provided by Peel Region indicated that the eastbound and westbound phases do not operate concurrently at the Highway 50 and Queensgate Boulevard intersection but rather run sequentially. Through studying the intersection capacity during AM peak hour, it is to be noted that the operational deficiencies could not be addressed through optimization of the existing signal timing. As such, adjustments were made to the phasing so that the eastbound and westbound phases occur concurrently. The adjustments made to the phasing are detailed in **Table 5.5** below.

Table 5.5: Proposed Phasing Adjustments

Movement	Existing Phasing	Proposed Phasing
EB	3	8
WB	4	4
NBL	1	1
NBT	6	6
SBL	5	5
SBT	2	2

The above phasing was implemented into the signal timings for PM peak hour, and the cycle length was reduced accordingly from 140s to 110s. Furthermore, the splits were optimized to maximize the overall efficiency of the movements at this intersection. The detailed results of the 2035 future total traffic analysis are enclosed in **Appendix K** and are summarized in **Table 5.6** below.

Table 5.6: Level of Service – 2035 Future Total Traffic Assessments (Optimized)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue		v/c	Delay (s)	LOS	Queue	
						50th	95th				50th	95th
Signalized Intersections												
Highway 50 & Private Access/ Queensgate Boulevard	**-**	**Overall**						**0.89**	**27.0**	**C**	**-**	**-**
	60	EBL						0.14	31.4	C	5.1	12.6
	60	EBT						0.17	31.6	C	4.2	19.7
	70	WBL						0.75	48.6	D	32.0	55.2
	173	WBT						0.80	55.7	E	32.7	57.0
	173	WBR						0.24	32.3	C	8.5	25.0
	30	NBL						0.02	9.9	A	0.3	1.9
	740	NBT						0.90	27.3	C	154.2	260.2
	70	NBR						0.66	21.6	C	23.3	93.3
	90	SBL						0.89	62.8	E	16.2	65.3
	170	SBT						0.43	11.3	B	41.0	88.4

The capacity analysis results of the Highway 50 and Queensgate Boulevard intersection during PM peak hour under 2035 future total traffic conditions with the implementation of the optimized signal timings indicates that the operational deficiencies have been addressed and while the overall intersection operates near saturation levels, residual capacity is still available.

On this basis, it is Nextrans' recommendation that the Town of Caledon and Peel Region consider implementing the proposed optimized signal timings once background developments within the area are built out.

5.3.2. Albion Vaughan Road and Queensgate Boulevard

The operational deficiencies identified at the southbound movement of the Albion Vaughan Road and Queensgate Boulevard intersection occur as a result of the southbound movement currently have a shared through right configuration. Based on field observations, the movement operates as if there are separated turning facilities present and it is to be noted that the existing pavement width is sufficient to facilitate separate facilities for southbound through and southbound right movements. As such, the road network in the Synchro model was adjusted accordingly. The detailed results with the implementation of the mitigation measures are enclosed in **Appendix L** and are summarized in **Table 5.7**.

Table 5.7: Level of Service – 2035 Future Total Traffic Assessments (Mitigation)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue		v/c	Delay (s)	LOS	Queue	
						50th	95th				50th	95th
Signalized Intersections												
Albion Vaughan Road & Queensgate Boulevard	**-**	**Overall**	**0.83**	**25.7**	**C**	**-**	**-**					
	92	EBL	0.79	47.8	D	50.6	79.6					
	92	EBR	0.12	32.0	C	0.0	16.7					
	50	NBL	0.25	15.3	B	2.6	6.7					
	500+	NBT	0.42	12.4	B	40.2	69.7					
	500+	SBT	0.89	28.9	C	152.8	267.8					
	30	SBR	0.20	9.9	A	3.8	16.5					

The results of the analysis indicate that the previously identified operational deficiencies at the southbound movement have been addressed as a result of separating southbound through and southbound right movements.

On this basis, it is Nextrans' recommendation that the Town of Caledon and Peel Region consider installing separated turning facilities for the southbound through and southbound right movements at this intersection, especially as field observations confirm that the approach operates as if separated turning facilities are already present.

5.3.3. Albion Vaughan Road and Dovaston Gate/King Vaughan Road

The operational deficiencies at the eastbound and westbound movements of Albion Vaughan Road and Dovaston Gate/King Vaughan Road are a result of the significant conflicting northbound and southbound volumes, resulting in inadequate gap opportunities for vehicles queued on the east and west approaches. Given that geometric improvements (i.e., addition of turning lanes) cannot address the operational constraints at the east and west approaches, a signal warrant analysis was conducted to determine if the intersection volumes meet the criteria for the installation of a traffic signal.

A signal warrant analysis was conducted in accordance with Ontario Traffic Manual (OTM) Book 12 and was conducted based on Justification 7 for 2035 future total traffic volumes. As per justification 7 in OTM Book 12, an increased justification threshold is used, in which justification is required to be at least 120% for an existing intersection for all criteria of Justifications 1 and 2 to consider signalization as per Table 19 of OTM Book 12. The detailed results of the traffic signal warrant analysis are enclosed in **Appendix M**.

Based on the results of the signal warrant calculations, the 2035 future total traffic volumes reach 128% of the Warrant 1 threshold and 130% of Warrant 2. On this basis, the intersection was modelled under 2035 future total traffic conditions with a semi-actuated traffic signal as the traffic control. The detailed results of the analysis are enclosed in **Appendices K** and **L**, along with the mitigated assessments for the other intersections studied.

Table 5.8 summarizes the findings of the implementation of signalization at this intersection.

Table 5.8: Level of Service – 2035 Future Total Traffic Assessments (Signal Implementation)

Intersection	Storage (m)	Movement	Weekday AM Peak Hour					Weekday PM Peak Hour				
			v/c	Delay (s)	LOS	Queue		v/c	Delay (s)	LOS	Queue	
						50th	95th				50th	95th
Signalized Intersections												
Albion Vaughan Road & Queensgate Boulevard	**-**	**Overall**	**0.57**	**7.5**	**A**	**-**	**-**	**0.62**	**10.4**	**B**	**-**	**-**
	212	EBT	0.30	21.6	C	3.5	16.2	0.14	18.1	B	1.9	11.1
	500+	WBT	0.06	20.4	C	0.6	7.0	0.51	20.7	C	10.7	29.0
	30	NBL	0.11	3.1	A	0.9	4.4	0.35	6.4	A	5.9	21.2
	500+	NBT	0.37	4.0	A	11.4	29.9	0.66	8.8	A	35.6	94.7
	30	SBL	0.53	6.4	A	12.0	38.8	0.20	5.3	A	1.9	8.7
	500+	SBT	0.62	6.4	A	29.2	75.8	0.57	7.8	A	23.5	65.5
	30	SBR	0.02	2.3	A	0.0	1.7	0.01	3.5	A	0.0	2.2

The results of the analysis indicate that installation of a traffic signal at this intersection addresses all of the previously identified operational deficiencies.

On this basis, it is Nextrans' recommendation that the Town of Caledon and Peel Region consider the signalization of the Albion Vaughan Road/Dovaston Gate/King Vaughan Road intersection to mitigate the existing operational deficiencies, and to accommodate forecasted background traffic growth within the study area.

6.0 PARKING ASSESSMENT

6.1. Parking Requirements

6.1.1. Vehicle Parking Requirements

The proposed development is zoned A1 and is subject to the Town of Caledon`s Zoning By-law 2006-50. The parking requirements for each of the proposed land uses are detailed in **Table 6.1**.

Table 6.1: Vehicle Parking Requirements

Land Use	Parameter	No. of Units / GFA (m^2)	Minimum Rate	Minimum Requirement	Parking Supply	Difference
Dwelling, Townhouse	Resident	49 units	2 spaces/unit	98	98	-
	Visitor		0.25 spaces/unit	12	12	-
Total				**110 spaces**	**110 spaces**	**-**

Based on the rates prescribed in the Town's Zoning By-law, a total of 110 vehicle parking spaces are required (98 resident spaces and 12 visitor spaces). In comparing the technical parking requirement with the proposed parking supply of 110 spaces, the proposed parking supply is compliant with the minimum requirements of the Zoning By-law.

6.1.2. Barrier Free Parking Requirements

According to the accessible parking requirements outlined in Zoning By-law 2015-058, the rate applicable for the proposed parking supply of 110 spaces is 1 accessible space + 3% of the overall parking supply. On this basis, the minimum requirement for the proposed development is four (4) accessible parking spaces, composed of two (2) Type A spaces and two (2) Type B spaces.

7.0 SITE PLAN REVIEW

7.1. Vehicle Maneuverability Assessment

AutoTURN software was used to generate a vehicular turning template to confirm and demonstrate the accessibility of the proposed study area. To demonstrate the maneuvering of a loading vehicle, a MSU TAC-2017 truck was used. The maneuvering of an emergency vehicle was demonstrated using an Aerial Fire Truck from the NCHRP Report 659 library of vehicles. Passenger vehicle maneuvering was studied using a P TAC-2017 vehicle.

The AutoTURN analysis demonstrates that all design vehicles tested can maneuver throughout and at the site access without conflict. The AutoTURN analysis is provided in **Figure 7-1 – 7-3**.

7.2. Secondary Access

Based on comments provided by the Town's Transportation Coordinator, studying the feasibility of an access off Esposito Drive was requested. For context, Esposito Drive currently terminates at its intersection with Harvestview Avenue, approximately 45m north of the northern property line of the subject site. Between the existing terminus of Esposito Drive and the northern property line of the subject site, there is an existing minor local road, municipally known as Sideroad 5, as well as a neighbouring property municipally addressed as 12889 Albion Vaughan Road. Facilitating an additional access via Esposito Drive would require the extension of Esposito Drive from it's current terminus, and based on the comments received from Town Staff, the proposal would require the establishment of a cul-de-sac. Given that Esposito Drive does not terminate directly adjacent to the subject lands, easements would be required to facilitate any type of extension.

Based on the trip generation calculations conducted in this Study, the proposed development is projected to generate a total of 23 new two-way trips during AM peak hour and 26 new two-way trips during PM peak hour. The assessment of 2035 future total traffic conditions indicates that the proposed site access onto Queensgate Boulevard is projected to operate with excellent levels of service, with ample residual capacity and with no notable delays or queueing. On this basis, an additional access is not warranted to facilitate the site traffic generated by the proposed development, nor will it result in any operational benefit. Even if an additional access were to be provided, it's likely that all drivers would travel via the Queensgate access due to convenience, as an access via Esposito Drive would result in longer travel times.

Additionally, it is to be noted that the backs of the average queues of the eastbound left and eastbound right movements at the Queensgate Boulevard/Albion Vaughan Road intersection are not projected to block the site

access. In reviewing the 95th percentile queue lengths under future total traffic conditions, it is noted that only the forecasted queueing under 2035 traffic conditions during PM peak hour are expected to extend past the site access; however, it is crucial to note that this condition is only expected 5% of the time during the busiest hour in the afternoon.

Based on the traffic analysis and site context, it is Nextrans' opinion that an additional access via Esposito Drive is not warranted, as the proposed Queensgate Boulevard access provides ample capacity, excellent levels of service, and convenient routing for all site-generated trips, with minimal queuing impacts under 2035 future total traffic conditions.

7.3. Sightline Analysis

An assumed unposted speed limit of 50 km/h is maintained along Queensgate Boulevard within the proximity of the subject site. For the purpose of sight distance assessment, a design speed of 60 km/h (assumed posted speed of 50 km/h + 10 km/h) was utilized. The assumed outbound vehicle was placed in the egress lane, spaced approximately 1m from the centerline of the outbound traffic lane.

Departure Sight Distance

To assesses scenarios where vehicles are departing from the location of the proposed driveway, the departure sight distance was assessed under Case B1 – Left Turn from the Minor Road, and Case B2 – Right Turn from the Minor Road, in accordance with Section 9.9.2.3 of the *Geometric Design Guide for Canadian Roads (TAC 2017).* The departure sight distance was assumed to be under stop-controlled conditions.

As stipulated in the Geometric Design Guide for Canadian Roads, the intersection sight distance along the major road is determined using the following equation:

$ISD = 0.278\ V_{major}\ t_g$

Where:

ISD = Intersection sight distance (length of the leg of sight triangle along the major road) (m);
V_{major} = design speed of the major road (km/h); and,
T_g = time gap for minor road vehicle to enter the major road (s)

Case B1 – Minimum intersection sight distance for vehicles turning left from the proposed driveway onto Queensgate Boulevard:

ISD = 0.278 x 60 x 7.5
= 125.1 m say **130 m**

Case B2 – Minimum intersection sight distance for vehicles turning right from the proposed driveway onto Queensgate Boulevard:

ISD = 0.278 x 60 x 6.5
= 108.42 m say **110 m**

Actual sight distances at the proposed site access have been determined through an on-site visit. The departure sight distances at the proposed site access are summarized in **Table 7.1** and are compared to the achieved sight distances.

Table 7.1: Departure Sight Distance Comparison

Turn Type	Required	Achieved	Difference
Left Turn Departures			
East Approach	130 m	115 m*	-15m*
West Approach		200 m	+70m
Right Turn Departures			
East Approach	110 m	115 m*	+5m

For left turn departures, there are adequate sight distances for the west approach with over 200m of sight distance available and 130m required, resulting in a minimum surplus sight distance of 70m. For the east approach, there is a technical sightline deficiency as only 115m is available, whereas 130m is required for left turn departures, resulting in a 15m shortfall relative to TAC requirements. However, the minimum sight-distance criteria are based on conservative design-speed assumptions. In practice, vehicles approaching from Albion Vaughan Road are required to decelerate to complete turning movements at the intersection, resulting in operating speeds lower than the design speed. These reduced approach speeds effectively lower the sight-distance requirements and provide increased gap acceptance opportunities for departing vehicles. Given the marginal nature of the shortfall, and given the expected operating conditions, the available sight distance is considered functionally adequate, and no operational or safety concerns are anticipated.

In comparing the minimum required 110m sight distance for right-turns with the 115m achieved sight distance available for vehicles departing the proposed site access, there is a technical 5m surplus sight distance.

On this basis, adequate sightlines are available at the site access to safely permit outbound turning movements.

On this basis, adequate sight distances are available at the proposed site access to safely permit outbound turning movements.

8.0 TRANSPORTATION DEMAND MANAGEMENT

The primary objectives of this TDM plan are as follows:

- Provision of facilities / operations to promote behavioural change for reduced automobile uses and encourage the use of alternative sustainable transportation modes aside from single-occupancy vehicle (SOV).
- Maximize average auto occupancies, with the intent of a net minimization of site-related auto trips.
- Create and support opportunities for an inclusive transportation system to accommodate and facilitate all potential road users in a safe and efficient manner.

TDM refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicle trips, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. In short, TDM works to change how, when, where, and why people travel.

TDM strategies have multiple benefits including the following:

- Reduced auto-related emissions to improve air quality.
- Decreased traffic congestion to reduce travel time.
- Increased travel options.
- Reduced personal transportation costs and energy consumption.

- Support Provincial smart growth objectives.

Based on our review, the following TDM measures are recommended for the proposed development:

Transit:

Public transit includes various services using shared vehicles to provide mobility to the public, these generally include:

- Heavy rail – relatively large, higher-speed trains, operating entirely on separate rights-of-way, with infrequent stops, providing service between communities;
- Light Rail Transit – moderate size, medium-speed trains, operating mainly on separate rights-of-way, with variable distances between stations, providing service between urban neighborhoods and commercial centers;
- Streetcars – relatively small, lower-speed trains, operating primarily on urban streets, with frequent stops which provide service along major urban corridors;
- Conventional bus transit - full-size buses on fixed routes and schedules;
- Bus Rapid Transit – premium quality bus service with features that typically include grade separation, frequent service, attractive stations, quick loading, and attractive vehicles; and,
- Express commuter bus – direct bus service from residential to employment areas.

While it is typically recommended that pre-loaded PRESTO cards be provided to new residents on a demand basis for new residential developments, our review of the area surrounding the subject site indicated that existing transit facilities are limited. As such, the appropriateness of this TDM measure will be further explored in subsequent phases of the application.

Walkability:

Walkability reflects overall walking conditions in an area. It considers the quality of pedestrian facilities, roadway conditions, land use patterns, community support, security and comfort for walking.

Generally, walkability can be evaluated at various scales:

- Site scale – affected by the quality of pathways, building accessways and related facilities;
- Street or neighborhood level – affected by the existence of sidewalks and crosswalks, and roadway conditions (road widths, traffic volumes and speeds); and,
- Community level – affected by land use accessibility, such as the relative location of common destinations and the quality of connections between them.

Pedestrian pathway is incorporated into the site design providing for safe pedestrian travel internally. The existing sidewalk facilities along Queensgate Boulevard currently terminate at Sant Farm Drive and as such, a sidewalk connection to Queensgate from the site is provided in the interim until the sidewalk infrastructure along Queensgate is extended.

9.0 CONCLUSION / FINDINGS

9.1. Study Findings

The findings and conclusions of our analysis are as follows:

- The development proposal seeks to redevelop the subject lands to construct 49 3-storey townhouse units. Two (2) vehicle parking spaces will be provided to each unit, as well as 12 visitor parking spaces for the entire site, resulting in a total vehicle parking supply of 110 spaces. Vehicular access to the site is envisioned via a full movement driveway onto Queensgate Boulevard.
- Under existing traffic conditions, all analyzed study area intersections operate with residual capacity, acceptable levels of service, and manageable delays and queues, with the exception of Highway 50 and Queensgate Boulevard, where several movements are operating near capacity.
- At Highway 50 and Queensgate Boulevard, sequential eastbound and westbound signal phasing reduces effective green time and increases delay and queue dissipation times, resulting in multiple movements operating with v/c ratios of 0.85 or higher during the AM and PM peak hours and increased sensitivity to future traffic growth.
- At Albion Vaughan Road and Queensgate Boulevard, the southbound approach operates near capacity (v/c = 0.93) with extensive AM peak hour queues due to high volumes on a shared through-left movement; although pavement width and driver behavior suggest informal lane separation, the approach continues to be modeled as a shared movement due to the absence of dedicated turning lanes.
- Under existing conditions, all unsignalized study area intersections operate with residual capacity, acceptable levels of service, and manageable delays during the weekday AM and PM peak hours, with the exception of the eastbound and westbound movements at Albion Vaughan Road / Dovaston Gate / King Vaughan Road, where minor-road operational deficiencies are observed due to high major-road volumes and are expected to worsen with background traffic growth despite conservative Synchro modeling assumptions.
- Under 2030 future background conditions, most signalized intersections are projected to operate with residual capacity and acceptable levels of service; however, operational deficiencies are forecast during peak hours for the southbound through-right movement at Albion Vaughan Road/Queensgate Boulevard in the AM peak (v/c = 1.04) and the northbound through movement at Highway 50/Queensgate Boulevard in the PM peak (v/c = 1.04).
- These critical signalized movements were already operating near full saturation under existing conditions, and future corridor growth and background development traffic are expected to introduce and exacerbate operational deficiencies over the 10-year horizon.
- For unsignalized intersections, all movements are generally projected to operate acceptably under 2030 conditions except at Albion Vaughan Road/Dovaston Gate/King Vaughan Road, where eastbound and westbound minor-road movements are forecast to experience significant peak-hour deficiencies (v/c up to 1.21), reflecting saturated conditions that are expected to worsen with continued background traffic growth.
- Under 2035 future background conditions, most signalized intersections are projected to operate with residual capacity and acceptable levels of service; however, operational deficiencies are forecast for the southbound through-right movement at Albion Vaughan Road/Queensgate Boulevard during the AM peak (v/c = 1.18) and the northbound through movement at Highway 50/Queensgate Boulevard during the PM peak (v/c = 1.16).
- For unsignalized intersections, all movements generally operate acceptably except at Albion Vaughan Road/Dovaston Gate/King Vaughan Road, where significant peak-hour deficiencies are forecast for the

eastbound movement in both the AM (v/c = 1.59) and PM (v/c = 2.24), as well as the westbound movement in the PM peak (v/c = 1.48).

- Although v/c ratios greater than 1.00 are theoretically impossible, the identified critical movements indicate that mitigation measures will be required under future background traffic conditions, prior to the addition of site-generated traffic from the proposed development.
- Based on the trip generation calculations, the proposed development is projected to generate a total of 23 new two-way trips (six (6) inbound and 17 outbound) and 25 new two-way trips (14 inbound and 11 outbound) during the weekday AM peak hour and PM peak hour, respectively.
- Although staff requested trip assignment at the Landsbridge Street and Dovaston Gate intersection, site-generated traffic is expected to predominantly use the more direct and operationally efficient Albion Vaughan Road/Queensgate Boulevard route, which has sufficient residual capacity for the relevant movements; therefore, trip assignment at Landsbridge Street and Dovaston Gate was not included in the analysis.
- Under 2035 future total traffic conditions, most signalized intersections are projected to operate with residual capacity and acceptable levels of service, with the exception of the southbound through-right movement at Albion Vaughan Road/Queensgate Boulevard in the AM peak (v/c = 1.04) and the northbound through movement at Highway 50/Queensgate Boulevard in the PM peak (v/c = 1.04).
- Comparison of future background and future total conditions indicates that site-generated traffic results in negligible operational impacts at the critical signalized movements, with no change in v/c or LOS and only minimal increases in delay (≤1 second) and queue lengths.
- For unsignalized intersections, operational deficiencies are forecast at Albion Vaughan Road/Dovaston Gate/King Vaughan Road under 2030 future total conditions; however, while minor increases in delay and queues occur under oversaturated conditions, the impacts of site-generated traffic are substantially less significant than those associated with projected background growth and corridor traffic increases.
- Under 2035 future total traffic conditions, most signalized intersections are projected to operate with residual capacity and acceptable levels of service, with the exception of the southbound through-right movement at Albion Vaughan Road/Queensgate Boulevard in the AM peak (v/c = 1.19) and the northbound through movement at Highway 50/Queensgate Boulevard in the PM peak (v/c = 1.16).
- Comparison of 2035 future total and future background conditions indicates that site-generated traffic has negligible impacts on the critical signalized movements, with minimal increases in v/c, delay (≤2 seconds), and queue lengths (≤3 m).
- For unsignalized intersections, operational deficiencies are forecast at Albion Vaughan Road/Dovaston Gate/King Vaughan Road under 2035 conditions (v/c up to 2.32); however, the impacts of site-generated traffic are minor compared to the effects of forecasted background growth, highlighting the need for the Town of Caledon and Peel Region to review critical movements and consider appropriate mitigation.
- The Highway 50 and Queensgate Boulevard intersection initially operated with sequential eastbound and westbound phases, which could not address AM peak operational deficiencies; after implementing concurrent phasing, optimizing splits, and reducing the PM peak cycle length from 140s to 110s, capacity analysis under 2035 future total traffic conditions indicates that the operational deficiencies have been resolved, with the intersection operating near saturation but still maintaining residual capacity.
- The operational deficiencies at the southbound movement of Albion Vaughan Road and Queensgate Boulevard, caused by the existing shared through-right configuration, were addressed by modeling separate southbound through and right-turn lanes in Synchro, reflecting field-observed driver behavior and existing pavement width, resulting in resolved deficiencies for this movement.

- Operational deficiencies at the eastbound and westbound movements of Albion Vaughan Road and Dovaston Gate/King Vaughan Road are caused by high conflicting northbound and southbound volumes, resulting in inadequate gap opportunities, and cannot be addressed through geometric improvements; a signal warrant analysis was therefore conducted in accordance with OTM Book 12, Justification 7, using 2035 future total traffic volumes.
- The analysis indicated that 2035 volumes exceed the warrant thresholds (128% for Warrant 1 and 130% for Warrant 2), and modeling the intersection with a semi-actuated traffic signal demonstrates that signal installation resolves the previously identified operational deficiencies.
- Based on the rates prescribed in the Town's Zoning By-law, a total of 110 vehicle parking spaces are required (98 resident spaces and 12 visitor spaces). In comparing the technical parking requirement with the proposed parking supply of 110 spaces, the proposed parking supply is compliant with the minimum requirements of the Zoning By-law.
- The minimum requirement for the proposed development is four (4) accessible parking spaces, composed of two (2) Type A spaces and two (2) Type B spaces.
- The AutoTURN analysis demonstrates that all design vehicles tested can maneuver throughout and at the site access without conflict.
- An additional access via Esposito Drive is not warranted, as it would require road extension, easements, and a cul-de-sac, while the Queensgate Boulevard access already provides sufficient capacity, excellent levels of service, and convenient routing for all site-generated trips.
- Queueing at the Queensgate Boulevard/Albion Vaughan Road intersection is not expected to block the site access, with only minimal PM peak hour queues extending past the access approximately 5% of the time.
- While a technical sightline deficiency of 15 m exists for eastbound left-turn departures relative to TAC requirements, reduced approach speeds and increased gap opportunities render the available sight distance functionally adequate, and with a 5 m surplus for right-turns, the site access provides sufficient sightlines to safely accommodate all outbound turning movements.

9.2. Study Conclusions

Based on the assessments conducted in this Study, Nextrans has the following conclusions and recommendations:

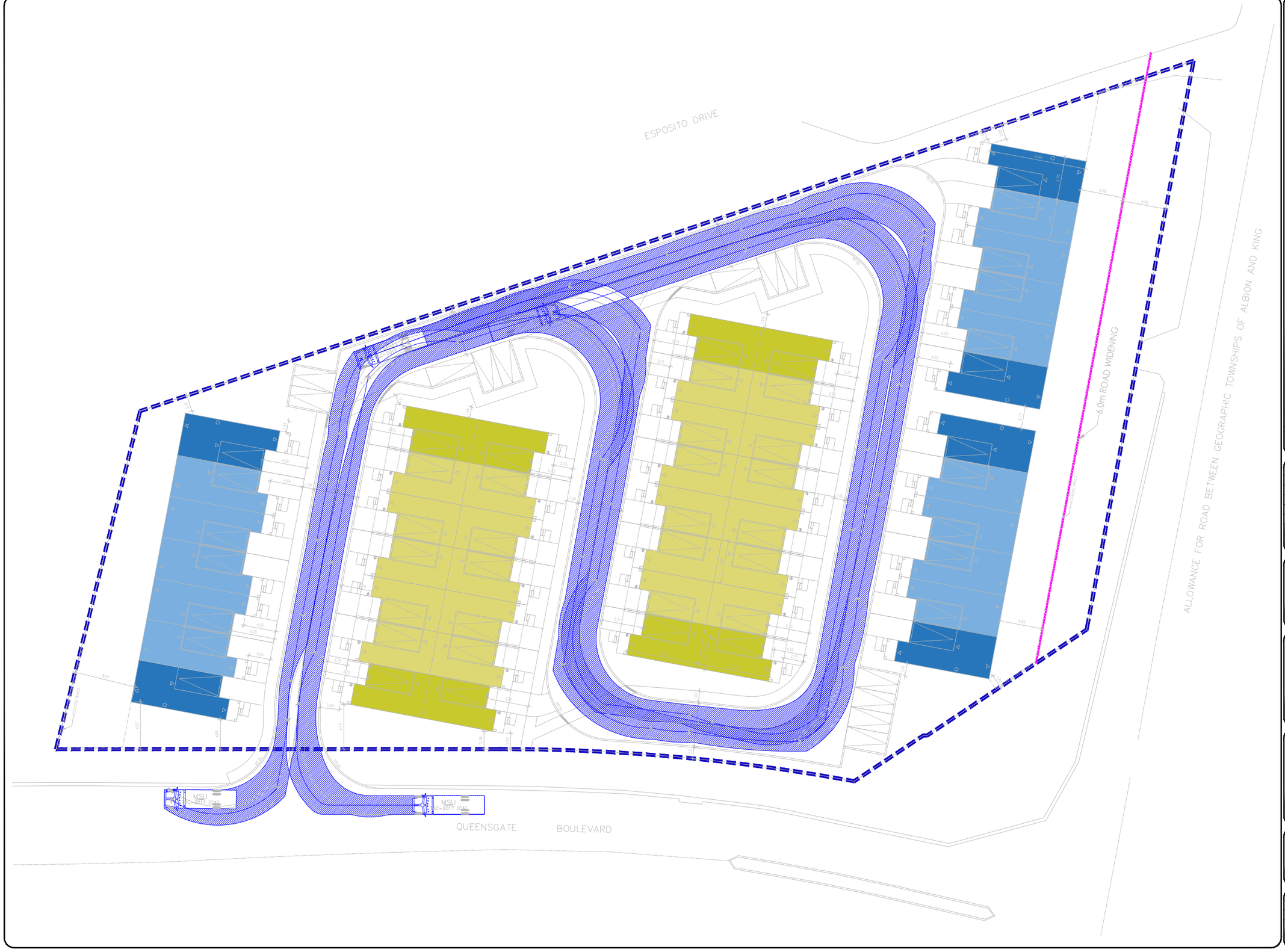
- The proposed development will have negligible impact to the future operations of the adjacent road network.
- The proposed vehicle parking supply is appropriate for the proposed development.
- The site design can adequately accommodate the proposed design vehicles.
- Based on the traffic analysis and site context, it is Nextrans' opinion that an additional access via Esposito Drive is not warranted, as the proposed Queensgate Boulevard access provides ample capacity, excellent levels of service, and convenient routing for all site-generated trips, with minimal queuing impacts under 2035 future total traffic conditions.
- Adequate sightlines are available at the proposed sight access to safely facilitate the outbound turning movements.

9.3. Study Recommendations

- Several critical movements have been identified throughout this Study, all of which operate near full saturation levels under existing traffic conditions and all of which are expected to experience operational deficiencies as a result of forecasted growth along the Highway 50 and Albion Vaughan Road corridors. To mitigate the expected critical movements, Nextrans recommends that the Town of Caledon and Peel Region consider the following mitigation measures that were explored in this Study:

- At the intersection of Highway 50 and Queensgate Boulevard during PM peak hour, consider the implementation of optimized signal timings that consist of concurrent east and west phasing, optimized splits and reducing the cycle length from 140s to 110s.
- At the intersection of Albion Vaughan Road and Queensgate Boulevard, consider the implementation of a separate southbound right-turn lane.
- At the intersection of Albion Vaughan Road and Dovaston Gate/King Vaughan Road, consider the installation of traffic signals.

It is critical to note that the above noted recommendations were made to address the existing and forecasted future operational deficiencies identified at the each of the study area intersections. As identified in this Study, the proposed development will have a negligible traffic impact to the surrounding road network, and the above-noted recommendations are not required to accommodate the forecasted site traffic generated by the proposed development.



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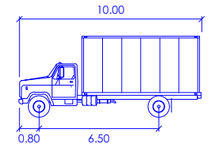

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Steering Angle	: 40.2

SCALE: 1:300

REVISONS

NO	REVISION	DATE	BY

STAMP

nexTrans CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

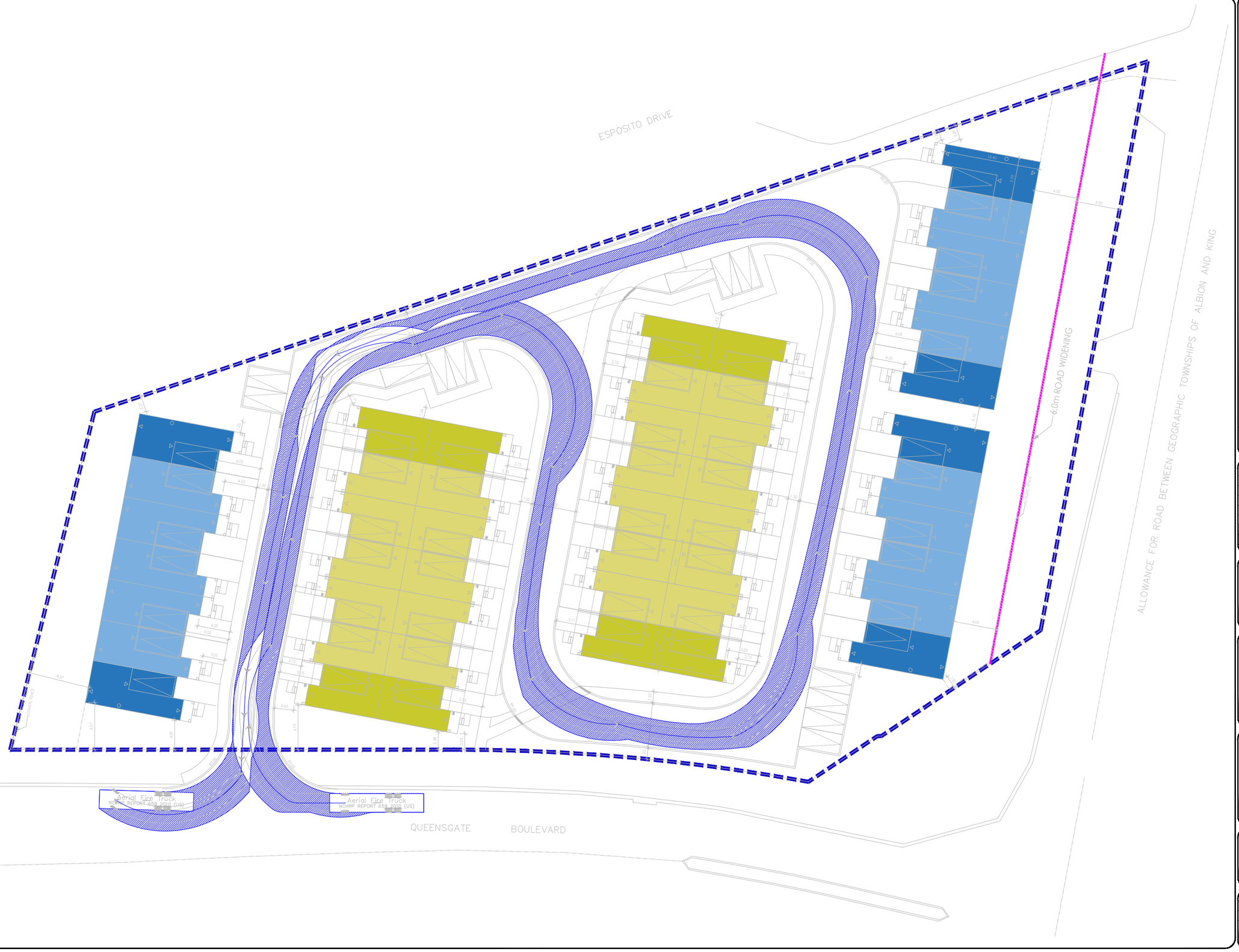
PROJECT NAME:
Residential Development

12944 Albion Vaughan Road

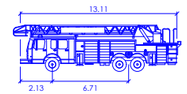
Town of Caledon

DRAWING TITLE:
AutoTURN Analysis
MSU TAC-2017

DESIGN BY: K.A.	DATE: December 18, 2025
CHECKED BY: R.P.	PROJECT NO. NT-25-078
DRAWN BY: K.A.	
SCALE: 1:500	DRAWING NO. Figure 7-1



DESIGN VEHICLE



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Lock to Lock Time	: 6.0
Steering Angle	: 33.3

SCALE: 1:500

REVISONS

NO	REVISION	DATE	BY

STAMP

nextrans
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Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

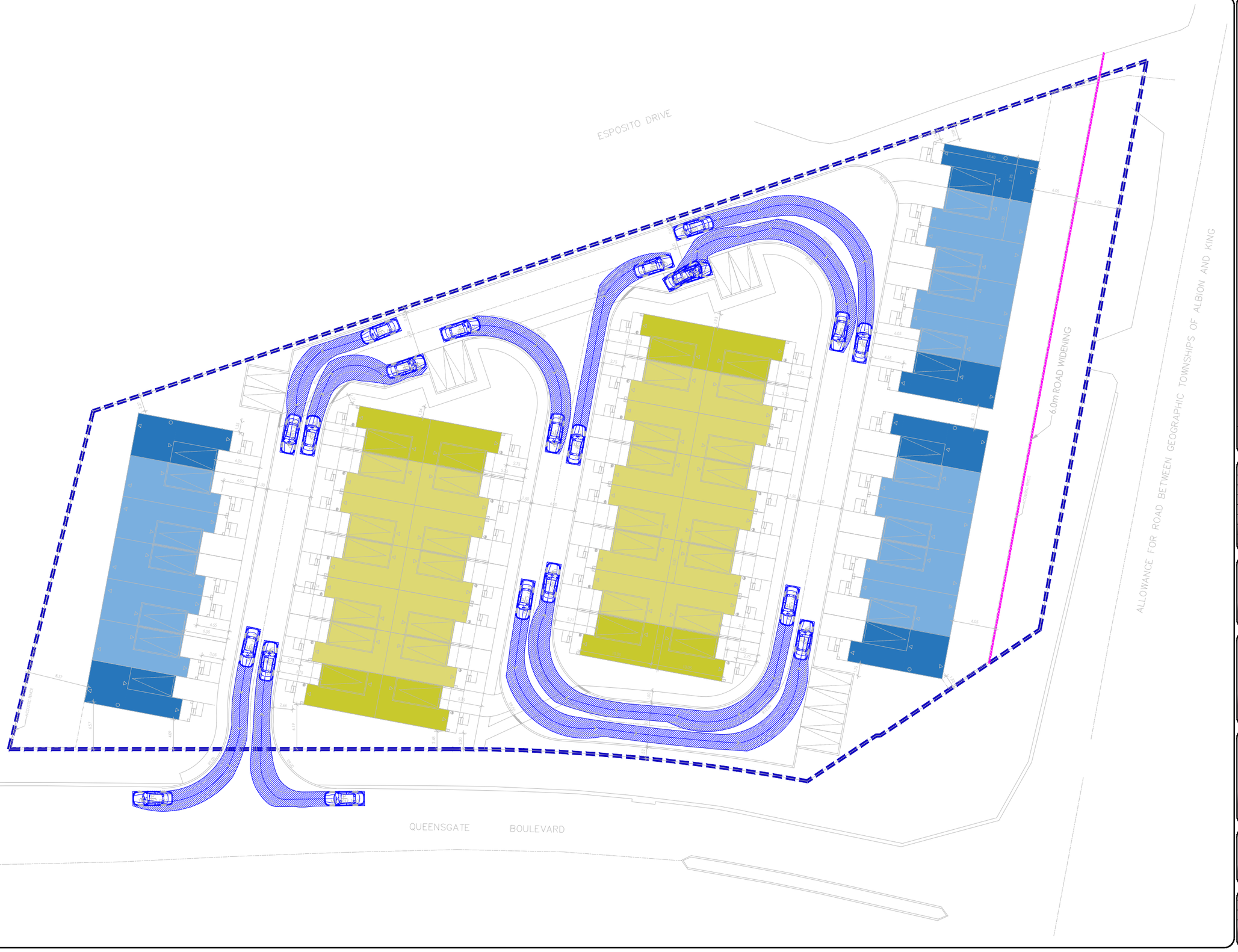
PROJECT NAME:
Residential Development

12944 Albion Vaughan Road

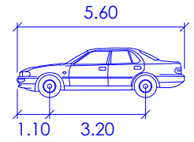
Town of Caledon

DRAWING TITLE:
AutoTURN Analysis
Aerial Fire Truck
NCHRP Report 659

DESIGN BY: K.A.	DATE: December 18, 2025
CHECKED BY: R.P.	PROJECT NO. NT-25-078
DRAWN BY: K.A.	
SCALE: 1:500	DRAWING NO. Figure 7-2



DESIGN VEHICLE



P

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Lock to Lock Time	: 6.0
Steering Angle	: 35.9

SCALE: 1:200

REVISONS

NO	REVISION	DATE	BY

STAMP

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PROJECT NAME:
Residential Development

12944 Albion Vaughan Road

Town of Caledon

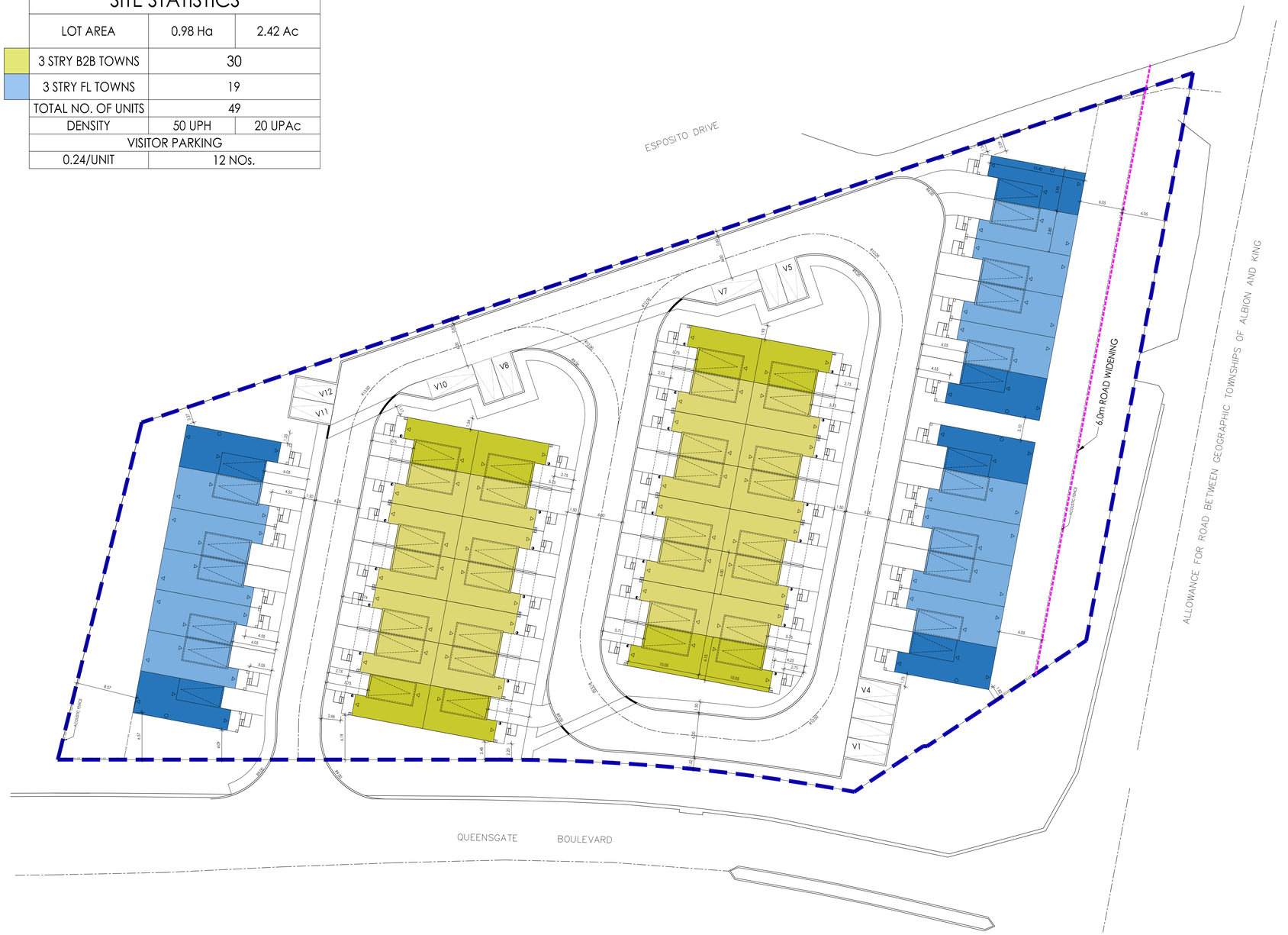
DRAWING TITLE:
AutoTURN Analysis
P TAC–2017

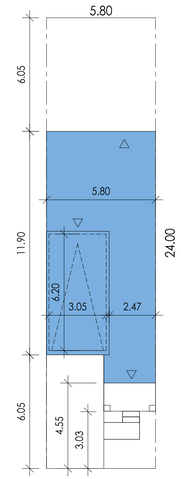
DESIGN BY: K.A.	DATE: December 18, 2025
CHECKED BY: R.P.	PROJECT NO. NT-25-078
DRAWN BY: K.A.	
SCALE: 1:500	DRAWING NO. Figure 7-3

APPENDIX A:
Site Plan

SITE STATISTICS		
LOT AREA	0.98 Ha	2.42 Ac
3 STRY B2B TOWNS	30	
3 STRY FL TOWNS	19	
TOTAL NO. OF UNITS	49	
DENSITY	50 UPH	20 UPAc
VISITOR PARKING		
0.24/UNIT	12 NOs.	

KEY PLAN - NTS





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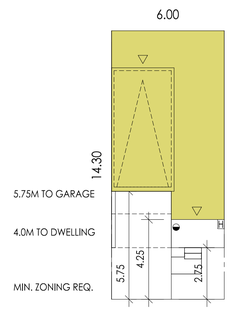

19FT - 3 STOREY B2B
1500 SFT

THESE DRAWINGS ARE NOT TO BE SCALED:
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO ARCHITECT.

PROJECT CONSULTANTS:

ISSUED OR REVISION COMMENTS

NO.	DESCRIPTION	DATE	DWN	CHK
1	ISSUED FOR REVIEW	21-11-2024	PP	RP
2	ISSUED FOR PRECON	22-11-2024	PP	RP
3	ISSUED FOR REVIEW	22-JUL-25	AG	RP
4	ISSUED FOR REVIEW	29-JUL-25	PP	AG
5	REV PER ENGG COMMENTS	26-AUG-25	AG	

RN DESIGN
WWW.RNDESIGN.COM
T:905-738-3177
WWW.THEPLUSGROUP.CA

CLIENT
MOSAIK

PROJECT/LOCATION
ALBION-VAUGHAN

DRAWING
SITE PLAN

DATE	SCALE
30-11-2024	1:300
DRAWN BY: PP	CHECKED BY: RP
PROJECT NUMBER: 24080	DRAWING NUMBER: SP-100

nexTrans
CONSULTING ENGINEERS

APPENDIX B:
Terms of Reference

520 Industrial Parkway South, Suite 201
Aurora, Ontario L4G 6W8

Phone: 905-503-2563
www.nextrans.ca

nexTrans CONSULTING ENGINEERS
NextEng Consulting Group Inc.

