

Marianneville Developments Limited

Traffic Impact Study

**Estates of Glenway Newmarket
Town of Newmarket**

Project No. T11-441

March 2012



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ENGINEERING**

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March 23, 2012
Our Ref: T11-441

Marianneville Development Limited
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Attention: Ms. Joanne Barnett
Vice President, Planning Operations

Dear Ms. Barnett:

Re: Transportation Study
Proposed Residential Redevelopment - Glenway Golf Club
Town of Newmarket

Cole Engineering Group Ltd. (Cole Engineering) is pleased to provide this Transportation Study in support of the rezoning and Official Plan Amendment application for the redevelopment of the existing Glenway Golf and Country Club. The subject lands are generally located on the south side of Davis Drive, between Bathurst Street and Eagle Street, in the Town of Newmarket (the 'Town').

This analysis is presented to identify any potential traffic impacts/issues resulting from the development proposal and identifies possible mitigative measures in support of the redevelopment and Draft Plan of Subdivision. Furthermore, this report comments and makes recommendations as it relates to Transportation Demand Management and Mobility.

Yours truly,

COLE ENGINEERING GROUP LTD.



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Project Manager
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JG:dps

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Executive Summary

This Transportation Study is in support of the proposed Estates of Glenway Newmarket residential Draft Plan of Subdivision which will consist of the redevelopment of the Glenway Golf Course and Country Club to 730 residential units, an executive nine (9) hole golf course and clubhouse as well as retail space developed in two (2) Phases. The development will utilize vehicle access via existing Sykes Road, Crossland Gate, Millard Avenue West and Eagle Street West while also creating a new three-legged intersection (Street 'B') approximately 240 meters west of the GO Transit Terminal / Upper Canada Mall access. A fourth leg may be added to this intersection in the 2021 traffic horizon with the construction of the future Toth Subdivision.

Based on optimized signal timings, the existing traffic within the study area generally operates at good levels of service, with unsignalized intersections also operating at good levels of service.

Traffic growth within the study area included a growth rate of 2% per annum applied to all study area traffic movements as well as eight (8) additional background developments spanning the 2016 and 2021 traffic horizons. Future background traffic is expected to operate in a similar fashion to the existing optimized traffic condition.

Phase 1 of the proposed development is expected to generate a total of 268 two-way (102 inbound and 166 outbound) trips during the a.m. peak period and 349 two-way (201 inbound and 148 outbound) trips during the p.m. peak period. Phase 2 is expected to generate an additional 122 two-way (24 inbound and 98 outbound) trips during the a.m. peak and an additional 149 two-way (96 inbound and 53 outbound) trips during the p.m. peak. Future total traffic is expected to continue to operate at good levels of service with only previously identified traffic movements operating at failing levels of service.

There are no roadway improvements required to accommodate the site-related traffic with the exception of the Davis Drive / Street 'B' intersection being signalized in the 2021 traffic horizon.

There are a number of measures that can be implemented to improve the safety of pedestrian and cyclists within the proposed development which will reduce the amount of auto trips to / from the subdivision. These include design elements such as reducing the distance between pedestrian crosswalks as well as ensuring adequate sidewalk width which promotes the comfort of the pedestrian and provides a minor buffer to active traffic. Other forms of active transportation encouragement may come in the form of information packages which highlight nearby attractions or safe routes.

This study concludes that the proposed Estates of Glenway Newmarket development will have minimal impact to the surrounding road network and can be accommodated within the existing road infrastructure with minimal road improvements necessary.

1.0 Introduction

The redevelopment of the Glenway Golf and Country Club (“subject lands”) is comprised of approximately 36.3 hectares (136 acres) and is located within an existing build out area of the Town of Newmarket (the “Town”) known as the Glenway subdivision. The subject lands are located on the south side of Davis Drive generally between Bathurst Street and Eagle Street West.

The lands have been maintained as a golf, tennis and Country club with related ancillary uses which include a clubhouse that provides fitness, squash, a restaurant and assembly halls for conferences and weddings for the past 30 years. Access to the clubhouse and parking area is currently provided via multiple driveways to Alex Doner Drive. The development proposal consists of developing the front nine (9) golf holes (east of the existing HEPC) for residential uses, consisting of approximately 730 residential units in a mix of housing densities. The existing clubhouse will be closed and the existing back nine (9) holes will be redesigned to provide for an executive style nine (9) hole golf course, with a new clubhouse located in the general vicinity of the south east quadrant of Sykes Road and Bathurst Street.

1.1. Development Proposal

New municipal and private roads will be constructed to provide vehicular access to the proposed residential units. Furthermore, a new municipal road connection (Street ‘B’) is proposed to Davis Drive, located approximately 240 m west of the existing GO Transit Terminal / Upper Canada Mall access. This new roadway will provide vehicular access to the approximately 60% of the development. **Figure 1-1** illustrates the general locations of the subject lands.

The redevelopment of the lands is proposed to consist of the following new uses in two (2) Phases:

Phase 1 (2016)

- Town Home units (219 units);
- Single Family Detached Housing units (165 units);
- Condominium Single Family Housing units (54 units);
- Commercial block (approximately 20,000 ft²);
- The nine (9) hole golf course to the west of the Hydro corridor will remain in a new configuration; and,
- A new clubhouse will be constructed adjacent to Bathurst Street.

Phase 2 (2021)

- Apartment dwelling units (292 units).

Figure 1-2 illustrates the Development Context Draft Plan; however, it should be noted that the development plan is in a state of evolution.

1.2. Horizon Years

Five-year (2016), ten-year (2021), and fifteen-year (2026) traffic year horizons were selected to represent future traffic conditions. The 2016 and 2021 horizon years coincides with the full build-out of the development proposal and the full build-out of the proposed background developments and the 2021 horizon reflects full build-out with an additional five (5) years of growth in the study area road network.

1.3. Study Purpose and Approach

The purpose of this transportation study is as follows:

- Assess the existing traffic volumes and background growth within the study area;
- Estimate the future background traffic volumes based on a five-year horizon (2016), a ten-year horizon (2021), and a fifteen-year horizon (2026);
- Identify the impact of the new development on the surrounding road network;
- Identify additional road or intersection improvements required to accommodate both background traffic forecasts for all horizon years as well as site related traffic;
- Provide mitigation measures to alleviate potential traffic increases and potential traffic infiltration;
- Undertake a sight line assessment and Functional Design for the new Street 'B' connection to Davis Drive; and,
- Prepare a Transportation Demand Management Plan (TDM) and Mobility Plan for the high density residential development.

Weekday morning and afternoon peak period intersection traffic movement counts were undertaken by Dynamic Traffic Solutions on behalf of Cole Engineering at the study area intersections. This data will represent existing baseline conditions.

Future background traffic volumes for the 2016 and 2021 horizon years consist of the following components: traffic growth from outside the study area and traffic generated within the study area from other proposed developments in the vicinity of the subject development.

Future background traffic volumes for the 2026 horizon year includes the fifteen-year traffic growth from outside the study area and the traffic generated within the study area from other proposed developments by year 2021.

The historical Annual Average Daily Traffic (AADT) volumes were obtained from York Region (Region) to determine background traffic growth rates. Background development information was obtained from the Town or through general land use assumptions to estimate the future background traffic volumes.

Future total traffic conditions were determined by the summation of the estimated traffic volumes generated by the site traffic estimates and the future background traffic volumes.

The study area intersections were analyzed using SYNCHRO 7.0 software which utilizes the U.S. Transportation Research Board Highway Capacity Manual 2000 methodology.

2.0 Road Network

2.1. Existing Conditions

The existing road network, lane configurations and traffic control within the study area are illustrated in **Figure 2-1**. The details of the road sections are outlined below.

Davis Drive is an east-west four-lane major arterial road under the jurisdiction of York Region (the "Region"). Davis Drive maintains a speed limit of 60 km/h within the study area and provides exclusive turn lanes at all key intersections. Davis Drive is a key arterial roadway within the Town and Regional road network as it provides a direct connection from Highway 400 to the west through to Highway 404 to the east.

Yonge Street is a north-south four-lane major arterial road under the jurisdiction of the Region. It maintains a speed limit of 60 km/h within the study area and provides exclusive turn lanes at all key intersections. Yonge Street is a key arterial roadway within the Town and Regional road network and is identified as a Rapid Transit Corridor in the Regional Transportation Master Plan that will ultimately provide rapid transit infrastructure along its entire length within the Region.

Bathurst Street is a north-south four-lane arterial road under the jurisdiction of the Region and maintains a speed limit of 60 km/h within the study area.

Eagle Street West is a north-south two-lane collector road under the jurisdiction of the Town and maintains a posted speed limit of 50 km/h within the study area.

Millard Avenue West is an east-west two-lane minor collector road under the jurisdiction of the Town and maintains a posted speed limit of 40 km/h within the study area.

Crossland Gate is an east-west two-lane minor collector road under the jurisdiction of the Town and maintains a speed limit of 40 km/h within the study area.

Alex Doner Drive is an east-west two-lane minor collector road under the jurisdiction of the Town and maintains a speed limit of 40 km/h within the study area.

2.2. Proposed Road Connections

Vehicular access to the lands will be provided via series of new local municipal roads as well as private condominium roads. All new driveways and roads are proposed to operate as full movement roads and will be stop controlled at the junctions with the existing roads. Several private roadways may be gate controlled to manage access / egress.

Street 'B' will be introduced to the subdivision located approximately 240 meters west of the GO Transit Terminal / Upper Canada Mall access on Davis Drive. Street 'B' will operate as a full movement 3-legged stop controlled intersection at the junction with Davis Drive during Phase 1 (2016) of the redevelopment with increasing levels of traffic control as development proceeds.

There will be a site line review and storage length analysis completed for this new intersection. Details related to this are described in latter parts of this report.

2.3. Future Study Area Improvements

Based on the York Region Transportation Master Plan dated November 2009, infrastructure improvements are planned for the Yonge Street in support of Rapid Transit. According to VivaNext, the segment of Yonge Street from Mulock Drive to Davis Drive will be transformed to a rapid transit corridor in the 2015 timeframe; subsequent phases will be implemented as funding is obtained.

Also noted in the Master Plan is the identification of Davis Drive West of Yonge Street as a Transit Priority Road network – this is however identified in the 2031 time horizon and as such is outside of our study horizon.

Master Plan related maps and figures are attached as **Appendix A** for reference.

3.0 Existing Traffic Conditions

Twelve (12) existing intersections were analyzed as part of this study. Turning movement counts were completed during the typical roadway a.m. (7:00 – 9:00) and p.m. (4:00–6:00) peak time periods for all of the study area intersections. The existing signal timing plans for the study area signalized intersections were obtained from the Region of York.

Table 3.1 summarizes the key information for the study area intersections relating to base line traffic data:

Table 3.1 – Study Area Intersections Summary

Intersection	Traffic Control	Turning Movement Counts		Signal Timing Plan	
		Date	Source Obtained	Date	Source Obtained
Davis Drive / Yonge Street	Signalized	February 23, 2011	Accu-Traffic Inc.	July 19, 2011	York Region
Davis Drive / Eagle Street West / Mall Access	Signalized	November 2, 2011	Dynamic Traffic Solutions	October 7, 2011	York Region
Davis Drive / GO Terminal Access / Mall Access	Two-way Stop	November 9, 2011	Dynamic Traffic Solutions	----	----
Davis Drive / Ford Wilson Boulevard / Crossland Gate	Signalized	November 1, 2011	Dynamic Traffic Solutions	July 29, 2008	York Region
Davis Drive / Bathurst Street	Signalized	November 1, 2011	Dynamic Traffic Solutions	June 9, 2004	York Region
Bathurst Street / Sykes Road	Signalized	November 2, 2011	Dynamic Traffic Solutions	Not Specified	York Region
Eagle Street West / Yonge Street	Signalized	November 1, 2011	Dynamic Traffic Solutions	July 19, 2011	
Millard Avenue West / Yonge Street	Signalized	November 1, 2011	Dynamic Traffic Solutions	September 6, 2011	York Region
Millard Avenue West / Eagle Street West	Two-way Stop	November 3, 2011	Dynamic Traffic Solutions	----	----
Crossland Gate / Eagle Street West	All-way Stop	November 2, 2011	Dynamic Traffic Solutions	----	----
Alex Doner Drive / Crossland Gate (north)	All-way Stop	November 1, 2011	Dynamic Traffic Solutions	----	----
Alex Doner Drive / Crossland Gate (south)	All-way Stop	November 3, 2011	Dynamic Traffic Solutions	----	----

The existing traffic volumes are illustrated in **Figure 3-1** while the turning movement counts and signal timing plans for the study area intersections are provided in **Appendix B**.

3.1. Level of Service Analysis

All study area intersections were analyzed under existing traffic conditions using SYNCHRO v7.0 software and detailed calculations are provided in **Appendix C**. The critical movements are summarized in **Table 3.2** for signalized intersections. The critical movements of a signalized intersection are those movements with a v/c ratio greater than 0.85.

Table 3.2 – Signalized Intersections Capacity Analysis – Existing Traffic Conditions

Intersection	Key Movements	AM Peak Hour	PM Peak Hour
		LOS (v/c)	LOS (v/c)
Davis Drive / Yonge Street	Overall	D (0.65)	E (1.01)
	EB left	D (0.53)	F (1.25)
	WB left	E (0.89)	F (1.09)
	NB through	C (0.31)	D (0.89)
	SB left	B (0.41)	E (0.89)
Davis Drive / Upper Canada Mall Entrance/ Eagle Street West	Overall	C (0.40)	C (0.55)
Davis Drive / Crossland Gate/ Ford Wilson Boulevard	Overall	B (0.35)	C (0.60)
Davis Drive West / Bathurst Street	Overall	D (0.76)	F (1.11)
	NB Left	E (0.97)	F (2.20)
Eagle Street West / Yonge Street	Overall	D (0.74)	D (0.84)
	WB left	E (0.84)	F (0.93)
	NB through	C (0.67)	D (0.88)
	SB through	E (0.89)	D (0.84)
Millard Avenue West / Yonge Street	Overall	C (0.61)	C (1.04)
	SB Left	B (0.18)	F (1.25)
Bathurst Street / Sykes Road	Overall	A (0.54)	A (0.51)

Our analysis indicates that all movements are functioning with good levels of service (LOS) at the signalized intersections during morning peak hours. However, during the p.m. peak hour, several signalized intersections have left turn movements operating with v/c ratios greater than 1.0.

A review of the signal timing plans and associated traffic volumes identified that potential optimization may be required for these signalized intersections during the peak periods to improve the traffic operations and reduce the LOS at critical movements.

The LOS and v/c ratios for the unsignalized study area intersections are presented in **Table 3.3**.

Table 3.3 – Unsignalized Intersections Capacity Analysis – Existing Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate (south)	EB left-right NB left-through SB through-right	A (0.13) A (0.11) A (0.09)	A (0.07) A (0.17) A (0.05)
Crossland Gate / Eagle Street West	EB left-through-right WB left-through-right NB left-through-right SB left-through-right	A (0.23) A (0.03) B (0.35) B (0.43)	B (0.19) B (0.02) C (0.80) C (0.63)
Alex Doner Drive / Crossland Gate (north)	EB left-through WB through-right SB left-right	A (0.03) A (0.04) A (0.02)	B (0.07) A (0.06) A (0.03)
Millard Avenue West / Eagle Street West	WB left-right NB through-right SB left-through	A (0.14) B (0.36) B (0.53)	B (0.20) C (0.65) C (0.63)
Davis Drive / GO Terminal Access	EB left-through-right WB left-through-right NB left NB right SB right	A (0.08) B (0.01) A (<0.01) B (0.01) A (0.06)	B (0.34) B (0.01) F (0.28) B (0.02) B (0.28)

The results of the analysis indicate that all unsignalized intersections operate below-capacity with excellent LOS 'C' or better during the weekday morning and afternoon peak periods.

3.2. Level of Service Analysis - Optimized

As previously described, some movements at the existing signalized intersections are operating at failing LOS during peak time periods based on high traffic volumes for these movements. To improve the operations, signal phasing modifications at the two (2) problematic signalized intersections were undertaken during the p.m. peak hour. The detail signal timing optimization revisions are described below:

Yonge Street / Davis Drive Intersection:

- An additional five (5) seconds of green time was added to the EB / WB left-turn phases; and,
- The EB / WB through phases' green times were reduced by five (5) seconds.

Yonge Street / Millard Avenue West Intersection:

- An additional left-turn phase of 14 seconds was added to the SB left turn movement; and,
- The NB through phase green time was reduced by 14 seconds.

The details of the revised intersection operations reflecting the signal timing optimization are presented in **Appendix D. Table 3.4** summarizes the optimized traffic conditions of the study area signalized intersections.

Table 3.4 – Signalized Intersections Capacity Analysis – Optimized Existing Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Davis Drive West / Yonge Street	Overall	D (0.64)	E (0.90)
	EB left	D (0.49)	E (0.94)
	WB left	D (0.81)	D (0.85)
	NB through	D (0.11)	E (0.97)
	SB left	B (0.42)	E (0.95)
Davis Drive West / Upper Canada Mall Entrance / Eagle Street West	Overall	C (0.40)	C (0.56)
Davis Drive West / Ford Wilson Boulevard	Overall	B (0.35)	A (0.51)
Davis Drive West / Bathurst Street	Overall	D (0.75)	E (1.13)
	EB through	D (0.73)	D (0.91)
	NB Left	D (0.86)	F (1.70)
Eagle Street West / Yonge Street	Overall	D (0.73)	D (0.82)
	WB left	E (0.84)	E (0.88)
	NB through	C (0.67)	D (0.86)
	SB through	D (0.79)	D (0.81)
Millard Avenue West / Yonge Street	Overall	C (0.61)	C (0.78)
	SB Left	B (0.18)	E (0.65)
Bathurst Street / Sykes Road	Overall	A (0.54)	A (0.51)

As a result of the signal timing optimization, all intersection critical movements operate at acceptable LOS, except for the northbound Left turn movement at the Davis Drive / Bathurst Street intersection. This movement continues to fail and is a direct result of the heavy northbound left turning volume during the roadway p.m. peak hour. We understand that this issue has been in place for some time with no improvements put forward by the Region to alleviate the issue. As this is an existing situation, no further action will be undertaken as part of this analysis

4.0 Future Background Traffic Conditions

Future background traffic for the study area is based on year 2016, 2021, and year 2026 traffic projections. Future background traffic consists of traffic due to other developments within the study area plus traffic growth outside the study area.

4.1. Historical Traffic Growth

To forecast general corridor traffic increases, historical AADT volumes were obtained from the Region from 2003 to 2008 on Yonge Street, Davis Drive, Bathurst Street, and Eagle Street West in the vicinity of the subject site. The historical traffic data for Yonge street south of Davis Drive is provided in **Table 4.1**.

Table 4.1 – Historical AADT Volumes

Corridor	Year						Logarithmic Annual Growth Rate
	2003	2004	2005	2006	2007	2008	
Yonge Street south of Davis Drive	31,983	--	33,781	32,814	34,472	34,072	+1.3%
Eagle Street east of Yonge Street	10,088	10,165	--	--	--	--	+0.7%
Hwy. 9 east of Bathurst Street	27,980	--	--	21,802	23,261	22,821	-0.4%
Bathurst Street south of Hwy. 9	--	17,005	--	17,129	20,132	--	+5.1%

Based on the limited historical traffic data, there is an average historical growth rate of +0.7% per annum within the above mentioned corridors in the vicinity of the study area.

Therefore, to account for traffic growth from outside the study area, a conservative 2% growth rate was applied to all through movements for each respective horizon year.

4.2. Background Developments

There are many active and/or potential development applications within the study area that need to be examined. Several background developments are expected or assumed to be fully in place by 2016 and others are assumed to be fully in place by 2021. Hence, the background development traffic projections are analysed in two phases for 2016 and 2021.

4.2.1. 2016 Background Developments

Proposed 2016 background developments consist of the following developments as per information obtained through past reports undertaken by Cole Engineering within the study area, information obtained from Town / Regional planners, and other sources of public information. **Table 4.2** presents detailed information regarding the phase I background developments.

Table 4.2 – Phase 1 (2016) Background Development Summary

Site	Development Statistics	Address / Location	Access Via	Access Type	Source of Data
Yonge Street / Millard Avenue West	400 residential units with ancillary retail	Northeast quadrant of the Yonge Street / Millard Avenue West intersection	Millard Avenue West	Full Move	Cole Engineering
Yonge Street / Davis Drive	400 residential units	Northeast quadrant of the Yonge Street / Davis Drive intersection	George Street, Davis Drive and Yonge Street	Limited and Full Move	MMM Group
Bailey Subdivision	Approximately 29 acres (150 single family units)	Southeast corner of the Davis Drive/ Bathurst Street intersection	Davis Drive Bathurst Street	Full Move RIRO	Consultant Planner
York Region office Expansion (Phase 1)	Approximately 200,000 ft ² of GFA	Northwest corner of the Yonge Street / Eagle Street West intersection			On-line Zoning interpretation
George Street Retirement Partnership (Phase 1)	214 suites retirement/ special needs residence 184 apartment units	17645 Yonge Street	George Street / Yonge Street	Full Move	Cole Engineering

4.2.2. 2021 Background Developments

The assumed 2021 background developments are summarized in **Table 4.3**.

Table 4.3 – Phase II (2021) Background Development Summary

Site	Development Statistics	Address/Location	Access Via	Access Type	Source of Data
Toth Subdivision	Approximately 52 acres (310 single family units)	North side of Davis Drive between the Upper Canada Mall Entrance and Ford Wilson Boulevard	Davis Drive Knapton Drive	Full Move Full Move	Consultant Planner
York Region office Expansion (Phase 2)	Approximately 200,000 ft ² of GFA	Northwest corner of the Yonge Street / Eagle Street West intersection	Yonge Street Eagle Street	RIRO Full Move	On-line Zoning interpretation
George Street Retirement Partnership (Phase 2)	178 suites retirement residence / Medical Centre 155 apartment units	17645 Yonge Street	George Street Yonge Street	Full Move Full Move	Cole Engineering

Based on the Town of Newmarket Official Plan, access to the Toth subdivision will be afforded via a north-south road which will divide the property and connect to Davis Drive opposite the subject lands at the proposed Davis Drive / Street 'B' intersection. The background developments site location and their assumed or proposed site accesses are presented in **Figure 4-1**. The access locations were identified based on best engineering judgment augmented by the proposed land uses and potential impacts to the adjacent roadway and only qualified in terms of background development traffic assignment.

4.3. Trip Generation – Background Development

For the analysis of the background development, trip generation data was determined using information contained in *Trip Generation, 8th Edition*, published by the Institute of Transportation Engineers (ITE) or obtained through the Traffic Impact Studies completed in support of the applications.

4.4. Trip Generation Proxy Survey

In order to identify local experiences as it relates to traffic generation in the subject area, a proxy trip generation survey was undertaken on November 9, 2011 at the intersections of Glenway Circle and John Bowser Crescent with Eagle Street West. As these two (2) roadways are crescents and have no other land use other than single family units, the trip generation data is representative of local trip making conditions for this type of land uses.

Figure 4-2 illustrates the trip generation survey locations. The inbound and outbound movements to/from the four (4) locations were counted during both a.m. and p.m. peak periods. Based on these observations, the trip generation rates were estimated for inbound and outbound trips and are summarized in **Table 4.4**. A total of 186 units were used as the independent variable to derive the corresponding trip rate.

Table 4.4 – Proxy Trip Generation net trip rates

Site	Land Use (Unit / Size)	Parameter	AM Peak Hour			PM Peak Hour		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Existing Glenway Golf Course Residential Neighborhood	Single Family	Net Trip Rate (trips / unit)	0.13	0.34	0.47	0.37	0.23	0.60

Since these rates are based on empirical local data and represent the travel characteristics and local trip making patterns, they were used in trip generation calculations for the single family land use for both background and site traffic analysis purposes. The detailed proxy trip generation survey data and calculations are attached in **Appendix E** for reference.

4.5. Trip Generation Analysis

Site traffic volumes for the background developments were determined as follows:

- Yonge Street and Millard Avenue West mixed-use development: as per Cole Engineering traffic study dated July 2011;
- Yonge Street and Davis Drive residential development: as per previous MMM Group traffic study dated October 2008;
- York Region Office Expansion: Land Use Code 710 (General Office Building);
- George Street Retirement Partnership: the trip generation and distribution analysis were updated due to the site plan change from the previous traffic study report undertaken by Cole Engineering to reflect the replacement of two (2) senior housing apartments with two (2) residential condominiums. The updated land uses are Land Use Code 251 (Senior Adult housing-Detached), Land Use Code 254 (Assisted Living), Land Use Code 710 (General Office Building), Land Use Code 220 (Apartment), and Land Use Code 720 (Medical-Dental Office Building). The development was assumed to proceed as a phased development for 2016 (Phase 1 and 2) and 2021 (Phase 3 and 4).
- Bailey and Toth Farm subdivisions: Trip generation survey rates for single family housing.

A non-auto modal split 11% was applied to the following background developments based on the data contained in the 2006 Transportation Tomorrow Survey (TTS) data performed for the surrounding key zone 2605. The details of the 2006 TTS data are provided in **Section 4.0** of this report. Trip generations for other background developments were adopted from the previous Traffic Impact Study reports undertaken by MMM Group or Cole engineering. The detail information of the background developments including their site plans and site trip assignments are attached in **Appendix F** for reference.

The site trip generation calculated for the Phase 1 background developments is summarized in **Table 4.5** for the 5-year (2016) horizon.

Table 4.5 – Background Developments Site Trip Generation – Phase 1 (2016)

Site	Land Use	Parameter	AM Peak Hour			PM Peak Hour		
			IN	OUT	TOTAL	IN	OUT	TOTAL
George Street Retirement Partnership (Phase 1 and 2)	Senior Adult Housing – Detached Code 251 (172 Units)	Gross Trips	21	38	59	29	19	48
		Rate (Trips / Unit)	0.12	0.22	0.34	0.17	0.11	0.28
		Transit Reduction (11%)	2	4	6	3	2	5
		New Trips	19	34	53	26	17	43
		Rate (Trips / Unit)	0.08	0.13	0.21	0.10	0.07	0.17
	Assisted Living Code 254 (48 Beds)	Gross Trips	4	3	7	5	6	11
		Rate (Trips / Bed)	0.08	0.06	0.14	0.10	0.12	0.22
		Transit Reduction (11%)	0	0	0	1	1	2
		New Trips	4	3	7	4	5	9
		Rate (Trips/Unit)	0.08	0.06	0.14	0.08	0.10	0.18
	General Office Code 710 (42,581 ft ²)	Gross Trips	58	8	66	11	52	63
		Rate (Trips/1,000 Ft ²)	1.36	0.19	1.55	0.26	1.23	1.49
		Transit Reduction (11%)	6	1	7	1	6	7
		New Trips	52	7	59	10	46	56
		Rate (Trips / Unit)	1.22	0.16	1.38	0.23	1.08	1.31
	Apartment Building Code 220 (184 Units)	Gross Trips	19	75	94	77	42	119
Rate (Trips / Unit)		0.10	0.41	0.51	0.42	0.23	0.65	
Transit Reduction (11%)		2	8	10	8	5	13	
New Trips		17	67	84	69	37	106	
Rate (Trips / Unit)		0.09	0.36	0.45	0.38	0.20	0.58	
York Region Office Expansion (Phase I)	Gross Trips	288	39	327	52	251	303	
	Rate (Trips / 1,000 ft ²)	1.44	0.20	1.64	0.26	1.26	1.52	
	Transit Reduction (11%)	32	4	36	6	28	34	
	New Trips	256	35	291	46	223	269	
	Rate (Trips / Unit)	1.28	0.18	1.46	0.23	1.12	1.35	
Bailey Subdivision	Single-Family Housing Trip Gen. Survey (150 Units)	New Trips	20	51	71	56	34	90
		Rate (Trips / Unit)	0.13	0.34	0.47	0.37	0.23	0.60
Total New Trips			368	197	565	211	362	573

The Phase 1 (2016) projected background developments are expected to generate 565 total new trips (368 inbound trips and 197 outbound trips) during the a.m. peak hour and 573 total new trips (211 inbound trips and 362 outbound trips) during the p.m. peak hour.

The site trip generation calculated for the Phase 2 background developments is summarized in **Table 4.6** for 10-year horizon.

Table 4.6 – Background Developments Site Trip Generation – Phase 2 (2021)

Site	Land Use (Unit / Size)	Parameter	AM Peak Hour			PM Peak Hour		
			IN	OUT	TOTAL	IN	OUT	TOTAL
George Street Retirement Partnership (Phase 3 and 4)	Senior Adult Housing – Detached Code 251 (130 Units)	Gross Trips	18	34	52	24	15	39
		Rate (Trips / Unit)	0.14	0.26	0.40	0.18	0.12	0.30
		Transit Reduction (11%)	2	4	6	2	2	4
		New Trips	16	30	46	22	13	35
		Rate (Trips / Unit)	0.12	0.23	0.35	0.17	0.10	0.27
	Assisted Living Code 254 (48 Beds)	Gross Trips	4	3	7	5	6	11
		Rate (Trips / Bed)	0.08	0.06	0.14	0.10	0.12	0.22
		Transit Reduction (11%)	0	0	0	1	1	2
		New Trips	4	3	7	4	5	9
		Rate (Trips / Unit)	0.08	0.06	0.14	0.08	0.10	0.18
	General Office Code 710 (42,770 ft ²)	Gross Trips	58	8	66	11	53	64
		Rate (Trips / 1,000 ft ²)	1.36	0.19	1.55	0.26	1.23	1.49
		Transit Reduction (11%)	6	1	7	1	6	7
		New Trips	52	7	59	10	47	57
		Rate (Trips / Unit)	1.22	0.16	1.38	0.23	1.1	1.33
	Apartment Building Code 220 (155 Units)	Gross Trips	16	64	80	67	36	103
		Rate (Trips / Unit)	0.10	0.42	0.52	0.43	0.23	0.66
		Transit Reduction (11%)	2	7	9	7	4	11
		New Trips	14	57	71	60	32	92
		Rate (Trips / Unit)	0.09	0.37	0.46	0.39	0.20	0.59
Medical Office Code 720 (10,700 ft ²)	Gross Trips	19	6	25	10	27	37	
	Rate (Trips / 1,000 ft ²)	1.78	0.52	2.30	0.93	2.53	3.46	
	Transit Reduction (11%)	2	1	3	1	3	4	
	New Trips	17	5	22	9	24	33	
	Rate (Trips / Unit)	1.59	0.47	2.06	0.84	2.24	3.08	
York Region Office Expansion (Phase 2)	General Office Code 710 (200,000 ft ²)	Gross Trips	288	39	327	52	251	303
		Rate (Trips/1,000 ft ²)	1.44	0.20	1.64	0.26	1.26	1.52
		Transit Reduction (11%)	32	4	36	6	28	34
		New Trips	256	35	291	46	223	269
		Rate (Trips / Unit)	1.28	0.18	1.46	0.23	1.12	1.35
Toth Farm Subdivision	Single-Family Housing Trip Gen. Survey (310 Units)	New Trips	40	106	146	115	71	186
		Rate (Trips / Unit)	0.13	0.34	0.47	0.37	0.23	0.60
Total New Trips			399	243	642	266	415	681

As summarized in **Table 4.6**, the Phase 2 background developments are expected to generate 642 total new trips (399 inbound trips and 243 outbound trips) during the a.m. peak hour and 681 total new trips (266 inbound trips and 415 outbound trips) during the p.m. peak hour.

It is noted that for the horizon year 2021, Phase 1 background development trip projections were added to the Phase 2 background development trip projections. The total trip projection results were used in 2021 and 2026 future background and future total analyses.

The distribution and assignment of most of the background development traffic is based on 2006 TTS data and the existing traffic patterns. However, the trip distribution and assignment of the Yonge Street and Millard Avenue West mixed-use development traffic and Yonge Street and Davis Drive mixed-use development was based on the past reports undertaken by Cole Engineering and MMM Group Ltd. The background development site trip distributions are summarized in **Table 4.7**.

Table 4.7 – Background Development Site Trip Distribution

Direction (To / From)	Trip Distribution
North	20%
South	40%
East	20%
West	20%
Total	100%

The distribution and assignment of trips was based on the most logical path for vehicles to minimize travel time and distance from their origin or destination to one of the access points. Hence, not all background development site traffic was distributed within the study area. The background development traffic volumes and trip assignment results are illustrated in **Figure 4-3** and **Figure 4-4** for Phase 1 (2016) and phase II (2021) background developments traffic volumes.

4.6. Level of Service Analysis

Future (2016) background traffic analysis and future (2021) background traffic analysis were analyzed using *SYNCHRO v7.0* Software. The results of the traffic operational analysis are presented below.

4.6.1. Future (2016) Background Traffic Analysis

Future (2016) background traffic consists of traffic due to the Phase 1 of the background developments within the study area plus the five (5) years of traffic growth from outside of the study area. Future (2016) background traffic operational analyses are summarized in **Table 4.8** and **Table 4.9** for signalized and unsignalized intersections. Future 2016 background traffic volumes are shown in **Figure 4-5** and detailed calculations are provided in **Appendix G**.

It is noted that, the future background capacity analysis are based on the optimized signal timings which are consistent with that described earlier in this report.

Table 4.8 – Signalized Intersections Capacity Analysis – Future (2016) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Davis Drive / Upper Canada Mall Entrance / Eagle Street West	Overall	C (0.48)	D (0.69)
Davis Drive / Ford Wilson Boulevard	Overall	B (0.41)	A (0.56)
Davis Drive / Bathurst Street	Overall EB left EB through NB Left	D (0.86) C (0.75) D (0.92) D (0.90)	F (1.25) D (0.84) F (1.11) F (1.72)
Bathurst Street / Sykes Road	Overall	A (0.60)	A (0.57)
Davis Drive / Yonge Street	Overall EB left WB left WB through NB through SB left	D (0.86) D (0.56) E (0.95) D (0.58) D (0.44) C (0.26)	E (1.07) F (1.16) F (1.09) E (0.91) F (1.06) F (1.11)
Eagle Street West / Yonge Street	Overall WB left NB left NB through SB left SB through	D (0.92) F (0.95) E (0.84) C (0.72) C (0.22) E (1.03)	E (0.96) F (0.95) E (0.90) E (1.02) F (0.95) E (0.98)
Millard Avenue West / Yonge Street	Overall EB left WB through NB Left NB through SB Left SB through	C (0.74) C (0.16) D (0.43) F (0.84) B (0.40) B (0.22) C (0.93)	D (0.96) D (0.54) D (0.65) C (0.46) E (1.10) F (0.90) B (0.64)

The future (2016) background traffic analysis indicates that most movements are functioning with good LOS at the study area signalized intersections during both peak hours. However, few signalized intersections are expected to operate over capacity with some individual movements operating with v/c ratios greater than 1.0. This is due to the increase in background development related traffic assignments. **Table 4.9** summarized the unsignalized intersections capacity analysis.

Table 4.9 – Unsignalized Intersections Capacity Analysis – Future (2016) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate (south)	EB left-right NB left-through SB through-right	A (0.13) A (0.11) A (0.09)	A (0.08) A (0.17) A (0.06)
Crossland Gate / Eagle Street West	EB left-through-right WB left-through-right NB left-through-right SB left-through-right	B (0.25) A (0.04) B (0.40) B (0.56)	B (0.20) B (0.02) E (0.95) C (0.73)
Alex Doner Drive / Crossland Gate (north)	EB left-through WB through-right SB left-right	A (0.04) A (0.04) A (0.02)	B (0.07) A (0.06) A (0.03)
Millard Avenue West / Eagle Street West	WB left-right NB through-right SB left-through	A (0.15) B (0.41) C (0.68)	B (0.21) D (0.82) C (0.76)
Davis Drive / GO Terminal Access	EB left-through-right WB left-through-right NB left NB right SB right	A (0.09) B (0.01) A (<0.01) B (0.01) B (0.06)	C (0.41) B (0.01) F (0.56) B (0.02) B (0.29)

The unsignalized intersections are anticipated to continue to operate below-capacity and with short delays during both peak periods of analysis.

4.6.2. Future (2021) Background Traffic Analysis

Future (2021) background traffic consists of traffic due to the Phase 2 of the background developments within the study area plus the 10-year traffic growth outside of the study area. Future (2021) background traffic operational analyses are summarized in **Table 4.10** and **Table 4.11** for signalized and unsignalized intersections. Future 2021 background traffic volumes are shown in **Figure 4-6** and detailed calculations are provided in **Appendix H**.

Table 4.10 – Signalized Intersections Capacity Analysis – Future (2021) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Davis Drive and Upper Canada Mall Entrance / Eagle Street West	Overall	C (0.54)	D (0.78)
Davis Drive / Ford Wilson Boulevard	Overall	C (0.47)	A (0.71)
Davis Drive / Bathurst Street	Overall EB left EB through WB through-right NB Left	E (0.91) D (0.83) F (1.12) E (0.83) D (0.91)	F (1.37) D (0.91) F (1.28) E (0.98) F (1.81)
Bathurst Street / Sykes Road	Overall	A (0.66)	A (0.63)

**Table 4.10 – Signalized Intersections Capacity Analysis – Future (2021) Background Traffic Conditions
(Continued)**

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Davis Drive / Yonge Street	Overall	D (1.04)	F (1.23)
	EB left	D (0.65)	F (1.35)
	EB through	D (0.84)	E (0.95)
	WB left	F (1.19)	F (1.26)
	WB through	D (0.64)	F (1.01)
	NB left	E (0.69)	E (0.92)
	NB through	C (0.54)	F (1.13)
	SB left SB through	C (0.65) E (0.99)	F (1.32) D (0.85)
Eagle Street West/ Yonge Street	Overall	F (1.03)	F (1.06)
	EB through	E (0.74)	E (0.92)
	WB left	F (0.95)	F (1.12)
	NB left	F (1.18)	F (1.07)
	NB through	D (0.82)	F (1.16)
	SB left SB through	D (0.27) F (1.18)	F (1.18) F (1.15)
Millard Avenue West / Yonge Street	Overall	D (0.85)	F (1.08)
	EB left	D (0.45)	D (0.57)
	WB through	D (0.46)	E (0.70)
	NB Left	F (0.84)	D (0.58)
	NB through-right	B (0.46)	F (1.27)
	SB Left SB through	B (0.25) E (1.11)	F (0.90) B (0.75)

In the future (2021) background condition most signalized intersections continue to operate at acceptable overall LOS during both peak hours. However, some signalized intersections continued to operate over capacity with some individual movements operating with v/c ratios greater than 1.0. As previously identified, this is a direct result of traffic increases as a result of background developments.

In the context of mitigation, the road network as it currently exists is at full build out, and as such the only opportunity to reduce vehicular trips is through increased availability of transit and various other transportation demand management strategies. As previously identified, the Yonge Street and Davis Drive Rapidways are forthcoming and, in the fullness of time, will see more person trips being undertaken by transit than by private automobile. The result would be that some of these assessed background development trips will alter their trip making to transit or other modes, thereby resulting our analysis as representing worst case traffic conditions.

Table 4.11 summarizes the unsignalized intersection capacity analysis results.

Table 4.11 – Unsignalized Intersections Capacity Analysis – Future (2016) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate (south)	EB left-right NB left-through SB through-right	A (0.13) A (0.11) A (0.09)	A (0.08) A (0.17) A (0.06)
Crossland Gate / Eagle Street West	EB left-through-right WB left-through-right NB left-through-right SB left-through-right	B (0.26) A (0.04) B (0.46) C (0.69)	B (0.21) B (0.02) F (1.11) D (0.81)
Alex Doner Drive / Crossland Gate (north)	EB left-through WB through-right SB left-right	A (0.04) A (0.04) A (0.02)	B (0.07) A (0.06) A (0.03)
Millard Avenue West / Eagle Street West	WB left-right NB through-right SB left-through	A (0.16) B (0.46) D (0.81)	B (0.22) F (0.99) E (0.87)
Davis Drive / GO Terminal Access	EB left-through-right WB left-through-right NB left NB right SB right	B (0.10) B (0.01) A (<0.01) C (0.01) B (0.06)	C (0.52) B (0.02) F (1.25) B (0.03) B (0.30)
Davis Drive / Toth Farm Access	EB left SB left SB right	B (0.02) F (0.81) B (0.07)	C (0.11) F (1.80) C (0.08)

The unsignalized intersections are anticipated to continue to operate below-capacity and with short delays during both peak periods of analysis.

5.0 Site Trip Generation and Distribution

This study focuses on the weekday a.m. and p.m. peak hour trips as the subject lands will be developed for mostly residential uses. The future a.m. and p.m. peak hour trips were derived using information contained in *Trip Generation, 8th Edition*, published by the ITE, as well as specific proxy surveys as described previously.

5.1. Trip Generation Analysis

Vehicular trips during the weekday a.m. and p.m. peak hours for the commercial GFA of approximately 1,858 m² (20,000 ft²) was based on the average trip rate for the *Shopping Center* (Land Use Code 820). Generated trips from the high density residential parcel were calculated for the 292 apartment dwelling units using *Apartment* (Land Use 220) while the recreational trips were also calculated for the *Golf Course* (Land Use 430).

As previously identified, a trip generation survey was undertaken for the existing 186 single family houses located on the west side of Eagle Street West within the study area. These net trip generation rates calculated from the proxy trip generation survey were used in our trip generation calculations for the low / medium density residential parcels (approximately 438 detached / semi-detached housing units).

For assessment purposes it was assumed that the redevelopment will take place in two (2) Phases. Phase 1 will see the construction of approximately 438 single family homes, the commercial plaza, and the nine (9)-hole golf course. The expected completion year of the Phase 1 is 2016. Phase 2 includes the construction of two (2) apartment buildings adjacent to Davis Drive which adds an additional 288 high density units to the subject lands by end of 2021. The anticipated trip generation of the proposed redevelopments are summarized in **Table 5.1**.

An 11% transit reduction was applied to the Phase 2 lands based on the *2006 Transportation Tomorrow Survey (TTS)* data for the surrounding area and also to account for an expected increase in transit ridership as a result of the construction of the Rapidways. A pass-by rate of 50% was applied to the commercial afternoon trips based on the *Trip Generation Handbook 2nd Edition* also published by the ITE.

Table 5.1 –Site Trip Generation

Phase	Use Category	Parameter	A.M. Peak Hour			P.M. Peak Hour		
			In	Out	Total	In	Out	Total
Phase 1 (2016)	Commercial 20,000 ft ² (Land Use 820)	Gross Trips	37	23	60	106	110	216
		Gross Rate (trips / 1000 ft ²)	1.83	1.17	3.00	5.29	5.51	10.80
		Modal Split (11%)	6	4	10	18	19	37
		Pass-By Trips (50%)	0	0	0	54	54	108
		New Trips	31	19	50	34	37	71
		New Rate (trips / 1000 ft ²)	1.55	0.95	2.50	1.70	1.82	3.55
	Single-family detached / semi- detached housing 422 units (Trip Generation Survey)	Proxy Rate (trips/units)	0.13	0.34	0.47	0.37	0.23	0.60
		New Trips	55	143	198	156	97	253
	Golf Course 9 holes (Land Use 430)	Gross Trips	16	4	20	11	14	25
		Gross Rate (trips/holes)	1.76	0.47	2.23	1.25	1.53	2.78
New Trips		16	4	20	11	14	25	
Total New Trips Phase I (2016)			102	166	268	201	148	349
Phase 2 (2021)	Apartment 288 units (Land Use 220)	Gross Trips	29	118	147	116	63	179
		Gross Rate (trips/ units)	0.10	0.41	0.51	0.40	0.22	0.62
		Modal Split (11%)	5	20	25	20	10	30
		New Trips	24	98	122	96	53	149
		New Rate (trips/ units)	0.08	0.34	0.42	0.33	0.19	0.52
Total New Trips			126	264	390	297	201	498

Based on our trip generation analysis, the Phase 1 redevelopment plan may result in 268 total new trips during the a.m. peak hour (102 trips in / 166 trips out) and 349 total new trips during the p.m. peak hour (201 trips in / 148 trips out).

The Phase 2 redevelopment plan will increase the total new vehicular trips to approximately 390 total new trips during the a.m. peak hour (126 trips in / 264 trips out) and 498 total new trips during the p.m. peak hour (297 trips in / 201 trips out) by year 2021.

5.2. Modal Split

To account for trips that are not made with private automobile, a non-auto modal split was developed using information contained in the *2006 Transportation Tomorrow Survey (TTS)* for the subject GTA zones of household 2605 and 2606, and two (2) other adjacent TTS zones (2612 and 2613). The 2006 TTS data is provided in **Table 5.2**.

Table 5.2 – 2006 TTS A.M. Work Trips Data

Mode	2006 TTS Zone Number				Total Trips
	2605	2611	2612	2613	
Walk + Cycle	170	184	0	169	523
Transit+ GO+ School Bus	283	202	19	226	730
Passengers	396	386	0	151	933
Drivers	1,545	1,323	169	1,073	4,110
Total Trips	2,394	2,113	188	1,638	6,333
Mode Split Percentage	12%	10%	10%	14%	11%

An 11% modal split was utilized in the trip generation calculations based on the averaged transit rate of the subject site's surrounding developed residential areas applied only to High density uses. The modal split can be substantiated based on the presence of increased higher order transit operating within the study area in the 2016-2021 time frames.

5.3. Existing Transit

York Region Transit (YRT) provides a network of local bus service through a large portion of the study area. **Figure 5-1** provides a map of the YRT local routes serving the study area. Key routes operating within the study area are as follows:

YRT Route 22 - operates from the Maple Community Centre to the Seneca King Campus. As part of this route, the buses travel on Yonge Street from south of King Road (Bond Crescent) to Bloomington Road.

YRT Route 44 - operates from the Newmarket Terminal to the Newmarket GO Station. As part of this route, the buses with full service travel on Yonge Street from Upper Canada Mall Driveway to Bristol Road. During weekday a.m. peak hour, the buses travel on Yonge Street from Davis Drive to Bristol Road.

YRT Route 52 - operates from the Newmarket Terminal to the intersection of Yonge Street and Queensville Sideroad. As part of this route, the buses with full service travel on Yonge Street from Upper Canada Mall Driveway to Green Lane. During the weekday a.m. peak hour, the buses travel on Yonge Street from Davis Drive to Green Lane.

YRT Route 98 - operates between the Upper Yonge Place to the intersection of Yonge Street and Green Lane. As part of this route, the buses travel on Yonge Street from Gamble Road to Green Lane.

YRT Route 520 – serves as a community transit route in the Town of Newmarket. The buses start and end at the Upper Canada Mall on every run. As part of this route, the buses travel on Yonge Street from Davis Drive to South of Green Lane.

YRT Route 521 - serves as a community transit route in the Town of Newmarket. The buses start and end at the Upper Canada Mall on every run. As part of this route, the buses travel on Yonge Street from Davis Drive to South of Green Lane.

YRT Route 55 - operates from Newmarket GO Bus Terminal to 404 Town Centre. As part of this route, the buses will full service travel on Davis Drive from Eagle Street West to Leslie Street.

In addition to these YRT services, York Region has been operating Rapid Transit services along Yonge Street since 2005. The Viva Blue route travels along Yonge Street from Finch Station in the City of Toronto northward to the Newmarket Terminal at Eagle Street West and Davis Drive. The headway of the Viva Blue route within the study area is 10 minutes during the weekday a.m. and p.m. peak periods and 15 minutes in the off-peak periods.

In addition to YRT / VIVA bus services, GO Transit operates the Newmarket 'B', Newmarket 'B' Express, and Newmarket-York University bus routes along Yonge Street within the study area. The frequency of the Newmarket 'B' bus service has been reduced significantly with the introduction of the Viva service in the fall of 2005. There is one (1) GO Transit Terminal in proximity to Yonge Street and Davis Drive within the study area:

Newmarket GO Bus Terminal - located on Davis Drive, west of Eagle Street in the Town of Newmarket. This terminal serves the GO Transit bus services on Bradford Line throughout the day. This is a shared terminal with the York Region Transit.

5.4. Future Transit Improvements

Based on York Region Transportation Master Plan 2009 Update, Yonge Street is designate as a Rapid Transit Corridor. The Yonge Street Rapid Transit (VIVA next) will improve transit within the Region and specifically along the stretch of Yonge Street from Mulock Drive to Davis Drive. This transit route will be linked to the Davis Drive rapidway and provide access to the South Lake Regional Health Center, Newmarket's Heritage area, and the Newmarket GO Station. The construction of the VIVA next rapidways along both Davis Drive and Yonge Street is expected to begin in 2014 and the project is expected to be completed by 2017.

5.5. Trip Distribution and Assignment

These new trips were assigned to the road network based on the subject land uses' trip generation surveys, the access points, existing traffic patterns of the major intersections, and the TTS 2006 trip distribution data for the subject zone. The trip assignment and distribution rates are shown in **Table 5.3**.

Table 5.3 – Trip Distribution Rates

Use Category	To/From	A.M. and P.M. Peak Hour
		Inbound (Outbound)
Residential / Commercial / Golf Course	North	20% (20%)
	South	40% (40%)
	East	20% (20%)
	West	20% (20%)
	Total	100% (100%)

Site traffic was assigned within the subject lands based on the site proxy trip generation survey. The survey results indicated that inbound and outbound trips to/from the residential access driveways were distributed generally evenly to the north and south directions within the subject lands. Hence, trips were assigned to the local municipal roads and collectors based on this general assumption.

Trips were then assigned to the major arterials and roadways based on the above trip distribution rates. The Phase 1 and Phase 2 site trip distribution and assignment results (site traffic volumes) are illustrated in **Figure 5-2** and **Figure 5-3** accordingly.

It is important to emphasize that based on the location of the commercial building and the new golf course clubhouse (i.e., the clubhouse will be relocated to the west side of the subject site along Bathurst Street), most trips generated by these two (2) land uses would be using Davis Drive and Bathurst Street as their main entry point and as such will have no significant effect on the internal road network under study.

It must also be noted that the Apartment and Townhouse Block 'B', which account for approximately 60% of the total amount of residential units, are located immediately abutting Davis Drive with a new intersection proposed to Davis Drive to provide direct access to these developments. Furthermore, this new intersection and roadway are not proposed to connect into the internal subject lands road network, and as such, traffic infiltration through the existing Glenway neighbourhood is not expected.

6.0 Future Total Traffic Analysis

The redevelopment of the site will result in the development of approximately 730 residential units, approximately 1,858 m² (20,000 ft²) of Commercial GFA, and a nine (9)-hole golf course recreational centre.

In order to estimate the future 2016 and 2021 total traffic volumes, the traffic generated by the above mentioned redevelopment plans (Phase 1 site traffic and Phase 2 site traffic) were added to the future background 2016 and 2021 traffic volumes accordingly. Future 2026 total traffic consists of an additional five (5) years of traffic growth beyond the 2021 traffic horizon.

6.1. Level of Service Analysis

SYNCHRO v7.0 software was used to analyze the study intersections in the 2016, 2021, and 2026 horizon years.

6.1.1. Future (2016) Total Traffic Analysis

Future (2016) total traffic volumes are provided in **Figure 6-1** and capacity analysis calculations are provided in **Appendix I**. The critical movements are summarized in **Table 6.1** for signalized intersections.

Table 6.1 – Signalized Intersections Capacity Analysis – Future 2016 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Davis Drive and Upper Canada Mall Entrance / Eagle Street West	Overall	C (0.51)	C (0.71)
	NB left	D (0.58)	F (0.97)
Davis Drive / Ford Wilson Boulevard	Overall	B (0.42)	A (0.58)
Davis Drive / Bathurst Street	Overall	D (0.84)	F (1.28)
	EB left	C (0.76)	D (0.85)
	EB through	E (0.95)	F (1.18)
	WB through	E (0.72)	E (0.91)
	NB Left	D (0.92)	F (1.72)
Bathurst Street / Sykes Road	Overall	A (0.63)	A (0.60)
Davis Drive / Yonge Street	Overall	D (0.88)	E (1.11)
	EB left	D (0.65)	F (1.17)
	EB through	D (0.81)	E (0.87)
	WB left	E (0.96)	F (1.06)
	WB through	D (0.60)	E (0.93)
	NB left	D (0.68)	D (0.86)
	NB through	D (0.45)	F (1.08)
	SB left	C (0.55)	F (1.13)
Eagle Street West/ Yonge Street	Overall	E (0.94)	E (0.93)
	WB left	F (0.95)	F (0.95)
	NB left	E (0.86)	F (0.98)
	NB through	C (0.72)	E (1.03)
	SB left	C (0.22)	F (0.96)
	SB through	F (1.04)	E (1.00)
Millard Avenue West / Yonge Street	Overall	C (0.75)	D (0.97)
	NB left	F (0.85)	C (0.49)
	NB through	B (0.40)	F (1.11)
	SB Left	B (0.22)	F (0.90)
	SB through	C (0.94)	B (0.64)

The future 2016 total traffic analysis results indicate that some signalized intersections continued to operate over capacity with some individual movements operating with v/c ratios greater than 1.0. However, it is noted that the traffic impact increase from the future (2016) background conditions to the future (2016) total conditions is nominal which verify the minimal effect of the subject development traffic to the road network.

Table 6.2 summarized the capacity analysis results for the study area unsignalized intersections and the redevelopment’s site accesses.

Table 6.2 – Unsignalized Intersections Capacity Analysis – Future 2016 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive/ Crossland Gate (south)	EB left-through right WB left-through right NB left-through right SB left-through right	A (0.19) A (0.01) A (0.13) A (0.13)	A (0.08) A (<0.01) A (0.19) A (0.07)
Crossland Gate / Eagle Street West	EB left-through-right WB left-through-right NB left-through-right SB left-through-right	B (0.27) A (0.04) B (0.42) B (0.58)	B (0.22) B (0.02) F (1.00) C (0.75)
Alex Doner Drive / Crossland Gate (north)	EB left-through WB through-right SB left-right	B (0.05) A (0.08) A (0.02)	B (0.09) A (0.08) A (0.04)
Access #7 / Millard Avenue West / Eagle Street West	EB left-through-right WB through-right NB left-through-right SB left-through-right	A (0.02) A (0.15) B (0.42) C (0.69)	B (0.02) B (0.23) D (0.83) D (0.78)
Davis Drive / Go Terminal Access	EB left-through-right WB left-through-right NB left NB right SB right	B (0.09) B (0.01) A (<0.01) B (0.01) B (0.06)	C (0.44) B (0.01) F (0.71) B (0.02) B (0.29)
Alex Doner / Street 'A'	EB left-through SB left-right	A (<0.01) A (0.02)	A (<0.01) A (0.01)
Alex Doner / Access #1	EB through-right WB left-through NB left-right	A (0.02) A (<0.01) A (0.03)	A (0.04) A (0.01) A (0.01)
Crossland Gate / Access #2	WB left NB through-right SB left-through	A (0.03) A (0.03) A (<0.01)	A (0.01) A (0.04) A (0.01)
Crossland Gate / Street 'A'	EB left-right	A (0.01)	A (0.01)
Davis Drive / Street 'B'	WB left NB left NB right	B (0.02) F (0.07) C (0.09)	B (0.07) F (0.09) B (0.05)
Eagle Street West / Street 'D'	EB left-through-right WB left-through-right NB left-through-right	B (0.02) C (0.02) A (<0.01)	B (0.01) D (0.02) A (0.01)
Millard Avenue West / Street 'D'	WB left-through NB left-right	A (<0.01) B (0.01)	A (0.23) B (0.01)

In the 2016 future total traffic analysis, all movements of study area unsignalized intersections are operating with acceptable LOS with v/c ratios less than 1.0 during a.m. peak periods except the NB left movement of the intersection of Davis Drive / Street 'B'. In addition, few movements operate at capacity during p.m. peak periods.

The new unsignalized intersection of Davis Drive and Street 'B' operates at failing LOS for the outbound left turn movement during both peak periods; however, the projected traffic volumes are minimal. A traffic signal warrant was completed for this intersection and signal warrants were not found to be met. As such in the 2016 horizon year, it is recommended that this intersection function under unsignalized control. The detailed signal warrant calculations are attached in **Appendix J** for reference.

6.1.2. Future (2021) Total Traffic Analysis

Future (2021) total traffic volumes are provided in **Figure 6-2** and the capacity analysis calculations are provided in **Appendix K**. The critical movements are summarized in **Table 6.3** for signalized intersections.

Table 6.3 – Signalized Intersections Capacity Analysis – Future 2021 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Davis Drive and Upper Canada Mall Entrance / Eagle Street West	Overall	C (0.66)	D (0.82)
	NB left	D (0.52)	F (1.12)
Davis Drive / Ford Wilson Boulevard	Overall	C (0.48)	A (0.75)
Davis Drive / Bathurst Street	Overall	E (0.93)	F (1.39)
	EB left	D (0.85)	D (0.88)
	EB through	F (1.16)	F (1.33)
	WB through	E (0.88)	F (1.05)
	NB Left	D (0.93)	F (1.83)
Bathurst Street / Sykes Road	Overall	A (0.69)	A (0.66)
Davis Drive / Yonge Street	Overall	E (1.01)	F (1.29)
	EB left	D (0.79)	F (1.39)
	EB through	E (0.87)	E (0.99)
	WB left	F (1.16)	F (1.20)
	WB through	D (0.65)	F (1.07)
	NB left	E (0.77)	F (1.05)
	NB through	C (0.57)	F (1.16)
	SB left	C (0.67)	F (1.32)
SB through	E (1.04)	E (0.91)	
Eagle Street West / Yonge Street	Overall	F (1.05)	F (1.09)
	EB through	E (0.74)	E (0.92)
	WB left	F (0.96)	F (1.13)
	NB left	F (1.21)	F (1.16)
	NB through	D (0.84)	F (1.20)
	SB left	C (0.27)	F (1.18)
Millard Avenue West / Yonge Street	Overall	E (0.87)	F (1.11)
	NB left	F (0.85)	D (0.63)
	NB through	C (0.47)	F (1.31)
	SB Left	B (0.26)	F (0.90)
	SB through	F (1.14)	B (0.77)
Davis Drive / Street 'B'	Overall	B (0.56)	A (0.57)

The future 2021 total traffic analysis results indicate that some signalized intersections continued to operate over capacity with some individual movements operating with v/c ratios greater than 1.0.

Since the intersection of Davis Drive and Street 'B' is expected to operate at failing LOS in the 2016 total traffic condition as a three-legged unsignalized intersection, a traffic signal warrant was completed for this intersection for the 2021 horizon year to reflect 2021 forecasts and to reflect a new north leg to this intersection to accommodate the Toth subdivision. Under signalized control the intersection operates at excellent LOS. A signal warrant analysis was undertaken under this traffic projection and was found to be met at overall 100% (111% satisfied for minimum vehicular volume criterion and 80% satisfied for delay to cross traffic criterion). Refer to **Appendix J** for signal warrant detail calculations and results.

As a result, the intersection of Davis Drive and Street 'B' is recommended for signalization in the 2021 horizon year, with the provision of the 4th north leg. Exclusive left-turn lanes at each approach are also recommended during future 2021 condition based on the left-turn lanes warrants. The left turn lanes warrants analysis is presented in **Section 7.1.1**.

It is noted that the traffic impact increase from future (2021) background conditions to future (2021) total conditions is nominal which verify the minimal effect of the subject development's impact to the road network.

Table 6.4 summarized the capacity analysis results for the study area unsignalized intersections and the redevelopment's site accesses below.

Table 6.4 – Unsignalized Intersections Capacity Analysis – Future 2021 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate (south)	EB left-through right WB left-through right NB left-through right SB left-through right	A (0.14) A (0.01) A (0.12) A (0.12)	A (0.08) A (<0.01) A (0.20) A (0.08)
Crossland Gate / Eagle Street West	EB left-through-right WB left-through-right NB left-through-right SB left-through-right	B (0.29) A (0.04) B (0.48) C (0.72)	B (0.22) B (0.02) F (1.16) D (0.83)
Alex Doner Drive / Crossland Gate (north)	EB left-through WB through-right SB left-right	B (0.05) A (0.08) A (0.02)	B (0.10) A (0.08) A (0.04)
Access #7 / Millard Avenue West / Eagle Street West	EB left-through-right WB through-right NB left-through-right SB left-through-right	B (0.02) A (0.16) B (0.47) D (0.82)	B (0.02) B (0.24) F (1.00) E (0.89)
Davis Drive / Go Terminal Access	EB left-through-right WB left-through-right NB left NB right SB right	B (0.10) B (0.01) A (<0.01) A (<0.01) B (0.06)	D (0.60) B (0.02) F (0.64) B (0.02) B (0.28)
Alex Doner Drive / Street 'A'	EB left-through SB left-right	A (<0.01) A (0.02)	A (<0.01) A (0.01)
Alex Doner Drive / Access #1	EB through-right WB left-through NB left-right	A (0.02) A (<0.01) A (0.03)	A (0.05) A (0.01) A (0.01)
Crossland Gate / Access #2	WB left NB through-right SB left-through	A (0.03) A (0.03) A (<0.01)	A (0.01) A (0.04) A (0.01)
Crossland Gate / Street 'A'	EB left-right	A (0.01)	A (0.01)
Eagle Street West / Street 'D'	EB left-through-right WB left-through-right NB left-through-right	B (0.02) C (0.02) A (<0.01)	C (0.01) D (0.03) A (0.01)
Millard Avenue West / Street 'D'	WB left-through NB left-right	A (<0.01) B (0.02)	A (0.26) B (0.01)

In the 2016 future total traffic analysis, all movements at the subject unsignalized intersections are expected to operate with acceptable LOS with v/c ratios less than 1.0 during a.m. peak period. However, few movements operate at capacity during p.m. peak periods.

6.1.3. Future (2026) Total Traffic Analysis

Future (2026) total traffic conditions consists of future 2021 total traffic plus additional traffic growth applied for five (5) years. Future (2026) total traffic volumes are provided in **Figure 6-3** and the capacity analysis results are provided in **Appendix L**. The critical movements are summarized in **Table 6.5** for signalized intersections.

Table 6.5 – Signalized Intersections Capacity Analysis – Future 2026 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Davis Drive and Upper Canada Mall Entrance / Eagle Street West	Overall	C (0.72)	D (0.87)
	NB left	D (0.51)	F (1.12)
Davis Drive / Ford Wilson Boulevard	Overall	C (0.51)	B (0.88)
Davis Drive / Bathurst Street	Overall	F (0.99)	F (1.48)
	EB left	E (0.92)	E (0.98)
	EB through	F (1.27)	F (1.45)
	WB left	E (0.84)	C (0.74)
	WB through	E (0.95)	F (1.07)
	NB Left	E (0.96)	F (1.85)
Bathurst Street / Sykes Road	Overall	B (0.76)	A (0.72)
Davis Drive / Yonge Street	Overall	E (1.13)	F (1.28)
	EB left	E (0.88)	F (1.47)
	EB through	E (0.93)	F (1.08)
	WB left	F (1.29)	F (1.26)
	WB through	D (0.71)	F (1.17)
	NB left	E (0.78)	F (1.10)
	NB through	C (0.62)	F (1.24)
	SB left	D (0.69)	F (1.32)
	SB through	F (1.10)	E (0.95)
Eagle Street West / Yonge Street	Overall	F (1.10)	F (1.16)
	EB through	E (0.76)	F (0.98)
	WB left	F (0.97)	F (1.16)
	NB left	F (1.29)	F (1.20)
	NB through	D (0.91)	F (1.31)
	SB left	D (0.30)	F (1.26)
Millard Avenue West / Yonge Street	Overall	F (1.33)	F (1.28)
	NB left	E (0.94)	F (1.16)
	NB through	F (0.85)	D (0.71)
	SB Left	C (0.51)	F (1.42)
	SB through	B (0.29)	F (0.90)
Davis Drive / Street 'B'	Overall	F (1.24)	B (0.84)
	Overall	B (0.61)	A (0.64)

The future 2026 total traffic analysis results indicate that some signalized intersections continued to operate over capacity with some individual movements operating with v/c ratios greater than 1.0.