To: Kavleen Younan, Town of Caledon
Hashim Hamdani, Region of Peel

From: Kristian Aviles, Nextrans Consulting Engineers

Date: May 26, 2025

Re: **Terms of Reference – Transportation Impact Study**
Proposed Residential Development
12944 Albion Vaughan Road, Town of Caledon
City File No. PRE-2024-0255
Our Project No.: NT-25-078

INTRODUCTION

We wish to confirm the following work plan for a Transportation Impact Study (TIS) in support of Site Plan Application for a proposed residential development located at the northwest corner of the Albion Vaughan Road and Queensgate Boulevard intersection, municipally addressed as 12944 Albion Vaughan Road (herein referred to as the "subject site") in the Town of Caledon. **Figure 1** illustrates the subject site location. The site plan is enclosed in **Attachment 1**.

Figure 1: Subject Site Location

DEVELOPMENT PROPOSAL

Based on the site plan used to prepare this Terms of Reference, the development proposal is a residential subdivision consisting of 47 residential townhouse dwelling units. 104 vehicle parking spaces are proposed on-site, including 10 visitor spaces. Vehicular access is envisioned via a full movement driveway onto Queensgate Boulevard.

STUDY AREA & TRAFFIC DATA

The proposed intersection study area will include the analysis of the following intersections.

- Queensgate Boulevard / Albion-Vaughan Road (signalized)
- Queensgate Boulevard / Sant Farm Drive & Landsbridge Street (unsignalized)
- Queensgate Boulevard & Proposed Driveway (unsignalized)

A Turning Movement Count (TMC) survey of the studied intersections will be undertaken during one weekday during the AM and PM peak periods of 7:00am to 10:00am and 4:00pm to 7:00pm, respectively, and one Saturday during the peak period of 10:00am to 6:00pm. The peak hour traffic data captured from the foregoing peak periods will be used within the study.

TRAFFIC ASSESSMENT & STUDY HORIZON YEAR

The TIS for the proposed development will be prepared in accordance with the Town of Caledon Traffic Impact and Parking Study Terms of Reference and the Region of Peel online Traffic Impact Study Guidelines.

The study will assess the weekday AM and PM peak hour traffic operations for the existing, future background, and future total conditions. Synchro version 10 will be used for intersection capacity analysis based on HCM 2000 methodology.

Given the scale of the development, the following horizon years will be assessed within the study.

- Existing baseline year (2025)
- 5-year horizon (2030)

BACKGROUND TRAFFIC

General Corridor Growth Rate

Nextrans will consult with Town and Region staff as necessary to determine corridor growth rates within the study area. If forecasted or historical traffic data is unavailable, a 2.0% per annum corridor growth rate will be applied as applicable to the study area roads.

Road Network Improvements

Road network improvements identified within the study area and any traffic diversions associated with these improvements will be accounted for within the traffic operations analysis. Based on a review of available construction information, no additional road network improvements have been identified for inclusion in the study at this time. We kindly ask that staff confirm if any road network improvements should be considered.

Background Development Traffic

Nextrans has identified the following background development within the area surrounding the subject site that will be considered within the traffic analysis as background development traffic volumes.

- 9229 5th Sideroad – Development proposal of 84 residential dwelling units (21T-21001C)
- 13290 Nunnville Road – Development proposal of 15 residential townhouse dwelling units (21T-22003C)

We kindly ask that staff provide the relevant traffic studies for the above-noted background developments for consideration in our analysis.

TRIP GENERATION, DISTRIBUTION, & ASSIGNMENT

Trip Generation

Nextrans proposes to use the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition to determine the vehicular site traffic volumes generated from the proposed development onto the studied intersection road network.

Non-auto site-generated trips will be based on applicable non-auto trip generation data (transit, walking, cycling) from ITE Trip Generation Manual 11th Edition that is available and will be proportioned by travel type based on 2022 Transportation Tomorrow Survey (TTS) travel modal split data.

Trip Distribution and Assignment

The trip distribution for the subject site will be based on a review of existing traffic volume distribution patterns of the study area intersections from the surveyed TMC data. Trip assignment will be completed accordingly to reflect the configuration of the proposed site accesses, turning restrictions, and logical routings.

MITIGATION MEASURES

Under future conditions, critical movements will be identified. Critical movements include through movements or shared through/turning movements that operate at a v/c of 0.90 or above, exclusive movements that exceed a v/c of 1.00, that experience or exceed a v/c ratio 1.00 will be identified, and movements with 95th percentile queues that exceed the storage length.

Remedial actions such as intersection road improvements (e.g. road widening, additional road lane) or signal timing split optimization (cycle length will remain unchanged) will be considered. If remedial measures are to be employed, a scenario will be provided demonstrating the change in intersection operations.

TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN

A review of existing nearby transportation facilities and possible initiatives and policies to promote and encourage modes of transportation in lieu of single occupant vehicle (SOV) trips will be made to influence the travel behaviour of residents and visitors to reduce travel demand and create a more efficient transportation network. TDM measures that are recommended to be implemented for the subject site will be summarized.

SITE PLAN REVIEW

A vehicle swept path analysis will be undertaken to confirm the on-site functionality of driveway entrances, drive aisles, parking spaces, loading spaces, etc., of the subject site for typical vehicles that are intended to access the subject site.

PARKING REVIEW

The study will provide a review of the proposed vehicular parking space provision and the minimum vehicular parking space requirements from the Town's comprehensive Zoning By-Law Section 5 – Parking, Loading and Delivery Standards, as amended.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

NEXTRANS CONSULTING ENGINEERS

Kristian Aviles, B.Eng.
Transportation Analyst

Enclosed: Attachment 1: Site Plan

Kristian Aviles

From: Shen, Yifan <yifan.shen@peelregion.ca>
Sent: June 3, 2025 2:13 PM
To: Kristian Aviles
Cc: Hamdani, Hashim
Subject: RE: Transportation Impact Study Terms of Reference
Attachments: TIS Terms of Reference - 12944 Albion Vaughan Road.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Kristian,

Good afternoon and thank you for reaching out regarding the Terms of Reference. Please find the Region of Peel's comments below:

Please see the traffic comments below and the link here for the detailed Region of Peel TIS formatting and contact information for background traffic (growth rate, AADT, signal timing, etc.).

- Analysis Period - Acceptable.
- Intersections - Please consider including the following intersection:
    - Queensgate Boulevard & Highway 50
- Horizon Years - Please include a 10-year horizon period in addition to the 5-year horizon.
- Please see the following contacts to obtain data for your analysis:
    - Please contact transportationplanningdata@peelregion.ca to confirm growth rates along the subject Regional road(s).
    - Please contact Damian Jamroz (damian.jamroz@peelregion.ca) Supervisor of Traffic Operations to obtain the most recent TMCs and/or average annual daily traffic (AADT).
    - Please contact Rebecca Caughey (Rebecca.caughey@peelregion.ca) Supervisor of Traffic Signals and Streetlighting, to obtain traffic signal timing parameters and ensure that the information includes the appropriate walk/don't walk splits, recall modes and offsets.
    - Please contact your Local Municipality Planning Department to obtain details on surrounding developments in the area that would affect traffic capacity in the planning horizon year(s).

I trust this to be satisfactory; please do not hesitate to contact me should you have any questions or concerns.

Warm regards,

Yifan Shen
Specialist, Transportation Development
Transportation Development
Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

From: Kristian Aviles <kristian@nextrans.ca>
Sent: May 26, 2025 5:10 PM
To: Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Kavleen Younan <kavleen.younan@caledon.ca>
Subject: Transportation Impact Study Terms of Reference

Good afternoon,

Please see the attached terms of reference which outlines the proposed scope of work for a Transportation Impact Study for a proposed residential subdivision, municipally addressed as 12944 Albion Vaughan Road, in the Town of Caledon.

Please advise if the proposed scope of work is acceptable at your earliest convenience.

Thank you,

Kristian Aviles, B.Eng.
Transportation Analyst

o: 905-503-2563 ext. 206
c: 647-928-1222
e: kristian@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

Kristian Aviles

From: Emma Howlett <Emma.Howlett@caledon.ca>
Sent: June 16, 2025 3:20 PM
To: Kristian Aviles
Cc: Gurpreet Walia; Dan Terzievski
Subject: FW: Transportation Impact Study Terms of Reference
Attachments: TIS Terms of Reference - 12944 Albion Vaughan Road.pdf; RE: fire route access requirements for private condo roads ; Site Plan.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Kristian,

As a result of our internal coordination, we have outlined the following further comments:

- Feasibility of an access off of Esposito Drive should be investigated, accordingly Sant Farm Drive and Harvestview Avenue must be added to the study network.
- The proposal must include formally establishing the terminus of Esposito Drive to meet the Town's Development Standards. This would include the establishment of a cul-de sac.
- The benefits of providing two accesses should be reviewed further in the report.
- Assign Trips to Landsbridge St. and Dovison Gate, discuss impact (as this is late, open to qualitative discussion at this location)

Warm Regards,

Emma Howlett, EIT
Transportation Coordinator
Engineering, Public Works, & Transportation Department
Office: 905.584.2272 | Email: Emma.Howlett@caledon.ca

TOWN OF CALEDON

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From: Emma Howlett
Sent: June 4, 2025 2:54 PM
To: Kristian Aviles <kristian@nextrans.ca>
Cc: Kavleen Younan <Kavleen.Younan@caledon.ca>
Subject: FW: Transportation Impact Study Terms of Reference

Hello Kristian,

Town Transportation Engineering Staff have reviewed the submitted TOR and offer the following comments:

Please confirm in the traffic study that the report is submitted for Official Plan Amendment, Zoning By-law Amendment and Site Plan Application**.**

Terms of Reference (TOR) and Circulation

- Circulate the Terms of Reference (TOR) to the Region of Peel.
- Append all agency responses in the appendix of the final report.

Site Access and Connectivity

- **Access Review**: Further discussions are required with Town Fire, Development Engineering, Planning, and Transportation departments regarding:
    - The number of required accesses.
    - The proposed access locations.
- Management is meeting to discuss the possible access connection onto Esposito Drive June 10th; possible revisions, including additional study intersection (Sant Farm Drive and Harvestview Avenue), may be required.

Study Intersections

Additionally include the following intersections in the study area:

- All proposed site accesses.
- Dovison Gate & Albion Vaughan Road.
- Highway 50 & Queensgate Boulevard (with emphasis on westbound queuing).
- Queensgate & Pembrook Drive.
- Queensgate & Landsbridge Street (western intersection).

Data Collection

- Ensure that the collected traffic data is reflective of typical conditions (data to be collected on a typical school day).
- Collect 8-hour traffic counts to align with MTO's signal warrant requirements.

Analysis

- Based on the below historical data the proposed standard 2% growth rate per annum is acceptable for most roadways, except for Queensgate Boulevard as a clear 3-4% growth rate appears to be present. Note: Data for Queensgate is provided below.
- Identify critical movements and critical queue lengths for all applicable horizon years and provide mitigation measures as needed.
- Leverage Sim Traffic to alleviate limitations of queueing with the synchro model.

- Assess collision history along the boundary road network. Please contact smeeta.adiga@caledon.ca to determine the availability of collision and traffic data.
- Include trip assignment for:
    - 12148 Albion Vaughan Road
    - 12599 & 12563 Highway 50, and 2 Industrial Road

      Note: Caledon is developing rapidly should delays occur please reach out for updated background developments after checking the Town's Current Developments Listed on our Website

- Include the impacts of the Bolton Secondary Plan review as applies to the proposed horizon years.

Sensitivity Analysis

- Conduct a sensitivity analysis for the final horizon year at intersections along Albion Vaughan Road, considering:
    - The George Bolton Parkway extension from Highway 50 to Albion Vaughan Road.
    - The widening of Albion Vaughan Road to two lanes in each direction.

Safety and Design Considerations

- Review proposed clear throat lengths against TAC recommendations and anticipated queuing; revise as needed.
- Evaluate proposed accesses for safety, considering:
    - Weaving and merging conflicts.
    - Pedestrian/vehicle conflict points.
    - Access and heavy truck movement conflicts.
    - School crossings.
- Conduct a sight line assessment at the proposed site access(es).
- Review pavement markings and signage plans for compliance with the Town's Traffic By-Law and the Highway Traffic Act, especially:
    - Fire Route "No Parking" signage.
    - Barrier-Free parking signage.

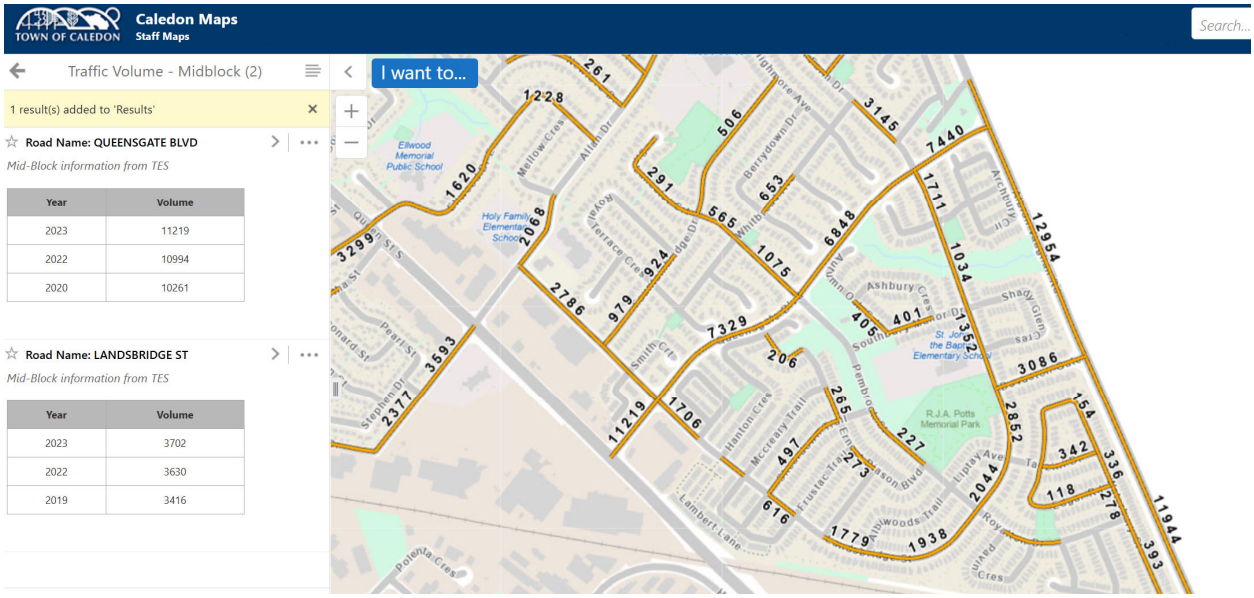
Active Transportation and Circulation

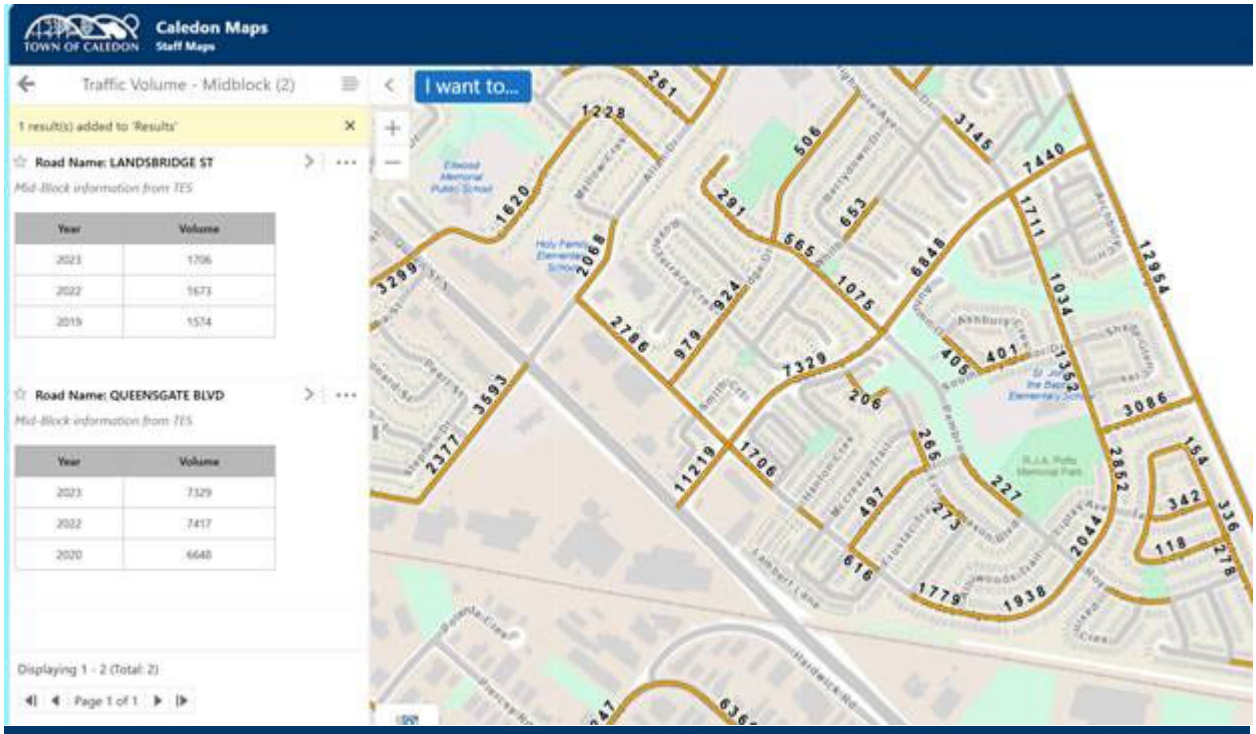
- Review existing and proposed active transportation facilities within and surrounding the development.
- Recommend improvements to close missing links and enhance connectivity.
- Provide a Pedestrian and Cyclist Circulation Plan that:
    - Distinguish between improvements proposed as part of this development and those planned by the Town/Region.
    - Includes recommendations for connections and missing links that provide more diverse, direct, and lower traffic route options.

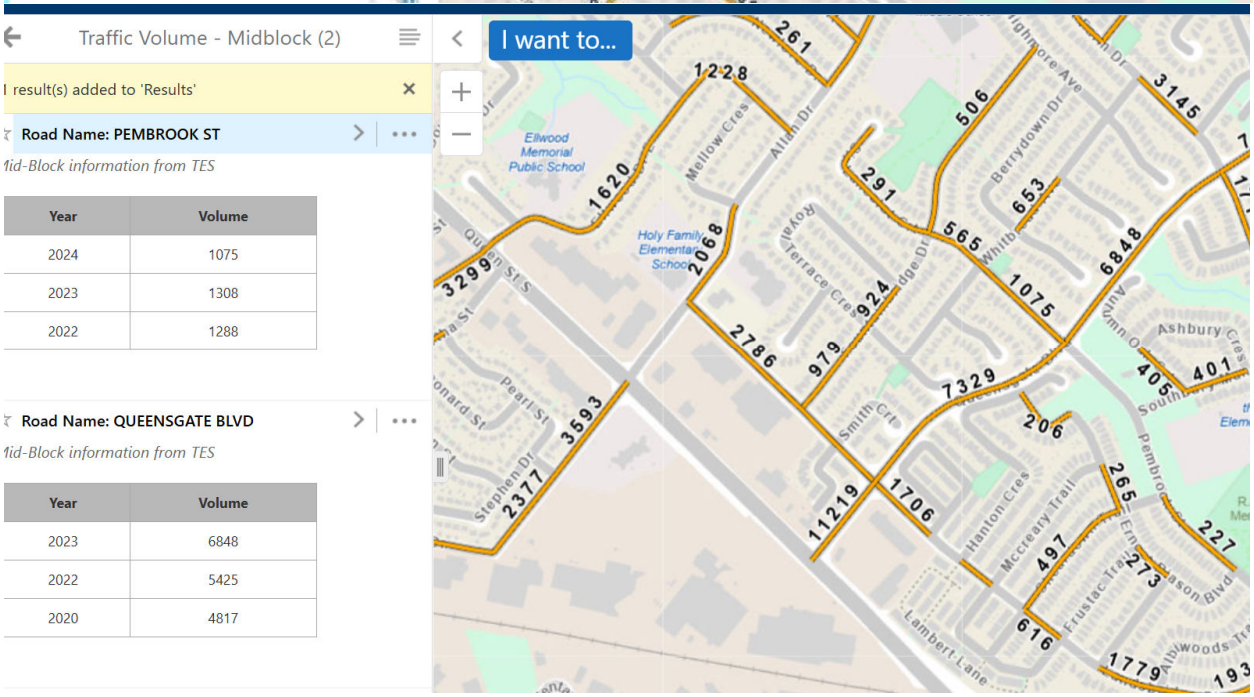
Parking and Loading

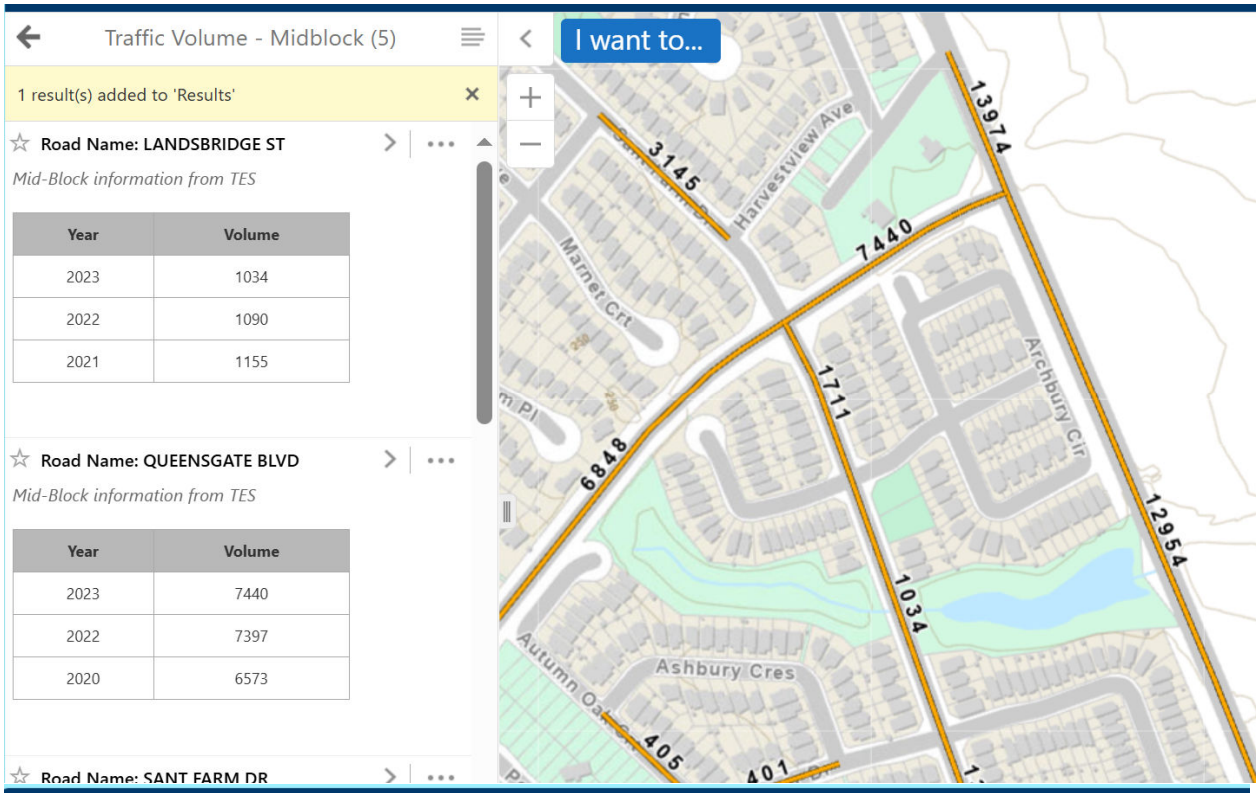
- Use the standard PTAC vehicle for assessing passenger vehicle parking spaces.

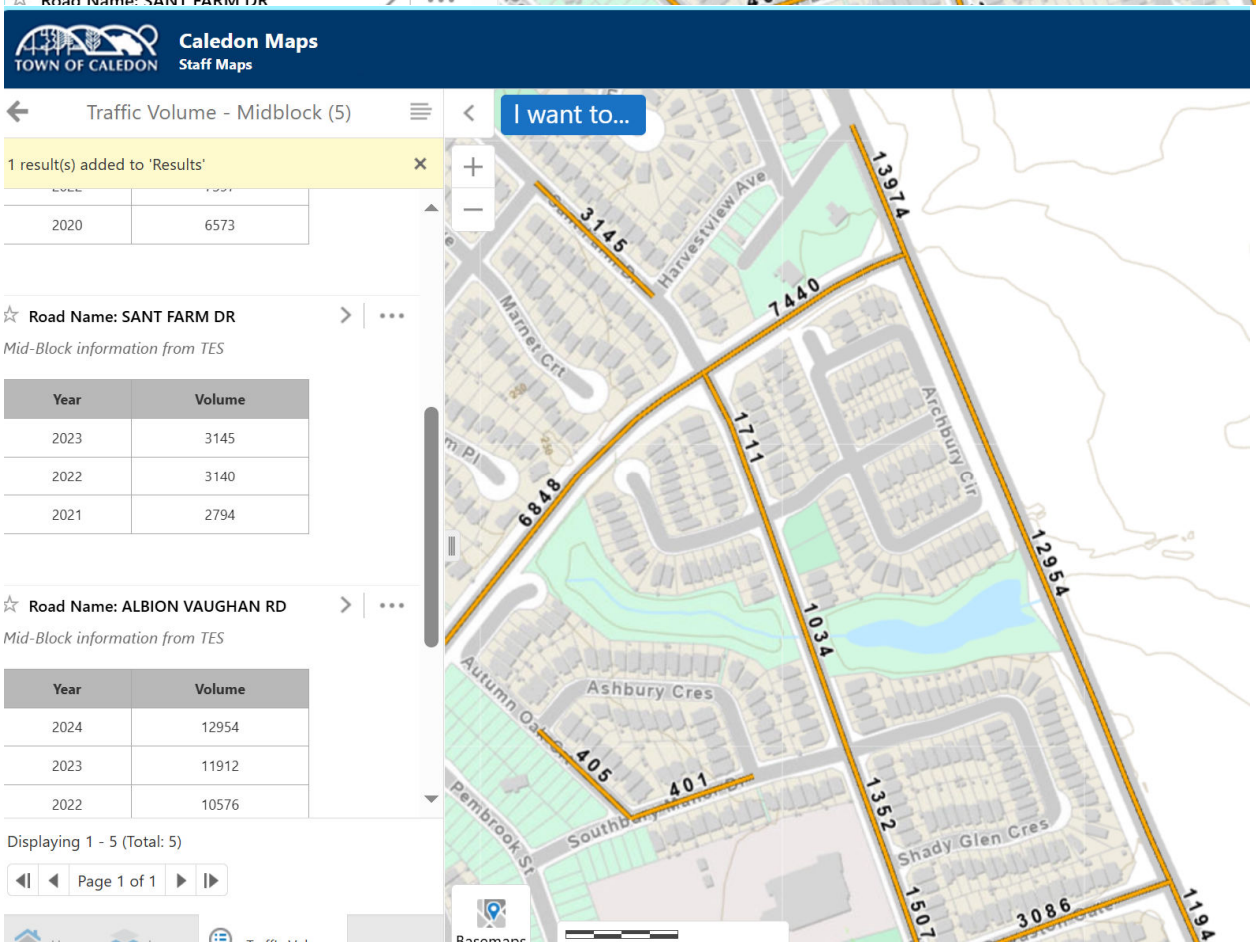
- Review layby parking space dimensions; typically, these need to be lengthened from the standard 6.0m for proper ingress/egress.
- Review loading and delivery space requirements; justify any proposed reductions from the Town's Traffic By-Law.
- **Visitor Parking**: Parking spaces should be provided according to the rates in the Zoning By-Law. A parking justification will be required if fewer than the required parking spaces are proposed. A work plan (Terms of Reference) for the parking justification study should be circulated with Town Transportation Staff prior to starting the parking portion of the investigations to ensure the scope of the study is sufficient considering the anticipated impacts of the proposed reduction.
- **Barrier-Free Parking**: Calculate the required number of spaces per the Accessibility for Ontarians with Disabilities Act (AODA) and revise the proposal accordingly.

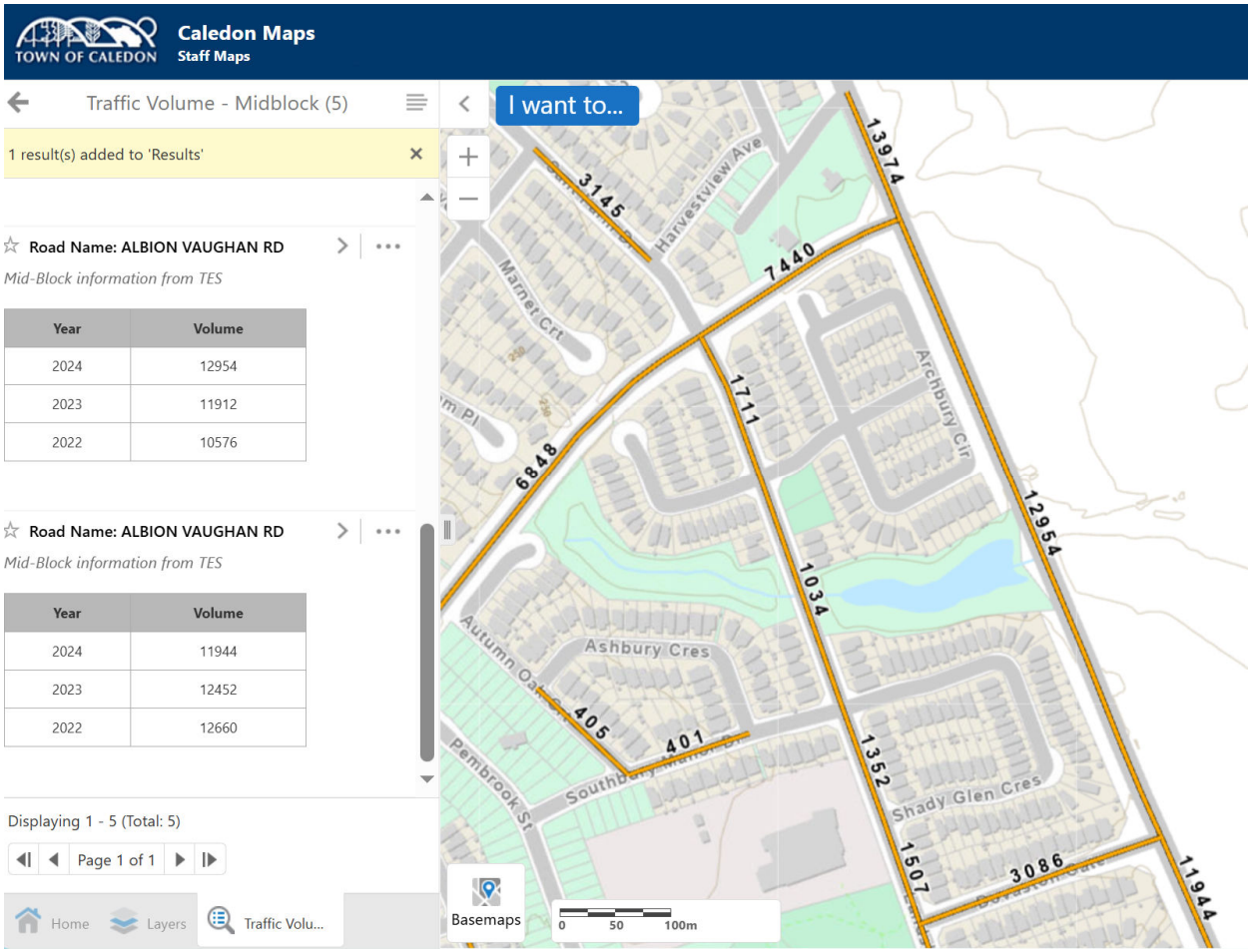


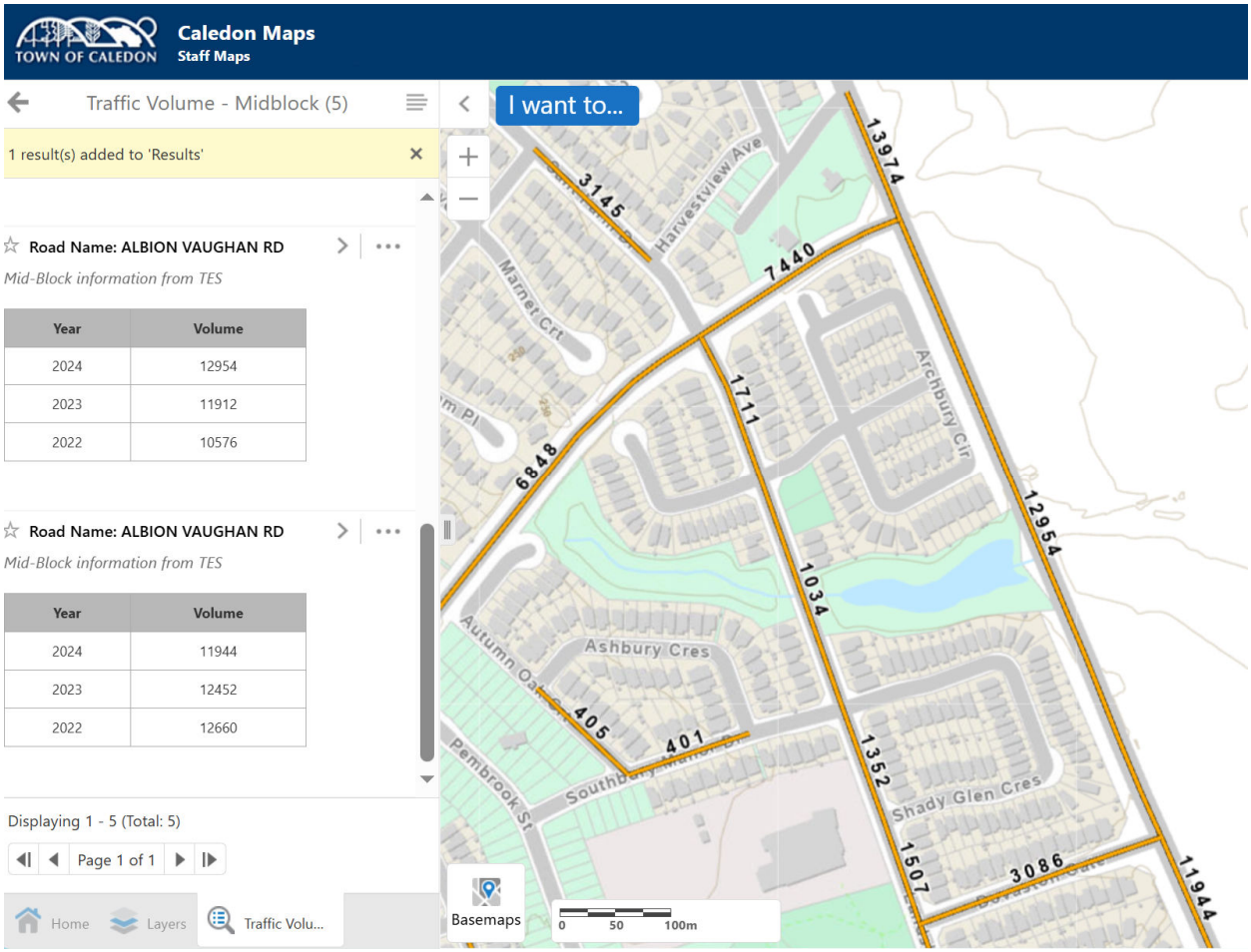

Caledon Maps
Staff Maps
Traffic Volume - Midblock (2)
I want to...
1 result(s) added to 'Results'
Road Name: LANDSBRIDGE ST
Mid-Block information from TES
Year
Volume
2023
1706
2022
1673
2019
1574
Road Name: QUEENSGATE BLVD
Mid-Block information from TES
Year
Volume
2023
7329
2022
7417
2020
6648
Displaying 1 - 2 (Total: 2)
Page 1 of 1


Traffic Volume - Midblock (2)
I want to...
result(s) added to 'Results'
Road Name: PEMBROOK ST
Mid-Block information from TES
Year
Volume
2024
1075
2023
1308
2022
1288
Road Name: QUEENSGATE BLVD
Mid-Block information from TES
Year
Volume
2023
6848
2022
5425
2020
4817
Ellwood Memorial Public School
Holy Family Elementary School
Ashbury Cres
Smith Crt
Hanton Cres
Mccreary Trail
Lambert Lane


Traffic Volume - Midblock (5)
I want to...
1 result(s) added to 'Results'
Road Name: LANDSBRIDGE ST
Mid-Block information from TES
Year | Volume
2023 | 1034
2022 | 1090
2021 | 1155
Road Name: QUEENSGATE BLVD
Mid-Block information from TES
Year | Volume
2023 | 7440
2022 | 7397
2020 | 6573
Road Name: SANT FARM DR
3145
7440
1711
6848
1034
12954
13974
405
401
Harvestview Ave
Marnet Crt
Archbury Cir
Ashbury Cres
Autumn Oak Cres


TOWN OF CALEDON
Caledon Maps
Staff Maps
Traffic Volume - Midblock (5)
I want to...
1 result(s) added to 'Results'
2020 | 6573
Road Name: SANT FARM DR
Mid-Block information from TES
Year | Volume
2023 | 3145
2022 | 3140
2021 | 2794
Road Name: ALBION VAUGHAN RD
Mid-Block information from TES
Year | Volume
2024 | 12954
2023 | 11912
2022 | 10576
Displaying 1 - 5 (Total: 5)
Page 1 of 1
3145
7440
1711
6848
1034
12954
13974
405
401
1352
3086
Harvestview Ave
Marnet Crt
Archbury Cir
Ashbury Cres
Autumn Oak Cres
Shady Glen Cres
Pembrook St


Caledon Maps
Staff Maps
TOWN OF CALEDON
Traffic Volume - Midblock (5)
1 result(s) added to 'Results'
Road Name: ALBION VAUGHAN RD
Mid-Block information from TES
Year
Volume
2024
12954
2023
11912
2022
10576
Road Name: ALBION VAUGHAN RD
Mid-Block information from TES
Year
Volume
2024
11944
2023
12452
2022
12660
Displaying 1 - 5 (Total: 5)
Page 1 of 1
Home
Layers
Traffic Volu...
I want to...
Basemaps
0
50
100m
3145
Harvestview Ave
Marnet Crt
7440
13974
1711
Archbury Cir
6848
12954
1034
Ashbury Cres
405
401
1352
Shady Glen Cres
Pembrook St
1507
3086
11944



Kind regards,

Emma Howlett, EIT
Transportation Coordinator
Engineering, Public Works, & Transportation Department
Office: 905.584.2272 | Email: Emma.Howlett@caledon.ca

TOWN OF CALEDON

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instagram.com/**townofcaledon**

From: Kristian Aviles <kristian@nextrans.ca>
Sent: Monday, May 26, 2025 5:10 PM
To: Hamdani, Hashim <hashim.hamdani@peelregion.ca>; Kavleen Younan <Kavleen.Younan@caledon.ca>
Subject: Transportation Impact Study Terms of Reference

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the contents to be safe.

Good afternoon,

Please see the attached terms of reference which outlines the proposed scope of work for a Transportation Impact Study for a proposed residential subdivision, municipally addressed as 12944 Albion Vaughan Road, in the Town of Caledon.

Please advise if the proposed scope of work is acceptable at your earliest convenience.