The new signalized intersection of Davis Drive and Street 'B'/ Toth Subdivision Access operates with excellent overall LOS with all individual movements operating below capacity under future 2026 traffic conditions.

Table 6.6 summarized the capacity analysis results for the study area unsignalized intersections and the redevelopment's site accesses below.

Table 6.6 – Unsignalized Intersections Capacity Analysis – Future 2026 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate (south)	EB left-through right WB left-through right NB left-through right SB left-through right	A (0.14) A (0.01) A (0.12) A (0.12)	A (0.08) A (<0.01) A (0.21) A (0.08)
Crossland Gate / Eagle Street West	EB left-through-right WB left-through-right NB left-through-right SB left-through-right	B (0.30) A (0.04) B (0.53) B (0.78)	B (0.23) B (0.03) F (1.26) E (0.90)
Alex Doner Drive / Crossland Gate (north)	EB left-through WB through-right SB left-right	A (0.05) A (0.08) A (0.02)	B (0.10) A (0.08) A (0.04)
Access #7 / Millard Avenue West / Eagle Street West	EB left-through-right WB through-right NB left-through-right SB left-through-right	B (0.02) B (0.16) B (0.51) D (0.88)	B (0.02) C (0.24) F (1.09) E (0.94)
Davis Drive / Go Terminal Access	EB left-through-right WB left-through-right NB left NB right SB right	B (0.11) B (0.01) A (<0.01) A (<0.01) B (0.06)	D (0.69) B (0.02) F (0.79) B (0.02) B (0.27)
Alex Doner Drive / Street 'A'	EB left-through SB left-right	A (<0.01) A (0.02)	A (<0.01) A (0.01)
Alex Doner Drive / Access #1	EB through-right WB left-through NB left-right	A (0.02) A (<0.01) A (0.03)	A (0.05) A (0.01) A (0.01)
Crossland Gate / Access #2	WB left NB through-right SB left-through	A (0.03) A (0.04) A (<0.01)	A (0.01) A (0.04) A (0.01)
Crossland Gate / Street 'A'	EB left-right	A (0.01)	A (0.01)
Eagle Street West / Street 'D'	EB left-through-right WB left-through-right NB left-through-right	B (0.02) C (0.02) A (<0.01)	C (0.02) E (0.04) A (0.01)
Millard Avenue West / Street 'D'	WB left-through NB left-right	A (<0.01) B (0.02)	A (<0.01) B (0.01)

In the 2026 future total traffic analysis, all movements of subject unsignalized intersections are operating with acceptable LOS with v/c ratios less than 1.0 during both a.m. and p.m. peak periods.

It is important to consider that future transit improvements will also improve the traffic operations at the study area intersections and the road network in general. The future transit improvements include:

- Higher transit service frequencies;
- Better accessibility of transit service stations; and,
- Exclusive transit right of ways with reduced surface transit operating in mixed traffic

Hence, the future total traffic analyses is expected to result in better operational conditions such as lower LOS, lower volume to capacity ratios, shorter queue lengths, and less delays at study area intersections than those presented.

7.0 Future Total Site Access Assessment

Based on the latest draft plan of subdivision, Street 'B' will be introduced onto Davis Drive approximately 240 meters west of the GO Terminal Access. Street 'B' will provide access for approximately 384 single family and townhouse units in Phase 1 of the redevelopment (i.e., fully in place by 2016) and the additional traffic generated by approximately 292 high density residential units of Phase 2 (occupied in 2021). The following sections describe the analysis and findings regarding the functional design of the proposed new road for 2016, 2021, and 2026 horizon years

7.1. Interim Davis Drive / Street 'B' Intersection Design

The design requirements for the future Davis Drive / Street 'B' intersection were determined the critical weekday a.m. and p.m. peak hour traffic volumes.

7.1.1. Lane Configurations

Based on the analysis for the unsignalized intersection of Davis Drive and the Street 'B', the proposed full movement access road to Davis Drive is expected to operate at generally acceptable LOS during the analysis periods with exclusive outbound left and right turn lanes. The inbound left turn movement from Davis Drive are anticipated to operate at LOS 'A' with an exclusive left-turn lane provided for use. Using the *Left Turn Lane Warrants and Storage Lane Lengths for Four-Lane Undivided Highways* for unsignalized intersections from the *Geometric Design Standards for Ontario Highways*, published by MTO, a westbound left turn lane on Davis Drive is warranted into the site. Based on the left-turn turning volumes (V_L) and the opposing volumes (V_O), a 15 meter storage length for the left-turn lane is required. **Table 7.1** summarizes the traffic volumes and minimum required storage lengths (S) for both peak periods. The left-turn warrant graph is provided in **Appendix M** for reference.

Table 7.1 – Davis Drive/ Street 'B' Required Left-Turn Lane Storage Length- 2016 Future Conditions

Peak Hour	Left-Turn Traffic Volumes (V_L)	Opposing Traffic Volumes(V_O)	Required Storage Lengths (S)
A.M.	10	1,253 (veh/hr)	15 m
P.M.	31	1,292(veh/hr)	15 m

In addition, an eastbound right turn lane along Davis Drive into the Street 'B' as per typical York Region design standards. The future 2016 Davis Drive / Street 'B' functional design is illustrated in **Figure 7-1**. Due to space constraints (i.e. the eastbound left turn lane on Davis Drive to the commercial development), it is recommended that a continuous left turn lane be provided between the eastbound and westbound left turn lanes. The adequacy of these storage lengths will be examined considering the back of queue analysis in the following subsection.

7.1.2. Back of Queue Assessment

The 95th percentile back of queue based on the future 2016 total traffic volumes was calculated using SYNCHRO v7.0 software. **Table 7.2** summarizes the 95th percentile back of queue lengths for both the westbound left turn and the northbound left turn lane groups at the Davis Drive / Street 'B' intersection for the future 2016 total traffic conditions during both a.m. and p.m. peak periods.

Table 7.2 – 95th Percentile Back of Queue Analysis – Future 2016 Condition

Intersection	Turning Movement Direction	AM Peak Hour	PM Peak Hour
Davis Drive / Street 'B'	WB left	0.5 m	1.6 m
	NB left	1.4 m	2.0 m

Given the location of the proposed Davis Drive road access (240 meters from the eastbound Davis Drive and GO Terminal Access stop bar), this access will not be affected by the back of queue for westbound left turn lane. In addition, the estimated minimum storage length of 15 meters is sufficient to accommodate all turning movements.

7.2. Ultimate Davis Drive / Street 'B' Intersection Design

Due to the construction of the Toth Farm lands north of the subject intersection (which will tie into the Davis Drive / Street 'B' intersection), and to improve traffic operations, it is recommended that the intersection be signalized to accommodate the increased traffic volumes during the future 2021 and 2026 traffic horizons. The future 2021 and 2026 lane configuration and the function design at the intersection of Davis Drive / Street 'B' are illustrated in **Figure 7-2**.

Based on typical York Region design standards, a 30 meters storage length is proposed for the eastbound and westbound turning lanes as a requirement of the signalized intersections turning lanes. In addition, the sufficiency of the 15 meters minimum storage lengths for the northbound and southbound left turn lane groups were examined considering the 95th percentile back of queue length in the future 2026 total traffic condition. The future 2026 total traffic condition was chosen since it is considered the worst-case scenario.

The 95th percentile back of queue based on the future 2026 total traffic volumes was calculated using SYNCHRO v7.0 software. **Table 7.3** summarizes the 95th percentile back of queue lengths for both the eastbound left turn, westbound left turn, northbound left turn, and northbound right turn lane groups at the intersection of Davis Drive and Proposed Access Road for the future 2026 total traffic conditions during both a.m. and p.m. peak periods.

Table 7.3 – 95th Percentile Back of Queue Analysis – Future 2026 Condition

Intersection	Turning Movement Direction	AM Peak Hour	PM Peak Hour
Davis Drive / Street 'B'	EB left	3.1 m	10.8 m
	WB left	3.4 m	12.3 m
	NB left	12.7 m	10.0 m

As indicated in **Table 7.3**, a 15 meter storage length provides sufficient storage for the northbound left turning vehicles. Hence, a minimum of 15 meters storage length is recommended for the northbound left turn lane based on the 95th percentile queue analysis. The ultimate functional design of the Davis Drive / Street 'B' intersection is presented in **Figure 7-2**.

7.3. Sight Lines Assessment

A sight line assessment was undertaken to determine the preferred location of the site access. The required minimum Stopping Sight Distance (SSD) and Decision Sight Distance (DSD) were determined based on the information provided in the *Geometric Design Standards for Ontario Highways*. For a design speed of 80 km/h (posted speed limit of 60 km/h) a minimum stopping sight distance of 135 m and a minimum decision sight distance of 240 m are required to provide safe operations of the intersection.

Based on the analysis, there is a minimum stopping sight distance of approximately 203 m and a decision sight distance of approximately 288 m. As a result, the proposed location Street 'B' will provide uninterrupted sight-line excess of the minimum stopping and decision sight distance criterion. The sight line analysis at the preferred Street 'B' location is presented in **Figure 7-3** for reference.

The study area lane configurations are illustrated in **Figure 7-4** and **Figure 7-5** for 2016 and 2021 future conditions.

8.0 Mobility Plan

The proposed redevelopment consists of approximately 730 residential units, one (1) commercial plaza, and one (1) golf clubhouse to be located in the south-west quadrant of the Davis Drive and Yonge Street intersection, in the Town of Newmarket. The proposed subdivision at full build-out will be accessed by six (6) full movement intersections (i.e., three (3) intersections via Davis Drive, two (2) intersections via Yonge Street, and one (1) intersection via Bathurst Street.

Based on the Town of Newmarket Official Plan, the subject subdivision is located within close proximity to the "Yonge-Davis Provincial Growth Centre" and "Yonge Street Regional Centre". These two (2) designations allow for developments to act as a major centre of activity for businesses, government, entertainment and cultural activity within Town of Newmarket. This will transform the area land uses into a high-density uses along Yonge Street and Davis Drive. The Community Improvement Policy Area Plan of Town of Newmarket is attached as **Appendix N** for reference.

A Mobility Plan is prepared to address the movement of pedestrians and cyclist within the study area. It will incorporate transit mobility accessibility and support Transportation Demand Management (TDM) plans that will assist in reducing site trips.

The Pedestrian and Cycling Municipal Partnership Program, adopted by York Regional Council in June 2007, promotes local pedestrian and cycling infrastructure projects that match Regional priorities and goals outlined in the Pedestrian and Cycling Master Plan. The Pedestrian and Cycling Master Plan is a blueprint to develop walking and cycling infrastructure. Adopted in 2008, the plan promotes alternate forms of travel, such as combining walking and cycling with public transit to help The Regional Municipality of York reach sustainable transportation objectives.

The key to supporting mobility and encouraging pedestrian and transit travel is the nature of connections to transit stations. To support a sustainable transportation system, information to connections co-ordinated with the site development will assist in overcoming the constraints of accessibility to link individual developments to transit routes.

Sidewalks should be provided by the developer in accordance with municipal standards, where they form part of a walkway system. Personal safety and security are of utmost importance in the decision of pedestrians to walk. Walkways designs can impact the perception of safety and security by pedestrians. Based on the *Guide for the Planning, Design and Operation of Pedestrian Facilities* by AASHTO, below are a few examples of walkway design elements which directly impacts the perception and actual safety of pedestrians:

- Sidewalks that are too narrow and/or adjacent to vehicular traffic;
- Pedestrian crossings that contains confusing signal indicators;
- Pedestrian crossings that maintains excessive crossing distances; and,
- Pedestrian crossings that contain fast-turning vehicles.

Pedestrian route placements, urban designs, streetscaping and illuminations are key elements for pedestrian corridors and should be considered explicitly.

Existing cycling infrastructure within the study area is limited. The planned cycling infrastructure for the Town of Newmarket is articulated in the York Region's *Cycling and Pedestrian Master Plan*. Cycling connections to transit will require more detailed review designs. The opportunity exists to increase mobility through cycling initiatives, such as:

- Providing bicycle parking at the front of the developments;
- Providing bicycle parking at the underground parking lot of the apartment building development;
- Installing and promoting bicycle racks on all transit vehicles;
- Providing short term and/or long term bicycle parking at transit stops;
- Promoting cycling to transit stops / stations with "wayfinding" systems; and,
- Providing rest area, drinking fountains and washroom facilities on major cycling nodes.

Directional information as part of the "wayfinding" system, will guide pedestrians and cyclist along the proposed redevelopment to the transit destinations. Providing additional information regarding transit maps and schedules present residents and visitors with only the essential information needed to navigate the subject site.

9.0 Transportation Demand Management (TDM) Program

The objective of the TDM program is to change travel behaviour by reducing single-occupant vehicle trips. This is achieved by promoting a variety of transportation services that encourage more efficient use of the existing transportation infrastructure and services, and includes encouraging more people to walk and cycle, especially for trips within Regional and Local centres.

York Region recognizes that transportation systems will need to be adapted as population increases. In response to this, the Region has developed the Smart Commute Initiative, which provides a set of regional and local transportation demand management measures to reduce auto-dependency and support the following objectives:

- Provision of facilities / operations to reduce automobile use and encourage the use of alternative sustainable transportation modes instead of single-occupancy vehicle (SOV);
- Maximize average auto occupancies, with the intent of a net minimization of site-related auto trips;
- Create and support an inclusive transportation system to accommodate and facilitate all potential road users in a safe and efficient manner; and,
- Identify the costs associated with the provisions outlined to support the TDM initiatives.

9.1. TDM opportunities

9.1.1. Public Transit

As mentioned in **Section 5.3** and **5.4** there are few existing transit routes operated by York Region Transit (YRT) that service the subject development (see Figure 5-1). In general, transit stops are spaced to ensure at least 80% of the serviced community are captured within a 400 metre walking distance. As such, transit stops should be located at minimum 1.25-3.00 stops per route kilometre (approximately 320 to 800 metres between stops) in residential areas. Based on the York Region trip planner map (<http://tripplanner.yrt.ca/hiwire>), the stop locations within the study area have been determined and are noted with the 400 metres walking radius depicted in **Figure 9-1**.

It is essential to mention the importance of the GO Terminal at the northeast quadrant of the subject site. The GO Transit terminal is located within a walking / cycling distance to the subject subdivision and especially the proposed high density development.

Based on the ridership information extracted from the YRT, from 2004 to 2009, the total YRT ridership has increased approximately 33% (average of 6.6% per annum), from 13.8 million to 18.3 million riders. During the same period, York Region's population has grown approximately 13%, which statistically validates the shift of travel-modes, with preference gearing towards the use of the comprehensive and continually growing transit network system.

The future transit improvements of Yonge Street rapidway, Davis Drive rapidway, along with the new GO Transit rail station on Mulock Drive will improve the transit ridership and reduces the vehicle dependency even more within the study area.

9.1.2. Walking and Cycling

The Town of Newmarket is a pedestrian and cycling supportive community that embraces the 'complete Streets' concept by encouraging both commuter and recreational travel by walking, cycling and using public transit through a safe and desirable Town-wide network of on-road and off-road pedestrian and Cycling facilities. For future On-Street Biking Lane Plan of the Town of Newmarket based on the *Town of Newmarket Official Plan dated April 2008* refer to **Appendix N** of this report.

9.2. TDM Strategies

Within the study area, there are numerous TDM strategies that will include marketing strategies and employer support programs (where necessary). Some programs that may be available include a range of mobility benefits for employees and residents are:

- Ridership matching services;
- Preferred carpool / vanpool parking programs;
- Car share programs such as Zipcars; and,
- Cycling and walking support programs.

9.2.1. Transit Incentive

An increase in transit use is fundamental to the overall reduction of automobile use. In general, people associate utilities with each mode of transportation (such as safety, reliability, comfort, accessibility, speed, cost, travel time, etc.), and their mode choice is based on the relative costs associated with one versus another mode. The two (2) characteristics of travel modes most likely to influence mode choice are monetary cost and travel time.

The Builder at this stage is committed to encourage alternative modes of transportation. As an initiative, the Builder will provide and distribute twenty-five dollars (\$25) prepaid VIVA / YRT / GO / PESTRO cards to each household. This subsidized bus pass can provide a significant financial incentive to encourage the use of public transit, especially for 'first time' users to try utilizing local transit services as a primary mode of transportation.

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

Transit demand can be stimulated through a variety of policies and programs, including providing financial incentives to use transit. As such, the transit incentive provided by the builder will have a long term impact to local transit services through increases in total ridership.

9.2.2. Marketing

The success of a TDM program implementation will be in the marketing and internal “sales” of the recommended TDM program. As such, one-on-one marketing (a quick questionnaire survey to obtain travel behaviours of residents) is recommended to be conducted when sales representatives are discussing ownership of the residential units with purchasers to identify the most desirable TDM solutions. To further validate the travel patterns data of the residents collected during the unit pre-sale stage, a similar questionnaire survey is recommended to be conducted once more after all units are occupied.

A welcome package will be prepared to inform new / prospective residents with alternative traveling options and York Region are committed to provide the following materials to promote active transportation:

- York Region Cycling Map;
- York Region Bike-to-Work Practical Guide;
- “Going Somewhere? Go Active!” – brochure on the benefits of cycling;
- “Got Wheels? Get a Helmet!” – brochure on proper helmet use; and,
- Young Cyclist’s Guide.

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

In summary, marketing and education programs can be implemented through the Town of Newmarket and the Regional Municipality of York. School boards can contribute to improved mobility efforts by participating in the distribution of commuting information and active involvement in walk or cycle to school programs.

9.2.3. Traffic Calming

The low speed limit of 40 km/hr on Crossland Gate and Alex Doner Drive reduce vehicle traffic speeds and volumes, and enhance safety conditions. Other traffic calming features can also improve overall street aesthetics for a more pleasant walking environment, increase visibility and reduce crossing distance for pedestrian. Some of the traffic calming devices and their descriptions that can be applied for the subject development are listed in **Table 9.1**.

Table 9.1 – Traffic Calming Strategies

Type	Description
Speed tables, raised crosswalks	Ramped surface above roadway, 7-10 cm high, 3-6 m long
Speed humps	Curved 7-10 cm high, 3-4 m long hump
Bike lanes	Marking bike lanes narrows traffic lanes
Street closures	Closing off streets to through vehicle traffic at intersections or midblock
Street Trees	Planting trees along a street to create a sense of enclosure and improve the pedestrian environment
Speed Reductions	Traffic speed reduction programs. Increased enforcement of speeding violations
Roadway striping	Painting roadway markings that narrow traffic lanes and encourage lower traffic speeds

9.2.4. Multi-Modal Navigation Tools

It is recommended that a ‘Traveling Brochure’ (prepared by York Region and distributed by the Owner) be provided to all new residents. This brochure will include practical and useful information regarding travelling options as well as surrounding amenities located in proximity to the subdivision. Some recommended contents are as follows:

- Public transit information including website addresses to different transit providers as well as contact information;
- Safety tips for pedestrians / cyclists;
- Benefits (environmental, economical, and improved health) of active transportation (walking and cycling); and,
- Carpooling information including registration and participation guidelines (Smart Commute).

The key purpose of this brochure is to minimize the individual effort from residents in getting alternative transportation information. Furthermore, there are existing applications for Smart Phone users to obtain first hand public transit information including Toronto Transit Commission (‘Rocket Radar TTC Streetcar / Bus App’), York Region Transit (‘iTransitBuddy York Region Transit’), and GO Transit (‘GO Toronto Go Transit SideKick’ and ‘GO Transit Companion’). The above noted Smart Phone applications can enhance public transit riders experience through providing information on bus / train schedules (some with real time information to track the arrival time for the next bus / train), comprehensive transit routes and stop locations, trip planner, and transit fee information.

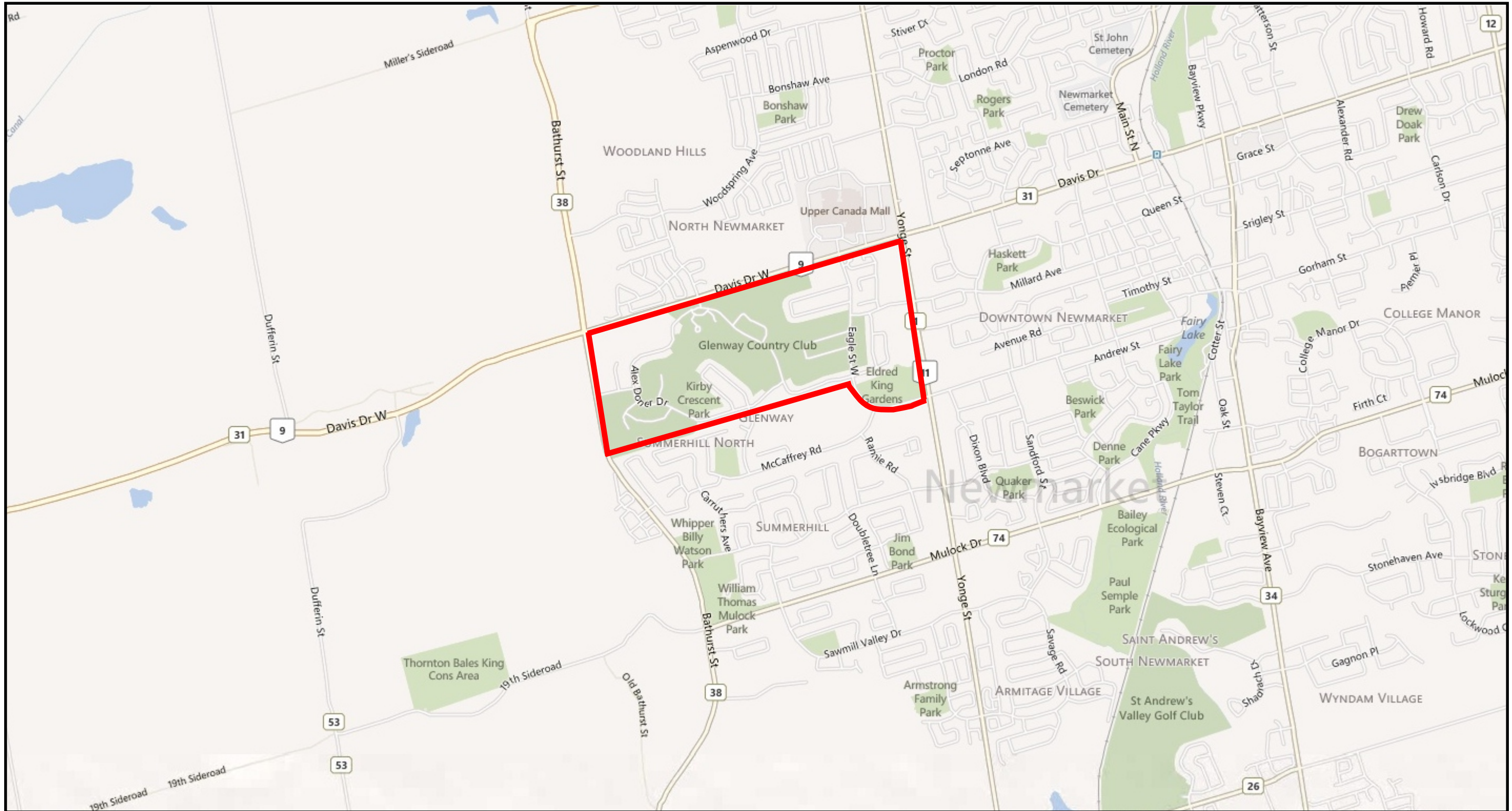
The implementation of the TDM programs will have a considerable impact in improving the future total traffic operations of the study area intersections by reducing the single-occupancy vehicular tips within the study area.

10.0 Findings and Conclusion

The proposed redevelopment results in construction of 730 new low / medium density residential units within the subject subdivision. This Transportation Study summarizes the traffic impact of the new development along with the additional traffic generated by the future background developments inside the study area and future traffic growth from outside the study area.

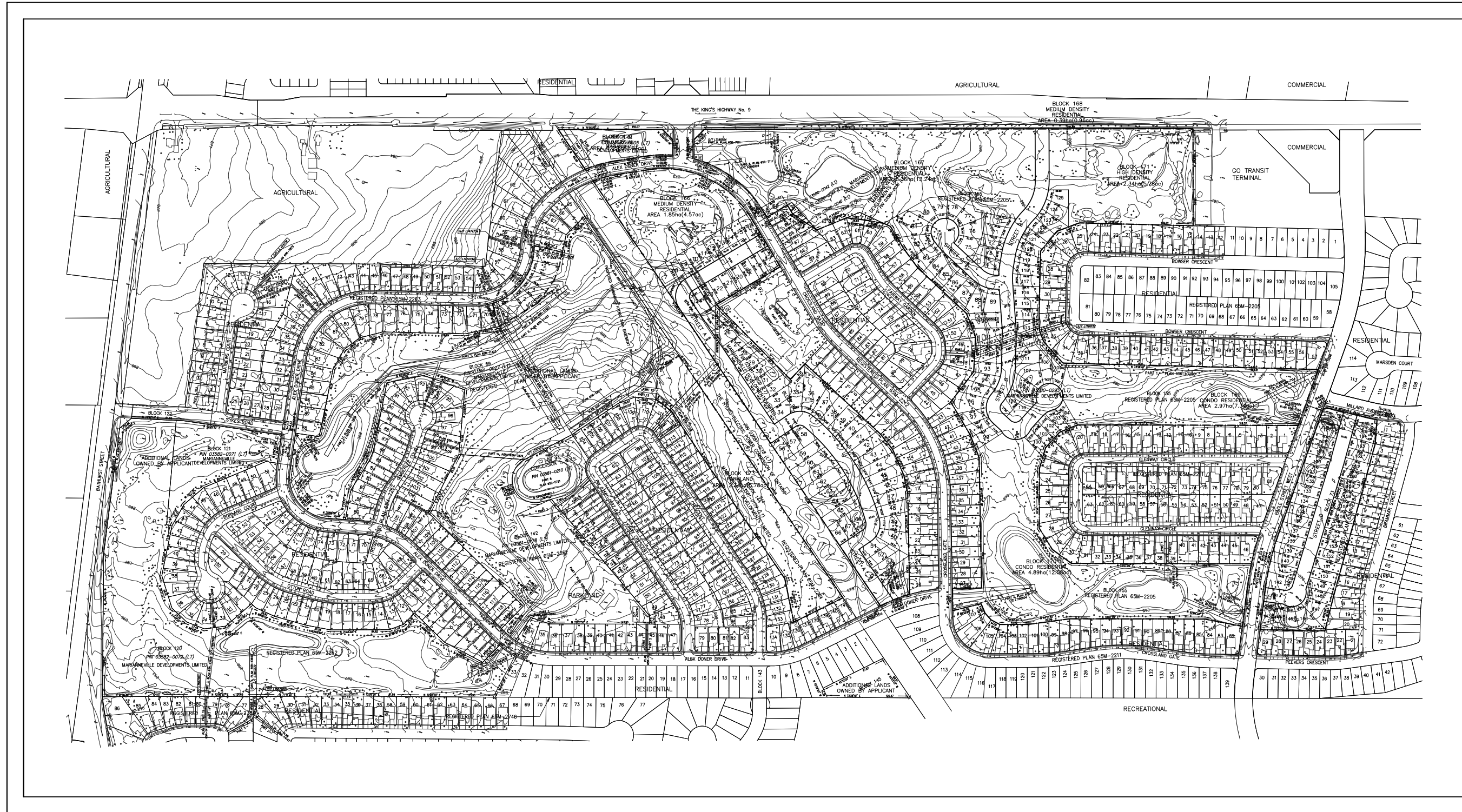
Our analysis results in the following conclusions:

- The existing traffic operational conditions of the Davis Drive / Yonge Street and Davis Drive / Bathurst Street intersections requires operational improvements i.e, dual NB left turn lane.
- Intersection improvements seem essential in future background conditions.
- This study revealed that the total traffic increase due to the proposed residential redevelopment would be minor during both peak periods
- The traffic generated by the proposed redevelopment is expected to have a modest impact on the traffic operations of the study area intersections.
- The proposed access points are all operating below capacity with excellent levels of service.
- The new intersection to Davis Drive (Davis Drive / Street 'B') is also expected to operate below capacity with acceptable levels of service.
- Functional design of the new intersection of Davis Drive / Street 'B' meets all the warrants and design requirements (i.e., storage lengths, stopping sight distance, and decision sight distance).
- Future improvements in road and transit network are expected to improve the traffic operations within the study area.
- Implementing the recommended TDM strategies will encourage walking, cycling, and use of transit among residents, visitors, and employees.
- TDM measures are also recommended to reduce the single-occupant vehicle use which will result in a considerable reduction in trip volumes within the study area
- It is recommended that the private roads be gate accessed so that traffic infiltration (i.e. short cutting) is eliminated.
- Since the magnitude of the traffic increase is minor and this traffic is distributed within large vicinity consisting of few intersections and access points, we believe that there won't be any significant adverse traffic impact on the traffic operations along the abutting road network or at the site accesses.

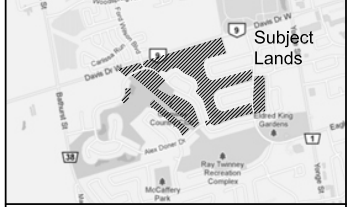


Not to Scale

**Figure 1-1
Site Location**



KEY PLAN



DRAFT PLAN OF SUBDIVISION

OF PART OF
LOTS 60, 61, 64, 65, 66, 67
BLOCK 92, RP 65M-2212
 AND ALL OF
BLOCK 91, RP 65M-2212
BLOCK 155, RP 65M-2205
BLOCKS 144 RP 65M-2261
BLOCK 89, RP 65M-2263
BLOCK 73, RP 65M-2284
 TOWN OF NEWMARKET
 REGIONAL MUNICIPALITY OF YORK

INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT

- A) As shown
- B) As shown
- C) As shown
- D) As listed above
- E) As shown
- F) As shown
- G) As shown
- H) Municipal water supply available
- I) Mix of Silty Sand & Silty Clay
- J) As shown
- K) All municipal services to be available
- L) As shown

PROPOSED LAND USES AND AREAS

RESIDENTIAL LOTS 1485	155 u/s	11,507 ha
RESIDENTIAL MEDIUM DENSITY (BLOCKS 166-168)	219 u/s	7,902 ha
RESIDENTIAL CONDO (BLOCKS 169-170)	54 u/s	7,353 ha
RESIDENTIAL HIGH DENSITY (BLOCK 171)	292 u/s	2,353 ha
COMMERCIAL (BLOCK 172)		0,648 ha
FARMLAND (BLOCK 173)		2,339 ha
PROPOSED ROADS		3,714 ha
TOTAL	730 u/s	36,296 ha

OWNER'S CERTIFICATE

MARIANNEVILLE DEVELOPMENTS LIMITED
 HEREBY CONSENTS TO THE FILING OF THIS PLAN IN DRAFT FORM

SURVEYOR'S CERTIFICATE

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

NO.	REVISION	DATE	INITIAL

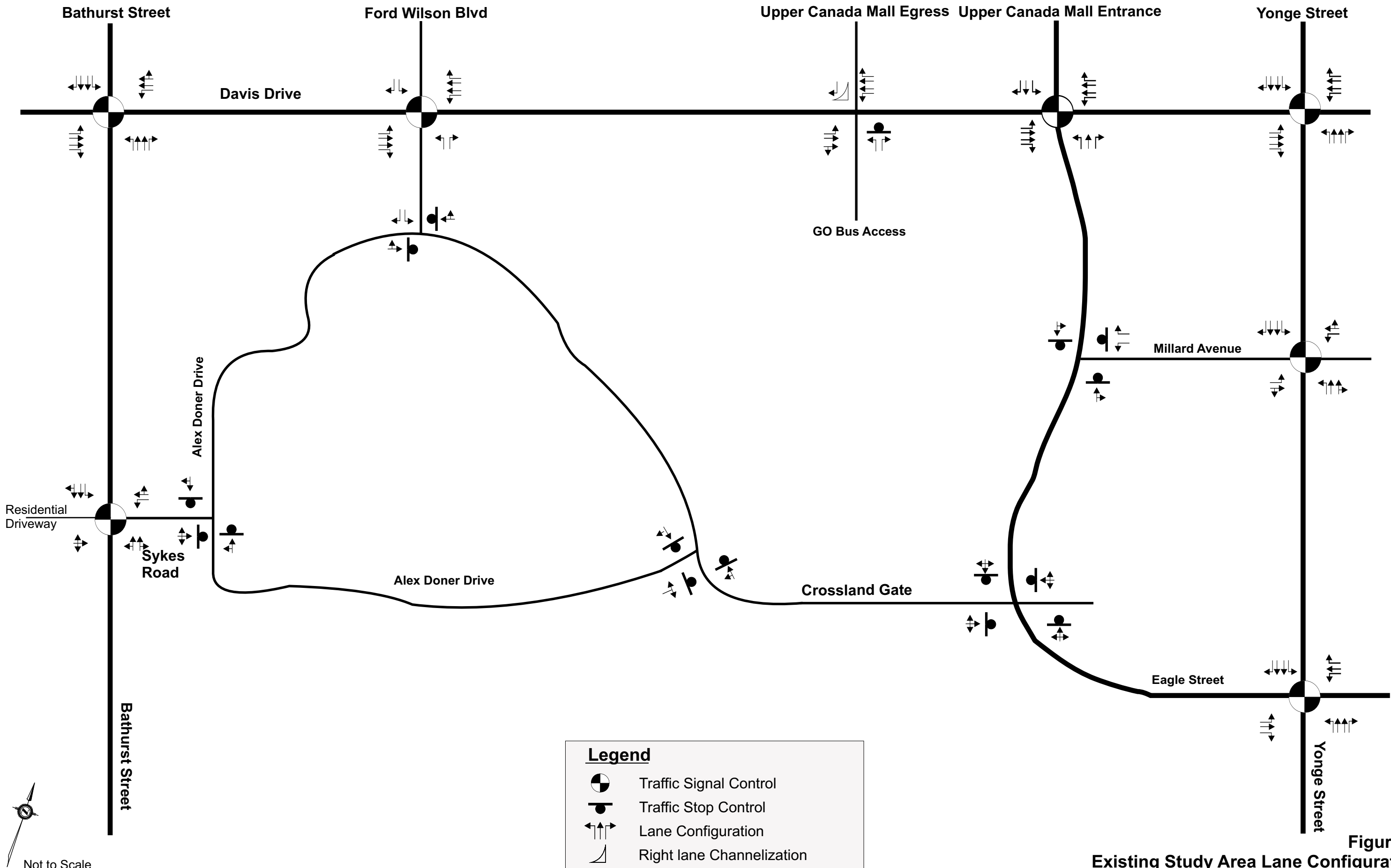


318 Wellington Road, London, Ontario N6C 4P4
 Tel: (519) 474-7137 Fax: (519) 474-2284 e-mail: zp@zpplan.com

DRAWN BY CK	PROJECT NO. MVL/NMK/10-01
DATE MARCH 2012	SCALE 1:2000

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**Figure 1-2
 Proposed Draft Plan**



Not to Scale

Legend

- Traffic Signal Control
- Traffic Stop Control
- Lane Configuration
- Right lane Channelization

Figure 2-1
Existing Study Area Lane Configurations

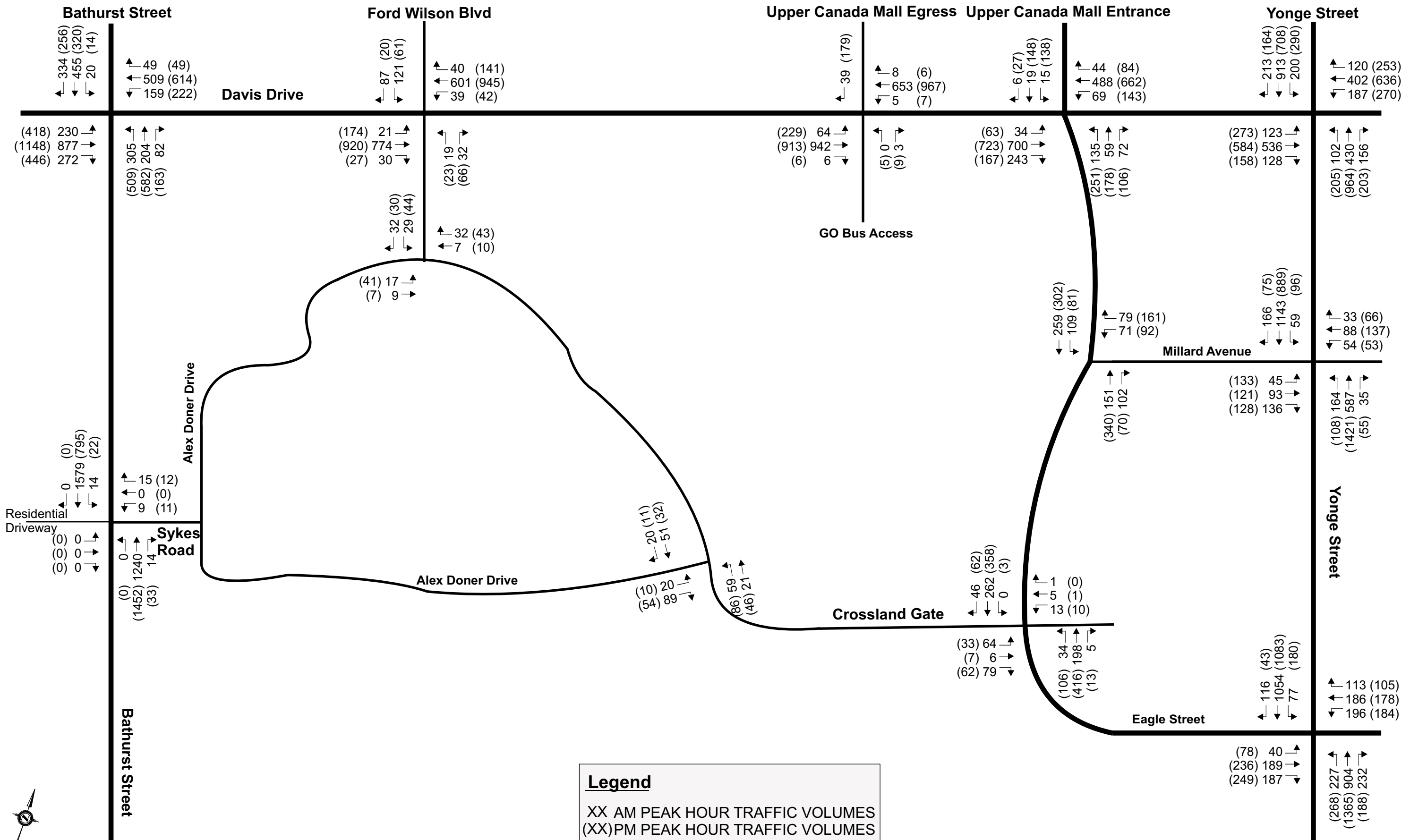
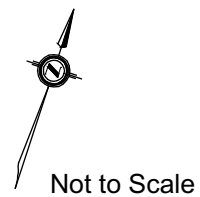


Figure 3-1 Existing (2011) Traffic Volumes





Not to Scale

Figure 4-1
Background Development Site Locations



Not to Scale


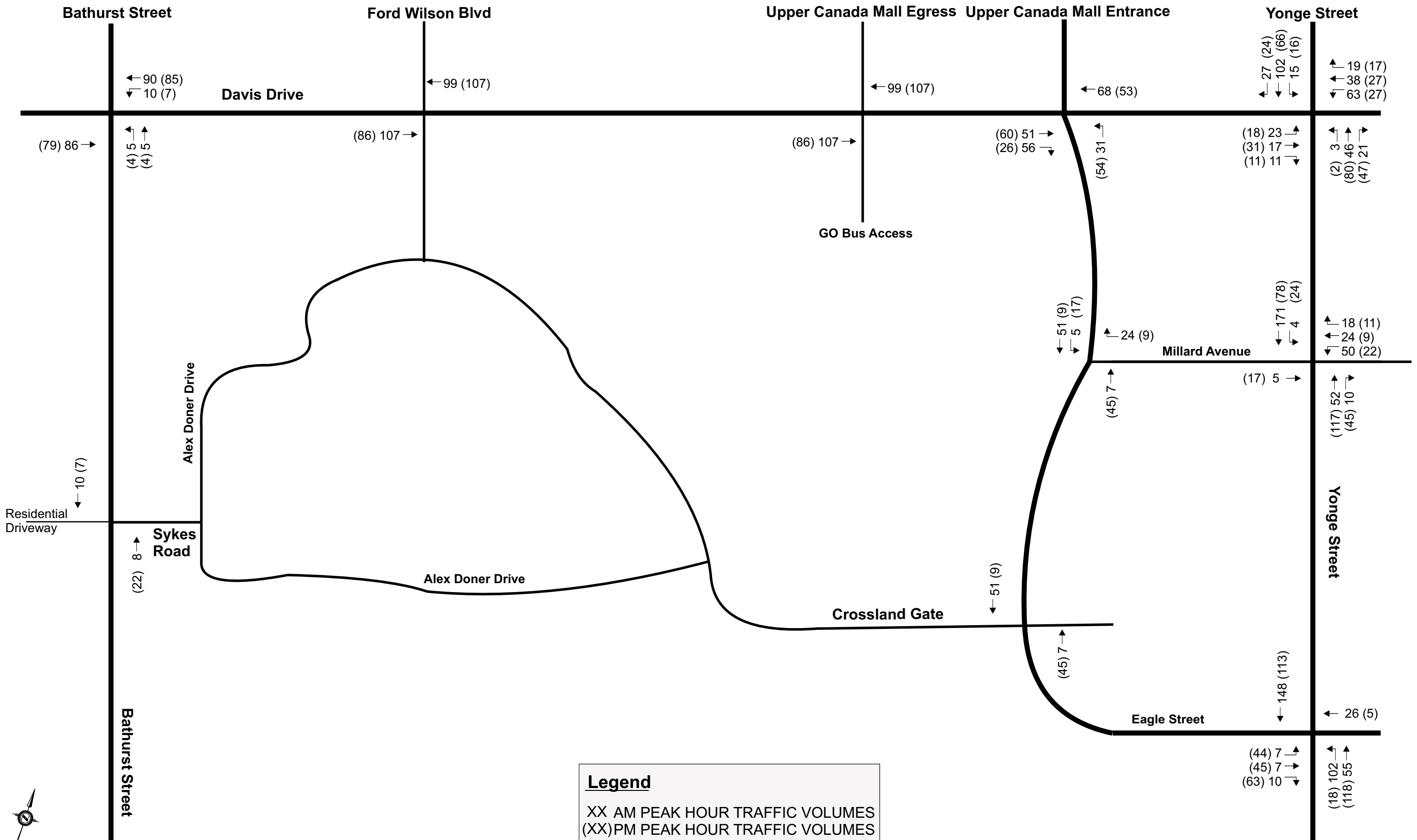
Legend	
	Trip Generation Survey Locations

Figure 4-2
Trip Generation Proxy Survey Locations



Legend
 XX AM PEAK HOUR TRAFFIC VOLUMES
 (XX) PM PEAK HOUR TRAFFIC VOLUMES

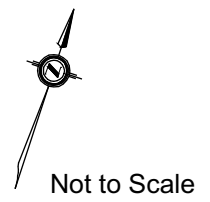
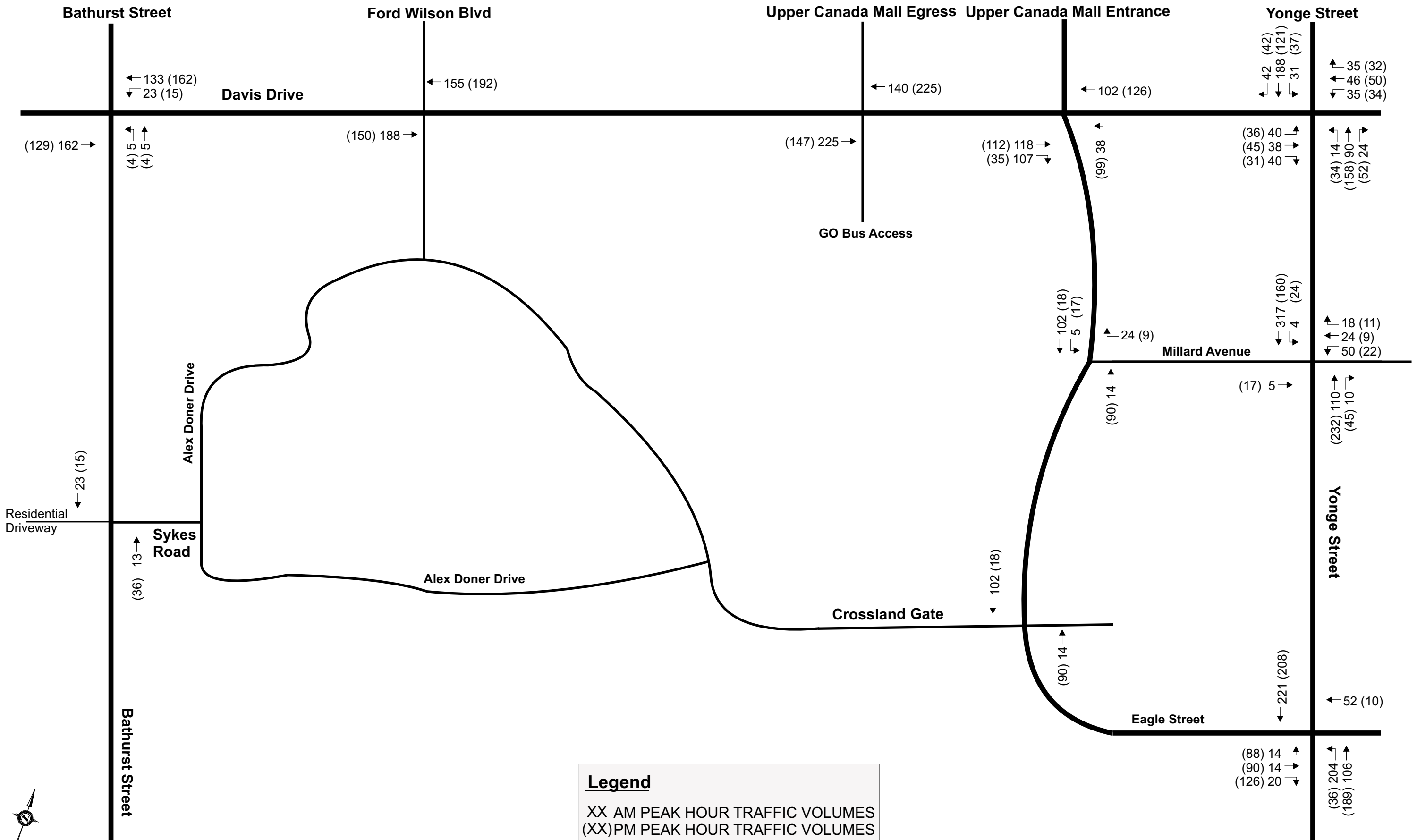


Figure 4-3
 Phase 1 (2016) Background Development Trip Assignment



Legend
 XX AM PEAK HOUR TRAFFIC VOLUMES
 (XX) PM PEAK HOUR TRAFFIC VOLUMES

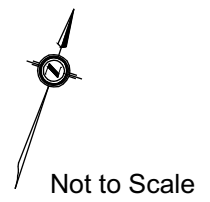


Figure 4-4
Phase 2 (2021) Background Development Trip Assignment

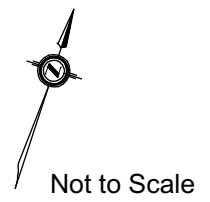
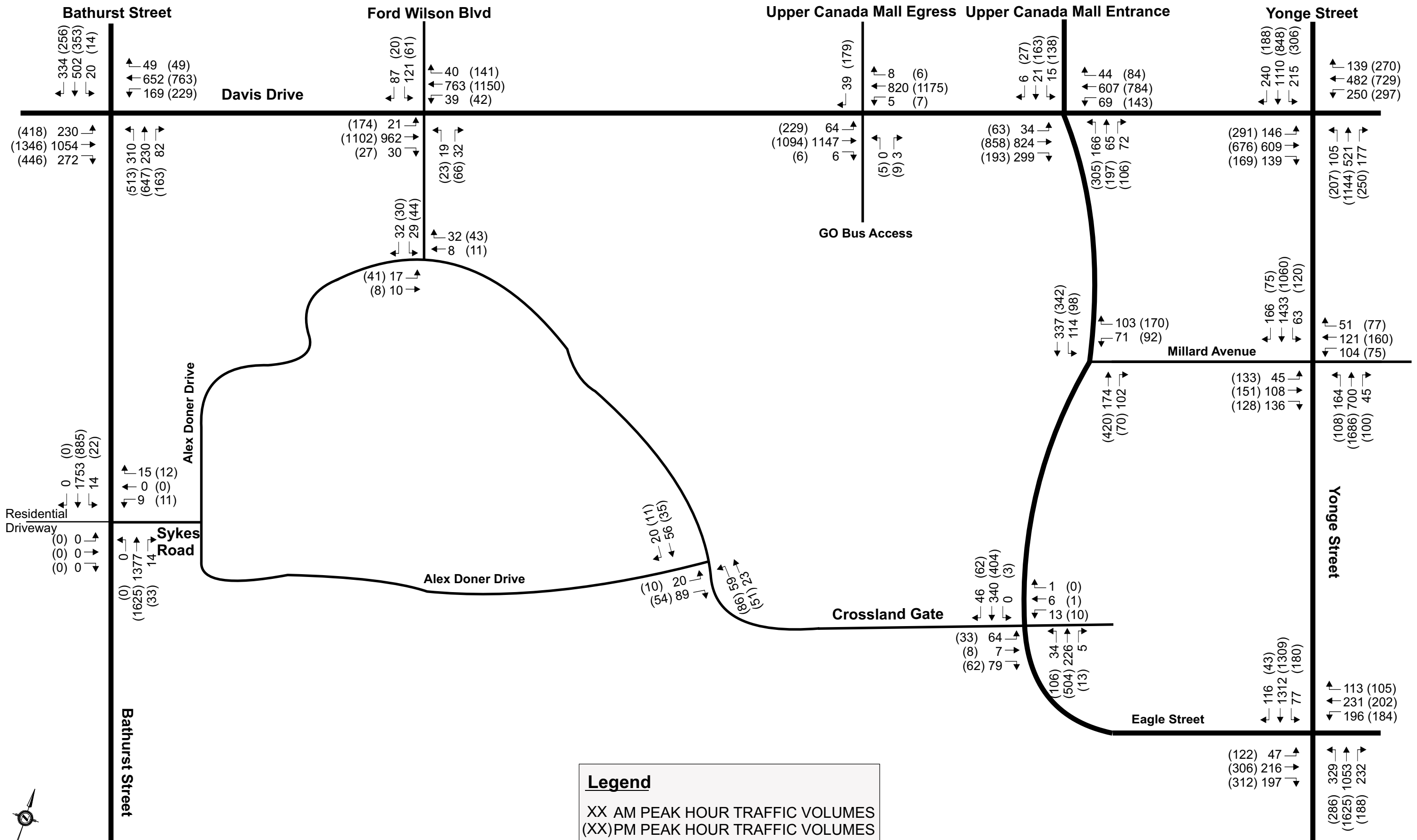


Figure 4-5
Future (2016) Background Traffic Volumes

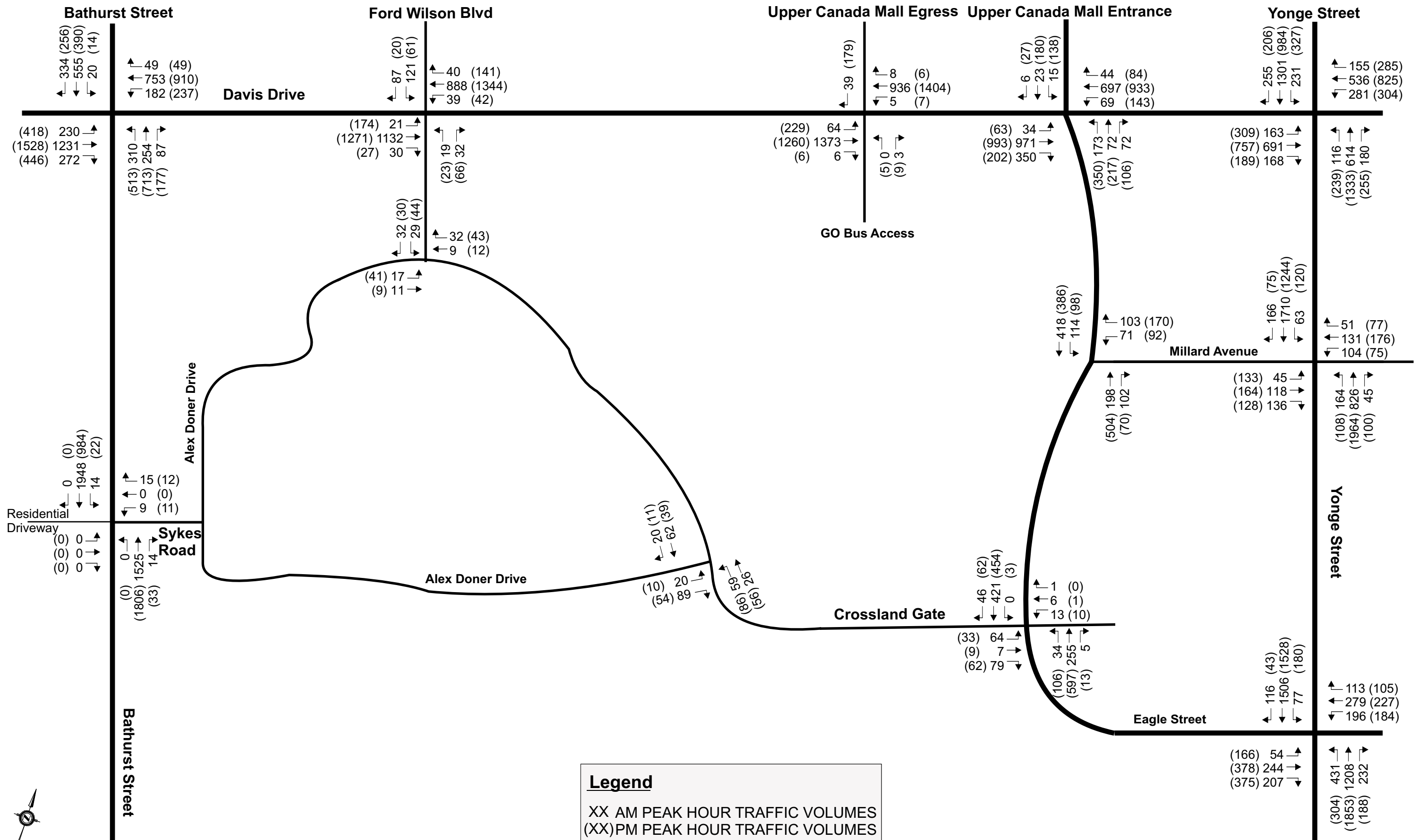
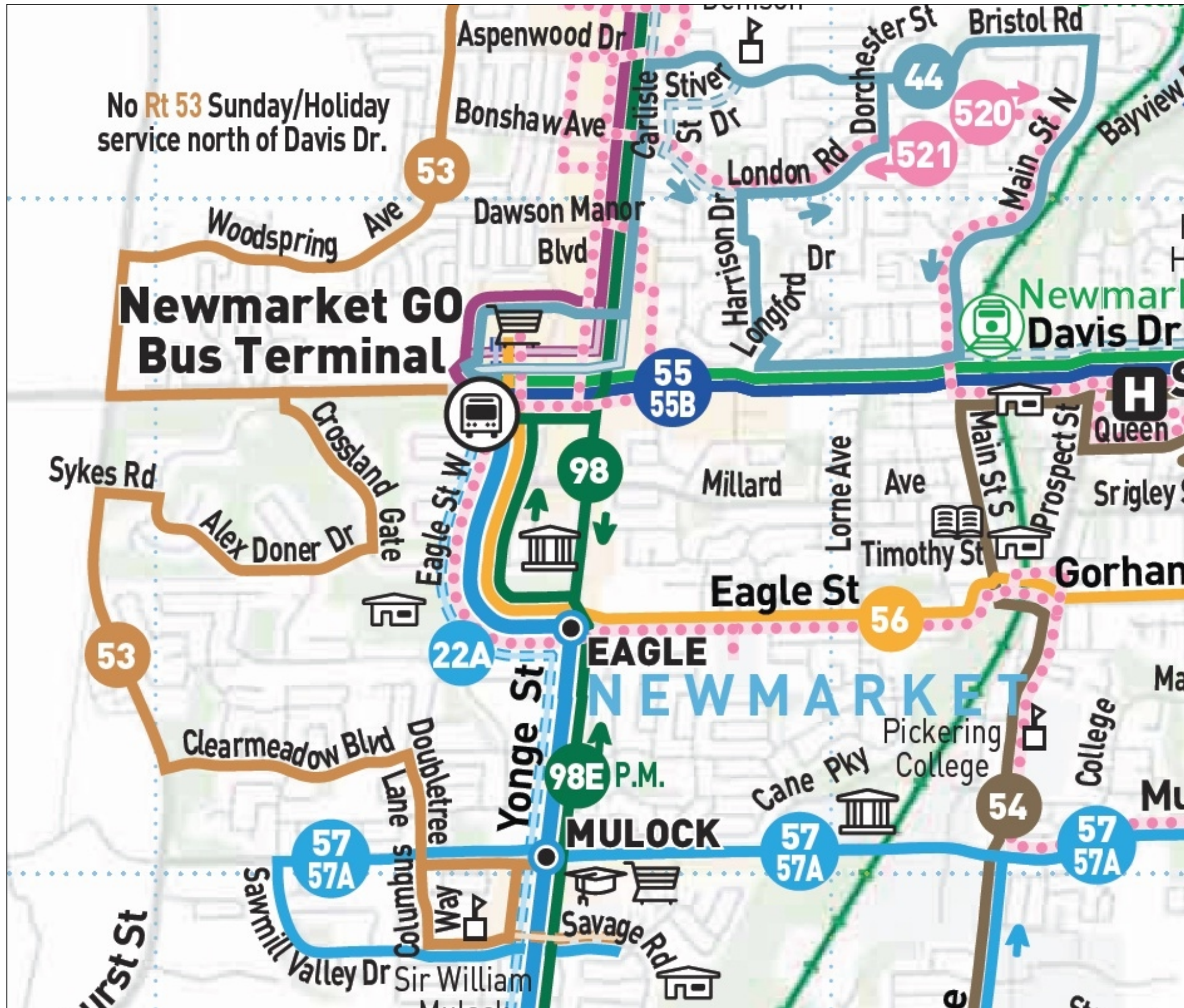


Figure 4-6
Future (2021) Background Traffic Volumes



Not to Scale

Figure 5-1 Existing Study Area Transit Routes (December 2011 Edition)