Thank you,

Kristian Aviles, B.Eng.
Transportation Analyst

o: 905-503-2563 ext. 206
c: 647-928-1222
e: kristian@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

APPENDIX C:
Traffic Data

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & PEMBROOK ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (5 . QUEENSGATE BLVD & PEMBROOK ST)

Start Time	Southbound PEMBROOK ST						Westbound QUEENSGATE BLVD						Northbound PEMBROOK ST						Eastbound QUEENSGATE 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		
2025-06-11 07:00:00	8	0	3	0	0	11	2	45	8	0	1	55	0	0	1	0	2	1	2	26	1	0	0	29	96	
2025-06-11 07:15:00	12	0	5	0	1	17	0	47	1	1	1	49	0	0	0	0	2	0	2	30	1	0	0	33	99	
2025-06-11 07:30:00	8	1	7	0	1	16	2	50	1	0	0	53	0	0	0	0	6	0	2	30	3	0	0	35	104	
2025-06-11 07:45:00	8	0	6	0	4	14	0	71	2	0	1	73	0	0	1	0	3	1	2	36	4	0	0	42	130	429
2025-06-11 08:00:00	8	0	7	0	1	15	5	61	1	0	2	67	0	0	3	0	2	3	2	39	2	0	0	43	128	461
2025-06-11 08:15:00	10	0	4	0	0	14	1	102	1	0	0	104	3	0	0	0	3	3	2	45	6	0	0	53	174	536
2025-06-11 08:30:00	13	0	5	0	2	18	3	60	0	0	1	63	1	0	1	0	2	2	0	43	5	0	0	48	131	563
2025-06-11 08:45:00	9	0	3	0	4	12	2	73	1	0	1	76	1	0	1	0	3	2	1	46	4	0	0	51	141	574
2025-06-11 09:00:00	7	0	10	0	0	17	2	75	0	0	0	77	1	0	1	0	1	2	0	30	4	0	0	34	130	576
2025-06-11 09:15:00	12	0	6	0	2	18	6	55	1	0	0	62	0	0	1	0	2	1	2	31	5	0	2	38	119	521
2025-06-11 09:30:00	9	0	2	0	1	11	0	56	0	0	1	56	0	0	0	0	2	0	1	39	8	0	0	48	115	505
2025-06-11 09:45:00	8	0	1	0	1	9	2	53	2	0	0	57	0	0	0	0	1	0	4	40	3	0	0	47	113	477
BREAK																										
2025-06-11 16:00:00	6	0	4	0	1	10	3	56	0	0	0	59	4	0	2	0	4	6	1	97	17	0	0	115	190	
2025-06-11 16:15:00	5	0	2	0	0	7	2	60	0	0	0	62	0	0	1	0	2	1	0	94	9	0	0	103	173	
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2025-06-11 17:30:00	11	0	2	0	3	13	11	62	1	0	1	74	1	0	1	0	1	2	0	81	10	0	0	91	180	780
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2025-06-11 18:30:00	3	0	2	0	2	5	9	53	0	0	0	62	0	0	3	0	7	3	2	56	9	0	0	67	137	643
2025-06-11 18:45:00	8	0	3	0	4	11	3	50	0	0	1	53	0	0	0	0	2	0	0	59	9	0	0	68	132	603
Grand Total	188	2	99	1	35	290	105	1498	20	2	12	1625	14	3	28	0	62	45	30	1409	188	0	4	1627	**3587**	-
Approach%	64.8%	0.7%	34.1%	0.3%		-	6.5%	92.2%	1.2%	0.1%		-	31.1%	6.7%	62.2%	0%		-	1.8%	86.6%	11.6%	0%		-	-	-
Totals %	5.2%	0.1%	2.8%	0%		8.1%	2.9%	41.8%	0.6%	0.1%		45.3%	0.4%	0.1%	0.8%	0%		1.3%	0.8%	39.3%	5.2%	0%		45.4%	-	-
Heavy	1	0	2	0		-	5	23	2	0		-	0	0	2	0		-	1	25	4	0		-	-	-
Heavy %	0.5%	0%	2%	0%		-	4.8%	1.5%	10%	0%		-	0%	0%	7.1%	0%		-	3.3%	1.8%	2.1%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 08:15 AM - 09:15 AM Weather: Clear Sky (15 °C)

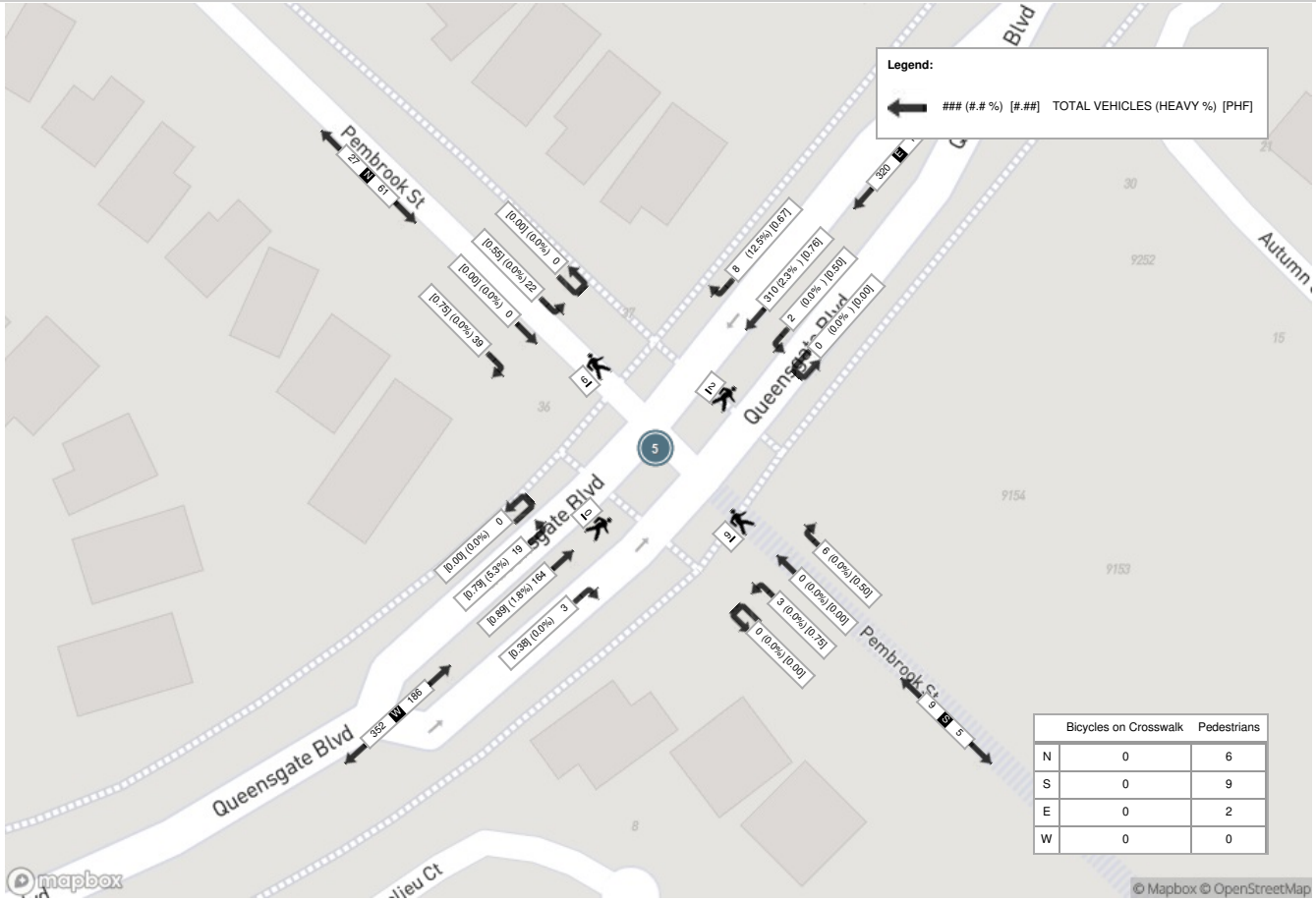
Start Time	Southbound PEMBROOK ST						Westbound QUEENSGATE BLVD						Northbound PEMBROOK ST						Eastbound QUEENSGATE BLVD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-06-11 08:15:00	10	0	4	0	0	14	1	102	1	0	0	104	3	0	0	0	3	3	2	45	6	0	0	53	174
2025-06-11 08:30:00	13	0	5	0	2	18	3	60	0	0	1	63	1	0	1	0	2	2	0	43	5	0	0	48	131
2025-06-11 08:45:00	9	0	3	0	4	12	2	73	1	0	1	76	1	0	1	0	3	2	1	46	4	0	0	51	141
2025-06-11 09:00:00	7	0	10	0	0	17	2	75	0	0	0	77	1	0	1	0	1	2	0	30	4	0	0	34	130
Grand Total	39	0	22	0	6	61	8	310	2	0	2	320	6	0	3	0	9	9	3	164	19	0	0	186	**576**
Approach%	63.9%	0%	36.1%	0%		-	2.5%	96.9%	0.6%	0%		-	66.7%	0%	33.3%	0%		-	1.6%	88.2%	10.2%	0%		-	**-**
Totals %	6.8%	0%	3.8%	0%		10.6%	1.4%	53.8%	0.3%	0%		55.6%	1%	0%	0.5%	0%		1.6%	0.5%	28.5%	3.3%	0%		32.3%	**-**
PHF	0.75	0	0.55	0		0.85	0.67	0.76	0.5	0		0.77	0.5	0	0.75	0		0.75	0.38	0.89	0.79	0		0.88	0.83
Heavy	0	0	0	0		0	1	7	0	0		8	0	0	0	0		0	0	3	1	0		4	12
Heavy %	0%	0%	0%	0%		0%	12.5%	2.3%	0%	0%		2.5%	0%	0%	0%	0%		0%	0%	1.8%	5.3%	0%		2.2%	2.1%
Lights	39	0	22	0		61	7	303	2	0		312	6	0	3	0		9	3	161	18	0		182	564
Lights %	100%	0%	100%	0%		100%	87.5%	97.7%	100%	0%		97.5%	100%	0%	100%	0%		100%	100%	98.2%	94.7%	0%		97.8%	97.9%
Single-Unit Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	3	0	0		3	6
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1%	0%	0%		0.9%	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.6%	1%
Buses	0	0	0	0		0	1	4	0	0		5	0	0	0	0		0	0	0	1	0		1	6
Buses %	0%	0%	0%	0%		0%	12.5%	1.3%	0%	0%		1.6%	0%	0%	0%	0%		0%	0%	0%	5.3%	0%		0.5%	1%
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	-	6	-	-	-	-	-	2	-	-	-	-	-	9	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	35.3%		-	-	-	-	11.8%		-	-	-	-	52.9%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Few Clouds (26 °C)

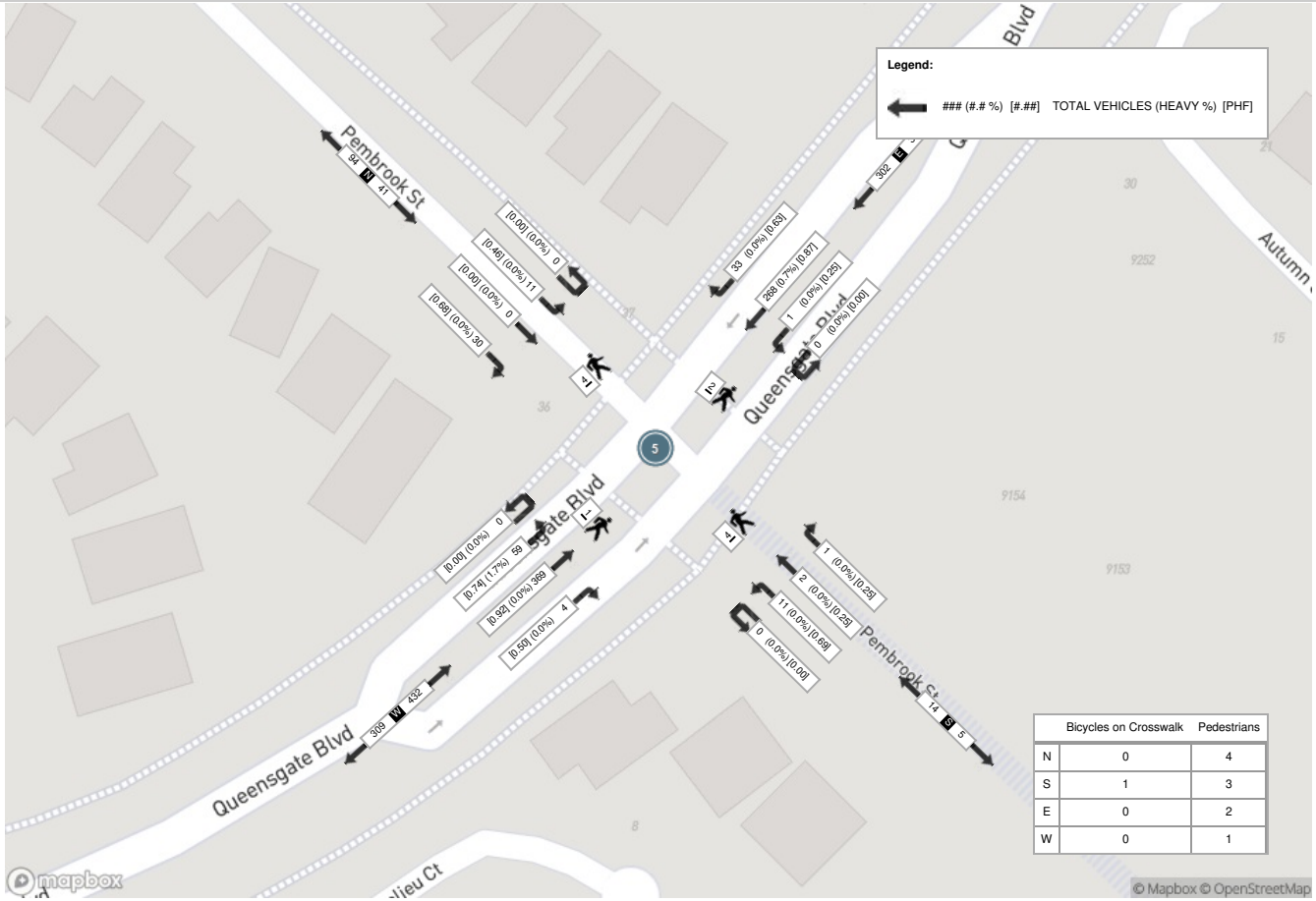
Start Time	Southbound PEMBROOK ST						Westbound QUEENSGATE BLVD						Northbound PEMBROOK ST						Eastbound QUEENSGATE BLVD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-06-11 16:30:00	4	0	2	0	1	6	3	59	0	0	1	62	0	0	2	0	0	2	0	100	19	0	0	119	189
2025-06-11 16:45:00	11	0	3	0	2	14	13	77	0	0	1	90	1	0	4	0	1	5	2	89	13	0	0	104	213
2025-06-11 17:00:00	8	0	6	0	1	14	10	59	0	0	0	69	0	2	3	0	2	5	1	88	20	0	1	109	197
2025-06-11 17:15:00	7	0	0	0	0	7	7	73	1	0	0	81	0	0	2	0	1	2	1	92	7	0	0	100	190
Grand Total	30	0	11	0	4	41	33	268	1	0	2	302	1	2	11	0	4	14	4	369	59	0	1	432	**789**
Approach%	73.2%	0%	26.8%	0%		-	10.9%	88.7%	0.3%	0%		-	7.1%	14.3%	78.6%	0%		-	0.9%	85.4%	13.7%	0%		-	**-**
Totals %	3.8%	0%	1.4%	0%		5.2%	4.2%	34%	0.1%	0%		38.3%	0.1%	0.3%	1.4%	0%		1.8%	0.5%	46.8%	7.5%	0%		54.8%	**-**
PHF	0.68	0	0.46	0		0.73	0.63	0.87	0.25	0		0.84	0.25	0.25	0.69	0		0.7	0.5	0.92	0.74	0		0.91	0.93
Heavy	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	0	1	0		1	3
Heavy %	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	0%	1.7%	0%		0.2%	0.4%
Lights	30	0	11	0		41	33	265	1	0		299	1	0	11	0		12	4	367	58	0		429	781
Lights %	100%	0%	100%	0%		100%	100%	98.9%	100%	0%		99%	100%	0%	100%	0%		85.7%	100%	99.5%	98.3%	0%		99.3%	99%
Single-Unit Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	1	0		1	2
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	1.7%	0%		0.2%	0.3%
Buses	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	1
Buses %	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0.1%
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	2	0	0		2	0	2	0	0		2	5
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.3%	0%	100%	0%	0%		14.3%	0%	0.5%	0%	0%		0.5%	0.6%
Pedestrians	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	36.4%		-	-	-	-	18.2%		-	-	-	-	27.3%		-	-	-	-	9.1%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	9.1%		-	-	-	-	0%		**-**

Peak Hour: 08:15 AM - 09:15 AM **Weather: Clear Sky (15 °C)**



NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Few Clouds (26 °C)**



Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & SANT FARM DR/LANDSBRIDGE ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (2 . QUEENSGATE BLVD & SANT FARM DR/LANDSBRIDGE ST)

Start Time	Southbound SANT FARM DR						Westbound QUEENSGATE BLVD						Northbound LANDSBRIDGE ST						Eastbound QUEENSGATE 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		
2025-06-11 07:00:00	9	4	43	0	0	56	5	31	1	0	1	37	11	2	11	0	0	24	0	28	2	0	1	30	147	
2025-06-11 07:15:00	8	1	54	0	0	63	4	35	1	0	0	40	19	0	7	0	0	26	5	27	4	0	0	36	165	
2025-06-11 07:30:00	5	0	60	0	0	65	7	40	2	0	2	49	12	4	8	0	0	24	2	30	1	0	0	33	171	
2025-06-11 07:45:00	12	2	46	0	2	60	7	44	4	0	0	55	27	2	17	0	0	46	7	36	4	0	2	47	208	691
2025-06-11 08:00:00	6	5	40	0	0	51	3	54	4	0	1	61	15	2	9	0	0	26	6	30	8	0	0	44	182	726
2025-06-11 08:15:00	11	4	37	0	0	52	22	71	9	0	0	102	14	7	21	0	2	42	9	40	2	0	4	51	247	808
2025-06-11 08:30:00	9	20	38	0	0	67	29	44	7	0	0	80	10	15	11	0	0	36	15	31	2	0	6	48	231	868
2025-06-11 08:45:00	14	7	30	0	0	51	14	46	5	0	2	65	16	14	20	0	1	50	13	31	8	0	7	52	218	878
2025-06-11 09:00:00	9	4	13	0	0	26	12	51	4	0	0	67	10	3	15	0	2	28	7	33	3	0	6	43	164	860
2025-06-11 09:15:00	10	0	25	0	0	35	7	44	2	0	0	53	10	0	8	0	0	18	7	26	4	0	2	37	143	756
2025-06-11 09:30:00	9	0	23	0	1	32	13	42	5	0	1	60	9	1	5	0	0	15	6	30	5	0	2	41	148	673
2025-06-11 09:45:00	7	2	17	0	0	26	6	40	2	0	0	48	6	2	11	0	0	19	5	31	3	0	3	39	132	587
BREAK																										
2025-06-11 16:00:00	4	4	19	0	0	27	37	46	11	0	0	94	5	3	10	0	0	18	4	86	12	0	1	102	241	
2025-06-11 16:15:00	6	7	12	0	0	25	37	41	9	1	0	88	5	7	13	0	0	25	24	66	7	0	0	97	235	
2025-06-11 16:30:00	6	7	12	0	0	25	25	50	6	0	0	81	7	5	11	0	0	23	10	81	14	0	1	105	234	
2025-06-11 16:45:00	7	2	17	0	0	26	42	67	9	0	1	118	14	17	14	0	0	45	16	55	21	0	1	92	281	991
2025-06-11 17:00:00	8	5	16	0	0	29	35	49	5	0	1	89	7	2	11	0	0	20	19	65	11	0	2	95	233	983
2025-06-11 17:15:00	4	3	15	0	2	22	34	62	14	0	1	110	5	5	14	0	0	24	21	54	14	0	4	89	245	993
2025-06-11 17:30:00	6	1	23	0	0	30	39	62	7	0	1	108	9	4	7	0	0	20	10	56	18	0	1	84	242	1001
2025-06-11 17:45:00	10	8	9	0	0	27	39	55	5	0	2	99	1	3	17	0	0	21	21	49	10	1	2	81	228	948
2025-06-11 18:00:00	11	5	22	0	0	38	28	53	5	1	1	87	6	5	16	0	0	27	18	54	14	0	3	86	238	953
2025-06-11 18:15:00	9	1	12	0	0	22	23	44	12	0	0	79	2	5	9	0	0	16	13	44	15	0	3	72	189	897
2025-06-11 18:30:00	7	3	13	0	0	23	35	43	10	0	2	88	5	3	15	0	2	23	12	34	10	0	1	56	190	845
2025-06-11 18:45:00	6	7	17	0	0	30	28	35	8	0	1	71	7	5	10	0	0	22	13	40	11	0	2	64	187	804
Grand Total	193	102	613	0	5	908	531	1149	147	2	17	1829	232	116	290	0	7	638	263	1057	203	1	54	1524	**4899**	-
Approach%	21.3%	11.2%	67.5%	0%		-	29%	62.8%	8%	0.1%		-	36.4%	18.2%	45.5%	0%		-	17.3%	69.4%	13.3%	0.1%		-	**-**	-
Totals %	3.9%	2.1%	12.5%	0%		18.5%	10.8%	23.5%	3%	0%		37.3%	4.7%	2.4%	5.9%	0%		13%	5.4%	21.6%	4.1%	0%		31.1%	**-**	-
Heavy	3	5	7	0		-	10	22	0	1		-	5	10	4	0		-	4	22	2	0		-	**-**	-
Heavy %	1.6%	4.9%	1.1%	0%		-	1.9%	1.9%	0%	50%		-	2.2%	8.6%	1.4%	0%		-	1.5%	2.1%	1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & SANT FARM DR/LANDSBRIDGE ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Clear Sky (15 °C)

Start Time	Southbound SANT FARM DR						Westbound QUEENSGATE BLVD						Northbound LANDSBRIDGE ST						Eastbound QUEENSGATE 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	
2025-06-11 08:00:00	6	5	40	0	0	51	3	54	4	0	1	61	15	2	9	0	0	26	6	30	8	0	0	44	182
2025-06-11 08:15:00	11	4	37	0	0	52	22	71	9	0	0	102	14	7	21	0	2	42	9	40	2	0	4	51	247
2025-06-11 08:30:00	9	20	38	0	0	67	29	44	7	0	0	80	10	15	11	0	0	36	15	31	2	0	6	48	231
2025-06-11 08:45:00	14	7	30	0	0	51	14	46	5	0	2	65	16	14	20	0	1	50	13	31	8	0	7	52	218
Grand Total	40	36	145	0	0	221	68	215	25	0	3	308	55	38	61	0	3	154	43	132	20	0	17	195	**878**
Approach%	18.1%	16.3%	65.6%	0%		-	22.1%	69.8%	8.1%	0%		-	35.7%	24.7%	39.6%	0%		-	22.1%	67.7%	10.3%	0%		-	**-**
Totals %	4.6%	4.1%	16.5%	0%		25.2%	7.7%	24.5%	2.8%	0%		35.1%	6.3%	4.3%	6.9%	0%		17.5%	4.9%	15%	2.3%	0%		22.2%	**-**
PHF	0.71	0.45	0.91	0		0.82	0.59	0.76	0.69	0		0.75	0.86	0.63	0.73	0		0.77	0.72	0.83	0.63	0		0.94	0.89
Heavy	2	3	3	0		8	2	8	0	0		10	1	5	1	0		7	1	5	1	0		7	32
Heavy %	5%	8.3%	2.1%	0%		3.6%	2.9%	3.7%	0%	0%		3.2%	1.8%	13.2%	1.6%	0%		4.5%	2.3%	3.8%	5%	0%		3.6%	3.6%
Lights	38	33	142	0		213	66	207	25	0		298	54	33	60	0		147	42	127	19	0		188	846
Lights %	95%	91.7%	97.9%	0%		96.4%	97.1%	96.3%	100%	0%		96.8%	98.2%	86.8%	98.4%	0%		95.5%	97.7%	96.2%	95%	0%		96.4%	96.4%
Single-Unit Trucks	1	1	1	0		3	0	5	0	0		5	1	1	0	0		2	0	4	0	0		4	14
Single-Unit Trucks %	2.5%	2.8%	0.7%	0%		1.4%	0%	2.3%	0%	0%		1.6%	1.8%	2.6%	0%	0%		1.3%	0%	3%	0%	0%		2.1%	1.6%
Buses	1	2	2	0		5	2	3	0	0		5	0	4	1	0		5	1	1	1	0		3	18
Buses %	2.5%	5.6%	1.4%	0%		2.3%	2.9%	1.4%	0%	0%		1.6%	0%	10.5%	1.6%	0%		3.2%	2.3%	0.8%	5%	0%		1.5%	2.1%
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	17	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	13%		-	-	-	-	13%		-	-	-	-	73.9%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & SANT FARM DR/LANDSBRIDGE ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

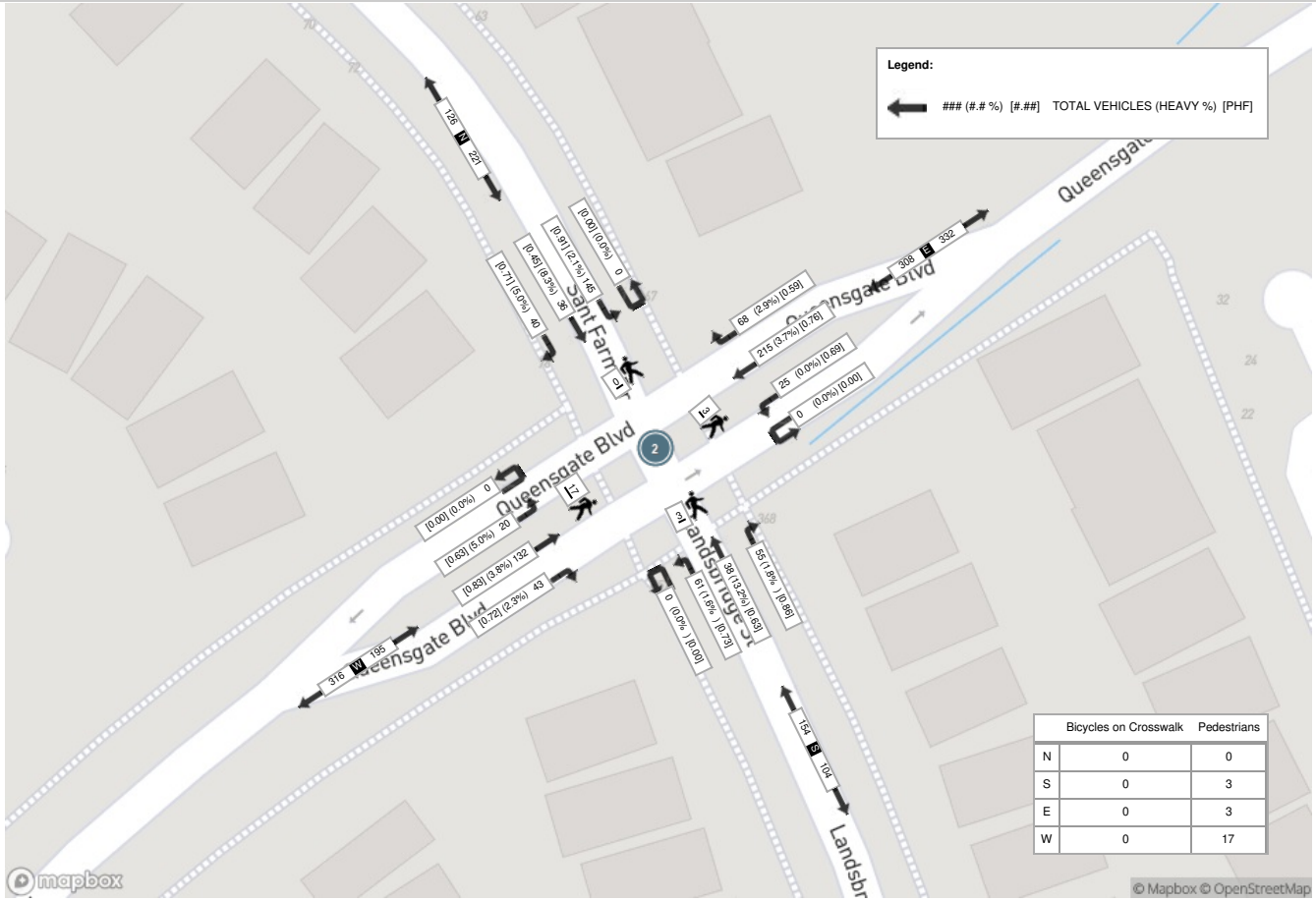
NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:45 PM - 05:45 PM Weather: Few Clouds (26 °C)

Start Time	Southbound SANT FARM DR						Westbound QUEENSGATE BLVD						Northbound LANDSBRIDGE ST						Eastbound QUEENSGATE 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	
2025-06-11 16:45:00	7	2	17	0	0	26	42	67	9	0	1	118	14	17	14	0	0	45	16	55	21	0	1	92	281
2025-06-11 17:00:00	8	5	16	0	0	29	35	49	5	0	1	89	7	2	11	0	0	20	19	65	11	0	2	95	233
2025-06-11 17:15:00	4	3	15	0	2	22	34	62	14	0	1	110	5	5	14	0	0	24	21	54	14	0	4	89	245
2025-06-11 17:30:00	6	1	23	0	0	30	39	62	7	0	1	108	9	4	7	0	0	20	10	56	18	0	1	84	242
Grand Total	25	11	71	0	2	107	150	240	35	0	4	425	35	28	46	0	0	109	66	230	64	0	8	360	**1001**
Approach%	23.4%	10.3%	66.4%	0%		-	35.3%	56.5%	8.2%	0%		-	32.1%	25.7%	42.2%	0%		-	18.3%	63.9%	17.8%	0%		-	**-**
Totals %	2.5%	1.1%	7.1%	0%		10.7%	15%	24%	3.5%	0%		42.5%	3.5%	2.8%	4.6%	0%		10.9%	6.6%	23%	6.4%	0%		36%	**-**
PHF	0.78	0.55	0.77	0		0.89	0.89	0.9	0.63	0		0.9	0.63	0.41	0.82	0		0.61	0.79	0.88	0.76	0		0.95	0.89
Heavy	1	1	0	0		2	2	3	0	0		5	1	1	0	0		2	0	2	0	0		2	11
Heavy %	4%	9.1%	0%	0%		1.9%	1.3%	1.3%	0%	0%		1.2%	2.9%	3.6%	0%	0%		1.8%	0%	0.9%	0%	0%		0.6%	1.1%
Lights	24	9	71	0		104	148	237	35	0		420	34	27	45	0		106	66	227	64	0		357	987
Lights %	96%	81.8%	100%	0%		97.2%	98.7%	98.8%	100%	0%		98.8%	97.1%	96.4%	97.8%	0%		97.2%	100%	98.7%	100%	0%		99.2%	98.6%
Single-Unit Trucks	0	1	0	0		1	2	3	0	0		5	1	1	0	0		2	0	2	0	0		2	10
Single-Unit Trucks %	0%	9.1%	0%	0%		0.9%	1.3%	1.3%	0%	0%		1.2%	2.9%	3.6%	0%	0%		1.8%	0%	0.9%	0%	0%		0.6%	1%
Buses	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
Buses %	4%	0%	0%	0%		0.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0.1%
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	1	0		1	0	1	0	0		1	3
Bicycles on Road %	0%	9.1%	0%	0%		0.9%	0%	0%	0%	0%		0%	0%	0%	2.2%	0%		0.9%	0%	0.4%	0%	0%		0.3%	0.3%
Pedestrians	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	7	-	**-**
Pedestrians%	-	-	-	-	14.3%		-	-	-	-	28.6%		-	-	-	-	0%		-	-	-	-	50%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	7.1%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

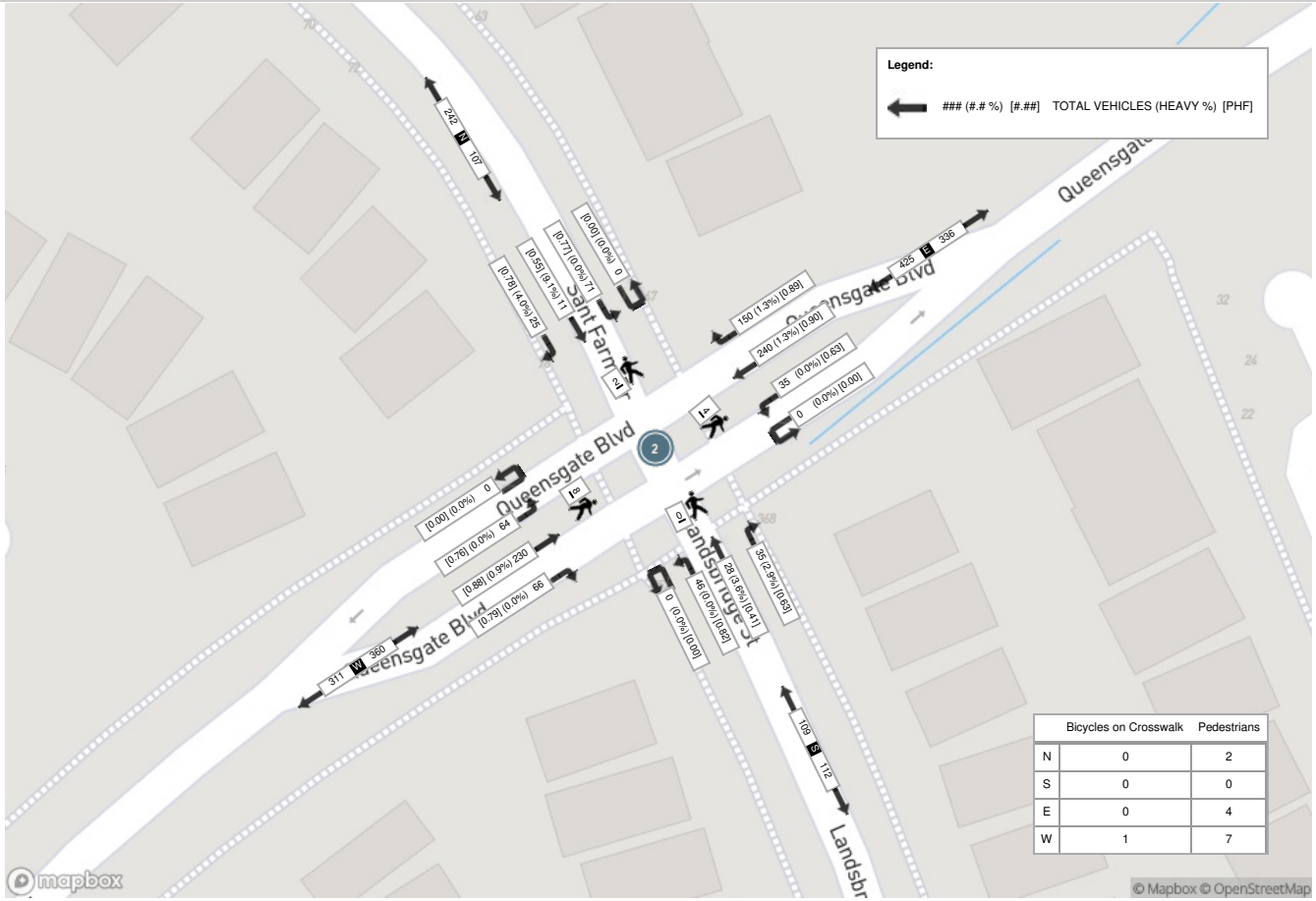
Peak Hour: 08:00 AM - 09:00 AM **Weather: Clear Sky (15 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	3
E	0	3
W	0	17

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:45 PM - 05:45 PM **Weather: Few Clouds (26 °C)**



NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (4 . DOVASTON GATE / KING VAUGHAN RD & ALBION VAUGHAN RD)

Start Time	Southbound ALBION VAUGHAN RD						Westbound KING VAUGHAN RD						Northbound ALBION VAUGHAN RD						Eastbound DOVASTON GATE						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		
2025-06-11 07:00:00	0	135	51	0	0	186	3	0	0	0	0	3	0	63	7	0	0	70	29	11	5	0	0	45	304	
2025-06-11 07:15:00	0	137	86	0	0	223	7	0	0	0	0	7	0	55	5	0	0	60	33	14	4	0	0	51	341	
2025-06-11 07:30:00	3	162	86	0	0	251	8	3	3	0	0	14	0	67	6	0	0	73	30	16	2	0	0	48	386	
2025-06-11 07:45:00	1	156	81	0	0	238	10	0	0	0	0	10	0	78	7	0	0	85	30	6	2	0	0	38	371	1402
2025-06-11 08:00:00	3	160	57	1	0	221	6	0	0	0	0	6	2	84	8	0	0	94	40	2	3	0	0	45	366	1464
2025-06-11 08:15:00	16	123	60	0	0	199	8	0	0	0	0	8	3	78	18	0	0	99	23	7	4	2	0	36	342	1465
2025-06-11 08:30:00	4	171	45	0	0	220	16	1	1	0	0	18	0	56	13	0	0	69	43	13	5	0	0	61	368	1447
2025-06-11 08:45:00	6	175	35	0	0	216	6	1	1	0	0	8	2	54	11	0	0	67	35	12	9	0	0	56	347	1423
2025-06-11 09:00:00	6	133	35	0	0	174	5	1	0	0	0	6	1	76	9	0	0	86	14	1	11	0	0	26	292	1349
2025-06-11 09:15:00	2	124	29	0	0	155	5	1	0	0	0	6	0	52	6	0	0	58	15	3	2	0	0	20	239	1246
2025-06-11 09:30:00	3	117	19	0	0	139	2	0	2	0	0	4	3	78	3	0	0	84	17	4	6	0	0	27	254	1132
2025-06-11 09:45:00	2	108	12	0	0	122	4	3	2	0	0	9	1	51	8	0	0	60	19	5	3	0	0	27	218	1003
BREAK																										
2025-06-11 16:00:00	5	105	8	0	0	118	54	6	0	0	0	60	1	149	30	0	0	180	20	1	7	0	0	28	386	
2025-06-11 16:15:00	9	109	13	0	0	131	42	7	1	0	0	50	1	163	34	0	0	198	24	5	2	0	0	31	410	
2025-06-11 16:30:00	5	115	11	0	0	131	43	9	1	0	0	53	2	164	44	0	0	210	15	2	0	0	0	17	411	
2025-06-11 16:45:00	5	106	10	0	0	121	66	13	1	0	0	80	2	140	50	0	0	192	17	3	7	0	0	27	420	1627
2025-06-11 17:00:00	5	116	15	0	0	136	60	9	3	0	0	72	2	143	41	0	0	186	22	4	2	0	0	28	422	1663
2025-06-11 17:15:00	9	98	13	0	0	120	53	4	3	0	0	60	2	130	38	0	0	170	23	2	1	0	0	26	376	1629
2025-06-11 17:30:00	3	117	11	0	0	131	61	6	0	0	0	67	0	170	33	0	0	203	9	4	3	0	0	16	417	1635
2025-06-11 17:45:00	9	93	19	0	0	121	80	10	1	0	0	91	0	140	41	0	0	181	19	2	1	0	0	22	415	1630
2025-06-11 18:00:00	9	96	11	0	0	116	40	5	2	0	0	47	2	123	35	0	0	160	16	3	3	0	0	22	345	1553
2025-06-11 18:15:00	10	82	10	0	0	102	42	8	1	0	0	51	1	100	20	0	0	121	14	0	3	0	0	17	291	1468
2025-06-11 18:30:00	8	118	6	0	0	132	36	5	1	0	0	42	0	119	25	0	0	144	23	3	1	0	0	27	345	1396
2025-06-11 18:45:00	5	83	8	0	0	96	21	6	0	0	0	27	0	124	14	0	0	138	20	7	3	0	0	30	291	1272
Grand Total	128	2939	731	1	0	3799	678	98	23	0	0	799	25	2457	506	0	0	2988	550	130	89	2	0	771	**8357**	-
Approach%	3.4%	77.4%	19.2%	0%		-	84.9%	12.3%	2.9%	0%		-	0.8%	82.2%	16.9%	0%		-	71.3%	16.9%	11.5%	0.3%		-	-	-
Totals %	1.5%	35.2%	8.7%	0%		45.5%	8.1%	1.2%	0.3%	0%		9.6%	0.3%	29.4%	6.1%	0%		35.8%	6.6%	1.6%	1.1%	0%		9.2%	-	-
Heavy	4	385	10	0		-	11	0	3	0		-	2	241	8	0		-	8	1	3	0		-	-	-
Heavy %	3.1%	13.1%	1.4%	0%		-	1.6%	0%	13%	0%		-	8%	9.8%	1.6%	0%		-	1.5%	0.8%	3.4%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (15 °C)

Start Time	Southbound ALBION VAUGHAN RD						Westbound KING VAUGHAN RD						Northbound ALBION VAUGHAN RD						Eastbound DOVASTON GATE						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	
2025-06-11 07:30:00	3	162	86	0	0	251	8	3	3	0	0	14	0	67	6	0	0	73	30	16	2	0	0	48	386
2025-06-11 07:45:00	1	156	81	0	0	238	10	0	0	0	0	10	0	78	7	0	0	85	30	6	2	0	0	38	371
2025-06-11 08:00:00	3	160	57	1	0	221	6	0	0	0	0	6	2	84	8	0	0	94	40	2	3	0	0	45	366
2025-06-11 08:15:00	16	123	60	0	0	199	8	0	0	0	0	8	3	78	18	0	0	99	23	7	4	2	0	36	342
Grand Total	23	601	284	1	0	909	32	3	3	0	0	38	5	307	39	0	0	351	123	31	11	2	0	167	**1465**
Approach%	2.5%	66.1%	31.2%	0.1%		-	84.2%	7.9%	7.9%	0%		-	1.4%	87.5%	11.1%	0%		-	73.7%	18.6%	6.6%	1.2%		-	**-**
Totals %	1.6%	41%	19.4%	0.1%		62%	2.2%	0.2%	0.2%	0%		2.6%	0.3%	21%	2.7%	0%		24%	8.4%	2.1%	0.8%	0.1%		11.4%	**-**
PHF	0.36	0.93	0.83	0.25		0.91	0.8	0.25	0.25	0		0.68	0.42	0.91	0.54	0		0.89	0.77	0.48	0.69	0.25		0.87	0.95
Heavy	3	44	5	0		52	3	0	0	0		3	1	67	2	0		70	1	0	0	0		1	126
Heavy %	13%	7.3%	1.8%	0%		5.7%	9.4%	0%	0%	0%		7.9%	20%	21.8%	5.1%	0%		19.9%	0.8%	0%	0%	0%		0.6%	8.6%
Lights	20	557	279	1		857	29	3	3	0		35	4	240	37	0		281	122	31	11	2		166	1339
Lights %	87%	92.7%	98.2%	100%		94.3%	90.6%	100%	100%	0%		92.1%	80%	78.2%	94.9%	0%		80.1%	99.2%	100%	100%	100%		99.4%	91.4%
Single-Unit Trucks	0	32	4	0		36	3	0	0	0		3	1	37	1	0		39	0	0	0	0		0	78
Single-Unit Trucks %	0%	5.3%	1.4%	0%		4%	9.4%	0%	0%	0%		7.9%	20%	12.1%	2.6%	0%		11.1%	0%	0%	0%	0%		0%	5.3%
Buses	3	3	0	0		6	0	0	0	0		0	0	7	1	0		8	1	0	0	0		1	15
Buses %	13%	0.5%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	2.3%	2.6%	0%		2.3%	0.8%	0%	0%	0%		0.6%	1%
Articulated Trucks	0	9	1	0		10	0	0	0	0		0	0	23	0	0		23	0	0	0	0		0	33
Articulated Trucks %	0%	1.5%	0.4%	0%		1.1%	0%	0%	0%	0%		0%	0%	7.5%	0%	0%		6.6%	0%	0%	0%	0%		0%	2.3%
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%

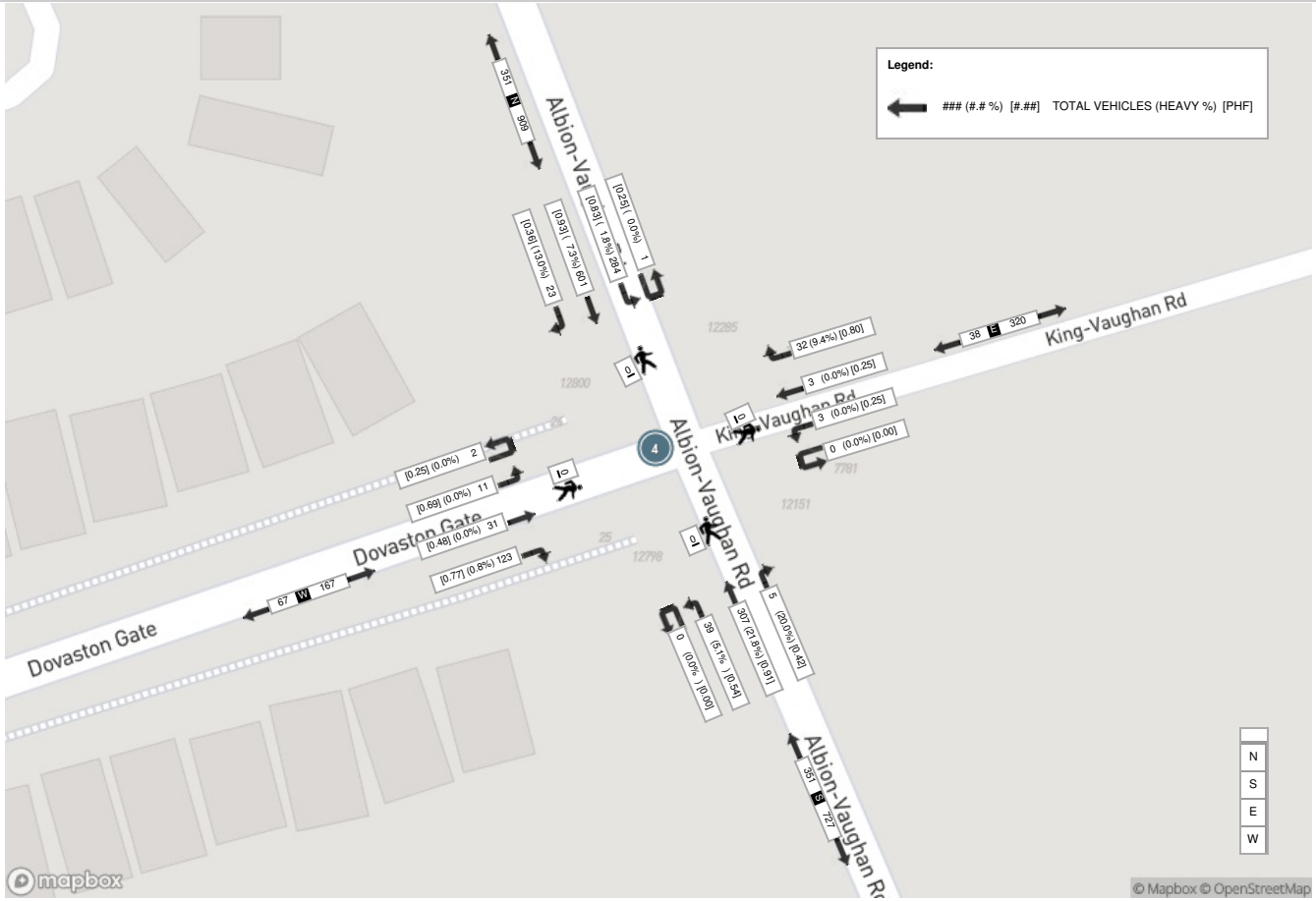
NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Few Clouds (26 °C)

Start Time	Southbound ALBION VAUGHAN RD						Westbound KING VAUGHAN RD						Northbound ALBION VAUGHAN RD						Eastbound DOVASTON GATE						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	
2025-06-11 16:15:00	9	109	13	0	0	131	42	7	1	0	0	50	1	163	34	0	0	198	24	5	2	0	0	31	410
2025-06-11 16:30:00	5	115	11	0	0	131	43	9	1	0	0	53	2	164	44	0	0	210	15	2	0	0	0	17	411
2025-06-11 16:45:00	5	106	10	0	0	121	66	13	1	0	0	80	2	140	50	0	0	192	17	3	7	0	0	27	420
2025-06-11 17:00:00	5	116	15	0	0	136	60	9	3	0	0	72	2	143	41	0	0	186	22	4	2	0	0	28	422
Grand Total	24	446	49	0	0	519	211	38	6	0	0	255	7	610	169	0	0	786	78	14	11	0	0	103	**1663**
Approach%	4.6%	85.9%	9.4%	0%		-	82.7%	14.9%	2.4%	0%		-	0.9%	77.6%	21.5%	0%		-	75.7%	13.6%	10.7%	0%		-	**-**
Totals %	1.4%	26.8%	2.9%	0%		31.2%	12.7%	2.3%	0.4%	0%		15.3%	0.4%	36.7%	10.2%	0%		47.3%	4.7%	0.8%	0.7%	0%		6.2%	**-**
PHF	0.67	0.96	0.82	0		0.95	0.8	0.73	0.5	0		0.8	0.88	0.93	0.85	0		0.94	0.81	0.7	0.39	0		0.83	0.99
Heavy	0	117	2	0		119	0	0	0	0		0	0	22	2	0		24	1	0	1	0		2	145
Heavy %	0%	26.2%	4.1%	0%		22.9%	0%	0%	0%	0%		0%	0%	3.6%	1.2%	0%		3.1%	1.3%	0%	9.1%	0%		1.9%	8.7%
Lights	24	329	47	0		400	211	37	6	0		254	7	588	167	0		762	77	14	10	0		101	1517
Lights %	100%	73.8%	95.9%	0%		77.1%	100%	97.4%	100%	0%		99.6%	100%	96.4%	98.8%	0%		96.9%	98.7%	100%	90.9%	0%		98.1%	91.2%
Single-Unit Trucks	0	64	2	0		66	0	0	0	0		0	0	14	2	0		16	1	0	1	0		2	84
Single-Unit Trucks %	0%	14.3%	4.1%	0%		12.7%	0%	0%	0%	0%		0%	0%	2.3%	1.2%	0%		2%	1.3%	0%	9.1%	0%		1.9%	5.1%
Buses	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	3
Buses %	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.1%	0%	0%	0%	0%		0%	0.2%
Articulated Trucks	0	51	0	0		51	0	0	0	0		0	0	7	0	0		7	0	0	0	0		0	58
Articulated Trucks %	0%	11.4%	0%	0%		9.8%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		0.9%	0%	0%	0%	0%		0%	3.5%
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	1
Bicycles on Road %	0%	0%	0%	0%		0%	0%	2.6%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0.1%

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:30 AM - 08:30 AM **Weather: Clear Sky (15 °C)**

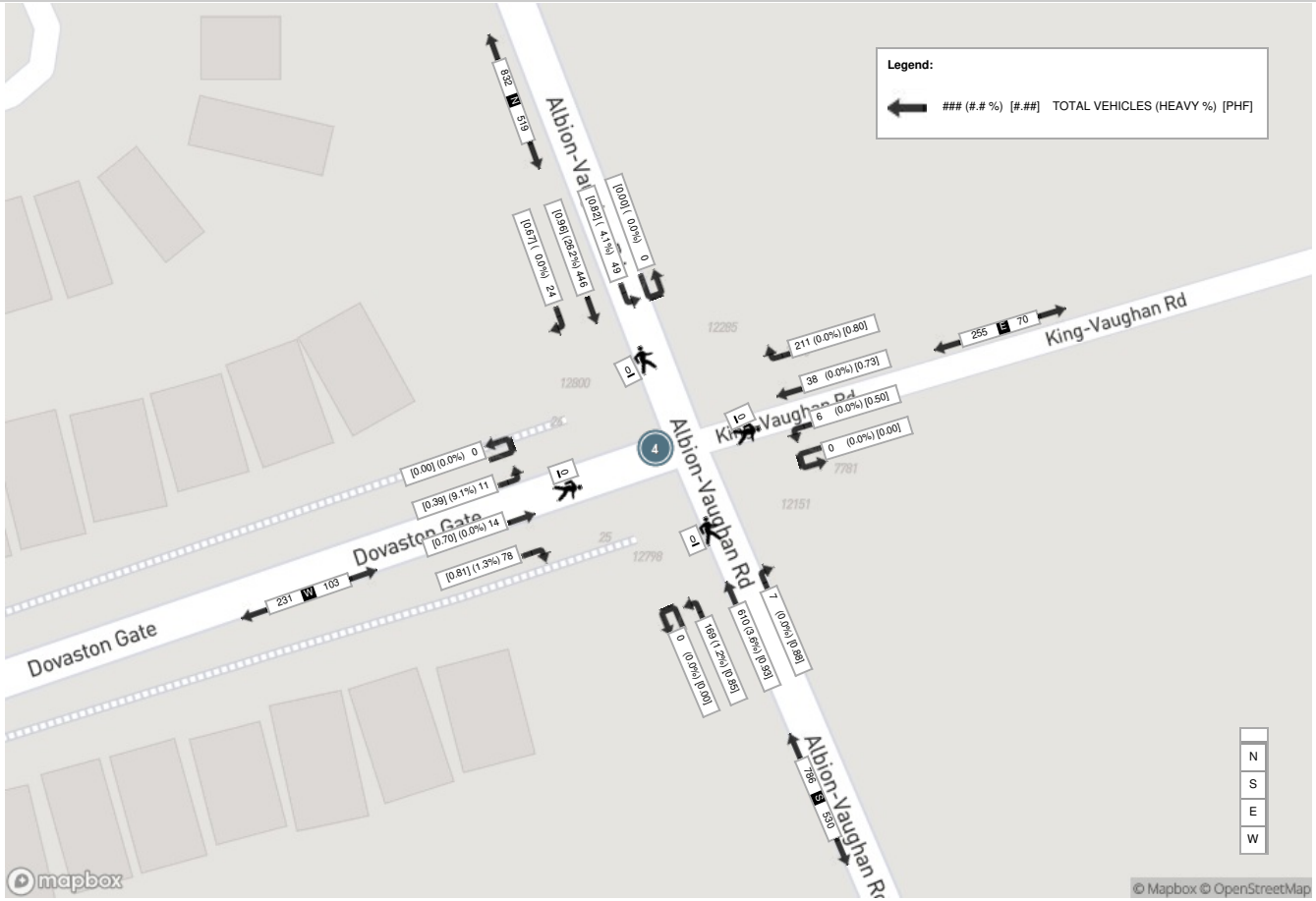


Spectrum

Turning Movement Count
Location Name: DOVASTON GATE / KING VAUGHAN RD & ALBION VAUGHAN RD
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Few Clouds (26 °C)



NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (1 . QUEENSGATE BLVD & ALBION VAUGHAN RD) CustID: 99900001

Start Time	Southbound ALBION VAUGHAN RD					Northbound ALBION VAUGHAN RD					Eastbound QUEENSGATE BLVD					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		
2025-06-11 07:00:00	29	151	0	0	180	58	8	0	0	66	33	53	0	0	86	332	
2025-06-11 07:15:00	36	173	0	0	209	66	3	0	0	69	52	47	0	0	99	377	
2025-06-11 07:30:00	45	211	0	0	256	70	7	0	0	77	47	53	0	0	100	433	
2025-06-11 07:45:00	48	198	0	0	246	79	6	0	0	85	44	64	0	0	108	439	1581
2025-06-11 08:00:00	55	182	0	0	237	89	8	0	0	97	29	59	0	0	88	422	1671
2025-06-11 08:15:00	82	163	0	0	245	72	19	0	0	91	31	61	0	0	92	428	1722
2025-06-11 08:30:00	68	185	0	0	253	67	11	0	0	78	38	42	0	0	80	411	1700
2025-06-11 08:45:00	61	202	0	0	263	65	7	0	0	72	20	52	0	0	72	407	1668
2025-06-11 09:00:00	59	154	0	0	213	84	8	0	0	92	21	37	1	0	59	364	1610
2025-06-11 09:15:00	44	124	0	0	168	53	5	0	0	58	29	36	0	0	65	291	1473
2025-06-11 09:30:00	57	114	0	0	171	71	8	0	0	79	22	37	0	0	59	309	1371
2025-06-11 09:45:00	34	96	0	0	130	56	9	0	0	65	20	33	0	0	53	248	1212
BREAK																	
2025-06-11 16:00:00	54	92	0	0	146	171	38	0	0	209	22	76	0	0	98	453	
2025-06-11 16:15:00	54	118	0	0	172	169	33	0	0	202	12	83	0	0	95	469	
2025-06-11 16:30:00	51	108	0	0	159	157	31	0	0	188	21	73	1	0	95	442	
2025-06-11 16:45:00	60	101	0	0	161	166	61	0	0	227	23	66	0	0	89	477	1841
2025-06-11 17:00:00	48	120	0	0	168	149	40	0	0	189	20	66	0	0	86	443	1831
2025-06-11 17:15:00	72	98	0	0	170	164	37	0	0	201	12	65	0	0	77	448	1810
2025-06-11 17:30:00	61	112	0	0	173	167	46	0	0	213	22	62	0	0	84	470	1838
2025-06-11 17:45:00	47	106	0	0	153	163	52	0	0	215	13	52	0	0	65	433	1794
2025-06-11 18:00:00	54	101	0	0	155	150	30	0	0	180	20	59	0	0	79	414	1765
2025-06-11 18:15:00	45	89	0	0	134	111	31	0	0	142	12	48	0	0	60	336	1653
2025-06-11 18:30:00	46	118	0	0	164	121	42	0	0	163	14	38	0	0	52	379	1562
2025-06-11 18:45:00	48	78	0	0	126	119	24	0	0	143	15	46	0	0	61	330	1459
Grand Total	1258	3194	0	0	4452	2637	564	0	0	3201	592	1308	2	0	1902	**9555**	-
Approach%	28.3%	71.7%	0%		-	82.4%	17.6%	0%		-	31.1%	68.8%	0.1%		-	**-**	-
Totals %	13.2%	33.4%	0%		46.6%	27.6%	5.9%	0%		33.5%	6.2%	13.7%	0%		19.9%	**-**	-
Heavy	22	385	0		-	240	12	0		-	10	24	0		-	**-**	-
Heavy %	1.7%	12.1%	0%		-	9.1%	2.1%	0%		-	1.7%	1.8%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (15 °C)

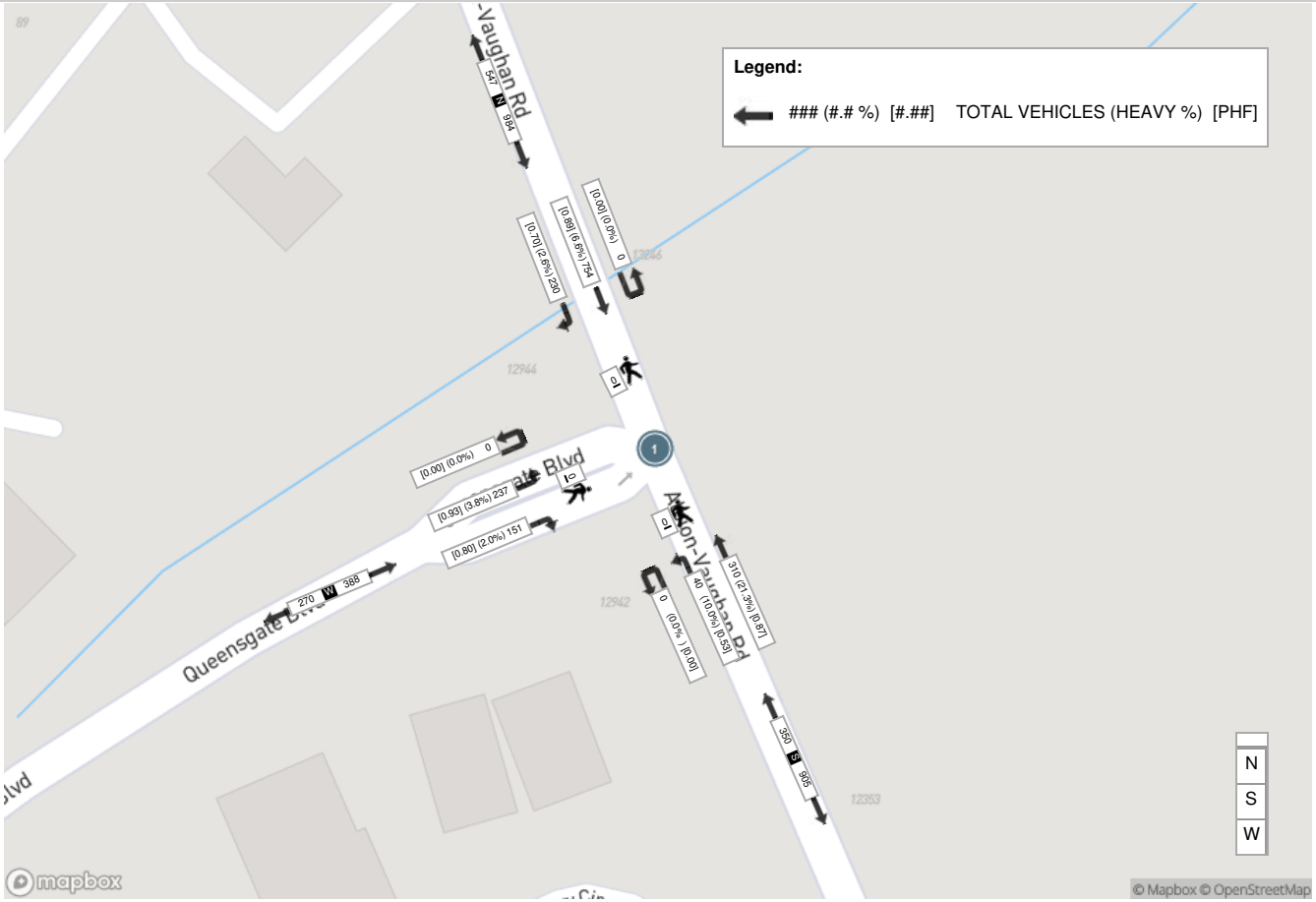
Start Time	Southbound ALBION VAUGHAN RD					Northbound ALBION VAUGHAN RD					Eastbound QUEENSGATE BLVD					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
2025-06-11 07:30:00	45	211	0	0	256	70	7	0	0	77	47	53	0	0	100	433
2025-06-11 07:45:00	48	198	0	0	246	79	6	0	0	85	44	64	0	0	108	439
2025-06-11 08:00:00	55	182	0	0	237	89	8	0	0	97	29	59	0	0	88	422
2025-06-11 08:15:00	82	163	0	0	245	72	19	0	0	91	31	61	0	0	92	428
Grand Total	230	754	0	0	984	310	40	0	0	350	151	237	0	0	388	**1722**
Approach%	23.4%	76.6%	0%		-	88.6%	11.4%	0%		-	38.9%	61.1%	0%		-	**-**
Totals %	13.4%	43.8%	0%		57.1%	18%	2.3%	0%		20.3%	8.8%	13.8%	0%		22.5%	**-**
PHF	0.7	0.89	0		0.96	0.87	0.53	0		0.9	0.8	0.93	0		0.9	0.98
Heavy	6	50	0		56	66	4	0		70	3	9	0		12	138
Heavy %	2.6%	6.6%	0%		5.7%	21.3%	10%	0%		20%	2%	3.8%	0%		3.1%	8%
Lights	224	704	0		928	244	36	0		280	148	228	0		376	1584
Lights %	97.4%	93.4%	0%		94.3%	78.7%	90%	0%		80%	98%	96.2%	0%		96.9%	92%
Single-Unit Trucks	4	33	0		37	38	2	0		40	3	6	0		9	86
Single-Unit Trucks %	1.7%	4.4%	0%		3.8%	12.3%	5%	0%		11.4%	2%	2.5%	0%		2.3%	5%
Buses	2	7	0		9	4	2	0		6	0	3	0		3	18
Buses %	0.9%	0.9%	0%		0.9%	1.3%	5%	0%		1.7%	0%	1.3%	0%		0.8%	1%
Articulated Trucks	0	10	0		10	24	0	0		24	0	0	0		0	34
Articulated Trucks %	0%	1.3%	0%		1%	7.7%	0%	0%		6.9%	0%	0%	0%		0%	2%

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Few Clouds (26 °C)

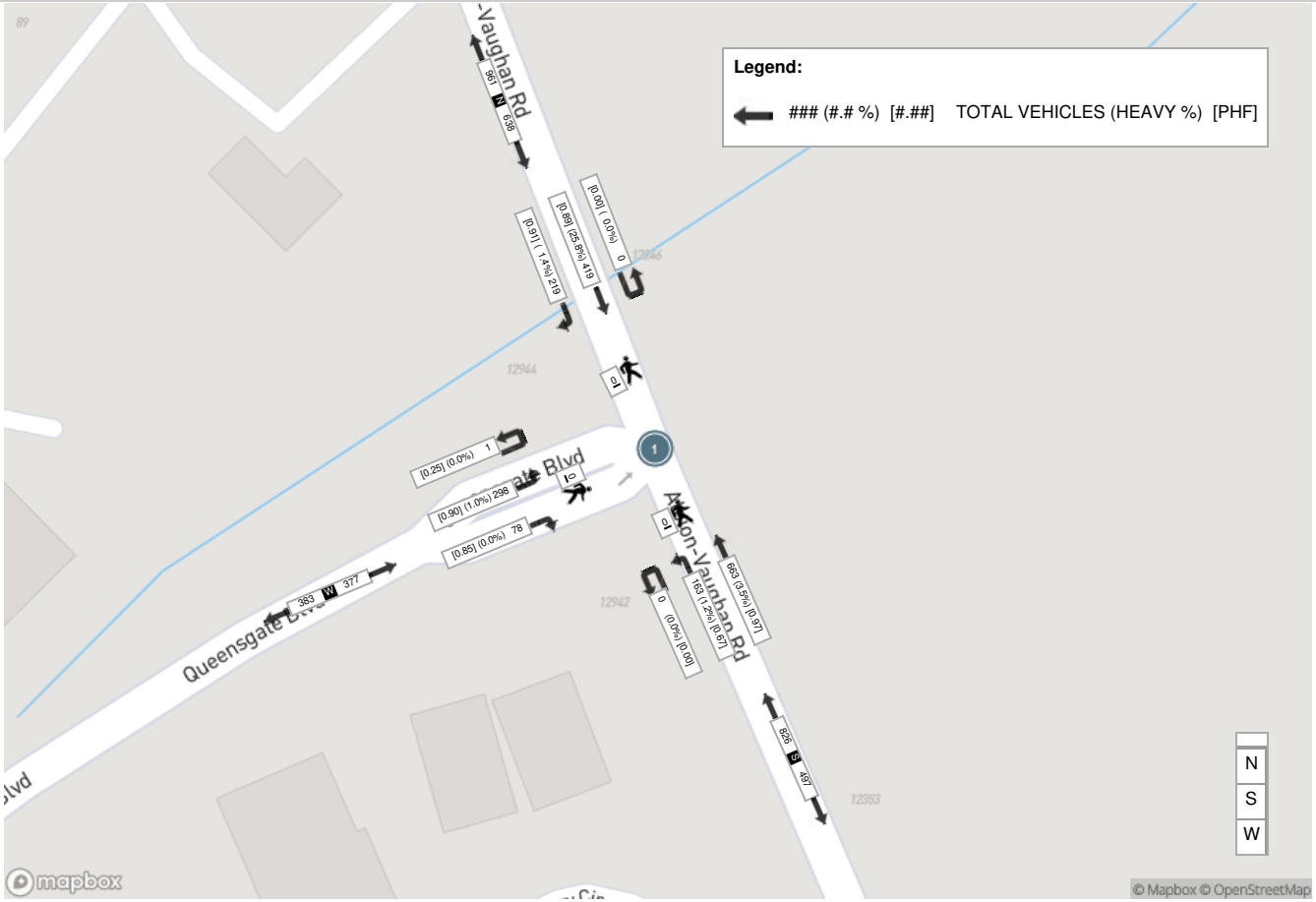
Start Time	Southbound ALBION VAUGHAN RD					Northbound ALBION VAUGHAN RD					Eastbound QUEENSGATE BLVD					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
2025-06-11 16:00:00	54	92	0	0	146	171	38	0	0	209	22	76	0	0	98	453
2025-06-11 16:15:00	54	118	0	0	172	169	33	0	0	202	12	83	0	0	95	469
2025-06-11 16:30:00	51	108	0	0	159	157	31	0	0	188	21	73	1	0	95	442
2025-06-11 16:45:00	60	101	0	0	161	166	61	0	0	227	23	66	0	0	89	477
Grand Total	219	419	0	0	638	663	163	0	0	826	78	298	1	0	377	**1841**
Approach%	34.3%	65.7%	0%		-	80.3%	19.7%	0%		-	20.7%	79%	0.3%		-	**-**
Totals %	11.9%	22.8%	0%		34.7%	36%	8.9%	0%		44.9%	4.2%	16.2%	0.1%		20.5%	**-**
PHF	0.91	0.89	0		0.93	0.97	0.67	0		0.91	0.85	0.9	0.25		0.96	0.96
Heavy	3	108	0		111	23	2	0		25	0	3	0		3	139
Heavy %	1.4%	25.8%	0%		17.4%	3.5%	1.2%	0%		3%	0%	1%	0%		0.8%	7.6%
Lights	216	311	0		527	640	161	0		801	78	295	1		374	1702
Lights %	98.6%	74.2%	0%		82.6%	96.5%	98.8%	0%		97%	100%	99%	100%		99.2%	92.4%
Single-Unit Trucks	3	56	0		59	18	0	0		18	0	1	0		1	78
Single-Unit Trucks %	1.4%	13.4%	0%		9.2%	2.7%	0%	0%		2.2%	0%	0.3%	0%		0.3%	4.2%
Buses	0	5	0		5	0	2	0		2	0	2	0		2	9
Buses %	0%	1.2%	0%		0.8%	0%	1.2%	0%		0.2%	0%	0.7%	0%		0.5%	0.5%
Articulated Trucks	0	47	0		47	5	0	0		5	0	0	0		0	52
Articulated Trucks %	0%	11.2%	0%		7.4%	0.8%	0%	0%		0.6%	0%	0%	0%		0%	2.8%

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (15 °C)



NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Few Clouds (26 °C)



Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & HIGHWAY 50
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (3 . QUEENSGATE BLVD & HIGHWAY 50) CustID: 05014978

Start Time	Southbound HWY 50						Westbound QUEENSGATE BLVD						Northbound HWY 50						Eastbound QUEENSGATE 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		
2025-06-11 07:00:00	1	216	11	0	0	228	13	0	95	0	0	108	14	87	1	1	0	103	1	0	1	0	1	2	441	
2025-06-11 07:15:00	0	242	8	0	1	250	11	0	93	0	1	104	30	103	1	0	2	134	1	0	0	0	1	1	489	
2025-06-11 07:30:00	0	220	12	0	1	232	20	0	90	0	0	110	23	113	2	0	2	138	3	0	0	0	2	3	483	
2025-06-11 07:45:00	1	228	20	0	4	249	18	1	122	0	2	141	31	158	1	0	3	190	2	0	0	0	1	2	582	1995
2025-06-11 08:00:00	0	181	13	0	2	194	30	1	106	0	1	137	33	137	0	0	2	170	0	1	1	0	1	2	503	2057
2025-06-11 08:15:00	1	243	29	0	0	273	20	0	144	0	0	164	47	147	1	0	0	195	2	0	0	0	0	2	634	2202
2025-06-11 08:30:00	0	219	23	0	1	242	30	0	107	0	0	137	39	142	0	0	0	181	0	0	0	0	1	0	560	2279
2025-06-11 08:45:00	0	283	27	0	1	310	29	0	101	0	0	130	42	141	0	1	1	184	0	0	0	0	1	0	624	2321
2025-06-11 09:00:00	0	188	17	0	1	205	18	0	109	0	0	127	31	149	1	0	1	181	1	0	0	0	2	1	514	2332
2025-06-11 09:15:00	0	230	15	0	0	245	18	0	85	0	0	103	44	146	1	0	0	191	1	0	0	0	2	1	540	2238
2025-06-11 09:30:00	0	179	13	0	0	192	21	0	67	0	0	88	45	136	0	0	0	181	0	0	0	0	1	0	461	2139
2025-06-11 09:45:00	0	191	19	0	0	210	15	0	67	0	1	82	48	161	0	1	0	210	0	0	0	0	1	0	502	2017
BREAK																										
2025-06-11 16:00:00	1	135	22	0	1	158	39	0	65	0	6	104	109	317	0	0	4	426	26	7	5	1	4	39	727	
2025-06-11 16:15:00	0	180	40	0	2	220	36	0	68	0	0	104	105	331	1	0	2	437	16	6	3	0	4	25	786	
2025-06-11 16:30:00	0	161	23	0	2	184	27	1	52	0	1	80	125	310	2	0	4	437	65	11	21	0	1	97	798	
2025-06-11 16:45:00	0	161	31	0	3	192	50	0	79	0	2	129	108	317	1	0	2	426	47	6	7	0	4	60	807	3118
2025-06-11 17:00:00	0	162	40	2	0	204	40	0	66	0	1	106	134	371	1	0	1	506	23	4	2	0	0	29	845	3236
2025-06-11 17:15:00	1	168	37	0	0	206	30	0	70	0	2	100	115	312	0	0	3	427	23	5	8	0	1	36	769	3219
2025-06-11 17:30:00	1	173	27	0	1	201	38	1	54	0	3	93	92	299	1	2	2	394	17	3	5	0	2	25	713	3134
2025-06-11 17:45:00	0	153	27	0	0	180	42	0	54	0	4	96	80	266	0	0	2	346	8	0	5	0	2	13	635	2962
2025-06-11 18:00:00	1	149	32	0	1	182	46	0	66	0	1	112	90	265	0	0	2	355	1	0	0	0	3	1	650	2767
2025-06-11 18:15:00	0	154	28	0	0	182	35	0	51	0	0	86	87	278	0	2	0	367	0	0	0	0	1	0	635	2633
2025-06-11 18:30:00	0	164	28	0	0	192	34	0	46	0	1	80	74	230	0	0	0	304	0	0	0	0	2	0	576	2496
2025-06-11 18:45:00	0	156	20	0	0	176	28	0	49	0	0	77	64	227	0	0	0	291	0	0	0	0	1	0	544	2405
Grand Total	7	4536	562	2	21	5107	688	4	1906	0	26	2598	1610	5143	14	7	33	6774	237	43	58	1	39	339	**14818**	-
Approach%	0.1%	88.8%	11%	0%		-	26.5%	0.2%	73.4%	0%		-	23.8%	75.9%	0.2%	0.1%		-	69.9%	12.7%	17.1%	0.3%		-	-	-
Totals %	0%	30.6%	3.8%	0%		34.5%	4.6%	0%	12.9%	0%		17.5%	10.9%	34.7%	0.1%	0%		45.7%	1.6%	0.3%	0.4%	0%		2.3%	-	-
Heavy	0	104	12	0		-	12	0	28	0		-	34	119	0	0		-	0	0	0	0		-	-	-
Heavy %	0%	2.3%	2.1%	0%		-	1.7%	0%	1.5%	0%		-	2.1%	2.3%	0%	0%		-	0%	0%	0%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 08:15 AM - 09:15 AM Weather: Clear Sky (15 °C)

Start Time	Southbound HWY 50						Westbound QUEENSGATE BLVD						Northbound HWY 50						Eastbound QUEENSGATE 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	
2025-06-11 08:15:00	1	243	29	0	0	273	20	0	144	0	0	164	47	147	1	0	0	195	2	0	0	0	0	2	634
2025-06-11 08:30:00	0	219	23	0	1	242	30	0	107	0	0	137	39	142	0	0	0	181	0	0	0	0	1	0	560
2025-06-11 08:45:00	0	283	27	0	1	310	29	0	101	0	0	130	42	141	0	1	1	184	0	0	0	0	1	0	624
2025-06-11 09:00:00	0	188	17	0	1	205	18	0	109	0	0	127	31	149	1	0	1	181	1	0	0	0	2	1	514
Grand Total	1	933	96	0	3	1030	97	0	461	0	0	558	159	579	2	1	2	741	3	0	0	0	4	3	**2332**
Approach%	0.1%	90.6%	9.3%	0%		-	17.4%	0%	82.6%	0%		-	21.5%	78.1%	0.3%	0.1%		-	100%	0%	0%	0%		-	**-**
Totals %	0%	40%	4.1%	0%		44.2%	4.2%	0%	19.8%	0%		23.9%	6.8%	24.8%	0.1%	0%		31.8%	0.1%	0%	0%	0%		0.1%	**-**
PHF	0.25	0.82	0.83	0		0.83	0.81	0	0.8	0		0.85	0.85	0.97	0.5	0.25		0.95	0.38	0	0	0		0.38	0.92
Heavy	0	30	4	0		34	1	0	8	0		9	8	34	0	0		42	0	0	0	0		0	85
Heavy %	0%	3.2%	4.2%	0%		3.3%	1%	0%	1.7%	0%		1.6%	5%	5.9%	0%	0%		5.7%	0%	0%	0%	0%		0%	3.6%
Lights	1	903	92	0		996	96	0	453	0		549	151	545	2	1		699	3	0	0	0		3	2247
Lights %	100%	96.8%	95.8%	0%		96.7%	99%	0%	98.3%	0%		98.4%	95%	94.1%	100%	100%		94.3%	100%	0%	0%	0%		100%	96.4%
Single-Unit Trucks	0	12	1	0		13	0	0	3	0		3	5	17	0	0		22	0	0	0	0		0	38
Single-Unit Trucks %	0%	1.3%	1%	0%		1.3%	0%	0%	0.7%	0%		0.5%	3.1%	2.9%	0%	0%		3%	0%	0%	0%	0%		0%	1.6%
Buses	0	14	3	0		17	1	0	5	0		6	2	9	0	0		11	0	0	0	0		0	34
Buses %	0%	1.5%	3.1%	0%		1.7%	1%	0%	1.1%	0%		1.1%	1.3%	1.6%	0%	0%		1.5%	0%	0%	0%	0%		0%	1.5%
Articulated Trucks	0	4	0	0		4	0	0	0	0		0	1	8	0	0		9	0	0	0	0		0	13
Articulated Trucks %	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0.6%	1.4%	0%	0%		1.2%	0%	0%	0%	0%		0%	0.6%
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	33.3%		-	-	-	-	0%		-	-	-	-	11.1%		-	-	-	-	44.4%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	11.1%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & HIGHWAY 50
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Few Clouds (26 °C)

Start Time	Southbound HWY 50						Westbound QUEENSGATE BLVD						Northbound HWY 50						Eastbound QUEENSGATE 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	
2025-06-11 16:15:00	0	180	40	0	2	220	36	0	68	0	0	104	105	331	1	0	2	437	16	6	3	0	4	25	786
2025-06-11 16:30:00	0	161	23	0	2	184	27	1	52	0	1	80	125	310	2	0	4	437	65	11	21	0	1	97	798
2025-06-11 16:45:00	0	161	31	0	3	192	50	0	79	0	2	129	108	317	1	0	2	426	47	6	7	0	4	60	807
2025-06-11 17:00:00	0	162	40	2	0	204	40	0	66	0	1	106	134	371	1	0	1	506	23	4	2	0	0	29	845
Grand Total	0	664	134	2	7	800	153	1	265	0	4	419	472	1329	5	0	9	1806	151	27	33	0	9	211	**3236**
Approach%	0%	83%	16.8%	0.3%		-	36.5%	0.2%	63.2%	0%		-	26.1%	73.6%	0.3%	0%		-	71.6%	12.8%	15.6%	0%		-	**-**
Totals %	0%	20.5%	4.1%	0.1%		24.7%	4.7%	0%	8.2%	0%		12.9%	14.6%	41.1%	0.2%	0%		55.8%	4.7%	0.8%	1%	0%		6.5%	**-**
PHF	0	0.92	0.84	0.25		0.91	0.77	0.25	0.84	0		0.81	0.88	0.9	0.63	0		0.89	0.58	0.61	0.39	0		0.54	0.96
Heavy	0	16	0	0		16	3	0	5	0		8	2	15	0	0		17	0	0	0	0		0	41
Heavy %	0%	2.4%	0%	0%		2%	2%	0%	1.9%	0%		1.9%	0.4%	1.1%	0%	0%		0.9%	0%	0%	0%	0%		0%	1.3%
Lights	0	648	134	2		784	150	1	260	0		411	470	1313	5	0		1788	151	27	33	0		211	3194
Lights %	0%	97.6%	100%	100%		98%	98%	100%	98.1%	0%		98.1%	99.6%	98.8%	100%	0%		99%	100%	100%	100%	0%		100%	98.7%
Single-Unit Trucks	0	12	0	0		12	2	0	4	0		6	2	7	0	0		9	0	0	0	0		0	27
Single-Unit Trucks %	0%	1.8%	0%	0%		1.5%	1.3%	0%	1.5%	0%		1.4%	0.4%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0.8%
Buses	0	2	0	0		2	1	0	1	0		2	0	2	0	0		2	0	0	0	0		0	6
Buses %	0%	0.3%	0%	0%		0.3%	0.7%	0%	0.4%	0%		0.5%	0%	0.2%	0%	0%		0.1%	0%	0%	0%	0%		0%	0.2%
Articulated Trucks	0	2	0	0		2	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	8
Articulated Trucks %	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.3%	0%	0%	0%	0%		0%	0.2%
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	1
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	-	5	-	-	-	-	-	4	-	-	-	-	-	9	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	17.2%		-	-	-	-	13.8%		-	-	-	-	31%		-	-	-	-	13.8%		**-**
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	5	-	**-**
Bicycles on Crosswalk%	-	-	-	-	6.9%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	17.2%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 08:15 AM - 09:15 AM **Weather: Clear Sky (15 °C)**

	Bicycles on Crosswalk	Pedestrians
N	0	3
S	1	1
E	0	0
W	0	4

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:15 PM - 05:15 PM **Weather: Few Clouds (26 °C)**

	Bicycles on Crosswalk	Pedestrians
N	2	5
S	0	9
E	0	4
W	5	4

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & LANDSBRIDGE ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Turning Movement Count (6 . QUEENSGATE BLVD & LANDSBRIDGE ST)

Start Time	Southbound LANDSBRIDGE ST						Westbound QUEENSGATE BLVD						Northbound LANDSBRIDGE ST						Eastbound QUEENSGATE 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		
2025-06-11 07:00:00	18	1	4	0	0	23	2	50	4	0	0	56	12	8	39	0	0	59	5	15	2	0	0	22	160	
2025-06-11 07:15:00	16	6	1	0	2	23	4	52	4	0	2	60	9	5	40	0	0	54	8	23	4	0	1	35	172	
2025-06-11 07:30:00	17	2	7	0	0	26	8	45	4	0	2	57	12	7	39	0	1	58	12	16	7	0	1	35	176	
2025-06-11 07:45:00	20	6	2	0	2	28	5	71	4	0	2	80	13	9	58	0	3	80	14	28	6	0	0	48	236	744
2025-06-11 08:00:00	11	7	6	0	2	24	10	60	1	0	1	71	9	8	52	0	0	69	13	26	3	0	0	42	206	790
2025-06-11 08:15:00	10	8	12	0	0	30	10	102	2	0	0	114	10	8	57	0	1	75	22	34	11	0	1	67	286	904
2025-06-11 08:30:00	14	10	4	0	0	28	9	68	1	0	2	78	12	21	48	0	0	81	17	34	6	0	1	57	244	972
2025-06-11 08:45:00	18	15	2	0	1	35	11	68	3	0	5	82	7	17	41	0	4	65	24	38	6	0	2	68	250	986
2025-06-11 09:00:00	20	8	7	0	1	35	18	62	4	0	7	84	6	15	42	0	1	63	12	21	7	0	4	40	222	1002
2025-06-11 09:15:00	21	13	10	0	0	44	11	55	3	0	2	69	4	4	27	0	4	35	18	25	13	0	0	56	204	920
2025-06-11 09:30:00	8	6	3	0	0	17	12	51	5	0	3	68	9	9	25	0	1	43	15	38	4	0	1	57	185	861
2025-06-11 09:45:00	17	10	6	0	1	33	6	49	4	0	4	59	4	14	28	0	0	46	21	37	8	0	2	66	204	815
BREAK																										
2025-06-11 16:00:00	21	17	19	0	2	57	13	45	4	0	2	62	3	12	28	0	3	43	33	95	14	0	0	142	304	
2025-06-11 16:15:00	13	23	14	0	0	50	17	42	9	0	2	68	2	16	35	0	0	53	48	84	17	0	0	149	320	
2025-06-11 16:30:00	23	25	16	0	2	64	21	38	4	0	3	63	7	13	28	0	2	48	49	96	21	0	1	166	341	
2025-06-11 16:45:00	16	13	18	0	2	47	17	64	8	1	1	90	4	17	32	0	1	53	44	80	17	0	0	141	331	1296
2025-06-11 17:00:00	13	18	7	0	0	38	11	51	12	0	3	74	5	14	26	0	1	45	63	98	25	0	0	186	343	1335
2025-06-11 17:15:00	17	19	22	0	1	58	16	52	9	0	4	77	8	14	22	0	1	44	52	69	25	0	4	146	325	1340
2025-06-11 17:30:00	11	20	12	0	1	43	18	52	10	0	2	80	11	18	32	0	1	61	48	67	19	0	2	134	318	1317
2025-06-11 17:45:00	7	18	15	0	1	40	16	53	9	0	3	78	8	18	26	0	2	52	33	60	19	0	2	112	282	1268
2025-06-11 18:00:00	16	25	15	0	0	56	14	57	13	0	5	84	4	16	38	0	2	58	36	78	13	0	0	127	325	1250
2025-06-11 18:15:00	12	18	9	0	5	39	6	38	10	0	10	54	13	12	42	0	3	67	53	50	16	0	6	119	279	1204
2025-06-11 18:30:00	12	8	12	0	1	32	15	41	6	0	1	62	9	9	29	0	3	47	33	43	14	0	1	90	231	1117
2025-06-11 18:45:00	12	16	7	0	0	35	11	37	7	0	7	55	7	17	29	0	6	53	35	56	11	0	3	102	245	1080
Grand Total	363	312	230	0	24	905	281	1303	140	1	73	1725	188	301	863	0	40	1352	708	1211	288	0	32	2207	**6189**	-
Approach%	40.1%	34.5%	25.4%	0%		-	16.3%	75.5%	8.1%	0.1%		-	13.9%	22.3%	63.8%	0%		-	32.1%	54.9%	13%	0%		-	-	-
Totals %	5.9%	5%	3.7%	0%		14.6%	4.5%	21.1%	2.3%	0%		27.9%	3%	4.9%	13.9%	0%		21.8%	11.4%	19.6%	4.7%	0%		35.7%	-	-
Heavy	4	6	1	0		-	2	22	2	0		-	4	5	8	0		-	13	26	6	0		-	-	-
Heavy %	1.1%	1.9%	0.4%	0%		-	0.7%	1.7%	1.4%	0%		-	2.1%	1.7%	0.9%	0%		-	1.8%	2.1%	2.1%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & LANDSBRIDGE ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 08:15 AM - 09:15 AM Weather: Clear Sky (15 °C)

Start Time	Southbound LANDSBRIDGE ST						Westbound QUEENSGATE BLVD						Northbound LANDSBRIDGE ST						Eastbound QUEENSGATE 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	
2025-06-11 08:15:00	10	8	12	0	0	30	10	102	2	0	0	114	10	8	57	0	1	75	22	34	11	0	1	67	286
2025-06-11 08:30:00	14	10	4	0	0	28	9	68	1	0	2	78	12	21	48	0	0	81	17	34	6	0	1	57	244
2025-06-11 08:45:00	18	15	2	0	1	35	11	68	3	0	5	82	7	17	41	0	4	65	24	38	6	0	2	68	250
2025-06-11 09:00:00	20	8	7	0	1	35	18	62	4	0	7	84	6	15	42	0	1	63	12	21	7	0	4	40	222
Grand Total	62	41	25	0	2	128	48	300	10	0	14	358	35	61	188	0	6	284	75	127	30	0	8	232	**1002**
Approach%	48.4%	32%	19.5%	0%		-	13.4%	83.8%	2.8%	0%		-	12.3%	21.5%	66.2%	0%		-	32.3%	54.7%	12.9%	0%		-	**-**
Totals %	6.2%	4.1%	2.5%	0%		12.8%	4.8%	29.9%	1%	0%		35.7%	3.5%	6.1%	18.8%	0%		28.3%	7.5%	12.7%	3%	0%		23.2%	**-**
PHF	0.78	0.68	0.52	0		0.91	0.67	0.74	0.63	0		0.79	0.73	0.73	0.82	0		0.88	0.78	0.84	0.68	0		0.85	0.88
Heavy	2	1	0	0		3	1	5	1	0		7	0	1	1	0		2	3	4	2	0		9	21
Heavy %	3.2%	2.4%	0%	0%		2.3%	2.1%	1.7%	10%	0%		2%	0%	1.6%	0.5%	0%		0.7%	4%	3.1%	6.7%	0%		3.9%	2.1%
Lights	60	40	25	0		125	47	295	9	0		351	35	60	187	0		282	72	123	28	0		223	981
Lights %	96.8%	97.6%	100%	0%		97.7%	97.9%	98.3%	90%	0%		98%	100%	98.4%	99.5%	0%		99.3%	96%	96.9%	93.3%	0%		96.1%	97.9%
Single-Unit Trucks	0	0	0	0		0	0	2	1	0		3	0	0	1	0		1	1	3	0	0		4	8
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.7%	10%	0%		0.8%	0%	0%	0.5%	0%		0.4%	1.3%	2.4%	0%	0%		1.7%	0.8%
Buses	2	0	0	0		2	1	3	0	0		4	0	1	0	0		1	2	1	1	0		4	11
Buses %	3.2%	0%	0%	0%		1.6%	2.1%	1%	0%	0%		1.1%	0%	1.6%	0%	0%		0.4%	2.7%	0.8%	3.3%	0%		1.7%	1.1%
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	1	0		1	2
Articulated Trucks %	0%	2.4%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	3.3%	0%		0.4%	0.2%
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	-	2	-	-	-	-	-	14	-	-	-	-	-	6	-	-	-	-	-	8	-	**-**
Pedestrians%	-	-	-	-	6.7%		-	-	-	-	46.7%		-	-	-	-	20%		-	-	-	-	26.7%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & LANDSBRIDGE ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

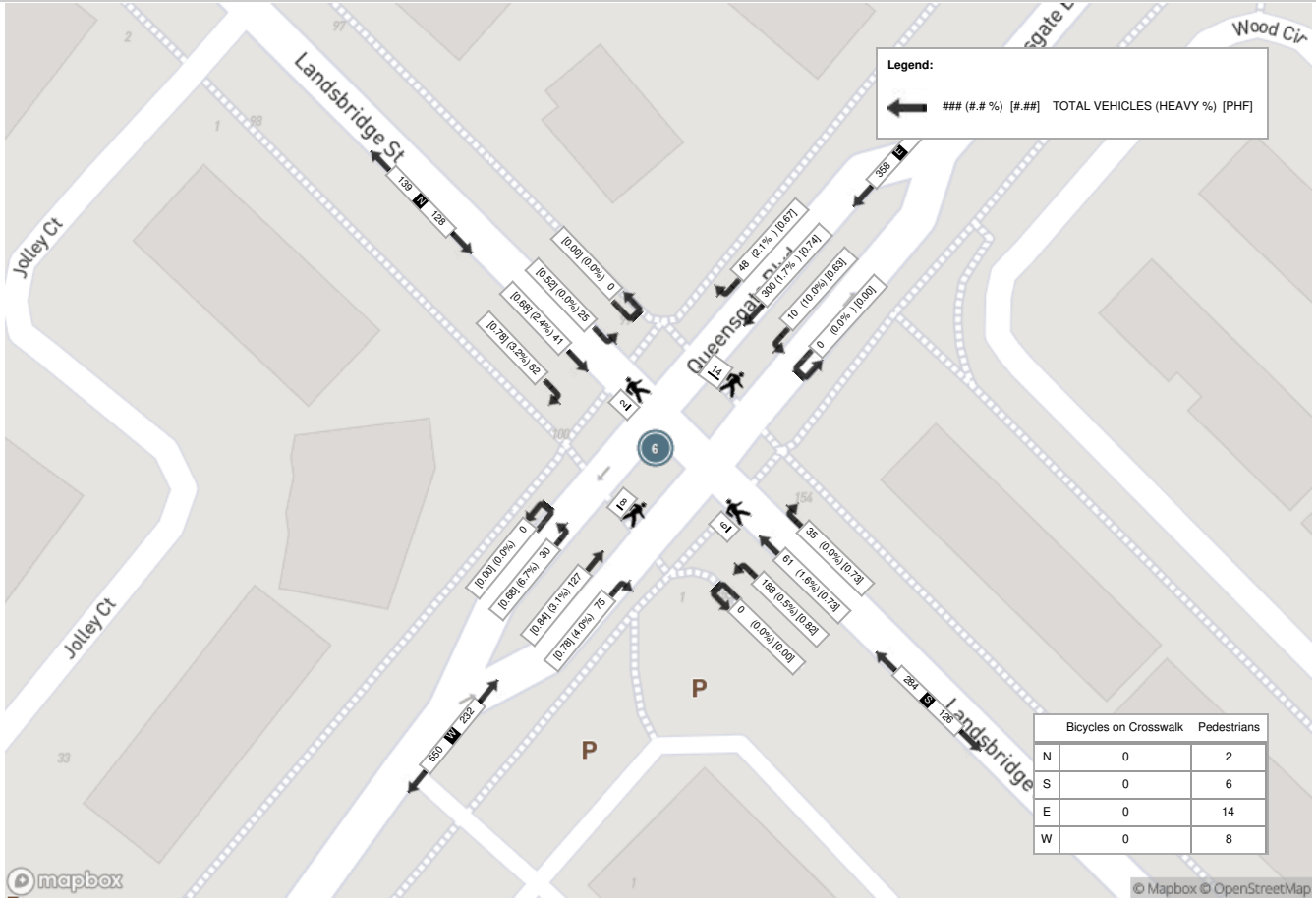
NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Few Clouds (26 °C)

Start Time	Southbound LANDSBRIDGE ST						Westbound QUEENSGATE BLVD						Northbound LANDSBRIDGE ST						Eastbound QUEENSGATE 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	
2025-06-11 16:30:00	23	25	16	0	2	64	21	38	4	0	3	63	7	13	28	0	2	48	49	96	21	0	1	166	341
2025-06-11 16:45:00	16	13	18	0	2	47	17	64	8	1	1	90	4	17	32	0	1	53	44	80	17	0	0	141	331
2025-06-11 17:00:00	13	18	7	0	0	38	11	51	12	0	3	74	5	14	26	0	1	45	63	98	25	0	0	186	343
2025-06-11 17:15:00	17	19	22	0	1	58	16	52	9	0	4	77	8	14	22	0	1	44	52	69	25	0	4	146	325
Grand Total	69	75	63	0	5	207	65	205	33	1	11	304	24	58	108	0	5	190	208	343	88	0	5	639	**1340**
Approach%	33.3%	36.2%	30.4%	0%		-	21.4%	67.4%	10.9%	0.3%		-	12.6%	30.5%	56.8%	0%		-	32.6%	53.7%	13.8%	0%		-	**-**
Totals %	5.1%	5.6%	4.7%	0%		15.4%	4.9%	15.3%	2.5%	0.1%		22.7%	1.8%	4.3%	8.1%	0%		14.2%	15.5%	25.6%	6.6%	0%		47.7%	**-**
PHF	0.75	0.75	0.72	0		0.81	0.77	0.8	0.69	0.25		0.84	0.75	0.85	0.84	0		0.9	0.83	0.88	0.88	0		0.86	0.98
Heavy	1	1	0	0		2	0	2	0	0		2	0	2	1	0		3	1	1	0	0		2	9
Heavy %	1.4%	1.3%	0%	0%		1%	0%	1%	0%	0%		0.7%	0%	3.4%	0.9%	0%		1.6%	0.5%	0.3%	0%	0%		0.3%	0.7%
Lights	68	74	62	0		204	65	203	33	1		302	24	55	107	0		186	206	341	87	0		634	1326
Lights %	98.6%	98.7%	98.4%	0%		98.6%	100%	99%	100%	100%		99.3%	100%	94.8%	99.1%	0%		97.9%	99%	99.4%	98.9%	0%		99.2%	99%
Single-Unit Trucks	1	1	0	0		2	0	1	0	0		1	0	2	1	0		3	1	1	0	0		2	8
Single-Unit Trucks %	1.4%	1.3%	0%	0%		1%	0%	0.5%	0%	0%		0.3%	0%	3.4%	0.9%	0%		1.6%	0.5%	0.3%	0%	0%		0.3%	0.6%
Buses	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	1
Buses %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0.1%
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Bicycles on Road	0	0	1	0		1	0	0	0	0		0	0	1	0	0		1	1	1	1	0		3	5
Bicycles on Road %	0%	0%	1.6%	0%		0.5%	0%	0%	0%	0%		0%	0%	1.7%	0%	0%		0.5%	0.5%	0.3%	1.1%	0%		0.5%	0.4%
Pedestrians	-	-	-	-	4	-	-	-	-	-	7	-	-	-	-	-	4	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	15.4%		-	-	-	-	26.9%		-	-	-	-	15.4%		-	-	-	-	15.4%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	3.8%		-	-	-	-	15.4%		-	-	-	-	3.8%		-	-	-	-	3.8%		**-**

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 08:15 AM - 09:15 AM **Weather: Clear Sky (15 °C)**