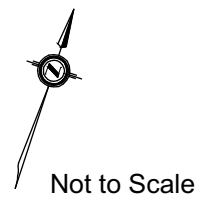
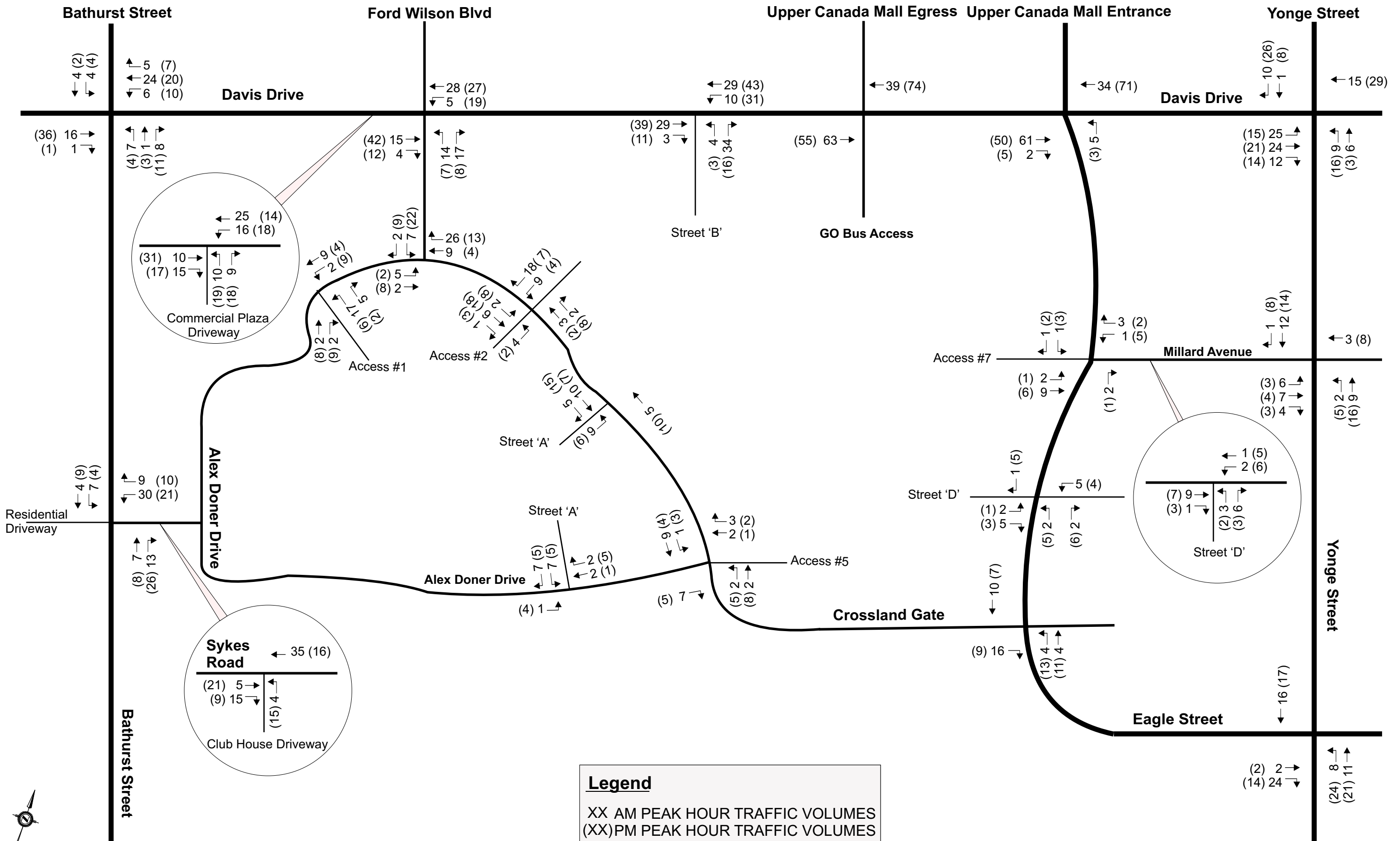
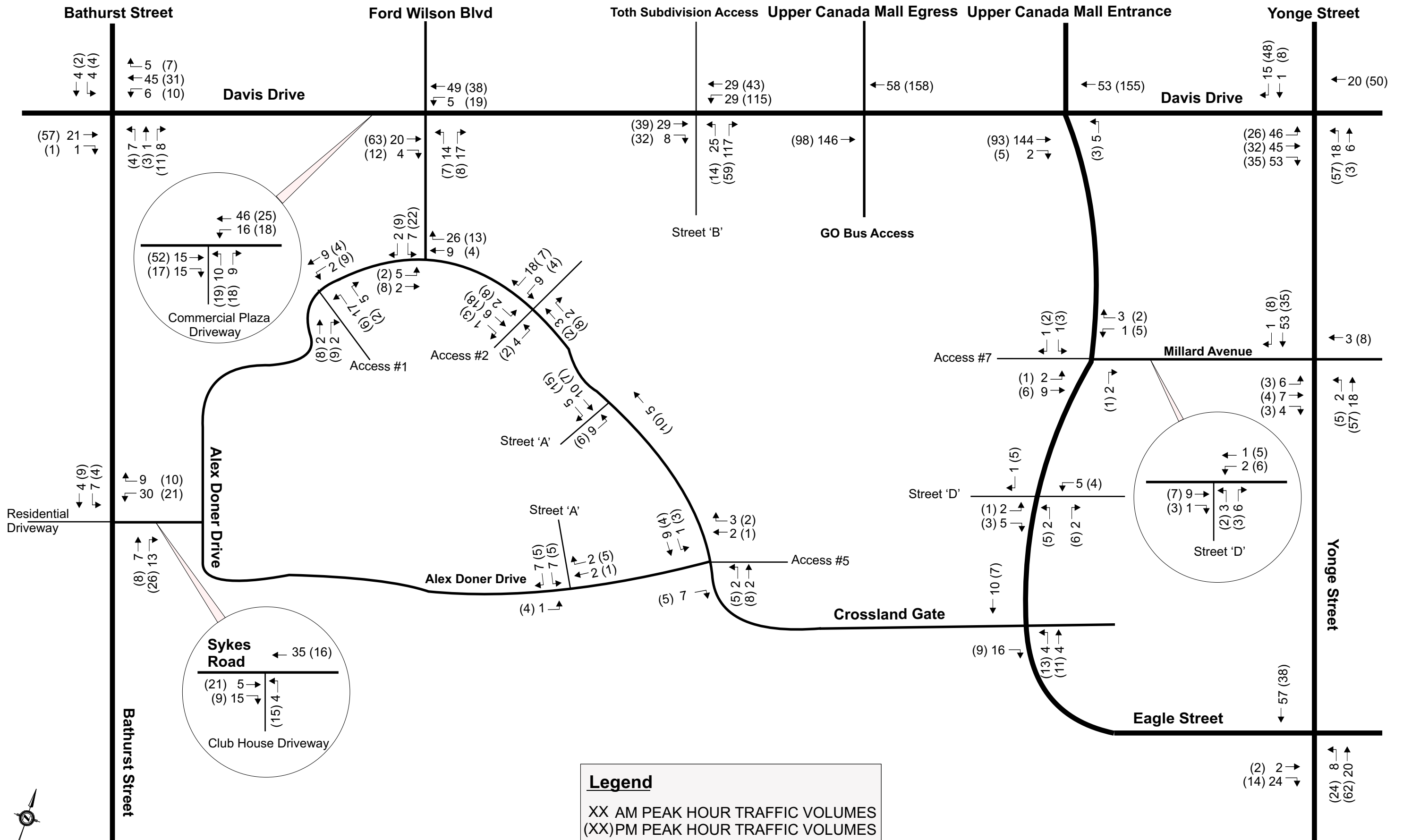


Figure 5-2
Phase 1 (2016) Site Trip Assignment



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Figure 5-3
Phase 2 (2021) Site Trip Assignment

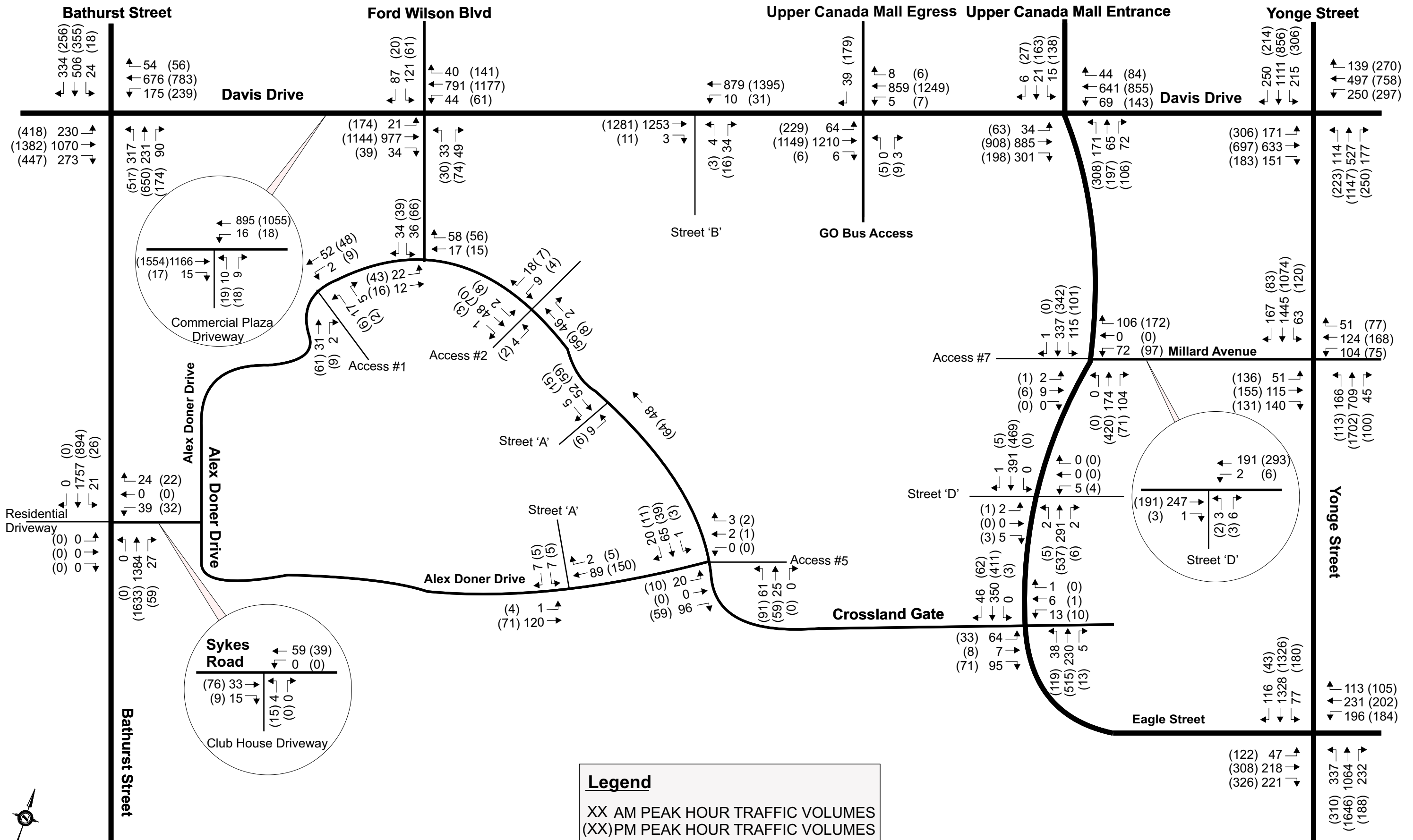


Figure 6-1
Future (2016) Total Traffic Volumes

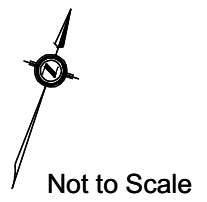
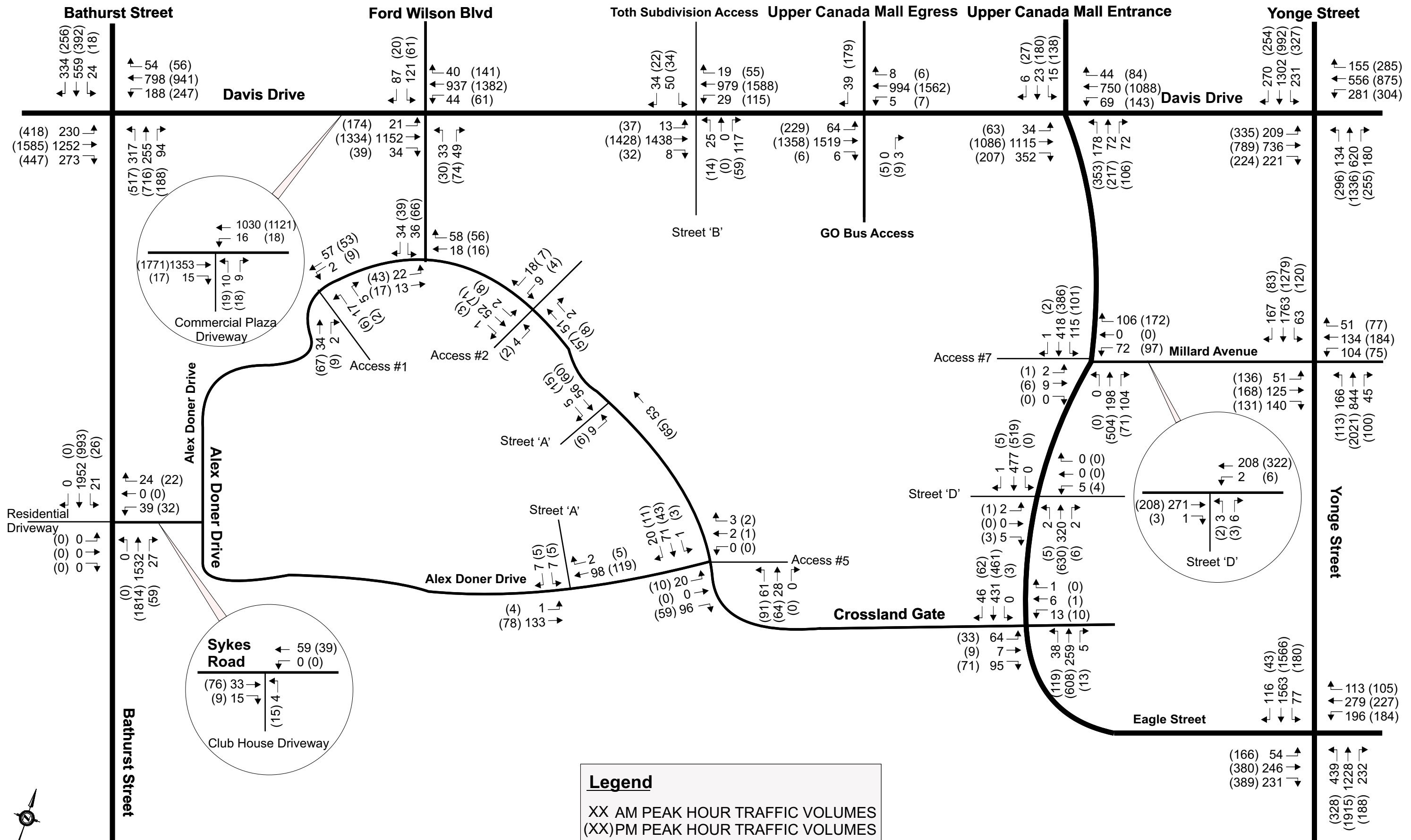


Figure 6-2
Future (2021) Total Traffic Volumes

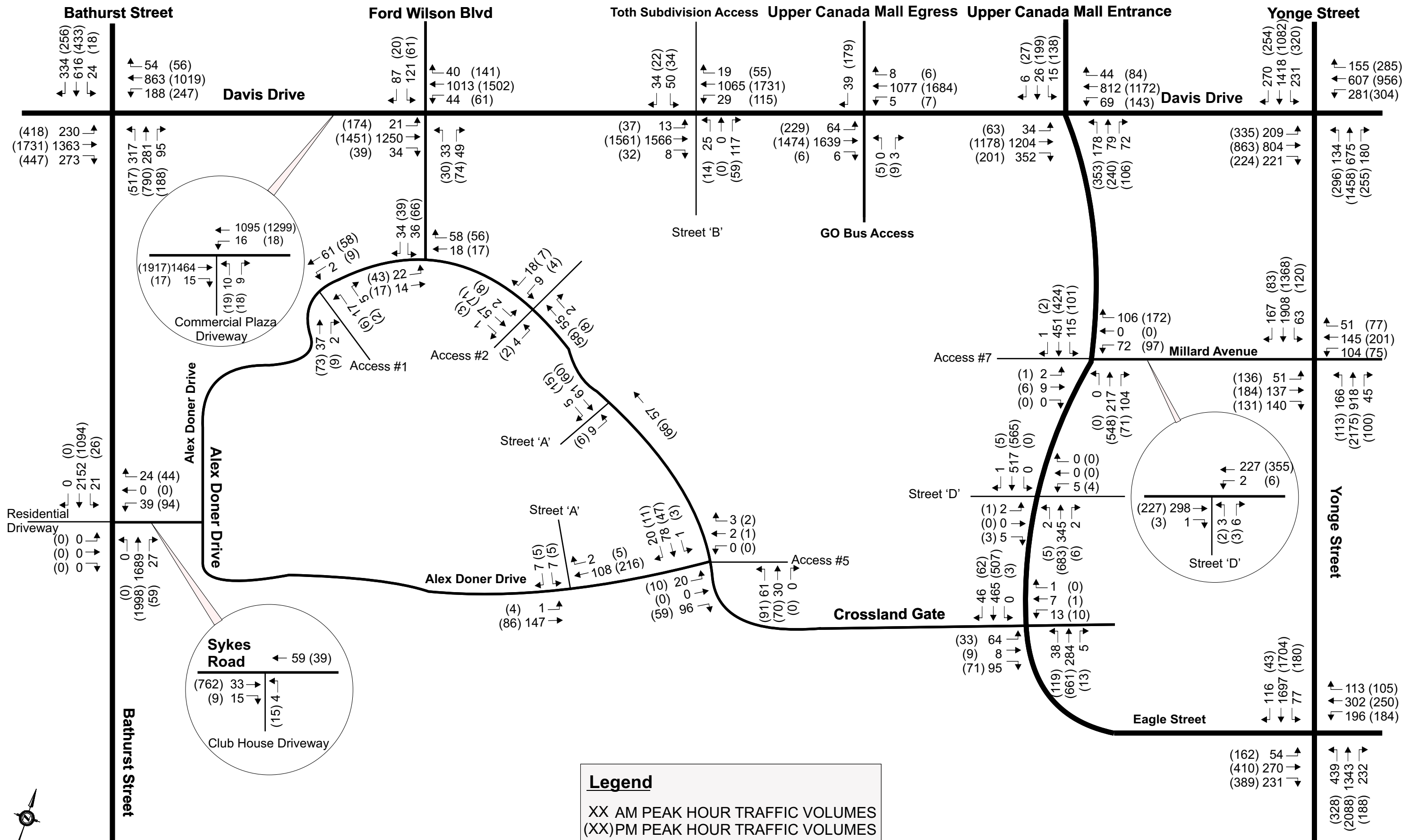
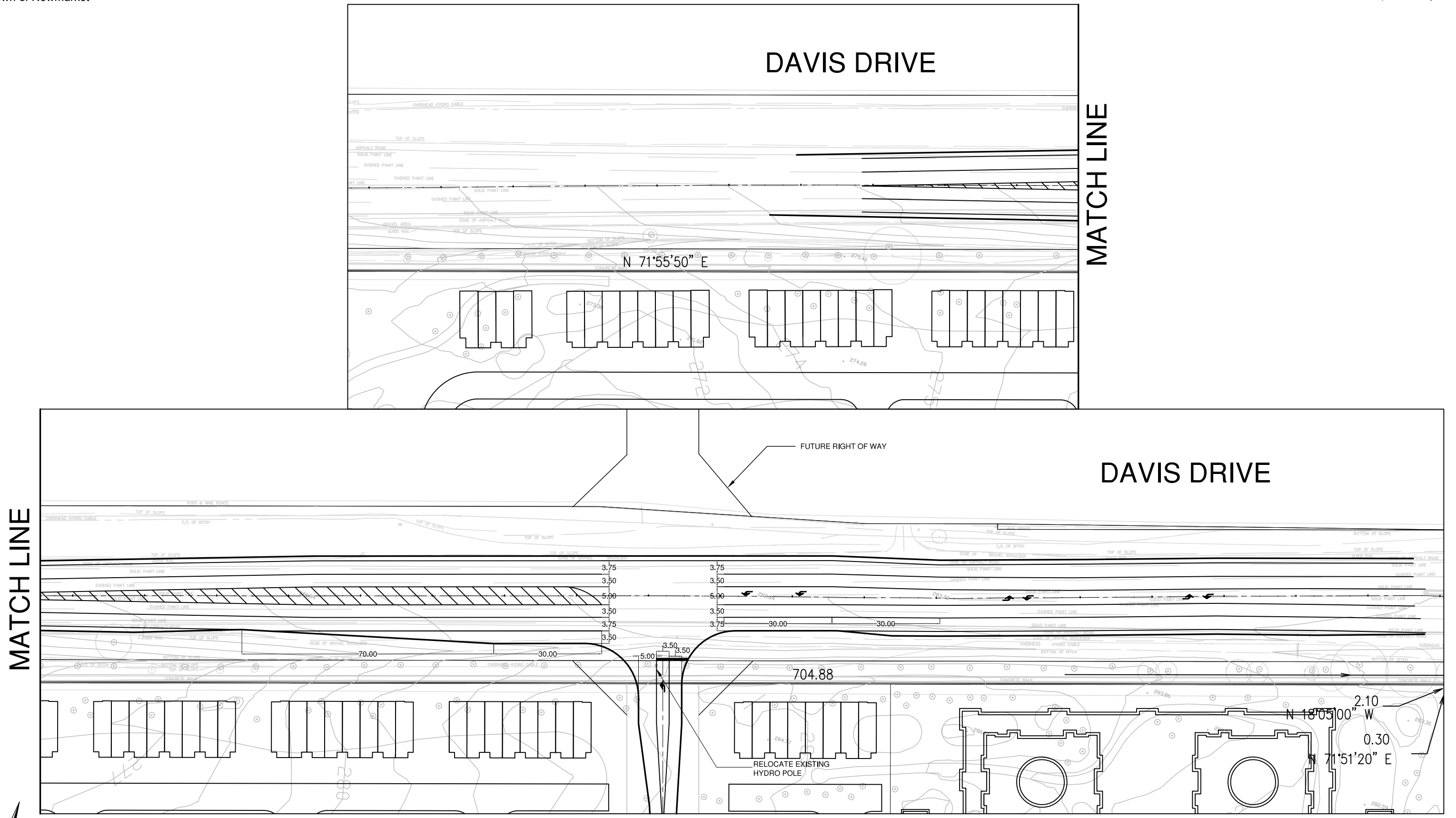


Figure 6-3 Future (2026) Total Traffic Volumes

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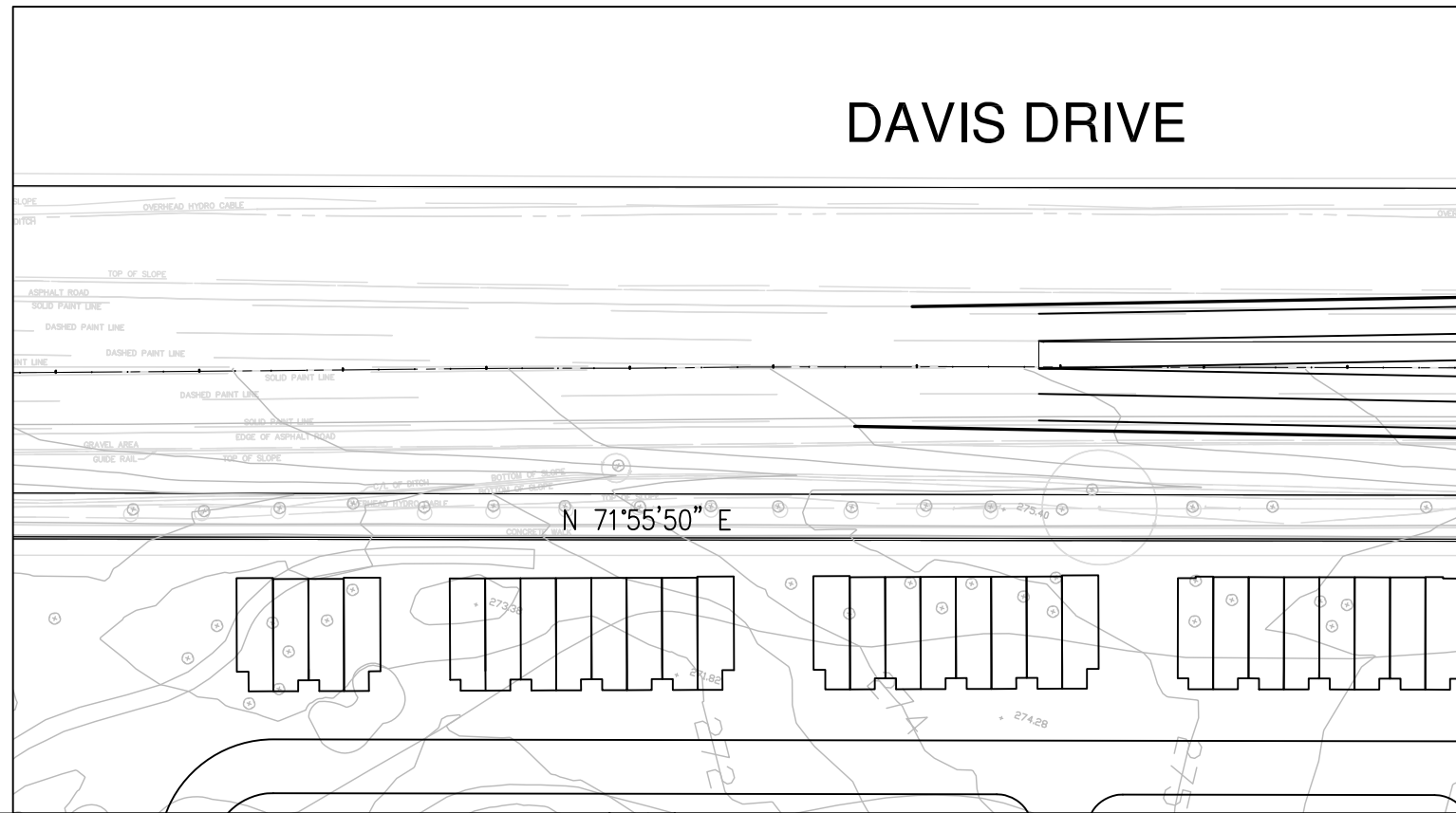
MATCH LINE

MATCH LINE

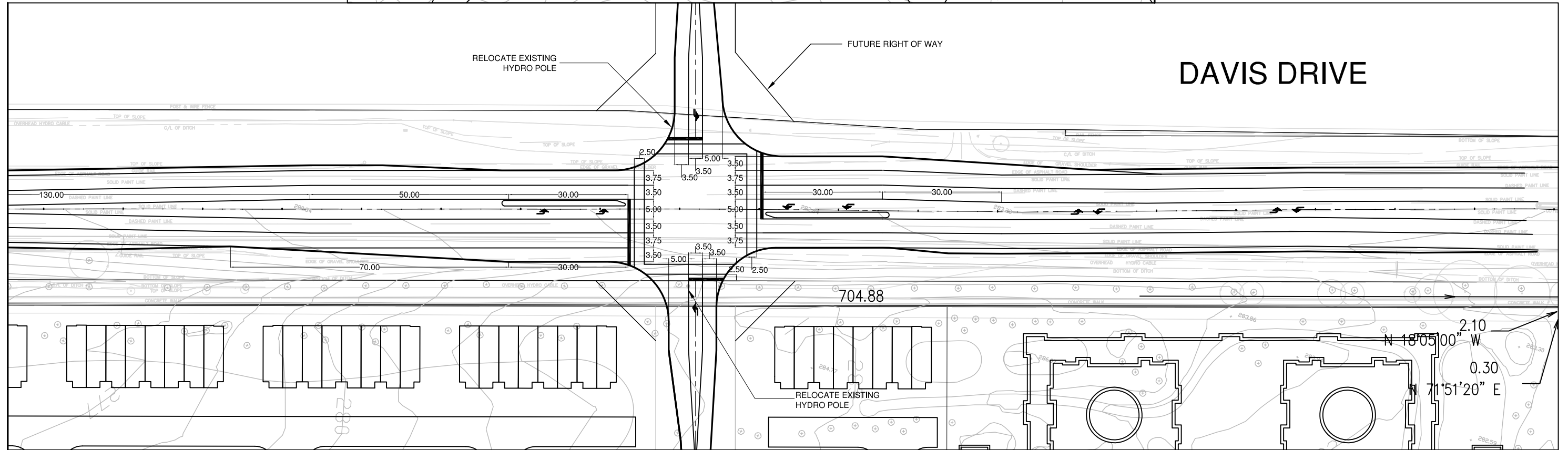
1:1000

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Figure 7-1
Functional Design (2016) - Davis Drive / Street 'B' Intersection



MATCH LINE



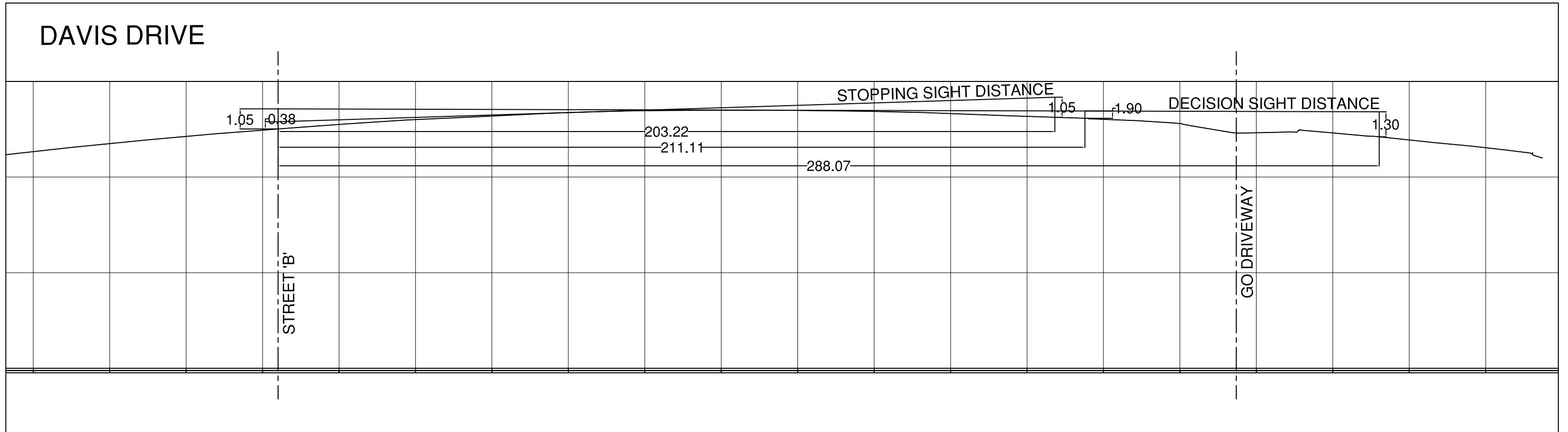
MATCH LINE



Not to Scale

1:1000

Figure 7-2
Functional Design (2021) - Davis Drive / Street 'B' Intersection



H1:1000 V1:200



Not to Scale

Figure 7-3
Sight Line Assessment Davis Drive / Street 'B' Intersection

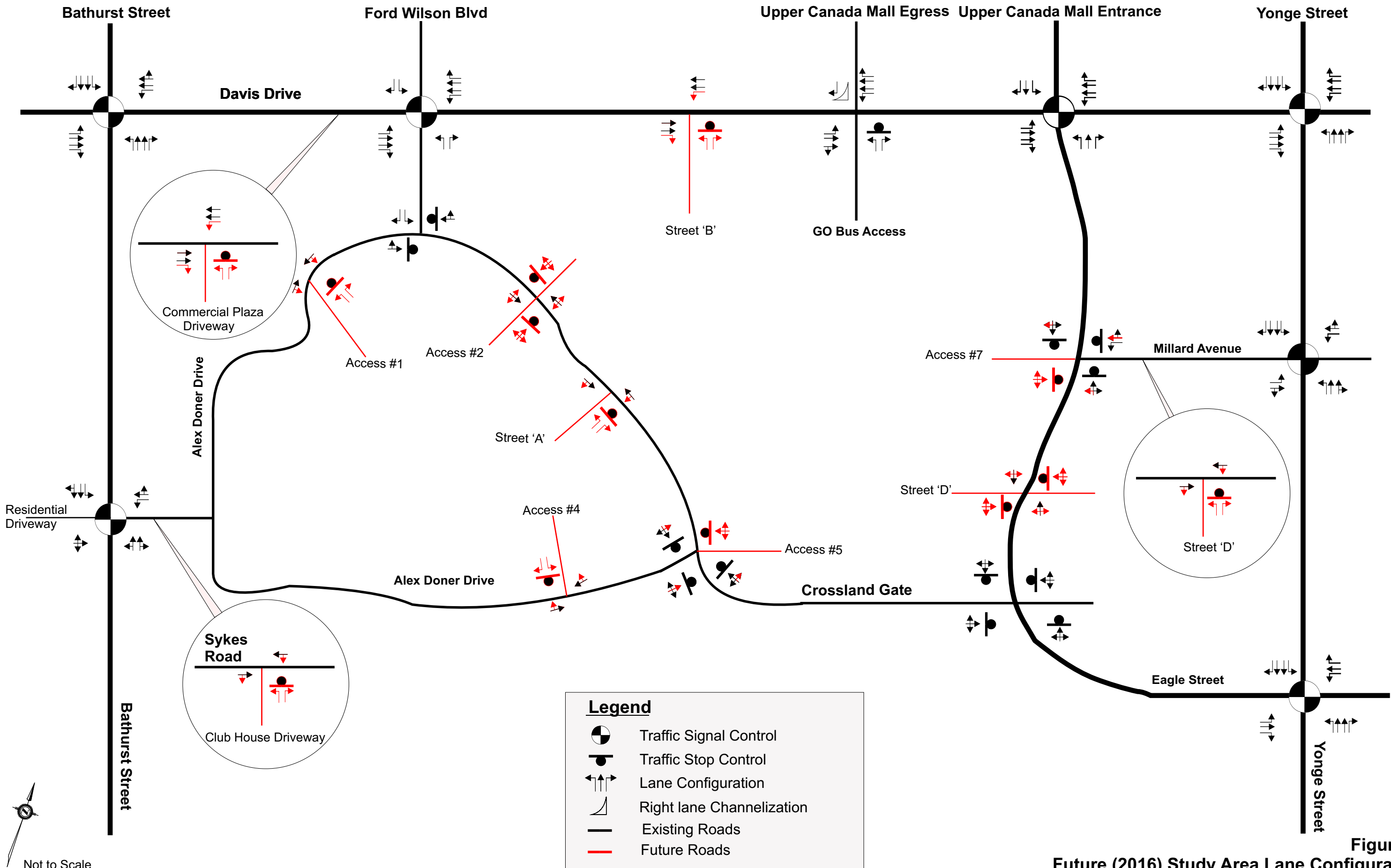
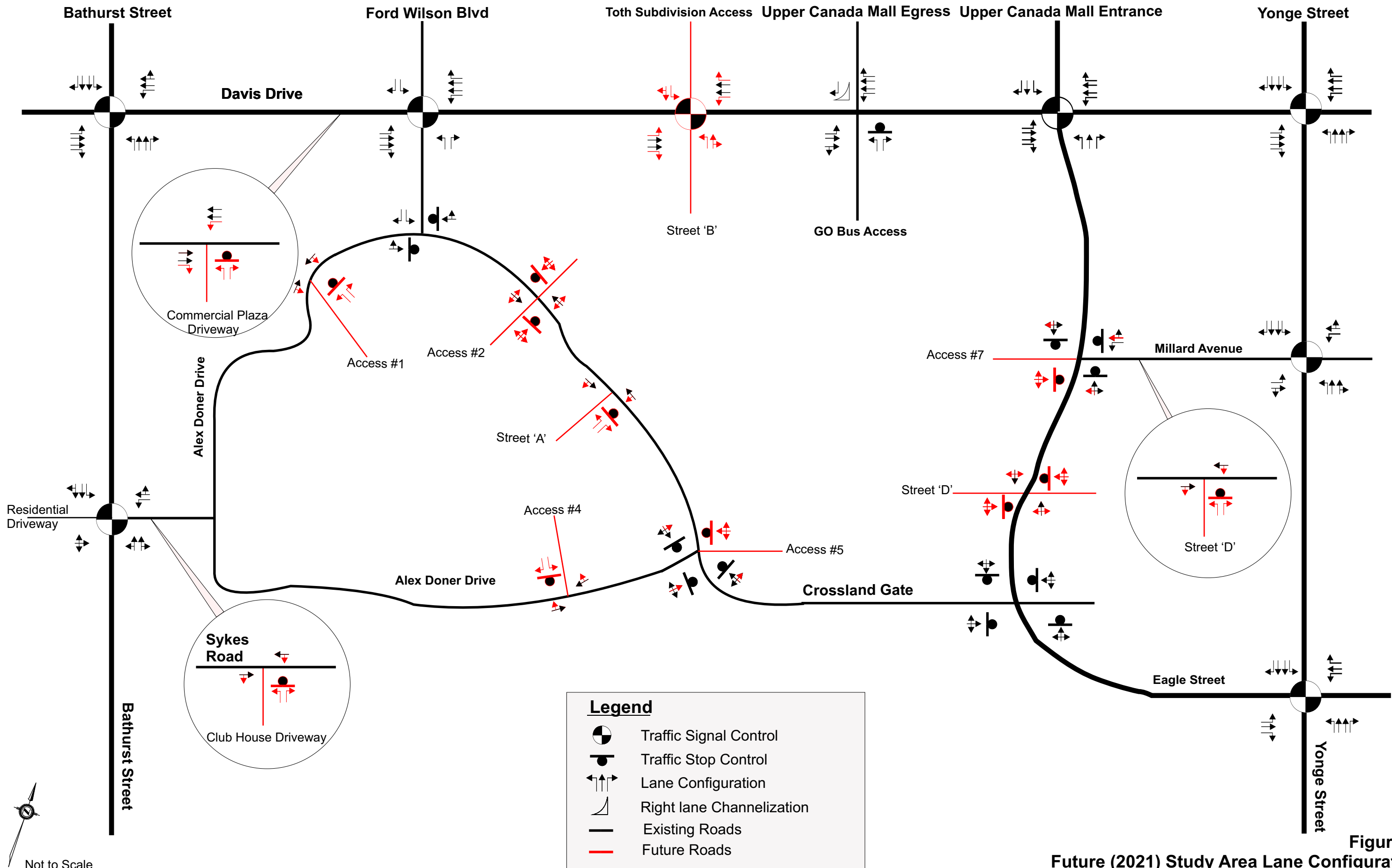


Figure 7-4 Future (2016) Study Area Lane Configurations

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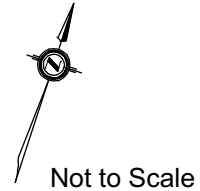
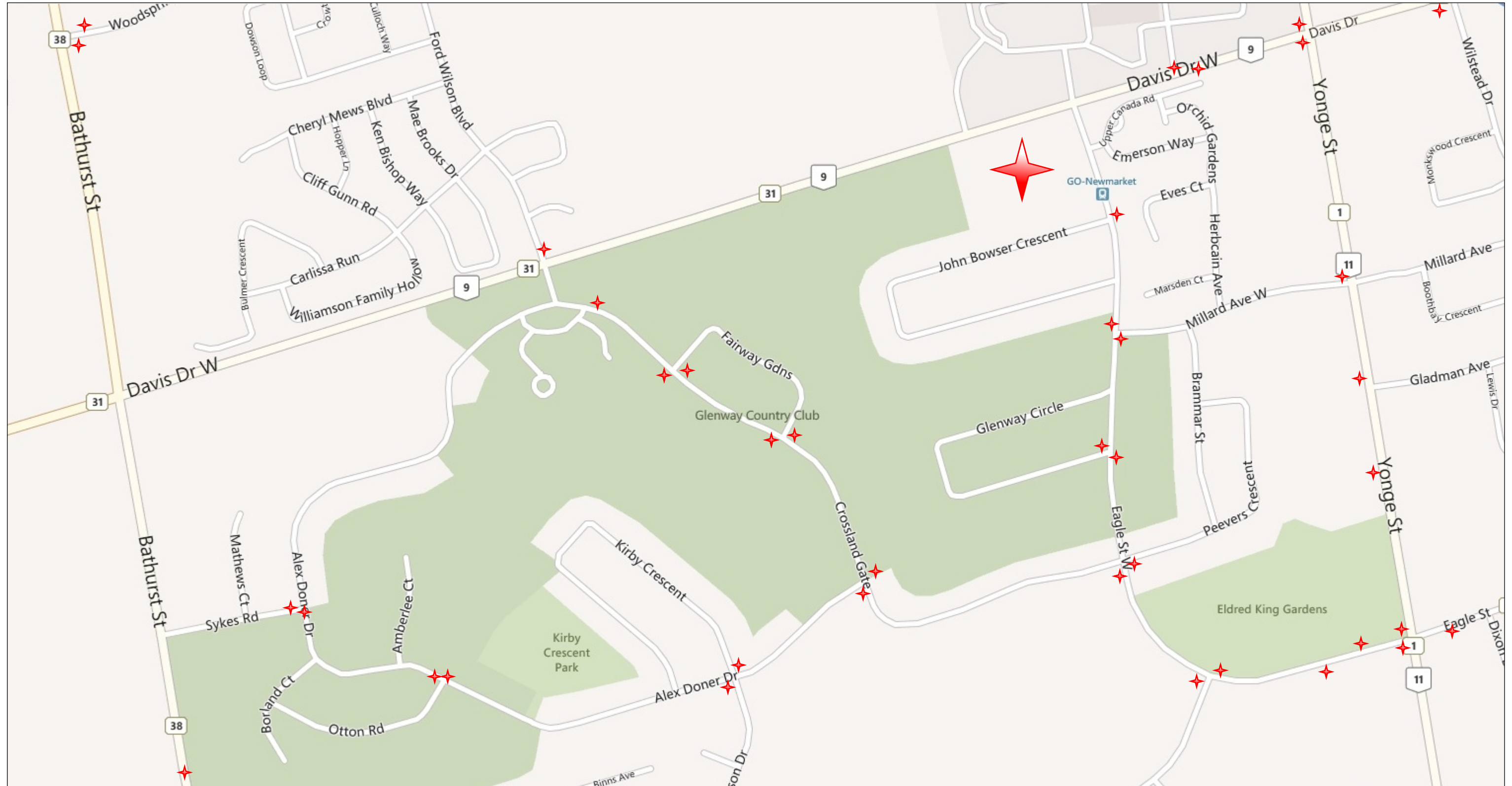


Not to Scale

Legend

- Traffic Signal Control
- Traffic Stop Control
- Lane Configuration
- Right lane Channelization
- Existing Roads
- Future Roads

Figure 7-5
Future (2021) Study Area Lane Configurations



Legend

- ★ Stop Location

Figure 9-1
Existing Study Area Transit Stops Locations

APPENDIX A
York Region Transportation Master Plan Referred Maps
And Figures

YORK REGION 2031 TRANSIT NETWORK

Transit Network Improvements

- Existing GO Rail Station
- Proposed GO Rail Station
- Commuter / HOV Parking
- Local Gateway to Transit Network
- Gateway Hub
- Anchor Hub / Regional Centre
- Special Study Area (see footnote)
- GO Rail Service
- 407 Transitway
- Rural Links
- Expressway Bus Service
- GTA West Corridor Concept
- Subway Extension
- Rapid Transit Corridor
- Transit Priority Network
- TTC Rapid Transit
- Recommended New Corridor

Note:
The proposed alignment and location of specific projects remains conceptual at this time. These concepts remain subject to review and confirmation through the applicable environmental assessment process established under the Environmental Assessment Act.

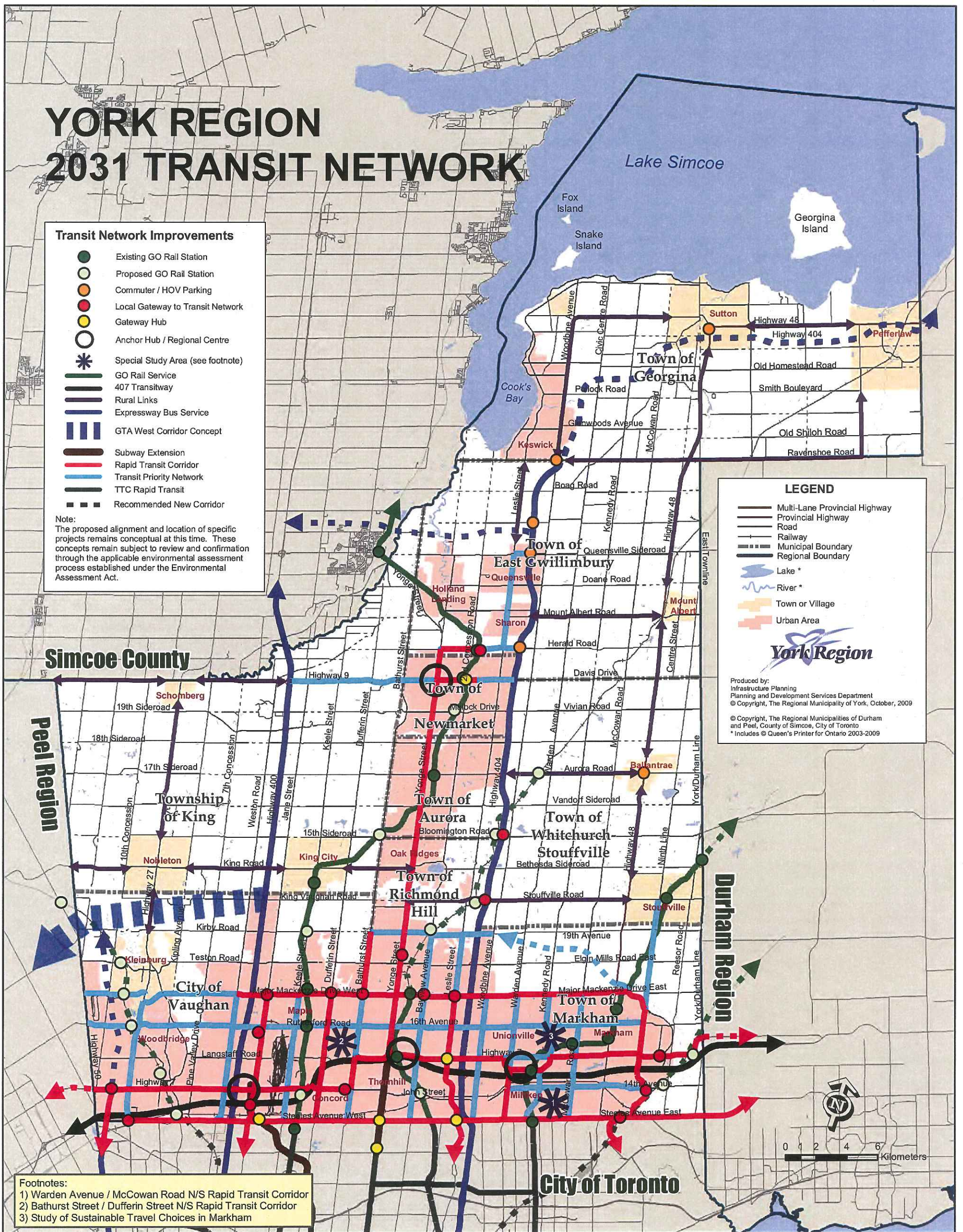
LEGEND

- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Railway
- Municipal Boundary
- Regional Boundary
- Lake *
- River *
- Town or Village
- Urban Area

York Region

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Planning and Development Services Department
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Footnotes:
1) Warden Avenue / McCowan Road N/S Rapid Transit Corridor
2) Bathurst Street / Dufferin Street N/S Rapid Transit Corridor
3) Study of Sustainable Travel Choices in Markham

0 1 2 4 6 Kilometers

YORK REGION 2031 ROAD NETWORK

Road Network Improvements

- Jog Elimination
- New or Improved Highway Interchange
- Grade Separation
- Special Study Area (see footnote)
- Anchor Hub / Regional Centre
- New Local/Regional Road
- Arterial Road Improvement for Capacity
- Arterial Road Improvement to 6 lanes
- Road improvements to support Transit
- New Provincial Road
- GTA West Corridor Concept
- Provincial Road Improvement
- Recommended New Corridor

Note:
The proposed alignment and location of specific projects remains conceptual at this time. These concepts remain subject to review and confirmation through the applicable environmental assessment process established under the Environmental Assessment Act.

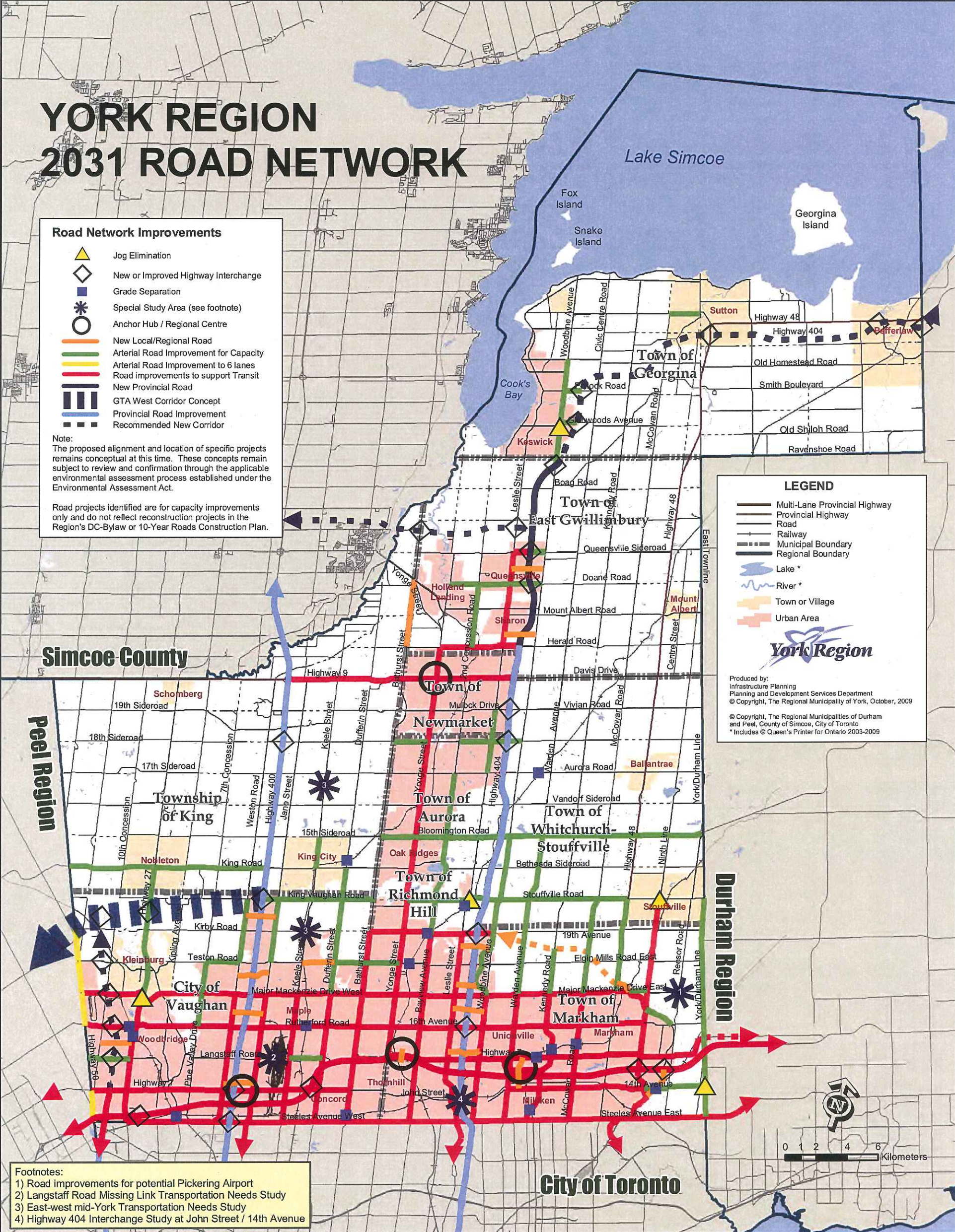
Road projects identified are for capacity improvements only and do not reflect reconstruction projects in the Region's DC-Bylaw or 10-Year Roads Construction Plan.

LEGEND

- Multi-Lane Provincial Highway
- Provincial Highway
- Road
- Railway
- Municipal Boundary
- Regional Boundary
- Lake *
- River *
- Town or Village
- Urban Area

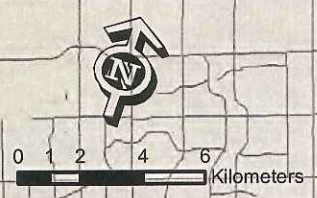
York Region

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Infrastructure Planning
Planning and Development Services Department
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Footnotes:

- 1) Road improvements for potential Pickering Airport
- 2) Langstaff Road Missing Link Transportation Needs Study
- 3) East-west mid-York Transportation Needs Study
- 4) Highway 404 Interchange Study at John Street / 14th Avenue



APPENDIX B
Existing Turning Movement Counts And Signal Timing
Plan

Signal Timing

**Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection**



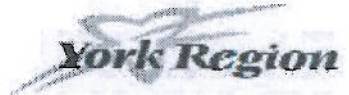
Intersection Name: Yonge St. - Millard Ave.

<u>Pattern Name</u>	<u>Mode</u>	<u>Cycle</u>	<u>Splits (sec)</u>	<u>offset</u>	<u>Max Green</u>	<u>Omits</u>	<u>Veh. Recall</u>	<u>Ped.Omits</u>	<u>Ped. Recalls</u>	<u>Spec. O/P</u>
AM Peak	TBC	130	15 64 00 51 00 79 14 37	80	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
AM Weekend	TBC	130	15 64 00 51 00 79 14 37	69	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Free Plan	Free	120	00 00 00 00 00 00 00	0	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Off Peak	TBC	120	16 52 00 52 00 68 15 37	108	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Peak	TBC	140	15 74 00 51 00 89 14 37	105	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Weekend	TBC	140	15 70 00 55 00 85 15 40	92	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****

*PHASE 4 & 8 ADJUSTMENT
FOR PEDESTRIAN CLEARANCE*

07-Apr-2011

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection



Intersection Name : Yonge St. - Millard Ave.

Weekly Plan : Yonge at Millard

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
08:00	AM Weekend	-	-	-	-	-	X	X
09:00	Off Peak	X	X	X	X	X	-	-
10:00	PM Weekend	-	-	-	-	-	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	AM Weekend	-	-	-	-	-	X	X
19:30	Off Peak	X	X	X	X	X	-	-
23:59	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Yonge at Millard

Default Weekly Schedule : Yonge at Millard

Date _____ Schedule (If blank, use the default weekly schedule)

TRAFFIC CONTROL TECHNOLOGIES - LMD 9200

INTERSECTION NAME: **Yonge St. (YR 1) & Milard Ave.** CTCS #: **331**
 PROGRAMMED BY: **D. Rumble** ADDRESS: **25**
 CONTROLLER SERIAL #: **1000** SECURITY CODE:
 INTERSECTION TELEPHONE (IF DIRECT DIAL): **Sept. 15, 2011** PROGRAM DATE:
 SECTION: **November 16, 1999** INSTALLATION DATE:

INTERVAL	PHASE (ON/OFF)								INTERVAL	PHASE TIMINGS							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	MIN GREEN	7	30	0	10	0	30	7	10
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	PASSAGE	3.0	0	0	3.0	0	0	3.0	3.0
MAX RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	YELLOW	3.0	5.0	0	5.0	0	5.0	3.0	5.0
PED RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	RED	1.0	2.0	0	2.0	0	2.0	1.0	2.0
CNA I	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	MAX I	7	30	0	20	0	30	7	20
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	MAX II	20	30	0	40	0	30	20	40
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	WALK	0	7	0	7	0	7	0	7
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	PED CLEAR	0	20	0	22	0	20	0	22
WALK REST	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	S/A	0	0	0	0	0	0	0	0
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	TBR	0	0	0	0	0	0	0	0
FWT PCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	TTR	0	0	0	0	0	0	0	0
1 - N/B Left Turn Arrow	5 - Not Used								MIN GAP	0	0	0	0	0	0	0	0
2 - Southbound	6 - Northbound								MAX VI	0	0	0	0	0	0	0	0
3 - Not Used	7 - E/B Left Turn Arrow								MAX EXT	0	0	0	0	0	0	0	0
4 - Eastbound	8 - Westbound								AUTO MAX	0	0	0	0	0	0	0	0
									AMR	0	0	0	0	0	0	0	0

PHASES USED								INITIALIZE/FLASH			
1	2	3	4	5	6	7	8	INITIALIZE	ENTER FLASH	EXIT FLASH	INTERVAL CODES:
ON	ON	OFF	ON	OFF	ON	ON	ON	2	2	2	1 = RED
2	1 = SEQ, 2 = DUAL RING, 3-7 = LEAD/LAG							6	6	6	2 = YELLOW
	LEAD/LAG CODES (ONLY USED IF "8" WAS ENTERED FOR SEQUENCE)							1	1	1	3 = GREEN
PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8				POWER UP/RESTART TIMINGS			
CODE								MINIMUM FLASH	5.0		(0-127 SECONDS)
LEAD/LAG CODE - 1 = NO REV, 2 = ALWAYS REV, 3 = REV BY C/S/O OR CLOCK/INPUT											(0-127 SECONDS)

19-Jul-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection



Intersection Name : Yonge St. - Eagle St.

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Vel. Recall	Ped. Omits	Ped. Recalls	Spec. O/P
AM Peak	TBC	130	20 54 14 42 14 60 00 56	15	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
AM Weekend	TBC	130	20 54 14 42 14 60 00 56	85	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Free Plan	Free	0	00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Off Peak	TBC	120	21 43 14 42 14 50 00 56	72	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Peak	TBC	140	25 61 12 42 14 72 00 54	69	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Weekend	TBC	140	25 61 12 42 14 72 00 54	19	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****

07-Apr-2011

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection



Intersection Name : Yonge St. - Eagle St.

Weekly Plan : Yonge at Eagle St

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
08:00	AM Weekend	-	-	-	-	-	X	X
09:00	Off Peak	X	X	X	X	X	-	-
10:00	PM Weekend	-	-	-	-	-	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	AM Weekend	-	-	-	-	-	X	X
19:30	Off Peak	X	X	X	X	X	-	-
23:59	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Yonge at Eagle St

Default Weekly Schedule : Yonge at Eagle St

Date _____ Schedule (If blank, use the default weekly schedule)



INTERSECTION NAME: **Yonge St. (YR 1) & Eagle Street**
 PROGRAMMED BY: **T. Hanrahan**
 CONTROLLER SERIAL #: _____

CTCS #: **300**
 ADDRESS: **33**
 SECURITY CODE: **1000**
 PROGRAM DATE: **01/05/2001**
 INSTALLATION DATE: **01/05/2001**

MEMORY/RECALL/CNA (MM-2-2-1)

	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MAX RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
PED RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
CNA I	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

	1 - N/B Left Turn	5 - S/B Left Turn
2 - Southbound	6 - Northbound	
3 - W/B Left Turn	7 - not used	
4 - Eastbound	8 - Westbound	

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	ON	ON	ON	ON	ON	ON	Off	ON

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag
---	---

LEAD/LAG MODES (MM-2-2-3-2-PGDN....only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag)

LEAD/LAG BARRIERS ARE: _____ ON/OFF

On = Barriers after each ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITIALIZE / FLASH (MM-2-2-4)

	INITIALIZE	ENTER FL	EXIT FL
RING 1 PHASE	2	2	2
RING 2 PHASE	6	6	6
INTERVAL	1	1	1

1 = RED, 2 = YEL., 3 = GRN

NOTE: Enter flash interval is permanently set to 1 (RED)

Revised
April 6/11

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH	(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH	(0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values

PHASE TIMINGS (MM-2-2-2)

	1	2	3	4	5	6	7	8
MIN GREEN	7	30	7	10	7	30	0	10
PASSAGE	3.0	0	3.0	3.0	3.0	0	0	3.0
YELLOW	3.0	5.0	3.0	5.0	3.0	5.0	0	5.0
RED	1.0	2.0	1.0	2.0	1.0	2.0	0	2.0
MAX I	7	45	7	20	7	45	0	20
MAX II	20	30	20	40	20	30	0	40
WALK	0	7	0	7	0	7	0	7
PED CLEAR	0	22	0	27	0	22	0	27
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

19-Jul-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection



Intersection Name :

Yonge St. - Davis Dr.

<u>Pattern Name</u>	<u>Mode</u>	<u>Cycle</u>	<u>Splits (sec)</u>	<u>offset</u>	<u>Max Green</u>	<u>Omits</u>	<u>Veh. Recall</u>	<u>Ped.Omits</u>	<u>Ped. Recalls</u>	<u>Spec. O/P</u>
AM Peak	TBC	130	16 52 14 48 16 52 14 48	85	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
AM Weekend	TBC	130	16 52 14 48 16 52 14 48	32	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Free Plan	Free	0	00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Off Peak	TBC	130	18 49 15 48 18 49 15 48	107	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Peak	TBC	140	22 53 17 48 22 53 17 48	22	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Weekend	TBC	140	22 53 17 48 22 53 17 48	92	11111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****

07-Apr-2011

**Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection**



Intersection Name : Yonge St. - Davis Dr.

Weekly Plan : Yonge at Davis Dr

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
08:00	AM Weekend	-	-	-	-	-	X	X
09:00	Off Peak	X	X	X	X	X	-	-
10:00	PM Weekend	-	-	-	-	-	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	AM Weekend	-	-	-	-	-	X	X
19:30	Off Peak	X	X	X	X	X	-	-
23:59	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Yonge at Davis Dr

Default Weekly Schedule : Yonge at Davis Dr

Date _____ **Schedule (If blank, use the default weekly schedule)** _____

**EPAC M40
PROGRAM
LOG**

Installation Date: April 18, 2004

CTCS# 304

Programmed Date September 6, 2011

Programmed by: T. Hanrahan

INTERSECTION NAME: Yonge Street (Y.R. 1) & Davis Dr. (YR 31)

Phasing:

- 1. N/B Left Turn Arrow
- 2. SOUTHBOUND
- 3. W/B Left Turn Arrow
- 4. EASTBOUND

- 5. S/B Left Turn Arrow
- 6. NORTHBOUND
- 7. E/B Left Turn Arrow
- 8. WESTBOUND

UTILITIES ACCESS

CODE = **9999**

CODES: Four Digits (0000 - 9999)

PHASE DATA - VEHICLE TIMINGS

	PHASE	1	2	3	4	5	6	7	8
Basic Times	Minimum Green	7	30	7	10	7	30	7	10
	Passage	3.0	0	3.0	3.0	3.0	0	3.0	3.0
	Maximum No. 1	7	30	7	30	7	30	7	30
	Maximum No. 2	7	30	7	30	7	30	7	30
	Yellow Change	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
	Red Clearance	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0

Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial	0	0	0	0	0	0	0	0
	Time Before Reduction	0	0	0	0	0	0	0	0
	Cars Before Reduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

	PHASE	1	2	3	4	5	6	7	8
Pedestrian Times	Walk	0	7	0	7	0	7	0	7
	Pedestrian Clearance	0	28	0	28	0	28	0	28

Pedestrian Control	Flashing Walk	0	0	0	0	0	0	0	0
	Extended Ped Clear	0	0	0	0	0	0	0	0
	Actuated Rest In Walk	0	0	0	0	0	0	0	0

Vehicle Control	Non Lock Memory	1	0	1	1	1	0	1	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Service	0	0	0	0	0	0	0	0
	No Simultaneous Gap	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

07-Oct-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection



Intersection Name : Highway 9 - Eagle St./Upper Canada Mall Entrance

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Yeh. Recall	Ped.Omits	Ped. Recalls	Spec. O/P
AM Peak	TBC	120	14 55 14 37 14 55 14 37	30	111111111	NNNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Free Plan	Free	0	00 00 00 00 00 00 00	0	111111111	NNNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Off Peak	TBC	110	14 40 14 42 14 40 14 42	95	111111111	NNNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Peak	TBC	120	14 50 14 42 14 50 14 42	8	111111111	NNNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****

*SPLIT ADJUSTMENTS DUE TO
PENETRATING CLIENTS' CHANNELS*



Regional Municipality of York
 Centralized Traffic Control System
 Controller Scheduler Summary Report - Intersection

Intersection Name : Highway 9 - Eagle St./Upper Canada Mall Entrance

Weekly Plan : Hwy 9 at Eagle

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:00	AM Peak	X	X	X	X	X	-	-
09:00	Off Peak	X	X	X	X	X	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	Off Peak	X	X	X	X	X	-	-
23:00	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Hwy 9 at Eagle

Default Weekly Schedule :

Hwy 9 at Eagle

Schedule (If blank, use the default weekly schedule)

Date



INTERSECTION NAME: **Highway 9 & Eagle St./Upper Canada Mall Ent.**
 PROGRAMMED BY: **T. Hanrahan**
 CONTROLLER SERIAL #: _____

MEMORY/RECALL/CNA (MM-2-2-1)

MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
MAX RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PED RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
CNA I	OFF	off	OFF	OFF	OFF	off	OFF	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWT/PCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

- 1 - EB Left-turn arrow 5 - WB left-turn arrow
- 2 - Westbound 6 - Eastbound
- 3 - NB Left-turn arrow 7 - SB left-turn arrow
- 4 - Southbound 8 - Northbound

PHASE TIMINGS (MM-2-2-2)

MIN GREEN	7	30	7	10	7	30	7	10
PASSAGE	3.0	5.0	3.0	3.0	5.0	3.0	3.0	3.0
YELLOW	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
RED	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
MAX I	10	40	10	35	10	40	10	35
MAX II	30	50	30	50	30	50	30	50
WALK	0	7	0	7	0	7	0	7
PED CLEAR	0	23	0	21	0	23	0	21
S/A	0	1.0	0	0	0	1.0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	50	0	0	0	50	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

CTCS #: **424**
 ADDRESS: **36**
 SECURITY CODE: **1000**
 PROGRAM DATE: _____
 INSTALLATION DATE: _____

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	ON	ON	ON	ON	ON	ON	ON	ON

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag
---	---

LEAD/LAG MODES (MM-2-2-3-2-PGDN...only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag LEAD/LAG BARRIERS ARE: _____ ON/OFF

On = Barriers after each ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITIALIZE / FLASH (MM-2-2-4)

	INITIALIZE	ENTER FL	EXT FL
RING 1 PHASE	2	2	2
RING 2 PHASE	6	6	6
INTERVAL	2	1	2

NOTE: Enter flash interval is permanently set to 1 (RED) 1=RED, 2 = YEL., 3 = GRN

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH	(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH	(0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values



INTERSECTION NAME: Highway 9 @ Ford Wilson/Crossland

PROGRAMMED BY: T Hanrahan

CONTROLLER SERIAL #: _____

CTCS #:

ADDRESS:

SECURITY CODE:

PROGRAM DATE:

INSTALLATION DATE:

1000

July 29 2008
July 29 2008

MEMORY/RECALL/CNA (MM-2-2-1)

	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MAX RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
PED RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
CNA I	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

- 1 - Not Used
- 2 - Westbound
- 3 - Not Used
- 4 - * Southbound
- 5 - Not Used
- 6 - Eastbound
- 7 - Not Used
- 8 - * Northbound

* N-S THRU RESTRICTIONS

PHASE TIMINGS (MM-2-2-2)

	1	2	3	4	5	6	7	8
MIN GREEN	0	30	0	10	0	30	0	10
PASSAGE	0	0	0	3.0	0	0	0	3.0
YELLOW	0	5.0	0	4.0	0	5.0	0	4.0
RED	0	2.0	0	2.0	0	2.0	0	2.0
MAX I	0	30	0	19	0	30	0	19
MAX II	0	50	0	50	0	50	0	50
WALK	0	7	0	7	0	7	0	7
PED CLEAR	0	17	0	23	0	17	0	23
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	off	ON	off	ON	off	ON	off	ON

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag							
---	---	--	--	--	--	--	--	--

LEAD/LAG MODES (MM-2-2-3-2-PGDN....only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag)

LEAD/LAG BARRIERS ARE: _____ ON/OFF

On = Barriers after each ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITIALIZE / FLASH (MM-2-2-4)

	INITIALIZE	ENTER FL	EXIT FL
RING 1 PHASE	2	2	2
RING 2 PHASE	6	6	6
INTERVAL	1	1	1

NOTE: Enter flash interval is permanently set to 1 (RED)

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH	(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH	5.0 (0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values

**EPAC M40
PROGRAM
LOG**

Installation Date: June 9, 2004 CTCS # 425

Program Date: June 9, 2004 Address _____

Programmed by: T. Hanrahan

INTERSECTION NAME: Highway 9 (YR 31) & Bathurst St. (YR38)

Phasing:

- 1. EB LT Arrow
- 2. Westbound
- 3. NB LT Arrow
- 4. Southbound

- 5. WB LT Arrow
- 6. Eastbound
- 7. N/A
- 8. Northbound

UTILITIES ACCESS

CODE = **9999**

CODES: Four Digits (0000 - 9999)

PHASE DATA - VEHICLE TIMINGS

PHASE		1	2	3	4	5	6	7	8
Basic Times	Minimum Green	7	15	7	10	7	15	0	10
	Passage	4.0	5.0	3.0	4.0	3.0	5.0	0	30
	Maximum No. 1	25	50	30	30	20	50	0	30
	Maximum No. 2	30	50	30	30	20	50	0	30
	Yellow Change	3.0	5.0	3.0	4.0	3.0	5.0	0	4.0
	Red Clearance	1.0	2.0	1.0	2.0	1.0	2.0	0	2.0

Density Times	Seconds/Actuation	0	1.0	0	0	0	1.0	0	0
	Maximum Initial	0	50	0	0	0	50	0	0
	Time Before Reduction	0	0	0	0	0	0	0	0
	Cars Before Reduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

PHASE		1	2	3	4	5	6	7	8
Pedestrian Times	Walk	0	7	0	7	0	7	0	7
	Pedestrian Clearance	0	24	0	25	0	24	0	25

Pedestrian Control	Flashing Walk	0	0	0	0	0	0	0	0
	Extended Ped Clear	0	0	0	0	0	0	0	0
	Actuated Rest In Walk	0	0	0	0	0	0	0	0

Vehicle Control	Non Lock Memory	1	0	1	1	1	0	0	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Service	0	0	0	0	0	0	0	0
	No Simultaneous Gap	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

Regional Municipality of York
 Centralized Traffic Control System
 Timing Pattern Summary Report - Intersection



Intersection Name : Bayview Ave. - Elgin Mills Rd.