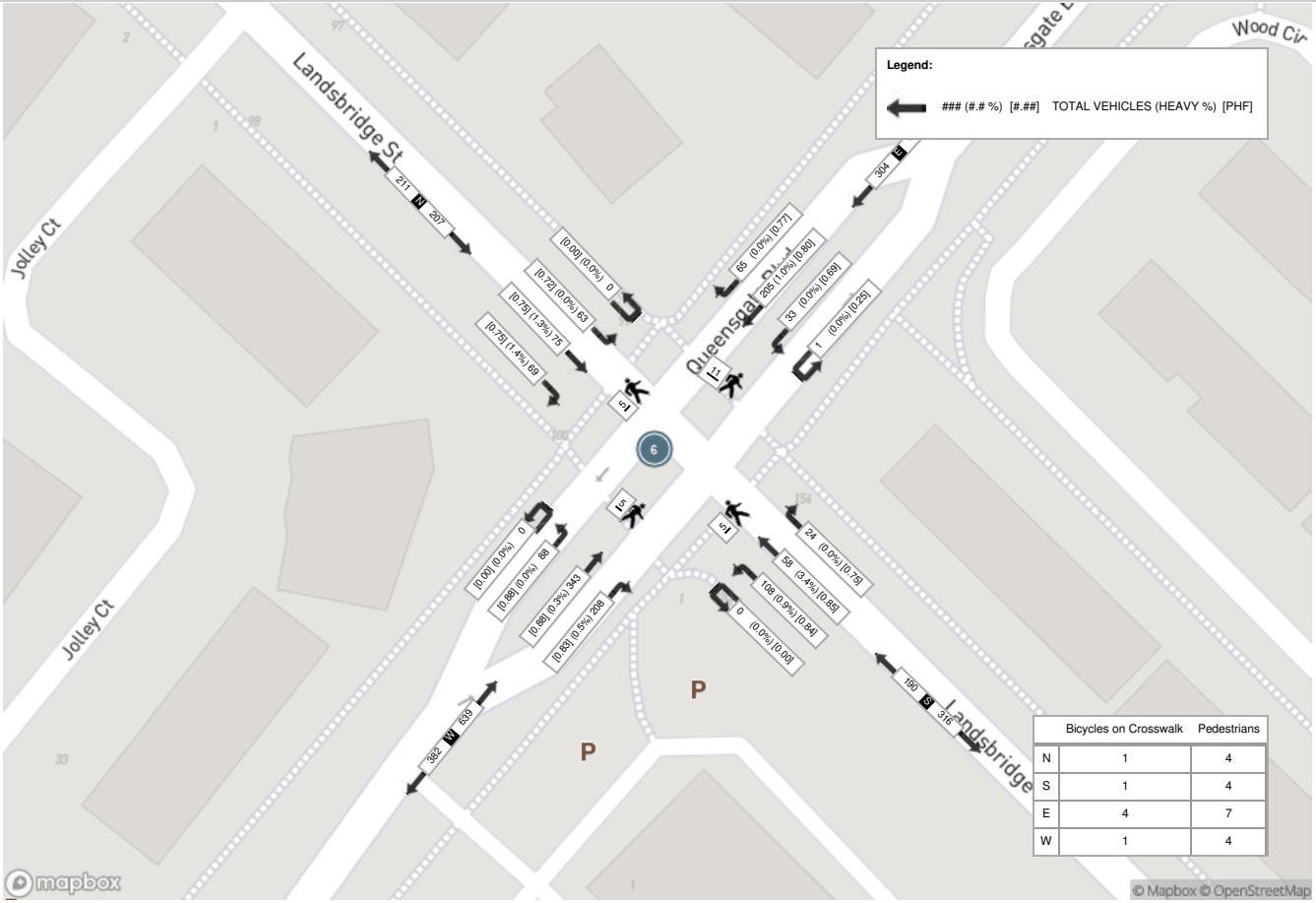
	Bicycles on Crosswalk	Pedestrians
N	0	2
S	0	6
E	0	14
W	0	8

Spectrum

Turning Movement Count
Location Name: QUEENSGATE BLVD & LANDSBRIDGE ST
Date: Wed, Jun 11, 2025 Deployment Lead: Rey Fernandez

NexTrans
SUITE 201 520 INDUSTRIAL PARKWAY
SOUTH
AURORA ONTARIO, L4G 6W8
CANADA

Peak Hour: 04:30 PM - 05:30 PM **Weather: Few Clouds (26 °C)**



	Bicycles on Crosswalk	Pedestrians
N	1	4
S	1	4
E	4	7
W	1	4

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**June 5, 2025**		**Prepared Date**	**June 6, 2025**
Database Rev	**iNet**		**Completed By**	**NM**
Timing Card / Field rev	**-**		**Checked By**	**NST**

Location	**Queensgate Blvd and Landsbridge St**

Phase #	**Street Name - Direction**	**Vehicle Minimum (s)**	**Pedestrian Minimum (s)**		**Amber (s)**	**All Red (s)**	**TIME PERIOD (s) (Green+Amber+All Red)**		
			WALK	**FDWALK**			**AM MAX**	**OFF MAX**	**PM MAX**
1	Not in use	-	-	-	-	-	-	-	-
2	Queensgate Blvd - E/W	8	8	16	4	2	37	37	37
3	Not in use	-	-	-	-	-	-	-	-
4	Landsbridge St - N/S	8	8	20	4	3.4	15.4 (MIN), 27.4 (MAX)	15.4 (MIN), 27.4 (MAX)	15.4 (MIN), 27.4 (MAX)
5	Not in use	-	-	-	-	-	-	3	-
6	Not in use	-	-	-	-	-	-	-	-
7	Not in use	-	-	-	-	-	-	-	-
8	Not in use	-	-	-	-	-	-	-	-

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	**PEAK**	**CYCLE LENGTH (s)**	**OFFSET (s)**
FREE	AM	0	0
FREE	OFF	0	0
FREE	PM	0	0

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**June 5, 2025**		**Prepared Date**	**June 6, 2025**
Database Rev	**iNet**		**Completed By**	**NM**
Timing Card / Field rev	**-**		**Checked By**	**NST**

Location — **Queensgate Blvd and Hwy 50**

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Hwy 50 - NBLT Prot Perm	5	0	0	3	0	25	15	15
2	Hwy 50 - SB	8	10	24	4	2.4	50	50	60
3	Queensgate Blvd - EB Split	8	10	25	4	3	25	25	30
4	Queensgate Blvd - WB Split	8	10	25	4	3	35	35	35
5	Hwy 50 - SBLT Prot Perm	5	0	0	3	0	15	15	15
6	Hwy 50 - NB	8	10	24	4	2.4	60	50	60
7	Not in use	-	-	-	-	-	-	-	-
8	Computer Phase	8	10	25	4	3	60	60	65

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
6:00-9:00	AM	135	16
9:00-15:00	OFF	125	100
15:00-20:00	PM	140	22

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**June 5, 2025**		**Prepared Date**	**June 6, 2025**
Database Rev	**iNet**		**Completed By**	**NM**
Timing Card / Field rev	**-**		**Checked By**	**NST**

Location	**Queensgate Blvd and Albion Vaughan Rd**

Phase #	**Street Name - Direction**	**Vehicle Minimum (s)**	**Pedestrian Minimum (s)**		**Amber (s)**	**All Red (s)**	**TIME PERIOD (s) (Green+Amber+All Red)**		
			WALK	**FDWALK**			**AM MAX**	**OFF MAX**	**PM MAX**
1	Albion Vaughan Rd - NBLT Prot Perm	5	0	0	3	0	13	13	13
2	Albion Vaughan Rd - N/S	8	8	22	4	2.1	63.1	63.1	63.1
3	Not in use	-	-	-	-	-	-	-	-
4	Queensgate Blvd - E/W	8	8	10	4	2.1	14.1 (MIN), 31.1 (MAX)	14.1 (MIN), 31.1 (MAX)	14.1 (MIN), 31.1 (MAX)
5	Not in use	-	-	-	-	-	-	-	-
6	Not in use	-	-	-	-	-	-	-	-
7	Not in use	-	-	-	-	-	-	-	-
8	Not in use	-	-	-	-	-	-	-	-

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	**PEAK**	**CYCLE LENGTH (s)**	**OFFSET (s)**
FREE	AM	0	0
FREE	OFF	0	0
FREE	PM	0	0

nexTrans
CONSULTING ENGINEERS

APPENDIX D:
Existing Traffic Analysis

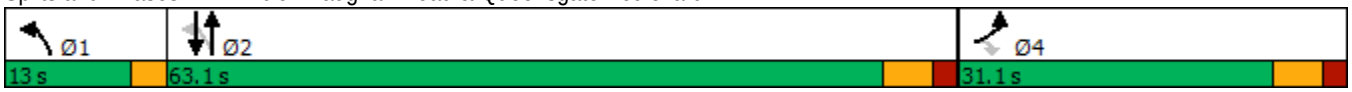
NT-25-078
12944 Albion Vaughan Road
Town of Caledon

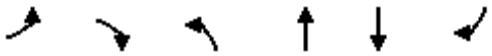
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	237	151	40	310	754
Future Volume (vph)	237	151	40	310	754
Lane Group Flow (vph)	242	154	41	316	1004
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.72	0.36	0.19	0.32	0.92
Control Delay	48.9	8.0	7.1	11.4	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	8.0	7.1	11.4	32.9
Queue Length 50th (m)	43.0	0.0	1.9	28.1	163.4
Queue Length 95th (m)	68.7	15.4	5.8	53.2	#295.5
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	476	546	275	982	1093
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.28	0.15	0.32	0.92

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 93.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	237	151	40	310	754	230
Future Volume (vph)	237	151	40	310	754	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1601	1659	1588	1754	
Flt Permitted	0.95	1.00	0.09	1.00	1.00	
Satd. Flow (perm)	1755	1601	160	1588	1754	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	242	154	41	316	769	235
RTOR Reduction (vph)	0	125	0	0	9	0
Lane Group Flow (vph)	242	29	41	316	995	0
Heavy Vehicles (%)	4%	2%	10%	21%	7%	3%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	17.7	17.7	61.3	57.6	57.6	
Effective Green, g (s)	17.7	17.7	61.3	57.6	57.6	
Actuated g/C Ratio	0.19	0.19	0.65	0.61	0.61	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	329	300	162	971	1072	
v/s Ratio Prot	c0.14		c0.01	0.20	c0.57	
v/s Ratio Perm		0.02	0.15			
v/c Ratio	0.74	0.10	0.25	0.33	0.93	
Uniform Delay, d1	36.0	31.6	15.1	8.9	16.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.3	0.1	0.8	0.9	14.9	
Delay (s)	44.3	31.8	16.0	9.8	31.4	
Level of Service	D	C	B	A	C	
Approach Delay (s)	39.4			10.5	31.4	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	94.2	Sum of lost time (s)	15.2
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	132	43	25	215	68	61	38	55	145	36	40
Future Vol, veh/h	20	132	43	25	215	68	61	38	55	145	36	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	4	2	0	4	3	2	13	2	2	8	5
Mvmt Flow	22	148	48	28	242	76	69	43	62	163	40	45
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.5	11.1	12.2	14.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	25%	0%	100%	51%	0%	100%	51%	16%
Vol Right, %	36%	0%	0%	49%	0%	0%	49%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	20	88	87	25	143	140	221
LT Vol	61	20	0	0	25	0	0	145
Through Vol	38	0	88	44	0	143	72	36
RT Vol	55	0	0	43	0	0	68	40
Lane Flow Rate	173	22	99	98	28	161	157	248
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.311	0.044	0.18	0.167	0.053	0.284	0.261	0.452
Departure Headway (Hd)	6.463	7.081	6.551	6.162	6.8	6.358	5.992	6.558
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	554	504	545	579	525	564	596	549
Service Time	4.23	4.853	4.323	3.933	4.564	4.121	3.755	4.319
HCM Lane V/C Ratio	0.312	0.044	0.182	0.169	0.053	0.285	0.263	0.452
HCM Control Delay	12.2	10.2	10.8	10.2	9.9	11.6	10.9	14.7
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	1.3	0.1	0.7	0.6	0.2	1.2	1	2.3

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

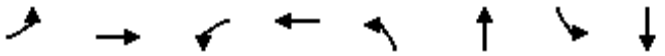
Channelized right turn lanes are not counted.

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	19	164	3	2	310	8	3	0	6	22	0	39
Future Vol, veh/h	19	164	3	2	310	8	3	0	6	22	0	39
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	5	2	0	2	13	0	0	0	0	0	0
Mvmt Flow	23	198	4	2	373	10	4	0	7	27	0	47
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	8.8	9.8	8.5	9
HCM LOS	A	A	A	A

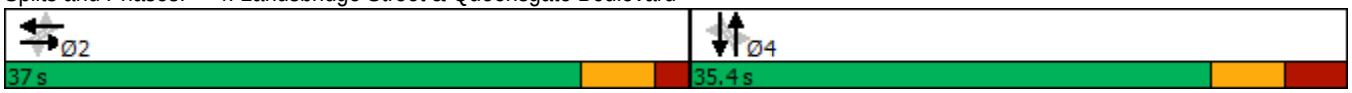
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	36%
Vol Thru, %	0%	0%	100%	95%	0%	100%	93%	0%
Vol Right, %	67%	0%	0%	5%	0%	0%	7%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	19	109	58	2	207	111	61
LT Vol	3	19	0	0	2	0	0	22
Through Vol	0	0	109	55	0	207	103	0
RT Vol	6	0	0	3	0	0	8	39
Lane Flow Rate	11	23	132	69	2	249	134	73
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.017	0.035	0.189	0.098	0.004	0.344	0.19	0.114
Departure Headway (Hd)	5.635	5.581	5.164	5.076	5.438	4.97	5.108	5.57
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	633	641	694	705	658	725	703	642
Service Time	3.39	3.317	2.9	2.812	3.169	2.701	2.838	3.315
HCM Lane V/C Ratio	0.017	0.036	0.19	0.098	0.003	0.343	0.191	0.114
HCM Control Delay	8.5	8.5	9.1	8.4	8.2	10.3	9	9
HCM Lane LOS	A	A	A	A	A	B	A	A
HCM 95th-tile Q	0.1	0.1	0.7	0.3	0	1.5	0.7	0.4

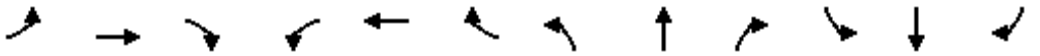


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	127	10	300	188	61	25	41
Future Volume (vph)	30	127	10	300	188	61	25	41
Lane Group Flow (vph)	34	229	11	396	214	109	28	117
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.09	0.16	0.02	0.26	0.43	0.15	0.06	0.17
Control Delay	13.1	8.2	12.3	12.8	19.7	10.4	14.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	8.2	12.3	12.8	19.7	10.4	14.4	7.7
Queue Length 50th (m)	2.7	5.9	0.8	16.0	20.8	5.8	2.3	3.9
Queue Length 95th (m)	7.5	11.6	3.4	24.1	37.1	14.5	6.7	12.7
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	396	1460	452	1512	498	712	505	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.16	0.02	0.26	0.43	0.15	0.06	0.17

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	127	75	10	300	48	188	61	35	25	41	62
Future Volume (vph)	30	127	75	10	300	48	188	61	35	25	41	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3299		1648	3493		1797	1778		1808	1686	
Flt Permitted	0.52	1.00		0.61	1.00		0.68	1.00		0.69	1.00	
Satd. Flow (perm)	929	3299		1057	3493		1290	1778		1307	1686	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	34	144	85	11	341	55	214	69	40	28	47	70
RTOR Reduction (vph)	0	49	0	0	18	0	0	25	0	0	43	0
Lane Group Flow (vph)	34	180	0	11	378	0	214	84	0	28	74	0
Confl. Peds. (#/hr)	2		6	6		2	8		14	14		8
Heavy Vehicles (%)	7%	3%	4%	10%	2%	2%	1%	2%	0%	0%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	397	1412		452	1495		498	687		505	652	
v/s Ratio Prot		0.05			c0.11			0.05			0.04	
v/s Ratio Perm	0.04			0.01			c0.17			0.02		
v/c Ratio	0.09	0.13		0.02	0.25		0.43	0.12		0.06	0.11	
Uniform Delay, d1	12.3	12.5		12.0	13.3		16.3	14.3		13.9	14.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		0.1	0.4		2.7	0.4		0.2	0.4	
Delay (s)	12.7	12.7		12.1	13.7		19.0	14.7		14.1	14.6	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		12.7			13.6			17.6			14.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

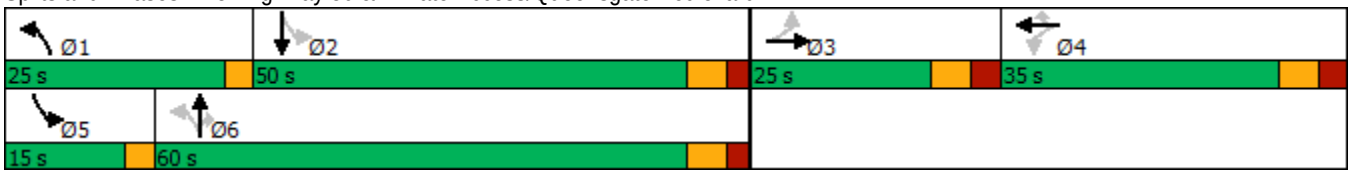
c Critical Lane Group

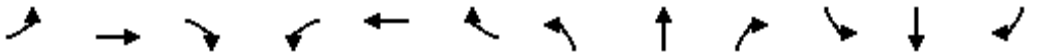
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	0	461	0	97	2	579	159	96	933
Future Volume (vph)	0	461	0	97	2	579	159	96	933
Lane Group Flow (vph)	3	250	251	105	2	629	173	104	1015
Turn Type	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3		4		1	6		5	2
Permitted Phases		4		4	6		6	2	
Detector Phase	3	4	4	4	1	6	6	5	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	25.0	35.0	35.0	35.0	25.0	60.0	60.0	15.0	50.0
Total Split (%)	18.5%	25.9%	25.9%	25.9%	18.5%	44.4%	44.4%	11.1%	37.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.01	0.79	0.79	0.22	0.01	0.36	0.20	0.21	0.48
Control Delay	0.0	58.0	58.2	4.4	10.0	18.6	3.5	9.6	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	58.0	58.2	4.4	10.0	18.6	3.5	9.6	14.7
Queue Length 50th (m)	0.0	50.0	50.3	0.0	0.2	40.7	0.0	7.5	56.0
Queue Length 95th (m)	0.0	#107.4	#108.0	8.5	1.3	71.4	12.7	19.3	114.3
Internal Link Dist (m)	56.1		149.0			696.2			599.8
Turn Bay Length (m)		70.0			30.0		70.0	90.0	
Base Capacity (vph)	478	353	353	515	583	1727	865	536	2129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.71	0.71	0.20	0.00	0.36	0.20	0.19	0.48

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 107.7
Natural Cycle: 135
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard

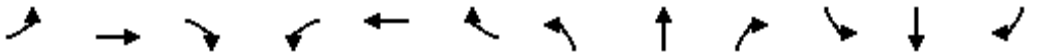




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	461	0	97	2	579	159	96	933	1
Future Volume (vph)	0	0	3	461	0	97	2	579	159	96	933	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1610		1696	1696	1593	1824	3444	1555	1755	3543	
Flt Permitted		1.00		0.76	0.76	1.00	0.25	1.00	1.00	0.34	1.00	
Satd. Flow (perm)		1610		1350	1350	1593	475	3444	1555	635	3543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	501	0	105	2	629	173	104	1014	1
RTOR Reduction (vph)	0	3	0	0	0	82	0	0	89	0	0	0
Lane Group Flow (vph)	0	0	0	250	251	23	2	629	84	104	1015	0
Confl. Peds. (#/hr)	3		2	2		3	4					4
Heavy Vehicles (%)	0%	0%	0%	2%	0%	1%	0%	6%	5%	4%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)		1.4		25.4	25.4	25.4	57.5	56.5	56.5	68.7	64.7	
Effective Green, g (s)		1.4		25.4	25.4	25.4	57.5	56.5	56.5	68.7	64.7	
Actuated g/C Ratio		0.01		0.22	0.22	0.22	0.50	0.49	0.49	0.59	0.56	
Clearance Time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		19		295	295	349	247	1678	758	465	1977	
v/s Ratio Prot		c0.00					0.00	0.18		c0.02	c0.29	
v/s Ratio Perm				0.19	c0.19	0.01	0.00		0.05	0.11		
v/c Ratio		0.00		0.85	0.85	0.07	0.01	0.37	0.11	0.22	0.51	
Uniform Delay, d1		56.6		43.4	43.4	35.9	14.9	18.6	16.1	10.7	15.9	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		19.6	20.3	0.1	0.0	0.6	0.3	0.2	1.0	
Delay (s)		56.6		63.0	63.7	35.9	15.0	19.3	16.4	11.0	16.8	
Level of Service		E		E	E	D	B	B	B	B	B	
Approach Delay (s)		56.6			58.6			18.6			16.3	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	115.9	Sum of lost time (s)	23.4
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	31	123	3	3	32	39	307	5	284	601	23
Future Volume (Veh/h)	11	31	123	3	3	32	39	307	5	284	601	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	33	129	3	3	34	41	323	5	299	633	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1672	1641	633	1784	1662	326	657			328		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1672	1641	633	1784	1662	326	657			328		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	79	55	73	88	96	95	96			76		
cM capacity (veh/h)	56	73	483	24	71	700	916			1232		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	174	40	41	328	299	633	24
Volume Left	12	3	41	0	299	0	0
Volume Right	129	34	0	5	0	0	24
cSH	187	187	916	1700	1232	1700	1700
Volume to Capacity	0.93	0.21	0.04	0.19	0.24	0.37	0.01
Queue Length 95th (m)	55.7	5.9	1.1	0.0	7.3	0.0	0.0
Control Delay (s)	100.5	29.4	9.1	0.0	8.9	0.0	0.0
Lane LOS	F	D	A		A		
Approach Delay (s)	100.5	29.4	1.0		2.8		
Approach LOS	F	D					

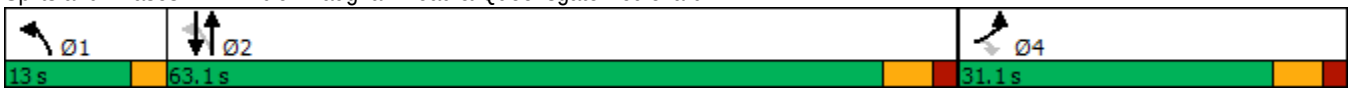
Intersection Summary				
Average Delay	14.1			
Intersection Capacity Utilization	57.3%	ICU Level of Service		B
Analysis Period (min)	15			

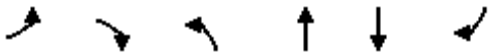
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	298	78	163	663	419
Future Volume (vph)	298	78	163	663	419
Lane Group Flow (vph)	310	81	170	691	664
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.82	0.20	0.38	0.69	0.75
Control Delay	57.7	8.8	8.0	22.1	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	8.8	8.0	22.1	24.0
Queue Length 50th (m)	60.3	0.0	10.5	100.9	97.0
Queue Length 95th (m)	#95.6	11.6	18.4	150.1	152.5
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	440	459	470	998	884
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.18	0.36	0.69	0.75

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 102.8
Natural Cycle: 75
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	298	78	163	663	419	219
Future Volume (vph)	298	78	163	663	419	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1633	1807	1795	1560	
Flt Permitted	0.95	1.00	0.26	1.00	1.00	
Satd. Flow (perm)	1807	1633	503	1795	1560	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	310	81	170	691	436	228
RTOR Reduction (vph)	0	64	0	0	17	0
Lane Group Flow (vph)	310	17	170	691	647	0
Heavy Vehicles (%)	1%	0%	1%	7%	26%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	21.4	21.4	66.2	57.2	57.2	
Effective Green, g (s)	21.4	21.4	66.2	57.2	57.2	
Actuated g/C Ratio	0.21	0.21	0.64	0.56	0.56	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	376	339	438	998	868	
v/s Ratio Prot	c0.17		c0.03	0.38	c0.41	
v/s Ratio Perm		0.01	0.22			
v/c Ratio	0.82	0.05	0.39	0.69	0.75	
Uniform Delay, d1	38.9	32.6	9.8	16.5	17.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.7	0.1	0.6	3.9	5.8	
Delay (s)	52.6	32.6	10.4	20.4	23.1	
Level of Service	D	C	B	C	C	
Approach Delay (s)	48.4			18.4	23.1	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	102.8	Sum of lost time (s)	15.2
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	230	66	35	240	150	46	28	35	71	11	25
Future Vol, veh/h	64	230	66	35	240	150	46	28	35	71	11	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	1	1	0	4	3	0	9	4
Mvmt Flow	72	258	74	39	270	169	52	31	39	80	12	28
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.7	11.3	11.6	11.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	42%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	26%	0%	100%	54%	0%	100%	35%	10%
Vol Right, %	32%	0%	0%	46%	0%	0%	65%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	64	153	143	35	160	230	107
LT Vol	46	64	0	0	35	0	0	71
Through Vol	28	0	153	77	0	160	80	11
RT Vol	35	0	0	66	0	0	150	25
Lane Flow Rate	122	72	172	160	39	180	258	120
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.231	0.13	0.288	0.252	0.07	0.296	0.393	0.233
Departure Headway (Hd)	6.788	6.499	6.008	5.662	6.424	5.934	5.47	6.968
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	528	551	596	633	557	604	656	513
Service Time	4.55	4.249	3.758	3.411	4.173	3.682	3.218	4.73
HCM Lane V/C Ratio	0.231	0.131	0.289	0.253	0.07	0.298	0.393	0.234
HCM Control Delay	11.6	10.2	11.2	10.3	9.7	11.2	11.7	11.9
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	0.9	0.4	1.2	1	0.2	1.2	1.9	0.9

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

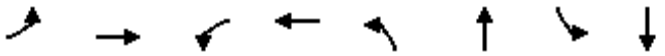
Channelized right turn lanes are not counted.

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	59	369	4	1	268	33	11	2	1	11	0	30
Future Vol, veh/h	59	369	4	1	268	33	11	2	1	11	0	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	63	397	4	1	288	35	12	2	1	12	0	32
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.8	9.3	9.5	9
HCM LOS	A	A	A	A

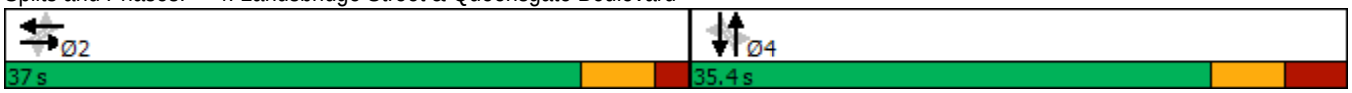
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	79%	100%	0%	0%	100%	0%	0%	27%
Vol Thru, %	14%	0%	100%	97%	0%	100%	73%	0%
Vol Right, %	7%	0%	0%	3%	0%	0%	27%	73%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	59	246	127	1	179	122	41
LT Vol	11	59	0	0	1	0	0	11
Through Vol	2	0	246	123	0	179	89	0
RT Vol	1	0	0	4	0	0	33	30
Lane Flow Rate	15	63	265	137	1	192	132	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.027	0.097	0.363	0.187	0.002	0.272	0.179	0.071
Departure Headway (Hd)	6.532	5.483	4.947	4.925	5.584	5.1	4.893	5.762
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	546	653	727	728	641	703	733	619
Service Time	4.298	3.216	2.68	2.658	3.32	2.835	2.629	3.522
HCM Lane V/C Ratio	0.027	0.096	0.365	0.188	0.002	0.273	0.18	0.071
HCM Control Delay	9.5	8.8	10.5	8.8	8.3	9.7	8.7	9
HCM Lane LOS	A	A	B	A	A	A	A	A
HCM 95th-tile Q	0.1	0.3	1.7	0.7	0	1.1	0.6	0.2



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	343	33	205	108	58	63	75
Future Volume (vph)	88	343	33	205	108	58	63	75
Lane Group Flow (vph)	90	562	34	275	110	83	64	147
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.19	0.36	0.10	0.18	0.43	0.12	0.12	0.20
Control Delay	14.3	9.1	13.5	10.0	22.7	11.4	15.2	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	9.1	13.5	10.0	22.7	11.4	15.2	9.1
Queue Length 50th (m)	7.3	15.3	2.7	8.7	10.7	5.0	5.5	6.5
Queue Length 95th (m)	16.1	25.5	7.8	15.5	24.7	12.9	12.8	17.2
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	477	1574	336	1523	258	706	518	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.36	0.10	0.18	0.43	0.12	0.12	0.20

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	343	208	33	205	65	108	58	24	63	75	69
Future Volume (vph)	88	343	208	33	205	65	108	58	24	63	75	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.94		1.00	0.96		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1816	3395		1819	3469		958	1789		1811	1753	
Flt Permitted	0.58	1.00		0.41	1.00		0.66	1.00		0.70	1.00	
Satd. Flow (perm)	1114	3395		786	3469		669	1789		1340	1753	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	90	350	212	34	209	66	110	59	24	64	77	70
RTOR Reduction (vph)	0	121	0	0	38	0	0	15	0	0	43	0
Lane Group Flow (vph)	90	441	0	34	237	0	110	68	0	64	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		11	11		5
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%	90%	3%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	476	1453		336	1485		258	691		518	677	
v/s Ratio Prot		c0.13			0.07			0.04			0.06	
v/s Ratio Perm	0.08			0.04			c0.16			0.05		
v/c Ratio	0.19	0.30		0.10	0.16		0.43	0.10		0.12	0.15	
Uniform Delay, d1	12.9	13.6		12.4	12.7		16.3	14.2		14.3	14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.5		0.6	0.2		5.1	0.3		0.5	0.5	
Delay (s)	13.8	14.1		13.0	12.9		21.4	14.4		14.8	15.0	
Level of Service	B	B		B	B		C	B		B	B	
Approach Delay (s)		14.1			12.9			18.4			14.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

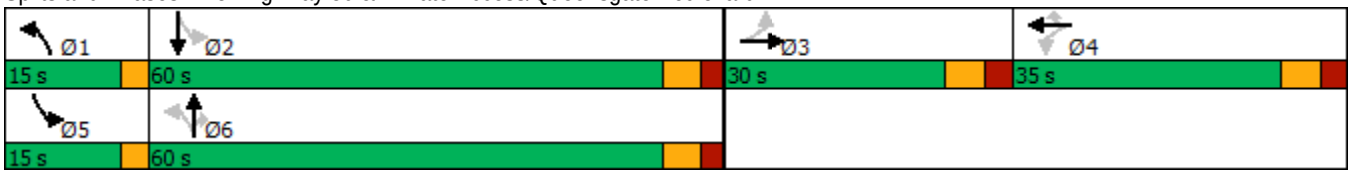
c Critical Lane Group

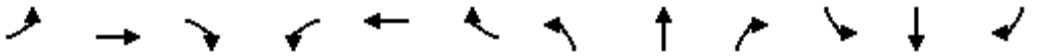
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	27	265	1	153	5	1329	472	134	664
Future Volume (vph)	33	27	265	1	153	5	1329	472	134	664
Lane Group Flow (vph)	34	185	138	139	159	5	1384	492	140	692
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		3		4		1	6		5	2
Permitted Phases	3		4		4	6		6	2	
Detector Phase	3	3	4	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	30.0	30.0	35.0	35.0	35.0	15.0	60.0	60.0	15.0	60.0
Total Split (%)	21.4%	21.4%	25.0%	25.0%	25.0%	10.7%	42.9%	42.9%	10.7%	42.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.57	0.52	0.73	0.79	0.41	0.01	0.89	0.75	0.66	0.37
Control Delay	88.0	17.1	73.9	81.5	10.1	16.6	44.0	22.1	40.1	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	17.1	73.9	81.5	10.1	16.6	44.0	22.1	40.1	20.9
Queue Length 50th (m)	8.2	6.3	36.1	36.7	0.0	0.6	180.0	48.2	18.8	54.7
Queue Length 95th (m)	#22.0	28.7	61.3	62.7	18.6	2.9	#251.8	108.4	#45.4	88.1
Internal Link Dist (m)		56.1		149.0			696.2			599.8
Turn Bay Length (m)			70.0			30.0		70.0	90.0	
Base Capacity (vph)	82	431	254	238	475	511	1550	656	235	1868
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.43	0.54	0.58	0.33	0.01	0.89	0.75	0.60	0.37

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 126.6
Natural Cycle: 145
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard

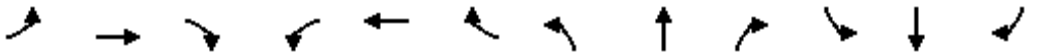




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	27	151	265	1	153	5	1329	472	134	664	0
Future Volume (vph)	33	27	151	265	1	153	5	1329	472	134	664	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1816	1646		1687	1692	1570	1821	3614	1147	1825	3579	
Flt Permitted	0.23	1.00		0.64	0.60	1.00	0.39	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	445	1646		1138	1065	1570	742	3614	1147	129	3579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	28	157	276	1	159	5	1384	492	140	692	0
RTOR Reduction (vph)	0	136	0	0	0	133	0	0	161	0	0	0
Lane Group Flow (vph)	34	49	0	138	139	26	5	1384	331	140	692	0
Confl. Peds. (#/hr)	7		9	9		7	9		4	4		9
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	40%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)	17.2	17.2		21.0	21.0	21.0	57.9	56.8	56.8	70.2	66.1	
Effective Green, g (s)	17.2	17.2		21.0	21.0	21.0	57.9	56.8	56.8	70.2	66.1	
Actuated g/C Ratio	0.13	0.13		0.16	0.16	0.16	0.45	0.44	0.44	0.55	0.51	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	59	219		185	173	255	342	1593	505	207	1836	
v/s Ratio Prot		0.03					0.00	c0.38		c0.05	0.19	
v/s Ratio Perm	c0.08			0.12	c0.13	0.02	0.01		0.29	0.31		
v/c Ratio	0.58	0.22		0.75	0.80	0.10	0.01	0.87	0.66	0.68	0.38	
Uniform Delay, d1	52.4	49.8		51.4	51.9	45.9	19.6	32.6	28.3	27.7	18.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.9	0.5		15.0	23.0	0.2	0.0	6.7	6.5	8.4	0.6	
Delay (s)	65.3	50.4		66.4	74.9	46.0	19.6	39.3	34.8	36.2	19.5	
Level of Service	E	D		E	E	D	B	D	C	D	B	
Approach Delay (s)		52.7			61.7			38.1			22.3	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	23.4
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	14	78	6	38	211	169	610	7	49	446	24
Future Volume (Veh/h)	11	14	78	6	38	211	169	610	7	49	446	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	11	14	79	6	38	213	171	616	7	49	451	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1739	1514	451	1596	1534	620	475			623		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1739	1514	451	1596	1534	620	475			623		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	50	86	87	89	60	57	84			95		
cM capacity (veh/h)	22	97	610	57	94	492	1092			948		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	104	257	171	623	49	451	24
Volume Left	11	6	171	0	49	0	0
Volume Right	79	213	0	7	0	0	24
cSH	134	273	1092	1700	948	1700	1700
Volume to Capacity	0.78	0.94	0.16	0.37	0.05	0.27	0.01
Queue Length 95th (m)	35.4	67.5	4.2	0.0	1.2	0.0	0.0
Control Delay (s)	91.3	81.2	8.9	0.0	9.0	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	91.3	81.2	1.9		0.8		
Approach LOS	F	F					

Intersection Summary				
Average Delay	19.3			
Intersection Capacity Utilization	62.2%	ICU Level of Service	B	
Analysis Period (min)	15			

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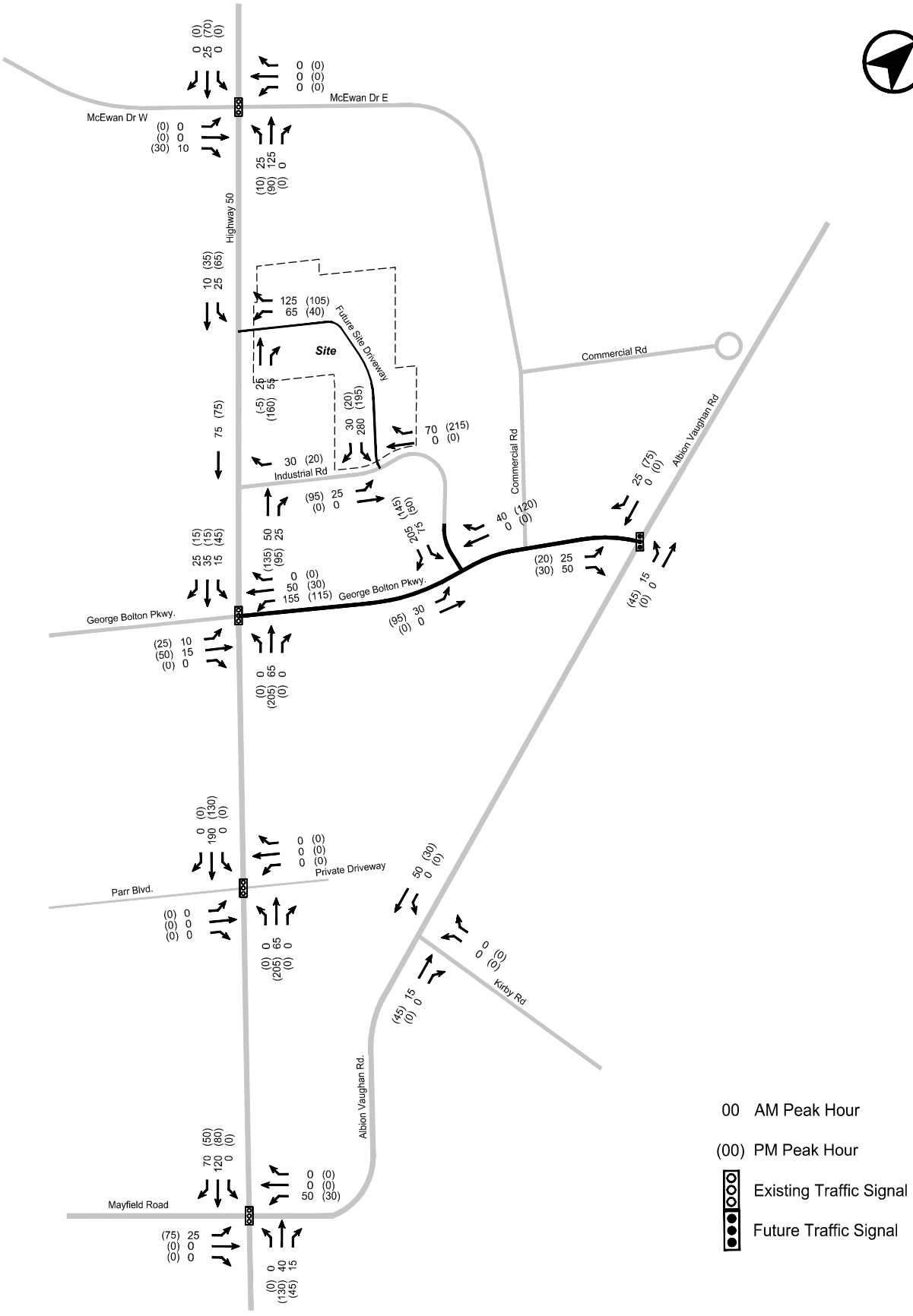
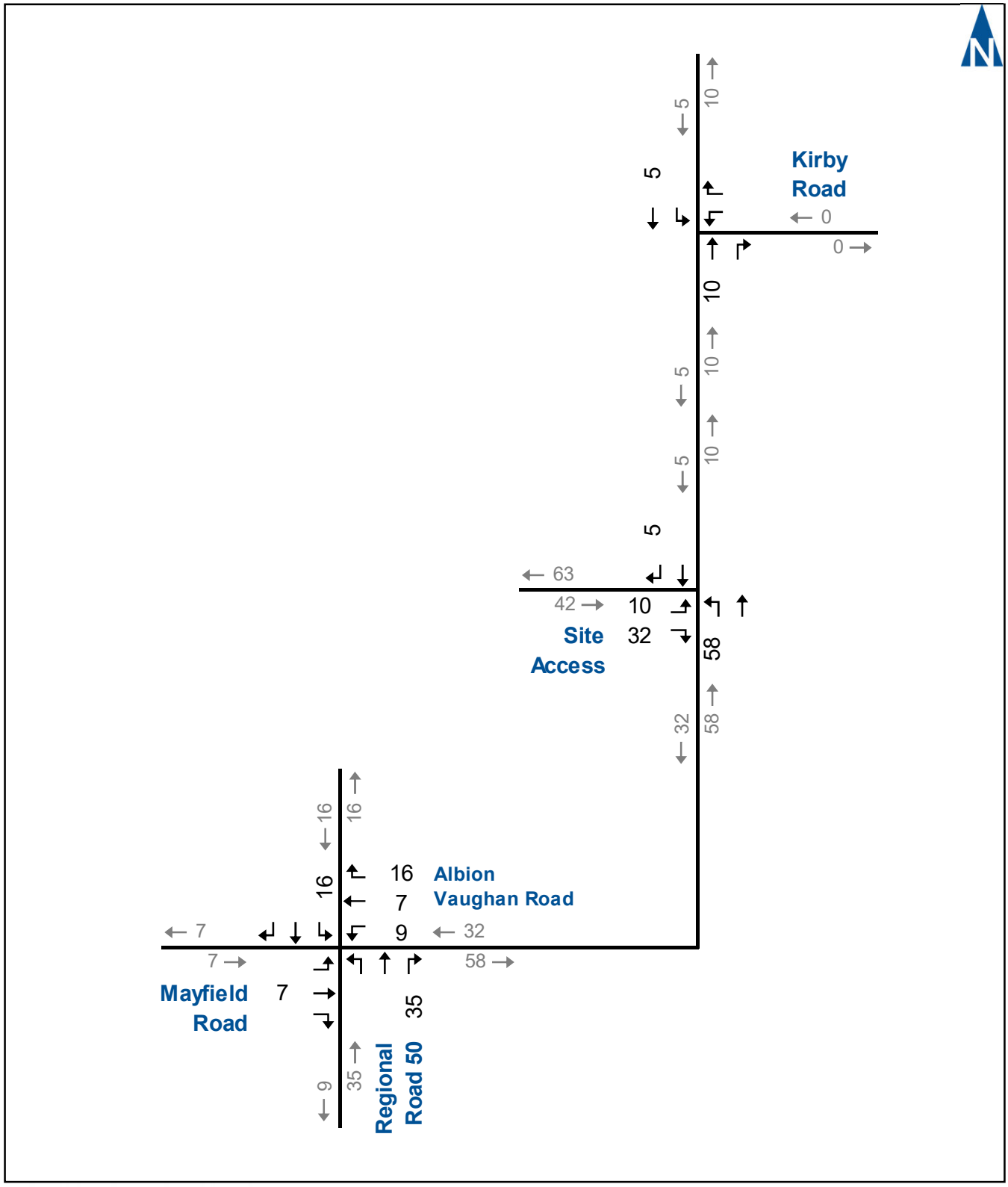
APPENDIX E:
Background Development Excerpts



Date Plotted: January 10, 2022 Filename: P:\80\76\01\Graphics\CAD\Fig24-01-FullTST.dwg

FIGURE 24 FULL BUILD-OUT TOTAL SITE TRAFFIC VOLUMES



Site Traffic Volumes
PM Peak Hour

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APPENDIX F:
2030 Future Background Traffic Analysis

NT-25-078
12944 Albion Vaughan Road
Town of Caledon

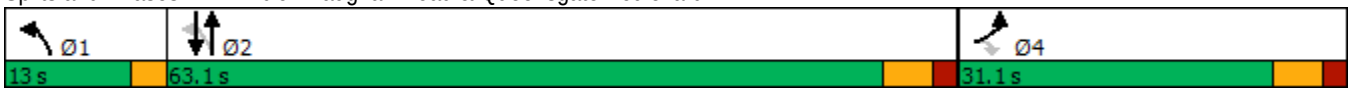
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	253	162	44	350	838
Future Volume (vph)	253	162	44	350	838
Lane Group Flow (vph)	258	165	45	357	1114
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.75	0.37	0.24	0.37	1.03
Control Delay	50.1	7.8	8.2	12.3	55.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	7.8	8.2	12.3	55.9
Queue Length 50th (m)	46.3	0.0	2.2	34.0	~236.2
Queue Length 95th (m)	73.5	15.7	6.3	61.5	#344.8
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	472	551	250	974	1085
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	0.30	0.18	0.37	1.03

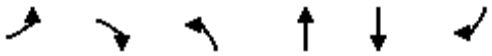
Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 93.9
Natural Cycle: 100
Control Type: Semi Act-Uncoord

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

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	253	162	44	350	838	254
Future Volume (vph)	253	162	44	350	838	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1601	1659	1588	1754	
Flt Permitted	0.95	1.00	0.07	1.00	1.00	
Satd. Flow (perm)	1755	1601	121	1588	1754	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	258	165	45	357	855	259
RTOR Reduction (vph)	0	133	0	0	9	0
Lane Group Flow (vph)	258	32	45	357	1105	0
Heavy Vehicles (%)	4%	2%	10%	21%	7%	3%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	18.5	18.5	61.4	57.6	57.6	
Effective Green, g (s)	18.5	18.5	61.4	57.6	57.6	
Actuated g/C Ratio	0.19	0.19	0.65	0.61	0.61	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	341	311	139	961	1062	
v/s Ratio Prot	c0.15		c0.01	0.22	c0.63	
v/s Ratio Perm		0.02	0.19			
v/c Ratio	0.76	0.10	0.32	0.37	1.04	
Uniform Delay, d1	36.2	31.5	21.6	9.5	18.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.2	0.1	1.4	1.1	38.8	
Delay (s)	45.4	31.6	23.0	10.6	57.6	
Level of Service	D	C	C	B	E	
Approach Delay (s)	40.0			12.0	57.6	
Approach LOS	D			B	E	

Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	95.1	Sum of lost time (s)	15.2
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	12.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	159	43	25	243	68	61	38	55	145	36	40
Future Vol, veh/h	20	159	43	25	243	68	61	38	55	145	36	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	4	2	0	4	3	2	13	2	2	8	5
Mvmt Flow	22	179	48	28	273	76	69	43	62	163	40	45
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.9	11.7	12.6	15.3
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	25%	0%	100%	55%	0%	100%	54%	16%
Vol Right, %	36%	0%	0%	45%	0%	0%	46%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	20	106	96	25	162	149	221
LT Vol	61	20	0	0	25	0	0	145
Through Vol	38	0	106	53	0	162	81	36
RT Vol	55	0	0	43	0	0	68	40
Lane Flow Rate	173	22	119	108	28	182	167	248
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.32	0.045	0.22	0.188	0.054	0.326	0.284	0.465
Departure Headway (Hd)	6.656	7.174	6.644	6.288	6.891	6.449	6.105	6.739
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	536	496	537	566	517	553	584	531
Service Time	4.44	4.962	4.431	4.075	4.671	4.228	3.884	4.515
HCM Lane V/C Ratio	0.323	0.044	0.222	0.191	0.054	0.329	0.286	0.467
HCM Control Delay	12.6	10.3	11.3	10.5	10.1	12.4	11.3	15.3
HCM Lane LOS	B	B	B	B	B	B	B	C
HCM 95th-tile Q	1.4	0.1	0.8	0.7	0.2	1.4	1.2	2.4

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

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	19	191	3	2	338	8	3	0	6	22	0	39
Future Vol, veh/h	19	191	3	2	338	8	3	0	6	22	0	39
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	5	2	0	2	13	0	0	0	0	0	0
Mvmt Flow	23	230	4	2	407	10	4	0	7	27	0	47
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

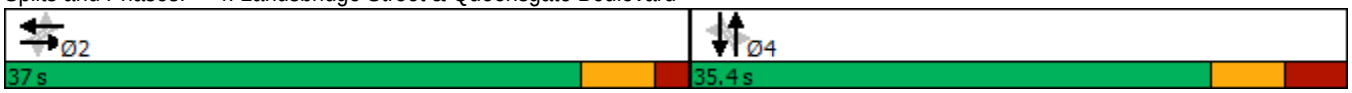
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9	10.2	8.6	9.2
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	36%
Vol Thru, %	0%	0%	100%	95%	0%	100%	93%	0%
Vol Right, %	67%	0%	0%	4%	0%	0%	7%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	19	127	67	2	225	121	61
LT Vol	3	19	0	0	2	0	0	22
Through Vol	0	0	127	64	0	225	113	0
RT Vol	6	0	0	3	0	0	8	39
Lane Flow Rate	11	23	153	80	2	271	145	73
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.017	0.036	0.222	0.114	0.004	0.377	0.208	0.116
Departure Headway (Hd)	5.77	5.619	5.202	5.119	5.472	5.005	5.146	5.698
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	617	637	689	699	654	719	698	627
Service Time	3.536	3.358	2.941	2.858	3.207	2.739	2.88	3.453
HCM Lane V/C Ratio	0.018	0.036	0.222	0.114	0.003	0.377	0.208	0.116
HCM Control Delay	8.6	8.6	9.4	8.5	8.2	10.8	9.2	9.2
HCM Lane LOS	A	A	A	A	A	B	A	A
HCM 95th-tile Q	0.1	0.1	0.8	0.4	0	1.8	0.8	0.4

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	154	10	328	188	61	25	41
Future Volume (vph)	30	154	10	328	188	61	25	41
Lane Group Flow (vph)	34	260	11	428	214	109	28	117
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.09	0.18	0.03	0.28	0.43	0.15	0.06	0.17
Control Delay	13.2	8.8	12.3	13.1	19.7	10.4	14.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	8.8	12.3	13.1	19.7	10.4	14.4	7.7
Queue Length 50th (m)	2.7	7.2	0.8	17.7	20.8	5.8	2.3	3.9
Queue Length 95th (m)	7.5	13.3	3.4	26.2	37.1	14.5	6.7	12.7
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	386	1473	439	1514	498	712	505	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.18	0.03	0.28	0.43	0.15	0.06	0.17

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	154	75	10	328	48	188	61	35	25	41	62
Future Volume (vph)	30	154	75	10	328	48	188	61	35	25	41	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3328		1649	3499		1797	1778		1808	1686	
Flt Permitted	0.50	1.00		0.59	1.00		0.68	1.00		0.69	1.00	
Satd. Flow (perm)	901	3328		1026	3499		1290	1778		1307	1686	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	34	175	85	11	373	55	214	69	40	28	47	70
RTOR Reduction (vph)	0	49	0	0	16	0	0	25	0	0	43	0
Lane Group Flow (vph)	34	211	0	11	412	0	214	84	0	28	74	0
Confl. Peds. (#/hr)	2		6	6		2	8		14	14		8
Heavy Vehicles (%)	7%	3%	4%	10%	2%	2%	1%	2%	0%	0%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	385	1424		439	1498		498	687		505	652	
v/s Ratio Prot		0.06			c0.12			0.05			0.04	
v/s Ratio Perm	0.04			0.01			c0.17			0.02		
v/c Ratio	0.09	0.15		0.03	0.28		0.43	0.12		0.06	0.11	
Uniform Delay, d1	12.3	12.6		12.0	13.4		16.3	14.3		13.9	14.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		0.1	0.5		2.7	0.4		0.2	0.4	
Delay (s)	12.8	12.9		12.1	13.9		19.0	14.7		14.1	14.6	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		12.8			13.8			17.6			14.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

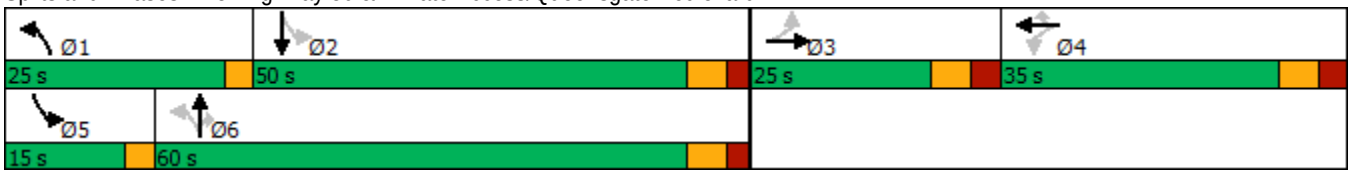
c Critical Lane Group

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	0	484	0	102	2	764	176	106	1055
Future Volume (vph)	0	484	0	102	2	764	176	106	1055
Lane Group Flow (vph)	3	263	263	111	2	830	191	115	1148
Turn Type	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3		4		1	6		5	2
Permitted Phases		4		4	6		6	2	
Detector Phase	3	4	4	4	1	6	6	5	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	25.0	35.0	35.0	35.0	25.0	60.0	60.0	15.0	50.0
Total Split (%)	18.5%	25.9%	25.9%	25.9%	18.5%	44.4%	44.4%	11.1%	37.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.01	0.80	0.80	0.23	0.01	0.49	0.22	0.28	0.55
Control Delay	0.0	58.7	58.7	5.2	10.0	20.9	3.4	10.6	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	58.7	58.7	5.2	10.0	20.9	3.4	10.6	16.1
Queue Length 50th (m)	0.0	53.4	53.4	0.0	0.2	58.4	0.0	8.3	66.8
Queue Length 95th (m)	0.0	#115.0	#115.0	10.1	1.3	99.0	13.4	21.0	135.4
Internal Link Dist (m)	56.1		149.0			696.2			599.8
Turn Bay Length (m)		70.0			30.0		70.0	90.0	
Base Capacity (vph)	470	347	347	508	534	1698	863	435	2105
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.76	0.76	0.22	0.00	0.49	0.22	0.26	0.55

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 109.3
Natural Cycle: 145
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

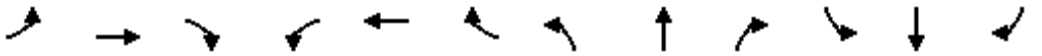
Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	484	0	102	2	764	176	106	1055	1
Future Volume (vph)	0	0	3	484	0	102	2	764	176	106	1055	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1610		1696	1696	1593	1825	3444	1555	1755	3543	
Flt Permitted		1.00		0.76	0.76	1.00	0.20	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1610		1350	1350	1593	378	3444	1555	456	3543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	526	0	111	2	830	191	115	1147	1
RTOR Reduction (vph)	0	3	0	0	0	86	0	0	99	0	0	0
Lane Group Flow (vph)	0	0	0	263	263	25	2	830	92	115	1148	0
Confl. Peds. (#/hr)	3		2	2		3	4					4
Heavy Vehicles (%)	0%	0%	0%	2%	0%	1%	0%	6%	5%	4%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)		1.4		26.7	26.7	26.7	57.4	56.4	56.4	69.0	65.0	
Effective Green, g (s)		1.4		26.7	26.7	26.7	57.4	56.4	56.4	69.0	65.0	
Actuated g/C Ratio		0.01		0.23	0.23	0.23	0.49	0.48	0.48	0.59	0.55	
Clearance Time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		19		306	306	361	196	1653	746	373	1959	
v/s Ratio Prot		c0.00					0.00	0.24		c0.03	c0.32	
v/s Ratio Perm				c0.19	0.19	0.02	0.00		0.06	0.16		
v/c Ratio		0.00		0.86	0.86	0.07	0.01	0.50	0.12	0.31	0.59	
Uniform Delay, d1		57.4		43.6	43.6	35.6	16.0	20.9	16.9	12.1	17.4	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		20.6	20.6	0.1	0.0	1.1	0.3	0.5	1.3	
Delay (s)		57.4		64.2	64.2	35.7	16.0	22.0	17.2	12.5	18.6	
Level of Service		E		E	E	D	B	C	B	B	B	
Approach Delay (s)		57.4			59.3			21.1			18.1	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	117.5	Sum of lost time (s)	23.4
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	31	123	3	3	35	39	347	6	314	670	23
Future Volume (Veh/h)	11	31	123	3	3	35	39	347	6	314	670	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	33	129	3	3	37	41	365	6	331	705	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1852	1820	705	1962	1841	368	729			371		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1852	1820	705	1962	1841	368	729			371		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	70	39	71	78	94	94	95			72		
cM capacity (veh/h)	39	54	440	14	52	662	861			1188		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	174	43	41	371	331	705	24
Volume Left	12	3	41	0	331	0	0
Volume Right	129	37	0	6	0	0	24
cSH	144	129	861	1700	1188	1700	1700
Volume to Capacity	1.21	0.33	0.05	0.22	0.28	0.41	0.01
Queue Length 95th (m)	77.4	10.1	1.1	0.0	8.7	0.0	0.0
Control Delay (s)	203.3	46.3	9.4	0.0	9.2	0.0	0.0
Lane LOS	F	E	A		A		
Approach Delay (s)	203.3	46.3	0.9		2.9		
Approach LOS	F	E					

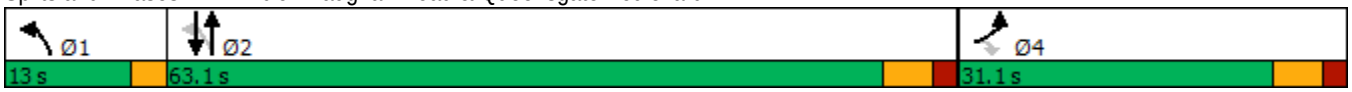
Intersection Summary				
Average Delay	24.2			
Intersection Capacity Utilization	61.1%	ICU Level of Service	B	
Analysis Period (min)	15			

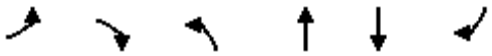
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	336	103	180	742	468
Future Volume (vph)	336	103	180	742	468
Lane Group Flow (vph)	350	107	188	773	740
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.88	0.24	0.50	0.79	0.85
Control Delay	63.2	8.0	10.7	26.7	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.2	8.0	10.7	26.7	31.0
Queue Length 50th (m)	69.4	0.0	12.4	125.1	122.3
Queue Length 95th (m)	#115.2	13.2	20.3	181.7	#203.8
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	434	473	398	983	871
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.23	0.47	0.79	0.85

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 104.2
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	336	103	180	742	468	242
Future Volume (vph)	336	103	180	742	468	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1633	1807	1795	1560	
Flt Permitted	0.95	1.00	0.20	1.00	1.00	
Satd. Flow (perm)	1807	1633	388	1795	1560	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	350	107	188	773	488	252
RTOR Reduction (vph)	0	83	0	0	17	0
Lane Group Flow (vph)	350	24	188	773	723	0
Heavy Vehicles (%)	1%	0%	1%	7%	26%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	23.0	23.0	66.0	57.1	57.1	
Effective Green, g (s)	23.0	23.0	66.0	57.1	57.1	
Actuated g/C Ratio	0.22	0.22	0.63	0.55	0.55	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	398	360	366	983	854	
v/s Ratio Prot	c0.19		c0.04	0.43	c0.46	
v/s Ratio Perm		0.01	0.28			
v/c Ratio	0.88	0.07	0.51	0.79	0.85	
Uniform Delay, d1	39.3	32.1	12.4	18.7	19.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.3	0.1	1.2	6.3	10.2	
Delay (s)	58.5	32.2	13.7	25.0	30.0	
Level of Service	E	C	B	C	C	
Approach Delay (s)	52.4			22.8	30.0	
Approach LOS	D			C	C	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	104.2	Sum of lost time (s)	15.2
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

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	64	293	66	35	280	150	46	28	35	71	11	25
Future Vol, veh/h	64	293	66	35	280	150	46	28	35	71	11	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	1	1	0	4	3	0	9	4
Mvmt Flow	72	329	74	39	315	169	52	31	39	80	12	28
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.6	12.2	12.1	12.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	42%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	26%	0%	100%	60%	0%	100%	38%	10%
Vol Right, %	32%	0%	0%	40%	0%	0%	62%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	64	195	164	35	187	243	107
LT Vol	46	64	0	0	35	0	0	71
Through Vol	28	0	195	98	0	187	93	11
RT Vol	35	0	0	66	0	0	150	25
Lane Flow Rate	122	72	219	184	39	210	273	120
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.24	0.132	0.373	0.297	0.072	0.354	0.428	0.242
Departure Headway (Hd)	7.055	6.606	6.115	5.811	6.562	6.071	5.633	7.238
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	541	586	616	544	589	637	494
Service Time	4.83	4.368	3.876	3.572	4.322	3.831	3.392	5.011
HCM Lane V/C Ratio	0.241	0.133	0.374	0.299	0.072	0.357	0.429	0.243
HCM Control Delay	12.1	10.4	12.5	11	9.8	12.2	12.6	12.3
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	0.9	0.5	1.7	1.2	0.2	1.6	2.1	0.9

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	432	4	1	308	33	11	2	1	11	0	30
Future Vol, veh/h	59	432	4	1	308	33	11	2	1	11	0	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	63	465	4	1	331	35	12	2	1	12	0	32
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

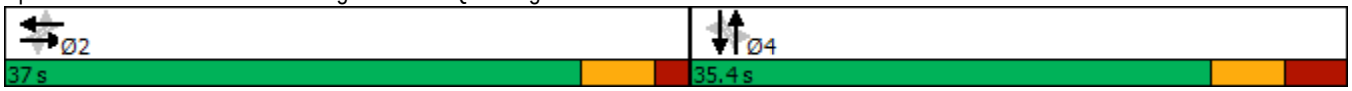
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.5	9.8	9.7	9.2
HCM LOS	B	A	A	A

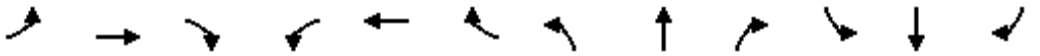
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	79%	100%	0%	0%	100%	0%	0%	27%
Vol Thru, %	14%	0%	100%	97%	0%	100%	76%	0%
Vol Right, %	7%	0%	0%	3%	0%	0%	24%	73%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	59	288	148	1	205	136	41
LT Vol	11	59	0	0	1	0	0	11
Through Vol	2	0	288	144	0	205	103	0
RT Vol	1	0	0	4	0	0	33	30
Lane Flow Rate	15	63	310	159	1	221	146	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.028	0.097	0.43	0.22	0.002	0.317	0.202	0.073
Departure Headway (Hd)	6.736	5.53	4.994	4.975	5.656	5.172	4.984	5.962
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	528	647	718	721	632	693	718	597
Service Time	4.516	3.269	2.734	2.715	3.4	2.915	2.727	3.734
HCM Lane V/C Ratio	0.028	0.097	0.432	0.221	0.002	0.319	0.203	0.074
HCM Control Delay	9.7	8.9	11.5	9.1	8.4	10.3	9	9.2
HCM Lane LOS	A	A	B	A	A	B	A	A
HCM 95th-tile Q	0.1	0.3	2.2	0.8	0	1.4	0.8	0.2

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	406	33	245	108	58	63	75
Future Volume (vph)	88	406	33	245	108	58	63	75
Lane Group Flow (vph)	90	626	34	316	110	83	64	147
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.20	0.40	0.11	0.21	0.43	0.12	0.12	0.20
Control Delay	14.4	11.3	13.8	11.0	22.7	11.4	15.2	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	11.3	13.8	11.0	22.7	11.4	15.2	9.1
Queue Length 50th (m)	7.4	21.3	2.7	11.0	10.7	5.0	5.5	6.5
Queue Length 95th (m)	16.2	33.1	7.9	18.4	24.7	12.9	12.8	17.2
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	458	1554	304	1526	258	706	518	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.40	0.11	0.21	0.43	0.12	0.12	0.20

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	406	208	33	245	65	108	58	24	63	75	69
Future Volume (vph)	88	406	208	33	245	65	108	58	24	63	75	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1816	3421		1820	3488		958	1789		1811	1753	
Flt Permitted	0.56	1.00		0.37	1.00		0.66	1.00		0.70	1.00	
Satd. Flow (perm)	1071	3421		710	3488		669	1789		1340	1753	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	90	414	212	34	250	66	110	59	24	64	77	70
RTOR Reduction (vph)	0	90	0	0	33	0	0	15	0	0	43	0
Lane Group Flow (vph)	90	536	0	34	283	0	110	68	0	64	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		11	11		5
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%	90%	3%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	458	1464		304	1493		258	691		518	677	
v/s Ratio Prot		c0.16			0.08			0.04			0.06	
v/s Ratio Perm	0.08			0.05			c0.16			0.05		
v/c Ratio	0.20	0.37		0.11	0.19		0.43	0.10		0.12	0.15	
Uniform Delay, d1	12.9	14.0		12.4	12.9		16.3	14.2		14.3	14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.7		0.7	0.3		5.1	0.3		0.5	0.5	
Delay (s)	13.9	14.7		13.2	13.2		21.4	14.4		14.8	15.0	
Level of Service	B	B		B	B		C	B		B	B	
Approach Delay (s)		14.6			13.2			18.4			14.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

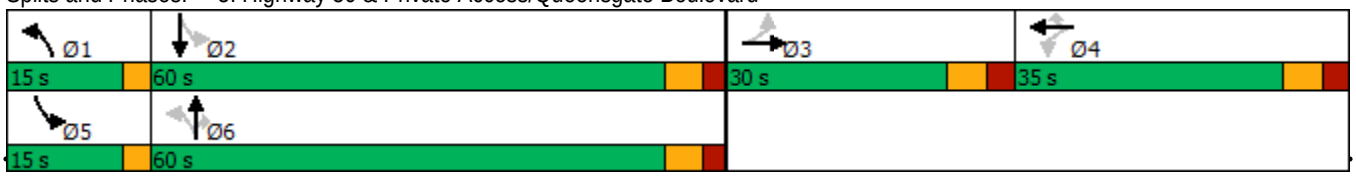
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	27	298	1	160	5	1557	521	148	803
Future Volume (vph)	33	27	298	1	160	5	1557	521	148	803
Lane Group Flow (vph)	34	185	155	156	167	5	1622	543	154	836
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		3		4		1	6		5	2
Permitted Phases	3		4		4	6		6	2	
Detector Phase	3	3	4	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	30.0	30.0	35.0	35.0	35.0	15.0	60.0	60.0	15.0	60.0
Total Split (%)	21.4%	21.4%	25.0%	25.0%	25.0%	10.7%	42.9%	42.9%	10.7%	42.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.58	0.52	0.77	0.83	0.40	0.01	1.07	0.85	0.72	0.45
Control Delay	90.5	17.2	76.3	84.8	9.7	16.8	80.6	32.2	46.3	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.5	17.2	76.3	84.8	9.7	16.8	80.6	32.2	46.3	23.0
Queue Length 50th (m)	8.5	6.6	41.4	42.3	0.0	0.6	~269.8	77.6	24.4	75.3
Queue Length 95th (m)	#22.2	28.7	#72.1	#77.1	19.1	2.9	#323.5	#157.7	#56.3	110.2
Internal Link Dist (m)		56.1		149.0			696.2			599.8
Turn Bay Length (m)			70.0			30.0		70.0	90.0	
Base Capacity (vph)	79	425	249	233	474	434	1519	639	231	1842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.44	0.62	0.67	0.35	0.01	1.07	0.85	0.67	0.45

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 129
Natural Cycle: 145
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

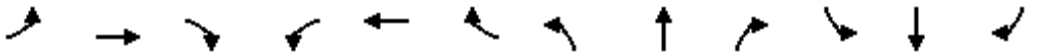
Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	27	151	298	1	160	5	1557	521	148	803	0
Future Volume (vph)	33	27	151	298	1	160	5	1557	521	148	803	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1816	1645		1687	1692	1569	1823	3614	1147	1825	3579	
Flt Permitted	0.23	1.00		0.64	0.60	1.00	0.31	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	442	1645		1138	1065	1569	593	3614	1147	129	3579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	28	157	310	1	167	5	1622	543	154	836	0
RTOR Reduction (vph)	0	136	0	0	0	138	0	0	154	0	0	0
Lane Group Flow (vph)	34	49	0	155	156	29	5	1622	389	154	836	0
Confl. Peds. (#/hr)	7		9	9		7	9		4	4		9
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	40%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)	17.3	17.3		22.9	22.9	22.9	57.7	56.6	56.6	70.5	66.4	
Effective Green, g (s)	17.3	17.3		22.9	22.9	22.9	57.7	56.6	56.6	70.5	66.4	
Actuated g/C Ratio	0.13	0.13		0.17	0.17	0.17	0.44	0.43	0.43	0.54	0.51	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	58	217		198	186	274	271	1560	495	210	1812	
v/s Ratio Prot		0.03					0.00	c0.45		c0.06	0.23	
v/s Ratio Perm	c0.08			0.14	c0.15	0.02	0.01		0.34	0.33		
v/c Ratio	0.59	0.22		0.78	0.84	0.11	0.02	1.04	0.79	0.73	0.46	
Uniform Delay, d1	53.5	50.9		51.7	52.3	45.5	20.7	37.2	32.0	33.0	20.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.2	0.5		18.0	26.8	0.2	0.0	33.8	11.9	12.4	0.8	
Delay (s)	67.7	51.4		69.8	79.1	45.7	20.7	71.1	43.9	45.4	21.7	
Level of Service	E	D		E	E	D	C	E	D	D	C	
Approach Delay (s)		54.0			64.4			64.2			25.4	
Approach LOS		D			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	53.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	131.1	Sum of lost time (s)	23.4
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	14	78	7	38	233	169	683	8	54	497	24
Future Volume (Veh/h)	11	14	78	7	38	233	169	683	8	54	497	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	11	14	79	7	38	235	171	690	8	55	502	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1898	1652	502	1734	1672	694	526			698		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1898	1652	502	1734	1672	694	526			698		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	11	82	86	84	50	47	84			94		
cM capacity (veh/h)	12	78	571	43	76	446	1046			889		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	104	280	171	698	55	502	24
Volume Left	11	7	171	0	55	0	0
Volume Right	79	235	0	8	0	0	24
cSH	86	236	1046	1700	889	1700	1700
Volume to Capacity	1.21	1.19	0.16	0.41	0.06	0.30	0.01
Queue Length 95th (m)	56.8	101.7	4.4	0.0	1.5	0.0	0.0
Control Delay (s)	252.8	162.4	9.1	0.0	9.3	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	252.8	162.4	1.8		0.9		
Approach LOS	F	F					

Intersection Summary				
Average Delay	40.3			
Intersection Capacity Utilization	67.7%	ICU Level of Service	C	
Analysis Period (min)	15			

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APPENDIX G:
2035 Future Background Traffic Analysis

NT-25-078
12944 Albion Vaughan Road
Town of Caledon

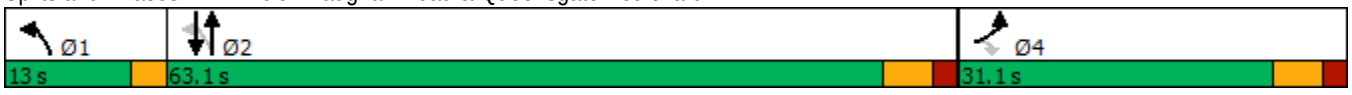
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	271	173	49	386	925
Future Volume (vph)	271	173	49	386	925
Lane Group Flow (vph)	277	177	50	394	1230
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.78	0.38	0.27	0.42	1.17
Control Delay	52.7	7.6	9.0	14.0	110.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	7.6	9.0	14.0	110.5
Queue Length 50th (m)	50.4	0.0	2.6	40.2	~290.3
Queue Length 95th (m)	79.0	16.3	6.7	69.7	#397.6
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	456	547	245	941	1049
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.32	0.20	0.42	1.17

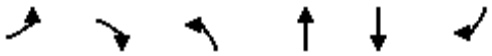
Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 96.9
Natural Cycle: 150
Control Type: Semi Act-Uncoord

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

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	271	173	49	386	925	280
Future Volume (vph)	271	173	49	386	925	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1601	1659	1588	1754	
Flt Permitted	0.95	1.00	0.07	1.00	1.00	
Satd. Flow (perm)	1755	1601	121	1588	1754	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	277	177	50	394	944	286
RTOR Reduction (vph)	0	141	0	0	9	0
Lane Group Flow (vph)	277	36	50	394	1221	0
Heavy Vehicles (%)	4%	2%	10%	21%	7%	3%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	19.7	19.7	62.7	57.5	57.5	
Effective Green, g (s)	19.7	19.7	62.7	57.5	57.5	
Actuated g/C Ratio	0.20	0.20	0.64	0.59	0.59	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	354	323	159	935	1033	
v/s Ratio Prot	c0.16		c0.02	0.25	c0.70	
v/s Ratio Perm		0.02	0.18			
v/c Ratio	0.78	0.11	0.31	0.42	1.18	
Uniform Delay, d1	36.9	31.8	21.5	11.0	20.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.7	0.2	1.1	1.4	92.0	
Delay (s)	47.7	32.0	22.7	12.4	112.0	
Level of Service	D	C	C	B	F	
Approach Delay (s)	41.5			13.5	112.0	
Approach LOS	D			B	F	

Intersection Summary			
HCM 2000 Control Delay	76.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	15.2
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	188	43	25	274	68	61	38	55	145	36	40
Future Vol, veh/h	20	188	43	25	274	68	61	38	55	145	36	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	4	2	0	4	3	2	13	2	2	8	5
Mvmt Flow	22	211	48	28	308	76	69	43	62	163	40	45
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.5	12.4	13.1	16
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	25%	0%	100%	59%	0%	100%	57%	16%
Vol Right, %	36%	0%	0%	41%	0%	0%	43%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	20	125	106	25	183	159	221
LT Vol	61	20	0	0	25	0	0	145
Through Vol	38	0	125	63	0	183	91	36
RT Vol	55	0	0	43	0	0	68	40
Lane Flow Rate	173	22	141	119	28	205	179	248
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.33	0.045	0.264	0.212	0.055	0.374	0.31	0.479
Departure Headway (Hd)	6.869	7.285	6.754	6.427	6.998	6.556	6.232	6.939
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	519	488	528	553	508	544	573	516
Service Time	4.668	5.084	4.553	4.225	4.789	4.345	4.022	4.727
HCM Lane V/C Ratio	0.333	0.045	0.267	0.215	0.055	0.377	0.312	0.481
HCM Control Delay	13.1	10.4	12	11	10.2	13.3	11.8	16
HCM Lane LOS	B	B	B	B	B	B	B	C
HCM 95th-tile Q	1.4	0.1	1.1	0.8	0.2	1.7	1.3	2.6

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

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	19	220	3	2	369	8	3	0	6	22	0	39
Future Vol, veh/h	19	220	3	2	369	8	3	0	6	22	0	39
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	5	2	0	2	13	0	0	0	0	0	0
Mvmt Flow	23	265	4	2	445	10	4	0	7	27	0	47
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

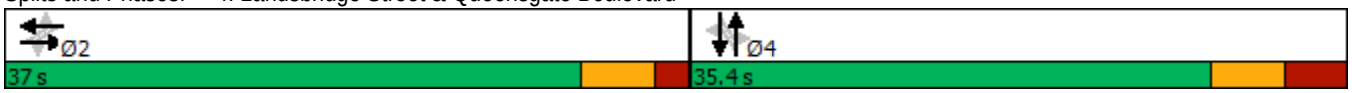
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.4	10.7	8.8	9.4
HCM LOS	A	B	A	A

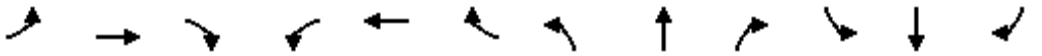
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	36%
Vol Thru, %	0%	0%	100%	96%	0%	100%	94%	0%
Vol Right, %	67%	0%	0%	4%	0%	0%	6%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	19	147	76	2	246	131	61
LT Vol	3	19	0	0	2	0	0	22
Through Vol	0	0	147	73	0	246	123	0
RT Vol	6	0	0	3	0	0	8	39
Lane Flow Rate	11	23	177	92	2	296	158	73
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.018	0.036	0.257	0.132	0.004	0.415	0.227	0.119
Departure Headway (Hd)	5.915	5.661	5.245	5.166	5.51	5.042	5.187	5.835
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	601	631	682	692	648	711	691	611
Service Time	3.692	3.409	2.992	2.913	3.252	2.784	2.929	3.6
HCM Lane V/C Ratio	0.018	0.036	0.26	0.133	0.003	0.416	0.229	0.119
HCM Control Delay	8.8	8.6	9.8	8.7	8.3	11.3	9.5	9.4
HCM Lane LOS	A	A	A	A	A	B	A	A
HCM 95th-tile Q	0.1	0.1	1	0.5	0	2	0.9	0.4

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	183	10	359	188	61	25	41
Future Volume (vph)	30	183	10	359	188	61	25	41
Lane Group Flow (vph)	34	293	11	463	214	109	28	117
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.09	0.20	0.03	0.31	0.43	0.15	0.06	0.17
Control Delay	13.3	9.4	12.3	13.5	19.7	10.4	14.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	9.4	12.3	13.5	19.7	10.4	14.4	7.7
Queue Length 50th (m)	2.7	8.7	0.8	19.6	20.8	5.8	2.3	3.9
Queue Length 95th (m)	7.5	15.3	3.4	28.6	37.1	14.5	6.7	12.7
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	366	1482	426	1515	498	712	505	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.20	0.03	0.31	0.43	0.15	0.06	0.17

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	183	75	10	359	48	188	61	35	25	41	62
Future Volume (vph)	30	183	75	10	359	48	188	61	35	25	41	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3352		1649	3505		1797	1778		1808	1686	
Flt Permitted	0.48	1.00		0.57	1.00		0.68	1.00		0.69	1.00	
Satd. Flow (perm)	857	3352		994	3505		1290	1778		1307	1686	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	34	208	85	11	408	55	214	69	40	28	47	70
RTOR Reduction (vph)	0	49	0	0	14	0	0	25	0	0	43	0
Lane Group Flow (vph)	34	244	0	11	449	0	214	84	0	28	74	0
Confl. Peds. (#/hr)	2		6	6		2	8		14	14		8
Heavy Vehicles (%)	7%	3%	4%	10%	2%	2%	1%	2%	0%	0%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	366	1435		425	1500		498	687		505	652	
v/s Ratio Prot		0.07			c0.13			0.05			0.04	
v/s Ratio Perm	0.04			0.01			c0.17			0.02		
v/c Ratio	0.09	0.17		0.03	0.30		0.43	0.12		0.06	0.11	
Uniform Delay, d1	12.3	12.8		12.0	13.6		16.3	14.3		13.9	14.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.1	0.5		2.7	0.4		0.2	0.4	
Delay (s)	12.8	13.0		12.1	14.1		19.0	14.7		14.1	14.6	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		13.0			14.0			17.6			14.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

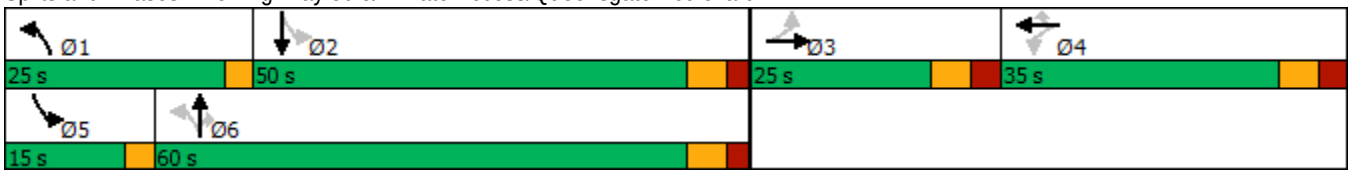
c Critical Lane Group

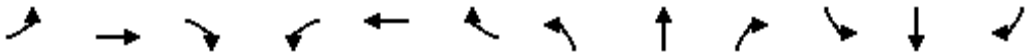
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	0	510	0	107	2	831	194	117	1162
Future Volume (vph)	0	510	0	107	2	831	194	117	1162
Lane Group Flow (vph)	3	277	277	116	2	903	211	127	1264
Turn Type	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3		4		1	6		5	2
Permitted Phases		4		4	6		6	2	
Detector Phase	3	4	4	4	1	6	6	5	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	25.0	35.0	35.0	35.0	25.0	60.0	60.0	15.0	50.0
Total Split (%)	18.5%	25.9%	25.9%	25.9%	18.5%	44.4%	44.4%	11.1%	37.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.01	0.81	0.81	0.23	0.01	0.54	0.25	0.34	0.61
Control Delay	0.0	59.6	59.6	5.8	10.0	22.4	3.9	11.5	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	59.6	59.6	5.8	10.0	22.4	3.9	11.5	17.6
Queue Length 50th (m)	0.0	57.5	57.5	0.0	0.2	66.1	1.0	9.3	77.3
Queue Length 95th (m)	0.0	#124.2	#124.2	11.4	1.3	109.9	15.4	22.8	155.9
Internal Link Dist (m)	56.1		149.0			696.2			599.8
Turn Bay Length (m)		70.0			30.0		70.0	90.0	
Base Capacity (vph)	462	341	341	502	494	1669	857	396	2082
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.81	0.81	0.23	0.00	0.54	0.25	0.32	0.61

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 111
Natural Cycle: 145
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard

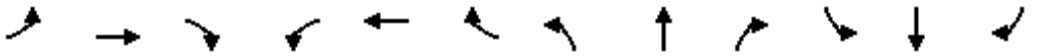




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	510	0	107	2	831	194	117	1162	1
Future Volume (vph)	0	0	3	510	0	107	2	831	194	117	1162	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1610		1696	1696	1593	1825	3444	1555	1755	3543	
Flt Permitted		1.00		0.76	0.76	1.00	0.16	1.00	1.00	0.21	1.00	
Satd. Flow (perm)		1610		1350	1350	1593	301	3444	1555	394	3543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	554	0	116	2	903	211	127	1263	1
RTOR Reduction (vph)	0	3	0	0	0	89	0	0	106	0	0	0
Lane Group Flow (vph)	0	0	0	277	277	27	2	903	105	127	1264	0
Confl. Peds. (#/hr)	3		2	2		3	4					4
Heavy Vehicles (%)	0%	0%	0%	2%	0%	1%	0%	6%	5%	4%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)		1.4		28.1	28.1	28.1	57.2	56.2	56.2	69.2	65.2	
Effective Green, g (s)		1.4		28.1	28.1	28.1	57.2	56.2	56.2	69.2	65.2	
Actuated g/C Ratio		0.01		0.24	0.24	0.24	0.48	0.47	0.47	0.58	0.55	
Clearance Time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		18		318	318	375	157	1625	733	343	1939	
v/s Ratio Prot		c0.00					0.00	0.26		c0.03	c0.36	
v/s Ratio Perm				c0.21	0.21	0.02	0.01		0.07	0.18		
v/c Ratio		0.00		0.87	0.87	0.07	0.01	0.56	0.14	0.37	0.65	
Uniform Delay, d1		58.2		43.8	43.8	35.4	17.2	22.5	17.8	13.2	19.0	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		22.0	22.0	0.1	0.0	1.4	0.4	0.7	1.7	
Delay (s)		58.2		65.7	65.7	35.5	17.2	23.9	18.2	13.9	20.7	
Level of Service		E		E	E	D	B	C	B	B	C	
Approach Delay (s)		58.2			60.5			22.8			20.1	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	23.4
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	31	123	4	3	39	39	382	6	346	739	23
Future Volume (Veh/h)	11	31	123	4	3	39	39	382	6	346	739	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	33	129	4	3	41	41	402	6	364	778	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2032	1996	778	2138	2017	405	802			408		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2032	1996	778	2138	2017	405	802			408		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	56	17	68	29	92	94	95			68		
cM capacity (veh/h)	28	40	400	6	38	631	808			1151		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	174	48	41	408	364	778	24
Volume Left	12	4	41	0	364	0	0
Volume Right	129	41	0	6	0	0	24
cSH	109	57	808	1700	1151	1700	1700
Volume to Capacity	1.59	0.85	0.05	0.24	0.32	0.46	0.01
Queue Length 95th (m)	99.4	28.5	1.2	0.0	10.4	0.0	0.0
Control Delay (s)	375.0	194.5	9.7	0.0	9.6	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	375.0	194.5	0.9		3.0		
Approach LOS	F	F					

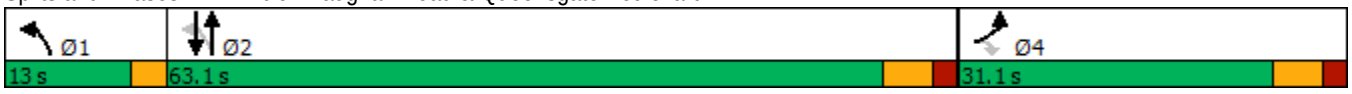
Intersection Summary				
Average Delay	42.7			
Intersection Capacity Utilization	64.3%	ICU Level of Service	C	
Analysis Period (min)	15			

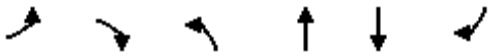
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	379	129	199	818	516
Future Volume (vph)	379	129	199	818	516
Lane Group Flow (vph)	395	134	207	852	816
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.94	0.28	0.67	0.88	0.95
Control Delay	73.1	7.4	20.3	34.5	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	7.4	20.3	34.5	45.2
Queue Length 50th (m)	81.2	0.0	13.9	151.2	151.2
Queue Length 95th (m)	#137.5	14.6	31.0	#235.3	#239.4
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	426	487	322	965	856
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.93	0.28	0.64	0.88	0.95

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 106
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	379	129	199	818	516	267
Future Volume (vph)	379	129	199	818	516	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1633	1807	1795	1560	
Flt Permitted	0.95	1.00	0.14	1.00	1.00	
Satd. Flow (perm)	1807	1633	268	1795	1560	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	395	134	207	852	538	278
RTOR Reduction (vph)	0	103	0	0	17	0
Lane Group Flow (vph)	395	31	207	852	799	0
Heavy Vehicles (%)	1%	0%	1%	7%	26%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	24.6	24.6	66.2	57.0	57.0	
Effective Green, g (s)	24.6	24.6	66.2	57.0	57.0	
Actuated g/C Ratio	0.23	0.23	0.62	0.54	0.54	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	419	378	300	965	838	
v/s Ratio Prot	c0.22		c0.06	0.47	c0.51	
v/s Ratio Perm		0.02	0.37			
v/c Ratio	0.94	0.08	0.69	0.88	0.95	
Uniform Delay, d1	40.0	31.9	16.5	21.6	23.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	29.7	0.1	6.5	11.5	21.6	
Delay (s)	69.7	32.0	23.0	33.1	44.9	
Level of Service	E	C	C	C	D	
Approach Delay (s)	60.1			31.1	44.9	
Approach LOS	E			C	D	

Intersection Summary			
HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	362	66	35	324	150	46	28	35	71	11	25
Future Vol, veh/h	64	362	66	35	324	150	46	28	35	71	11	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	1	1	0	4	3	0	9	4
Mvmt Flow	72	407	74	39	364	169	52	31	39	80	12	28
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13	13.3	12.6	12.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	42%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	26%	0%	100%	65%	0%	100%	42%	10%
Vol Right, %	32%	0%	0%	35%	0%	0%	58%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	64	241	187	35	216	258	107
LT Vol	46	64	0	0	35	0	0	71
Through Vol	28	0	241	121	0	216	108	11
RT Vol	35	0	0	66	0	0	150	25
Lane Flow Rate	122	72	271	210	39	243	290	120
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.25	0.134	0.469	0.347	0.073	0.419	0.468	0.251
Departure Headway (Hd)	7.335	6.724	6.232	5.963	6.713	6.222	5.807	7.517
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	486	531	575	600	531	575	617	475
Service Time	5.123	4.498	4.006	3.736	4.486	3.994	3.58	5.306
HCM Lane V/C Ratio	0.251	0.136	0.471	0.35	0.073	0.423	0.47	0.253
HCM Control Delay	12.6	10.5	14.5	11.9	10	13.5	13.6	12.8
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	1	0.5	2.5	1.5	0.2	2.1	2.5	1

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

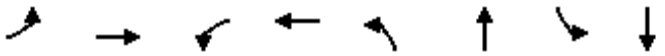
Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	501	4	1	352	33	11	2	1	11	0	30
Future Vol, veh/h	59	501	4	1	352	33	11	2	1	11	0	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	63	539	4	1	378	35	12	2	1	12	0	32
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.4	10.4	10	9.5
HCM LOS	B	B	A	A

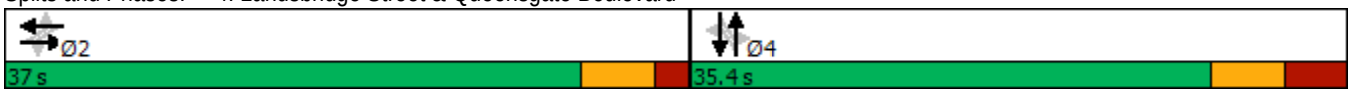
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	79%	100%	0%	0%	100%	0%	0%	27%
Vol Thru, %	14%	0%	100%	98%	0%	100%	78%	0%
Vol Right, %	7%	0%	0%	2%	0%	0%	22%	73%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	59	334	171	1	235	150	41
LT Vol	11	59	0	0	1	0	0	11
Through Vol	2	0	334	167	0	235	117	0
RT Vol	1	0	0	4	0	0	33	30
Lane Flow Rate	15	63	359	184	1	252	162	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.029	0.098	0.503	0.257	0.002	0.368	0.228	0.076
Departure Headway (Hd)	6.951	5.583	5.047	5.031	5.737	5.252	5.081	6.17
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	511	640	711	712	622	681	703	576
Service Time	4.747	3.333	2.797	2.781	3.492	3.007	2.835	3.957
HCM Lane V/C Ratio	0.029	0.098	0.505	0.258	0.002	0.37	0.23	0.076
HCM Control Delay	10	8.9	12.8	9.5	8.5	11.1	9.3	9.5
HCM Lane LOS	A	A	B	A	A	B	A	A
HCM 95th-tile Q	0.1	0.3	2.9	1	0	1.7	0.9	0.2



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	475	33	289	108	58	63	75
Future Volume (vph)	88	475	33	289	108	58	63	75
Lane Group Flow (vph)	90	697	34	361	110	83	64	147
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.21	0.45	0.13	0.24	0.43	0.12	0.12	0.20
Control Delay	14.6	13.1	14.2	11.9	22.7	11.4	15.2	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	13.1	14.2	11.9	22.7	11.4	15.2	9.1
Queue Length 50th (m)	7.4	27.5	2.7	13.6	10.7	5.0	5.5	6.5
Queue Length 95th (m)	16.3	40.7	8.1	21.7	24.7	12.9	12.8	17.2
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	438	1542	269	1527	258	706	518	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.45	0.13	0.24	0.43	0.12	0.12	0.20

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	475	208	33	289	65	108	58	24	63	75	69
Future Volume (vph)	88	475	208	33	289	65	108	58	24	63	75	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1817	3444		1820	3504		958	1789		1811	1753	
Flt Permitted	0.54	1.00		0.33	1.00		0.66	1.00		0.70	1.00	
Satd. Flow (perm)	1025	3444		631	3504		669	1789		1340	1753	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	90	485	212	34	295	66	110	59	24	64	77	70
RTOR Reduction (vph)	0	68	0	0	26	0	0	15	0	0	43	0
Lane Group Flow (vph)	90	629	0	34	335	0	110	68	0	64	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		11	11		5
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%	90%	3%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	438	1474		270	1500		258	691		518	677	
v/s Ratio Prot		c0.18			0.10			0.04			0.06	
v/s Ratio Perm	0.09			0.05			c0.16			0.05		
v/c Ratio	0.21	0.43		0.13	0.22		0.43	0.10		0.12	0.15	
Uniform Delay, d1	13.0	14.5		12.5	13.1		16.3	14.2		14.3	14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.9		1.0	0.3		5.1	0.3		0.5	0.5	
Delay (s)	14.0	15.4		13.5	13.4		21.4	14.4		14.8	15.0	
Level of Service	B	B		B	B		C	B		B	B	
Approach Delay (s)		15.2			13.4			18.4			14.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