<u>Pattern Name</u>	<u>Mode</u>	<u>Cycle</u>	<u>Splits (sec)</u>	<u>offset</u>	<u>Max Green</u>	<u>Omits</u>	<u>Veh. Recall</u>	<u>Ped.Omits</u>	<u>Ped. Recalls</u>	<u>Spec. O/P</u>
AM Peak	TBC	120	12 52 18 38 12 52 18 38	19	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Free Plan	Free	0	00 00 00 00 00 00 00	0	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
OFF Day	TBC	110	12 43 18 37 12 43 12 43	62	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
PM Peak	TBC	120	12 50 20 38 12 50 12 46	0	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****

Changes due to observation

LRW

08-Dec-2008

**Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection**



Intersection Name : Bayview Ave. - Elgin Mills Rd.

Weekly Plan : Bayview at Elgin Mills

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
09:30	OFF Day	X	X	X	X	X	X	X
16:00	PM Peak	X	X	X	X	X	-	-
19:30	OFF Day	X	X	X	X	X	-	-
22:00	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Bayview at Elgin Mills

Default Weekly Schedule : Bayview at Elgin Mills

Date _____ **Schedule (If blank, use the default weekly schedule)** _____

**EPAC M40
PROGRAM
LOG**

Installation Date: _____ CTCS# 151
 Address 27
 Programmed Date _____
 Programmed by: D.Rumble

INTERSECTION NAME: Bayview Ave. (YR 34) & Elgin Mills Rd. (YR 49)

Phasing:

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. E/B Left Turn Arrow 2. WESTBOUND 3. N/B Left Turn Arrow 4. SOUTHBOUND | <ul style="list-style-type: none"> 5. W/B Left Turn Arrow 6. EASTBOUND 7. S/B Left Turn Arrow 8. NORTHBOUND |
|---|---|

UTILITIES ACCESS

CODE = **9999**

CODES: Four Digits (0000 - 9999)

PHASE DATA - VEHICLE TIMINGS

PHASE		1	2	3	4	5	6	7	8
Basic Times	Minimum Green	7	15	7	10	7	15	7	10
	Passage	3.0	6.0	3.0	3.0	3.0	6.0	3.0	3.0
	Maximum No. 1	7	30	7	19	7	30	7	19
	Maximum No. 2	7	30	7	19	7	30	7	19
	Yellow Change	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
Red Clearance	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0	

Density Times	Seconds/Actuation	0	1.5	0	0	0	1.5	0	0
	Maximum Initial	0	30	0	0	0	30	0	0
	Time Before Reduction	0	0	0	0	0	0	0	0
	Cars Before Reduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

PHASE		1	2	3	4	5	6	7	8
Pedestrian Times	Walk	0	7	0	7	0	7	0	7
	Pedestrian Clearance	0	18	0	20	0	18	0	20

Pedestrian Control	Flashing Walk	0	0	0	0	0	0	0	0
	Extended Ped Clear	0	0	0	0	0	0	0	0
	Actuated Rest In Walk	0	0	0	0	0	0	0	0

Vehicle Control	Non Lock Memory	1	0	1	1	1	0	1	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Service	0	0	0	0	0	0	0	0
	No Simultaneous Gap	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

Regional Municipality of York
 Centralized Traffic Control System
 Timing Pattern Summary Report - Intersection



Intersection Name : Bayview Ave. - Crosby Ave. / Redstone Rd.

<u>Pattern Name</u>	<u>Mode</u>	<u>Cycle</u>	<u>Splits (sec)</u>	<u>offset</u>	<u>Max Green</u>	<u>Omits</u>	<u>Veh. Recall</u>	<u>Ped.Omits</u>	<u>Ped. Recalls</u>	<u>Spec. O/P</u>
ALL Day	TBC	100	12 55 00 33 00 67 00 33	1	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****
Free Plan	Free	0	00 00 00 00 00 00 00	0	111111111	NNNNNNNN	XXXXXXXXXX	NNNN	NNNN	*****

11-Nov-2011

**Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection**



Intersection Name : Bayview Ave. - Crosby Ave. / Redstone Rd.

Weekly Plan : Bayview at Crosby

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
07:00	ALL Day	X	X	X	X	X	X	X
22:00	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Bayview at Crosby

Default Weekly Schedule : Bayview at Crosby

Date _____ **Schedule (If blank, use the default weekly schedule)** _____

TRAFFIC CONTROL TECHNOLOGIES - LMD 9200

INTERSECTION NAME: **Bayview Ave. (YR 34) & Crosby / Redstone** INSTALLATION DATE: **December 23, 1997**
 PROGRAMMED BY: **D.Rumble** PROGRAM DATE: **December 23, 1997**
 CONTROLLER SERIAL #: _____ SECURITY CODE: **1000**

INTERSECTION TELEPHONE (IF DIRECT DIAL): _____ ADDRESS: **28 29**
 SECTION: _____

INTERVAL	PHASE (ON/OFF)								INTERVAL	PHASE TIMINGS							
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	MIN GREEN	7	30	0	10	0	30	0	10
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	PASSAGE	3.0	0	0	3.0	0	0	0	3.0
MAX RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	YELLOW	3.0	5.0	0	5.0	0	5.0	0	5.0
PED RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	RED	1.0	2.0	0	2.0	0	2.0	0	2.0
CNA I	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	MAX I	7	30	0	19	0	30	0	19
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	MAX II	7	30	0	19	0	30	0	19
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	WALK	0	7	0	7	0	7	0	7
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	PED CLEAR	0	18	0	18	0	18	0	18
WALK REST	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	S/A	0	0	0	0	0	0	0	0
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	TBR	0	0	0	0	0	0	0	0
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	TTR	0	0	0	0	0	0	0	0
1- N/B L.T. Arrow									MIN GAP	0	0	0	0	0	0	0	0
2- SOUTHBOUND									MAX VI	0	0	0	0	0	0	0	0
3- Not Used									MAX EXT	0	0	0	0	0	0	0	0
4- EASTBOUND									AUTO MAX	0	0	0	0	0	0	0	0
									AMR	0	0	0	0	0	0	0	0

INTERVAL	PHASES USED								INITIALIZE/FLASH			INTERVAL CODES:			
	1	2	3	4	5	6	7	8	INITIALIZE	ENTER FLASH	EXIT FLASH	1 = RED	2 = YELLOW	3 = GREEN	
ON/OFF	ON	ON	OFF	ON	OFF	ON	OFF	ON	2	2	2				
SEQUENCE	2								6	6	6				
LEAD/LAG CODES (ONLY USED IF "8" WAS ENTERED FOR SEQUENCE)	1 = SEQ, 2 = DUAL RING, 3-7 = LEAD/LAG														
PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8											
CODE															
LEAD/LAG CODE - 1 = NO REV, 2 = ALWAYS REV, 3 = REV BY C/S/O OR CLOCK/INPUT															
MINIMUM FLASH															
1ST ALL RED AFTER FLASH															
POWER UP/RESTART TIMINGS															
	(0-127 SECONDS)														
	(0-127 SECONDS)														

Turning Movement Counts

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Peak Hour Vehicle Summary

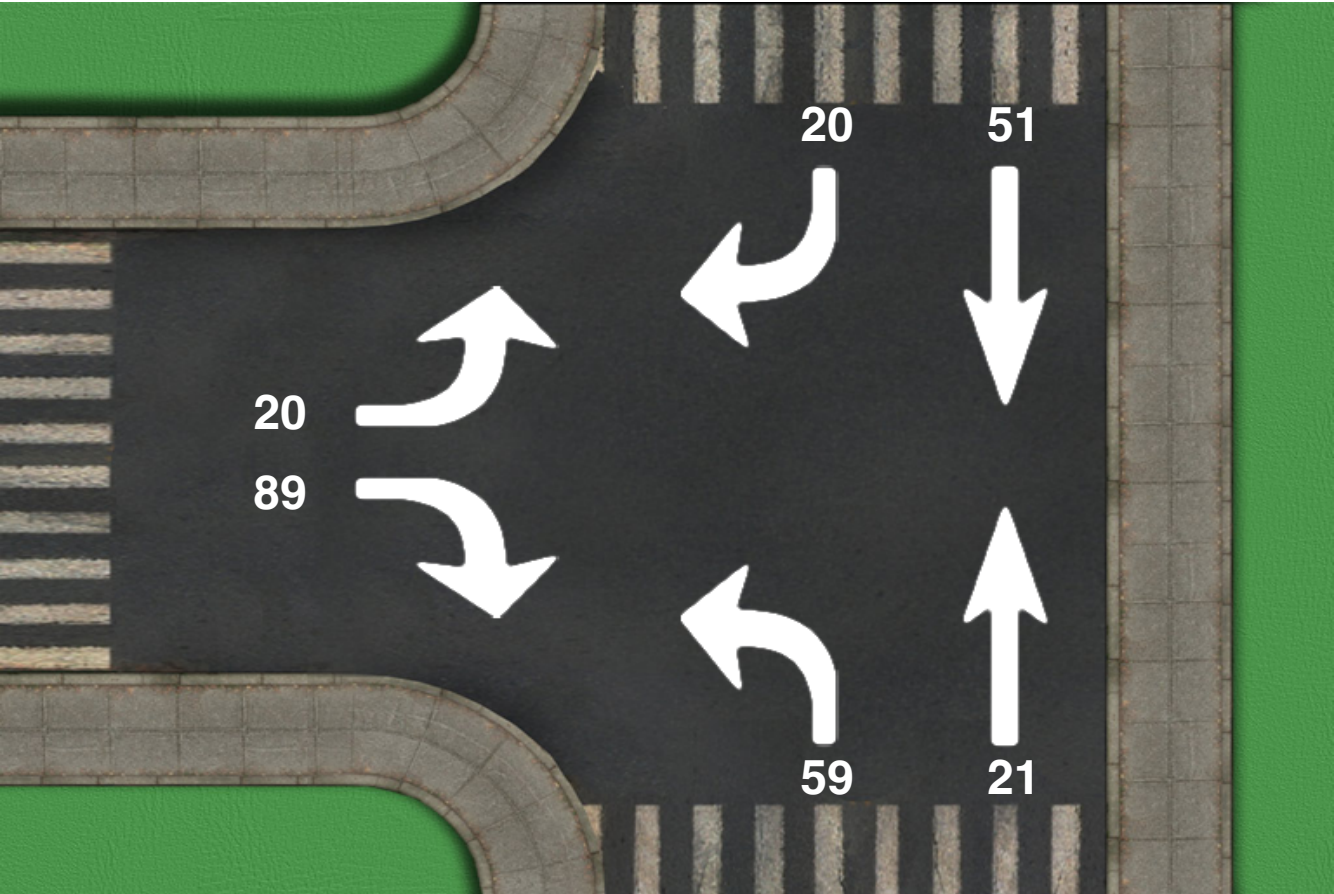
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	51	19	0	0	0	55	21	0	18	0	87	251
Truck	0	0	1	0	0	0	4	0	0	2	0	2	9

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	6	1	7	0	5	5	0	3	3	11	1	12	27

Intersection Peak Hour

Location: Crossland Gate at Alex Doner Dr, Newmarket
GPS Coordinates:
Date: Nov 3,2011
Day of week: Thursday
Weather: Sunny
Analyst: AT



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	358	62	10	1	0	106	416	13	33	7	62	1071
Factor	0.75	0.91	0.77	0.62	0.25	0.00	0.85	0.85	0.81	0.75	0.29	0.62	0.97
Approach factor	0.90			0.55			0.90			0.71			

Peak Hour Vehicle Summary

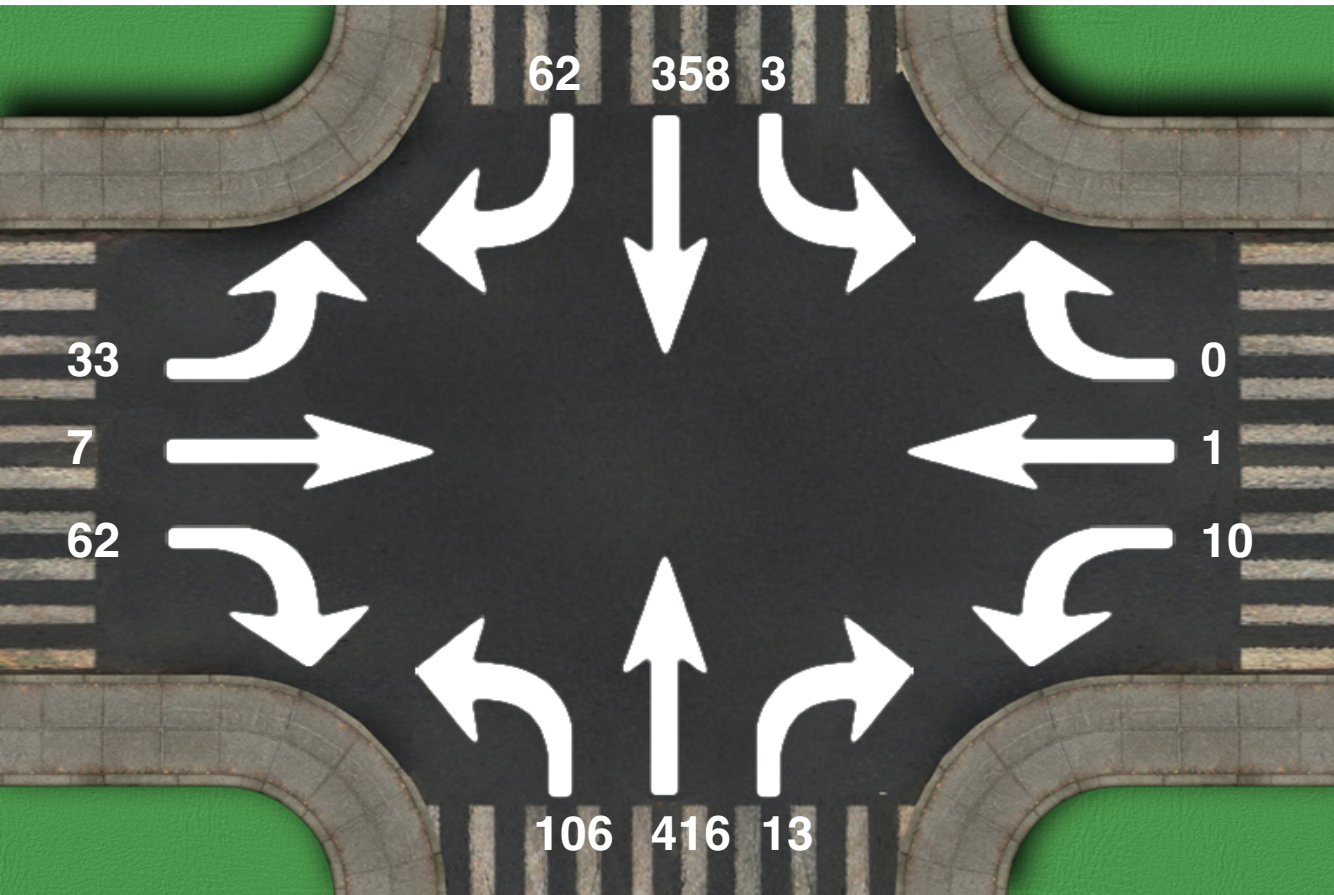
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	355	62	10	1	0	104	411	13	33	7	60	1059
Truck	0	3	0	0	0	0	2	5	0	0	0	2	12

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	4	0	4	0	7	7	4	3	7	6	7	13	31

Intersection Peak Hour

Location: at ,
GPS Coordinates: N = 44.046366, W= -79.485427
Date: 2011-11-03
Day of week: Saturday
Weather:
Analyst:



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	358	62	10	1	0	106	416	13	33	7	62	1071
Factor	0.75	0.91	0.77	0.62	0.25	0.00	0.85	0.85	0.81	0.75	0.29	0.62	0.97
Approach factor	0.90			0.55			0.90			0.71			

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	262	46	13	5	1	34	198	5	64	6	79	713
Factor	0.00	0.87	0.64	0.65	0.62	0.25	0.77	0.87	0.42	0.53	0.75	0.79	0.87
Approach factor	0.83			0.68			0.93			0.75			

Peak Hour Vehicle Summary

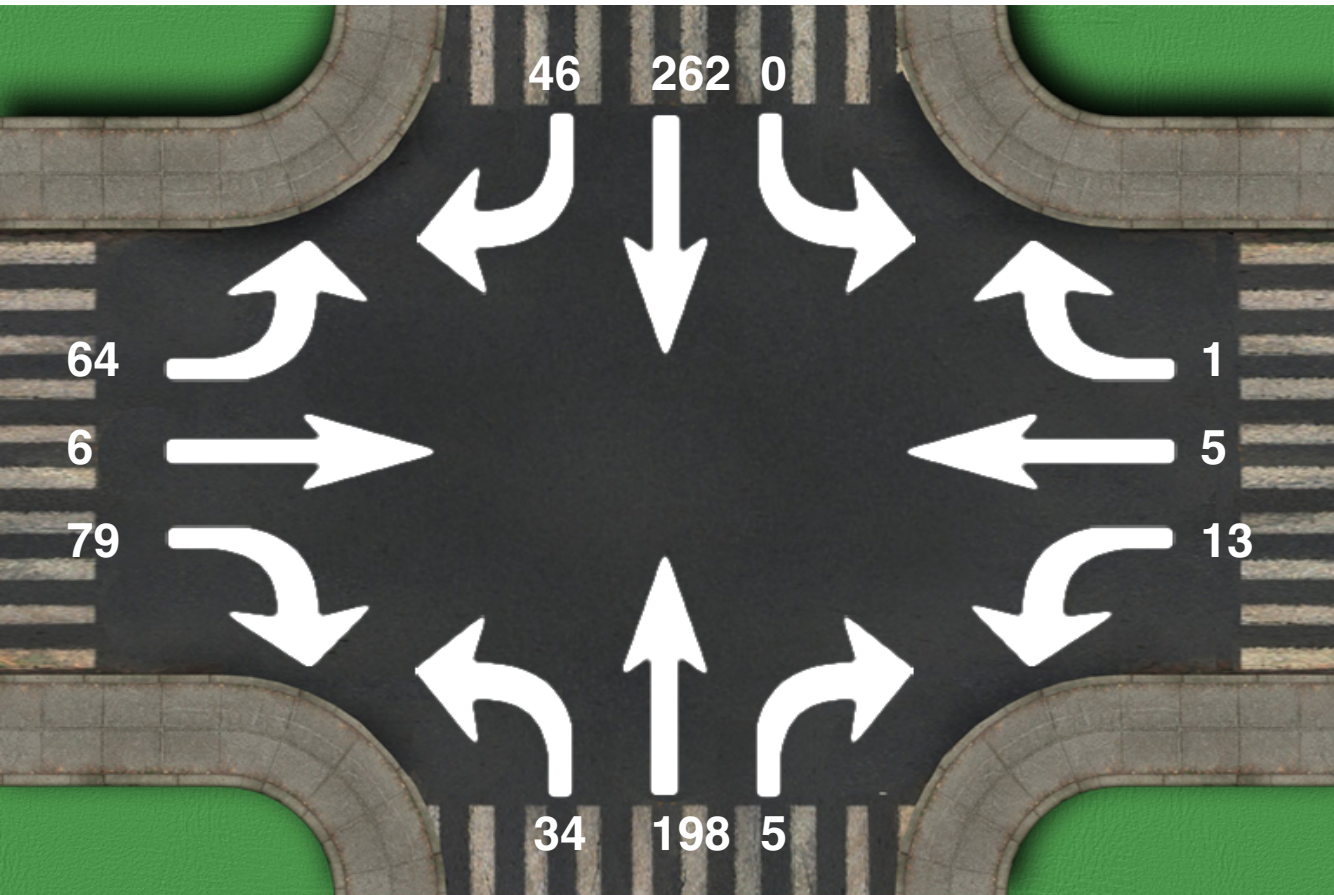
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	260	43	13	5	0	32	192	5	63	6	78	697
Truck	0	2	3	0	0	1	2	6	0	1	0	1	16

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	2	2	1	10	11	6	0	6	4	3	7	26

Intersection Peak Hour

Location: Eagle St at Crossland Gate/Peevers Crest, Newmarket Ontario
GPS Coordinates: N = 44.010451, W= -79.451541
Date: 2011-11-02
Day of week: Thursday
Weather: Cool
Analyst: Crystal



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	262	46	13	5	1	34	198	5	64	6	79	713
Factor	0.00	0.87	0.64	0.65	0.62	0.25	0.77	0.87	0.42	0.53	0.75	0.79	0.87
Approach factor	0.83			0.68			0.93			0.75			

Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	44	0	30	0	10	43	0	0	0	41	7	0	175
Factor	0.61	0.00	0.62	0.00	0.83	0.90	0.00	0.00	0.00	0.37	0.58	0.00	0.89
Approach factor	0.77			0.88			0.00			0.43			

Peak Hour Vehicle Summary

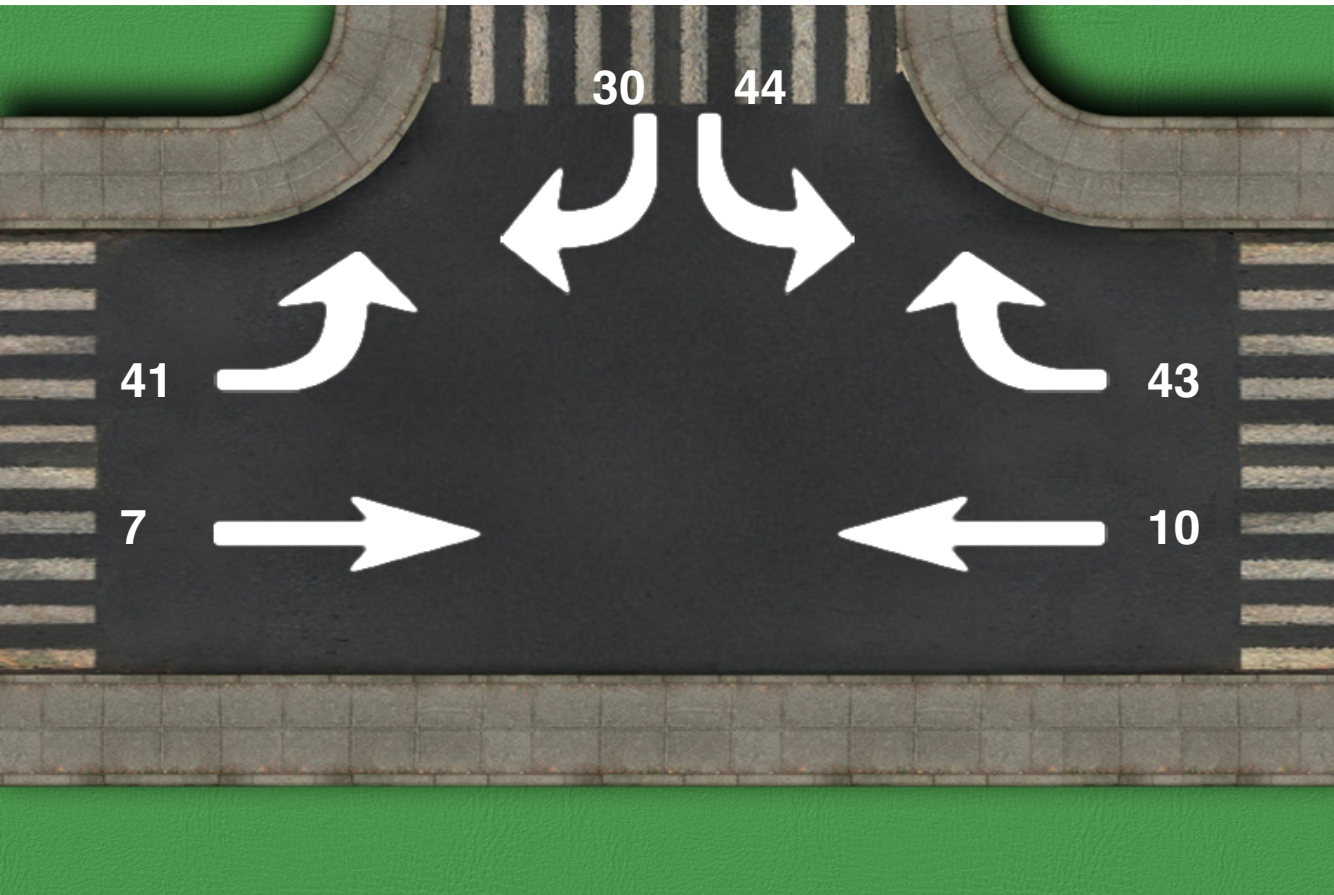
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	44	0	30	0	8	43	0	0	0	41	7	0	173
Truck	0	0	0	0	2	0	0	0	0	0	0	0	2

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	0	1	1	0	1	0	2	2	2	0	2	6

Intersection Peak Hour

Location: Ford Wilson at Crossland Gate, Newmarket Ontario
GPS Coordinates: N = 44.051837, W= -79.497373
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: CT



Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	44	0	30	0	10	43	0	0	0	41	7	0	175
Factor	0.61	0.00	0.62	0.00	0.83	0.90	0.00	0.00	0.00	0.37	0.58	0.00	0.89
Approach factor	0.77			0.88			0.00			0.43			

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	29	0	32	0	7	32	0	0	0	17	9	0	126
Factor	0.56	0.00	0.67	0.00	0.44	0.80	0.00	0.00	0.00	0.53	0.75	0.00	0.73
Approach factor	0.61			0.81			0.00			0.81			

Peak Hour Vehicle Summary

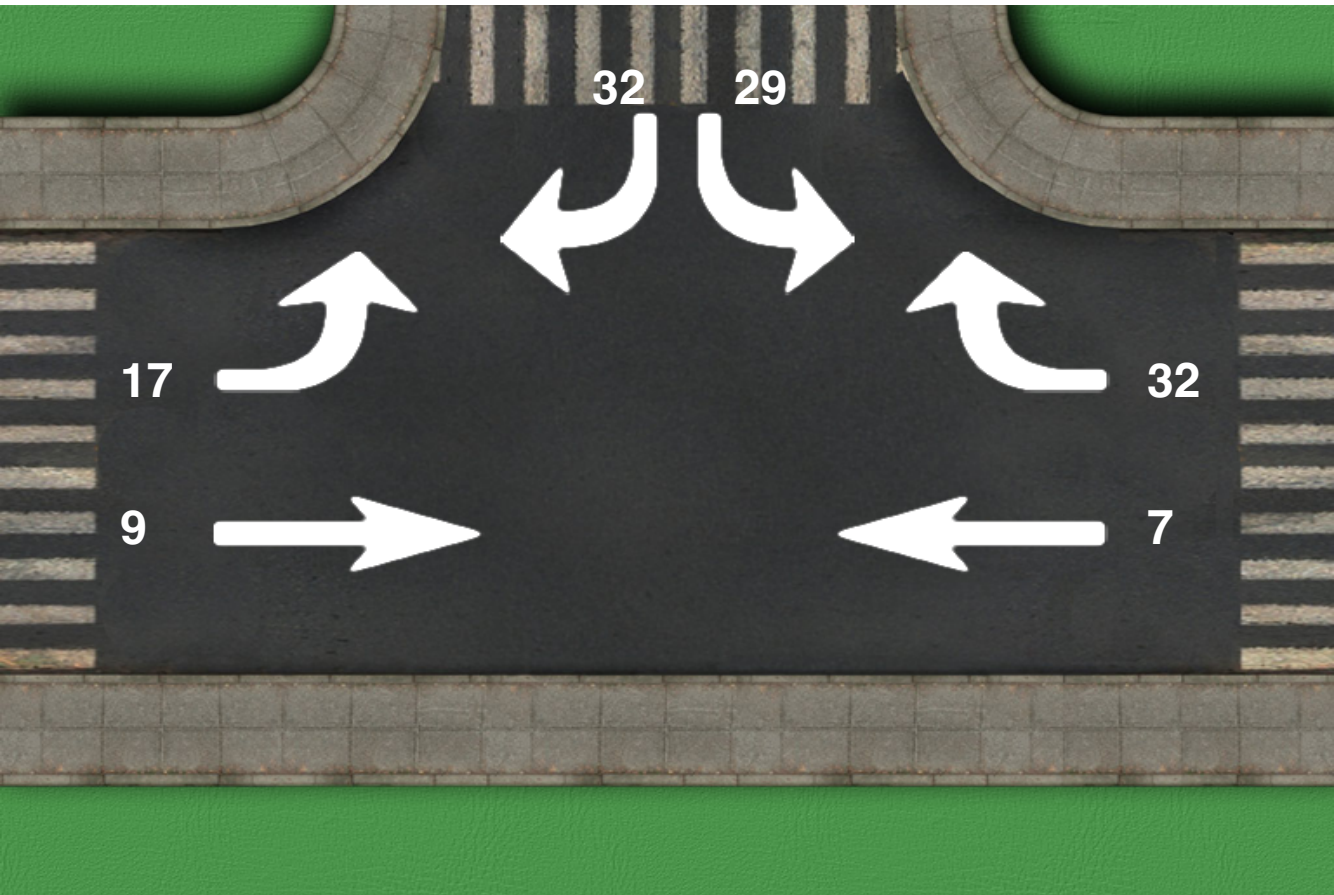
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	27	0	29	0	7	31	0	0	0	16	9	0	119
Truck	2	0	3	0	0	1	0	0	0	1	0	0	7

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	0	0	0	1	0	1	1

Intersection Peak Hour

Location: Ford Wilson Blvd at Crossland Gate/Alex Doner Dr, Newmarket Ontario
GPS Coordinates: N = 44.010430, W= -79.451554
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: Crystal



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	29	0	32	0	7	32	0	0	0	17	9	0	126
Factor	0.56	0.00	0.67	0.00	0.44	0.80	0.00	0.00	0.00	0.53	0.75	0.00	0.73
Approach factor	0.61			0.81			0.00			0.81			

Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	32	11	0	0	0	86	46	0	10	0	54	239
Factor	0.00	0.62	0.55	0.00	0.00	0.00	0.90	0.77	0.00	0.83	0.00	0.84	0.89
Approach factor	0.72			0.00			0.89			0.84			

Peak Hour Vehicle Summary

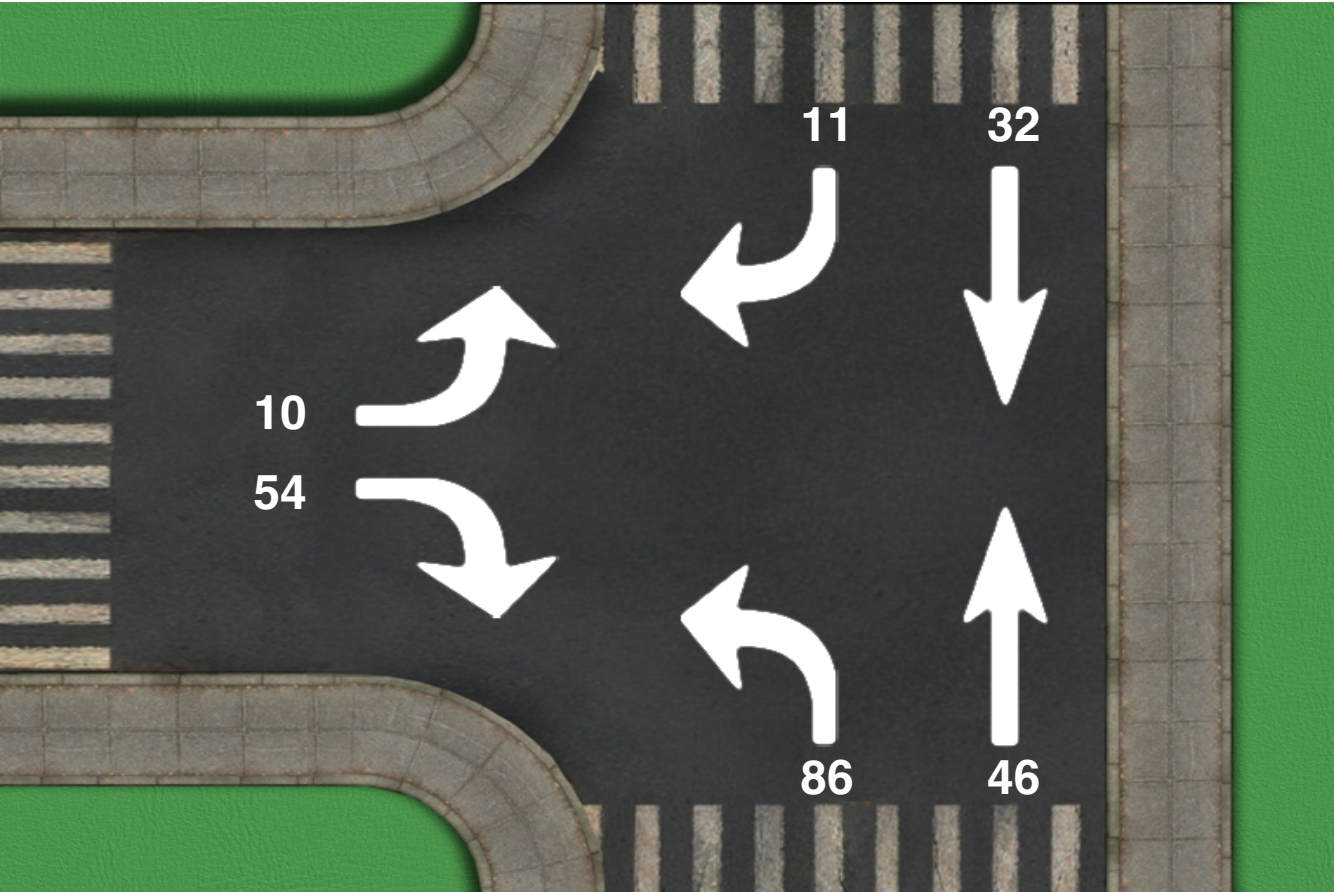
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	32	10	0	0	0	86	45	0	10	0	53	236
Truck	0	0	1	0	0	0	0	1	0	0	0	1	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	3	0	3	2	0	2	2	3	5	0	5	5	15

Intersection Peak Hour

Location: Crossland Gate at Alex Doner Dr, Newmarket
GPS Coordinates:
Date: Nov 3,2011
Day of week: Thursday
Weather: Cloudy
Analyst: AT



Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	32	11	0	0	0	86	46	0	10	0	54	239
Factor	0.00	0.62	0.55	0.00	0.00	0.00	0.90	0.77	0.00	0.83	0.00	0.84	0.89
Approach factor	0.72			0.00			0.89			0.84			

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Peak Hour Vehicle Summary

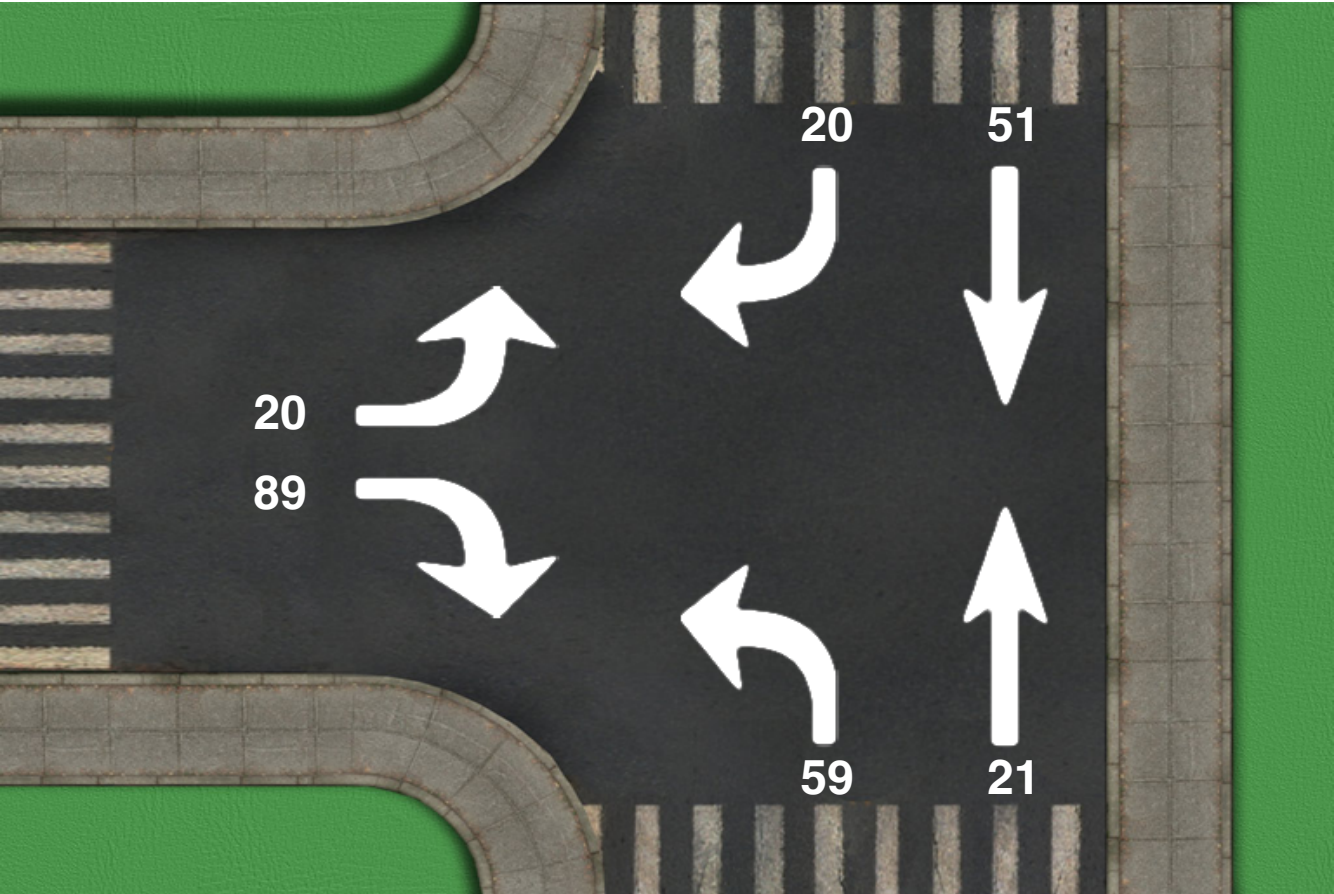
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	51	19	0	0	0	55	21	0	18	0	87	251
Truck	0	0	1	0	0	0	4	0	0	2	0	2	9

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	6	1	7	0	5	5	0	3	3	11	1	12	27

Intersection Peak Hour

Location: Crossland Gate at Alex Doner Dr, Newmarket
GPS Coordinates:
Date: Nov 3,2011
Day of week: Thursday
Weather: Sunny
Analyst: AT



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	81	302	0	92	0	161	0	340	70	0	0	0	1046
Factor	0.72	0.88	0.00	0.96	0.00	0.86	0.00	0.89	0.92	0.00	0.00	0.00	0.96
Approach factor	0.89			0.89			0.92			0.00			

Peak Hour Vehicle Summary

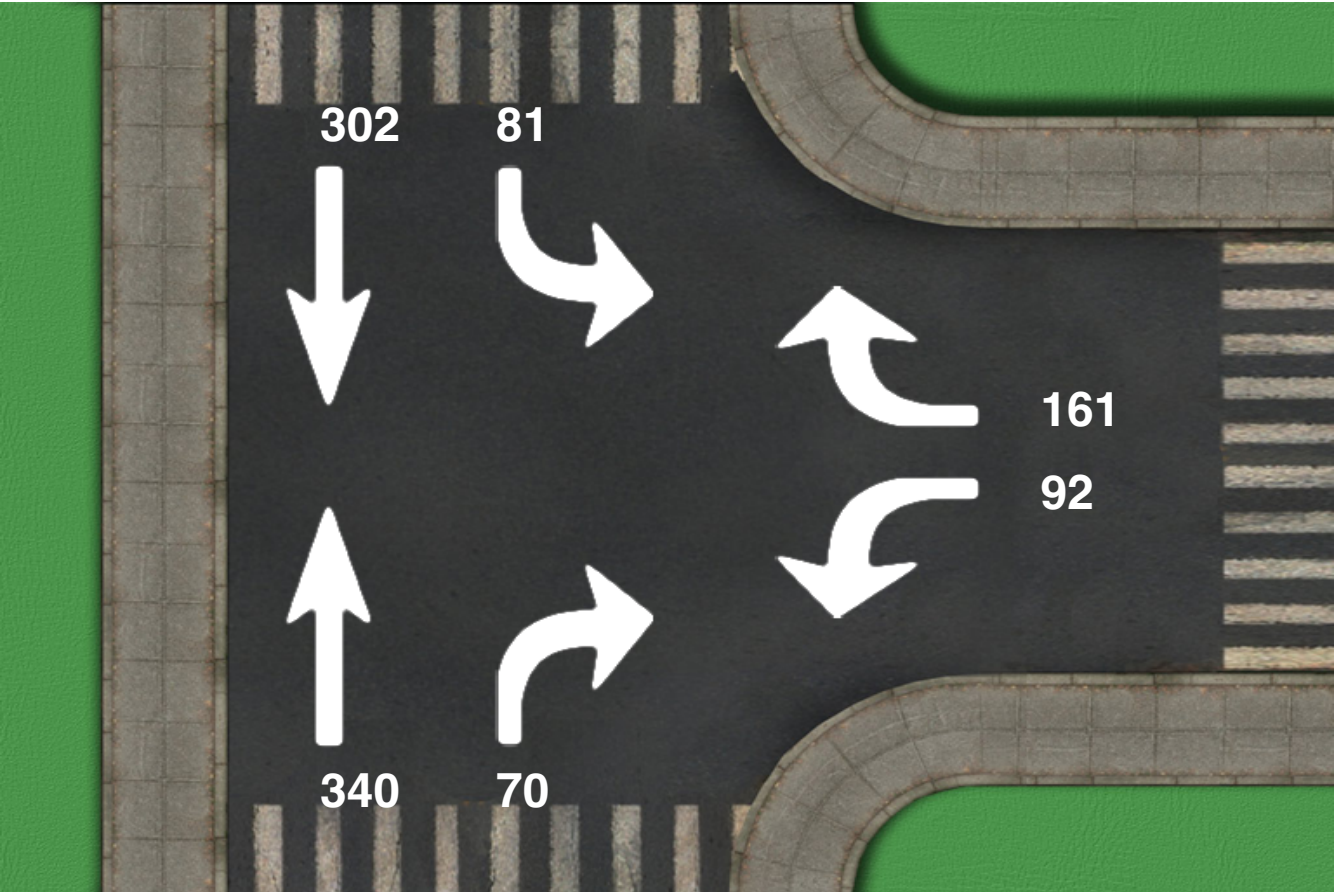
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	81	299	0	91	0	159	0	336	69	0	0	0	1035
Truck	0	3	0	1	0	2	0	4	1	0	0	0	11

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	5	10	15	8	12	20	11	1	12	7	2	9	56

Intersection Peak Hour

Location: Eagle St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.050093, W= -79.483536
Date: 2011-11-01
Day of week: Tuesdsy
Weather: Sunny
Analyst: Crystal



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	81	302	0	92	0	161	0	340	70	0	0	0	1046
Factor	0.72	0.88	0.00	0.96	0.00	0.86	0.00	0.89	0.92	0.00	0.00	0.00	0.96
Approach factor	0.89			0.89			0.92			0.00			

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	109	259	0	71	0	79	0	151	102	0	0	0	771
Factor	0.85	0.83	0.00	0.77	0.00	0.86	0.00	0.88	0.91	0.00	0.00	0.00	0.93
Approach factor	0.96			0.82			0.92			0.00			

Peak Hour Vehicle Summary

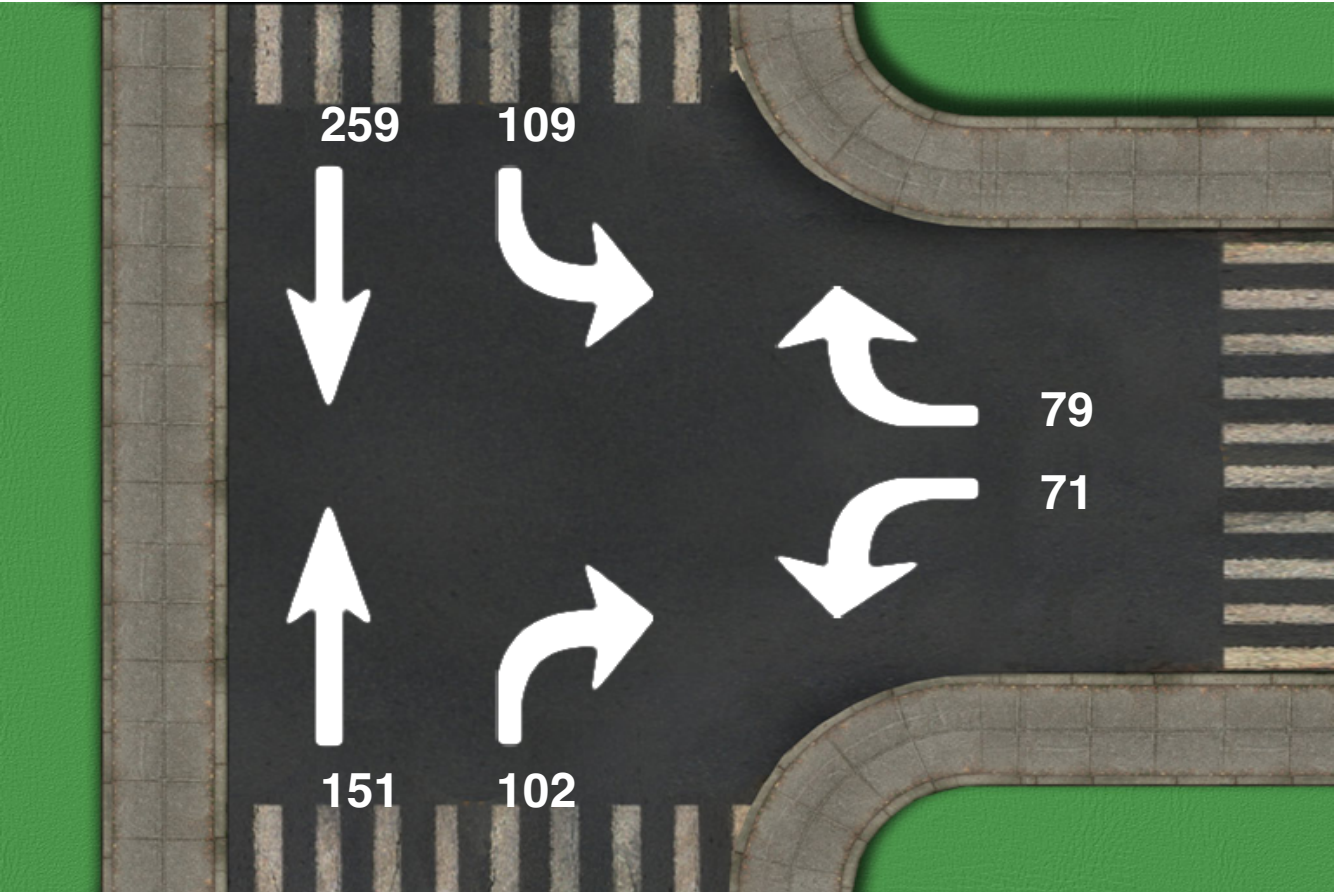
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	109	253	0	69	0	78	0	144	102	0	0	0	755
Truck	0	6	0	2	0	1	0	7	0	0	0	0	16

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	2	3	0	3	3	5	5	10	2	2	4	20

Intersection Peak Hour

Location: Eagle St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.010493, W= -79.451377
Date: 2011-11-01
Day of week: Tuesday
Weather: Cool
Analyst: Crystal



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	109	259	0	71	0	79	0	151	102	0	0	0	771
Factor	0.85	0.83	0.00	0.77	0.00	0.86	0.00	0.88	0.91	0.00	0.00	0.00	0.93
Approach factor	0.96			0.82			0.92			0.00			

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	96	889	75	53	137	66	108	1421	55	133	121	128	3282
Factor	0.56	0.85	0.78	0.70	0.59	0.69	0.84	0.93	0.69	0.81	0.86	0.84	0.98
Approach factor	0.90			0.74			0.94			0.88			

Peak Hour Vehicle Summary

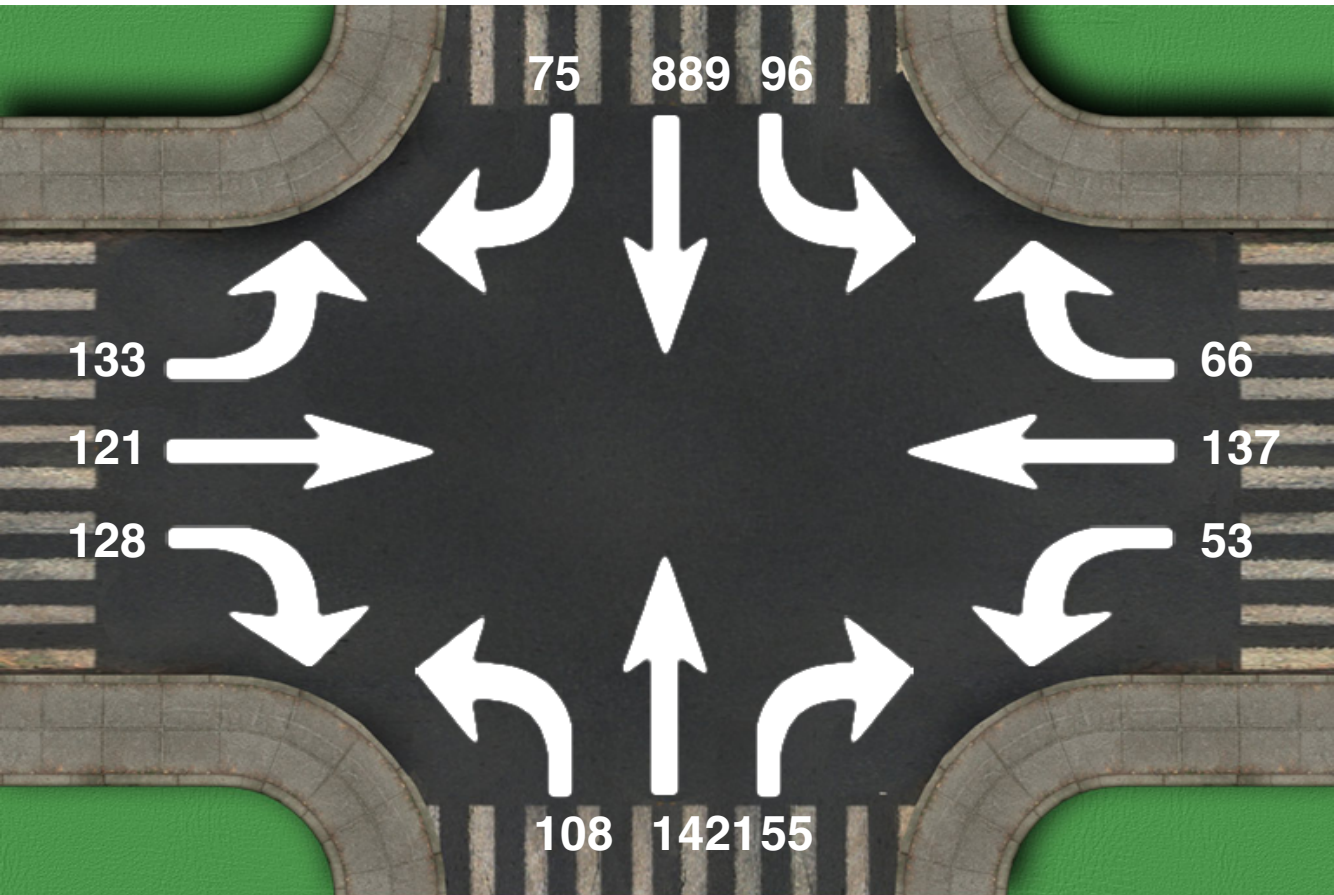
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	94	881	74	52	137	66	108	1406	52	132	120	128	3250
Truck	2	8	1	1	0	0	0	15	3	1	1	0	32

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	0	2	3	2	5	4	3	7	0	3	3	17

Intersection Peak Hour

Location: Yonge St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.050631, W= -79.479335
Date: 2011/11/01
Day of week: Tuesday
Weather: Cool
Analyst: Cy



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	96	889	75	53	137	66	108	1421	55	133	121	128	3282
Factor	0.56	0.85	0.78	0.70	0.59	0.69	0.84	0.93	0.69	0.81	0.86	0.84	0.98
Approach factor	0.90			0.74			0.94			0.88			

Turn Count Summary

Location: Yonge St at Millard Ave, Newmarket Ontario

GPS Coordinates:

Date: 2011/11/01

Day of week: Tuesday

Weather:

Analyst: Cy

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	4	174	24	2	13	1	12	99	4	4	8	21	366
07:15	3	237	22	10	8	4	21	107	5	7	6	41	471
07:30	4	283	28	6	12	3	17	104	7	11	8	49	532
07:45	13	342	41	14	17	7	29	135	11	11	29	55	704
08:00	10	288	47	9	13	7	33	152	6	13	29	30	637
08:15	28	263	33	20	32	9	53	160	10	15	15	22	660
08:30	8	250	45	11	26	10	49	140	8	6	20	29	602
08:45	9	229	36	7	37	6	48	178	10	22	19	32	633
09:00	0	54	4	1	1	1	6	26	1	0	1	4	99

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	4	169	22	2	13	1	12	90	4	3	8	20	348
07:15	3	230	22	10	7	4	21	106	5	7	6	41	462
07:30	4	277	25	6	12	3	17	97	7	10	7	48	513
07:45	13	336	40	14	17	7	29	129	11	9	29	55	689
08:00	10	283	45	9	13	7	33	144	6	13	29	29	621
08:15	28	259	32	20	32	9	53	153	9	15	15	21	646
08:30	8	243	45	11	26	10	49	136	8	6	20	29	591
08:45	9	221	35	7	37	6	45	170	10	21	19	32	612
09:00	0	54	4	1	1	1	5	24	1	0	1	4	96

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	5	2	0	0	0	0	9	0	1	0	1	18
07:15	0	7	0	0	1	0	0	1	0	0	0	0	9
07:30	0	6	3	0	0	0	0	7	0	1	1	1	19
07:45	0	6	1	0	0	0	0	6	0	2	0	0	15
08:00	0	5	2	0	0	0	0	8	0	0	0	1	16
08:15	0	4	1	0	0	0	0	7	1	0	0	1	14
08:30	0	7	0	0	0	0	0	4	0	0	0	0	11
08:45	0	8	1	0	0	0	3	8	0	1	0	0	21
09:00	0	0	0	0	0	0	1	2	0	0	0	0	3

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:00	0	0	0	1	0	1	0	0	0	0	3	3	4
07:15	1	0	1	0	0	0	1	0	1	0	0	0	2
07:30	1	0	1	0	0	0	0	0	0	1	1	2	3
07:45	0	1	1	0	1	1	0	0	0	0	0	0	2
08:00	1	0	1	0	0	0	0	0	0	0	0	0	1
08:15	0	0	0	0	1	1	0	0	0	0	4	4	5
08:30	1	2	3	0	0	0	1	1	2	1	1	2	7
08:45	0	1	1	1	1	2	2	0	2	0	2	2	7
09:00	2	1	3	0	0	0	1	0	1	1	0	1	5

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	59	1143	166	54	88	33	164	587	35	45	93	136	2603
Factor	0.53	0.84	0.88	0.68	0.69	0.82	0.77	0.92	0.80	0.75	0.80	0.62	0.92
Approach factor	0.86			0.72			0.88			0.72			

Peak Hour Vehicle Summary

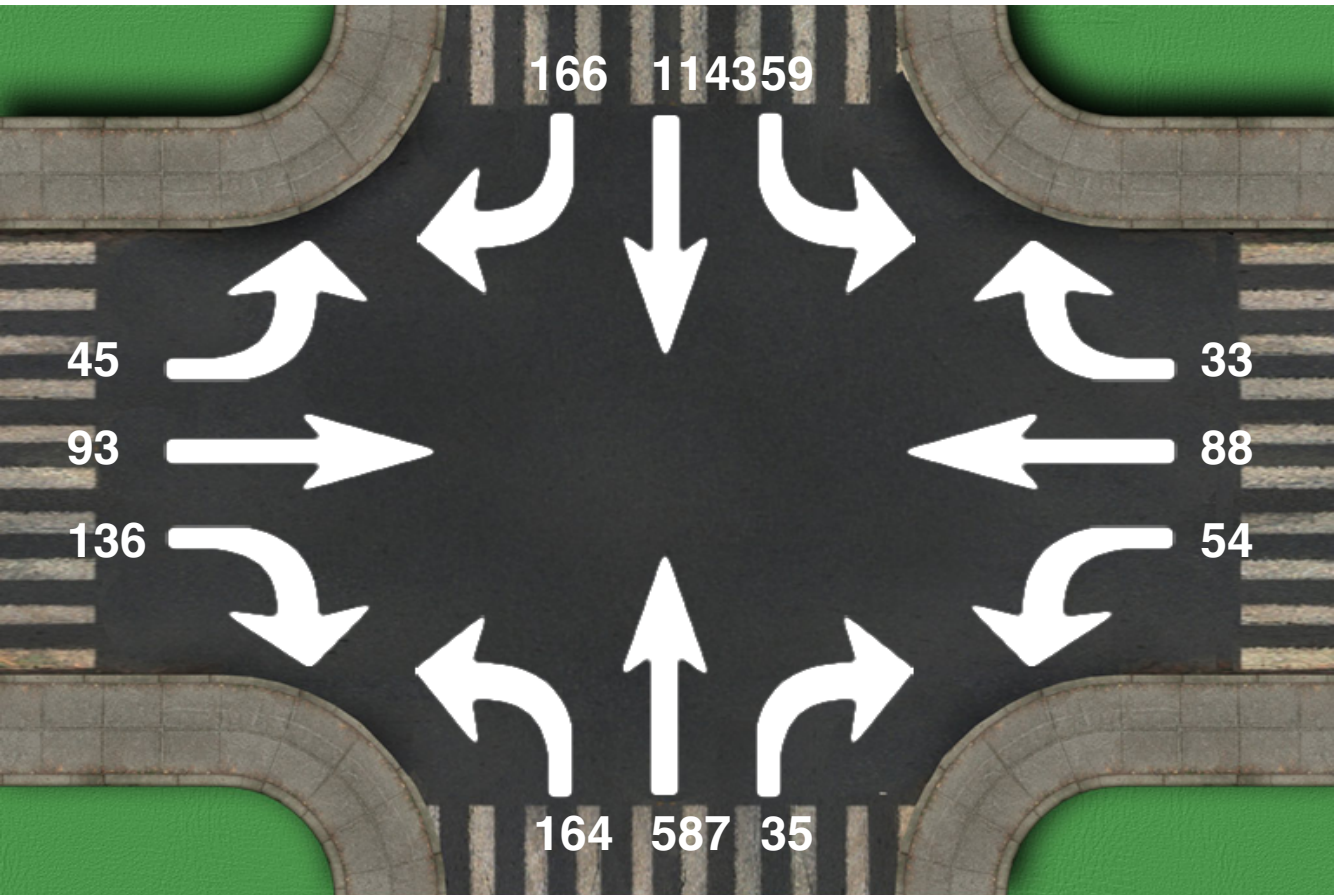
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	59	1121	162	54	88	33	164	562	34	43	93	134	2547
Truck	0	22	4	0	0	0	0	25	1	2	0	2	56

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	3	5	0	2	2	1	1	2	1	5	6	15

Intersection Peak Hour

Location: Yonge St at Millard Ave, Newmarket Ontario
GPS Coordinates:
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: Cy



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	59	1143	166	54	88	33	164	587	35	45	93	136	2603
Factor	0.53	0.84	0.88	0.68	0.69	0.82	0.77	0.92	0.80	0.75	0.80	0.62	0.92
Approach factor	0.86			0.72			0.88			0.72			



Intersection: Yonge St. & Eagle St. Newmarket, ON

Date: November 1, 2011

Analyst: CT

Total Vehicle Traffic

	Northbound			Eastbound			Southbound			Westbound				
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	
16:00	57	347	44	12	52	49	59	264	13	51	46	23	1017	
16:15	55	339	53	18	46	79	26	241	11	38	37	27	970	
16:30	76	331	43	26	63	59	59	315	15	46	45	24	1102	
16:45	83	348	51	23	83	71	47	265	17	51	56	39	1134	
17:00	50	260	40	17	44	63	25	230	11	36	48	25	849	
17:15	50	287	41	14	60	58	38	259	15	38	38	27	925	
17:30	56	305	36	13	51	58	47	250	12	42	45	24	939	
17:45	47	281	33	13	53	50	37	267	10	38	40	32	901	
													Total	7837

Car Traffic

	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	54	343	42	12	51	48	54	259	10	51	46	23	993
16:15	55	336	53	17	39	74	22	233	7	36	32	21	925
16:30	73	328	42	25	60	55	55	312	10	46	41	22	1069
16:45	82	342	51	23	82	69	45	264	14	51	54	38	1115
17:00	48	257	39	17	43	62	24	226	10	36	46	24	832
17:15	50	285	40	14	58	58	36	256	12	38	37	26	910
17:30	53	301	36	11	49	55	45	247	11	40	42	22	912
17:45	47	278	32	13	51	49	35	265	8	37	39	30	884

Truck Traffic

	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	1	4					3	5	1				14
16:15		3		1	3	1	1	7			1		17
16:30	2	3			1	1		2			3	1	13



Pedestrian Volumes

Start Time	Northbound			Eastbound			Southbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	2		2		1	1	2		2				10
16:15					4	4	3	1	4	2	4	6	28
16:30	1		1	1	2	3	4	1	5		1	1	20
16:45					1	1	2		2		1	1	8
17:00	1		1		1	1	1	2	1		2	1	11
17:15			1		1		1	1	2			1	7
17:30	2			1	2	2	2		1	2	1	2	15
17:45			1		1	1	2	1	1	1	1	1	10

Intersection Peak Hour

Time: 16:00 - 17:00

Peak Hour Snapshot

Cars	Northbound			Eastbound			Southbound			Westbound			Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	54	343	42	12	51	48	54	259	10	51	46	23	993
16:15	55	336	53	17	39	74	22	233	7	36	32	21	925
16:30	73	328	42	25	60	55	55	312	10	46	41	22	1069
16:45	82	342	51	23	82	69	45	264	14	51	54	38	1115

Trucks	Northbound			Eastbound			Southbound			Westbound			Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	1	4					3	5	1				14
16:15		3		1	3	1	1	7			1		17
16:30	2	3			1	1		2			3	1	13
16:45	1	6				1		1	1		1		11

Peak Hour Vehicle Summary

	Northbound			Eastbound			Southbound			Westbound			Total
Traffic	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	264	1349	188	77	232	246	176	1068	41	184	173	104	4102
Bus	4	16	0	1	4	3	4	15	2	0	5	1	55
Totals	268	1365	188	78	236	249	180	1083	43	184	178	105	4157

Peak Hour Pedestrians

	Northbound			Eastbound			Southbound			Westbound			Total
Volume	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Pedestrian	3		3	1	8	9	11	2	13	2	6	8	66

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	77	1054	116	196	186	113	227	904	232	40	189	187	3521
Factor	0.69	0.87	0.46	0.88	0.77	0.81	0.71	0.88	0.82	0.67	0.65	0.77	0.94
Approach factor	0.90			0.95			0.87			0.70			

Peak Hour Vehicle Summary

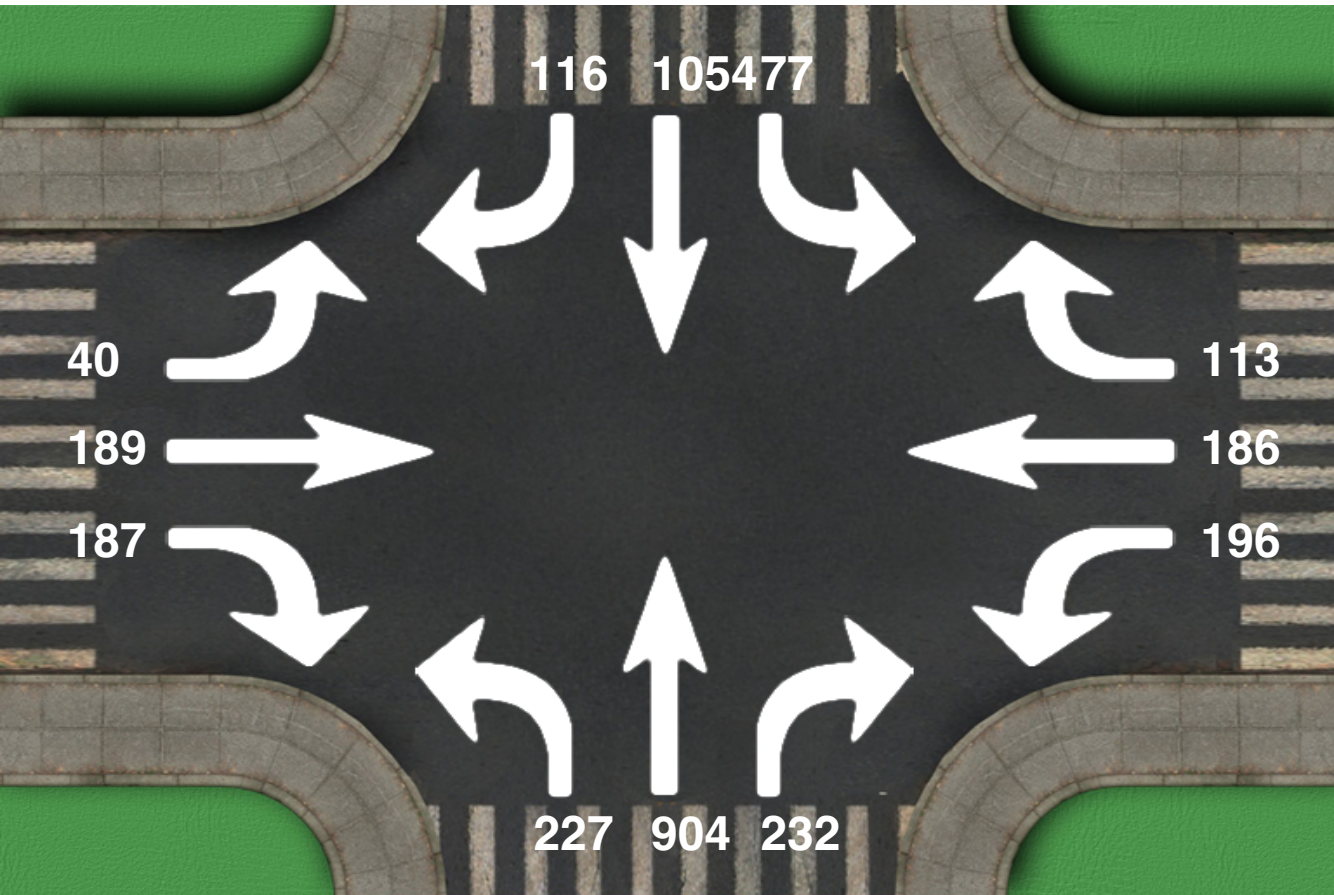
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	77	1022	113	194	184	111	219	888	229	38	189	183	3447
Truck	0	32	3	2	2	2	8	16	3	2	0	4	74

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	1	3	2	0	2	1	1	2	1	1	2	9

Intersection Peak Hour

Location: Yonge ST at Eagle St , Toronto, On
GPS Coordinates:
Date: November 1, 2011
Day of week: Tuesday
Weather: Cool
Analyst: AT



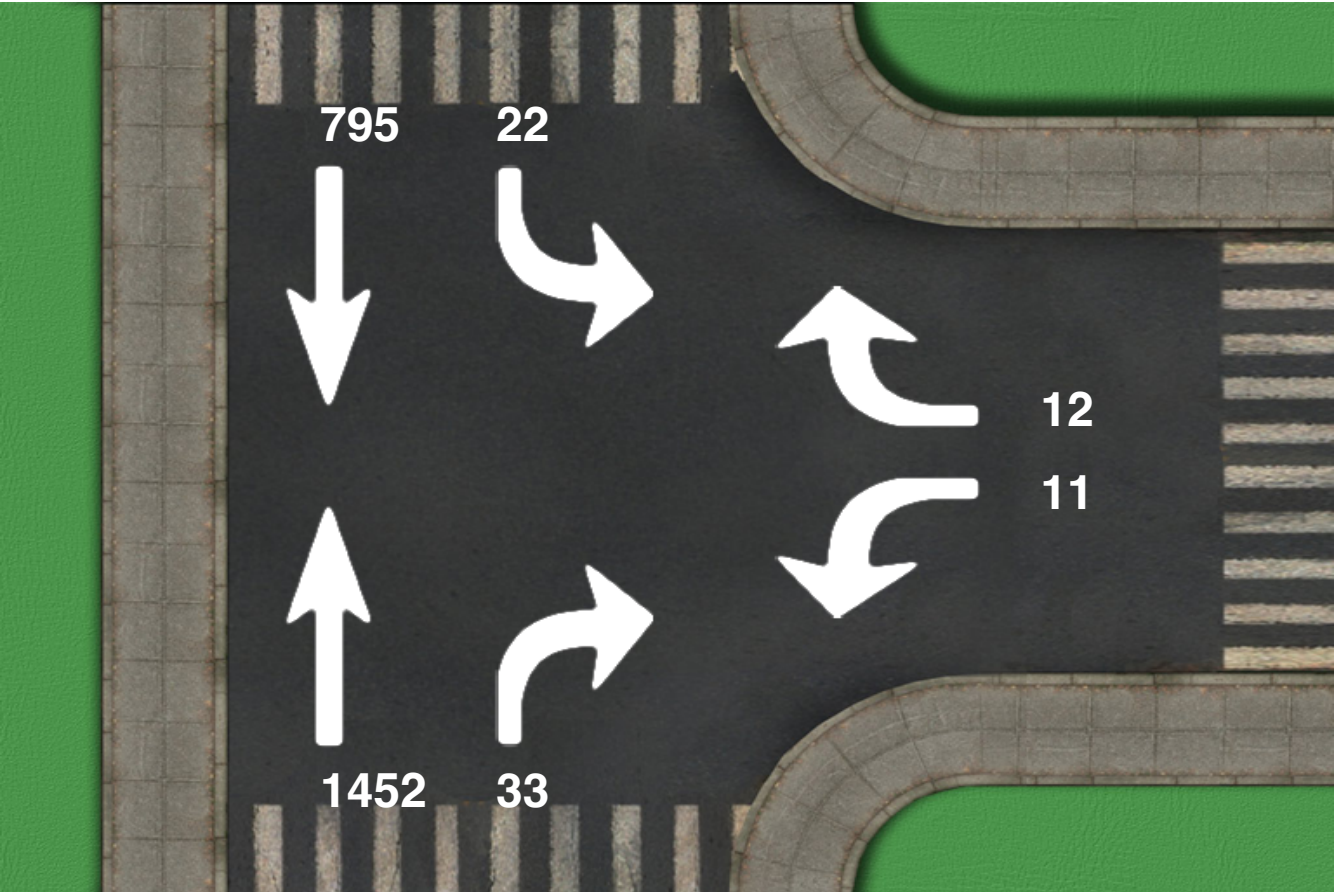
Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	77	1054	116	196	186	113	227	904	232	40	189	187	3521
Factor	0.69	0.87	0.46	0.88	0.77	0.81	0.71	0.88	0.82	0.67	0.65	0.77	0.94
Approach factor	0.90			0.95			0.87			0.70			

Intersection Peak Hour

Location: Bathurst St at Sykes Rd, Newmarket
GPS Coordinates:
Date: 02/11/11
Day of week: Tuesday
Weather: Sunny
Analyst: Mike



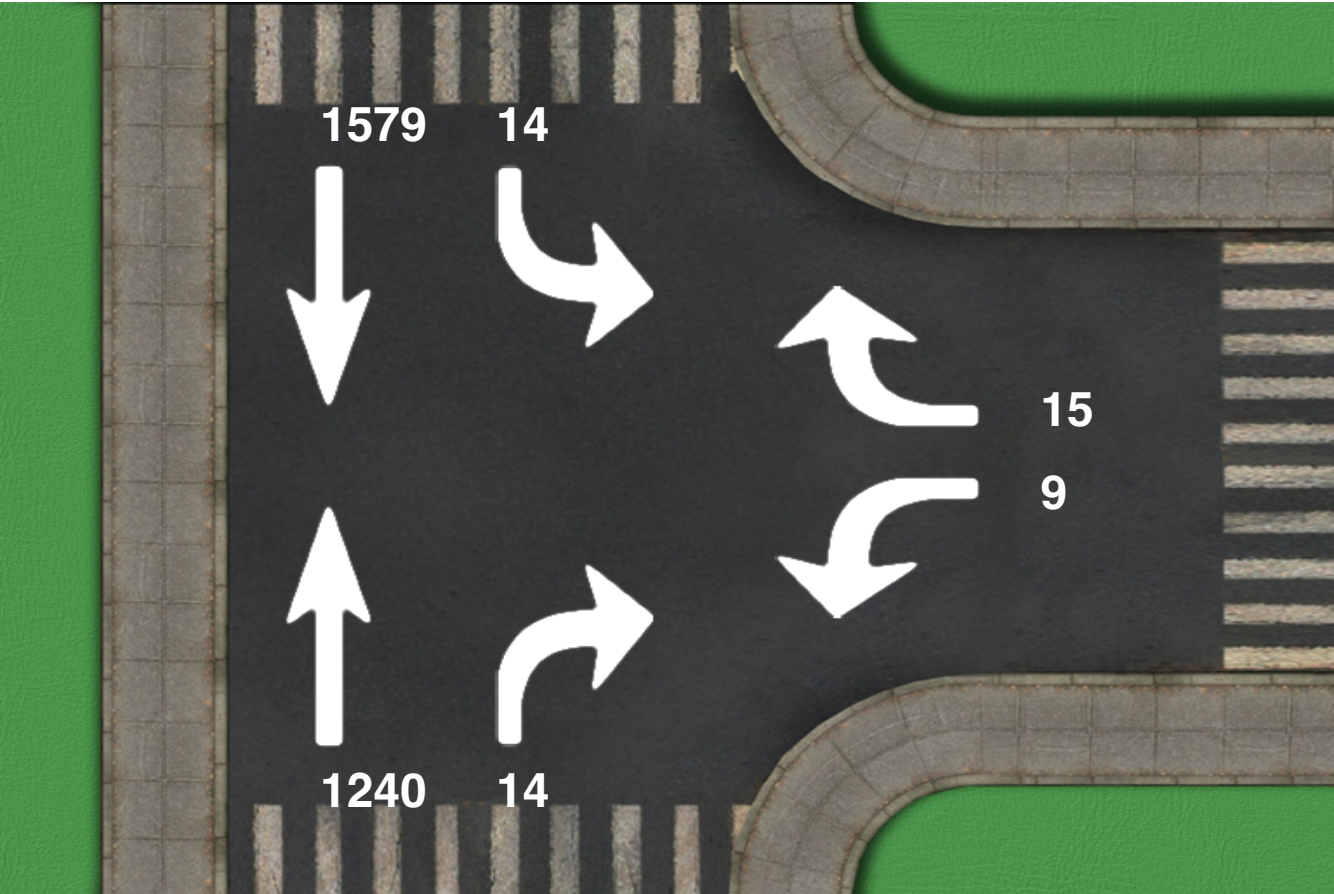
Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	22	795	0	11	0	12	0	1452	33	0	0	0	2325
Factor	0.69	0.89	0.00	0.55	0.00	0.75	0.00	0.79	0.75	0.00	0.00	0.00	0.87
Approach factor	0.88			0.72			0.79			0.00			

Intersection Peak Hour

Location: Bathurst St at Sykes Rd, Newmarket
GPS Coordinates:
Date: 02/11/11
Day of week: Tuesday
Weather: Sunny
Analyst: Mike



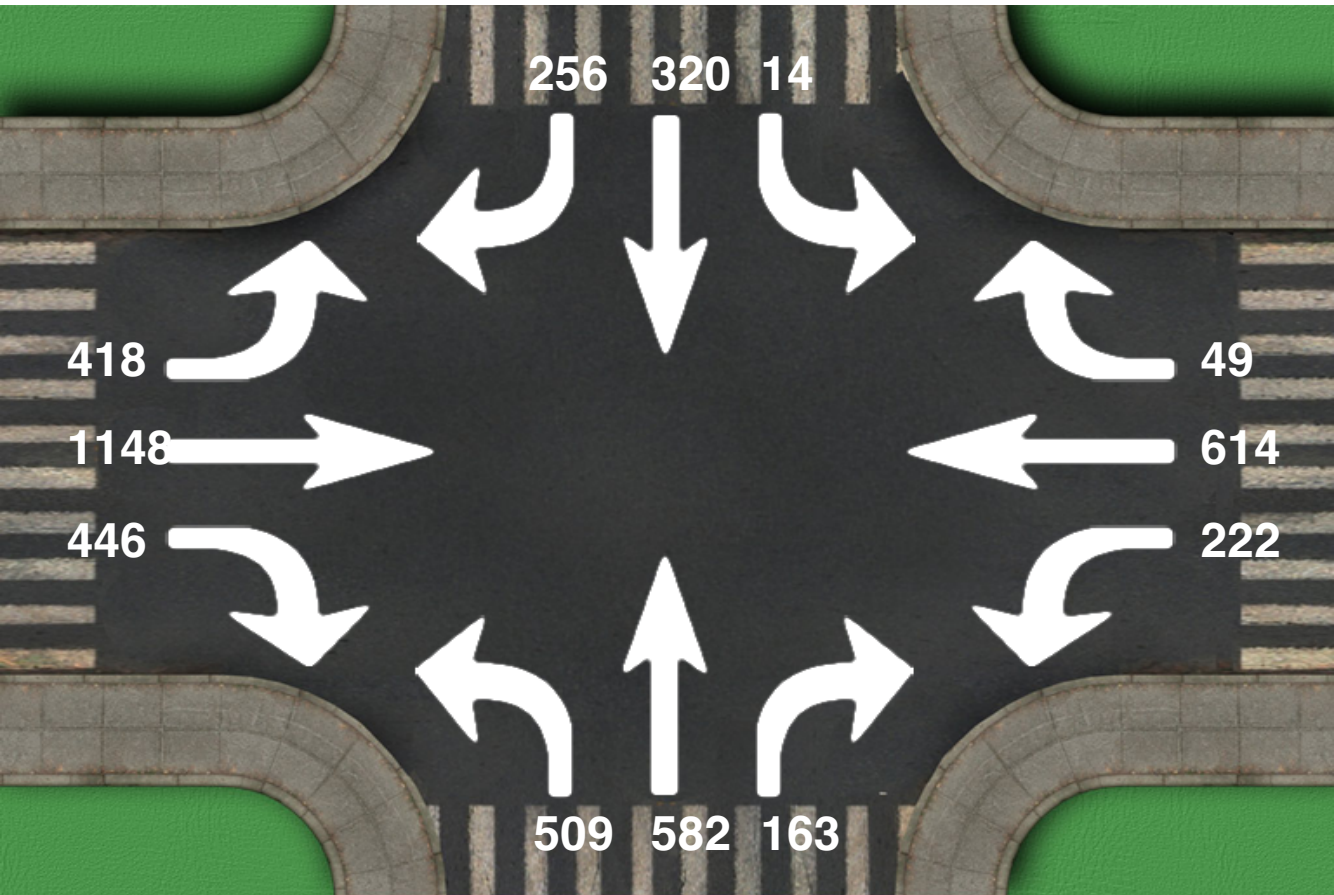
Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	14	1579	0	9	0	15	0	1240	14	0	0	0	2871
Factor	0.58	0.85	0.00	0.75	0.00	0.62	0.00	0.94	0.58	0.00	0.00	0.00	0.89
Approach factor	0.85			0.75			0.94			0.00			

Intersection Peak Hour

Location: Bathurst St at Davis Dr, Newmarket
GPS Coordinates:
Date: 2011/11/01
Day of week: Tuesday
Weather: Cool
Analyst: Mike



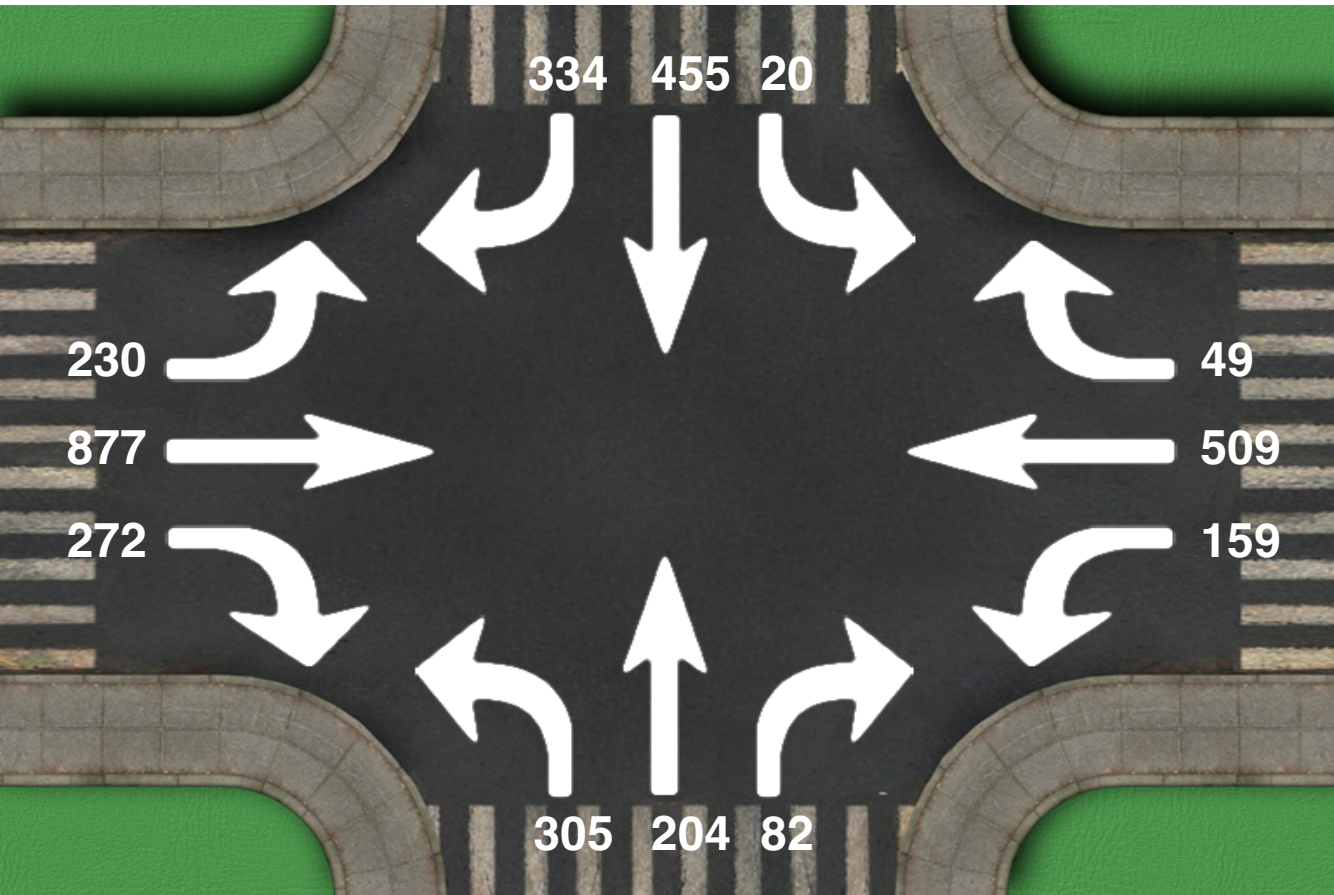
Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	14	320	256	222	614	49	509	582	163	418	1148	446	4741
Factor	0.58	0.84	0.86	0.79	0.77	0.61	0.94	0.84	0.74	0.84	0.86	0.88	0.94
Approach factor	0.93			0.85			0.92			0.89			

Intersection Peak Hour

Location: Bathurst St at Davis Dr, Newmarket
GPS Coordinates:
Date: 2011/11/01
Day of week: Tuesday
Weather: Cool
Analyst: Mike



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	20	455	334	159	509	49	305	204	82	230	877	272	3496
Factor	0.56	0.73	0.94	0.86	0.83	0.82	0.81	0.80	0.71	0.71	0.92	0.84	0.95
Approach factor	0.83			0.84			0.85			0.93			

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	61	0	20	42	945	141	23	1	66	174	920	27	2420
Factor	0.66	0.00	0.71	0.75	0.93	0.95	0.57	0.25	0.52	0.85	0.86	0.52	0.95
Approach factor	0.68			0.93			0.62			0.88			

Peak Hour Vehicle Summary

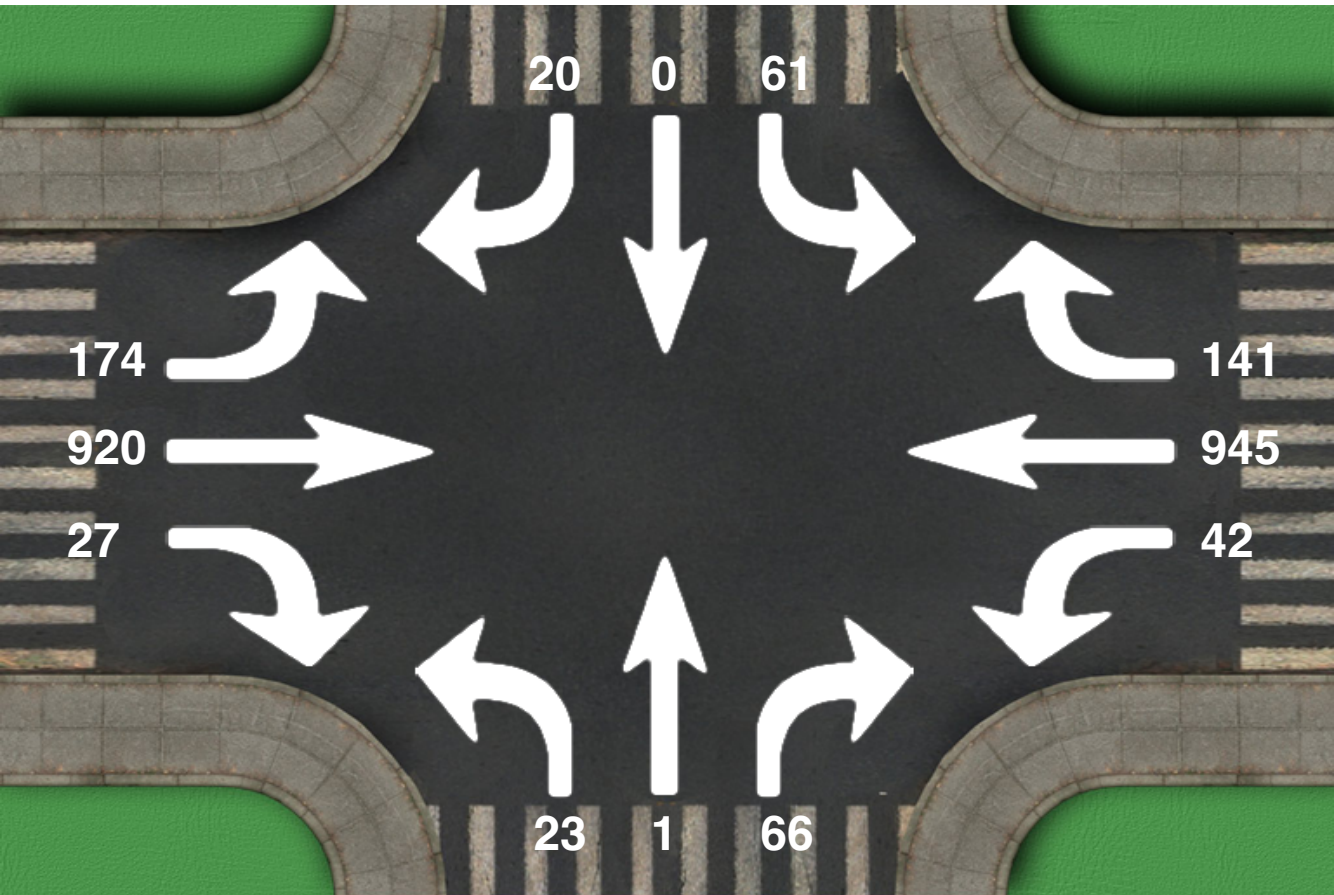
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	61	0	20	42	921	141	23	1	66	174	904	27	2380
Truck	0	0	0	0	24	0	0	0	0	0	16	0	40

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	1	2	0	2	2	1	0	1	1	1	2	7

Intersection Peak Hour

Location: Ford Wilson at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.052098, W= -79.497093
Date: 2011/11/01
Day of week: Tuesday
Weather: Cool
Analyst: CT



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	61	0	20	42	945	141	23	1	66	174	920	27	2420
Factor	0.66	0.00	0.71	0.75	0.93	0.95	0.57	0.25	0.52	0.85	0.86	0.52	0.95
Approach factor	0.68			0.93			0.62			0.88			

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	121	0	87	39	601	40	19	2	32	21	774	30	1766
Factor	0.80	0.00	0.78	0.61	0.92	0.77	0.53	0.50	0.73	0.48	0.96	0.54	0.96
Approach factor	0.79			0.92			0.74			0.95			

Peak Hour Vehicle Summary

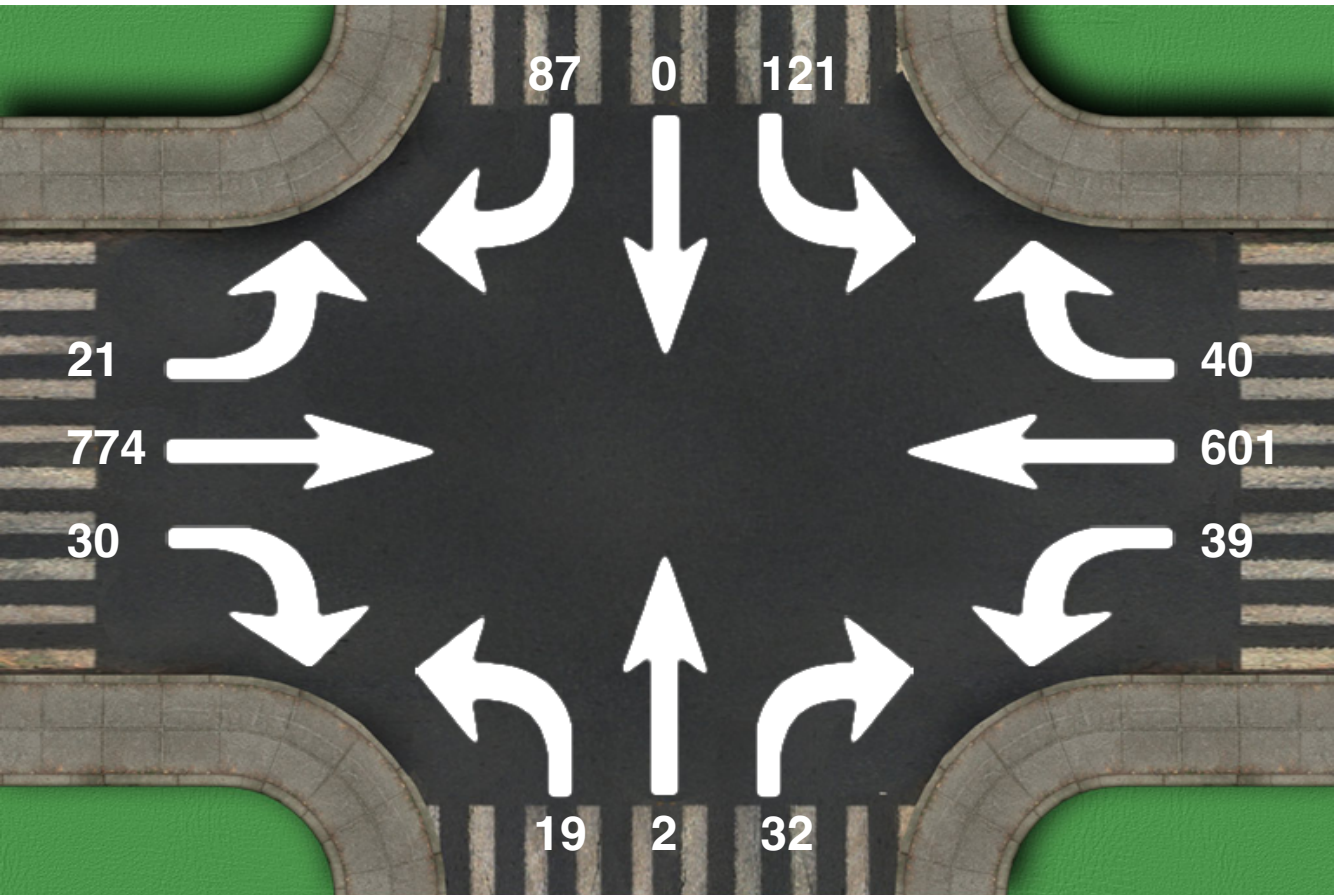
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	118	0	81	35	572	38	18	2	30	20	747	28	1689
Truck	3	0	6	4	29	2	1	0	2	1	27	2	77

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	1	3	0	5	5	0	2	2	4	0	4	14

Intersection Peak Hour

Location: Ford Wilson Blvd at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.010489, W= -79.451382
Date: 2011/11/01
Day of week: Wednesday
Weather: Cool
Analyst: CT



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	121	0	87	39	601	40	19	2	32	21	774	30	1766
Factor	0.80	0.00	0.78	0.61	0.92	0.77	0.53	0.50	0.73	0.48	0.96	0.54	0.96
Approach factor	0.79			0.92			0.74			0.95			

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	179	7	967	6	5	3	9	229	913	6	2324
Factor	0.00	0.00	0.86	0.29	0.89	0.75	0.62	0.38	0.38	0.92	0.93	0.38	0.93
Approach factor	0.86			0.88			0.53			0.93			

Peak Hour Vehicle Summary

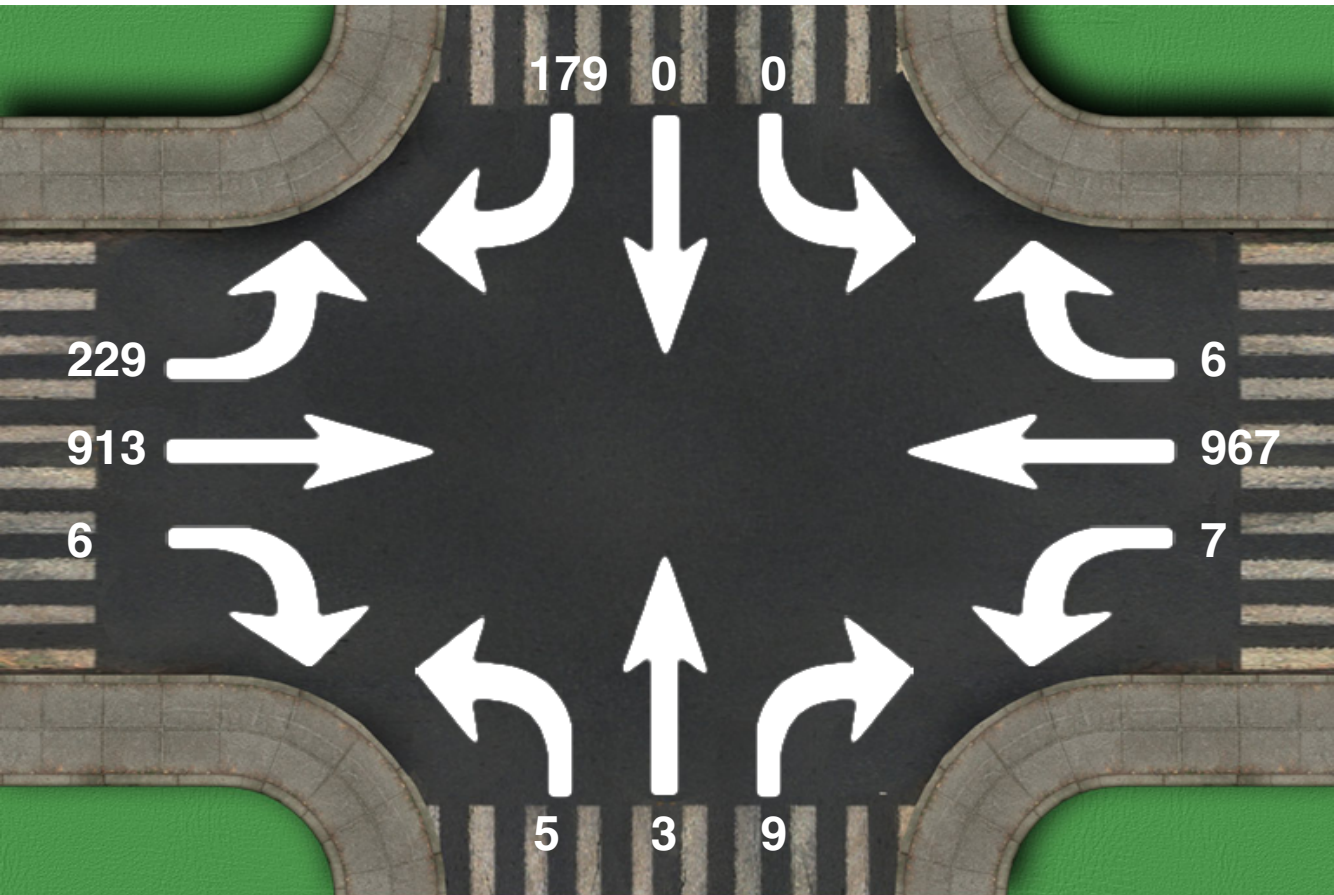
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	0	177	7	952	6	5	3	9	227	892	6	2284
Truck	0	0	2	0	15	0	0	0	0	2	21	0	40

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	0	2	2	4	0	4	6

Intersection Peak Hour

Location: Go Station Access at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.010293, W= -79.451670
Date: 2011-11-09
Day of week: Wednesday
Weather: Raining
Analyst: Crystal



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	179	7	967	6	5	3	9	229	913	6	2324
Factor	0.00	0.00	0.86	0.29	0.89	0.75	0.62	0.38	0.38	0.92	0.93	0.38	0.93
Approach factor	0.86			0.88			0.53			0.93			

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	39	5	653	8	0	2	3	64	942	6	1722
Factor	0.00	0.00	0.70	0.62	0.91	0.25	0.00	0.50	0.38	0.89	0.94	0.50	0.92
Approach factor	0.70			0.88			0.62			0.94			

Peak Hour Vehicle Summary

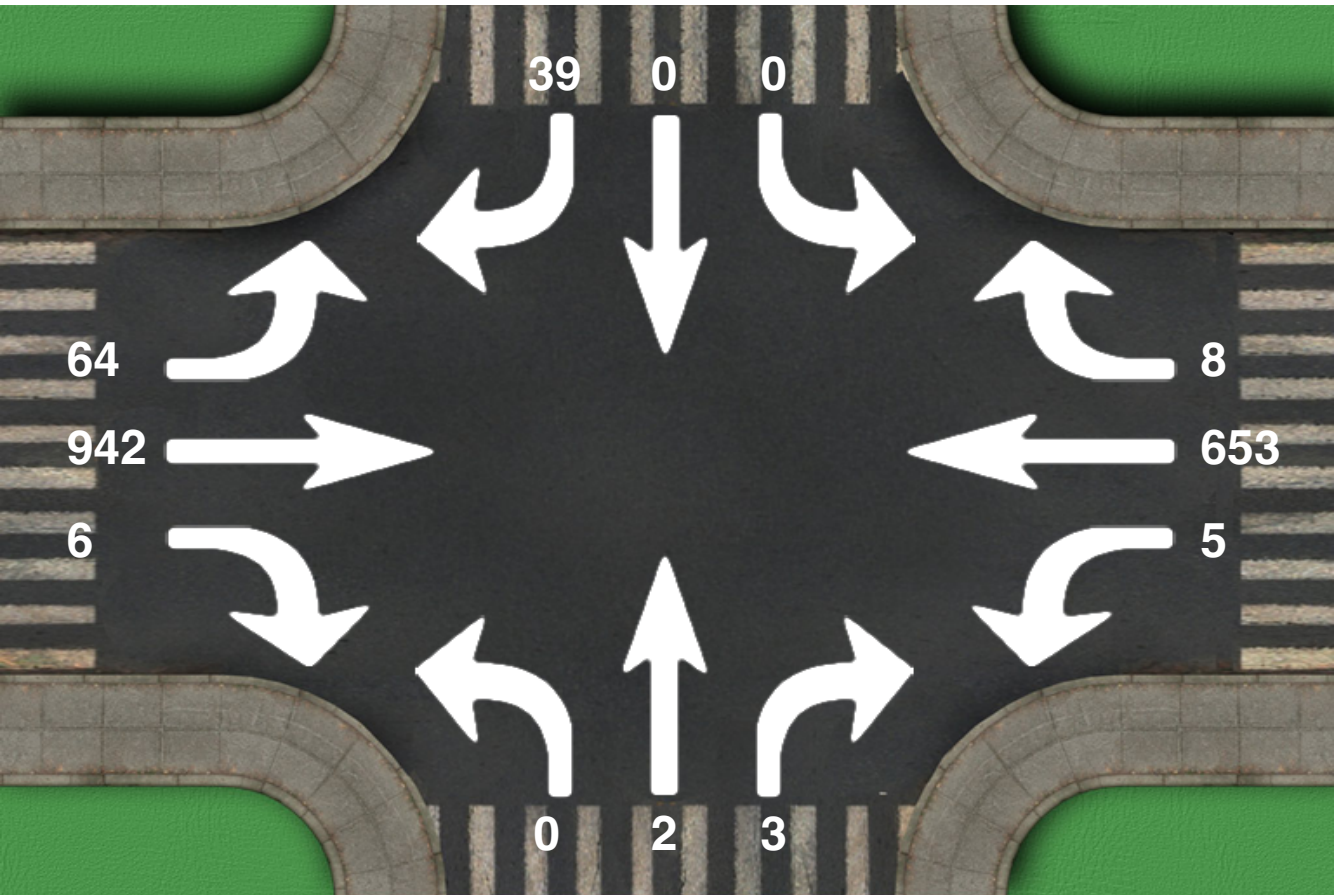
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	0	37	5	618	6	0	2	3	61	910	6	1648
Truck	0	0	2	0	35	2	0	0	0	3	32	0	74

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	1	0	1	0	6	6	0	0	0	7

Intersection Peak Hour

Location: Go Transit Access at Davis Dr, Newmarket Ontario
GPS Coordinates: N = 44.010450, W= -79.451423
Date: 2011-11-09
Day of week: Wednesday
Weather: Cool
Analyst: Crystal



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	39	5	653	8	0	2	3	64	942	6	1722
Factor	0.00	0.00	0.70	0.62	0.91	0.25	0.00	0.50	0.38	0.89	0.94	0.50	0.92
Approach factor	0.70			0.88			0.62			0.94			

Turn Count Summary

Location: Eagle St at Davis Dr, Newmarket Ontario
GPS Coordinates:
Date: 2011-11-02
Day of week: Wednesday
Weather: Sunny
Analyst: Crystal

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	1	0	0	0	0	0	2	0	0	0	0	0	3
16:00	23	41	11	36	150	22	55	45	14	11	145	23	576
16:15	18	28	10	33	179	19	47	49	19	13	179	38	632
16:30	29	18	11	30	149	31	68	44	22	20	157	48	627
16:45	26	28	7	26	159	29	54	48	26	12	186	44	645
17:00	48	46	7	33	173	18	74	44	20	20	180	28	691
17:15	29	41	7	41	165	19	59	44	27	19	208	48	707
17:30	35	33	6	43	165	18	64	42	33	12	149	47	647
17:45	30	28	7	33	148	24	41	31	28	16	215	31	632
18:00	1	4	1	3	0	1	5	7	1	1	0	1	25

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	1	0	0	0	0	0	2	0	0	0	0	0	3
16:00	23	41	11	31	146	22	53	45	14	11	138	23	558
16:15	18	28	10	32	176	19	47	49	19	13	171	38	620
16:30	29	18	11	30	145	31	68	44	21	20	154	48	619
16:45	26	28	7	25	156	28	54	47	25	12	181	43	632
17:00	48	46	7	31	171	18	72	44	19	20	178	28	682
17:15	29	41	7	41	165	18	59	44	26	19	202	48	699
17:30	35	33	6	43	161	18	63	42	31	12	148	47	639
17:45	30	28	6	32	147	24	41	31	27	16	213	31	626
18:00	1	4	1	3	0	1	5	7	1	1	0	1	25

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	5	4	0	2	0	0	0	7	0	18
16:15	0	0	0	1	3	0	0	0	0	0	8	0	12
16:30	0	0	0	0	4	0	0	0	1	0	3	0	8
16:45	0	0	0	1	3	1	0	1	1	0	5	1	13
17:00	0	0	0	2	2	0	2	0	1	0	2	0	9
17:15	0	0	0	0	0	1	0	0	1	0	6	0	8
17:30	0	0	0	0	4	0	1	0	2	0	1	0	8
17:45	0	0	1	1	1	0	0	0	1	0	2	0	6
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	3	0	3	1	7	8	10	2	12	2	0	2	25
16:15	1	0	1	0	6	6	5	2	7	4	0	4	18
16:30	2	0	2	0	5	5	3	0	3	2	4	6	16
16:45	0	2	2	1	5	6	8	0	8	1	1	2	18
17:00	0	0	0	0	4	4	6	0	6	0	0	0	10
17:15	0	0	0	0	1	1	2	0	2	0	0	0	3
17:30	0	0	0	0	7	7	0	1	1	1	0	1	9
17:45	0	0	0	0	6	6	2	1	3	0	1	1	10
18:00	0	0	0	0	1	1	0	0	0	0	0	0	1

Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	138	148	27	143	662	84	251	178	106	63	723	167	2690
Factor	0.72	0.80	0.96	0.83	0.96	0.72	0.85	0.93	0.80	0.79	0.87	0.87	0.95
Approach factor	0.77			0.98			0.96			0.87			

Peak Hour Vehicle Summary

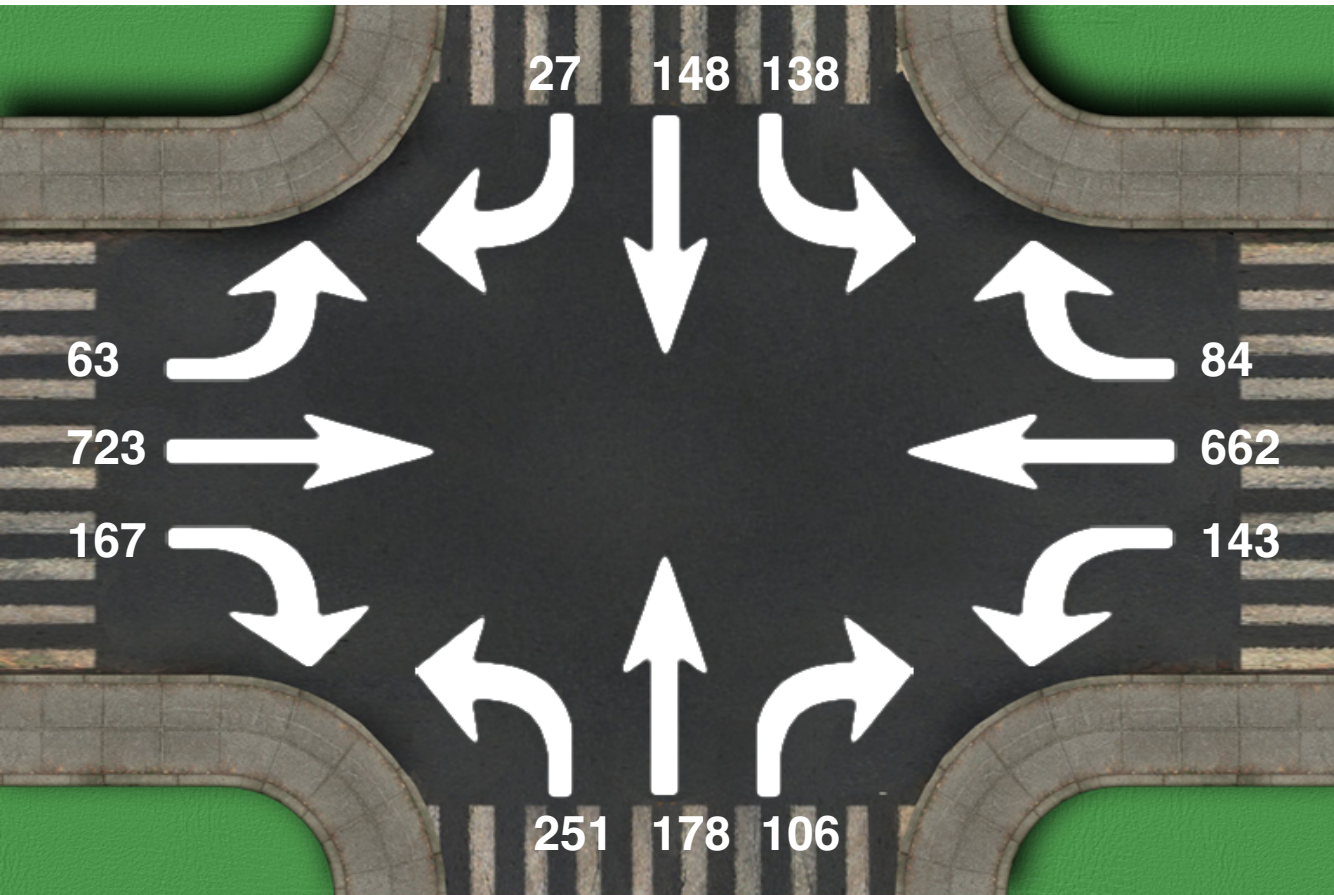
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	138	148	27	140	653	82	248	177	101	63	709	166	2652
Truck	0	0	0	3	9	2	3	1	5	0	14	1	38

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	2	2	1	17	18	16	1	17	2	1	3	40

Intersection Peak Hour

Location: Eagle St at Davis Dr, Newmarket Ontario
GPS Coordinates:
Date: 2011-11-02
Day of week: Wednesday
Weather: Sunny
Analyst: Crystal



Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	138	148	27	143	662	84	251	178	106	63	723	167	2690
Factor	0.72	0.80	0.96	0.83	0.96	0.72	0.85	0.93	0.80	0.79	0.87	0.87	0.95
Approach factor	0.77			0.98			0.96			0.87			

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	15	19	6	69	488	44	135	59	72	34	700	243	1884
Factor	0.75	0.68	0.38	0.66	0.92	0.85	0.82	0.57	0.78	0.71	0.90	0.80	0.94
Approach factor	0.77			0.98			0.89			0.91			

Peak Hour Vehicle Summary

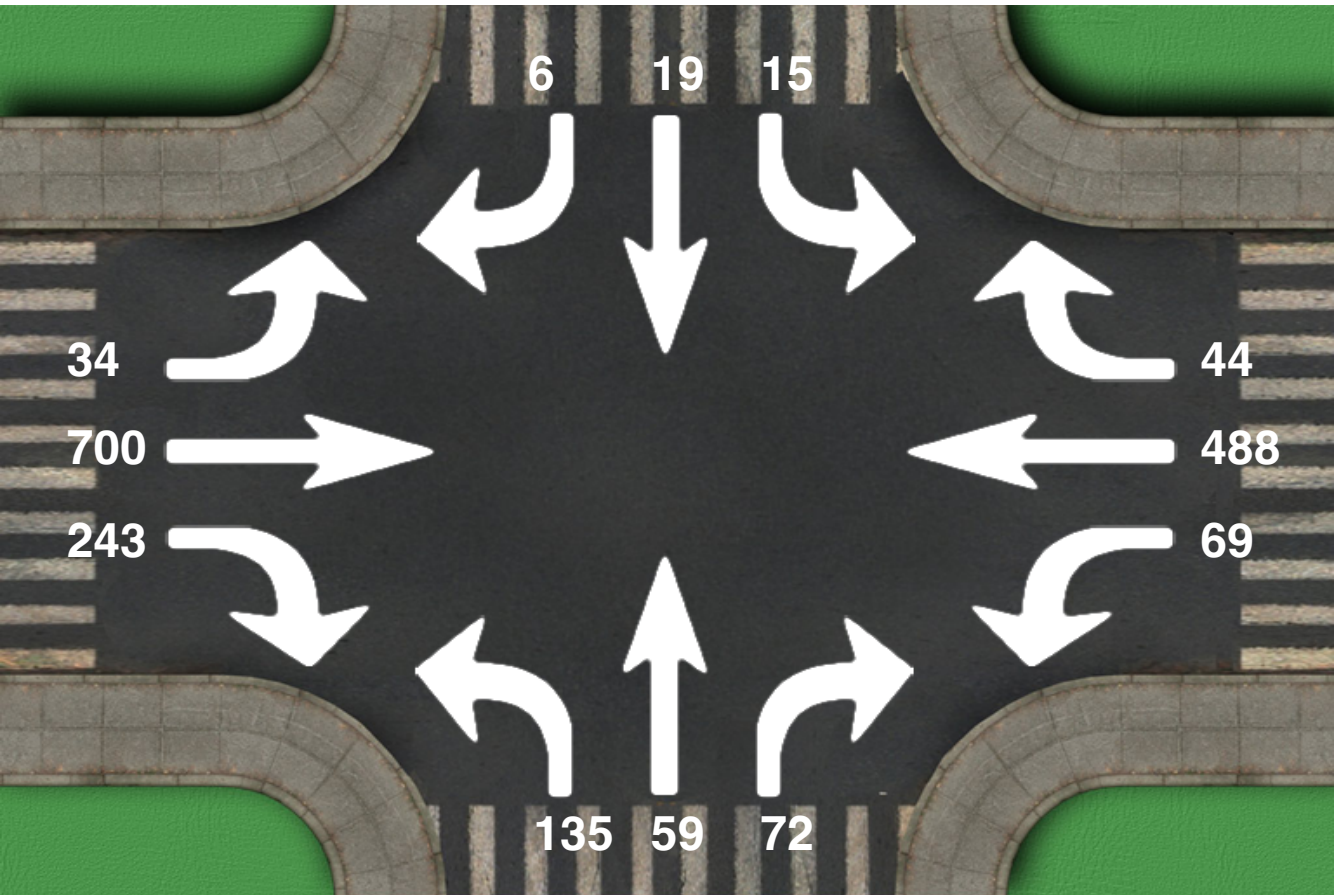
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	14	19	6	62	469	44	127	59	66	31	675	239	1811
Truck	1	0	0	7	19	0	8	0	6	3	25	4	73

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	0	1	2	5	7	14	5	19	3	0	3	30

Intersection Peak Hour

Location: Eagle St at Davis Dr, Newmarket Ontario
GPS Coordinates:
Date: 2011-11-02
Day of week: Wednesday
Weather: Cold
Analyst: Crystal



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	15	19	6	69	488	44	135	59	72	34	700	243	1884
Factor	0.75	0.68	0.38	0.66	0.92	0.85	0.82	0.57	0.78	0.71	0.90	0.80	0.94
Approach factor	0.77			0.98			0.89			0.91			

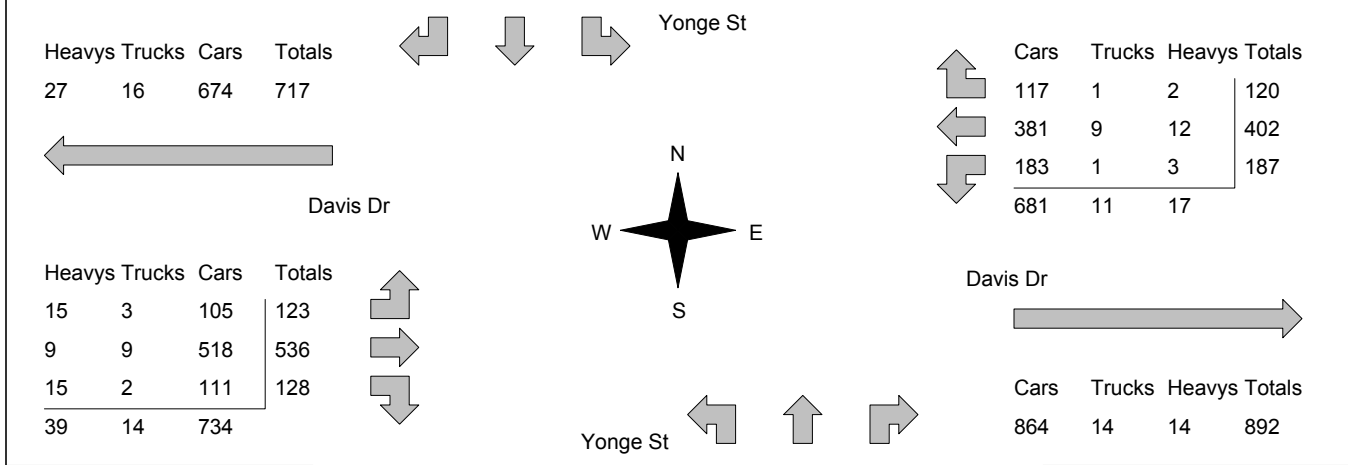
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00
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Municipality: Newmarket Site #: 1103000001 Intersection: Yonge St & Davis Dr TFR File #: 2 Count date: 23-Feb-11	Weather conditions: Person(s) who counted:
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** Signalized Intersection **	Major Road: Yonge St runs N/S
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North Leg Total: 1999 North Entering: 1326 North Peds: 6 Peds Cross: ⚡	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>14</td><td>9</td><td>3</td><td>26</td></tr> <tr><td>Trucks</td><td>4</td><td>13</td><td>5</td><td>22</td></tr> <tr><td>Cars</td><td>195</td><td>891</td><td>192</td><td>1278</td></tr> <tr><td>Totals</td><td>213</td><td>913</td><td>200</td><td></td></tr> </table>	Heavys	14	9	3	26	Trucks	4	13	5	22	Cars	195	891	192	1278	Totals	213	913	200		↑	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>25</td></tr> <tr><td>Trucks</td><td>19</td></tr> <tr><td>Cars</td><td>629</td></tr> <tr><td>Totals</td><td>673</td></tr> </table>	Heavys	25	Trucks	19	Cars	629	Totals	673	East Leg Total: 1601 East Entering: 709 East Peds: 4 Peds Cross: ⚡
Heavys	14	9	3	26																												
Trucks	4	13	5	22																												
Cars	195	891	192	1278																												
Totals	213	913	200																													
Heavys	25																															
Trucks	19																															
Cars	629																															
Totals	673																															



Peds Cross: ⚡ West Peds: 5 West Entering: 787 West Leg Total: 1504	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>1185</td></tr> <tr><td>Trucks</td><td>16</td></tr> <tr><td>Heavys</td><td>27</td></tr> <tr><td>Totals</td><td>1228</td></tr> </table>	Cars	1185	Trucks	16	Heavys	27	Totals	1228	↓	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>98</td><td>407</td><td>154</td><td>659</td></tr> <tr><td>Trucks</td><td>3</td><td>15</td><td>0</td><td>18</td></tr> <tr><td>Heavys</td><td>1</td><td>8</td><td>2</td><td>11</td></tr> <tr><td>Totals</td><td>102</td><td>430</td><td>156</td><td></td></tr> </table>	Cars	98	407	154	659	Trucks	3	15	0	18	Heavys	1	8	2	11	Totals	102	430	156		Peds Cross: ⚡ South Peds: 8 South Entering: 688 South Leg Total: 1916
Cars	1185																															
Trucks	16																															
Heavys	27																															
Totals	1228																															
Cars	98	407	154	659																												
Trucks	3	15	0	18																												
Heavys	1	8	2	11																												
Totals	102	430	156																													

Comments

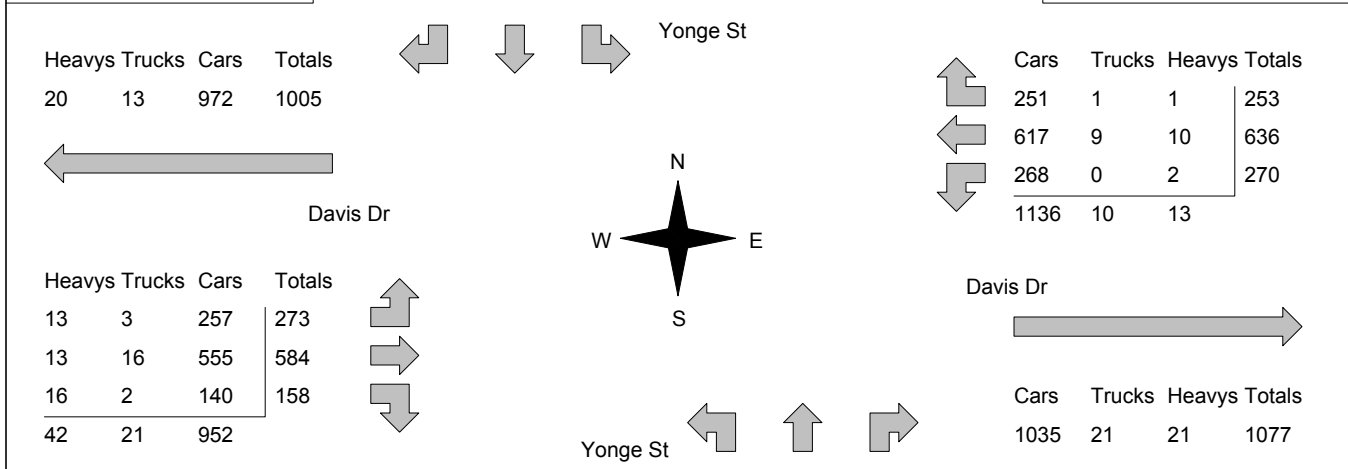
Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:00:00 To: 17:00:00
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Municipality: Newmarket Site #: 1103000001 Intersection: Yonge St & Davis Dr TFR File #: 2 Count date: 23-Feb-11	Weather conditions: Person(s) who counted:
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** Signalized Intersection **	Major Road: Yonge St runs N/S
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North Leg Total: 2652 North Entering: 1162 North Peds: 22 Peds Cross: ☒	<table style="margin: auto;"> <tr><td>Heavys</td><td>5</td><td>4</td><td>3</td><td>12</td></tr> <tr><td>Trucks</td><td>2</td><td>5</td><td>4</td><td>11</td></tr> <tr><td>Cars</td><td>157</td><td>699</td><td>283</td><td>1139</td></tr> <tr><td>Totals</td><td>164</td><td>708</td><td>290</td><td></td></tr> </table>	Heavys	5	4	3	12	Trucks	2	5	4	11	Cars	157	699	283	1139	Totals	164	708	290		<table style="margin: auto;"> <tr><td>Heavys</td><td>19</td></tr> <tr><td>Trucks</td><td>16</td></tr> <tr><td>Cars</td><td>1455</td></tr> <tr><td>Totals</td><td>1490</td></tr> </table>	Heavys	19	Trucks	16	Cars	1455	Totals	1490	East Leg Total: 2236 East Entering: 1159 East Peds: 14 Peds Cross: ☒
Heavys	5	4	3	12																											
Trucks	2	5	4	11																											
Cars	157	699	283	1139																											
Totals	164	708	290																												
Heavys	19																														
Trucks	16																														
Cars	1455																														
Totals	1490																														



Peds Cross: ☒ West Peds: 18 West Entering: 1015 West Leg Total: 2020	<table style="margin: auto;"> <tr><td>Cars</td><td>1107</td></tr> <tr><td>Trucks</td><td>7</td></tr> <tr><td>Heavys</td><td>22</td></tr> <tr><td>Totals</td><td>1136</td></tr> </table>	Cars	1107	Trucks	7	Heavys	22	Totals	1136	<table style="margin: auto;"> <tr><td>Cars</td><td>198</td><td>947</td><td>197</td><td>1342</td></tr> <tr><td>Trucks</td><td>2</td><td>12</td><td>1</td><td>15</td></tr> <tr><td>Heavys</td><td>5</td><td>5</td><td>5</td><td>15</td></tr> <tr><td>Totals</td><td>205</td><td>964</td><td>203</td><td></td></tr> </table>	Cars	198	947	197	1342	Trucks	2	12	1	15	Heavys	5	5	5	15	Totals	205	964	203		Peds Cross: ☒ South Peds: 22 South Entering: 1372 South Leg Total: 2508
Cars	1107																														
Trucks	7																														
Heavys	22																														
Totals	1136																														
Cars	198	947	197	1342																											
Trucks	2	12	1	15																											
Heavys	5	5	5	15																											
Totals	205	964	203																												

Comments

Accu-Traffic Inc.