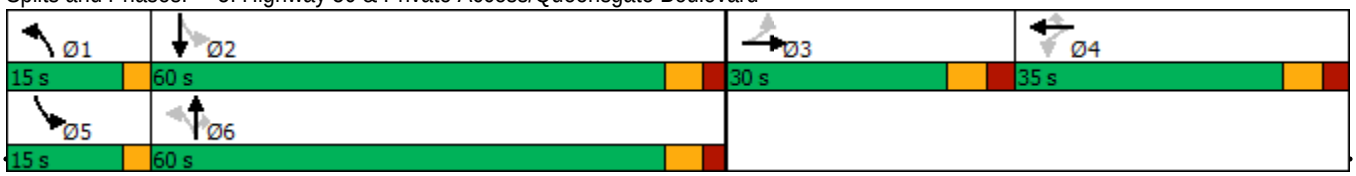
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	27	334	1	168	5	1710	575	163	879
Future Volume (vph)	33	27	334	1	168	5	1710	575	163	879
Lane Group Flow (vph)	34	185	174	175	175	5	1781	599	170	916
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		3		4		1	6		5	2
Permitted Phases	3		4		4	6		6	2	
Detector Phase	3	3	4	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	30.0	30.0	35.0	35.0	35.0	15.0	60.0	60.0	15.0	60.0
Total Split (%)	21.4%	21.4%	25.0%	25.0%	25.0%	10.7%	42.9%	42.9%	10.7%	42.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.59	0.52	0.82	0.88	0.40	0.02	1.20	0.95	0.78	0.50
Control Delay	93.3	17.3	80.4	91.3	9.4	17.0	130.5	46.9	53.8	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.3	17.3	80.4	91.3	9.4	17.0	130.5	46.9	53.8	24.4
Queue Length 50th (m)	8.7	6.7	47.5	48.5	0.0	0.7	~322.2	106.5	29.6	87.0
Queue Length 95th (m)	#22.4	28.7	#86.1	#91.1	19.4	2.9	#371.3	#192.3	#67.4	123.3
Internal Link Dist (m)		56.1		149.0			696.2			599.8
Turn Bay Length (m)			70.0			30.0		70.0	90.0	
Base Capacity (vph)	77	420	244	228	474	393	1488	632	227	1820
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.44	0.71	0.77	0.37	0.01	1.20	0.95	0.75	0.50

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 131.2
Natural Cycle: 145
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

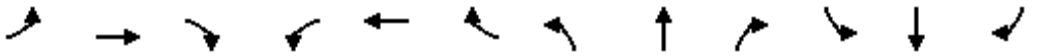
Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	27	151	334	1	168	5	1710	575	163	879	0
Future Volume (vph)	33	27	151	334	1	168	5	1710	575	163	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1816	1645		1686	1691	1569	1823	3614	1147	1825	3579	
Flt Permitted	0.23	1.00		0.64	0.60	1.00	0.27	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	437	1645		1138	1064	1569	515	3614	1147	129	3579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	28	157	348	1	175	5	1781	599	170	916	0
RTOR Reduction (vph)	0	136	0	0	0	143	0	0	157	0	0	0
Lane Group Flow (vph)	34	49	0	174	175	32	5	1781	442	170	916	0
Confl. Peds. (#/hr)	7		9	9		7	9		4	4		9
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	40%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)	17.5	17.5		24.7	24.7	24.7	57.7	56.5	56.5	70.9	66.7	
Effective Green, g (s)	17.5	17.5		24.7	24.7	24.7	57.7	56.5	56.5	70.9	66.7	
Actuated g/C Ratio	0.13	0.13		0.19	0.19	0.19	0.43	0.42	0.42	0.53	0.50	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	57	215		210	196	290	234	1529	485	213	1788	
v/s Ratio Prot		0.03					0.00	c0.49		c0.07	0.26	
v/s Ratio Perm	c0.08			0.15	c0.16	0.02	0.01		0.39	0.35		
v/c Ratio	0.60	0.23		0.83	0.89	0.11	0.02	1.16	0.91	0.80	0.51	
Uniform Delay, d1	54.7	51.9		52.4	53.1	45.3	21.8	38.5	36.2	36.2	22.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.6	0.5		22.8	36.1	0.2	0.0	81.7	23.9	18.5	1.1	
Delay (s)	70.3	52.5		75.1	89.2	45.4	21.8	120.2	60.1	54.7	23.5	
Level of Service	E	D		E	F	D	C	F	E	D	C	
Approach Delay (s)		55.2			69.9			104.9			28.4	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	78.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	133.5	Sum of lost time (s)	23.4
Intersection Capacity Utilization	106.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	14	78	7	38	257	169	754	9	60	549	24
Future Volume (Veh/h)	11	14	78	7	38	257	169	754	9	60	549	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	11	14	79	7	38	260	171	762	9	61	555	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2060	1790	555	1872	1810	766	579			771		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2060	1790	555	1872	1810	766	579			771		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	78	85	79	38	36	83			93		
cM capacity (veh/h)	6	63	533	33	61	406	1000			835		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	104	305	171	771	61	555	24
Volume Left	11	7	171	0	61	0	0
Volume Right	79	260	0	9	0	0	24
cSH	46	207	1000	1700	835	1700	1700
Volume to Capacity	2.24	1.48	0.17	0.45	0.07	0.33	0.01
Queue Length 95th (m)	82.1	140.6	4.7	0.0	1.8	0.0	0.0
Control Delay (s)	755.7	281.7	9.3	0.0	9.7	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	755.7	281.7	1.7		0.9		
Approach LOS	F	F					

Intersection Summary				
Average Delay	83.7			
Intersection Capacity Utilization	72.9%	ICU Level of Service	C	
Analysis Period (min)	15			

nexTrans
CONSULTING ENGINEERS

APPENDIX H:
2022 TTS Data Extraction & Distribution

NT-25-078
12944 Albion Vaughan Road
Town of Caledon

Corridor	Direction	AM		PM	
		Inbound	Outbound	Inbound	Outbound
Albion Vaughan Road	North	62%	5%	32%	7%
C1	South	3%	58%	36%	28%
Highway 50	North	23%	30%	20%	65%
J4	South	12%	8%	12%	0%
Total		**100%**	**100%**	**100%**	**100%**
G1					
54					
J7					
W3					
W2					

AM inbound

Fri Dec 12 2025 11:06:21 GMT-0500 (Eastern Standard Time) - Run Time: 3197ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpose - trip_purp In 1 3
and
Planning district of origin - p
and
2006 GTA zone of destination - gta06_dest In 3192
and
Primary travel mode of trip -

Trip 2022
Table:

	1
King	44
Vaughan	111
Brampton	106
Mississauga	41
Guelph	9
Orangeville	23
Innisfil	7
Adjala-Tosorontio	19

TAZ/PD	Trips	Distribution	Via
King	44	4%	AV SB
Vaughan	111	9%	AV SB
Brampton	106	9%	AV SB
Mississauga	41	3%	AV NB
Guelph	9	1%	AV SB
Orangeville	23	2%	AV SB
Innisfil	7	1%	AV SB
Adjala-Tosorontio	19	2%	AV SB
3100	70	6%	AV SB
3152	23	2%	AV SB
3,153	126	11%	AV SB
3,190	138	12%	HWY50 NB
3,192	265	23%	HWY50 SB
3,193	125	11%	AV SB
3194	63	5%	AV SB
3195	4	0%	AV SB
Total	1174	100%	

Row Labels	Sum of Distribution
AV NB	3%
AV SB	62%
HWY50 NB	12%
HWY50 SB	23%
Grand Total	**100%**

PM inbound

Fri Dec 12 2025 11:08:55 GMT-0500 (Eastern Standard Time) - Run Time: 3144ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpose **3**
and
Planning dis
and
2006 GTA zone of destination - gta06_dest In 3192
and
Primary trav

Trip 2022
Table:

	1
PD 2 of Tor	**41**
PD 4 of Tor	**45**
PD 5 of Tor	**10**
PD 8 of Tor	**104**
PD 9 of Tor	**42**
PD 10 of To	**52**
PD 11 of To	**18**
King	**114**
Vaughan	**282**
Brampton	**87**
Mississauga	**188**
Milton	**34**
Burlington	**68**
Mono	**9**
Southgate	**75**

TAZ/PD	Trips	Distribution	Via
PD 2 of Toronto	41	2%	AV SB
PD 4 of Toronto	45	2%	AV SB
PD 5 of Toronto	10	0%	AV SB
PD 8 of Toronto	104	5%	AV SB
PD 9 of Toronto	42	2%	AV NB
PD 10 of Toronto	52	2%	AV NB
PD 11 of Toronto	18	1%	AV NB
King	114	5%	AV SB
Vaughan	282	13%	AV NB
Brampton	87	4%	AV NB
Mississauga	188	9%	AV NB
Milton	34	2%	AV NB
Burlington	68	3%	AV NB
Mono	9	0%	AV SB
Southgate	75	3%	AV SB
3003	11	1%	HWY50 SB
3015	49	2%	HWY50 SB
3017	12	1%	AV NB
3152	18	1%	AV SB
3153	11	1%	AV SB
3190	155	7%	HWY50 NB
3191	93	4%	HWY50 NB
3192	312	14%	HWY50 SB
3193	111	5%	AV SB
3194	156	7%	AV SB
3197	53	2%	HWY50 SB
3199	4	0%	AV SB
Total	**2154**	**100%**	

Row Labels	Sum of Distribution
AV NB	36%
AV SB	32%
HWY50 NB	12%
HWY50 SB	20%
Grand Total	**100%**

Fri Dec 12 2025 11:11:30 GMT-0500 (Eastern Standard Time) - Run Time: 3156ms

Cross Tabulation Query Form - Trip - 2022

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

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpose - trip_purp In 1 3
and
Planning district of origin - p
and
2006 GTA zone of destination - gta06_dest In 3192
and
Primary travel mode of trip -

Trip 2022
Table:

	1
3100	70
3152	23
3,153	126
3,190	138
3,192	265
3,193	125
3194	63
3195	4

Fri Dec 12 2025 11:11:04 GMT-0500 (Eastern Standard Time) - Run Time: 3228ms

Cross Tabulation Query Form - Trip - 2022

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

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpose **3**
and
Planning dis
and
2006 GTA zone of destination - gta06_dest In 3192
and
Primary trav

Trip 2022
Table:

	1
3003	**11**
3015	**49**
3017	**12**
3152	**18**
3153	**11**
3,190	**155**
3191	**93**
3,192	**312**
3,193	**111**
3,194	**156**
3197	**53**
3199	**4**

AM outbound

Fri Dec 12 2025 11:15:12 GMT-0500 (Eastern Standard Time) - Run Time: 3339ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpose 3
and
Planning dis
and
2006 GTA zone of origin - gta06_orig In 3192
and
Primary trav

Trip 2022
Table:

	1
PD 3 of Tor	30
PD 8 of Tor	103
PD 9 of Tor	45
PD 10 of To	96
PD 11 of To	9
Aurora	10
King	59
Vaughan	190
Brampton	144
Mississauga	179
Oakville	36
Hastings	9
Haliburton	10
Mono	5

TAZ/PD	Trips	Distribution	Via
PD 3 of Toronto	30	2%	AV SB
PD 8 of Toronto	103	6%	AV SB
PD 9 of Toronto	45	2%	AV SB
PD 10 of Toronto	96	5%	AV SB
PD 11 of Toronto	9	0%	AV SB
Aurora	10	1%	AV NB
King	59	3%	AV NB
Vaughan	190	10%	AV SB
Brampton	144	8%	AV SB
Mississauga	179	10%	AV SB
Oakville	36	2%	AV SB
Hastings	9	0%	AV SB
Haliburton	10	1%	AV NB
Mono	5	0%	AV NB
3013	22	1%	AV SB
3151	55	3%	HWY50 NB
3152	41	2%	HWY50 NB
3153	62	3%	HWY50 NB
3,190	212	11%	AV SB
3,191	149	8%	HWY50 SB
3,192	265	14%	HWY50 NB
3193	80	4%	HWY50 NB
3194	46	2%	HWY50 NB
3197	9	0%	HWY50 NB
Total	1866	100%	

Row Labels	Sum of Distribution
AV NB	5%
AV SB	58%
HWY50 NB	30%
HWY50 SB	8%
Grand Total	**100%**

PM outbound

Fri Dec 12 2025 11:15:44 GMT-0500 (Eastern Standard Time) - Run Time: 3052ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpose 3
and
Planning dis
and
2006 GTA zone of origin - gta06_orig In 3192
and
Primary trav

Trip 2022
Table:

	1
PD 2 of Tor	13
Uxbridge	32
Scugog	11
Oshawa	21
King	29
Vaughan	93
Brampton	165
Mississauga	14
Orangeville	31
Adjala-Toso	19

TAZ/PD	Trips	Distribution	Via
PD 2 of Toronto	13	1%	AV SB
Uxbridge	32	2%	AV NB
Scugog	11	1%	AV NB
Oshawa	21	1%	AV NB
King	29	2%	AV NB
Vaughan	93	6%	AV SB
Brampton	165	11%	AV SB
Mississauga	14	1%	AV SB
Orangeville	31	2%	HWY50 NB
Adjala-Tosorontio	19	1%	HWY50 NB
3153	11	1%	HWY50 NB
3189	63	4%	HWY50 NB
3,190	126	9%	AV SB
3,192	312	21%	HWY50 NB
3,193	297	20%	HWY50 NB
3,194	172	12%	HWY50 NB
3197	42	3%	HWY50 NB
3199	4	0%	AV NB
Total	1455	100%	

Row Labels	Sum of Distribution
AV NB	7%
AV SB	28%
HWY50 NB	65%
Grand Total	**100%**

Fri Dec 12 2025 11:16:32 GMT-0500 (Eastern Standard Time) - Run Time: 3213ms

Cross Tabulation Query Form - Trip - 2022

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

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpose 3
and
Planning dis
and
2006 GTA zone of origin - gta06_orig In 3192
and
Primary trav

Trip 2022
Table:

	1
3013	22
3151	55
3152	41
3153	62
3,190	212
3,191	149
3,192	265
3193	80
3194	46
3197	9

Fri Dec 12 2025 11:16:12 GMT-0500 (Eastern Standard Time) - Run Time: 3044ms

Cross Tabulation Query Form - Trip - 2022

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

RowG:
ColG:(3192)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpose 3
and
Planning dis
and
2006 GTA zone of origin - gta06_orig In 3192
and
Primary trav

Trip 2022
Table:

	1
3153	11
3189	63
3,190	126
3,192	312
3,193	297
3,194	172
3197	42
3199	4

nexTrans
CONSULTING ENGINEERS

APPENDIX I:
2030 Future Total Traffic Analysis

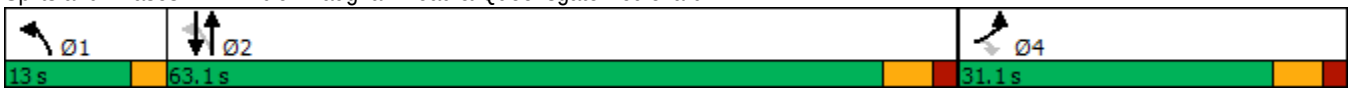
NT-25-078
12944 Albion Vaughan Road
Town of Caledon

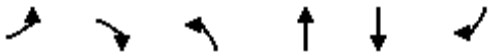
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	254	171	44	350	838
Future Volume (vph)	254	171	44	350	838
Lane Group Flow (vph)	259	174	45	357	1118
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.75	0.38	0.24	0.37	1.03
Control Delay	50.1	7.7	8.3	12.3	57.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	7.7	8.3	12.3	57.5
Queue Length 50th (m)	46.5	0.0	2.2	34.0	~238.5
Queue Length 95th (m)	73.8	16.1	6.3	61.5	#347.2
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	472	557	250	974	1083
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	0.31	0.18	0.37	1.03

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 93.9
Natural Cycle: 110
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	254	171	44	350	838	258
Future Volume (vph)	254	171	44	350	838	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1601	1659	1588	1754	
Flt Permitted	0.95	1.00	0.07	1.00	1.00	
Satd. Flow (perm)	1755	1601	121	1588	1754	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	259	174	45	357	855	263
RTOR Reduction (vph)	0	140	0	0	9	0
Lane Group Flow (vph)	259	34	45	357	1109	0
Heavy Vehicles (%)	4%	2%	10%	21%	7%	3%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	18.5	18.5	61.4	57.6	57.6	
Effective Green, g (s)	18.5	18.5	61.4	57.6	57.6	
Actuated g/C Ratio	0.19	0.19	0.65	0.61	0.61	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	341	311	139	961	1062	
v/s Ratio Prot	c0.15		c0.01	0.22	c0.63	
v/s Ratio Perm		0.02	0.19			
v/c Ratio	0.76	0.11	0.32	0.37	1.04	
Uniform Delay, d1	36.2	31.5	21.6	9.5	18.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.4	0.2	1.4	1.1	40.0	
Delay (s)	45.6	31.7	23.0	10.6	58.7	
Level of Service	D	C	C	B	E	
Approach Delay (s)	40.0			12.0	58.7	
Approach LOS	D			B	E	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	95.1	Sum of lost time (s)	15.2
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	12.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	161	43	25	249	68	61	38	55	145	36	40
Future Vol, veh/h	20	161	43	25	249	68	61	38	55	145	36	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	4	2	0	4	3	2	13	2	2	8	5
Mvmt Flow	22	181	48	28	280	76	69	43	62	163	40	45
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11	11.8	12.6	15.4
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	25%	0%	100%	56%	0%	100%	55%	16%
Vol Right, %	36%	0%	0%	44%	0%	0%	45%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	20	107	97	25	166	151	221
LT Vol	61	20	0	0	25	0	0	145
Through Vol	38	0	107	54	0	166	83	36
RT Vol	55	0	0	43	0	0	68	40
Lane Flow Rate	173	22	121	109	28	187	170	248
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.321	0.045	0.223	0.19	0.054	0.335	0.289	0.467
Departure Headway (Hd)	6.687	7.195	6.665	6.311	6.906	6.463	6.123	6.768
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	535	495	535	565	516	554	584	529
Service Time	4.471	4.982	4.451	4.096	4.682	4.239	3.899	4.543
HCM Lane V/C Ratio	0.323	0.044	0.226	0.193	0.054	0.338	0.291	0.469
HCM Control Delay	12.6	10.3	11.4	10.6	10.1	12.5	11.4	15.4
HCM Lane LOS	B	B	B	B	B	B	B	C
HCM 95th-tile Q	1.4	0.1	0.8	0.7	0.2	1.5	1.2	2.5

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

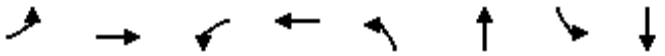
Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	193	3	2	344	8	3	0	6	22	0	39
Future Vol, veh/h	19	193	3	2	344	8	3	0	6	22	0	39
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	5	2	0	2	13	0	0	0	0	0	0
Mvmt Flow	23	233	4	2	414	10	4	0	7	27	0	47
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.1	10.3	8.7	9.2
HCM LOS	A	B	A	A

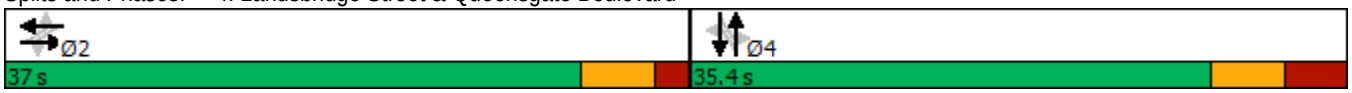
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	36%
Vol Thru, %	0%	0%	100%	96%	0%	100%	93%	0%
Vol Right, %	67%	0%	0%	4%	0%	0%	7%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	19	129	67	2	229	123	61
LT Vol	3	19	0	0	2	0	0	22
Through Vol	0	0	129	64	0	229	115	0
RT Vol	6	0	0	3	0	0	8	39
Lane Flow Rate	11	23	155	81	2	276	148	73
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.017	0.036	0.224	0.116	0.004	0.384	0.211	0.117
Departure Headway (Hd)	5.791	5.626	5.21	5.127	5.475	5.007	5.149	5.718
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	615	636	688	698	653	718	696	625
Service Time	3.557	3.367	2.95	2.868	3.212	2.744	2.886	3.472
HCM Lane V/C Ratio	0.018	0.036	0.225	0.116	0.003	0.384	0.213	0.117
HCM Control Delay	8.7	8.6	9.5	8.5	8.2	10.9	9.3	9.2
HCM Lane LOS	A	A	A	A	A	B	A	A
HCM 95th-tile Q	0.1	0.1	0.9	0.4	0	1.8	0.8	0.4

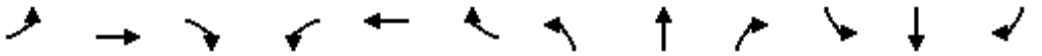


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	156	10	334	188	61	25	41
Future Volume (vph)	30	156	10	334	188	61	25	41
Lane Group Flow (vph)	34	262	11	435	214	109	28	117
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.09	0.18	0.03	0.29	0.43	0.15	0.06	0.17
Control Delay	13.2	8.9	12.3	13.2	19.7	10.4	14.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	8.9	12.3	13.2	19.7	10.4	14.4	7.7
Queue Length 50th (m)	2.7	7.3	0.8	18.2	20.8	5.8	2.3	3.9
Queue Length 95th (m)	7.5	13.4	3.4	26.7	37.1	14.5	6.7	12.7
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	383	1473	438	1514	498	712	505	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.18	0.03	0.29	0.43	0.15	0.06	0.17

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	156	75	10	334	48	188	61	35	25	41	62
Future Volume (vph)	30	156	75	10	334	48	188	61	35	25	41	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3329		1649	3500		1797	1778		1808	1686	
Flt Permitted	0.50	1.00		0.59	1.00		0.68	1.00		0.69	1.00	
Satd. Flow (perm)	894	3329		1024	3500		1290	1778		1307	1686	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	34	177	85	11	380	55	214	69	40	28	47	70
RTOR Reduction (vph)	0	49	0	0	15	0	0	25	0	0	43	0
Lane Group Flow (vph)	34	213	0	11	420	0	214	84	0	28	74	0
Confl. Peds. (#/hr)	2		6	6		2	8		14	14		8
Heavy Vehicles (%)	7%	3%	4%	10%	2%	2%	1%	2%	0%	0%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	382	1425		438	1498		498	687		505	652	
v/s Ratio Prot		0.06			c0.12			0.05			0.04	
v/s Ratio Perm	0.04			0.01			c0.17			0.02		
v/c Ratio	0.09	0.15		0.03	0.28		0.43	0.12		0.06	0.11	
Uniform Delay, d1	12.3	12.6		12.0	13.4		16.3	14.3		13.9	14.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		0.1	0.5		2.7	0.4		0.2	0.4	
Delay (s)	12.8	12.9		12.1	13.9		19.0	14.7		14.1	14.6	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		12.9			13.9			17.6			14.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

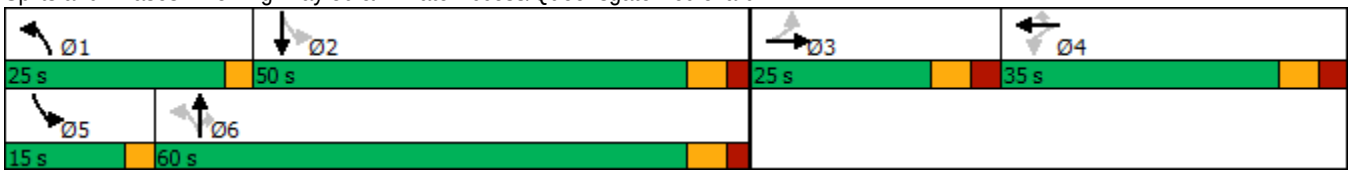
c Critical Lane Group

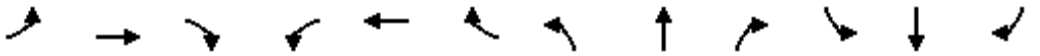
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	0	485	0	107	2	764	177	107	1055
Future Volume (vph)	0	485	0	107	2	764	177	107	1055
Lane Group Flow (vph)	3	263	264	116	2	830	192	116	1148
Turn Type	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3		4		1	6		5	2
Permitted Phases		4		4	6		6	2	
Detector Phase	3	4	4	4	1	6	6	5	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	25.0	35.0	35.0	35.0	25.0	60.0	60.0	15.0	50.0
Total Split (%)	18.5%	25.9%	25.9%	25.9%	18.5%	44.4%	44.4%	11.1%	37.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.01	0.80	0.80	0.24	0.01	0.49	0.22	0.29	0.55
Control Delay	0.0	58.5	58.8	5.9	10.0	21.0	3.4	10.6	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	58.5	58.8	5.9	10.0	21.0	3.4	10.6	16.2
Queue Length 50th (m)	0.0	53.5	53.7	0.0	0.2	58.6	0.0	8.4	66.8
Queue Length 95th (m)	0.0	#115.0	#115.5	11.4	1.3	99.0	13.4	21.2	135.4
Internal Link Dist (m)	56.1		149.0			696.2			599.8
Turn Bay Length (m)		70.0			30.0		70.0	90.0	
Base Capacity (vph)	469	347	347	508	534	1697	863	434	2105
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.76	0.76	0.23	0.00	0.49	0.22	0.27	0.55

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 109.4
Natural Cycle: 145
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard

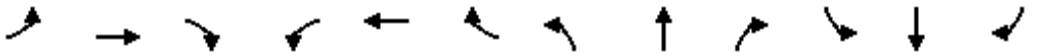




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	485	0	107	2	764	177	107	1055	1
Future Volume (vph)	0	0	3	485	0	107	2	764	177	107	1055	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1610		1696	1696	1593	1825	3444	1555	1755	3543	
Flt Permitted		1.00		0.76	0.76	1.00	0.20	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1610		1350	1350	1593	377	3444	1555	456	3543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	527	0	116	2	830	192	116	1147	1
RTOR Reduction (vph)	0	3	0	0	0	90	0	0	100	0	0	0
Lane Group Flow (vph)	0	0	0	263	264	26	2	830	92	116	1148	0
Confl. Peds. (#/hr)	3		2	2		3	4					4
Heavy Vehicles (%)	0%	0%	0%	2%	0%	1%	0%	6%	5%	4%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)		1.4		26.8	26.8	26.8	57.4	56.4	56.4	69.0	65.0	
Effective Green, g (s)		1.4		26.8	26.8	26.8	57.4	56.4	56.4	69.0	65.0	
Actuated g/C Ratio		0.01		0.23	0.23	0.23	0.49	0.48	0.48	0.59	0.55	
Clearance Time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		19		307	307	363	196	1651	745	373	1958	
v/s Ratio Prot		c0.00					0.00	0.24		c0.03	c0.32	
v/s Ratio Perm				0.19	c0.20	0.02	0.00		0.06	0.16		
v/c Ratio		0.00		0.86	0.86	0.07	0.01	0.50	0.12	0.31	0.59	
Uniform Delay, d1		57.4		43.6	43.6	35.6	16.0	21.0	16.9	12.1	17.4	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		20.3	20.6	0.1	0.0	1.1	0.3	0.5	1.3	
Delay (s)		57.4		63.8	64.2	35.7	16.0	22.1	17.3	12.6	18.7	
Level of Service		E		E	E	D	B	C	B	B	B	
Approach Delay (s)		57.4			58.9			21.2			18.1	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	23.4
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

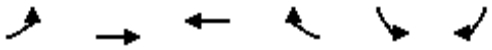
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	31	123	3	3	35	39	347	6	314	680	23
Future Volume (Veh/h)	11	31	123	3	3	35	39	347	6	314	680	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	33	129	3	3	37	41	365	6	331	716	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1864	1831	716	1974	1852	368	740			371		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1864	1831	716	1974	1852	368	740			371		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	69	38	70	77	94	94	95			72		
cM capacity (veh/h)	39	53	434	13	51	662	853			1188		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	174	43	41	371	331	716	24
Volume Left	12	3	41	0	331	0	0
Volume Right	129	37	0	6	0	0	24
cSH	141	125	853	1700	1188	1700	1700
Volume to Capacity	1.23	0.34	0.05	0.22	0.28	0.42	0.01
Queue Length 95th (m)	78.8	10.5	1.1	0.0	8.7	0.0	0.0
Control Delay (s)	211.8	48.1	9.4	0.0	9.2	0.0	0.0
Lane LOS	F	E	A		A		
Approach Delay (s)	211.8	48.1	0.9		2.8		
Approach LOS	F	E					

Intersection Summary				
Average Delay	24.9			
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	415	68	4	11	6
Future Volume (Veh/h)	2	415	68	4	11	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	451	74	4	12	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			92			
pX, platoon unblocked						
vC, conflicting volume	78				306	39
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78				306	39
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1533				667	1031

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	152	301	49	29	19
Volume Left	2	0	0	0	12
Volume Right	0	0	0	4	7
cSH	1533	1700	1700	1700	766
Volume to Capacity	0.00	0.18	0.03	0.02	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.1	0.0	0.0	0.0	9.8
Lane LOS	A				A
Approach Delay (s)	0.0		0.0		9.8
Approach LOS					A

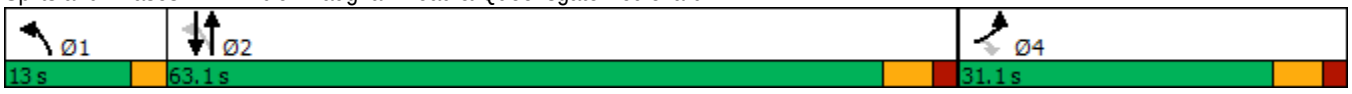
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

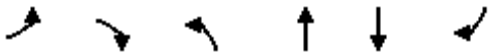
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	337	106	185	742	468
Future Volume (vph)	337	106	185	742	468
Lane Group Flow (vph)	351	110	193	773	745
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.88	0.25	0.51	0.79	0.86
Control Delay	63.3	7.9	11.0	26.8	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	7.9	11.0	26.8	31.5
Queue Length 50th (m)	69.6	0.0	12.8	125.3	124.1
Queue Length 95th (m)	#116.1	13.4	20.8	181.7	#206.3
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	434	475	393	982	871
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.23	0.49	0.79	0.86

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 104.3
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	337	106	185	742	468	247
Future Volume (vph)	337	106	185	742	468	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1633	1807	1795	1560	
Flt Permitted	0.95	1.00	0.20	1.00	1.00	
Satd. Flow (perm)	1807	1633	382	1795	1560	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	351	110	193	773	488	257
RTOR Reduction (vph)	0	86	0	0	17	0
Lane Group Flow (vph)	351	24	193	773	728	0
Heavy Vehicles (%)	1%	0%	1%	7%	26%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	23.0	23.0	66.0	57.1	57.1	
Effective Green, g (s)	23.0	23.0	66.0	57.1	57.1	
Actuated g/C Ratio	0.22	0.22	0.63	0.55	0.55	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	398	360	363	983	854	
v/s Ratio Prot	c0.19		c0.05	0.43	c0.47	
v/s Ratio Perm		0.01	0.29			
v/c Ratio	0.88	0.07	0.53	0.79	0.85	
Uniform Delay, d1	39.3	32.1	12.7	18.7	20.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	19.9	0.1	1.5	6.3	10.5	
Delay (s)	59.2	32.2	14.2	25.0	30.5	
Level of Service	E	C	B	C	C	
Approach Delay (s)	52.7			22.9	30.5	
Approach LOS	D			C	C	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	104.2	Sum of lost time (s)	15.2
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	297	66	35	287	150	46	28	35	71	11	25
Future Vol, veh/h	64	297	66	35	287	150	46	28	35	71	11	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	1	1	0	4	3	0	9	4
Mvmt Flow	72	334	74	39	322	169	52	31	39	80	12	28
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.7	12.3	12.1	12.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	42%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	26%	0%	100%	60%	0%	100%	39%	10%
Vol Right, %	32%	0%	0%	40%	0%	0%	61%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	64	198	165	35	191	246	107
LT Vol	46	64	0	0	35	0	0	71
Through Vol	28	0	198	99	0	191	96	11
RT Vol	35	0	0	66	0	0	150	25
Lane Flow Rate	122	72	222	185	39	215	276	120
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.241	0.132	0.379	0.3	0.072	0.363	0.433	0.243
Departure Headway (Hd)	7.082	6.62	6.129	5.827	6.571	6.08	5.646	7.263
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	505	539	585	614	543	589	635	493
Service Time	4.857	4.384	3.892	3.59	4.334	3.842	3.408	5.038
HCM Lane V/C Ratio	0.242	0.134	0.379	0.301	0.072	0.365	0.435	0.243
HCM Control Delay	12.1	10.4	12.6	11.1	9.8	12.3	12.7	12.4
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	0.9	0.5	1.8	1.3	0.2	1.7	2.2	0.9

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	436	4	1	315	33	11	2	1	11	0	30
Future Vol, veh/h	59	436	4	1	315	33	11	2	1	11	0	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	63	469	4	1	339	35	12	2	1	12	0	32
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

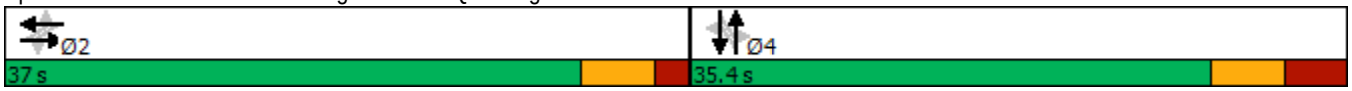
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	10.6	9.8	9.7	9.2
HCM LOS	B	A	A	A

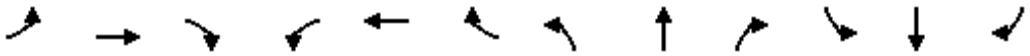
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	79%	100%	0%	0%	100%	0%	0%	27%
Vol Thru, %	14%	0%	100%	97%	0%	100%	76%	0%
Vol Right, %	7%	0%	0%	3%	0%	0%	24%	73%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	59	291	149	1	210	138	41
LT Vol	11	59	0	0	1	0	0	11
Through Vol	2	0	291	145	0	210	105	0
RT Vol	1	0	0	4	0	0	33	30
Lane Flow Rate	15	63	313	161	1	226	148	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.028	0.098	0.434	0.222	0.002	0.325	0.206	0.073
Departure Headway (Hd)	6.758	5.537	5.002	4.983	5.661	5.177	4.992	5.984
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	646	719	719	631	693	717	595
Service Time	4.539	3.278	2.742	2.723	3.405	2.92	2.735	3.757
HCM Lane V/C Ratio	0.028	0.098	0.435	0.224	0.002	0.326	0.206	0.074
HCM Control Delay	9.7	8.9	11.6	9.2	8.4	10.4	9	9.2
HCM Lane LOS	A	A	B	A	A	B	A	A
HCM 95th-tile Q	0.1	0.3	2.2	0.8	0	1.4	0.8	0.2

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	410	33	252	108	58	63	75
Future Volume (vph)	88	410	33	252	108	58	63	75
Lane Group Flow (vph)	90	630	34	323	110	83	64	147
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.20	0.41	0.11	0.21	0.43	0.12	0.12	0.20
Control Delay	14.5	11.5	13.8	11.1	22.7	11.4	15.2	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	11.5	13.8	11.1	22.7	11.4	15.2	9.1
Queue Length 50th (m)	7.4	21.7	2.7	11.4	10.7	5.0	5.5	6.5
Queue Length 95th (m)	16.2	33.6	7.9	18.9	24.7	12.9	12.8	17.2
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	455	1554	301	1525	258	706	518	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.41	0.11	0.21	0.43	0.12	0.12	0.20

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	410	208	33	252	65	108	58	24	63	75	69
Future Volume (vph)	88	410	208	33	252	65	108	58	24	63	75	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1816	3422		1820	3491		958	1789		1811	1753	
Flt Permitted	0.56	1.00		0.37	1.00		0.66	1.00		0.70	1.00	
Satd. Flow (perm)	1064	3422		705	3491		669	1789		1340	1753	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	90	418	212	34	257	66	110	59	24	64	77	70
RTOR Reduction (vph)	0	88	0	0	31	0	0	15	0	0	43	0
Lane Group Flow (vph)	90	542	0	34	292	0	110	68	0	64	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		11	11		5
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%	90%	3%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	455	1465		301	1494		258	691		518	677	
v/s Ratio Prot		c0.16			0.08			0.04			0.06	
v/s Ratio Perm	0.08			0.05			c0.16			0.05		
v/c Ratio	0.20	0.37		0.11	0.20		0.43	0.10		0.12	0.15	
Uniform Delay, d1	12.9	14.1		12.4	12.9		16.3	14.2		14.3	14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.7		0.8	0.3		5.1	0.3		0.5	0.5	
Delay (s)	13.9	14.8		13.2	13.2		21.4	14.4		14.8	15.0	
Level of Service	B	B		B	B		C	B		B	B	
Approach Delay (s)		14.7			13.2			18.4			14.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

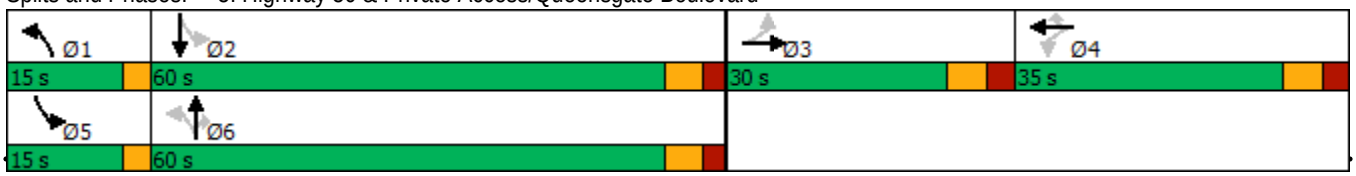
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	27	298	1	167	5	1557	523	151	803
Future Volume (vph)	33	27	298	1	167	5	1557	523	151	803
Lane Group Flow (vph)	34	185	155	156	174	5	1622	545	157	836
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		3		4		1	6		5	2
Permitted Phases	3		4		4	6		6	2	
Detector Phase	3	3	4	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	30.0	30.0	35.0	35.0	35.0	15.0	60.0	60.0	15.0	60.0
Total Split (%)	21.4%	21.4%	25.0%	25.0%	25.0%	10.7%	42.9%	42.9%	10.7%	42.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.58	0.52	0.77	0.83	0.41	0.01	1.07	0.85	0.73	0.45
Control Delay	90.6	17.2	76.5	84.8	9.7	16.8	81.0	32.4	47.3	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.6	17.2	76.5	84.8	9.7	16.8	81.0	32.4	47.3	23.0
Queue Length 50th (m)	8.5	6.6	41.4	42.3	0.0	0.6	~269.8	78.3	25.2	75.3
Queue Length 95th (m)	#22.2	28.7	#72.1	#77.1	19.4	2.9	#323.5	#159.1	#58.6	110.2
Internal Link Dist (m)		56.1		149.0			696.2			599.8
Turn Bay Length (m)			70.0			30.0		70.0	90.0	
Base Capacity (vph)	79	425	249	233	480	436	1517	639	230	1844
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.44	0.62	0.67	0.36	0.01	1.07	0.85	0.68	0.45

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 129.1
Natural Cycle: 145
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

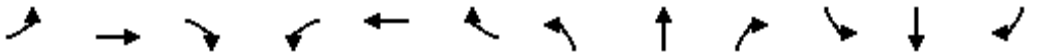
Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	27	151	298	1	167	5	1557	523	151	803	0
Future Volume (vph)	33	27	151	298	1	167	5	1557	523	151	803	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1816	1645		1687	1692	1569	1823	3614	1147	1825	3579	
Flt Permitted	0.23	1.00		0.64	0.60	1.00	0.31	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	442	1645		1138	1065	1569	594	3614	1147	129	3579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	28	157	310	1	174	5	1622	545	157	836	0
RTOR Reduction (vph)	0	136	0	0	0	144	0	0	155	0	0	0
Lane Group Flow (vph)	34	49	0	155	156	30	5	1622	390	157	836	0
Confl. Peds. (#/hr)	7		9	9		7	9		4	4		9
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	40%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)	17.3	17.3		22.9	22.9	22.9	57.7	56.6	56.6	70.6	66.5	
Effective Green, g (s)	17.3	17.3		22.9	22.9	22.9	57.7	56.6	56.6	70.6	66.5	
Actuated g/C Ratio	0.13	0.13		0.17	0.17	0.17	0.44	0.43	0.43	0.54	0.51	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	58	216		198	185	273	271	1559	494	211	1814	
v/s Ratio Prot		0.03					0.00	c0.45		c0.06	0.23	
v/s Ratio Perm	c0.08			0.14	c0.15	0.02	0.01		0.34	0.34		
v/c Ratio	0.59	0.23		0.78	0.84	0.11	0.02	1.04	0.79	0.74	0.46	
Uniform Delay, d1	53.6	51.0		51.8	52.4	45.6	20.7	37.3	32.2	33.5	20.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.2	0.5		18.0	27.9	0.2	0.0	34.1	12.2	13.3	0.8	
Delay (s)	67.8	51.5		69.8	80.3	45.8	20.8	71.4	44.3	46.8	21.7	
Level of Service	E	D		E	F	D	C	E	D	D	C	
Approach Delay (s)		54.0			64.6			64.5			25.6	
Approach LOS		D			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	53.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	131.2	Sum of lost time (s)	23.4
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

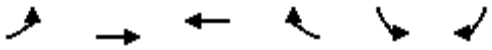
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	14	78	7	38	233	169	688	8	54	500	24
Future Volume (Veh/h)	11	14	78	7	38	233	169	688	8	54	500	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	11	14	79	7	38	235	171	695	8	55	505	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1906	1660	505	1742	1680	699	529			703		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1906	1660	505	1742	1680	699	529			703		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	8	82	86	84	49	47	84			94		
cM capacity (veh/h)	12	77	569	43	75	443	1043			885		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	104	280	171	703	55	505	24
Volume Left	11	7	171	0	55	0	0
Volume Right	79	235	0	8	0	0	24
cSH	84	233	1043	1700	885	1700	1700
Volume to Capacity	1.24	1.20	0.16	0.41	0.06	0.30	0.01
Queue Length 95th (m)	58.0	103.2	4.4	0.0	1.5	0.0	0.0
Control Delay (s)	265.9	167.3	9.1	0.0	9.3	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	265.9	167.3	1.8		0.9		
Approach LOS	F	F					

Intersection Summary				
Average Delay	41.6			
Intersection Capacity Utilization	67.9%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	439	203	10	4	7
Future Volume (Veh/h)	4	439	203	10	4	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	477	221	11	4	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			92			
pX, platoon unblocked						
vC, conflicting volume	232				473	116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	232				473	116
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1348				524	921

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	163	318	147	85	12
Volume Left	4	0	0	0	4
Volume Right	0	0	0	11	8
cSH	1348	1700	1700	1700	735
Volume to Capacity	0.00	0.19	0.09	0.05	0.02
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.4
Control Delay (s)	0.2	0.0	0.0	0.0	10.0
Lane LOS	A				A
Approach Delay (s)	0.1		0.0		10.0
Approach LOS					A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

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APPENDIX J:
2035 Future Total Traffic Analysis

NT-25-078
12944 Albion Vaughan Road
Town of Caledon

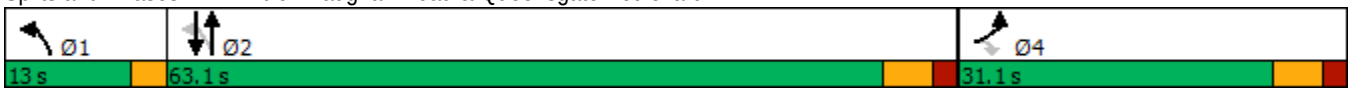
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	272	183	49	386	925
Future Volume (vph)	272	183	49	386	925
Lane Group Flow (vph)	278	187	50	394	1234
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.78	0.40	0.27	0.42	1.18
Control Delay	52.9	7.6	9.1	14.0	112.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	7.6	9.1	14.0	112.8
Queue Length 50th (m)	50.6	0.0	2.6	40.2	~292.2
Queue Length 95th (m)	79.6	16.7	6.7	69.7	#400.0
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	456	554	245	941	1048
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.34	0.20	0.42	1.18

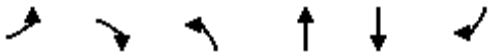
Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 96.9
Natural Cycle: 150
Control Type: Semi Act-Uncoord

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

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	272	183	49	386	925	284
Future Volume (vph)	272	183	49	386	925	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1755	1601	1659	1588	1754	
Flt Permitted	0.95	1.00	0.07	1.00	1.00	
Satd. Flow (perm)	1755	1601	121	1588	1754	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	278	187	50	394	944	290
RTOR Reduction (vph)	0	149	0	0	9	0
Lane Group Flow (vph)	278	38	50	394	1225	0
Heavy Vehicles (%)	4%	2%	10%	21%	7%	3%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	19.7	19.7	62.7	57.5	57.5	
Effective Green, g (s)	19.7	19.7	62.7	57.5	57.5	
Actuated g/C Ratio	0.20	0.20	0.64	0.59	0.59	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	354	323	159	935	1033	
v/s Ratio Prot	c0.16		c0.02	0.25	c0.70	
v/s Ratio Perm		0.02	0.18			
v/c Ratio	0.79	0.12	0.31	0.42	1.19	
Uniform Delay, d1	36.9	31.8	21.5	11.0	20.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.9	0.2	1.1	1.4	93.6	
Delay (s)	47.8	32.0	22.7	12.4	113.6	
Level of Service	D	C	C	B	F	
Approach Delay (s)	41.5			13.5	113.6	
Approach LOS	D			B	F	

Intersection Summary			
HCM 2000 Control Delay	77.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	15.2
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	190	43	25	280	68	61	38	55	145	36	40
Future Vol, veh/h	20	190	43	25	280	68	61	38	55	145	36	40
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	5	4	2	0	4	3	2	13	2	2	8	5
Mvmt Flow	22	213	48	28	315	76	69	43	62	163	40	45
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.6	12.6	13.2	16.2
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	25%	0%	100%	60%	0%	100%	58%	16%
Vol Right, %	36%	0%	0%	40%	0%	0%	42%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	20	127	106	25	187	161	221
LT Vol	61	20	0	0	25	0	0	145
Through Vol	38	0	127	63	0	187	93	36
RT Vol	55	0	0	43	0	0	68	40
Lane Flow Rate	173	22	142	119	28	210	181	248
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.336	0.046	0.272	0.217	0.055	0.388	0.32	0.48
Departure Headway (Hd)	6.996	7.41	6.879	6.553	7.11	6.667	6.346	7.086
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	516	485	525	551	506	543	569	512
Service Time	4.722	5.121	4.59	4.264	4.817	4.374	4.053	4.786
HCM Lane V/C Ratio	0.335	0.045	0.27	0.216	0.055	0.387	0.318	0.484
HCM Control Delay	13.2	10.5	12.1	11.1	10.2	13.5	12	16.2
HCM Lane LOS	B	B	B	B	B	B	B	C
HCM 95th-tile Q	1.5	0.1	1.1	0.8	0.2	1.8	1.4	2.6