Total Count Diagram

Municipality: Newmarket
Site #: 1103000001
Intersection: Yonge St & Davis Dr
TFR File #: 2
Count date: 23-Feb-11

Weather conditions:
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Yonge St runs N/S

North Leg Total: 8963
North Entering: 4816
North Peds: 47
Peds Cross: \times

Heavys	45	24	8	77
Trucks	11	35	12	58
Cars	706	3103	872	4681
Totals	762	3162	892	



Heavys	77
Trucks	52
Cars	4018
Totals	4147

East Leg Total: 7244
East Entering: 3585
East Peds: 25
Peds Cross: \times

Heavys	93
Trucks	49
Cars	3240
Totals	3382



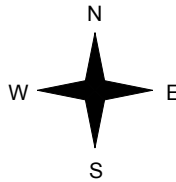
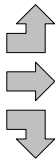
Yonge St

Cars	721	Trucks	4	Heavys	8	Totals	733
Cars	1939	Trucks	29	Heavys	41	Totals	2009
Cars	830	Trucks	5	Heavys	8	Totals	843
Cars	3490	Trucks	38	Heavys	57	Totals	



Davis Dr

Heavys	46
Trucks	11
Cars	708
Totals	765
Heavys	43
Trucks	33
Cars	2050
Totals	2126
Heavys	57
Trucks	5
Cars	451
Totals	513
Heavys	146
Trucks	49
Cars	3209
Totals	



Yonge St



Cars	3547	Trucks	52	Heavys	60	Totals	3659
------	------	--------	----	--------	----	--------	------

Peds Cross: \times
West Peds: 33
West Entering: 3404
West Leg Total: 6786

Cars	4384	Cars	595	2589	625	3809
Trucks	45	Trucks	9	37	7	53
Heavys	89	Heavys	7	23	9	39
Totals	4518	Totals	611	2649	641	



Peds Cross: \times
South Peds: 49
South Entering: 3901
South Leg Total: 8419

Comments

Accu-Traffic Inc. Traffic Count Summary

Intersection: Yonge St & Davis Dr						Count Date: 23-Feb-11		Municipality: Newmarket					
North Approach Totals						North/South Total Approaches	South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	182	871	220	1273	4	1766	8:00:00	98	300	95	493	3	
9:00:00	193	893	191	1277	8	2005	9:00:00	104	451	173	728	8	
16:00:00	0	0	1	1	0	1	16:00:00	0	0	0	0	0	
17:00:00	290	708	164	1162	22	2534	17:00:00	205	964	203	1372	22	
18:00:00	222	660	181	1063	13	2371	18:00:00	204	934	170	1308	16	
Totals:	887	3132	757	4776	47	8677		611	2649	641	3901	49	
East Approach Totals						East/West Total Approaches	West Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	142	403	91	636	0	1250	8:00:00	87	442	85	614	5	
9:00:00	188	403	128	719	4	1500	9:00:00	133	517	131	781	5	
16:00:00	0	0	0	0	0	22	16:00:00	5	12	5	22	0	
17:00:00	270	636	253	1159	14	2174	17:00:00	273	584	158	1015	18	
18:00:00	243	567	261	1071	7	2039	18:00:00	266	571	131	968	5	
Totals:	843	2009	733	3585	25	6985		764	2126	510	3400	33	
Calculated Values for Traffic Crossing Major Street													
Hours Ending:	0:00	0:00	7:00	8:00		9:00	16:00	17:00	18:00				
Crossing Values:	0	0	0	678		854	17	1223	1109				

APPENDIX C
Existing Traffic
Level Of Service Calculations

HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

















Existing Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	89	59	21	51	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	97	64	23	55	22
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	118	87	77			
Volume Left (vph)	22	64	0			
Volume Right (vph)	97	0	22			
Hadj (s)	-0.39	0.24	-0.17			
Departure Headway (s)	3.9	4.5	4.1			
Degree Utilization, x	0.13	0.11	0.09			
Capacity (veh/h)	891	777	853			
Control Delay (s)	7.4	8.0	7.5			
Approach Delay (s)	7.4	8.0	7.5			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.6			
HCM Level of Service			A			
Intersection Capacity Utilization			27.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 5: Crossland Gate & Eagle St W

Existing Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	6	79	13	5	1	34	198	5	0	262	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	7	86	14	5	1	37	215	5	0	285	50
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	162	21	258	335								
Volume Left (vph)	70	14	37	0								
Volume Right (vph)	86	1	5	50								
Hadj (s)	-0.22	0.12	0.07	-0.06								
Departure Headway (s)	5.1	5.7	4.9	4.7								
Degree Utilization, x	0.23	0.03	0.35	0.43								
Capacity (veh/h)	634	538	704	739								
Control Delay (s)	9.7	8.9	10.5	11.2								
Approach Delay (s)	9.7	8.9	10.5	11.2								
Approach LOS	A	A	B	B								
Intersection Summary												
Delay			10.6									
HCM Level of Service			B									
Intersection Capacity Utilization			49.2%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall

Existing Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	700	243	69	488	44	135	59	72	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1688	3544	1542	1657	3510	1593	1701	1921	1492	1720	1921	1577
Flt Permitted	0.45	1.00	1.00	0.31	1.00	1.00	0.57	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	806	3544	1542	546	3510	1593	1029	1921	1492	1295	1921	1577
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)	37	761	264	75	530	48	147	64	78	16	21	7
RTOR Reduction (vph)	0	0	234	0	0	40	0	0	32	0	0	3
Lane Group Flow (vph)	37	761	30	75	530	8	147	64	46	16	21	4
Confl. Peds. (#/hr)	2		8	8		2	19		1	1		19
Heavy Vehicles (%)	8%	3%	2%	10%	4%	0%	6%	0%	8%	6%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	72.7	68.4	13.6	76.5	70.3	20.5	27.4	20.5	70.3	16.5	13.6	68.4
Effective Green, g (s)	72.7	68.4	13.6	76.5	70.3	20.5	27.4	20.5	70.3	16.5	13.6	68.4
Actuated g/C Ratio	0.61	0.57	0.11	0.64	0.59	0.17	0.23	0.17	0.59	0.14	0.11	0.57
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	520	2020	175	405	2056	272	290	328	874	188	218	899
v/s Ratio Prot	0.00	c0.21		c0.01	0.15		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.02	0.11		0.01	c0.07		0.03	0.01		0.00
v/c Ratio	0.07	0.38	0.17	0.19	0.26	0.03	0.51	0.20	0.05	0.09	0.10	0.00
Uniform Delay, d1	9.5	14.1	48.1	8.7	12.1	41.5	39.2	42.7	10.6	45.1	47.7	11.1
Progression Factor	1.03	0.90	2.28	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.4	0.2	0.3	0.0	1.4	0.3	0.1	0.2	0.2	0.0
Delay (s)	9.9	13.3	110.0	8.9	12.4	41.5	40.6	43.0	10.7	45.2	47.9	11.1
Level of Service	A	B	F	A	B	D	D	D	B	D	D	B
Approach Delay (s)		37.2			14.2			33.1			41.1	
Approach LOS		D			B			C			D	

Intersection Summary























HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

Existing Traffic Analysis

9: Davis Dr W & Ford Wilson Blvd

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	774	30	39	601	40	19	0	32	121	0	87
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1737	3544	1487	1653	3476	1520	1725		1517	1784		1497
Flt Permitted	0.36	1.00	1.00	0.27	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	654	3544	1487	467	3476	1520	1725		1517	1784		1497
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)	23	841	33	42	653	43	21	0	35	132	0	95
RTOR Reduction (vph)	0	0	16	0	0	21	0	0	22	0	0	59
Lane Group Flow (vph)	23	841	17	42	653	22	21	0	13	132	0	36
Confl. Peds. (#/hr)	1		6	6		1	5		2	2		5
Heavy Vehicles (%)	5%	3%	6%	10%	5%	5%	5%	0%	6%	2%	0%	7%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	332	1802	756	237	1767	773	661		582	684		574
v/s Ratio Prot		c0.24			0.19							
v/s Ratio Perm	0.04		0.01	0.09		0.01	0.01		0.01	c0.07		0.02
v/c Ratio	0.07	0.47	0.02	0.18	0.37	0.03	0.03		0.02	0.19		0.06
Uniform Delay, d1	15.0	19.0	14.7	15.9	17.9	14.7	23.1		23.0	24.6		23.4
Progression Factor	1.32	0.93	2.21	0.78	0.79	0.51	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.7	0.0	1.6	0.6	0.1	0.1		0.1	0.6		0.2
Delay (s)	20.1	18.3	32.5	14.0	14.6	7.6	23.2		23.1	25.3		23.6
Level of Service	C	B	C	B	B	A	C		C	C		C
Approach Delay (s)		18.9			14.2			23.1			24.6	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay			17.9				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		13.0			
Intersection Capacity Utilization			78.3%				ICU Level of Service			D		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Existing Traffic Analysis
 AM Peak Hour


























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Volume (veh/h)	17	9	7	32	29	32
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	10	8	35	32	35
Pedestrians		1			1	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	104	64	99	1	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	104	64	99	1	0	
tC, single (s)	7.2	6.5	6.5	6.2	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.0	4.0	3.3	2.3	
p0 queue free %	98	99	99	97	98	
cM capacity (veh/h)	818	813	779	1080	1585	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	28	42	32	35
Volume Left	18	0	32	0
Volume Right	0	35	0	35
cSH	817	1010	1585	1700
Volume to Capacity	0.03	0.04	0.02	0.02
Queue Length 95th (m)	0.8	1.0	0.5	0.0
Control Delay (s)	9.6	8.7	7.3	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.6	8.7	3.5	
Approach LOS	A	A		

Intersection Summary			
Average Delay		6.4	
Intersection Capacity Utilization		18.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St



















Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	877	272	159	509	49	305	204	82	20	455	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	3579	1570	1807	3570		1755	3614	1617	1738	3650	1555
Flt Permitted	0.31	1.00	1.00	0.18	1.00		0.22	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	531	3579	1570	340	3570		414	3614	1617	1122	3650	1555
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)	250	953	296	173	553	53	332	222	89	22	495	363
RTOR Reduction (vph)	0	0	179	0	6	0	0	0	56	0	0	214
Lane Group Flow (vph)	250	953	117	173	600	0	332	222	33	22	495	149
Heavy Vehicles (%)	12%	2%	4%	1%	1%	0%	4%	1%	1%	5%	0%	5%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	61.9	47.3	47.3	55.3	44.0		44.4	44.4	44.4	23.4	23.4	23.4
Effective Green, g (s)	61.9	47.3	47.3	55.3	44.0		44.4	44.4	44.4	23.4	23.4	23.4
Actuated g/C Ratio	0.52	0.39	0.39	0.46	0.37		0.37	0.37	0.37	0.19	0.19	0.19
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	408	1411	619	295	1309		343	1337	598	219	712	303
v/s Ratio Prot	c0.07	c0.27		0.06	0.17		c0.14	0.06			0.14	
v/s Ratio Perm	0.24		0.07	0.21			c0.22		0.02	0.02		0.10
v/c Ratio	0.61	0.68	0.19	0.59	0.46		0.97	0.17	0.06	0.10	0.70	0.49
Uniform Delay, d1	17.6	30.0	23.8	21.2	28.9		31.3	25.4	24.3	39.7	45.0	43.0
Progression Factor	1.00	1.00	1.00	1.86	1.61		0.87	0.88	0.66	1.00	1.00	1.00
Incremental Delay, d2	2.7	2.6	0.7	2.8	1.1		37.3	0.1	0.0	0.2	3.0	1.3
Delay (s)	20.4	32.6	24.5	42.1	47.6		64.5	22.3	16.1	39.9	47.9	44.3
Level of Service	C	C	C	D	D		E	C	B	D	D	D
Approach Delay (s)		29.0			46.4			43.2			46.2	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM Average Control Delay			38.9			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		12.0				
Intersection Capacity Utilization			80.0%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	9	0	15	0	1240	14	14	1579	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Fr _t				1.00	0.85			1.00		1.00	1.00	
Fl _t Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3608		1825	3614	
Fl _t Permitted				0.76	1.00			1.00		0.18	1.00	
Satd. Flow (perm)				1455	1633			3608		350	3614	
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	0	10	0	16	0	1348	15	15	1716	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	10	1	0	0	1363	0	15	1716	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				10.0	10.0			97.0		97.0	97.0	
Effective Green, g (s)				10.0	10.0			97.0		97.0	97.0	
Actuated g/C Ratio				0.08	0.08			0.81		0.81	0.81	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				121	136			2916		283	2921	
v/s Ratio Prot					0.00			0.38			c0.47	
v/s Ratio Perm				c0.01						0.04		
v/c Ratio				0.08	0.01			0.47		0.05	0.59	
Uniform Delay, d ₁				50.8	50.5			3.5		2.3	4.2	
Progression Factor				1.00	1.00			1.00		0.95	1.32	
Incremental Delay, d ₂				0.3	0.0			0.5		0.3	0.9	
Delay (s)				51.1	50.5			4.1		2.5	6.4	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			50.7			4.1			6.4	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			5.7									A
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			120.0							13.0		
Intersection Capacity Utilization			62.8%									B
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr











Existing Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 18: Millard Ave & Eagle St W

Existing Traffic Analysis
 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	71	79	151	102	109	259
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	86	164	111	118	282
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total (vph)	77	86	275	400		
Volume Left (vph)	77	0	0	118		
Volume Right (vph)	0	86	111	0		
Hadj (s)	0.53	-0.68	-0.20	0.10		
Departure Headway (s)	6.6	5.4	4.7	4.8		
Degree Utilization, x	0.14	0.13	0.36	0.53		
Capacity (veh/h)	498	603	738	725		
Control Delay (s)	9.5	8.0	10.2	13.2		
Approach Delay (s)	8.7		10.2	13.2		
Approach LOS	A		B	B		
Intersection Summary						
Delay			11.3			
HCM Level of Service			B			
Intersection Capacity Utilization			48.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

Existing Traffic Analysis
AM Peak Hour

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	536	128	187	402	120	102	430	156	200	913	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frft	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1599	3544	1415	1788	3476	1571	1755	3476	1590	1753	3579	1486
Flt Permitted	0.36	1.00	1.00	0.22	1.00	1.00	0.19	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	610	3544	1415	409	3476	1571	344	3476	1590	820	3579	1486
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)	134	583	139	203	437	130	111	467	170	217	992	232
RTOR Reduction (vph)	0	0	109	0	0	102	0	0	91	0	0	117
Lane Group Flow (vph)	134	583	30	203	437	28	111	467	79	217	992	115
Confl. Peds. (#/hr)	6		8	8		6	5		4	4		5
Heavy Vehicles (%)	14%	3%	13%	2%	5%	2%	4%	5%	1%	4%	2%	8%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	38.0	28.2	28.2	38.4	28.4	28.4	69.8	56.6	60.3	69.8	60.3	56.6
Effective Green, g (s)	38.0	28.2	28.2	38.4	28.4	28.4	69.8	56.6	60.3	69.8	60.3	56.6
Actuated g/C Ratio	0.29	0.22	0.22	0.30	0.22	0.22	0.54	0.44	0.46	0.54	0.46	0.44
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	253	769	307	227	759	343	288	1513	738	535	1660	647
v/s Ratio Prot	0.04	0.16		c0.07	0.13		0.03	0.13		c0.04	c0.28	
v/s Ratio Perm	0.11		0.02	c0.20		0.02	0.18		0.05	0.18		0.08
v/c Ratio	0.53	0.76	0.10	0.89	0.58	0.08	0.39	0.31	0.11	0.41	0.60	0.18
Uniform Delay, d1	35.8	47.7	40.7	39.5	45.4	40.4	17.1	23.9	19.7	16.0	25.9	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.62	1.29	3.80	1.00	1.00	1.00
Incremental Delay, d2	2.0	4.3	0.1	32.7	1.1	0.1	0.8	0.5	0.3	0.5	1.6	0.6
Delay (s)	37.8	52.0	40.9	72.3	46.5	40.5	28.5	31.5	75.0	16.5	27.4	23.1
Level of Service	D	D	D	E	D	D	C	C	E	B	C	C
Approach Delay (s)		48.0			52.3			40.9			25.1	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St























Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	904	232	77	1054	116
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	1921	1578	1806	1902	1592	1772	3579	1574	1825	3544	1565
Flt Permitted	0.63	1.00	1.00	0.33	1.00	1.00	0.08	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1152	1921	1578	632	1902	1592	146	3579	1574	345	3544	1565
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)	43	205	203	213	202	123	247	983	252	84	1146	126
RTOR Reduction (vph)	0	0	172	0	0	91	0	0	138	0	0	75
Lane Group Flow (vph)	43	205	31	213	202	32	247	983	114	84	1146	51
Confl. Peds. (#/hr)	3		2	2		3	1		3	3		1
Heavy Vehicles (%)	5%	0%	2%	1%	1%	1%	3%	2%	1%	0%	3%	2%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	19.7	19.7	19.7	33.7	33.7	33.7	82.3	53.0	47.0	72.3	47.0	53.0
Effective Green, g (s)	19.7	19.7	19.7	33.7	33.7	33.7	82.3	53.0	47.0	72.3	47.0	53.0
Actuated g/C Ratio	0.15	0.15	0.15	0.26	0.26	0.26	0.63	0.41	0.36	0.56	0.36	0.41
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	291	239	254	493	413	484	1459	569	480	1281	638
v/s Ratio Prot		0.11		c0.06	0.11		c0.12	0.27		0.03	c0.32	
v/s Ratio Perm	0.04		0.02	c0.15		0.02	0.20		0.07	0.06		0.03
v/c Ratio	0.25	0.70	0.13	0.84	0.41	0.08	0.51	0.67	0.20	0.18	0.89	0.08
Uniform Delay, d1	48.6	52.4	47.7	43.4	39.9	36.4	27.9	31.4	28.6	14.9	39.2	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.96	1.38	4.70
Incremental Delay, d2	0.7	7.5	0.2	20.8	0.6	0.1	3.8	2.5	0.8	0.6	7.5	0.2
Delay (s)	49.3	59.9	48.0	64.2	40.5	36.5	31.7	33.9	29.4	29.8	61.5	110.9
Level of Service	D	E	D	E	D	D	C	C	C	C	E	F
Approach Delay (s)		53.5			49.0			32.8			64.1	
Approach LOS		D			D			C			E	

Intersection Summary		
HCM Average Control Delay	48.6	HCM Level of Service D
HCM Volume to Capacity ratio	0.74	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	82.4%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St

Existing Traffic Analysis
AM Peak Hour





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	93	136	54	88	33	164	587	35	59	1143	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frft	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1724		1822	1835		1825	3475		1813	3579	1582
Flt Permitted	0.57	1.00		0.60	1.00		0.10	1.00		0.39	1.00	1.00
Satd. Flow (perm)	1053	1724		1159	1835		190	3475		753	3579	1582
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)	49	101	148	59	96	36	178	638	38	64	1242	180
RTOR Reduction (vph)	0	42	0	0	11	0	0	3	0	0	0	0
Lane Group Flow (vph)	49	207	0	59	121	0	178	673	0	64	1242	180
Confl. Peds. (#/hr)	3		2	2		3	3		7	7		3
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	0%	4%	3%	0%	2%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	40.0	40.0		29.0	29.0		76.0	76.0		60.9	60.9	130.0
Effective Green, g (s)	40.0	40.0		29.0	29.0		76.0	76.0		60.9	60.9	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.58	0.58		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	362	530		259	409		251	2032		353	1677	1582
v/s Ratio Prot	0.01	c0.12			0.07		c0.06	0.19			c0.35	
v/s Ratio Perm	0.03			0.05			0.35			0.08		0.11
v/c Ratio	0.14	0.39		0.23	0.30		0.71	0.33		0.18	0.74	0.11
Uniform Delay, d1	32.2	35.4		41.3	42.0		21.1	13.9		20.1	28.1	0.0
Progression Factor	1.00	1.00		1.00	1.00		2.61	1.03		0.70	0.59	1.00
Incremental Delay, d2	0.2	0.5		0.5	0.4		7.2	0.4		1.0	2.6	0.1
Delay (s)	32.3	35.9		41.8	42.4		62.2	14.7		15.0	19.1	0.1
Level of Service	C	D		D	D		E	B		B	B	A
Approach Delay (s)		35.3			42.2			24.6			16.6	
Approach LOS		D			D			C			B	

Intersection Summary

HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	942	6	5	653	8	0	2	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	1024	7	5	710	9	0	2	3	0	0	42
Pedestrians								6			1	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	719			1036			1538	1903	521	1377	1897	356
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	576			1036			1446	1834	521	1275	1828	189
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	92			99			100	97	99	100	100	94
cM capacity (veh/h)	915			675			78	66	503	107	66	762
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	70	683	348	5	355	355	9	0	3	42		
Volume Left	70	0	0	5	0	0	0	0	0	0		
Volume Right	0	0	7	0	0	0	9	0	3	42		
cSH	915	1700	1700	675	1700	1700	1700	1700	503	762		
Volume to Capacity	0.08	0.40	0.20	0.01	0.21	0.21	0.01	0.00	0.01	0.06		
Queue Length 95th (m)	1.9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.3		
Control Delay (s)	9.3	0.0	0.0	10.4	0.0	0.0	0.0	0.0	12.2	10.0		
Lane LOS	A			B				A	B	A		
Approach Delay (s)	0.6			0.1				Err		10.0		
Approach LOS								F		A		
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization				Err%	ICU Level of Service				H			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

















Existing Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	53	86	45	32	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	58	93	49	35	11
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	68	142	46			
Volume Left (vph)	11	93	0			
Volume Right (vph)	58	0	11			
Hadj (s)	-0.44	0.14	-0.10			
Departure Headway (s)	3.9	4.2	4.1			
Degree Utilization, x	0.07	0.17	0.05			
Capacity (veh/h)	885	828	858			
Control Delay (s)	7.2	8.1	7.3			
Approach Delay (s)	7.2	8.1	7.3			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.7			
HCM Level of Service			A			
Intersection Capacity Utilization			25.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

























Existing Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	7	62	10	1	0	106	416	13	3	358	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	8	67	11	1	0	115	452	14	3	389	67
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	111	12	582	460								
Volume Left (vph)	36	11	115	3								
Volume Right (vph)	67	0	14	67								
Hadj (s)	-0.28	0.18	0.05	-0.07								
Departure Headway (s)	6.1	6.9	4.9	5.0								
Degree Utilization, x	0.19	0.02	0.80	0.63								
Capacity (veh/h)	537	453	717	708								
Control Delay (s)	10.5	10.0	24.3	16.1								
Approach Delay (s)	10.5	10.0	24.3	16.1								
Approach LOS	B	B	C	C								
Intersection Summary												
Delay			19.6									
HCM Level of Service			C									
Intersection Capacity Utilization			69.5%	ICU Level of Service	C							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

6: Davis Dr W & Upper Canada Mall

Existing Traffic Analysis
PM Peak Hour























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	723	167	143	662	84	251	178	106	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1824	3579	1574	1789	3614	1559	1760	1902	1535	1824	1921	1550
Flt Permitted	0.35	1.00	1.00	0.28	1.00	1.00	0.53	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	675	3579	1574	521	3614	1559	986	1902	1535	861	1921	1550
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)	68	786	182	155	720	91	273	193	115	150	161	29
RTOR Reduction (vph)	0	0	156	0	0	78	0	0	53	0	0	14
Lane Group Flow (vph)	68	786	26	155	720	13	273	193	62	150	161	15
Confl. Peds. (#/hr)	3		3	3		3	33		1	1		33
Heavy Vehicles (%)	0%	2%	1%	2%	1%	2%	2%	1%	5%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	67.2	61.0	17.3	74.2	64.5	17.5	27.5	17.5	64.5	27.1	17.3	61.0
Effective Green, g (s)	67.2	61.0	17.3	74.2	64.5	17.5	27.5	17.5	64.5	27.1	17.3	61.0
Actuated g/C Ratio	0.56	0.51	0.14	0.62	0.54	0.15	0.23	0.15	0.54	0.23	0.14	0.51
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	437	1819	227	425	1943	227	290	277	825	273	277	788
v/s Ratio Prot	0.01	c0.22		c0.03	0.20		c0.08	0.10		0.04	0.08	
v/s Ratio Perm	0.08		0.02	0.20		0.01	c0.14		0.04	0.08		0.01
v/c Ratio	0.16	0.43	0.12	0.36	0.37	0.06	0.94	0.70	0.07	0.55	0.58	0.02
Uniform Delay, d1	12.2	18.6	44.7	10.6	16.0	44.2	44.2	48.7	13.4	39.3	48.0	14.6
Progression Factor	0.93	0.98	1.49	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.7	0.2	0.5	0.5	0.1	37.3	7.4	0.2	2.3	3.1	0.0
Delay (s)	11.5	18.9	66.8	11.2	16.6	44.3	81.6	56.1	13.5	41.6	51.1	14.7
Level of Service	B	B	E	B	B	D	F	E	B	D	D	B
Approach Delay (s)		26.8			18.3			59.7			43.8	
Approach LOS		C			B			E			D	

Intersection Summary

HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 9: Davis Dr W & Ford Wilson Blvd

Existing Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	920	27	42	945	141	23	0	66	61	0	20
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1824	3614	1596	1824	3614	1592	1818		1610	1821		1608
Flt Permitted	0.20	1.00	1.00	0.21	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	381	3614	1596	400	3614	1592	1818		1610	1821		1608
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	1000	29	46	1027	153	25	0	72	66	0	22
RTOR Reduction (vph)	0	0	14	0	0	74	0	0	45	0	0	14
Lane Group Flow (vph)	189	1000	15	46	1027	79	25	0	27	66	0	8
Confl. Peds. (#/hr)	2		1	1		2	3		2	2		3
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	62.0	62.0	62.0	62.0	62.0	62.0	45.0		45.0	45.0		45.0
Effective Green, g (s)	62.0	62.0	62.0	62.0	62.0	62.0	45.0		45.0	45.0		45.0
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.52	0.52	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	197	1867	825	207	1867	823	682		604	683		603
v/s Ratio Prot		0.28			0.28							
v/s Ratio Perm	c0.50		0.01	0.12		0.05	0.01		0.02	c0.04		0.01
v/c Ratio	0.96	0.54	0.02	0.22	0.55	0.10	0.04		0.04	0.10		0.01
Uniform Delay, d1	27.8	19.4	14.1	15.8	19.6	14.7	23.8		23.8	24.3		23.6
Progression Factor	1.19	1.07	2.52	0.96	0.87	1.31	1.00		1.00	1.00		1.00
Incremental Delay, d2	43.6	0.8	0.0	2.3	1.1	0.2	0.1		0.1	0.1		0.0
Delay (s)	76.7	21.5	35.7	17.5	18.1	19.5	23.9		24.0	24.4		23.6
Level of Service	E	C	D	B	B	B	C		C	C		C
Approach Delay (s)		30.4			18.2			23.9			24.2	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			24.3				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			91.7%				ICU Level of Service			F		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

11: Alex Doner Dr & Ford Wilson Blvd




























Existing Traffic Analysis
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Volume (veh/h)	41	7	10	43	44	30
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	8	11	47	48	33
Pedestrians			1		1	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	149	97	129	2	1	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149	97	129	2	1	
tC, single (s)	7.1	6.5	6.8	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.2	3.3	2.2	
p0 queue free %	94	99	98	96	97	
cM capacity (veh/h)	760	773	699	1086	1634	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	52	58	48	33		
Volume Left	45	0	48	0		
Volume Right	0	47	0	33		
cSH	762	983	1634	1700		
Volume to Capacity	0.07	0.06	0.03	0.02		
Queue Length 95th (m)	1.7	1.4	0.7	0.0		
Control Delay (s)	10.1	8.9	7.3	0.0		
Lane LOS	B	A	A			
Approach Delay (s)	10.1	8.9	4.3			
Approach LOS	B	A				
Intersection Summary						
Average Delay			7.3			
Intersection Capacity Utilization			19.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St

Existing Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	418	1148	446	222	614	49	509	582	163	14	320	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3614	1601	1807	3610		1789	3614	1633	1825	3614	1617
Flt Permitted	0.22	1.00	1.00	0.11	1.00		0.30	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	415	3614	1601	217	3610		568	3614	1633	787	3614	1617
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)	454	1248	485	241	667	53	553	633	177	15	348	278
RTOR Reduction (vph)	0	0	206	0	5	0	0	0	130	0	0	225
Lane Group Flow (vph)	454	1248	279	241	715	0	553	633	47	15	348	53
Heavy Vehicles (%)	2%	1%	2%	1%	0%	0%	2%	1%	0%	0%	1%	1%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	75.4	52.3	52.3	59.1	40.0		31.6	31.6	31.6	17.6	17.6	17.6
Effective Green, g (s)	75.4	52.3	52.3	59.1	40.0		31.6	31.6	31.6	17.6	17.6	17.6
Actuated g/C Ratio	0.63	0.44	0.44	0.49	0.33		0.26	0.26	0.26	0.15	0.15	0.15
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	620	1575	698	360	1203		251	952	430	115	530	237
v/s Ratio Prot	c0.19	c0.35		0.11	0.20		c0.18	0.18			0.10	
v/s Ratio Perm	0.27		0.17	0.22			c0.40		0.03	0.02		0.03
v/c Ratio	0.73	0.79	0.40	0.67	0.59		2.20	0.66	0.11	0.13	0.66	0.22
Uniform Delay, d1	16.8	29.2	23.1	23.8	33.3		41.8	39.5	33.5	44.5	48.3	45.2
Progression Factor	1.00	1.00	1.00	0.90	1.74		0.93	0.93	1.20	1.00	1.00	1.00
Incremental Delay, d2	4.5	4.2	1.7	4.0	1.9		552.7	1.6	0.1	0.5	2.9	0.5
Delay (s)	21.2	33.3	24.8	25.5	59.9		591.6	38.1	40.3	45.1	51.3	45.6
Level of Service	C	C	C	C	E		F	D	D	D	D	D
Approach Delay (s)		28.9			51.2			262.9			48.7	
Approach LOS		C			D			F			D	

Intersection Summary

HCM Average Control Delay	97.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 15: Sykes Rd & Bathurst St

Existing Traffic Analysis
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	11	0	12	0	1452	33	22	795	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Fr _t				1.00	0.85			1.00		1.00	1.00	
Fl _t Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3603		1807	3650	
Fl _t Permitted				0.76	1.00			1.00		0.14	1.00	
Satd. Flow (perm)				1455	1633			3603		265	3650	
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	0	12	0	13	0	1578	36	24	864	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	12	1	0	0	1613	0	24	864	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	0%	1%	0%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0	
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0	
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				73	82			3033		223	3072	
v/s Ratio Prot					0.00			c0.45			0.24	
v/s Ratio Perm				c0.01						0.09		
v/c Ratio				0.16	0.01			0.53		0.11	0.28	
Uniform Delay, d ₁				54.6	54.2			2.7		1.7	2.0	
Progression Factor				1.00	1.00			1.00		2.00	2.19	
Incremental Delay, d ₂				1.1	0.0			0.7		0.9	0.2	
Delay (s)				55.7	54.2			3.4		4.2	4.5	
Level of Service				E	D			A		A	A	
Approach Delay (s)		0.0			54.9			3.4			4.5	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			4.3									A
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			120.0							13.0		
Intersection Capacity Utilization			60.4%									B
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr











Existing Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			





























HCM Unsignalized Intersection Capacity Analysis
 18: Millard Ave & Eagle St W

Existing Traffic Analysis
 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	92	161	340	70	81	302
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	175	370	76	88	328
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total (vph)	100	175	446	416		
Volume Left (vph)	100	0	0	88		
Volume Right (vph)	0	175	76	0		
Hadj (s)	0.52	-0.68	-0.09	0.06		
Departure Headway (s)	7.2	6.0	5.3	5.5		
Degree Utilization, x	0.20	0.29	0.65	0.63		
Capacity (veh/h)	460	549	657	641		
Control Delay (s)	10.8	10.3	17.7	17.3		
Approach Delay (s)	10.5		17.7	17.3		
Approach LOS	B		C	C		
Intersection Summary						
Delay			15.8			
HCM Level of Service			C			
Intersection Capacity Utilization			61.5%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

Existing Traffic Analysis
PM Peak Hour

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	273	584	158	270	636	253	205	964	203	290	708	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1720	3476	1415	1804	3544	1556	1770	3579	1540	1772	3614	1504
Flt Permitted	0.17	1.00	1.00	0.21	1.00	1.00	0.25	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	313	3476	1415	406	3544	1556	458	3579	1540	162	3614	1504
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)	297	635	172	293	691	275	223	1048	221	315	770	178
RTOR Reduction (vph)	0	0	129	0	0	196	0	0	102	0	0	120
Lane Group Flow (vph)	297	635	43	293	691	79	223	1048	119	315	770	58
Confl. Peds. (#/hr)	22		22	22		22	18		14	14		18
Heavy Vehicles (%)	6%	5%	11%	1%	3%	1%	3%	2%	3%	3%	1%	5%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	48.2	35.2	35.2	48.2	35.2	35.2	69.8	46.0	55.4	69.8	55.4	46.0
Effective Green, g (s)	48.2	35.2	35.2	48.2	35.2	35.2	69.8	46.0	55.4	69.8	55.4	46.0
Actuated g/C Ratio	0.34	0.25	0.25	0.34	0.25	0.25	0.50	0.33	0.40	0.50	0.40	0.33
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	238	874	356	270	891	391	363	1176	609	354	1430	494
v/s Ratio Prot	c0.12	0.18		0.10	0.19		0.06	c0.29		c0.15	0.21	
v/s Ratio Perm	c0.31		0.03	0.27		0.05	0.24		0.08	0.29		0.04
v/c Ratio	1.25	0.73	0.12	1.09	0.78	0.20	0.61	0.89	0.20	0.89	0.54	0.12
Uniform Delay, d1	39.4	48.0	40.5	40.7	48.7	41.3	21.8	44.6	27.7	42.0	32.5	32.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.53	1.21	2.09	1.00	1.00	1.00
Incremental Delay, d2	141.6	3.0	0.2	79.4	4.3	0.3	2.1	7.4	0.5	22.7	1.5	0.5
Delay (s)	181.0	51.0	40.6	120.0	53.0	41.6	35.4	61.5	58.4	64.7	33.9	33.3
Level of Service	F	D	D	F	D	D	D	E	E	E	C	C
Approach Delay (s)		84.4			66.1			57.2			41.5	
Approach LOS		F			E			E			D	

Intersection Summary

HCM Average Control Delay	61.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Existing Traffic Analysis
PM Peak Hour























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1365	188	180	1083	43
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1883	1564	1824	1865	1582	1789	3614	1589	1789	3614	1490
Flt Permitted	0.64	1.00	1.00	0.27	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1209	1883	1564	525	1865	1582	130	3614	1589	140	3614	1490
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)	85	257	271	200	193	114	291	1484	204	196	1177	47
RTOR Reduction (vph)	0	0	215	0	0	83	0	0	69	0	0	25
Lane Group Flow (vph)	85	257	56	200	193	31	291	1484	135	196	1177	22
Confl. Peds. (#/hr)	1		9	2		8	3		3	11		13
Heavy Vehicles (%)	1%	2%	2%	0%	3%	1%	2%	1%	0%	2%	1%	4%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	25.5	25.5	25.5	37.5	37.5	37.5	88.5	65.0	54.0	73.5	54.0	65.0
Effective Green, g (s)	25.5	25.5	25.5	37.5	37.5	37.5	88.5	65.0	54.0	73.5	54.0	65.0
Actuated g/C Ratio	0.18	0.18	0.18	0.27	0.27	0.27	0.63	0.46	0.39	0.52	0.39	0.46
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	220	343	285	215	500	424	444	1678	613	303	1394	692
v/s Ratio Prot		0.14		c0.05	0.10		c0.14	c0.41		0.09	0.33	
v/s Ratio Perm	0.07		0.04	c0.20		0.02	0.27		0.09	0.25		0.01
v/c Ratio	0.39	0.75	0.20	0.93	0.39	0.07	0.66	0.88	0.22	0.65	0.84	0.03
Uniform Delay, d1	50.4	54.2	48.6	48.9	41.8	38.3	36.7	34.1	28.9	34.6	39.2	20.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.07	2.31
Incremental Delay, d2	1.1	8.7	0.3	42.3	0.5	0.1	7.4	7.2	0.8	9.5	6.0	0.1
Delay (s)	51.5	62.9	48.9	91.2	42.3	38.3	44.0	41.3	29.7	44.8	47.9	47.3
Level of Service	D	E	D	F	D	D	D	D	C	D	D	D
Approach Delay (s)		55.1			60.7			40.5			47.4	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	46.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 22: Millard Ave & Yonge St





















Existing Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	121	128	53	137	66	108	1421	55	96	889	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frft	1.00	0.92		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1805	1750		1784	1818		1824	3583		1789	3614	1581
Flt Permitted	0.38	1.00		0.59	1.00		0.20	1.00		0.09	1.00	1.00
Satd. Flow (perm)	731	1750		1113	1818		380	3583		167	3614	1581
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)	145	132	139	58	149	72	117	1545	60	104	966	82
RTOR Reduction (vph)	0	27	0	0	13	0	0	2	0	0	0	0
Lane Group Flow (vph)	145	244	0	58	208	0	117	1603	0	104	966	82
Confl. Peds. (#/hr)	3		3	3		3	6		5	5		4
Heavy Vehicles (%)	1%	1%	0%	2%	0%	0%	0%	1%	6%	2%	1%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	42.9	42.9		29.0	29.0		83.1	83.1		69.9	69.9	140.0
Effective Green, g (s)	42.9	42.9		29.0	29.0		83.1	83.1		69.9	69.9	140.0
Actuated g/C Ratio	0.31	0.31		0.21	0.21		0.59	0.59		0.50	0.50	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	300	536		231	377		320	2127		83	1804	1581
v/s Ratio Prot	0.03	c0.14			c0.11		0.02	c0.45			0.27	
v/s Ratio Perm	0.11			0.05			0.19			c0.62		0.05
v/c Ratio	0.48	0.46		0.25	0.55		0.37	0.75		1.25	0.54	0.05
Uniform Delay, d1	37.3	39.1		46.4	49.7		15.1	20.9		35.0	24.0	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.08	0.81		0.67	0.66	1.00
Incremental Delay, d2	1.2	0.6		0.6	1.8		0.4	1.5		169.7	0.9	0.0
Delay (s)	38.5	39.7		47.0	51.4		16.7	18.4		193.2	16.8	0.0
Level of Service	D	D		D	D		B	B		F	B	A
Approach Delay (s)		39.3			50.5			18.3			31.5	
Approach LOS		D			D			B			C	

Intersection Summary		
HCM Average Control Delay	27.5	HCM Level of Service C
HCM Volume to Capacity ratio	1.04	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 28.0
Intersection Capacity Utilization	121.9%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
 25: Davis Dr W & GO Bus Access

























Existing Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	913	6	7	967	6	5	3	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	992	7	8	1051	7	5	3	10	0	0	195
Pedestrians								6				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	1058			1005			2040	2572	505	2072	2569	526
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	814			1005			1920	2519	505	1955	2515	215
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	66			99			72	80	98	100	100	72
cM capacity (veh/h)	725			694			19	16	515	21	16	704
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	249	662	337	8	526	526	7	5	10	195		
Volume Left	249	0	0	8	0	0	0	5	0	0		
Volume Right	0	0	7	0	0	0	7	0	10	195		
cSH	725	1700	1700	694	1700	1700	1700	19	515	704		
Volume to Capacity	0.34	0.39	0.20	0.01	0.31	0.31	0.00	0.28	0.02	0.28		
Queue Length 95th (m)	11.6	0.0	0.0	0.3	0.0	0.0	0.0	6.1	0.4	8.5		
Control Delay (s)	12.5	0.0	0.0	10.2	0.0	0.0	0.0	253.0	12.1	12.0		
Lane LOS	B			B				F	B	B		
Approach Delay (s)	2.5			0.1				Err		12.0		
Approach LOS								F		B		
Intersection Summary												
Average Delay				Err								
Intersection Capacity Utilization				Err%	ICU Level of Service				H			
Analysis Period (min)				15								

APPENDIX D
Optimized Existing Traffic
Level Of Service Calculations

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall

Optimized Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	700	243	69	488	44	135	59	72	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1688	3544	1542	1657	3510	1593	1701	1921	1492	1720	1921	1577
Flt Permitted	0.45	1.00	1.00	0.31	1.00	1.00	0.57	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	806	3544	1542	546	3510	1593	1029	1921	1492	1295	1921	1577
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)	37	761	264	75	530	48	147	64	78	16	21	7
RTOR Reduction (vph)	0	0	234	0	0	40	0	0	32	0	0	3
Lane Group Flow (vph)	37	761	30	75	530	8	147	64	46	16	21	4
Confl. Peds. (#/hr)	2		8	8		2	19		1	1		19
Heavy Vehicles (%)	8%	3%	2%	10%	4%	0%	6%	0%	8%	6%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	72.7	68.4	13.6	76.5	70.3	20.5	27.4	20.5	70.3	16.5	13.6	68.4
Effective Green, g (s)	72.7	68.4	13.6	76.5	70.3	20.5	27.4	20.5	70.3	16.5	13.6	68.4
Actuated g/C Ratio	0.61	0.57	0.11	0.64	0.59	0.17	0.23	0.17	0.59	0.14	0.11	0.57
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	520	2020	175	405	2056	272	290	328	874	188	218	899
v/s Ratio Prot	0.00	c0.21		c0.01	0.15		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.02	0.11		0.01	c0.07		0.03	0.01		0.00
v/c Ratio	0.07	0.38	0.17	0.19	0.26	0.03	0.51	0.20	0.05	0.09	0.10	0.00
Uniform Delay, d1	9.5	14.1	48.1	8.7	12.1	41.5	39.2	42.7	10.6	45.1	47.7	11.1
Progression Factor	1.03	0.90	2.27	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.4	0.2	0.3	0.0	1.4	0.3	0.1	0.2	0.2	0.0
Delay (s)	9.9	13.2	109.7	8.9	12.4	41.5	40.6	43.0	10.7	45.2	47.9	11.1
Level of Service	A	B	F	A	B	D	D	D	B	D	D	B
Approach Delay (s)		37.1			14.2			33.1			41.1	
Approach LOS		D			B			C			D	























Intersection Summary		
HCM Average Control Delay	29.3	HCM Level of Service C
HCM Volume to Capacity ratio	0.40	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	72.5%	ICU Level of Service C
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

Optimized Existing Traffic Analysis

9: Davis Dr W & Ford Wilson Blvd

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	774	30	39	601	40	19	0	32	121	0	87
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1737	3544	1487	1653	3476	1520	1725		1517	1784		1497
Flt Permitted	0.36	1.00	1.00	0.27	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	654	3544	1487	467	3476	1520	1725		1517	1784		1497
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)	23	841	33	42	653	43	21	0	35	132	0	95
RTOR Reduction (vph)	0	0	16	0	0	21	0	0	22	0	0	59
Lane Group Flow (vph)	23	841	17	42	653	22	21	0	13	132	0	36
Confl. Peds. (#/hr)	1		6	6		1	5		2	2		5
Heavy Vehicles (%)	5%	3%	6%	10%	5%	5%	5%	0%	6%	2%	0%	7%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	332	1802	756	237	1767	773	661		582	684		574
v/s Ratio Prot		c0.24			0.19							
v/s Ratio Perm	0.04		0.01	0.09		0.01	0.01		0.01	c0.07		0.02
v/c Ratio	0.07	0.47	0.02	0.18	0.37	0.03	0.03		0.02	0.19		0.06
Uniform Delay, d1	15.0	19.0	14.7	15.9	17.9	14.7	23.1		23.0	24.6		23.4
Progression Factor	1.36	0.95	2.34	0.78	0.79	0.51	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.6	0.0	1.6	0.6	0.1	0.1		0.1	0.6		0.2
Delay (s)	20.8	18.8	34.4	14.0	14.6	7.6	23.2		23.1	25.3		23.6
Level of Service	C	B	C	B	B	A	C		C	C		C
Approach Delay (s)		19.4			14.2			23.1			24.6	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St

Optimized Existing Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	877	272	159	509	49	305	204	82	20	455	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	3579	1570	1807	3570		1755	3614	1617	1738	3650	1555
Flt Permitted	0.29	1.00	1.00	0.16	1.00		0.22	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	493	3579	1570	305	3570		414	3614	1617	1122	3650	1555
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)	250	953	296	173	553	53	332	222	89	22	495	363
RTOR Reduction (vph)	0	0	188	0	5	0	0	0	54	0	0	219
Lane Group Flow (vph)	250	953	108	173	601	0	332	222	35	22	495	144
Heavy Vehicles (%)	12%	2%	4%	1%	1%	0%	4%	1%	1%	5%	0%	5%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	59.4	43.8	43.8	51.8	40.0		47.4	47.4	47.4	23.4	23.4	23.4
Effective Green, g (s)	59.4	43.8	43.8	51.8	40.0		47.4	47.4	47.4	23.4	23.4	23.4
Actuated g/C Ratio	0.50	0.36	0.36	0.43	0.33		0.39	0.39	0.39	0.19	0.19	0.19
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	392	1306	573	279	1190		387	1428	639	219	712	303
v/s Ratio Prot	c0.08	c0.27		0.06	0.17		c0.14	0.06			0.14	
v/s Ratio Perm	0.23		0.07	0.21			c0.20		0.02	0.02		0.09
v/c Ratio	0.64	0.73	0.19	0.62	0.50		0.86	0.16	0.06	0.10	0.70	0.48
Uniform Delay, d1	19.3	33.0	26.0	23.5	32.1		28.5	23.4	22.4	39.7	45.0	42.9
Progression Factor	1.00	1.00	1.00	1.58	1.46		0.90	0.88	1.12	1.00	1.00	1.00
Incremental Delay, d2	3.4	3.6	0.7	4.1	1.5		15.8	0.0	0.0	0.2	3.0	1.2
Delay (s)	22.7	36.6	26.7	41.2	48.3		41.3	20.6	25.3	39.9	47.9	44.0
Level of Service	C	D	C	D	D		D	C	C	D	D	D
Approach Delay (s)		32.3			46.7			31.9			46.1	
Approach LOS		C			D			C			D	



















Intersection Summary

HCM Average Control Delay	38.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

























Optimized Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	9	0	15	0	1240	14	14	1579	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Fr _t				1.00	0.85			1.00		1.00	1.00	
Fl _t Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3608		1825	3614	
Fl _t Permitted				0.76	1.00			1.00		0.19	1.00	
Satd. Flow (perm)				1455	1633			3608		361	3614	
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	0	10	0	16	0	1348	15	15	1716	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	10	1	0	0	1363	0	15	1716	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0	
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0	
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				73	82			3037		304	3042	
v/s Ratio Prot					0.00			0.38			c0.47	
v/s Ratio Perm				c0.01						0.04		
v/c Ratio				0.14	0.01			0.45		0.05	0.56	
Uniform Delay, d ₁				54.5	54.2			2.4		1.6	2.9	
Progression Factor				1.00	1.00			1.00		1.40	2.49	
Incremental Delay, d ₂				0.9	0.0			0.5		0.3	0.7	
Delay (s)				55.4	54.2			2.9		2.5	7.9	
Level of Service				E	D			A		A	A	
Approach Delay (s)		0.0			54.7			2.9			7.8	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			6.1		HCM Level of Service						A	
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					13.0		
Intersection Capacity Utilization			62.8%		ICU Level of Service					B		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Optimized Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	536	128	187	402	120	102	430	156	200	913	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1599	3544	1415	1788	3476	1571	1755	3476	1590	1753	3579	1486
Flt Permitted	0.37	1.00	1.00	0.21	1.00	1.00	0.18	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	625	3544	1415	398	3476	1571	332	3476	1590	815	3579	1486
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)	134	583	139	203	437	130	111	467	170	217	992	232
RTOR Reduction (vph)	0	0	109	0	0	101	0	0	93	0	0	119
Lane Group Flow (vph)	134	583	30	203	437	29	111	467	77	217	992	113
Confl. Peds. (#/hr)	6		8	8		6	5		4	4		5
Heavy Vehicles (%)	14%	3%	13%	2%	5%	2%	4%	5%	1%	4%	2%	8%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	39.2	28.0	28.0	40.6	28.7	28.7	68.1	55.1	58.6	68.1	58.6	55.1
Effective Green, g (s)	39.2	28.0	28.0	40.6	28.7	28.7	68.1	55.1	58.6	68.1	58.6	55.1
Actuated g/C Ratio	0.30	0.22	0.22	0.31	0.22	0.22	0.52	0.42	0.45	0.52	0.45	0.42
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	272	763	305	252	767	347	278	1473	717	521	1613	630
v/s Ratio Prot	0.04	0.16		c0.07	0.13		0.03	0.13		c0.04	c0.28	
v/s Ratio Perm	0.11		0.02	c0.18		0.02	0.18		0.05	0.18		0.08
v/c Ratio	0.49	0.76	0.10	0.81	0.57	0.08	0.40	0.32	0.11	0.42	0.62	0.18
Uniform Delay, d1	34.8	47.9	40.9	35.8	45.1	40.2	18.1	24.9	20.6	16.9	27.1	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.27	0.97	2.50	1.00	1.00	1.00
Incremental Delay, d2	1.4	4.6	0.1	16.9	1.0	0.1	0.9	0.5	0.3	0.5	1.8	0.6
Delay (s)	36.2	52.5	41.0	52.6	46.1	40.3	23.8	24.8	51.7	17.5	28.9	24.0
Level of Service	D	D	D	D	D	D	C	C	D	B	C	C
Approach Delay (s)		48.1			46.9			30.8			26.4	
Approach LOS		D			D			C			C	

Intersection Summary		
HCM Average Control Delay	36.2	HCM Level of Service D
HCM Volume to Capacity ratio	0.64	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	87.1%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St























Optimized Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	904	232	77	1054	116
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	1921	1578	1806	1902	1592	1772	3579	1574	1825	3544	1565
Flt Permitted	0.63	1.00	1.00	0.33	1.00	1.00	0.10	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	1152	1921	1578	632	1902	1592	185	3579	1574	306	3544	1565
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)	43	205	203	213	202	123	247	983	252	84	1146	126
RTOR Reduction (vph)	0	0	171	0	0	91	0	0	138	0	0	75
Lane Group Flow (vph)	43	205	32	213	202	32	247	983	114	84	1146	51
Confl. Peds. (#/hr)	3		2	2		3	1		3	3		1
Heavy Vehicles (%)	5%	0%	2%	1%	1%	1%	3%	2%	1%	0%	3%	2%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	19.7	19.7	19.7	33.7	33.7	33.7	78.3	53.0	53.0	78.3	53.0	53.0
Effective Green, g (s)	19.7	19.7	19.7	33.7	33.7	33.7	78.3	53.0	53.0	78.3	53.0	53.0
Actuated g/C Ratio	0.15	0.15	0.15	0.26	0.26	0.26	0.60	0.41	0.41	0.60	0.41	0.41
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	291	239	254	493	413	420	1459	642	480	1445	638
v/s Ratio Prot		0.11		c0.06	0.11		c0.11	0.27		0.03	c0.32	
v/s Ratio Perm	0.04		0.02	c0.15		0.02	0.24		0.07	0.07		0.03
v/c Ratio	0.25	0.70	0.14	0.84	0.41	0.08	0.59	0.67	0.18	0.18	0.79	0.08
Uniform Delay, d1	48.6	52.4	47.8	43.4	39.9	36.4	25.8	31.4	24.6	13.4	33.7	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.81	1.24	3.78
Incremental Delay, d2	0.7	7.5	0.3	20.8	0.6	0.1	5.9	2.5	0.6	0.6	3.4	0.2
Delay (s)	49.3	59.9	48.0	64.2	40.5	36.5	31.7	33.9	25.2	24.8	45.1	89.3
Level of Service	D	E	D	E	D	D	C	C	C	C	D	F
Approach Delay (s)		53.6			49.0			32.1			47.9	
Approach LOS		D			D			C			D	

Intersection Summary		
HCM Average Control Delay	42.6	HCM Level of Service D
HCM Volume to Capacity ratio	0.73	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	82.4%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St

























Optimized Existing Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	93	136	54	88	33	164	587	35	59	1143	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frft	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1724		1822	1835		1825	3475		1813	3579	1582
Flt Permitted	0.57	1.00		0.60	1.00		0.10	1.00		0.39	1.00	1.00
Satd. Flow (perm)	1053	1724		1159	1835		190	3475		753	3579	1582
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)	49	101	148	59	96	36	178	638	38	64	1242	180
RTOR Reduction (vph)	0	42	0	0	11	0	0	3	0	0	0	0
Lane Group Flow (vph)	49	207	0	59	121	0	178	673	0	64	1242	180
Confl. Peds. (#/hr)	3		2	2		3	3		7	7		3
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	0%	4%	3%	0%	2%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	40.0	40.0		29.0	29.0		76.0	76.0		60.9	60.9	130.0
Effective Green, g (s)	40.0	40.0		29.0	29.0		76.0	76.0		60.9	60.9	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.58	0.58		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	362	530		259	409		251	2032		353	1677	1582
v/s Ratio Prot	0.01	c0.12			0.07		c0.06	0.19			c0.35	
v/s Ratio Perm	0.03			0.05			0.35			0.08		0.11
v/c Ratio	0.14	0.39		0.23	0.30		0.71	0.33		0.18	0.74	0.11
Uniform Delay, d1	32.2	35.4		41.3	42.0		21.1	13.9		20.1	28.1	0.0
Progression Factor	1.00	1.00		1.00	1.00		2.53	1.47		0.74	0.59	1.00
Incremental Delay, d2	0.2	0.5		0.5	0.4		7.2	0.4		1.0	2.5	0.1
Delay (s)	32.3	35.9		41.8	42.4		60.6	20.8		15.8	19.3	0.1
Level of Service	C	D		D	D		E	C		B	B	A
Approach Delay (s)		35.3			42.2			29.1			16.8	
Approach LOS		D			D			C			B	

Intersection Summary		
HCM Average Control Delay	24.2	HCM Level of Service C
HCM Volume to Capacity ratio	0.61	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	105.8%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall























Optimized Existing Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	723	167	143	662	84	251	178	106	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1824	3579	1574	1789	3614	1559	1769	1902	1535	1824	1921	1550
Flt Permitted	0.35	1.00	1.00	0.27	1.00	1.00	0.41	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	663	3579	1574	500	3614	1559	768	1902	1535	1222	1921	1550
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)	68	786	182	155	720	91	273	193	115	150	161	29
RTOR Reduction (vph)	0	0	158	0	0	75	0	0	56	0	0	15
Lane Group Flow (vph)	68	786	24	155	720	16	273	193	59	150	161	14
Confl. Peds. (#/hr)	3		3	3		3	33		1	1		33
Heavy Vehicles (%)	0%	2%	1%	2%	1%	2%	2%	1%	5%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	63.9	57.6	15.6	71.3	61.3	20.7	34.4	20.7	61.3	25.3	15.6	57.6
Effective Green, g (s)	63.9	57.6	15.6	71.3	61.3	20.7	34.4	20.7	61.3	25.3	15.6	57.6
Actuated g/C Ratio	0.53	0.48	0.13	0.59	0.51	0.17	0.29	0.17	0.51	0.21	0.13	0.48
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	414	1718	205	405	1846	269	344	328	784	306	250	744
v/s Ratio Prot	0.01	c0.22		c0.03	0.20		c0.10	0.10		0.04	0.08	
v/s Ratio Perm	0.08		0.02	0.20		0.01	c0.13		0.04	0.06		0.01
v/c Ratio	0.16	0.46	0.12	0.38	0.39	0.06	0.79	0.59	0.07	0.49	0.64	0.02
Uniform Delay, d1	13.7	20.8	46.1	12.1	17.9	41.5	36.7	45.7	14.9	40.7	49.6	16.4
Progression Factor	0.51	0.48	3.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.8	0.2	0.6	0.6	0.1	11.9	2.7	0.2	1.2	5.6	0.0
Delay (s)	7.2	10.8	164.4	12.7	18.6	41.6	48.6	48.4	15.1	42.0	55.2	16.4
Level of Service	A	B	F	B	B	D	D	D	B	D	E	B
Approach Delay (s)		37.6			19.8			41.9			46.0	
Approach LOS		D			B			D			D	

Intersection Summary		
HCM Average Control Delay	33.5	HCM Level of Service C
HCM Volume to Capacity ratio	0.56	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	83.5%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Optimized Existing Traffic Analysis
PM Peak Hour
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	920	27	42	945	141	23	0	66	61	0	20
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1823	3614	1596	1824	3614	1592	1818		1610	1821		1608
Flt Permitted	0.24	1.00	1.00	0.25	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	456	3614	1596	473	3614	1592	1818		1610	1821		1608
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	1000	29	46	1027	153	25	0	72	66	0	22
RTOR Reduction (vph)	0	0	10	0	0	55	0	0	54	0	0	17
Lane Group Flow (vph)	189	1000	19	46	1027	98	25	0	18	66	0	6
Confl. Peds. (#/hr)	2		1	1		2	3		2	2		3
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Effective Green, g (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64	0.64	0.25		0.25	0.25		0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	293	2319	1024	304	2319	1022	455		403	455		402
v/s Ratio Prot		0.28			0.28							
v/s Ratio Perm	c0.41		0.01	0.10		0.06	0.01		0.01	c0.04		0.00
v/c Ratio	0.65	0.43	0.02	0.15	0.44	0.10	0.05		0.04	0.15		0.01
Uniform Delay, d1	13.1	10.7	7.8	8.5	10.8	8.2	34.2		34.1	35.0		33.9
Progression Factor	1.02	0.30	0.18	0.75	0.76	0.30	1.00		1.00	1.00		1.00
Incremental Delay, d2	5.9	0.3	0.0	1.0	0.6	0.2	0.2		0.2	0.1		0.0
Delay (s)	19.3	3.6	1.4	7.4	8.8	2.6	34.4		34.3	35.2		33.9
Level of Service	B	A	A	A	A	A	C		C	D		C
Approach Delay (s)		6.0			8.0			34.4			34.8	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St

Optimized Existing Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1148	446	222	614	49	509	582	163	14	320	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3614	1601	1807	3610		1789	3614	1633	1825	3614	1617
Flt Permitted	0.17	1.00	1.00	0.12	1.00		0.30	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	323	3614	1601	231	3610		568	3614	1633	791	3614	1617
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)	454	1248	485	241	667	53	553	633	177	15	348	278
RTOR Reduction (vph)	0	0	255	0	5	0	0	0	123	0	0	237
Lane Group Flow (vph)	454	1248	230	241	715	0	553	633	54	15	348	41
Heavy Vehicles (%)	2%	1%	2%	1%	0%	0%	2%	1%	0%	0%	1%	1%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	70.4	45.6	45.6	53.8	33.0		36.6	36.6	36.6	17.6	17.6	17.6
Effective Green, g (s)	70.4	45.6	45.6	53.8	33.0		36.6	36.6	36.6	17.6	17.6	17.6
Actuated g/C Ratio	0.59	0.38	0.38	0.45	0.28		0.30	0.30	0.30	0.15	0.15	0.15
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	598	1373	608	377	993		326	1102	498	116	530	237
v/s Ratio Prot	c0.21	c0.35		0.11	0.20		c0.21	0.18			0.10	
v/s Ratio Perm	0.23		0.14	0.18			c0.31		0.03	0.02		0.03
v/c Ratio	0.76	0.91	0.38	0.64	0.72		1.70	0.57	0.11	0.13	0.66	0.17
Uniform Delay, d1	23.7	35.2	26.9	25.2	39.3		38.2	35.1	30.0	44.5	48.3	44.8
Progression Factor	1.00	1.00	1.00	0.90	1.28		0.92	0.92	1.74	1.00	1.00	1.00
Incremental Delay, d2	5.5	10.4	1.8	3.3	4.2		324.7	0.6	0.1	0.5	2.9	0.3
Delay (s)	29.2	45.7	28.7	26.0	54.7		360.0	32.8	52.3	45.0	51.3	45.2
Level of Service	C	D	C	C	D		F	C	D	D	D	D
Approach Delay (s)		38.5			47.5			168.1			48.5	
Approach LOS		D			D			F			D	



















Intersection Summary

HCM Average Control Delay	75.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

























HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Optimized Existing Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	11	0	12	0	1452	33	22	795	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Fr _t				1.00	0.85			1.00		1.00	1.00	
Fl _t Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3603		1807	3650	
Fl _t Permitted				0.76	1.00			1.00		0.14	1.00	
Satd. Flow (perm)				1455	1633			3603		265	3650	
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	0	12	0	13	0	1578	36	24	864	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	12	1	0	0	1614	0	24	864	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0	
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0	
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				73	82			3033		223	3072	
v/s Ratio Prot					0.00			c0.45			0.24	
v/s Ratio Perm				c0.01						0.09		
v/c Ratio				0.16	0.01			0.53		0.11	0.28	
Uniform Delay, d ₁				54.6	54.2			2.7		1.7	2.0	
Progression Factor				1.00	1.00			1.00		0.38	0.59	
Incremental Delay, d ₂				1.1	0.0			0.7		0.8	0.2	
Delay (s)				55.7	54.2			3.4		1.5	1.4	
Level of Service				E	D			A		A	A	
Approach Delay (s)		0.0			54.9			3.4			1.4	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			3.2		HCM Level of Service						A	
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					13.0		
Intersection Capacity Utilization			60.4%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Optimized Existing Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	584	158	270	636	253	205	964	203	290	708	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1720	3476	1415	1804	3544	1556	1770	3579	1540	1772	3614	1504
Flt Permitted	0.15	1.00	1.00	0.21	1.00	1.00	0.22	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	268	3476	1415	395	3544	1556	404	3579	1540	176	3614	1504
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)	297	635	172	293	691	275	223	1048	221	315	770	178
RTOR Reduction (vph)	0	0	130	0	0	189	0	0	104	0	0	124
Lane Group Flow (vph)	297	635	42	293	691	86	223	1048	117	315	770	54
Confl. Peds. (#/hr)	22		22	22		22	18		14	14		18
Heavy Vehicles (%)	6%	5%	11%	1%	3%	1%	3%	2%	3%	3%	1%	5%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	54.4	33.9	33.9	52.6	33.0	33.0	64.5	42.5	48.9	64.5	48.9	42.5
Effective Green, g (s)	54.4	33.9	33.9	52.6	33.0	33.0	64.5	42.5	48.9	64.5	48.9	42.5
Actuated g/C Ratio	0.39	0.24	0.24	0.38	0.24	0.24	0.46	0.30	0.35	0.46	0.35	0.30
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	317	842	343	346	835	367	338	1086	538	332	1262	457
v/s Ratio Prot	c0.14	0.18		0.12	0.19		0.07	c0.29		c0.15	0.21	
v/s Ratio Perm	c0.23		0.03	0.20		0.06	0.23		0.08	0.29		0.04
v/c Ratio	0.94	0.75	0.12	0.85	0.83	0.23	0.66	0.97	0.22	0.95	0.61	0.12
Uniform Delay, d1	36.8	49.2	41.4	34.1	50.8	43.3	25.3	48.0	32.1	43.3	37.7	35.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.27	2.32	1.00	1.00	1.00
Incremental Delay, d2	34.0	3.9	0.2	17.1	6.8	0.3	2.6	13.6	0.5	35.7	2.2	0.5
Delay (s)	70.8	53.1	41.6	51.2	57.6	43.6	44.9	74.4	75.0	78.9	39.9	35.7
Level of Service	E	D	D	D	E	D	D	E	E	E	D	D
Approach Delay (s)		56.0			53.0			70.1			49.0	
Approach LOS		E			D			E			D	

Intersection Summary		
HCM Average Control Delay	57.7	HCM Level of Service E
HCM Volume to Capacity ratio	0.90	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	102.3%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Optimized Existing Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1365	188	180	1083	43
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1883	1564	1824	1865	1582	1789	3614	1589	1789	3614	1490
Flt Permitted	0.64	1.00	1.00	0.27	1.00	1.00	0.08	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1209	1883	1564	522	1865	1582	143	3614	1589	135	3614	1490
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)	85	257	271	200	193	114	291	1484	204	196	1177	47
RTOR Reduction (vph)	0	0	195	0	0	83	0	0	68	0	0	25
Lane Group Flow (vph)	85	257	76	200	193	31	291	1484	136	196	1177	22
Confl. Peds. (#/hr)	1		9	2		8	3		3	11		13
Heavy Vehicles (%)	1%	2%	2%	0%	3%	1%	2%	1%	0%	2%	1%	4%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	25.4	25.4	25.4	38.4	38.4	38.4	87.6	67.0	56.0	72.6	56.0	67.0
Effective Green, g (s)	25.4	25.4	25.4	38.4	38.4	38.4	87.6	67.0	56.0	72.6	56.0	67.0
Actuated g/C Ratio	0.18	0.18	0.18	0.27	0.27	0.27	0.63	0.48	0.40	0.52	0.40	0.48
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	219	342	284	227	512	434	414	1730	636	266	1446	713
v/s Ratio Prot		0.14		c0.06	0.10		c0.14	c0.41		0.09	0.33	
v/s Ratio Perm	0.07		0.05	c0.19		0.02	0.30		0.09	0.30		0.02
v/c Ratio	0.39	0.75	0.27	0.88	0.38	0.07	0.70	0.86	0.21	0.74	0.81	0.03
Uniform Delay, d1	50.5	54.3	49.3	46.7	41.1	37.6	36.9	32.3	27.5	36.6	37.4	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.13	2.48
Incremental Delay, d2	1.1	9.0	0.5	30.3	0.5	0.1	9.6	5.8	0.8	15.6	4.8	0.1
Delay (s)	51.6	63.3	49.8	77.0	41.6	37.7	46.5	38.0	28.3	53.6	47.1	48.0
Level of Service	D	E	D	E	D	D	D	D	C	D	D	D
Approach Delay (s)		55.7			54.7			38.3			48.0	
Approach LOS		E			D			D			D	

Intersection Summary		
HCM Average Control Delay	45.6	HCM Level of Service D
HCM Volume to Capacity ratio	0.82	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	92.8%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St

Optimized Existing Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	121	128	53	137	66	108	1421	55	96	889	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frft	1.00	0.92		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1806	1750		1784	1818		1824	3583		1789	3614	1581
Flt Permitted	0.31	1.00		0.59	1.00		0.24	1.00		0.05	1.00	1.00
Satd. Flow (perm)	595	1750		1113	1818		455	3583		97	3614	1581
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)	145	132	139	58	149	72	117	1545	60	104	966	82
RTOR Reduction (vph)	0	27	0	0	13	0	0	2	0	0	0	0
Lane Group Flow (vph)	145	244	0	58	208	0	117	1603	0	104	966	82
Confl. Peds. (#/hr)	3		3	3		3	6		5	5		4
Heavy Vehicles (%)	1%	1%	0%	2%	0%	0%	0%	1%	6%	2%	1%	1%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	36.0	36.0		23.0	23.0		83.3	74.7		85.7	77.4	140.0
Effective Green, g (s)	36.0	36.0		23.0	23.0		83.3	74.7		85.7	77.4	140.0
Actuated g/C Ratio	0.26	0.26		0.16	0.16		0.60	0.53		0.61	0.55	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	231	450		183	299		355	1912		160	1998	1581
v/s Ratio Prot	c0.04	0.14			c0.11		0.02	c0.45		c0.04	0.27	
v/s Ratio Perm	0.12			0.05			0.18			0.36		c0.05
v/c Ratio	0.63	0.54		0.32	0.70		0.33	0.84		0.65	0.48	0.05
Uniform Delay, d1	42.8	44.9		51.6	55.2		13.3	27.6		28.4	19.1	0.0
Progression Factor	1.00	1.00		1.00	1.00		0.83	0.52		1.77	0.76	1.00
Incremental Delay, d2	5.2	1.3		1.0	6.9		0.3	2.9		7.2	0.7	0.0
Delay (s)	48.1	46.2		52.6	62.1		11.3	17.3		57.4	15.2	0.0
Level of Service	D	D		D	E		B	B		E	B	A
Approach Delay (s)		46.9			60.1			16.9			17.9	
Approach LOS		D			E			B			B	

Intersection Summary		
HCM Average Control Delay	24.1	HCM Level of Service C
HCM Volume to Capacity ratio	0.78	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 25.0
Intersection Capacity Utilization	102.7%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

APPENDIX E
Trip Generation Proxy Survey Data And Calculations



Dynamic Traffic Solutions

Details: Trip Generation Survey, Glenway Golf Course
Intersection: Glenway Circle Newmarket North Intersection
Date: November 9 , 2011

Total Vehicle Traffic

Start Time AM	East Bound Right	East Bound Left	South Bound Right	North Bound Left	Total
7:00am to 7:15am	2	1	0	0	3
7:15am to 7:30am	0	3	0	0	3
7:30am to 7:45am	2	1	3	0	6
7:45am to 8:00am	1	2	0	0	3
8:00am to 8:15am	0	2	0	1	3
8:15am to 8:30am	2	4	1	3	10
8:30am to 8:45am	1	3	2	1	7
8:45am to 9:00am	0	0	1	0	1
					36

Start Time PM	East Bound Right	East Bound Left	South Bound Right	North Bound Left	Total
4:00pm to 4:15pm	0	1	2	0	3
4:15pm to 4:30pm	0	1	6	1	8
4:30pm to 4:45pm	2	0	3	1	6
4:45pm to 5:00pm	1	2	4	2	9
5:00pm to 5:15pm	2	2	2	2	8
5:15pm to 5:30pm	2	0	2	1	5
5:30pm to 5:45pm	3	3	3	2	11
5:45pm to 6:00pm	0	1	2	1	4
					54

Intersection: Glenway Circle Newmarket South Intersection
Date: November 9 , 2011

Total Vehicle Traffic

Start Time AM	East Bound Right	East Bound Left	South Bound Right	North Bound Left	Total
7:00am to 7:15am	1	4	0	0	5
7:15am to 7:30am	2	0	0	0	2
7:30am to 7:45am	2	1	0	0	3
7:45am to 8:00am	4	2	0	2	8
8:00am to 8:15am	1	2	0	0	3
8:15am to 8:30am	2	0	0	0	2

8:30am to 8:45am	3	2	1	0	6
8:45am to 9:00am	0	1	0	0	1
					30

Start Time PM	East Bound	East Bound	South Bound	North Bound	Total
	Right	Left	Right	Left	
4:00pm to 4:15pm	1	0	0	0	1
4:15pm to 4:30pm	2	2	0	1	5
4:30pm to 4:45pm	2	0	1	2	5
4:45pm to 5:00pm	0	1	3	1	5
5:00pm to 5:15pm	1	1	3	3	8
5:15pm to 5:30pm	4	0	1	2	7
5:30pm to 5:45pm	0	3	1	1	5
5:45pm to 6:00pm	1	1	0	0	2
					38

Intersection: John Bowser Cresnet Newmarket North Intersection

Date: November 9 , 2011

Total Vehicle Traffic

Start Time AM	East Bound	East Bound	South Bound	North Bound	Total
	Right	Left	Right	Left	
7:00am to 7:15am	1	1	1	1	4
7:15am to 7:30am	4	1	0	1	6
7:30am to 7:45am	3	1	0	1	5
7:45am to 8:00am	3	1	0	1	5
8:00am to 8:15am	2	1	0	2	5
8:15am to 8:30am	2	0	1	1	10
8:30am to 8:45am	1	0	0	2	3
8:45am to 9:00am	1	1	0	1	3
					41

Start Time PM	East Bound	East Bound	South Bound	North Bound	Total
	Right	Left	Right	Left	
4:00pm to 4:15pm	1	0	2	1	4
4:15pm to 4:30pm	2	1	1	2	6
4:30pm to 4:45pm	1	2	3	3	9
4:45pm to 5:00pm	1	1	0	2	4
5:00pm to 5:15pm	1	2	1	3	7
5:15pm to 5:30pm	0	1	1	3	5
5:30pm to 5:45pm	1	0	0	2	3
5:45pm to 6:00pm	0	1	2	1	4
					42

Intersection: John Bowser Cresnet Newmarket South Intersection

Date: November 9 , 2011

Total Vehicle Traffic

Start Time AM	East Bound	East Bound	South Bound	North Bound	Total
	Right	Left	Right	Left	
7:00am to 7:15am	2	1	0	1	4
7:15am to 7:30am	4	1	0	1	6
7:30am to 7:45am	5	1	0	3	9
7:45am to 8:00am	3	3	1	1	8
8:00am to 8:15am	3	0	0	3	6
8:15am to 8:30am	3	1	1	0	5
8:30am to 8:45am	6	3	0	1	10
8:45am to 9:00am	0	0	0	1	1
					49

Start Time PM	East Bound	East Bound	South Bound	North Bound	Total
	Right	Left	Right	Left	
4:00pm to 4:15pm	2	1	1	1	5
4:15pm to 4:30pm	0	2	0	3	5
4:30pm to 4:45pm	1	2	2	4	9
4:45pm to 5:00pm	3	3	2	2	10
5:00pm to 5:15pm	2	1	3	2	8
5:15pm to 5:30pm	2	1	1	1	5
5:30pm to 5:45pm	3	2	2	0	7
5:45pm to 6:00pm	1	2	1	2	6
					55

APPENDIX F
Background Developments Information

MMM Group Limited
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Thornhill, ON L3T 0A1
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www.mmm.ca

October 8, 2008
16-05022-001-T02

Mr. Les Kensit
480770 Ontario Ltd.
18100 Yonge Street
Newmarket, ON L3Y 8V1

Dear Mr. Kensit:

Subject: **Traffic Impact and Parking Study Update
Northeast Corner of Yonge Street and Davis Drive
Town of Newmarket**

MMM Group Limited is very pleased to present the findings of our updated traffic impact and parking assessment for the proposed mixed-use development located on the northeast corner of Yonge Street and Davis Drive in Newmarket.

Our analyses shows that the Yonge Street and Davis Drive intersection is currently operating close to capacity, but the other boundary road intersections are currently operating at good to excellent levels of service under existing conditions with the exception of the site driveways during the weekday p.m. and Saturday peak periods. With the addition of traffic from the proposed development, the road network will experience some minor delays; however, the overall impact of the additional site traffic is minor compared to the existing conditions.

Our parking analysis reveals that the proposed parking supply does not accommodate the requirements suggested by the Town of Newmarket. Due to the urban nature of this site and the future plans to intensify the surrounding uses, we believe that the City of Toronto, Etobicoke parking by-law will be sufficient to accommodate the parking demands for the proposed mixed use development in this area of Newmarket.

We thank you for the opportunity to undertake this study on your behalf. Should you have any questions or comments regarding our findings, please do not hesitate to contact us at your earliest convenience.

Yours truly,

MMM GROUP LIMITED



David B. Richardson, P.Eng., PTOE
Senior Project Manager & Associate Partner
Transportation Planning

1.0 INTRODUCTION

MMM Group Ltd. was retained by 480770 Ontario Limited to update our Traffic Impact Study (TIS) for Phase 1 of the proposed mixed-use development located on the northeast corner of Yonge Street and Davis Drive in the Town of Newmarket. The location of the proposed development is illustrated in **Figure 1**.

This report assesses the operation of the boundary road intersections, the site access to the proposed development, as well as the parking required for the site. The proposed layout of the development is illustrated on the site plan in **Figure 2**.

This study has been completed, with the associated analysis and findings outlined herein.

2.0 EXISTING CONDITIONS

2.1 Site Description

The proposed mixed-use development is located on the northeast corner of Yonge Street and Davis Drive and consists of three parcels of land. The parcel fronting onto both Yonge Street and Davis Drive is currently a commercial retail plaza at 17555 Yonge Street. It is occupied by a Shoppers Drug Mart, an LCBO and a Blinds to Go. The plaza has access onto both Yonge Street and Davis Drive. There is a gas station on the southeast portion of the site at 39 Davis Drive, and an abandoned building at 22 George Street. The adjacent area to the north is occupied by a Best Western hotel, which shares the right of way to the access onto Yonge Street.

The proposed development will be constructed in two phases. Phase I consists of two residential towers fronting onto George Street and Davis Drive. These buildings will be serviced by two accesses on George Street. The building will contain amenities providing services for the residents, and the two towers will contain a total of 400 residential units. This report will focus only on Phase I.

Phase II consists of a 24-storey residential tower and a three storey concourse building which will include commercial and retail uses on the first floor, and office uses on the second and third floor. The concourse structure will connect the Yonge Street tower to the tower at the corner of George Street and Davis Drive. The access to Yonge Street will be retained, so that the entire site will have three driveways onto the boundary road network. Ultimately the entire building structure will consist of one large complex fronting onto Yonge Street, Davis Drive and George Street.

The subject lands are designated “Yonge-Davis Provincial Growth Centre” and “Yonge Street Regional Centre” by the Town of Newmarket Official Plan. This designation allows for developments that act as a focal point for “business, government, entertainment and cultural activity within York Region.” This development provides the important first step in launching a long-term vision for the Town of Newmarket to transform the area into a major centre of activity, filled with high-density uses along both Yonge Street and Davis Drive.

2.2 Boundary Road Network

The following roadways make up the boundary road network surrounding the subject site:

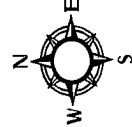
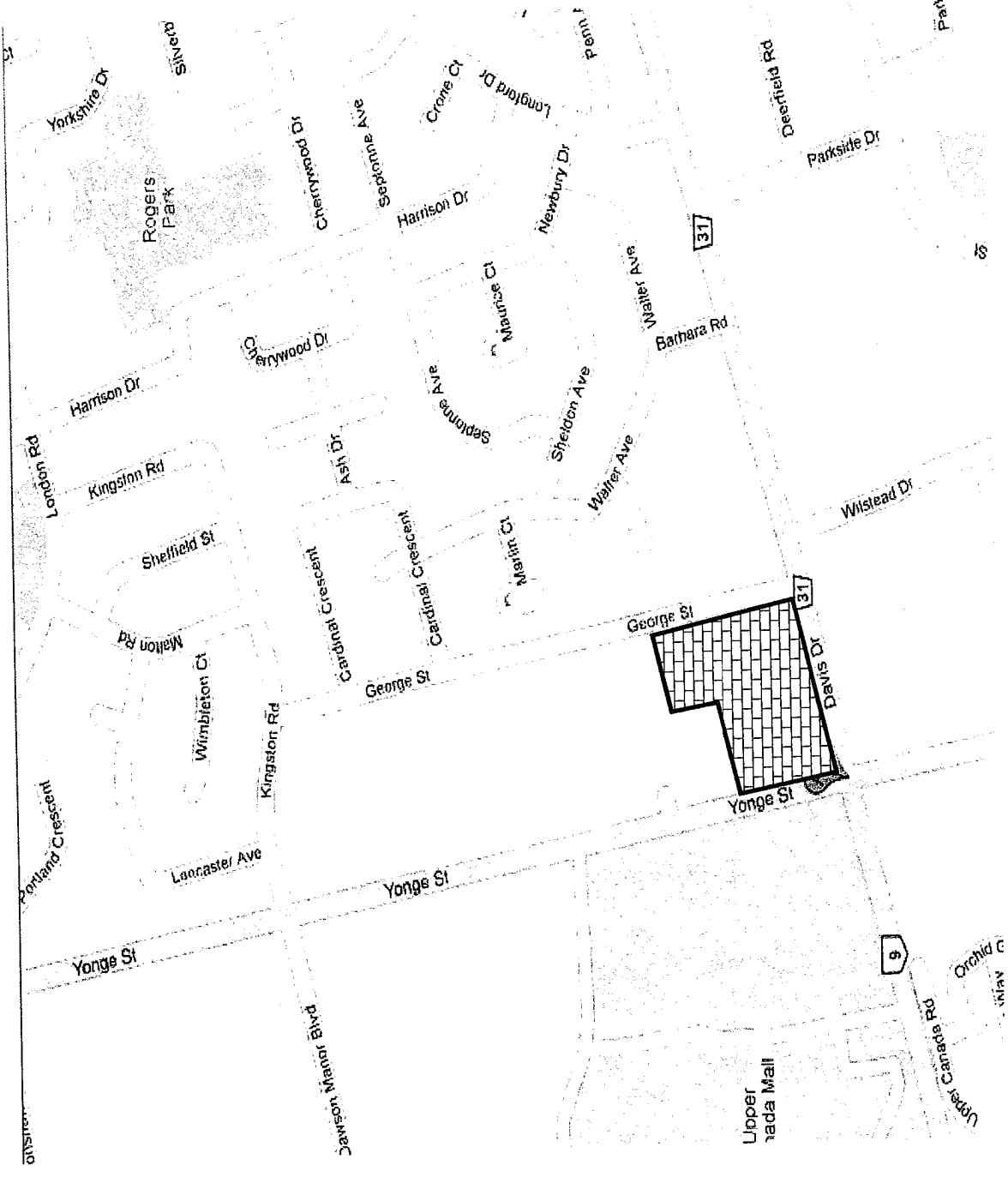


FIGURE 1
Site Location



- Site

Not to Scale



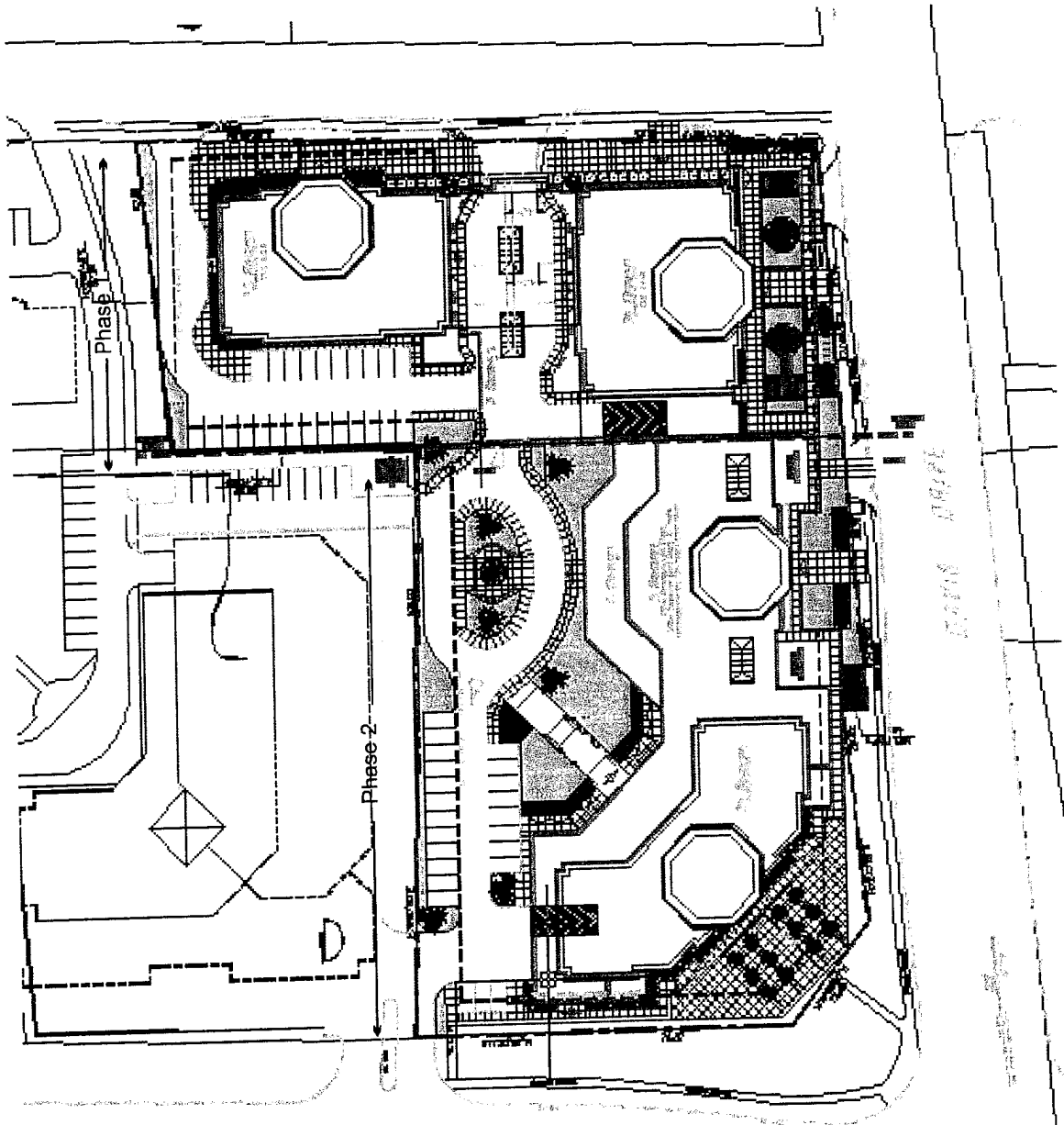


FIGURE 2
Site Plan

Yonge Street is a four lane north-south major arterial road with a posted speed limit of 60 km/h, under the jurisdiction of York Region.

Davis Drive (formerly Highway 9) is a four lane east-west major arterial under the jurisdiction of York Region with a posted speed limit of 60 km/h west of Yonge Street, and 50 km/h east of Yonge Street. Davis Drive provides access to Highway 404 to the east and Highway 400 to the west.

George Street is a two lane north-south local collector with a posted speed limit of 40 km/h, under the jurisdiction of the Town of Newmarket. George Street intersects with Davis Drive and also provides access for a commercial plaza on the south side of Davis Drive.

Kingston Road is a two lane east-west local collector to the north of the site with a posted speed limit of 40 km/h, under the jurisdiction of the Town of Newmarket.

The existing lane configurations at the key intersections and access points along the roadways listed above are illustrated in **Figure 3**.

2.3 Site Access

Two accesses are proposed for Phase 1 of the development. The proposed Driveway 'C' will be a stop controlled access, and is proposed to operate as a full moves driveway onto George Street. The proposed Driveway 'D' will be a stop-controlled access located north of Driveway 'C', and is also proposed to operate as a full moves driveway onto George Street. The existing Driveway 'A' is a stop controlled access, and is proposed to continue to operate as a full moves driveway onto Yonge Street but will not serve Phase 1 of the development. The existing Driveway 'B', which provides access to Davis Drive, will not serve Phase 1 of the development and will be removed in the future. However, Driveway 'B' will still be operational during Phase 1 of this development.

2.4 Traffic Data

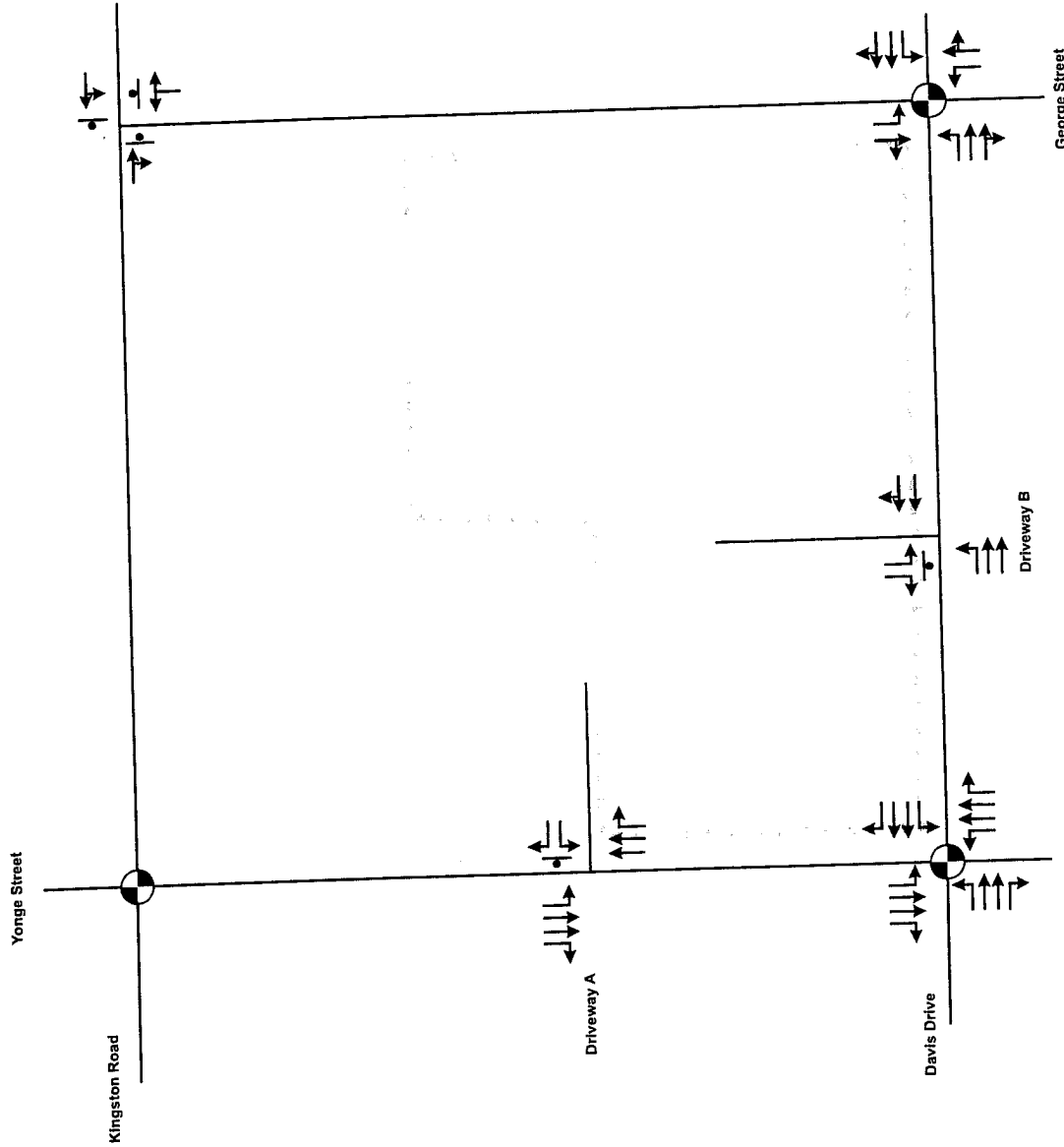
Ontario Traffic Inc. provided 2008 turning movement data for the intersections listed below:

- Yonge Street and Davis Drive;
- Davis Drive and George Street;
- George Street and Kingston Road ;
- Yonge Street and Shoppers Drug Mart Driveway; and
- Davis Drive and LCBO Driveway.

The weekday data was collected on June 3, 2008, and the weekend counts were collected on May 31, 2008.

2.5 Future Roadwork Initiatives

Based on discussions with Region of York staff, road improvements are planned for the Yonge and Davis area, however the timing of this construction has not been confirmed since the Environmental Assessments (EA's) are not complete. There will be a review of traffic operations and safety for the Davis Drive Corridor from west of Yonge Street to Highway 404, with the potential for a centre two-way-left-turn lane or selective additional turning lanes on Davis Drive in the future. Furthermore,



Not to Scale

- LEGEND**
- Site Location
 - ↔ Existing Lane Configurations
 - ⊥ Stop-Controlled Intersection
 - ⊙ Signalized Intersection

FIGURE 3
Existing Lane Configurations



EA's in support of VIVA's rapid transit goals for York Region are underway which include a rapid-way along Yonge Street from 19th Avenue to Green Lane, on Davis Drive from Yonge Street to the Southlake Regional Health Centre, and on Green Lane from Yonge Street to the East Gwillimbury GO Station. However, it should be noted that the above plans will not affect our analyses since they are all long-term initiatives.

2.6 Existing Intersection Operations

The intersection analysis was undertaken using the Synchro Software Package, Version 7, which employs the methodology outlined in the "Highway Capacity Manual (HCM), 2000". The level of service definitions for signalized and unsignalized intersections are included in **Appendix A. Table 1** illustrates the existing levels of service and critical movements in the vicinity of the site. Detailed Synchro capacity analyses for existing traffic conditions are included in **Appendix B. Figure 4** illustrates the existing traffic volumes for the above noted boundary road network.

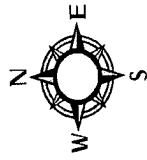
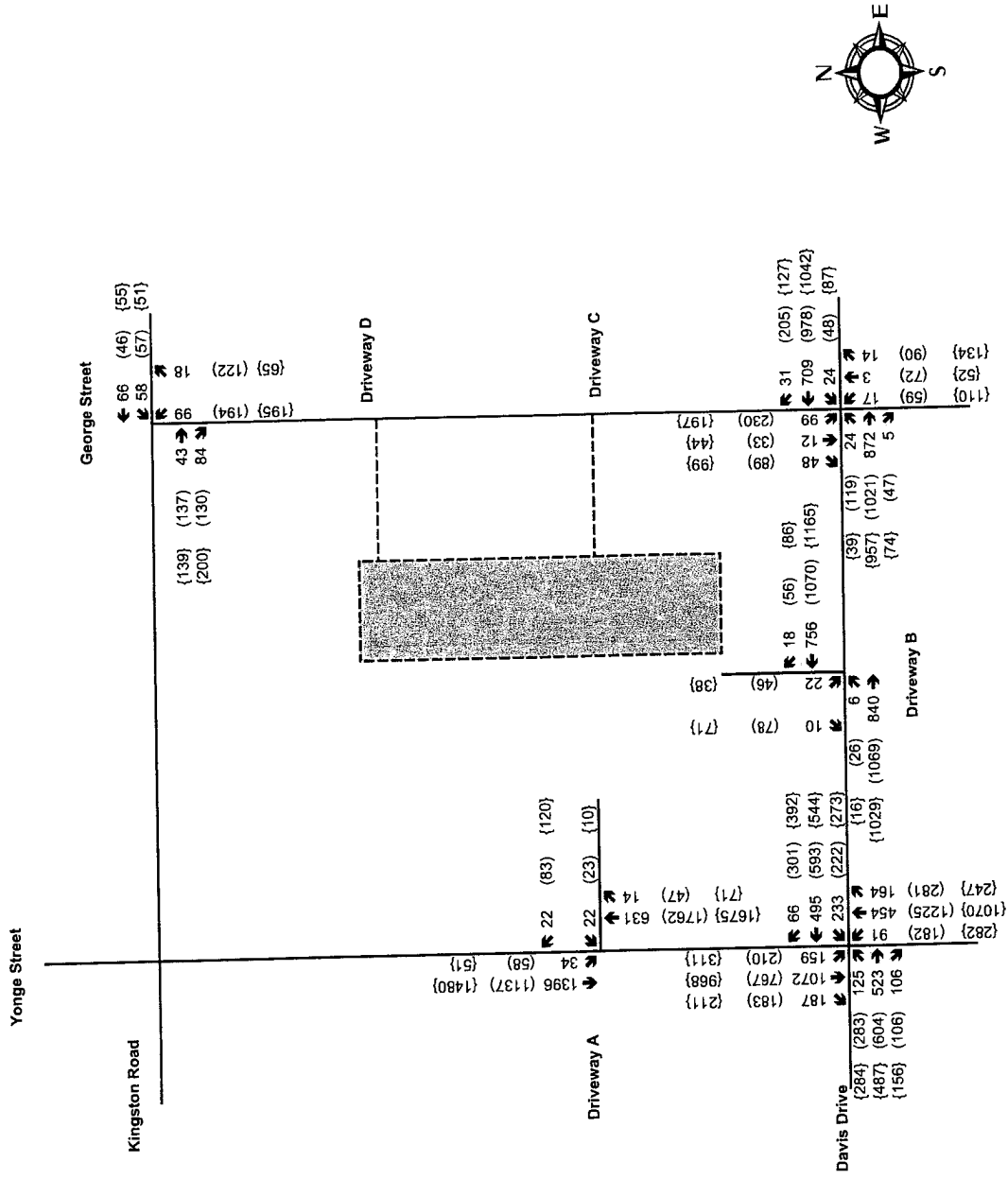
**TABLE 1
 EXISTING LEVELS OF SERVICE**

INTERSECTIONS	CONTROL TYPE	WEEKDAY A.M. PEAK HOUR		WEEKDAY P.M. PEAK HOUR		SATURDAY MID-DAY PEAK HOUR	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
Yonge Street @ Davis Drive	Signalized	C (34.6)	WB-L (0.92)	D (48.4)	EB-L (1.13) WB-L (0.89) NB-T (0.95)	E (55.0)	EB-L (1.11) WB-L (0.87) NB-L (0.87) NB-T (1.03) SB-L (0.87) SB-T (0.88)
Davis Drive @ George Street	Signalized	B (11.5)	--	C (25.3)	SB-L (1.14)	C (21.1)	--
George Street @ Kingston Road	Stop Controlled	A (8.3)	--	B (11.8)	--	B (11.4)	--
Yonge Street @ Driveway 'A'	Stop Controlled	D (29.6)	--	F (560.0)	WB-L (1.24)	F (320.0)	--
Davis Drive @ Driveway 'B'	Stop Controlled	C (15.6)	--	C (23.3)	--	D (31.8)	--

Notes:

1. For signalized intersections, the level of service is based on the overall intersection delay.
2. For stop controlled intersections, the level of service is based on the delay associated with the critical movements.
3. Critical movements are those with a volume-to-capacity ratio exceeding 0.85

As indicated in **Table 1**, the Yonge Street and Davis Drive intersection operates close to capacity under existing conditions, specifically in the p.m. and Saturday peak periods. In addition, the westbound left turn movement at the Yonge Street site driveway is at capacity during the p.m. peak period. The southbound left turn movement at the Davis Drive and George Street intersection also operates at capacity during the p.m. peak. The remainder of the intersections are operating at fair to excellent levels of service over the three time periods studied.



Not to Scale

LEGEND

- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- (XX) SAT Peak Hour Volumes

Phase 1

FIGURE 4
Existing Traffic Volumes



3.0 FUTURE BACKGROUND CONDITIONS

3.1 Growth Rates

Based on our previous analysis and through discussions with the Region, it was recommended that we apply a 2% growth rate to the Davis Drive corridor on the west and east sides of Yonge Street. For the Yonge Street corridor, a 2% growth rate was applied both north and south of Davis Drive. A compound growth rate was applied to the through volumes on both Yonge Street and Davis Drive over a five-year horizon.

3.2 Future Background Intersection Operations

The results of the operational assessment of the 2013 future background traffic conditions during the a.m., p.m., and Saturday peak periods with optimized splits are illustrated in **Table 2A**. Detailed Synchro capacity analyses can be found in **Appendix C**. The 2013 future background traffic volumes are outlined in **Figure 5**.

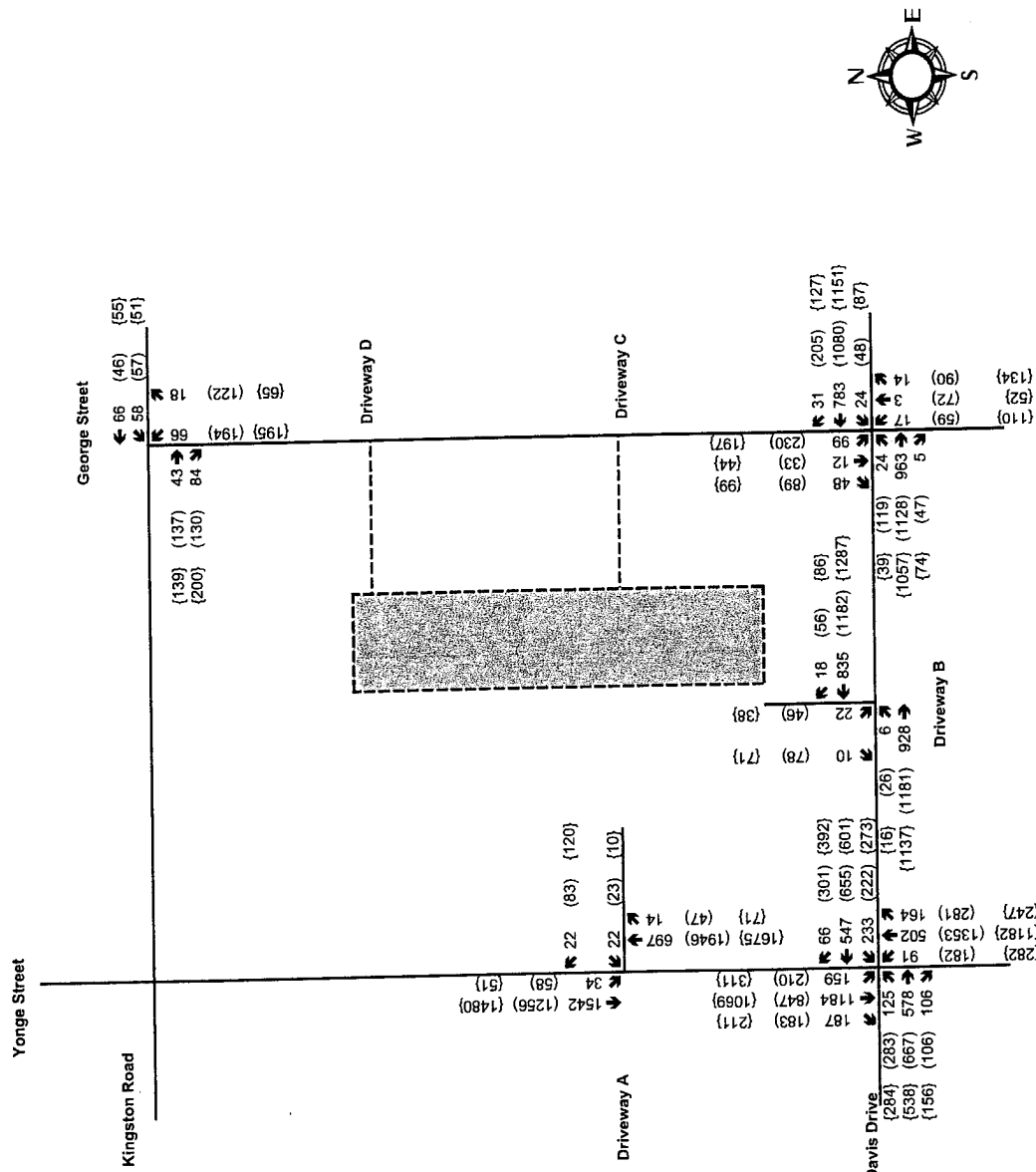
TABLE 2A
2013 FUTURE BACKGROUND LEVELS OF SERVICE

INTERSECTIONS	CONTROL TYPE	WEEKDAY A.M. PEAK HOUR		WEEKDAY P.M. PEAK HOUR		SATURDAY MID-DAY PEAK HOUR	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
Yonge Street @ Davis Drive	Signalized	D (35.8)	EB-T (0.85)	D (49.5)	EB-L (0.90) EB-T (0.85) WB-T (0.92) NB-T (1.01) SB-L (0.90)	E (56.5)	EB-L (0.89) WB-L (0.88) WB-T (0.87) NB-L (0.95) NB-T (1.00) SB-L (0.95) SB-T (0.93)
Davis Drive @ George Street	Signalized	B (13.1)	--	C (23.8)	EB-L (0.85)	C (27.8)	--
George Street @ Kingston Road	Stop Controlled	A (8.2)	--	B (11.8)	--	B (11.4)	--
Yonge Street @ Driveway 'A'	Stop Controlled	E (35.4)	--	F (1433.4)	WB-L (2.52)	F (312.5)	--
Davis Drive @ Driveway 'B'	Stop Controlled	C (15.5)	--	C (23.3)	--	D (31.3)	--

Notes:

1. For signalized intersections, the level of service is based on the overall intersection delay.
2. For stop controlled intersections, the level of service is based on the delay associated with the critical movements.
3. Critical movements are those with a volume-to-capacity ratio at or exceeding 0.85

As indicated in **Table 2A**, under future background conditions, the westbound left turn movement at the Yonge Street driveway continues to operate at its practical capacity, especially during the p.m.



Not to Scale



FIGURE 5
Future Background Traffic Volumes

LEGEND

- XX AM Peak Hour Volumes
- (XX) PM Peak Hour Volumes
- {XX} SAT Peak Hour Volumes



Phase 1

peak period. However, other access options are available for this movement, and thus it will operate in a “self-regulating” fashion. Specifically, vehicles will avoid long delays by utilizing Driveway ‘B’ on Davis Drive. Additionally, the left turn movements from both Driveway ‘A’ and Driveway ‘B’ turn onto streets with a centre two-way left turn lane. Therefore, drivers can make a “two-stage” left turn – first to the left turn lane, and then onto the adjacent through lane. Synchro 7 cannot model this form of turn and, therefore, calculates the intersection operation more conservatively, with a resulting lower level of service and higher delays. All other intersections will experience relatively similar delays to existing conditions, and the overall levels of service will either remain the same or deteriorate very slightly.

Although the Levels of Service are acceptable for the Davis Drive and George Street intersection under future background conditions, it is evident that improvements can be made that will improve the operation prior to any developments being completed in the area. We have taken the liberty of assessing a second future background scenario whereby the eastbound left turn movement for Davis and George has an advanced left turn phase **instead** of the westbound movement for the p.m. peak condition. This was tested primarily because the eastbound left turn movement has more than twice the volume of the westbound left turn during this time period.

The results of the operational assessment of the improved 2013 future background traffic conditions during the p.m. peak period is illustrated in **Table 2B**. Detailed Synchro capacity analyses can be found in **Appendix D**. The 2013 future background traffic volumes are outlined in **Figure 5**.

TABLE 2B
2013 IMPROVED FUTURE BACKGROUND LEVELS OF SERVICE

INTERSECTIONS	CONTROL TYPE	WEEKDAY P.M. PEAK HOUR	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)
Yonge Street @ Davis Drive	Signalized	D (51.7)	EB-L (0.90) EB-T (0.85) WB-T (0.92) NB-T (1.01) SB-L (0.90)
Davis Drive @ George Street	Signalized	C (31.6)	--
George Street @ Kingston Road	Stop Controlled	B (11.8)	--
Yonge Street @ Driveway 'A'	Stop Controlled	F (1433.4)	WB-L (2.52)
Davis Drive @ Driveway 'B'	Stop Controlled	C (18.8)	--

Notes:

1. For signalized intersections, the level of service is based on the overall intersection delay.
2. For stop controlled intersections, the level of service is based on the delay associated with the critical movements.
3. Critical movements are those with a volume-to-capacity ratio at or exceeding 0.85

The results of **Table 2B** show a slight increase in the overall intersection delay, but no change in the LOS for Davis Drive and George Street. However, with these improvements, certain critical movements that were substantially problematic before (seen for the p.m. peak period in **Table 2A**) have experienced a substantial reduction in delay and the whole intersection has become more balanced. The specific capacity improvements can be examined in **Appendix D**.

4.0 SITE GENERATED TRAFFIC

4.1 Trip Generation

The trip generation rates for the proposed development were based on the Institute of Transportation Engineers (ITE) Trip Generation Manual, 7th Edition. The intended use was identified as Residential Condominium/Townhouse, ITE Code 230, and the corresponding trip rate equations were applied. The trip generation for the a.m., p.m. and Saturday peak periods from the ITE Manual are summarized in **Table 3**.

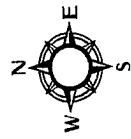
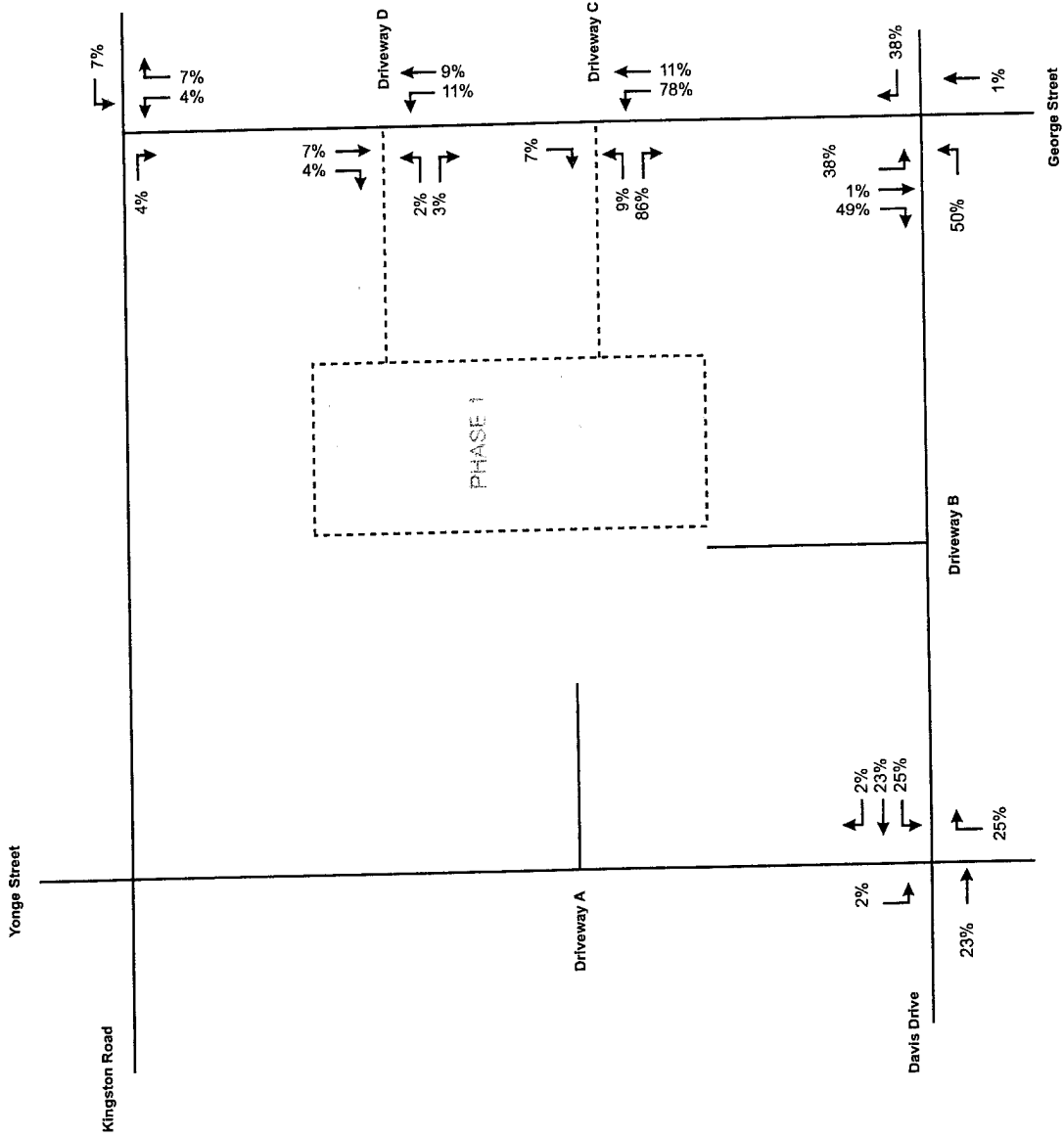
**TABLE 3
 TRIP GENERATION RATES FOR
 RESIDENTIAL CONDOMINIUM/TOWNHOUSE**

Land Use	Trip Rate Equation	Distribution In (Out)	Trips In (Out)
AM Peak	$\text{Ln}(T) = 0.8 \text{Ln}(X) + 0.26$	17% (83%)	30 (146)
PM Peak	$\text{Ln}(T) = 0.82 \text{Ln}(X) + 0.32$	67% (33%)	139 (69)
Saturday Peak	$T = 0.29 X + 42.63$	54% (46%)	102 (86)

4.2 Trip Distribution and Assignment

The proposed development is located adjacent to a major regional shopping centre as well as other large retail uses, plus the York Region Headquarters, near the western urban limit of the Town of Newmarket. This regional centre is surrounded by major populated areas in Newmarket plus the towns of East Gwillimbury and Aurora to the north and south, respectively. Highway 404, a major freeway access to the Greater Toronto Area (GTA), is accessible to the east via Davis Drive, Green Lane and Mulock Drive. Highway 400 also provides freeway access to the GTA via Davis Drive to the west. The projected distribution for the trips generated by this development has been derived from our previous report.

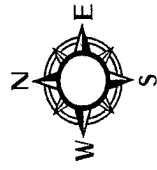
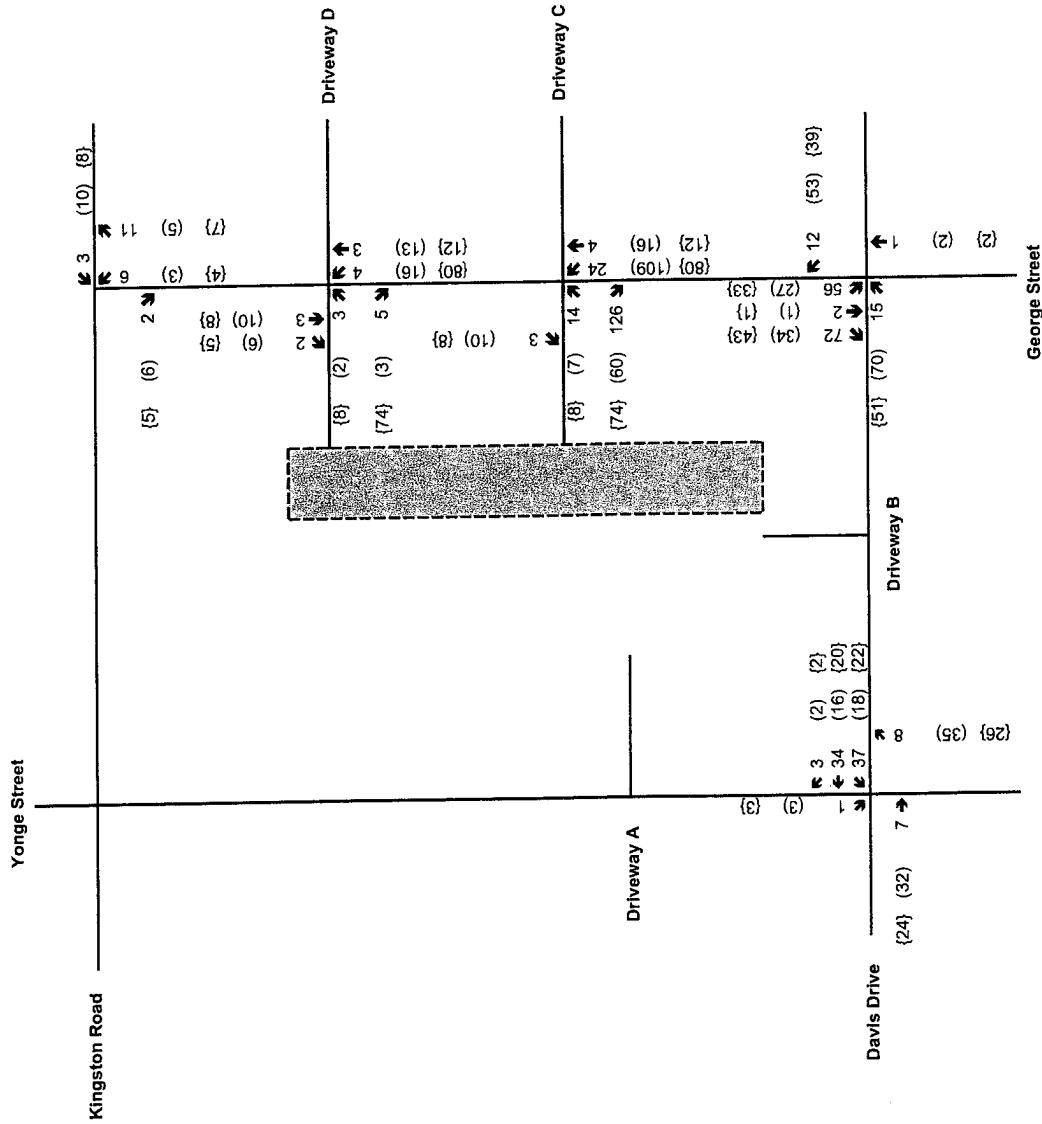
Trip distribution for the residential use was used to derive the turning movements at the proposed accesses for the site. **Figure 6** illustrates the trip distribution for the condominium. **Figure 7** illustrates the trip assignment.



Not to Scale

FIGURE 6
Trip Distribution





Not to Scale

- LEGEND**
- XX AM Peak Hour Volumes
 - (XX) PM Peak Hour Volumes
 - {XX} SAT Peak Hour Volumes
 - Phase 1



FIGURE 7
Trip Assignment

5.0 TOTAL FUTURE TRAFFIC CONDITIONS

5.1 Future Traffic Conditions of the Road Network

The 2013 total traffic volumes include the future background traffic volumes, along with signal phasing improvements, plus the new site generated traffic. **Table 4** summarizes the results of the 2013 total traffic volumes. The detailed Synchro capacity analyses can be found in **Appendix E**. The total traffic volumes for the boundary road network for the peak periods are shown in **Figure 8**.

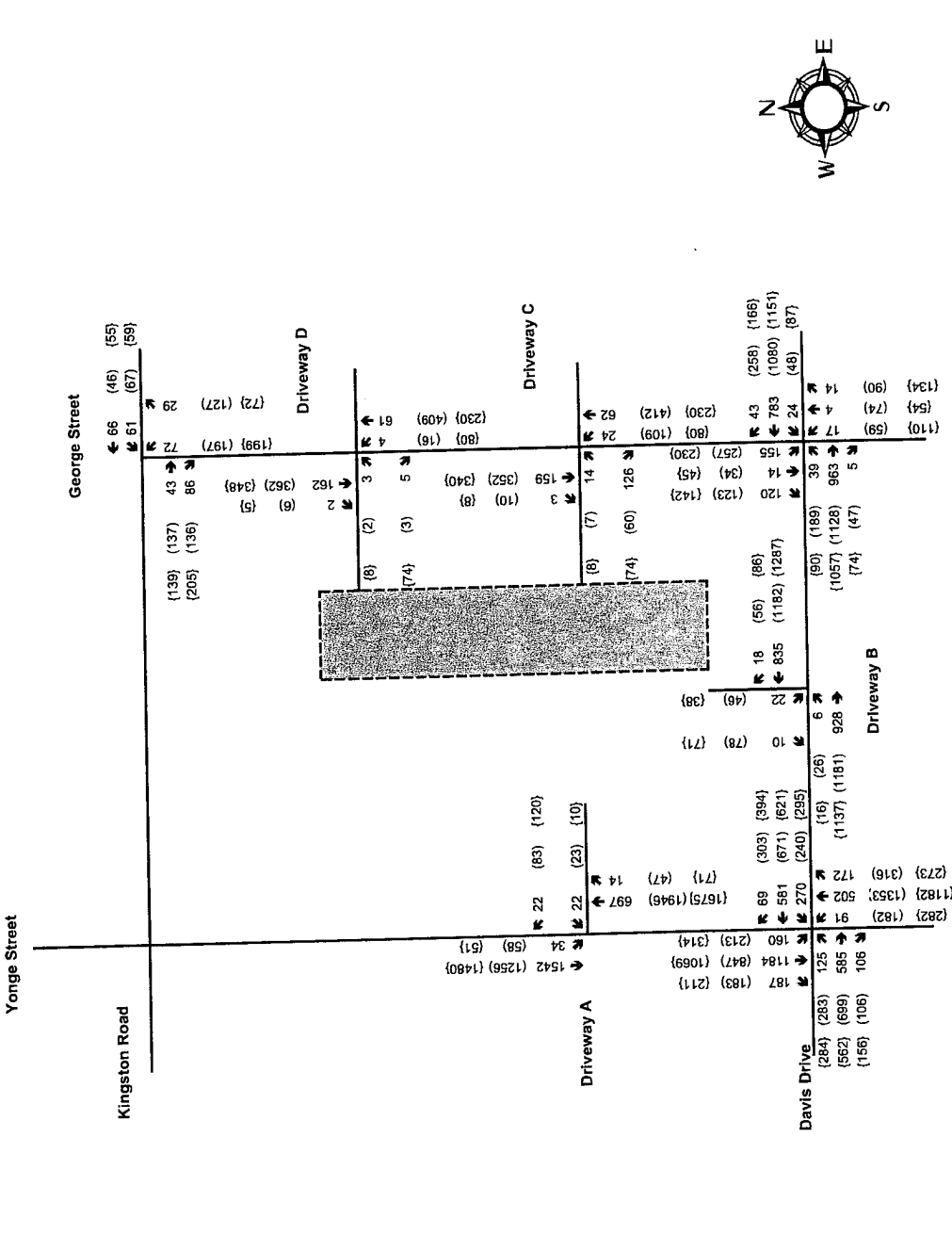
TABLE 4
2013 TOTAL FUTURE LEVELS OF SERVICE

INTERSECTIONS	CONTROL TYPE	WEEKDAY A.M. PEAK HOUR		WEEKDAY P.M. PEAK HOUR		SATURDAY MID-DAY PEAK HOUR	
		LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)	LOS (Delay in seconds)	Critical Movement(s) (v/c)
Yonge Street @ Davis Drive	Signalized	D (40.2)	EB-T (0.85) WB-L (0.87) SB-T (0.89)	D (52.0)	EB-L (0.92) EB-T (0.89) WB-L (0.88) WB-T (0.91) NB-T (1.00) SB-L (0.92)	D (54.9)	EB-L (0.98) WB-L (0.96) WB-T (0.87) NB-L (0.94) NB-T (0.98) SB-L (0.93) SB-T (0.85)
Davis Drive @ George Street	Signalized	B (18.6)	--	C (29.6)	EB-L (0.96) SB-L (0.89)	C (27.9)	WB-T (0.85)
George Street @ Kingston Road	Stop Controlled	A (8.3)	--	B (12.2)	--	B (11.3)	--
Yonge Street @ Driveway 'A'	Stop Controlled	D (35.0)	--	F (1434.5)	WB-L (2.52)	F (312.3)	--
Davis Drive @ Driveway 'B'	Stop Controlled	B (13.5)	--	C (17.9)	--	D (25.5)	--
George Street @ Driveway 'C'	Stop Controlled	B (10.4)	--	C (22.3)	--	C (16.2)	--
George Street @ Driveway 'D'	Stop Controlled	A (9.9)	--	C (16.6)	--	C (16.4)	--

Notes:

1. For signalized intersections, the level of service is based on the overall intersection delay.
2. For stop controlled intersections, the level of service is based on the delay associated with the critical movements.
3. Critical movements are those with a volume-to-capacity ratio at or exceeding 0.85

The analysis of the Yonge Street and Davis Drive intersection indicates a similar level of service as the future background and existing scenarios. The Yonge Street driveway shows a similar LOS during the p.m. peak period for the westbound left turn movement. The Davis Drive and George Street intersection shows a stable level of service due to the phasing improvements made in the future background scenario. The new accesses onto George Street will operate at very good to excellent levels of service. The analysis of the remainder of the intersections under total traffic conditions indicates that the road network is operating at good to excellent levels of service.