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

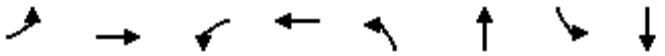
Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	222	3	2	375	8	3	0	6	22	0	39
Future Vol, veh/h	19	222	3	2	375	8	3	0	6	22	0	39
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	5	2	0	2	13	0	0	0	0	0	0
Mvmt Flow	23	267	4	2	452	10	4	0	7	27	0	47
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.4	10.8	8.8	9.4
HCM LOS	A	B	A	A

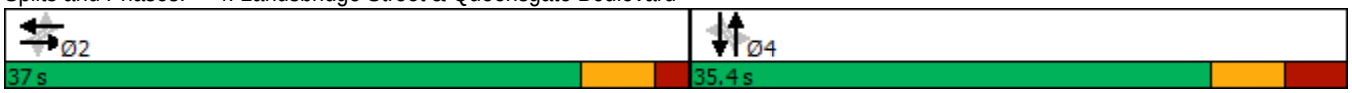
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	100%	0%	0%	36%
Vol Thru, %	0%	0%	100%	96%	0%	100%	94%	0%
Vol Right, %	67%	0%	0%	4%	0%	0%	6%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	19	148	77	2	250	133	61
LT Vol	3	19	0	0	2	0	0	22
Through Vol	0	0	148	74	0	250	125	0
RT Vol	6	0	0	3	0	0	8	39
Lane Flow Rate	11	23	178	93	2	301	160	73
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.018	0.036	0.26	0.133	0.004	0.422	0.231	0.12
Departure Headway (Hd)	5.935	5.669	5.253	5.174	5.513	5.045	5.19	5.855
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	599	630	681	690	648	711	691	609
Service Time	3.714	3.419	3.002	2.923	3.257	2.789	2.935	3.62
HCM Lane V/C Ratio	0.018	0.037	0.261	0.135	0.003	0.423	0.232	0.12
HCM Control Delay	8.8	8.6	9.9	8.7	8.3	11.5	9.5	9.4
HCM Lane LOS	A	A	A	A	A	B	A	A
HCM 95th-tile Q	0.1	0.1	1	0.5	0	2.1	0.9	0.4

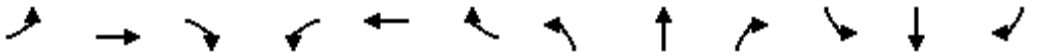


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	185	10	365	188	61	25	41
Future Volume (vph)	30	185	10	365	188	61	25	41
Lane Group Flow (vph)	34	295	11	470	214	109	28	117
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.09	0.20	0.03	0.31	0.43	0.15	0.06	0.17
Control Delay	13.3	9.5	12.3	13.6	19.7	10.4	14.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	9.5	12.3	13.6	19.7	10.4	14.4	7.7
Queue Length 50th (m)	2.7	8.7	0.8	20.0	20.8	5.8	2.3	3.9
Queue Length 95th (m)	7.6	15.3	3.4	29.0	37.1	14.5	6.7	12.7
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	363	1484	425	1515	498	712	505	694
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.20	0.03	0.31	0.43	0.15	0.06	0.17

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	185	75	10	365	48	188	61	35	25	41	62
Future Volume (vph)	30	185	75	10	365	48	188	61	35	25	41	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.94		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3353		1649	3506		1797	1778		1808	1686	
Flt Permitted	0.47	1.00		0.57	1.00		0.68	1.00		0.69	1.00	
Satd. Flow (perm)	848	3353		992	3506		1290	1778		1307	1686	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	34	210	85	11	415	55	214	69	40	28	47	70
RTOR Reduction (vph)	0	49	0	0	14	0	0	25	0	0	43	0
Lane Group Flow (vph)	34	246	0	11	456	0	214	84	0	28	74	0
Confl. Peds. (#/hr)	2		6	6		2	8		14	14		8
Heavy Vehicles (%)	7%	3%	4%	10%	2%	2%	1%	2%	0%	0%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	363	1435		424	1501		498	687		505	652	
v/s Ratio Prot		0.07			c0.13			0.05			0.04	
v/s Ratio Perm	0.04			0.01			c0.17			0.02		
v/c Ratio	0.09	0.17		0.03	0.30		0.43	0.12		0.06	0.11	
Uniform Delay, d1	12.3	12.8		12.0	13.6		16.3	14.3		13.9	14.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.1	0.5		2.7	0.4		0.2	0.4	
Delay (s)	12.8	13.0		12.1	14.1		19.0	14.7		14.1	14.6	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		13.0			14.1			17.6			14.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

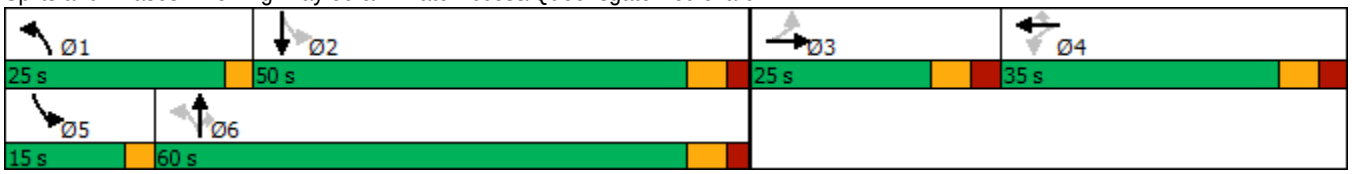
c Critical Lane Group

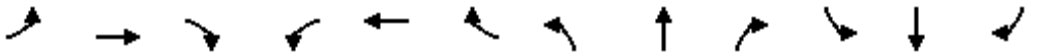
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	0	511	0	112	2	831	195	118	1162
Future Volume (vph)	0	511	0	112	2	831	195	118	1162
Lane Group Flow (vph)	3	277	278	122	2	903	212	128	1264
Turn Type	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	3		4		1	6		5	2
Permitted Phases		4		4	6		6	2	
Detector Phase	3	4	4	4	1	6	6	5	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	25.0	35.0	35.0	35.0	25.0	60.0	60.0	15.0	50.0
Total Split (%)	18.5%	25.9%	25.9%	25.9%	18.5%	44.4%	44.4%	11.1%	37.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.01	0.81	0.82	0.24	0.01	0.54	0.25	0.34	0.61
Control Delay	0.0	59.6	59.9	6.5	10.0	22.4	3.9	11.5	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	59.6	59.9	6.5	10.0	22.4	3.9	11.5	17.6
Queue Length 50th (m)	0.0	57.5	57.8	0.0	0.2	66.2	1.0	9.3	77.3
Queue Length 95th (m)	0.0	#124.2	#124.7	13.0	1.3	109.9	15.6	23.1	155.9
Internal Link Dist (m)	56.1		149.0			696.2			599.8
Turn Bay Length (m)		70.0			30.0		70.0	90.0	
Base Capacity (vph)	462	341	341	502	493	1668	857	397	2082
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.81	0.82	0.24	0.00	0.54	0.25	0.32	0.61

Intersection Summary

Cycle Length: 135
Actuated Cycle Length: 111.1
Natural Cycle: 145
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard

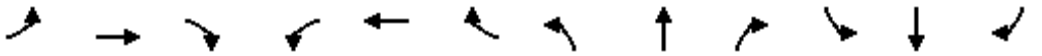




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	511	0	112	2	831	195	118	1162	1
Future Volume (vph)	0	0	3	511	0	112	2	831	195	118	1162	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1610		1696	1696	1593	1825	3444	1555	1755	3543	
Flt Permitted		1.00		0.76	0.76	1.00	0.16	1.00	1.00	0.21	1.00	
Satd. Flow (perm)		1610		1350	1350	1593	301	3444	1555	395	3543	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	3	555	0	122	2	903	212	128	1263	1
RTOR Reduction (vph)	0	3	0	0	0	93	0	0	107	0	0	0
Lane Group Flow (vph)	0	0	0	277	278	29	2	903	105	128	1264	0
Confl. Peds. (#/hr)	3		2	2		3	4					4
Heavy Vehicles (%)	0%	0%	0%	2%	0%	1%	0%	6%	5%	4%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)		1.4		28.1	28.1	28.1	57.3	56.3	56.3	69.3	65.3	
Effective Green, g (s)		1.4		28.1	28.1	28.1	57.3	56.3	56.3	69.3	65.3	
Actuated g/C Ratio		0.01		0.24	0.24	0.24	0.48	0.47	0.47	0.58	0.55	
Clearance Time (s)		7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		18		318	318	375	157	1626	734	343	1940	
v/s Ratio Prot		c0.00					0.00	0.26		c0.03	c0.36	
v/s Ratio Perm				0.21	c0.21	0.02	0.01		0.07	0.19		
v/c Ratio		0.00		0.87	0.87	0.08	0.01	0.56	0.14	0.37	0.65	
Uniform Delay, d1		58.2		43.8	43.8	35.5	17.2	22.5	17.8	13.2	19.0	
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		22.0	22.3	0.1	0.0	1.4	0.4	0.7	1.7	
Delay (s)		58.3		65.8	66.2	35.5	17.2	23.9	18.2	13.9	20.7	
Level of Service		E		E	E	D	B	C	B	B	C	
Approach Delay (s)		58.3			60.5			22.8			20.0	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	119.2	Sum of lost time (s)	23.4
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

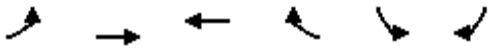
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	31	123	4	3	39	39	382	6	346	749	23
Future Volume (Veh/h)	11	31	123	4	3	39	39	382	6	346	749	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	33	129	4	3	41	41	402	6	364	788	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2042	2006	788	2148	2027	405	812			408		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2042	2006	788	2148	2027	405	812			408		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	56	15	67	24	92	94	95			68		
cM capacity (veh/h)	27	39	394	5	38	631	801			1151		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	174	48	41	408	364	788	24
Volume Left	12	4	41	0	364	0	0
Volume Right	129	41	0	6	0	0	24
cSH	108	53	801	1700	1151	1700	1700
Volume to Capacity	1.62	0.90	0.05	0.24	0.32	0.46	0.01
Queue Length 95th (m)	100.6	29.8	1.2	0.0	10.4	0.0	0.0
Control Delay (s)	386.4	217.1	9.7	0.0	9.6	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	386.4	217.1	0.9		3.0		
Approach LOS	F	F					

Intersection Summary				
Average Delay	44.1			
Intersection Capacity Utilization	64.9%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	444	99	4	11	6
Future Volume (Veh/h)	2	444	99	4	11	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	483	108	4	12	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			92			
pX, platoon unblocked						
vC, conflicting volume	112				356	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				356	56
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1490				621	1005

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	163	322	72	40	19
Volume Left	2	0	0	0	12
Volume Right	0	0	0	4	7
cSH	1490	1700	1700	1700	723
Volume to Capacity	0.00	0.19	0.04	0.02	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.1	0.0	0.0	0.0	10.1
Lane LOS	A				B
Approach Delay (s)	0.0		0.0		10.1
Approach LOS					B

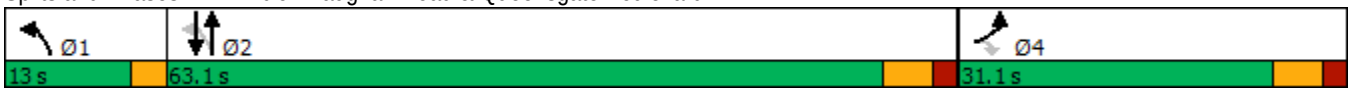
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		

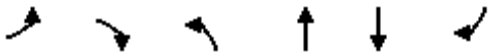
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	379	132	204	818	516
Future Volume (vph)	379	132	204	818	516
Lane Group Flow (vph)	395	138	213	852	821
Turn Type	Prot	Perm	pm+pt	NA	NA
Protected Phases	4		1	2	2
Permitted Phases		4	2		
Detector Phase	4	4	1	2	2
Switch Phase					
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1
Lead/Lag			Lead	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max
v/c Ratio	0.94	0.29	0.70	0.88	0.96
Control Delay	73.3	7.4	22.6	34.6	46.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	7.4	22.6	34.6	46.3
Queue Length 50th (m)	81.3	0.0	14.3	151.5	153.3
Queue Length 95th (m)	#137.5	14.8	#34.5	#235.3	#241.8
Internal Link Dist (m)	67.6			550.2	553.1
Turn Bay Length (m)			50.0		
Base Capacity (vph)	426	490	318	965	856
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.93	0.28	0.67	0.88	0.96

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 106.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	379	132	204	818	516	272
Future Volume (vph)	379	132	204	818	516	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1807	1633	1807	1795	1560	
Flt Permitted	0.95	1.00	0.14	1.00	1.00	
Satd. Flow (perm)	1807	1633	261	1795	1560	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	395	138	212	852	538	283
RTOR Reduction (vph)	0	106	0	0	18	0
Lane Group Flow (vph)	395	32	213	852	803	0
Heavy Vehicles (%)	1%	0%	1%	7%	26%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		1	2	2	
Permitted Phases		4	2			
Actuated Green, G (s)	24.6	24.6	66.3	57.0	57.0	
Effective Green, g (s)	24.6	24.6	66.3	57.0	57.0	
Actuated g/C Ratio	0.23	0.23	0.62	0.54	0.54	
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	418	378	298	964	838	
v/s Ratio Prot	c0.22		c0.06	0.47	c0.51	
v/s Ratio Perm		0.02	0.38			
v/c Ratio	0.94	0.08	0.71	0.88	0.96	
Uniform Delay, d1	40.1	31.9	16.9	21.6	23.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	30.1	0.1	7.9	11.6	22.5	
Delay (s)	70.2	32.0	24.8	33.3	46.0	
Level of Service	E	C	C	C	D	
Approach Delay (s)	60.3			31.6	46.0	
Approach LOS	E			C	D	

Intersection Summary			
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	106.1	Sum of lost time (s)	15.2
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	366	66	35	331	150	46	28	35	71	11	25
Future Vol, veh/h	64	366	66	35	331	150	46	28	35	71	11	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	1	1	0	4	3	0	9	4
Mvmt Flow	72	411	74	39	372	169	52	31	39	80	12	28
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13.1	13.5	12.6	12.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	42%	100%	0%	0%	100%	0%	0%	66%
Vol Thru, %	26%	0%	100%	65%	0%	100%	42%	10%
Vol Right, %	32%	0%	0%	35%	0%	0%	58%	23%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	64	244	188	35	221	260	107
LT Vol	46	64	0	0	35	0	0	71
Through Vol	28	0	244	122	0	221	110	11
RT Vol	35	0	0	66	0	0	150	25
Lane Flow Rate	122	72	274	211	39	248	293	120
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.25	0.135	0.476	0.351	0.073	0.429	0.473	0.252
Departure Headway (Hd)	7.362	6.741	6.249	5.981	6.725	6.234	5.823	7.545
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	485	529	573	598	530	575	614	474
Service Time	5.153	4.513	4.02	3.753	4.498	4.006	3.595	5.334
HCM Lane V/C Ratio	0.252	0.136	0.478	0.353	0.074	0.431	0.477	0.253
HCM Control Delay	12.6	10.6	14.6	12	10	13.7	13.8	12.9
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	1	0.5	2.6	1.6	0.2	2.1	2.5	1

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.

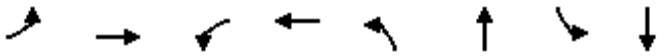
Channelized right turn lanes are not counted.

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	505	4	1	359	33	11	2	1	11	0	30
Future Vol, veh/h	59	505	4	1	359	33	11	2	1	11	0	30
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	63	543	4	1	386	35	12	2	1	12	0	32
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.6	10.5	10	9.5
HCM LOS	B	B	A	A

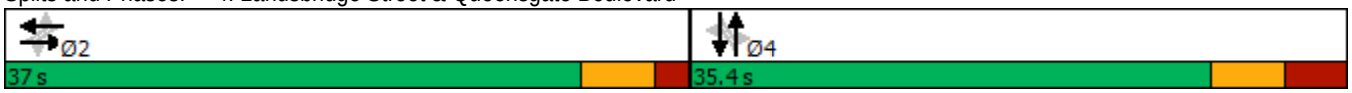
Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	79%	100%	0%	0%	100%	0%	0%	27%
Vol Thru, %	14%	0%	100%	98%	0%	100%	78%	0%
Vol Right, %	7%	0%	0%	2%	0%	0%	22%	73%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	59	337	172	1	239	153	41
LT Vol	11	59	0	0	1	0	0	11
Through Vol	2	0	337	168	0	239	120	0
RT Vol	1	0	0	4	0	0	33	30
Lane Flow Rate	15	63	362	185	1	257	164	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.029	0.099	0.508	0.259	0.002	0.376	0.232	0.076
Departure Headway (Hd)	6.971	5.59	5.055	5.038	5.741	5.256	5.088	6.189
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	509	639	710	710	621	682	703	574
Service Time	4.771	3.342	2.806	2.79	3.498	3.013	2.844	3.98
HCM Lane V/C Ratio	0.029	0.099	0.51	0.261	0.002	0.377	0.233	0.077
HCM Control Delay	10	9	13	9.6	8.5	11.2	9.4	9.5
HCM Lane LOS	A	A	B	A	A	B	A	A
HCM 95th-tile Q	0.1	0.3	2.9	1	0	1.7	0.9	0.2

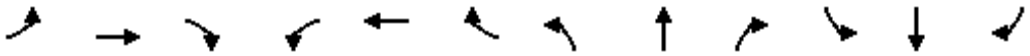


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	479	33	296	108	58	63	75
Future Volume (vph)	88	479	33	296	108	58	63	75
Lane Group Flow (vph)	90	701	34	368	110	83	64	147
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		2		4		4
Permitted Phases	2		2		4		4	
Detector Phase	2	2	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	30.0	30.0	30.0	30.0	35.4	35.4	35.4	35.4
Total Split (s)	37.0	37.0	37.0	37.0	35.4	35.4	35.4	35.4
Total Split (%)	51.1%	51.1%	51.1%	51.1%	48.9%	48.9%	48.9%	48.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	7.4	7.4	7.4	7.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.21	0.45	0.13	0.24	0.43	0.12	0.12	0.20
Control Delay	14.6	13.2	14.2	12.0	22.7	11.4	15.2	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	13.2	14.2	12.0	22.7	11.4	15.2	9.1
Queue Length 50th (m)	7.4	27.8	2.7	14.0	10.7	5.0	5.5	6.5
Queue Length 95th (m)	16.3	41.1	8.1	22.2	24.7	12.9	12.8	17.2
Internal Link Dist (m)		149.0		380.4		452.7		440.5
Turn Bay Length (m)	50.0		60.0		30.0		30.0	
Base Capacity (vph)	436	1542	268	1526	258	706	518	721
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.45	0.13	0.24	0.43	0.12	0.12	0.20

Intersection Summary
Cycle Length: 72.4
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 4: Landsbridge Street & Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	479	208	33	296	65	108	58	24	63	75	69
Future Volume (vph)	88	479	208	33	296	65	108	58	24	63	75	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1817	3445		1820	3506		958	1789		1811	1753	
Flt Permitted	0.53	1.00		0.33	1.00		0.66	1.00		0.70	1.00	
Satd. Flow (perm)	1019	3445		627	3506		669	1789		1340	1753	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	90	489	212	34	302	66	110	59	24	64	77	70
RTOR Reduction (vph)	0	67	0	0	26	0	0	15	0	0	43	0
Lane Group Flow (vph)	90	634	0	34	342	0	110	68	0	64	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		11	11		5
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%	90%	3%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	31.0	31.0		31.0	31.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.4	7.4		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	436	1475		268	1501		258	691		518	677	
v/s Ratio Prot		c0.18			0.10			0.04			0.06	
v/s Ratio Perm	0.09			0.05			c0.16			0.05		
v/c Ratio	0.21	0.43		0.13	0.23		0.43	0.10		0.12	0.15	
Uniform Delay, d1	13.0	14.5		12.5	13.1		16.3	14.2		14.3	14.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.9		1.0	0.4		5.1	0.3		0.5	0.5	
Delay (s)	14.1	15.4		13.5	13.5		21.4	14.4		14.8	15.0	
Level of Service	B	B		B	B		C	B		B	B	
Approach Delay (s)		15.3			13.5			18.4			14.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

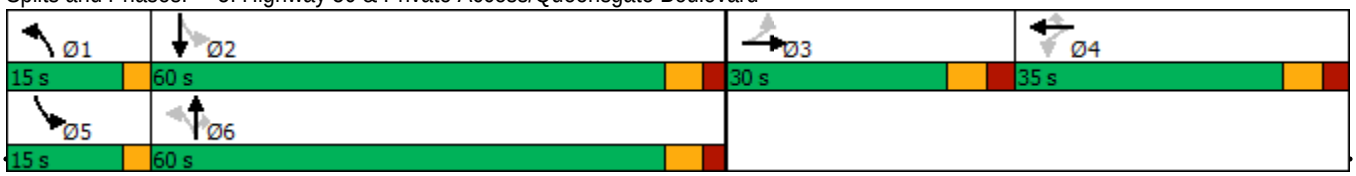
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	27	334	1	175	5	1710	577	166	879
Future Volume (vph)	33	27	334	1	175	5	1710	577	166	879
Lane Group Flow (vph)	34	185	174	175	182	5	1781	601	173	916
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		3		4		1	6		5	2
Permitted Phases	3		4		4	6		6	2	
Detector Phase	3	3	4	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	30.0	30.0	35.0	35.0	35.0	15.0	60.0	60.0	15.0	60.0
Total Split (%)	21.4%	21.4%	25.0%	25.0%	25.0%	10.7%	42.9%	42.9%	10.7%	42.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.59	0.52	0.82	0.88	0.41	0.02	1.20	0.95	0.79	0.50
Control Delay	93.3	17.3	80.4	91.3	9.3	17.0	130.7	47.5	55.3	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.3	17.3	80.4	91.3	9.3	17.0	130.7	47.5	55.3	24.4
Queue Length 50th (m)	8.7	6.7	47.5	48.5	0.0	0.7	~322.2	107.2	30.5	87.0
Queue Length 95th (m)	#22.4	28.7	#86.1	#91.1	19.9	2.9	#371.3	#193.1	#69.7	123.3
Internal Link Dist (m)		56.1		149.0			696.2			599.8
Turn Bay Length (m)			70.0			30.0		70.0	90.0	
Base Capacity (vph)	77	419	244	228	480	393	1488	632	227	1821
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.44	0.71	0.77	0.38	0.01	1.20	0.95	0.76	0.50

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 131.2
Natural Cycle: 145
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

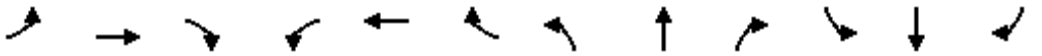
Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	27	151	334	1	175	5	1710	577	166	879	0
Future Volume (vph)	33	27	151	334	1	175	5	1710	577	166	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1816	1645		1686	1691	1569	1823	3614	1147	1825	3579	
Flt Permitted	0.23	1.00		0.64	0.60	1.00	0.27	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	437	1645		1138	1064	1569	515	3614	1147	129	3579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	28	157	348	1	182	5	1781	601	173	916	0
RTOR Reduction (vph)	0	136	0	0	0	148	0	0	157	0	0	0
Lane Group Flow (vph)	34	49	0	174	175	34	5	1781	444	173	916	0
Confl. Peds. (#/hr)	7		9	9		7	9		4	4		9
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	40%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		3			4		1	6		5	2	
Permitted Phases	3			4		4	6		6	2		
Actuated Green, G (s)	17.5	17.5		24.7	24.7	24.7	57.8	56.6	56.6	71.0	66.8	
Effective Green, g (s)	17.5	17.5		24.7	24.7	24.7	57.8	56.6	56.6	71.0	66.8	
Actuated g/C Ratio	0.13	0.13		0.18	0.18	0.18	0.43	0.42	0.42	0.53	0.50	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	57	215		210	196	290	234	1531	485	213	1789	
v/s Ratio Prot		0.03					0.00	c0.49		c0.07	0.26	
v/s Ratio Perm	c0.08			0.15	c0.16	0.02	0.01		0.39	0.36		
v/c Ratio	0.60	0.23		0.83	0.89	0.12	0.02	1.16	0.91	0.81	0.51	
Uniform Delay, d1	54.7	52.0		52.4	53.2	45.4	21.8	38.5	36.2	36.8	22.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.6	0.5		22.8	36.1	0.2	0.0	81.1	24.4	20.5	1.1	
Delay (s)	70.4	52.5		75.2	89.2	45.5	21.8	119.6	60.6	57.3	23.5	
Level of Service	E	D		E	F	D	C	F	E	E	C	
Approach Delay (s)		55.3			69.7			104.5			28.9	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	78.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	133.6	Sum of lost time (s)	23.4
Intersection Capacity Utilization	106.3%	ICU Level of Service	G
Analysis Period (min)	15		

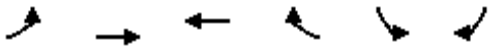
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	14	78	7	38	257	169	759	9	60	552	24
Future Volume (Veh/h)	11	14	78	7	38	257	169	759	9	60	552	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	11	14	79	7	38	260	171	767	9	61	558	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2068	1798	558	1880	1818	772	582			776		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2068	1798	558	1880	1818	772	582			776		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	77	85	78	37	35	83			93		
cM capacity (veh/h)	6	62	531	32	60	403	997			831		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	104	305	171	776	61	558	24
Volume Left	11	7	171	0	61	0	0
Volume Right	79	260	0	9	0	0	24
cSH	45	204	997	1700	831	1700	1700
Volume to Capacity	2.32	1.49	0.17	0.46	0.07	0.33	0.01
Queue Length 95th (m)	83.2	142.1	4.7	0.0	1.8	0.0	0.0
Control Delay (s)	794.7	288.7	9.4	0.0	9.7	0.0	0.0
Lane LOS	F	F	A		A		
Approach Delay (s)	794.7	288.7	1.7		0.9		
Approach LOS	F	F					

Intersection Summary				
Average Delay	86.5			
Intersection Capacity Utilization	73.2%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	508	247	10	4	7
Future Volume (Veh/h)	4	508	247	10	4	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	552	268	11	4	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			92			
pX, platoon unblocked						
vC, conflicting volume	279				558	140
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	279				558	140
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1295				463	889

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	188	368	179	100	12
Volume Left	4	0	0	0	4
Volume Right	0	0	0	11	8
cSH	1295	1700	1700	1700	681
Volume to Capacity	0.00	0.22	0.11	0.06	0.02
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.4
Control Delay (s)	0.2	0.0	0.0	0.0	10.4
Lane LOS	A				B
Approach Delay (s)	0.1		0.0		10.4
Approach LOS					B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		

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CONSULTING ENGINEERS

APPENDIX K:
2035 Future Total Optimized Analysis at Highway 50 & Queensgate Boulevard

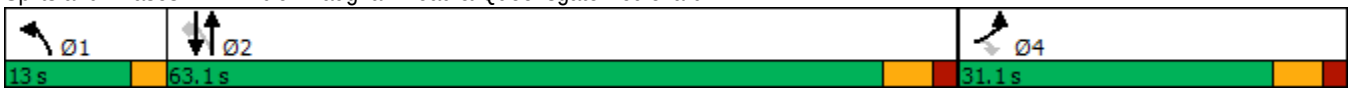
NT-25-078
12944 Albion Vaughan Road
Town of Caledon

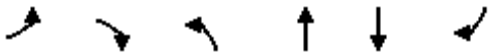
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	379	132	204	818	516	272
Future Volume (vph)	379	132	204	818	516	272
Lane Group Flow (vph)	395	138	213	852	538	283
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1	6.1
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max	Max
v/c Ratio	0.94	0.29	0.40	0.88	0.66	0.28
Control Delay	73.3	7.4	8.6	34.6	22.6	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	7.4	8.6	34.6	22.6	2.3
Queue Length 50th (m)	81.3	0.0	14.3	151.5	77.6	0.0
Queue Length 95th (m)	#137.5	14.8	22.9	#235.3	115.4	11.7
Internal Link Dist (m)	67.6			550.2	553.1	
Turn Bay Length (m)			50.0			
Base Capacity (vph)	426	490	540	965	819	1000
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.28	0.39	0.88	0.66	0.28

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 106.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	379	132	204	818	516	272
Future Volume (vph)	379	132	204	818	516	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	6.1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1807	1633	1807	1795	1525	1617
Flt Permitted	0.95	1.00	0.34	1.00	1.00	1.00
Satd. Flow (perm)	1807	1633	652	1795	1525	1617
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	395	138	212	852	538	283
RTOR Reduction (vph)	0	106	0	0	0	131
Lane Group Flow (vph)	395	32	213	852	538	152
Heavy Vehicles (%)	1%	0%	1%	7%	26%	1%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	24.6	24.6	66.3	57.0	57.0	57.0
Effective Green, g (s)	24.6	24.6	66.3	57.0	57.0	57.0
Actuated g/C Ratio	0.23	0.23	0.62	0.54	0.54	0.54
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	6.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	418	378	508	964	819	868
v/s Ratio Prot	c0.22		c0.04	c0.47	0.35	
v/s Ratio Perm		0.02	0.22			0.09
v/c Ratio	0.94	0.08	0.42	0.88	0.66	0.18
Uniform Delay, d1	40.1	31.9	9.8	21.6	17.6	12.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	30.1	0.1	0.6	11.6	4.1	0.4
Delay (s)	70.2	32.0	10.4	33.3	21.7	13.0
Level of Service	E	C	B	C	C	B
Approach Delay (s)	60.3			28.7	18.7	
Approach LOS	E			C	B	

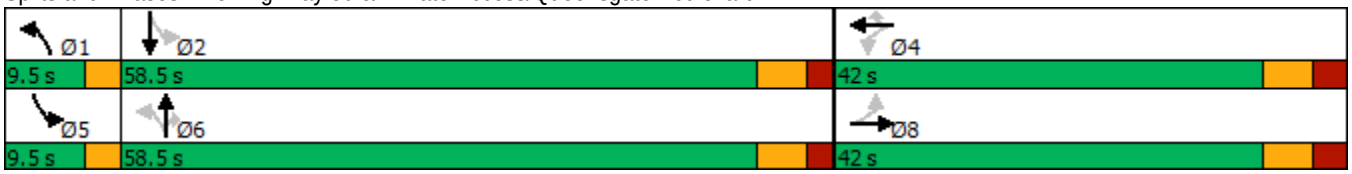
Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	106.1	Sum of lost time (s)	15.2
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

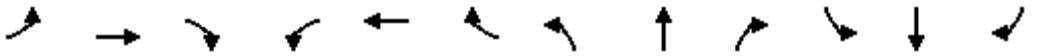
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	33	27	334	1	175	5	1710	577	166	879
Future Volume (vph)	33	27	334	1	175	5	1710	577	166	879
Lane Group Flow (vph)	34	185	174	175	182	5	1781	601	173	916
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases		8		4		1	6		5	2
Permitted Phases	8		4		4	6		6	2	
Detector Phase	8	8	4	4	4	1	6	6	5	2
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	9.5	40.4	40.4	9.5	40.4
Total Split (s)	42.0	42.0	42.0	42.0	42.0	9.5	58.5	58.5	9.5	58.5
Total Split (%)	38.2%	38.2%	38.2%	38.2%	38.2%	8.6%	53.2%	53.2%	8.6%	53.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	0.0	2.4	2.4	0.0	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
v/c Ratio	0.13	0.37	0.73	0.78	0.40	0.01	0.92	0.75	0.86	0.42
Control Delay	29.5	9.1	52.3	58.8	13.0	8.2	31.8	13.3	56.9	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	9.1	52.3	58.8	13.0	8.2	31.8	13.3	56.9	12.3
Queue Length 50th (m)	5.1	4.2	32.0	32.7	8.5	0.3	154.2	23.3	16.2	41.0
Queue Length 95th (m)	12.6	19.7	55.2	57.0	25.0	1.9	#260.2	93.3	#65.3	88.4
Internal Link Dist (m)		56.1		149.0			696.2			599.8
Turn Bay Length (m)			70.0			30.0		70.0	90.0	
Base Capacity (vph)	404	693	374	350	645	443	1934	803	201	2206
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.27	0.47	0.50	0.28	0.01	0.92	0.75	0.86	0.42

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 98
Natural Cycle: 115
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Highway 50 & Private Access/Queensgate Boulevard





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	27	151	334	1	175	5	1710	577	166	879	0
Future Volume (vph)	33	27	151	334	1	175	5	1710	577	166	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1817	1649		1690	1695	1572	1823	3614	1148	1825	3579	
Flt Permitted	0.59	1.00		0.59	0.55	1.00	0.30	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1124	1649		1043	975	1572	567	3614	1148	132	3579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	28	157	348	1	182	5	1781	601	173	916	0
RTOR Reduction (vph)	0	122	0	0	0	98	0	0	184	0	0	0
Lane Group Flow (vph)	34	63	0	174	175	84	5	1781	417	173	916	0
Confl. Peds. (#/hr)	7		9	9		7	9		4	4		9
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	1%	40%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Actuated Green, G (s)	22.5	22.5		22.5	22.5	22.5	56.1	55.0	55.0	64.5	60.4	
Effective Green, g (s)	22.5	22.5		22.5	22.5	22.5	56.1	55.0	55.0	64.5	60.4	
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.22	0.56	0.55	0.55	0.64	0.60	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	3.0	6.4	6.4	3.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	251	369		233	218	352	330	1979	628	194	2153	
v/s Ratio Prot		0.04					0.00	0.49		c0.06	0.26	
v/s Ratio Perm	0.03			0.17	c0.18	0.05	0.01		0.36	c0.51		
v/c Ratio	0.14	0.17		0.75	0.80	0.24	0.02	0.90	0.66	0.89	0.43	
Uniform Delay, d1	31.2	31.4		36.3	36.9	31.9	9.8	20.2	16.1	26.6	10.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.2		12.3	18.8	0.4	0.0	7.1	5.5	36.2	0.6	
Delay (s)	31.4	31.6		48.6	55.7	32.3	9.9	27.3	21.6	62.8	11.3	
Level of Service	C	C		D	E	C	A	C	C	E	B	
Approach Delay (s)		31.6			45.3			25.8			19.5	
Approach LOS		C			D			C			B	

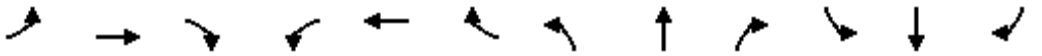
Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	16.4
Intersection Capacity Utilization	106.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	11	14	7	38	169	759	60	552	24
Future Volume (vph)	11	14	7	38	169	759	60	552	24
Lane Group Flow (vph)	0	104	0	305	171	776	61	558	24
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	37.5	37.5	37.5	37.5	37.5
Total Split (%)	37.5%	37.5%	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.29		0.66	0.35	0.66	0.20	0.57	0.02
Control Delay		9.2		15.9	8.2	10.6	7.3	9.5	2.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		9.2		15.9	8.2	10.6	7.3	9.5	2.4
Queue Length 50th (m)		1.9		10.7	5.9	35.6	1.9	23.5	0.0
Queue Length 95th (m)		11.1		29.0	21.2	94.7	8.7	65.5	2.2
Internal Link Dist (m)		188.7		656.1		246.5		550.2	
Turn Bay Length (m)					30.0		30.0		30.0
Base Capacity (vph)		583		688	488	1182	311	977	1056
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.18		0.44	0.35	0.66	0.20	0.57	0.02

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 53.2
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 6: Albion Vaughan Road & Dovaston Gate/King Vaughan Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	14	78	7	38	257	169	759	9	60	552	24
Future Volume (vph)	11	14	78	7	38	257	169	759	9	60	552	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.90			0.88		1.00	1.00		1.00	1.00	0.85
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1686			1698		1807	1845		1755	1525	1633
Flt Permitted		0.92			0.99		0.40	1.00		0.26	1.00	1.00
Satd. Flow (perm)		1564			1687		762	1845		486	1525	1633
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	11	14	79	7	38	260	171	767	9	61	558	24
RTOR Reduction (vph)	0	64	0	0	142	0	0	1	0	0	0	9
Lane Group Flow (vph)	0	40	0	0	163	0	171	775	0	61	558	15
Heavy Vehicles (%)	9%	0%	1%	0%	0%	0%	1%	4%	0%	4%	26%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		10.1			10.1		34.1	34.1		34.1	34.1	34.1
Effective Green, g (s)		10.1			10.1		34.1	34.1		34.1	34.1	34.1
Actuated g/C Ratio		0.19			0.19		0.64	0.64		0.64	0.64	0.64
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		296			320		488	1182		311	977	1046
v/s Ratio Prot								c0.42			0.37	
v/s Ratio Perm		0.03			c0.10		0.22			0.13		0.01
v/c Ratio		0.14			0.51		0.35	0.66		0.20	0.57	0.01
Uniform Delay, d1		17.9			19.3		4.4	5.9		3.9	5.4	3.5
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2			1.4		2.0	2.9		1.4	2.4	0.0
Delay (s)		18.1			20.7		6.4	8.8		5.3	7.8	3.5
Level of Service		B			C		A	A		A	A	A
Approach Delay (s)		18.1			20.7			8.3			7.4	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

nexTrans
CONSULTING ENGINEERS

APPENDIX L:
2035 Future Total Optimized Analysis at Albion Vaughan Road & Queensgate Boulevard

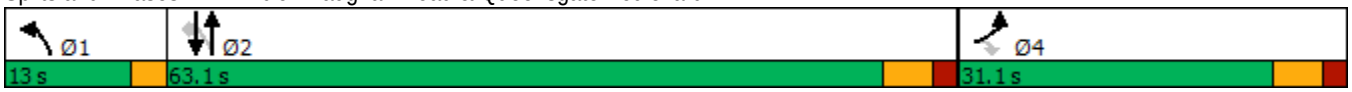
NT-25-078
12944 Albion Vaughan Road
Town of Caledon

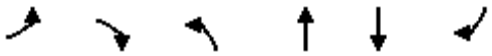
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	272	183	49	386	925	284
Future Volume (vph)	272	183	49	386	925	284
Lane Group Flow (vph)	278	187	50	394	944	290
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Detector Phase	4	4	1	2	2	2
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0
Minimum Split (s)	24.1	24.1	9.5	36.1	36.1	36.1
Total Split (s)	31.1	31.1	13.0	63.1	63.1	63.1
Total Split (%)	29.0%	29.0%	12.1%	58.9%	58.9%	58.9%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	0.0	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	3.0	6.1	6.1	6.1
Lead/Lag			Lead	Lag	Lag	Lag
Lead-Lag Optimize?			Yes	Yes	Yes	Yes
Recall Mode	Min	Min	None	Max	Max	Max
v/c Ratio	0.78	0.40	0.22	0.42	0.89	0.29
Control Delay	52.9	7.6	7.7	14.0	31.4	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	7.6	7.7	14.0	31.4	7.9
Queue Length 50th (m)	50.6	0.0	2.6	40.2	152.8	15.7
Queue Length 95th (m)	79.6	16.7	6.7	69.7	#267.8	33.9
Internal Link Dist (m)	67.6			550.2	553.1	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	456	554	284	941	1064	984
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.34	0.18	0.42	0.89	0.29

Intersection Summary

Cycle Length: 107.2
Actuated Cycle Length: 96.9
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Albion Vaughan Road & Queensgate Boulevard





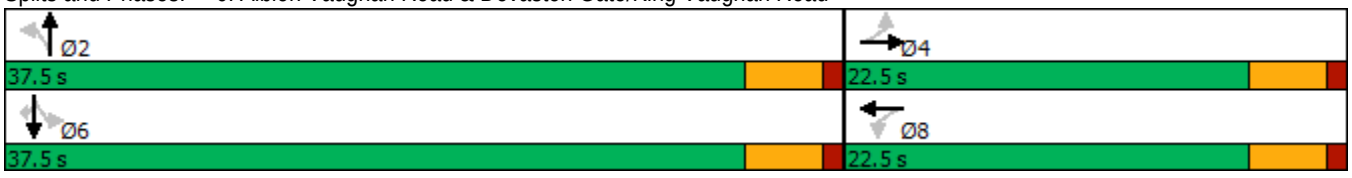
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	272	183	49	386	925	284
Future Volume (vph)	272	183	49	386	925	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	3.0	6.1	6.1	6.1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1755	1601	1659	1588	1795	1585
Flt Permitted	0.95	1.00	0.11	1.00	1.00	1.00
Satd. Flow (perm)	1755	1601	187	1588	1795	1585
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	278	187	50	394	944	290
RTOR Reduction (vph)	0	149	0	0	0	45
Lane Group Flow (vph)	278	38	50	394	944	245
Heavy Vehicles (%)	4%	2%	10%	21%	7%	3%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		1	2	2	
Permitted Phases		4	2			2
Actuated Green, G (s)	19.7	19.7	62.7	57.5	57.5	57.5
Effective Green, g (s)	19.7	19.7	62.7	57.5	57.5	57.5
Actuated g/C Ratio	0.20	0.20	0.64	0.59	0.59	0.59
Clearance Time (s)	6.1	6.1	3.0	6.1	6.1	6.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	354	323	198	935	1057	933
v/s Ratio Prot	c0.16		c0.01	0.25	c0.53	
v/s Ratio Perm		0.02	0.15			0.15
v/c Ratio	0.79	0.12	0.25	0.42	0.89	0.26
Uniform Delay, d1	36.9	31.8	14.6	11.0	17.4	9.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.9	0.2	0.7	1.4	11.5	0.7
Delay (s)	47.8	32.0	15.3	12.4	28.9	10.4
Level of Service	D	C	B	B	C	B
Approach Delay (s)	41.5			12.7	24.5	
Approach LOS	D			B	C	

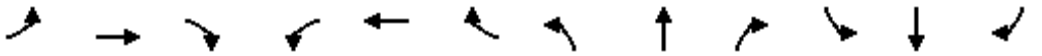
Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	15.2
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	11	31	4	3	39	382	346	749	23
Future Volume (vph)	11	31	4	3	39	382	346	749	23
Lane Group Flow (vph)	0	174	0	48	41	408	364	788	24
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	22.5	22.5	37.5	37.5	37.5	37.5	37.5
Total Split (%)	37.5%	37.5%	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio		0.49		0.19	0.10	0.35	0.50	0.60	0.02
Control Delay		12.0		10.0	4.4	4.9	7.9	7.5	1.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		12.0		10.0	4.4	4.9	7.9	7.5	1.7
Queue Length 50th (m)		3.5		0.6	0.9	11.4	12.0	29.2	0.0
Queue Length 95th (m)		16.2		7.0	4.4	29.9	38.8	75.8	1.7
Internal Link Dist (m)		188.7		656.1		246.5		550.2	
Turn Bay Length (m)					30.0		30.0		30.0
Base Capacity (vph)		674		560	391	1153	721	1317	1067
Starvation Cap Reductn		0		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0	0
Reduced v/c Ratio		0.26		0.09	0.10	0.35	0.50	0.60	0.02

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 51.2
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 6: Albion Vaughan Road & Dovaston Gate/King Vaughan Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	31	123	4	3	39	39	382	6	346	749	23
Future Volume (vph)	11	31	123	4	3	39	39	382	6	346	749	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.90			0.88		1.00	1.00		1.00	1.00	0.85
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1723			1572		1738	1572		1789	1795	1445
Flt Permitted		0.97			0.96		0.29	1.00		0.52	1.00	1.00
Satd. Flow (perm)		1680			1517		535	1572		984	1795	1445
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	33	129	4	3	41	41	402	6	364	788	24
RTOR Reduction (vph)	0	113	0	0	36	0	0	1	0	0	0	7
Lane Group Flow (vph)	0	61	0	0	12	0	41	407	0	364	788	17
Heavy Vehicles (%)	0%	0%	0%	0%	0%	9%	5%	22%	20%	2%	7%	13%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		6.4			6.4		36.7	36.7		36.7	36.7	36.7
Effective Green, g (s)		6.4			6.4		36.7	36.7		36.7	36.7	36.7
Actuated g/C Ratio		0.12			0.12		0.70	0.70		0.70	0.70	0.70
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		206			186		376	1107		693	1264	1017
v/s Ratio Prot								0.26			c0.44	
v/s Ratio Perm		c0.04			0.01		0.08			0.37		0.01
v/c Ratio		0.30			0.06		0.11	0.37		0.53	0.62	0.02
Uniform Delay, d1		20.8			20.2		2.5	3.1		3.6	4.1	2.3
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.8			0.1		0.6	0.9		2.8	2.3	0.0
Delay (s)		21.6			20.4		3.1	4.0		6.4	6.4	2.3
Level of Service		C			C		A	A		A	A	A
Approach Delay (s)		21.6			20.4			3.9			6.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	52.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

nexTrans
CONSULTING ENGINEERS

APPENDIX M:
Signal Warrant Analysis

NT-25-078
12944 Albion Vaughan Road
Town of Caledon

Signal Warrant Calculation

Major Street: Albion Vaughan Road

Minor Street: Dovaston Gate/King Vaughan Road

Comment 2035 Future Total Traffic conditions

Number of Approaches: 1 [ ] 2 [x]

Tee Intersection Configuration: Yes [ ] No [x]

Flow Condition: Free Fw (Rural) [x]
Restricted Flow (Urban) [ ]

VOLUME	AM	PM	FACTOR *	
1A - All	1,756	1,978	n/a	934
1B - Minor	211	405	25%	154
2A - Major	1,545	1,573	25%	780
2B - Crossi	219	141	25%	90

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

OVERALL WARRANT

150% Satisfied:	Yes [ ]	No [X]	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes [X]	No [ ]	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes [X]	No [ ]	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes [X]	No [ ]	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes [X]	No [ ]	

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW X	REST. FLOW	
ALL APPROACHES	480	720	600	900	934
	% FULFILLED				156%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW X	REST. FLOW	
MINOR STREET APPROACHES	120	170	120	170	154
	% FULFILLED				128%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [X]	No [ ]
100% Satisfied:	Yes [X]	No [ ]
80% Satisfied:	Yes [X]	No [ ]

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW X	REST. FLOW	
MAJOR STREET APPROACHES	480	720	600	900	780
	% FULFILLED				130%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW X	REST. FLOW	
TRAFFIC CROSSING MAJOR STREET	50	75	50	75	90
	% FULFILLED				180%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [X]	No [ ]
100% Satisfied:	Yes [X]	No [ ]
80% Satisfied:	Yes [X]	No [ ]

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.