Not to Scale



LEGEND
 XX AM Peak Hour Volumes
 (XX) PM Peak Hour Volumes
 (XX) SAT Peak Hour Volumes
 Phase 1

FIGURE 8
 Total Future Traffic Volumes

6.0 PARKING ASSESSMENT

The Town of Newmarket has an extremely high parking standard, tailored for a “suburban” style of development wherein a large number of people use personal vehicles rather than walking, cycling or using public transit. However, due to the increasingly urban style of development in the Yonge Street and Davis Drive area, we have looked at many other parking standards that might better apply to the specific area of the site. We have found that an appropriate standard based on similar access to rapid transit as well as urban growth is the City of Toronto Etobicoke zoning by-law 1088-2002. The by-law outlines parking standards specifically for residential dwelling units for less than 3 bedrooms and 3 bedrooms or greater. The minimum standard set for **less than 3 bedrooms** is “1.0 parking spaces per dwelling unit of which 0.2 parking spaces per dwelling unit are reserved for visitor parking” and the maximum standard is “1.25 parking spaces per unit of which 0.2 parking spaces per unit are reserved for visitor parking.” The minimum standard set for **3 bedrooms or greater** is “1.0 parking spaces per dwelling unit of which 0.2 parking spaces per dwelling unit are reserved for visitor parking.” The maximum, however, increases to “1.4 parking spaces per unit of which 0.2 parking spaces per unit are reserved for visitor parking.” This standard represents residential zoning in Etobicoke specifically in the vicinity of Bloor Street West, Dundas Street West, Kipling Avenue and Islington Avenue. This area represents the site area more accurately regarding vehicle usage and development.

The proposed residential towers for Phase 1 will consist of 400 units with 1 to 3 bedroom configurations. The Etobicoke by-law requires a minimum of 480 spaces for 400 units, however the Phase 1 development has used a rate of 1.25 spaces per dwelling unit for residential and visitor parking, totalling 500 spaces. The Town of Newmarket By-Law requires 700 parking spaces for a condominium, which results in a parking deficiency of 200 spaces. However, the site is located in the “new downtown” of Newmarket, which is developing into a more urbanized area compared to the rest of the Town. It has excellent access to public transportation and is located near major retail centres including the Upper Canada Mall and the Newmarket Plaza, plus it is situated close to York Region headquarters. Furthermore, surrounding developments are expected to intensify into high density uses in the future to make downtown Newmarket a more attractive place to visit, and convenient for people without vehicles. There are also longer term plans to implement dedicated rapidways on the existing Viva Yonge Street line, as well as a Viva rapid transit line on Davis Drive from Yonge Street to the Southlake Regional Health Centre, which would further increase the accessibility of the site. The convenient access to mass transit along with plans to intensify uses in its vicinity, justifies the use of the City of Toronto Etobicoke residential standard for the parking assessment for the proposed development.

7.0 SIGNAL OPERATIONS

Our analysis of the intersection at Yonge Street and Davis Drive illustrates that it is operating close to capacity. Using Synchro version 7.0, it is observed that some additional changes could be made to the signal timing plans to improve the level of service at this intersection through the optimization of the existing timing parameters. With respect to the Davis Drive and George Street intersection, we have shown that improvements to the signal phasing configuration will improve the level of service for the high volume eastbound left turn movement.

8.0 FINDINGS AND RECOMMENDATIONS

The Yonge Street and Davis Drive intersection is currently operating close to capacity. The other intersections of the road network are currently operating at good to excellent levels of service under existing conditions with the exception of the site driveways during the weekday p.m. and Saturday peak periods. The proposed development is expected to add **176** new trips in the a.m., **208** in the p.m. and **188** in the Saturday peak periods to the boundary road system. The analysis of the total traffic conditions indicates that the boundary road intersections will experience some minor additional delays as a result of this new site traffic. However, with the exception of Davis Drive at George Street, the additional site traffic will not significantly decrease the overall levels of service, but only slightly increase the delay for several critical movements. The level of service at Davis Drive and George Street can be improved as a result of the phasing modifications recommended in the future background scenario. Accordingly, we recommend installing an eastbound advanced left turn phase to replace the westbound left turn phase during the p.m. peak period.

Our parking analysis reveals that the proposed parking supply falls short of the existing Town of Newmarket By-Law requirements. However, due to the urban nature of the site and the future plans to intensify the surrounding uses, we believe the application of the City of Toronto Etobicoke By-Law is more relevant for this development and is, therefore, recommended as the appropriate standard to apply in this case.

The location of the proposed development already provides excellent access to public transportation with future plans of implementing dedicated rapidways on the existing Viva Yonge Street line. York Region has also formed a Transportation Management Association (TMA) to support and administer alternative transportation services in Newmarket and Aurora, including the Yonge Street corridor. A TMA is a non-profit, member-controlled organization aimed at providing sustainable transportation solutions as well as improved mobility and accessibility in a specific economic area. Examples of programs that are supported by the TMA include carpooling, vanpooling, discount transit pass programs, telecommuting, flexible work hours, compressed work hours and bus shuttles.

We also recognize that Provincial and Regional policies support and encourage this type of mixed-use development without the need to accommodate additional single-occupant trips. Provincially, the *2005 Provincial Policy Statement* and the *Places to Grow Act* establish the foundation for municipalities to encourage the use of public transit and other alternative transportation modes in considering new developments or redeveloping sites. Regionally, the Growth Management Initiative (*Planning for Tomorrow*) is encouraging sustainable development practices in existing and future growth plans. The Growth Plan's focus is on intensification in built-up areas, urban growth centres, major transit corridors and stations, brownfields and greyfields sites. These areas will provide the focus for transit and infrastructure investment to support growth. York Region's four Regional Centres, which include Newmarket, have been recognized in the Growth Plan for the Greater Golden Horseshoe as designated urban growth areas.

Recognizing this context, we believe that our recommendation for the proposed parking supply for this mixed use development is appropriate and reasonable.

APPENDIX G
Future (2016) Background Traffic
Level Of Service Calculations

HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

















Future 2016 Background Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	89	59	23	56	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	97	64	25	61	22
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	118	89	83			
Volume Left (vph)	22	64	0			
Volume Right (vph)	97	0	22			
Hadj (s)	-0.39	0.23	-0.16			
Departure Headway (s)	3.9	4.5	4.1			
Degree Utilization, x	0.13	0.11	0.09			
Capacity (veh/h)	886	777	851			
Control Delay (s)	7.5	8.0	7.5			
Approach Delay (s)	7.5	8.0	7.5			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.6			
HCM Level of Service			A			
Intersection Capacity Utilization			27.6%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2016 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	7	79	13	6	1	34	226	5	0	340	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	8	86	14	7	1	37	246	5	0	370	50
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	163	22	288	420								
Volume Left (vph)	70	14	37	0								
Volume Right (vph)	86	1	5	50								
Hadj (s)	-0.21	0.12	0.07	-0.04								
Departure Headway (s)	5.4	6.1	5.0	4.8								
Degree Utilization, x	0.25	0.04	0.40	0.56								
Capacity (veh/h)	592	484	683	728								
Control Delay (s)	10.2	9.3	11.4	13.6								
Approach Delay (s)	10.2	9.3	11.4	13.6								
Approach LOS	B	A	B	B								
Intersection Summary												
Delay			12.2									
HCM Level of Service			B									
Intersection Capacity Utilization			54.9%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall

Future 2016 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	824	299	69	607	44	166	65	72	15	21	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1689	3544	1542	1658	3510	1593	1700	1921	1492	1720	1921	1577
Flt Permitted	0.38	1.00	1.00	0.25	1.00	1.00	0.59	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	676	3544	1542	441	3510	1593	1053	1921	1492	1287	1921	1577
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)	37	896	325	75	660	48	180	71	78	16	23	7
RTOR Reduction (vph)	0	0	256	0	0	39	0	0	34	0	0	3
Lane Group Flow (vph)	37	896	69	75	660	9	180	71	44	16	23	4
Confl. Peds. (#/hr)	2		8	8		2	19		1	1		19
Heavy Vehicles (%)	8%	3%	2%	10%	4%	0%	6%	0%	8%	6%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	70.8	66.4	15.3	74.6	68.3	22.4	29.3	22.4	68.3	18.2	15.3	66.4
Effective Green, g (s)	70.8	66.4	15.3	74.6	68.3	22.4	29.3	22.4	68.3	18.2	15.3	66.4
Actuated g/C Ratio	0.59	0.55	0.13	0.62	0.57	0.19	0.24	0.19	0.57	0.15	0.13	0.55
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	436	1961	197	338	1998	297	311	359	849	206	245	873
v/s Ratio Prot	0.00	c0.25		c0.01	0.19		c0.05	0.04		0.00	0.01	
v/s Ratio Perm	0.05		0.04	0.13		0.01	c0.09		0.03	0.01		0.00
v/c Ratio	0.08	0.46	0.35	0.22	0.33	0.03	0.58	0.20	0.05	0.08	0.09	0.00
Uniform Delay, d1	10.4	16.0	47.8	9.9	13.7	39.9	38.7	41.2	11.5	43.6	46.2	12.0
Progression Factor	1.06	0.96	2.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	1.0	0.3	0.4	0.0	2.6	0.3	0.1	0.2	0.2	0.0
Delay (s)	11.1	16.1	101.3	10.3	14.2	40.0	41.3	41.5	11.6	43.7	46.4	12.0
Level of Service	B	B	F	B	B	D	D	D	B	D	D	B
Approach Delay (s)		38.0			15.4			34.3			40.2	
Approach LOS		D			B			C			D	

Intersection Summary		
HCM Average Control Delay	30.2	HCM Level of Service C
HCM Volume to Capacity ratio	0.48	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	74.2%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Future 2016 Background Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	962	30	39	763	40	19	0	32	121	0	87
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1737	3544	1487	1655	3476	1520	1725		1517	1784		1497
Flt Permitted	0.29	1.00	1.00	0.20	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	524	3544	1487	356	3476	1520	1725		1517	1784		1497
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)	23	1046	33	42	829	43	21	0	35	132	0	95
RTOR Reduction (vph)	0	0	15	0	0	19	0	0	23	0	0	63
Lane Group Flow (vph)	23	1046	18	42	829	24	21	0	12	132	0	32
Confl. Peds. (#/hr)	1		6	6		1	5		2	2		5
Heavy Vehicles (%)	5%	3%	6%	10%	5%	5%	5%	0%	6%	2%	0%	7%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Effective Green, g (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.34		0.34	0.34		0.34
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	288	1949	818	196	1912	836	589		518	610		511
v/s Ratio Prot		c0.30			0.24							
v/s Ratio Perm	0.04		0.01	0.12		0.02	0.01		0.01	c0.07		0.02
v/c Ratio	0.08	0.54	0.02	0.21	0.43	0.03	0.04		0.02	0.22		0.06
Uniform Delay, d1	12.7	17.2	12.3	13.8	16.0	12.3	26.3		26.2	28.1		26.6
Progression Factor	1.40	1.03	2.30	0.98	0.90	1.21	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.5	0.0	2.4	0.7	0.1	0.1		0.1	0.8		0.2
Delay (s)	18.1	18.3	28.3	15.9	15.0	15.0	26.4		26.3	28.9		26.8
Level of Service	B	B	C	B	B	B	C		C	C		C
Approach Delay (s)		18.6			15.1			26.3			28.0	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay			18.3									B
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			120.0							13.0		
Intersection Capacity Utilization			78.3%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2016 Background Traffic Analysis
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	17	10	8	32	29	32
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	11	9	35	32	35
Pedestrians		1			1	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	104	64	99	1	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	104	64	99	1	0	
tC, single (s)	7.2	6.5	6.5	6.2	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.0	4.0	3.3	2.3	
p0 queue free %	98	99	99	97	98	
cM capacity (veh/h)	817	813	779	1080	1585	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	29	43	32	35		
Volume Left	18	0	32	0		
Volume Right	0	35	0	35		
cSH	816	1002	1585	1700		
Volume to Capacity	0.04	0.04	0.02	0.02		
Queue Length 95th (m)	0.9	1.0	0.5	0.0		
Control Delay (s)	9.6	8.8	7.3	0.0		
Lane LOS	A	A	A			
Approach Delay (s)	9.6	8.8	3.5			
Approach LOS	A	A				
Intersection Summary						
Average Delay			6.4			
Intersection Capacity Utilization			18.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St



















Future 2016 Background Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	1054	272	169	652	49	310	230	82	20	502	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	3579	1570	1807	3579		1755	3614	1617	1738	3650	1555
Flt Permitted	0.19	1.00	1.00	0.11	1.00		0.20	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	321	3579	1570	200	3579		376	3614	1617	1092	3650	1555
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)	250	1146	296	184	709	53	337	250	89	22	546	363
RTOR Reduction (vph)	0	0	193	0	4	0	0	0	53	0	0	169
Lane Group Flow (vph)	250	1146	103	184	758	0	337	250	36	22	546	194
Heavy Vehicles (%)	12%	2%	4%	1%	1%	0%	4%	1%	1%	5%	0%	5%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	57.9	41.6	41.6	50.7	38.0		48.7	48.7	48.7	25.3	25.3	25.3
Effective Green, g (s)	57.9	41.6	41.6	50.7	38.0		48.7	48.7	48.7	25.3	25.3	25.3
Actuated g/C Ratio	0.48	0.35	0.35	0.42	0.32		0.41	0.41	0.41	0.21	0.21	0.21
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	333	1241	544	255	1133		376	1467	656	230	770	328
v/s Ratio Prot	c0.10	c0.32		0.08	0.21		c0.15	0.07			0.15	
v/s Ratio Perm	0.26		0.07	0.23			c0.22		0.02	0.02		0.12
v/c Ratio	0.75	0.92	0.19	0.72	0.67		0.90	0.17	0.06	0.10	0.71	0.59
Uniform Delay, d1	21.8	37.7	27.4	26.7	35.5		28.0	22.8	21.7	38.1	43.9	42.7
Progression Factor	1.00	1.00	1.00	1.39	1.48		0.89	0.87	1.23	1.00	1.00	1.00
Incremental Delay, d2	9.2	12.8	0.8	9.1	2.9		21.1	0.0	0.0	0.2	3.0	2.9
Delay (s)	31.0	50.4	28.2	46.4	55.7		45.9	19.7	26.6	38.3	46.9	45.5
Level of Service	C	D	C	D	E		D	B	C	D	D	D
Approach Delay (s)		43.7			53.9			33.7			46.2	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM Average Control Delay			44.9			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			87.0%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2016 Background Traffic Analysis
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	9	0	15	0	1377	14	14	1753	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0		
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95		
Frt				1.00	0.85			1.00		1.00	1.00		
Flt Protected				0.95	1.00			1.00		0.95	1.00		
Satd. Flow (prot)				1825	1633			3609		1825	3614		
Flt Permitted				0.76	1.00			1.00		0.16	1.00		
Satd. Flow (perm)				1455	1633			3609		303	3614		
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	0	10	0	16	0	1497	15	15	1905	0	
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	10	1	0	0	1512	0	15	1905	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0		
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0		
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84		
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0		
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)				73	82			3038		255	3042		
v/s Ratio Prot					0.00			0.42			c0.53		
v/s Ratio Perm				c0.01						0.05			
v/c Ratio				0.14	0.01			0.50		0.06	0.63		
Uniform Delay, d1				54.5	54.2			2.6		1.6	3.2		
Progression Factor				1.00	1.00			1.00		1.16	2.36		
Incremental Delay, d2				0.9	0.0			0.6		0.4	1.0		
Delay (s)				55.4	54.2			3.2		2.3	8.5		
Level of Service				E	D			A		A	A		
Approach Delay (s)		0.0			54.7			3.2			8.4		
Approach LOS		A			D			A			A		
Intersection Summary													
HCM Average Control Delay			6.5	HCM Level of Service							A		
HCM Volume to Capacity ratio			0.60										
Actuated Cycle Length (s)			120.0	Sum of lost time (s)						13.0			
Intersection Capacity Utilization			67.6%	ICU Level of Service						C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr











Future 2016 Background Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
 18: Millard Ave & Eagle St W

Future 2016 Background Traffic Analysis
 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	71	103	174	102	114	337
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	112	189	111	124	366
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total (vph)	77	112	300	490		
Volume Left (vph)	77	0	0	124		
Volume Right (vph)	0	112	111	0		
Hadj (s)	0.53	-0.68	-0.18	0.09		
Departure Headway (s)	7.0	5.7	4.9	5.0		
Degree Utilization, x	0.15	0.18	0.41	0.68		
Capacity (veh/h)	474	568	699	709		
Control Delay (s)	10.0	8.8	11.4	17.6		
Approach Delay (s)	9.3		11.4	17.6		
Approach LOS	A		B	C		
Intersection Summary						
Delay			14.1			
HCM Level of Service			B			
Intersection Capacity Utilization			54.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Future 2016 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	609	139	250	482	139	105	521	177	215	1110	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1599	3544	1415	1789	3476	1571	1755	3476	1590	1754	3579	1486
Flt Permitted	0.34	1.00	1.00	0.16	1.00	1.00	0.08	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	580	3544	1415	309	3476	1571	148	3476	1590	657	3579	1486
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)	159	662	151	272	524	151	114	566	192	234	1207	261
RTOR Reduction (vph)	0	0	115	0	0	112	0	0	113	0	0	116
Lane Group Flow (vph)	159	662	36	272	524	39	114	566	79	234	1207	145
Confl. Peds. (#/hr)	6		8	8		6	5		4	4		5
Heavy Vehicles (%)	14%	3%	13%	2%	5%	2%	4%	5%	1%	4%	2%	8%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	42.7	30.6	30.6	48.5	33.5	33.5	62.4	48.4	53.2	62.4	53.2	48.4
Effective Green, g (s)	42.7	30.6	30.6	48.5	33.5	33.5	62.4	48.4	53.2	62.4	53.2	48.4
Actuated g/C Ratio	0.33	0.24	0.24	0.37	0.26	0.26	0.48	0.37	0.41	0.48	0.41	0.37
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	285	834	333	286	896	405	185	1294	651	433	1465	553
v/s Ratio Prot	0.05	0.19		c0.11	0.15		0.04	0.16		c0.06	c0.34	
v/s Ratio Perm	0.13		0.03	c0.25		0.02	0.25		0.05	0.20		0.10
v/c Ratio	0.56	0.79	0.11	0.95	0.58	0.10	0.62	0.44	0.12	0.54	0.82	0.26
Uniform Delay, d1	32.8	46.7	39.0	32.5	42.2	36.7	25.2	30.6	23.9	20.7	34.2	28.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.58	1.13	3.40	1.00	1.00	1.00
Incremental Delay, d2	2.4	5.2	0.1	40.0	1.0	0.1	5.6	1.0	0.4	1.4	5.4	1.2
Delay (s)	35.2	52.0	39.1	72.4	43.2	36.8	45.5	35.5	81.6	22.1	39.6	29.5
Level of Service	D	D	D	E	D	D	D	D	F	C	D	C
Approach Delay (s)		47.2			50.6			47.0			35.7	
Approach LOS		D			D			D			D	

Intersection Summary		
HCM Average Control Delay	43.5	HCM Level of Service D
HCM Volume to Capacity ratio	0.86	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	93.0%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2016 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	216	197	196	231	113	329	1053	232	77	1312	116
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	1921	1578	1806	1902	1592	1772	3579	1574	1825	3544	1565
Flt Permitted	0.60	1.00	1.00	0.30	1.00	1.00	0.07	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	1101	1921	1578	569	1902	1592	136	3579	1574	269	3544	1565
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)	51	235	214	213	251	123	358	1145	252	84	1426	126
RTOR Reduction (vph)	0	0	165	0	0	91	0	0	118	0	0	70
Lane Group Flow (vph)	51	235	49	213	251	32	358	1145	134	84	1426	56
Confl. Peds. (#/hr)	3		2	2		3	1		3	3		1
Heavy Vehicles (%)	5%	0%	2%	1%	1%	1%	3%	2%	1%	0%	3%	2%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	21.9	21.9	21.9	33.9	33.9	33.9	82.1	58.0	51.0	71.1	51.0	58.0
Effective Green, g (s)	21.9	21.9	21.9	33.9	33.9	33.9	82.1	58.0	51.0	71.1	51.0	58.0
Actuated g/C Ratio	0.17	0.17	0.17	0.26	0.26	0.26	0.63	0.45	0.39	0.55	0.39	0.45
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	324	266	225	496	415	427	1597	617	388	1390	698
v/s Ratio Prot		0.12		c0.06	0.13		c0.17	0.32		0.03	c0.40	
v/s Ratio Perm	0.05		0.03	c0.19		0.02	0.36		0.09	0.09		0.04
v/c Ratio	0.28	0.73	0.18	0.95	0.51	0.08	0.84	0.72	0.22	0.22	1.03	0.08
Uniform Delay, d1	47.1	51.2	46.4	46.1	40.9	36.3	39.3	29.3	26.2	16.3	39.5	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.83	1.36	4.42
Incremental Delay, d2	0.8	7.8	0.3	44.8	0.8	0.1	17.6	2.8	0.8	0.6	24.1	0.1
Delay (s)	47.9	59.0	46.7	90.9	41.7	36.3	56.9	32.1	27.0	30.5	77.8	91.6
Level of Service	D	E	D	F	D	D	E	C	C	C	E	F
Approach Delay (s)		52.6			58.4			36.4			76.4	
Approach LOS		D			E			D			E	
Intersection Summary												
HCM Average Control Delay			55.7								HCM Level of Service	E
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			130.0								Sum of lost time (s)	15.0
Intersection Capacity Utilization			97.4%								ICU Level of Service	F
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St





















Future 2016 Background Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	108	136	104	121	51	164	700	45	63	1433	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frt	1.00	0.92		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1753	1736		1822	1828		1825	3472		1815	3579	1582
Flt Permitted	0.47	1.00		0.60	1.00		0.06	1.00		0.35	1.00	1.00
Satd. Flow (perm)	869	1736		1142	1828		118	3472		661	3579	1582
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)	49	117	148	113	132	55	178	761	49	68	1558	180
RTOR Reduction (vph)	0	36	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	49	229	0	113	175	0	178	807	0	68	1558	180
Confl. Peds. (#/hr)	3		2	2		3	3		7	7		3
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	0%	4%	3%	0%	2%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	40.0	40.0		29.0	29.0		76.0	76.0		61.1	61.1	130.0
Effective Green, g (s)	40.0	40.0		29.0	29.0		76.0	76.0		61.1	61.1	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.58	0.58		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	534		255	408		212	2030		311	1682	1582
v/s Ratio Prot	0.01	c0.13			0.10		c0.07	0.23			c0.44	
v/s Ratio Perm	0.04			0.10			0.42			0.10		0.11
v/c Ratio	0.16	0.43		0.44	0.43		0.84	0.40		0.22	0.93	0.11
Uniform Delay, d1	32.4	35.9		43.5	43.4		37.3	14.6		20.3	32.3	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.82	1.05		0.76	0.58	1.00
Incremental Delay, d2	0.2	0.6		1.2	0.7		19.3	0.4		1.1	7.5	0.1
Delay (s)	32.6	36.4		44.8	44.1		87.3	15.8		16.5	26.3	0.1
Level of Service	C	D		D	D		F	B		B	C	A
Approach Delay (s)		35.8			44.4			28.6			23.3	
Approach LOS		D			D			C			C	

Intersection Summary		
HCM Average Control Delay	27.9	HCM Level of Service C
HCM Volume to Capacity ratio	0.74	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	105.8%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Future 2016 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1147	6	5	820	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	1247	7	5	891	9	0	0	3	0	0	42
Pedestrians								6				1
Lane Width (m)								3.7				3.7
Walking Speed (m/s)								1.2				1.2
Percent Blockage								1				0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	901			1259			1852	2307	633	1669	2302	447
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	691			1259			1737	2238	633	1536	2232	191
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	91			99			100	100	99	100	100	94
cM capacity (veh/h)	799			556			45	35	425	67	35	735
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	70	831	422	5	446	446	9	0	3	42		
Volume Left	70	0	0	5	0	0	0	0	0	0		
Volume Right	0	0	7	0	0	0	9	0	3	42		
cSH	799	1700	1700	556	1700	1700	1700	1700	425	735		
Volume to Capacity	0.09	0.49	0.25	0.01	0.26	0.26	0.01	0.00	0.01	0.06		
Queue Length 95th (m)	2.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	1.4		
Control Delay (s)	9.9	0.0	0.0	11.5	0.0	0.0	0.0	0.0	13.5	10.2		
Lane LOS	A			B				A	B	B		
Approach Delay (s)	0.5			0.1				13.5		10.2		
Approach LOS								B		B		
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			41.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

















Future 2016 Background Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	54	86	51	35	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	59	93	55	38	12
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	70	149	50			
Volume Left (vph)	11	93	0			
Volume Right (vph)	59	0	12			
Hadj (s)	-0.45	0.14	-0.10			
Departure Headway (s)	3.9	4.2	4.1			
Degree Utilization, x	0.08	0.17	0.06			
Capacity (veh/h)	878	828	855			
Control Delay (s)	7.2	8.1	7.3			
Approach Delay (s)	7.2	8.1	7.3			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.7			
HCM Level of Service			A			
Intersection Capacity Utilization			25.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2016 Background Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	8	62	10	1	0	106	504	13	3	404	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	9	67	11	1	0	115	548	14	3	439	67
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	112	12	677	510								
Volume Left (vph)	36	11	115	3								
Volume Right (vph)	67	0	14	67								
Hadj (s)	-0.28	0.18	0.04	-0.06								
Departure Headway (s)	6.5	7.3	5.0	5.1								
Degree Utilization, x	0.20	0.02	0.95	0.73								
Capacity (veh/h)	527	447	705	679								
Control Delay (s)	11.1	10.5	44.3	20.6								
Approach Delay (s)	11.1	10.5	44.3	20.6								
Approach LOS	B	B	E	C								
Intersection Summary												
Delay			31.9									
HCM Level of Service			D									
Intersection Capacity Utilization			76.6%	ICU Level of Service	D							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall

Future 2016 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	858	193	143	784	84	305	197	106	138	163	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1824	3579	1574	1789	3614	1559	1771	1902	1535	1824	1921	1550
Flt Permitted	0.28	1.00	1.00	0.20	1.00	1.00	0.38	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	535	3579	1574	379	3614	1559	717	1902	1535	1129	1921	1550
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)	68	933	210	155	852	91	332	214	115	150	177	29
RTOR Reduction (vph)	0	0	157	0	0	74	0	0	57	0	0	15
Lane Group Flow (vph)	68	933	53	155	852	17	332	214	58	150	177	14
Confl. Peds. (#/hr)	3		3	3		3	33		1	1		33
Heavy Vehicles (%)	0%	2%	1%	2%	1%	2%	2%	1%	5%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	62.7	56.4	16.5	70.3	60.2	21.8	35.5	21.8	60.2	26.2	16.5	56.4
Effective Green, g (s)	62.7	56.4	16.5	70.3	60.2	21.8	35.5	21.8	60.2	26.2	16.5	56.4
Actuated g/C Ratio	0.52	0.47	0.14	0.59	0.50	0.18	0.30	0.18	0.50	0.22	0.14	0.47
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	347	1682	216	341	1813	283	344	346	770	303	264	729
v/s Ratio Prot	0.01	c0.26		c0.04	0.24		c0.12	0.11		0.04	0.09	
v/s Ratio Perm	0.09		0.03	0.23		0.01	c0.16		0.04	0.07		0.01
v/c Ratio	0.20	0.55	0.25	0.45	0.47	0.06	0.97	0.62	0.07	0.50	0.67	0.02
Uniform Delay, d1	14.6	22.8	46.2	13.7	19.5	40.6	39.1	45.3	15.5	39.9	49.2	17.0
Progression Factor	0.34	0.53	3.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.3	0.6	1.0	0.9	0.1	38.9	3.3	0.2	1.3	6.5	0.0
Delay (s)	5.3	13.4	150.6	14.7	20.4	40.7	78.0	48.5	15.7	41.2	55.7	17.1
Level of Service	A	B	F	B	C	D	E	D	B	D	E	B
Approach Delay (s)		36.8			21.3			57.6			46.5	
Approach LOS		D			C			E			D	

Intersection Summary		
HCM Average Control Delay	36.8	HCM Level of Service D
HCM Volume to Capacity ratio	0.69	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	86.6%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Future 2016 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1102	27	42	1150	141	23	0	66	61	0	20
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1824	3614	1596	1824	3614	1592	1818		1610	1821		1608
Flt Permitted	0.21	1.00	1.00	0.22	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	405	3614	1596	431	3614	1592	1818		1610	1821		1608
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	1198	29	46	1250	153	25	0	72	66	0	22
RTOR Reduction (vph)	0	0	5	0	0	27	0	0	67	0	0	20
Lane Group Flow (vph)	189	1198	24	46	1250	126	25	0	5	66	0	2
Confl. Peds. (#/hr)	2		1	1		2	3		2	2		3
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Effective Green, g (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.82	0.82	0.07		0.07	0.07		0.07
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	332	2966	1310	354	2966	1307	129		114	129		114
v/s Ratio Prot		0.33			0.35							
v/s Ratio Perm	c0.47		0.01	0.11		0.08	0.01		0.00	c0.04		0.00
v/c Ratio	0.57	0.40	0.02	0.13	0.42	0.10	0.19		0.04	0.51		0.01
Uniform Delay, d1	3.6	2.9	2.0	2.2	2.9	2.1	52.5		52.0	53.7		51.9
Progression Factor	2.76	0.58	0.44	0.82	0.72	0.71	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.6	0.0	0.0	0.7	0.4	0.1	0.7		0.2	3.4		0.0
Delay (s)	10.6	1.7	0.9	2.5	2.5	1.6	53.3		52.1	57.1		51.9
Level of Service	B	A	A	A	A	A	D		D	E		D
Approach Delay (s)		2.9			2.4			52.4			55.8	
Approach LOS		A			A			D			E	

Intersection Summary		
HCM Average Control Delay	5.8	HCM Level of Service
HCM Volume to Capacity ratio	0.56	A
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	86.7%	13.0
Analysis Period (min)	15	ICU Level of Service
		E
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2016 Background Traffic Analysis
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Volume (veh/h)	41	8	11	43	44	30
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	9	12	47	48	33
Pedestrians			1		1	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	149	97	129	2	1	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149	97	129	2	1	
tC, single (s)	7.1	6.5	6.8	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.2	3.3	2.2	
p0 queue free %	94	99	98	96	97	
cM capacity (veh/h)	759	773	699	1086	1634	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	53	59	48	33
Volume Left	45	0	48	0
Volume Right	0	47	0	33
cSH	761	976	1634	1700
Volume to Capacity	0.07	0.06	0.03	0.02
Queue Length 95th (m)	1.7	1.5	0.7	0.0
Control Delay (s)	10.1	8.9	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.1	8.9	4.3	
Approach LOS	B	A		

Intersection Summary			
Average Delay		7.3	
Intersection Capacity Utilization		19.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St

Future 2016 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1346	446	229	763	49	513	647	163	14	353	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3614	1601	1807	3617		1789	3614	1633	1825	3614	1617
Flt Permitted	0.11	1.00	1.00	0.12	1.00		0.28	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	204	3614	1601	231	3617		528	3614	1633	738	3614	1617
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)	454	1463	485	249	829	53	558	703	177	15	384	278
RTOR Reduction (vph)	0	0	249	0	4	0	0	0	121	0	0	233
Lane Group Flow (vph)	454	1463	236	249	878	0	558	703	56	15	384	45
Heavy Vehicles (%)	2%	1%	2%	1%	0%	0%	2%	1%	0%	0%	1%	1%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	68.9	43.7	43.7	54.2	33.0		38.1	38.1	38.1	19.1	19.1	19.1
Effective Green, g (s)	68.9	43.7	43.7	54.2	33.0		38.1	38.1	38.1	19.1	19.1	19.1
Actuated g/C Ratio	0.57	0.36	0.36	0.45	0.28		0.32	0.32	0.32	0.16	0.16	0.16
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	538	1316	583	383	995		325	1147	518	117	575	257
v/s Ratio Prot	c0.22	c0.40		0.11	0.24		c0.21	0.19			0.11	
v/s Ratio Perm	0.26		0.15	0.18			c0.33		0.03	0.02		0.03
v/c Ratio	0.84	1.11	0.40	0.65	0.88		1.72	0.61	0.11	0.13	0.67	0.18
Uniform Delay, d1	31.8	38.1	28.4	26.5	41.6		37.0	34.7	28.9	43.3	47.5	43.6
Progression Factor	1.00	1.00	1.00	0.94	1.07		0.91	0.91	0.99	1.00	1.00	1.00
Incremental Delay, d2	11.6	61.4	2.1	3.7	10.6		333.3	0.8	0.1	0.5	2.9	0.3
Delay (s)	43.4	99.6	30.5	28.6	55.2		367.1	32.3	28.7	43.8	50.4	44.0
Level of Service	D	F	C	C	E		F	C	C	D	D	D
Approach Delay (s)		75.0			49.4			161.7			47.6	
Approach LOS		E			D			F			D	



















Intersection Summary

HCM Average Control Delay	88.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2016 Background Traffic Analysis
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	11	0	12	0	1625	33	22	885	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0		
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95		
Frt				1.00	0.85			1.00		1.00	1.00		
Flt Protected				0.95	1.00			1.00		0.95	1.00		
Satd. Flow (prot)				1825	1633			3604		1807	3650		
Flt Permitted				0.76	1.00			1.00		0.11	1.00		
Satd. Flow (perm)				1455	1633			3604		208	3650		
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	0	12	0	13	0	1766	36	24	962	0	
RTOR Reduction (vph)	0	0	0	0	12	0	0	1	0	0	0	0	
Lane Group Flow (vph)	0	0	0	12	1	0	0	1801	0	24	962	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0		
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0		
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84		
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0		
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)				73	82			3033		175	3072		
v/s Ratio Prot					0.00			c0.50			0.26		
v/s Ratio Perm				c0.01						0.12			
v/c Ratio				0.16	0.01			0.59		0.14	0.31		
Uniform Delay, d1				54.6	54.2			3.0		1.7	2.0		
Progression Factor				1.00	1.00			1.00		2.35	2.61		
Incremental Delay, d2				1.1	0.0			0.9		1.4	0.2		
Delay (s)				55.7	54.2			3.9		5.4	5.6		
Level of Service				E	D			A		A	A		
Approach Delay (s)		0.0			54.9			3.9			5.5		
Approach LOS		A			D			A			A		
Intersection Summary													
HCM Average Control Delay			4.9									HCM Level of Service	A
HCM Volume to Capacity ratio			0.57										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			65.1%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr











Future 2016 Background Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
 18: Millard Ave & Eagle St W

Future 2016 Background Traffic Analysis
 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	92	170	420	70	98	342
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	185	457	76	107	372
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total (vph)	100	185	533	478		
Volume Left (vph)	100	0	0	107		
Volume Right (vph)	0	185	76	0		
Hadj (s)	0.52	-0.68	-0.07	0.06		
Departure Headway (s)	7.7	6.4	5.5	5.7		
Degree Utilization, x	0.21	0.33	0.82	0.76		
Capacity (veh/h)	442	522	640	612		
Control Delay (s)	11.5	11.4	28.3	24.3		
Approach Delay (s)	11.4		28.3	24.3		
Approach LOS	B		D	C		
Intersection Summary						
Delay			23.1			
HCM Level of Service			C			
Intersection Capacity Utilization			68.7%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

Future 2016 Background Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	291	676	169	297	729	270	207	1144	250	306	848	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1721	3476	1415	1806	3544	1556	1771	3579	1540	1772	3614	1504
Flt Permitted	0.12	1.00	1.00	0.14	1.00	1.00	0.17	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	210	3476	1415	259	3544	1556	316	3579	1540	149	3614	1504
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)	316	735	184	323	792	293	225	1243	272	333	922	204
RTOR Reduction (vph)	0	0	139	0	0	173	0	0	115	0	0	119
Lane Group Flow (vph)	316	735	45	323	792	120	225	1243	157	333	922	85
Confl. Peds. (#/hr)	22		22	22		22	18		14	14		18
Heavy Vehicles (%)	6%	5%	11%	1%	3%	1%	3%	2%	3%	3%	1%	5%
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5		2
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	52.5	34.5	34.5	52.5	34.5	34.5	60.5	46.0	51.0	69.5	51.0	46.0
Effective Green, g (s)	52.5	34.5	34.5	52.5	34.5	34.5	60.5	46.0	51.0	69.5	51.0	46.0
Actuated g/C Ratio	0.38	0.25	0.25	0.38	0.25	0.25	0.43	0.33	0.36	0.50	0.36	0.33
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	857	349	296	873	383	287	1176	561	300	1317	494
v/s Ratio Prot	c0.15	0.21		0.14	0.22		0.08	0.35		c0.15	0.26	
v/s Ratio Perm	c0.29		0.03	0.27		0.08	0.26		0.10	c0.40		0.06
v/c Ratio	1.16	0.86	0.13	1.09	0.91	0.31	0.78	1.06	0.28	1.11	0.70	0.17
Uniform Delay, d1	41.8	50.4	41.1	38.8	51.2	43.1	28.4	47.0	31.5	45.6	38.0	33.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.83	1.27	2.27	1.00	1.00	1.00
Incremental Delay, d2	103.9	8.5	0.2	78.9	12.9	0.5	1.3	28.0	0.1	84.8	3.1	0.8
Delay (s)	145.7	58.9	41.2	117.7	64.1	43.5	53.4	87.8	71.6	130.5	41.1	34.2
Level of Service	F	E	D	F	E	D	D	F	E	F	D	C
Approach Delay (s)		78.5			72.1			80.8			60.5	
Approach LOS		E			E			F			E	

Intersection Summary		
HCM Average Control Delay	73.2	HCM Level of Service E
HCM Volume to Capacity ratio	1.07	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	107.9%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2016 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	306	312	184	202	105	286	1625	188	180	1309	43
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1883	1564	1825	1865	1582	1789	3614	1589	1789	3614	1490
Flt Permitted	0.62	1.00	1.00	0.20	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1180	1883	1564	383	1865	1582	126	3614	1589	135	3614	1490
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)	133	333	339	200	220	114	311	1766	204	196	1423	47
RTOR Reduction (vph)	0	0	177	0	0	79	0	0	58	0	0	25
Lane Group Flow (vph)	133	333	162	200	220	35	311	1766	146	196	1423	22
Confl. Peds. (#/hr)	1		9	2		8	3		3	11		13
Heavy Vehicles (%)	1%	2%	2%	0%	3%	1%	2%	1%	0%	2%	1%	4%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	30.1	30.1	30.1	43.1	43.1	43.1	82.9	67.0	56.0	67.9	56.0	67.0
Effective Green, g (s)	30.1	30.1	30.1	43.1	43.1	43.1	82.9	67.0	56.0	67.9	56.0	67.0
Actuated g/C Ratio	0.22	0.22	0.22	0.31	0.31	0.31	0.59	0.48	0.40	0.49	0.40	0.48
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	405	336	211	574	487	347	1730	636	206	1446	713
v/s Ratio Prot		0.18		c0.06	0.12		c0.15	c0.49		0.08	0.39	
v/s Ratio Perm	0.11		0.10	c0.23		0.02	0.39		0.09	0.38		0.02
v/c Ratio	0.52	0.82	0.48	0.95	0.38	0.07	0.90	1.02	0.23	0.95	0.98	0.03
Uniform Delay, d1	48.6	52.4	48.1	44.6	38.0	34.3	45.2	36.5	27.8	41.8	41.6	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.20	2.46
Incremental Delay, d2	1.9	12.6	1.1	46.8	0.4	0.1	28.0	27.0	0.8	47.4	18.7	0.1
Delay (s)	50.6	65.0	49.2	91.4	38.4	34.4	73.2	63.5	28.6	93.2	68.5	47.7
Level of Service	D	E	D	F	D	C	E	E	C	F	E	D
Approach Delay (s)		56.0			57.4			61.7			70.8	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM Average Control Delay			63.3								HCM Level of Service	E
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			140.0								Sum of lost time (s)	15.0
Intersection Capacity Utilization			102.7%								ICU Level of Service	G
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St

Future 2016 Background Traffic Analysis
PM Peak Hour

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	151	128	75	160	77	108	1686	100	120	1060	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1806	1766		1784	1818		1825	3567		1789	3614	1581
Flt Permitted	0.32	1.00		0.58	1.00		0.15	1.00		0.06	1.00	1.00
Satd. Flow (perm)	602	1766		1081	1818		286	3567		107	3614	1581
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)	145	164	139	82	174	84	117	1833	109	130	1152	82
RTOR Reduction (vph)	0	22	0	0	13	0	0	3	0	0	0	0
Lane Group Flow (vph)	145	281	0	82	245	0	117	1939	0	130	1152	82
Confl. Peds. (#/hr)	3		3	3		3	6		5	5		4
Heavy Vehicles (%)	1%	1%	0%	2%	0%	0%	0%	1%	6%	2%	1%	1%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Effective Green, g (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Actuated g/C Ratio	0.31	0.31		0.21	0.21		0.56	0.49		0.55	0.50	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	270	541		224	377		257	1758		144	1812	1581
v/s Ratio Prot	0.04	c0.16			c0.13		0.03	c0.54		c0.05	0.32	
v/s Ratio Perm	0.13			0.08			0.22			0.45		c0.05
v/c Ratio	0.54	0.52		0.37	0.65		0.46	1.10		0.90	0.64	0.05
Uniform Delay, d1	37.6	40.1		47.6	50.9		18.2	35.5		37.9	25.5	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.41	0.75		1.73	0.60	1.00
Incremental Delay, d2	2.1	0.9		1.0	4.0		0.5	50.2		35.1	1.1	0.0
Delay (s)	39.7	41.0		48.6	54.8		26.1	76.8		100.5	16.4	0.0
Level of Service	D	D		D	D		C	E		F	B	A
Approach Delay (s)		40.5			53.3			73.9			23.5	
Approach LOS		D			D			E			C	

Intersection Summary

HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 25: Davis Dr W & GO Bus Access

Future 2016 Background Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (veh/h)	229	1094	6	7	1175	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	1189	7	8	1277	7	5	0	10	0	0	195
Pedestrians								6				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.85						0.85	0.85		0.85	0.85	0.85
vC, conflicting volume	1284			1202			2350	2995	604	2395	2992	639
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	971			1202			2231	2994	604	2284	2990	208
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	59			99			44	100	98	100	100	71
cM capacity (veh/h)	602			585			10	7	444	12	7	678
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	249	793	403	8	639	639	7	5	10	195		
Volume Left	249	0	0	8	0	0	0	5	0	0		
Volume Right	0	0	7	0	0	0	7	0	10	195		
cSH	602	1700	1700	585	1700	1700	1700	10	444	678		
Volume to Capacity	0.41	0.47	0.24	0.01	0.38	0.38	0.00	0.56	0.02	0.29		
Queue Length 95th (m)	15.4	0.0	0.0	0.3	0.0	0.0	0.0	9.0	0.5	9.0		
Control Delay (s)	15.1	0.0	0.0	11.2	0.0	0.0	0.0	600.9	13.3	12.4		
Lane LOS	C			B				F	B	B		
Approach Delay (s)	2.6			0.1				223.1		12.4		
Approach LOS								F		B		
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			58.5%		ICU Level of Service				B			
Analysis Period (min)			15									

APPENDIX H
Future (2021) Background Traffic
Level Of Service Calculations

HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

















Future 2021 Background Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	89	59	26	62	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	97	64	28	67	22
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	118	92	89			
Volume Left (vph)	22	64	0			
Volume Right (vph)	97	0	22			
Hadj (s)	-0.39	0.22	-0.15			
Departure Headway (s)	3.9	4.5	4.1			
Degree Utilization, x	0.13	0.11	0.10			
Capacity (veh/h)	879	777	847			
Control Delay (s)	7.5	8.0	7.6			
Approach Delay (s)	7.5	8.0	7.6			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.7			
HCM Level of Service			A			
Intersection Capacity Utilization			27.8%	ICU Level of Service	A	
Analysis Period (min)			15			



























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	7	79	13	6	1	34	255	5	0	421	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	8	86	14	7	1	37	277	5	0	458	50
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	163	22	320	508								
Volume Left (vph)	70	14	37	0								
Volume Right (vph)	86	1	5	50								
Hadj (s)	-0.21	0.12	0.07	-0.03								
Departure Headway (s)	5.8	6.5	5.2	4.9								
Degree Utilization, x	0.26	0.04	0.46	0.69								
Capacity (veh/h)	546	468	663	720								
Control Delay (s)	10.8	9.7	12.6	17.9								
Approach Delay (s)	10.8	9.7	12.6	17.9								
Approach LOS	B	A	B	C								
Intersection Summary												
Delay			14.9									
HCM Level of Service			B									
Intersection Capacity Utilization			59.0%	ICU Level of Service	B							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall























Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	34	971	350	69	697	44	173	72	72	15	23	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1689	3544	1542	1659	3510	1593	1700	1921	1492	1720	1921	1577
Flt Permitted	0.33	1.00	1.00	0.19	1.00	1.00	0.61	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	580	3544	1542	324	3510	1593	1090	1921	1492	1279	1921	1577
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)	37	1055	380	75	758	48	188	78	78	16	25	7
RTOR Reduction (vph)	0	0	246	0	0	38	0	0	36	0	0	3
Lane Group Flow (vph)	37	1055	134	75	758	10	188	78	42	16	25	4
Confl. Peds. (#/hr)	2		8	8		2	19		1	1		19
Heavy Vehicles (%)	8%	3%	2%	10%	4%	0%	6%	0%	8%	6%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	67.4	63.0	18.5	71.6	65.1	25.6	32.5	25.6	65.1	21.4	18.5	63.0
Effective Green, g (s)	67.4	63.0	18.5	71.6	65.1	25.6	32.5	25.6	65.1	21.4	18.5	63.0
Actuated g/C Ratio	0.56	0.52	0.15	0.60	0.54	0.21	0.27	0.21	0.54	0.18	0.15	0.52
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	366	1861	238	266	1904	340	346	410	809	239	296	828
v/s Ratio Prot	0.00	c0.30		c0.02	0.22		c0.05	0.04		0.00	0.01	
v/s Ratio Perm	0.05		0.09	0.15		0.01	c0.10		0.03	0.01		0.00
v/c Ratio	0.10	0.57	0.56	0.28	0.40	0.03	0.54	0.19	0.05	0.07	0.08	0.00
Uniform Delay, d1	12.0	19.3	47.0	12.3	16.0	37.4	36.2	38.7	12.9	40.9	43.5	13.6
Progression Factor	1.10	1.09	1.47	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.1	2.7	0.6	0.6	0.0	1.7	0.2	0.1	0.1	0.1	0.0
Delay (s)	13.3	22.1	71.7	12.9	16.6	37.4	38.0	38.9	13.0	41.0	43.6	13.6
Level of Service	B	C	E	B	B	D	D	D	B	D	D	B
Approach Delay (s)		34.7			17.5			32.5			38.4	
Approach LOS		C			B			C			D	

Intersection Summary		
HCM Average Control Delay	28.9	HCM Level of Service C
HCM Volume to Capacity ratio	0.54	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	74.6%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	1132	30	39	888	40	19	0	32	121	0	87
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1737	3544	1487	1657	3476	1520	1725		1517	1784		1497
Flt Permitted	0.23	1.00	1.00	0.15	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	426	3544	1487	257	3476	1520	1725		1517	1784		1497
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)	23	1230	33	42	965	43	21	0	35	132	0	95
RTOR Reduction (vph)	0	0	14	0	0	19	0	0	23	0	0	63
Lane Group Flow (vph)	23	1230	20	42	965	24	21	0	12	132	0	32
Confl. Peds. (#/hr)	1		6	6		1	5		2	2		5
Heavy Vehicles (%)	5%	3%	6%	10%	5%	5%	5%	0%	6%	2%	0%	7%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Effective Green, g (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.34		0.34	0.34		0.34
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	234	1949	818	141	1912	836	589		518	610		511
v/s Ratio Prot		c0.35			0.28							
v/s Ratio Perm	0.05		0.01	0.16		0.02	0.01		0.01	c0.07		0.02
v/c Ratio	0.10	0.63	0.02	0.30	0.50	0.03	0.04		0.02	0.22		0.06
Uniform Delay, d1	12.8	18.6	12.3	14.5	16.8	12.3	26.3		26.2	28.1		26.6
Progression Factor	1.42	1.22	2.16	1.33	1.11	2.22	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	0.1	0.0	5.1	0.9	0.1	0.1		0.1	0.8		0.2
Delay (s)	18.3	22.8	26.6	24.4	19.6	27.5	26.4		26.3	28.9		26.8
Level of Service	B	C	C	C	B	C	C		C	C		C
Approach Delay (s)		22.8			20.1			26.3			28.0	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			22.3				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			78.3%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd
























Future 2021 Background Traffic Analysis
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Volume (veh/h)	17	11	9	32	29	32
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	12	10	35	32	35
Pedestrians		1			1	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	105	64	99	1	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	105	64	99	1	0	
tC, single (s)	7.2	6.5	6.5	6.2	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.0	4.0	3.3	2.3	
p0 queue free %	98	99	99	97	98	
cM capacity (veh/h)	815	813	779	1080	1585	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	30	45	32	35		
Volume Left	18	0	32	0		
Volume Right	0	35	0	35		
cSH	815	995	1585	1700		
Volume to Capacity	0.04	0.04	0.02	0.02		
Queue Length 95th (m)	0.9	1.1	0.5	0.0		
Control Delay (s)	9.6	8.8	7.3	0.0		
Lane LOS	A	A	A			
Approach Delay (s)	9.6	8.8	3.5			
Approach LOS	A	A				
Intersection Summary						
Average Delay			6.5			
Intersection Capacity Utilization			18.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St



















Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	1231	272	182	753	49	310	254	87	20	555	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	3579	1570	1807	3583		1755	3614	1617	1738	3650	1555
Flt Permitted	0.11	1.00	1.00	0.11	1.00		0.18	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	186	3579	1570	217	3583		331	3614	1617	1065	3650	1555
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)	250	1338	296	198	818	53	337	276	95	22	603	363
RTOR Reduction (vph)	0	0	177	0	4	0	0	0	55	0	0	156
Lane Group Flow (vph)	250	1338	119	198	867	0	337	276	40	22	603	207
Heavy Vehicles (%)	12%	2%	4%	1%	1%	0%	4%	1%	1%	5%	0%	5%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	56.6	39.9	39.9	47.7	35.0		50.4	50.4	50.4	27.0	27.0	27.0
Effective Green, g (s)	56.6	39.9	39.9	47.7	35.0		50.4	50.4	50.4	27.0	27.0	27.0
Actuated g/C Ratio	0.47	0.33	0.33	0.40	0.29		0.42	0.42	0.42	0.22	0.22	0.22
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	1190	522	255	1045		369	1518	679	240	821	350
v/s Ratio Prot	c0.12	c0.37		0.08	0.24		c0.15	0.08			0.17	
v/s Ratio Perm	0.27		0.08	0.23			c0.24		0.02	0.02		0.13
v/c Ratio	0.83	1.12	0.23	0.78	0.83		0.91	0.18	0.06	0.09	0.73	0.59
Uniform Delay, d1	30.9	40.0	28.9	28.9	39.7		27.7	21.9	20.7	36.8	43.2	41.6
Progression Factor	1.00	1.00	1.00	1.56	1.47		0.88	0.85	1.20	1.00	1.00	1.00
Incremental Delay, d2	17.7	67.3	1.0	12.5	6.9		23.7	0.1	0.0	0.2	3.4	2.7
Delay (s)	48.6	107.4	29.9	57.5	65.3		48.1	18.6	24.8	37.0	46.6	44.3
Level of Service	D	F	C	E	E		D	B	C	D	D	D
Approach Delay (s)		87.4			63.8			33.5			45.5	
Approach LOS		F			E			C			D	
Intersection Summary												
HCM Average Control Delay			64.9			HCM Level of Service			E			
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		8.0				
Intersection Capacity Utilization			94.1%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	9	0	15	0	1525	14	14	1948	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			1.00		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3609		1825	3614	
Flt Permitted				0.76	1.00			1.00		0.13	1.00	
Satd. Flow (perm)				1455	1633			3609		248	3614	
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	0	10	0	16	0	1658	15	15	2117	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	10	1	0	0	1673	0	15	2117	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0	
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0	
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				73	82			3038		209	3042	
v/s Ratio Prot					0.00			0.46			c0.59	
v/s Ratio Perm				c0.01						0.06		
v/c Ratio				0.14	0.01			0.55		0.07	0.70	
Uniform Delay, d1				54.5	54.2			2.8		1.6	3.6	
Progression Factor				1.00	1.00			1.00		1.14	2.30	
Incremental Delay, d2				0.9	0.0			0.7		0.6	1.3	
Delay (s)				55.4	54.2			3.5		2.5	9.7	
Level of Service				E	D			A		A	A	
Approach Delay (s)		0.0			54.7			3.5			9.6	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			7.3									A
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			120.0								13.0	
Intersection Capacity Utilization			73.0%									D
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr











Future 2021 Background Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
 18: Millard Ave & Eagle St W

Future 2021 Background Traffic Analysis
 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	71	103	198	102	114	418
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	112	215	111	124	454
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total (vph)	77	112	326	578		
Volume Left (vph)	77	0	0	124		
Volume Right (vph)	0	112	111	0		
Hadj (s)	0.53	-0.68	-0.16	0.08		
Departure Headway (s)	7.3	6.0	5.1	5.0		
Degree Utilization, x	0.16	0.19	0.46	0.81		
Capacity (veh/h)	465	553	677	705		
Control Delay (s)	10.4	9.2	12.5	25.6		
Approach Delay (s)	9.7		12.5	25.6		
Approach LOS	A		B	D		
Intersection Summary						
Delay			18.9			
HCM Level of Service			C			
Intersection Capacity Utilization			59.6%	ICU Level of Service	B	
Analysis Period (min)			15			

























HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	691	168	281	536	155	116	614	180	231	1301	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1600	3544	1415	1789	3476	1571	1755	3476	1590	1754	3579	1486
Flt Permitted	0.29	1.00	1.00	0.13	1.00	1.00	0.08	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	480	3544	1415	246	3476	1571	142	3476	1590	527	3579	1486
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)	177	751	183	305	583	168	126	667	196	251	1414	277
RTOR Reduction (vph)	0	0	133	0	0	124	0	0	117	0	0	108
Lane Group Flow (vph)	177	751	50	305	583	44	126	667	79	251	1414	169
Confl. Peds. (#/hr)	6		8	8		6	5		4	4		5
Heavy Vehicles (%)	14%	3%	13%	2%	5%	2%	4%	5%	1%	4%	2%	8%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	45.0	32.6	32.6	48.2	34.2	34.2	61.4	46.6	52.1	61.4	52.1	46.6
Effective Green, g (s)	45.0	32.6	32.6	48.2	34.2	34.2	61.4	46.6	52.1	61.4	52.1	46.6
Actuated g/C Ratio	0.35	0.25	0.25	0.37	0.26	0.26	0.47	0.36	0.40	0.47	0.40	0.36
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	889	355	257	914	413	182	1246	637	389	1434	533
v/s Ratio Prot	0.06	0.21		c0.13	0.17		0.05	0.19		c0.07	c0.40	
v/s Ratio Perm	0.16		0.04	c0.31		0.03	0.28		0.05	0.23		0.11
v/c Ratio	0.65	0.84	0.14	1.19	0.64	0.11	0.69	0.54	0.12	0.65	0.99	0.32
Uniform Delay, d1	31.9	46.3	37.8	34.1	42.4	36.3	29.0	33.1	24.6	22.1	38.6	30.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.62	0.99	2.75	1.00	1.00	1.00
Incremental Delay, d2	5.2	7.4	0.2	116.2	1.5	0.1	9.9	1.5	0.4	3.7	20.7	1.6
Delay (s)	37.1	53.7	38.0	150.3	43.9	36.4	57.0	34.3	68.0	25.8	59.3	31.8
Level of Service	D	D	D	F	D	D	E	C	E	C	E	C
Approach Delay (s)		48.5			73.4			43.9			51.0	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM Average Control Delay			53.7		HCM Level of Service				D			
HCM Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)			19.0				
Intersection Capacity Utilization			97.7%		ICU Level of Service			F				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	244	207	196	279	113	431	1208	232	77	1506	116
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	1921	1578	1806	1902	1592	1772	3579	1574	1825	3544	1565
Flt Permitted	0.58	1.00	1.00	0.27	1.00	1.00	0.07	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1050	1921	1578	520	1902	1592	136	3579	1574	159	3544	1565
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)	59	265	225	213	303	123	468	1313	252	84	1637	126
RTOR Reduction (vph)	0	0	158	0	0	89	0	0	103	0	0	70
Lane Group Flow (vph)	59	265	67	213	303	34	468	1313	149	84	1637	56
Confl. Peds. (#/hr)	3		2	2		3	1		3	3		1
Heavy Vehicles (%)	5%	0%	2%	1%	1%	1%	3%	2%	1%	0%	3%	2%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	24.2	24.2	24.2	36.2	36.2	36.2	79.8	58.0	51.0	68.8	51.0	58.0
Effective Green, g (s)	24.2	24.2	24.2	36.2	36.2	36.2	79.8	58.0	51.0	68.8	51.0	58.0
Actuated g/C Ratio	0.19	0.19	0.19	0.28	0.28	0.28	0.61	0.45	0.39	0.53	0.39	0.45
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	195	358	294	224	530	443	396	1597	617	312	1390	698
v/s Ratio Prot		0.14		c0.06	0.16		c0.23	0.37		0.04	0.46	
v/s Ratio Perm	0.06		0.04	c0.21		0.02	c0.50		0.09	0.11		0.04
v/c Ratio	0.30	0.74	0.23	0.95	0.57	0.08	1.18	0.82	0.24	0.27	1.18	0.08
Uniform Delay, d1	45.6	49.9	45.0	44.8	40.2	34.6	43.3	31.5	26.5	19.7	39.5	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.78	1.37	4.54
Incremental Delay, d2	0.9	8.0	0.4	46.3	1.5	0.1	104.9	4.9	0.9	0.2	80.7	0.0
Delay (s)	46.5	57.9	45.4	91.1	41.7	34.7	148.1	36.4	27.4	35.3	135.0	93.8
Level of Service	D	E	D	F	D	C	F	D	C	D	F	F
Approach Delay (s)		51.5			56.8			61.0			127.6	
Approach LOS		D			E			E			F	

Intersection Summary		
HCM Average Control Delay	83.7	HCM Level of Service F
HCM Volume to Capacity ratio	1.03	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	110.7%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St























Future 2021 Background Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	118	136	104	131	51	164	826	45	63	1710	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1753	1743		1822	1832		1825	3478		1817	3579	1582
Flt Permitted	0.45	1.00		0.59	1.00		0.06	1.00		0.30	1.00	1.00
Satd. Flow (perm)	836	1743		1131	1832		118	3478		578	3579	1582
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)	49	128	148	113	142	55	178	898	49	68	1859	180
RTOR Reduction (vph)	0	33	0	0	11	0	0	3	0	0	0	0
Lane Group Flow (vph)	49	243	0	113	186	0	178	944	0	68	1859	180
Confl. Peds. (#/hr)	3		2	2		3	3		7	7		3
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	0%	4%	3%	0%	2%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	40.0	40.0		29.0	29.0		76.0	76.0		61.1	61.1	130.0
Effective Green, g (s)	40.0	40.0		29.0	29.0		76.0	76.0		61.1	61.1	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.58	0.58		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	536		252	409		212	2033		272	1682	1582
v/s Ratio Prot	0.01	c0.14			0.10		c0.07	0.27			c0.52	
v/s Ratio Perm	0.04			0.10			0.42			0.12		0.11
v/c Ratio	0.16	0.45		0.45	0.46		0.84	0.46		0.25	1.11	0.11
Uniform Delay, d1	32.4	36.2		43.6	43.7		38.4	15.4		20.7	34.4	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.76	1.25		0.80	0.60	1.00
Incremental Delay, d2	0.2	0.6		1.3	0.8		16.9	0.5		1.1	52.2	0.1
Delay (s)	32.7	36.8		44.9	44.5		84.3	19.7		17.5	73.0	0.1
Level of Service	C	D		D	D		F	B		B	E	A
Approach Delay (s)		36.2			44.6			29.9			64.9	
Approach LOS		D			D			C			E	

Intersection Summary		
HCM Average Control Delay	50.7	HCM Level of Service D
HCM Volume to Capacity ratio	0.85	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	109.7%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Future 2021 Background Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (veh/h)	64	1373	6	5	936	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	1492	7	5	1017	9	0	0	3	0	0	42
Pedestrians								6			1	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	1027			1505			2160	2679	755	1918	2673	510
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	756			1505			2045	2635	755	1769	2628	168
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	90			99			100	100	99	100	100	94
cM capacity (veh/h)	730			449			25	19	354	43	19	736
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	70	995	504	5	509	509	9	0	3	42		
Volume Left	70	0	0	5	0	0	0	0	0	0		
Volume Right	0	0	7	0	0	0	9	0	3	42		
cSH	730	1700	1700	449	1700	1700	1700	1700	354	736		
Volume to Capacity	0.10	0.59	0.30	0.01	0.30	0.30	0.01	0.00	0.01	0.06		
Queue Length 95th (m)	2.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2	1.4		
Control Delay (s)	10.4	0.0	0.0	13.1	0.0	0.0	0.0	0.0	15.3	10.2		
Lane LOS	B			B				A	C	B		
Approach Delay (s)	0.5			0.1				15.3		10.2		
Approach LOS								C		B		
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			48.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 37: Davis Dr W & Toth Farm Access

Future 2021 Background Traffic Analysis
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations									
Volume (veh/h)	13	1409	950	19	50	34			
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)	14	1532	1033	21	54	37			
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	1053				1827	516			
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol	1053				1827	516			
tC, single (s)	4.1				6.8	6.9			
tC, 2 stage (s)									
tF (s)	2.2				3.5	3.3			
p0 queue free %	98				19	93			
cM capacity (veh/h)	657				67	504			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2	
Volume Total	14	766	766	516	516	21	54	37	
Volume Left	14	0	0	0	0	0	54	0	
Volume Right	0	0	0	0	0	21	0	37	
cSH	657	1700	1700	1700	1700	1700	67	504	
Volume to Capacity	0.02	0.45	0.45	0.30	0.30	0.01	0.81	0.07	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.0	0.0	28.9	1.8	
Control Delay (s)	10.6	0.0	0.0	0.0	0.0	0.0	163.7	12.7	
Lane LOS	B							F	B
Approach Delay (s)	0.1				0.0			102.6	
Approach LOS							F		
Intersection Summary									
Average Delay			3.5						
Intersection Capacity Utilization			48.9%	ICU Level of Service			A		
Analysis Period (min)			15						

HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

















Future 2021 Background Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	54	86	56	39	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	59	93	61	42	12
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	70	154	54			
Volume Left (vph)	11	93	0			
Volume Right (vph)	59	0	12			
Hadj (s)	-0.45	0.13	-0.09			
Departure Headway (s)	3.9	4.2	4.1			
Degree Utilization, x	0.08	0.18	0.06			
Capacity (veh/h)	872	828	852			
Control Delay (s)	7.2	8.2	7.4			
Approach Delay (s)	7.2	8.2	7.4			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.8			
HCM Level of Service			A			
Intersection Capacity Utilization			26.1%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2021 Background Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	9	62	10	1	0	106	597	13	3	454	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	10	67	11	1	0	115	649	14	3	493	67
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	113	12	778	564								
Volume Left (vph)	36	11	115	3								
Volume Right (vph)	67	0	14	67								
Hadj (s)	-0.27	0.18	0.04	-0.06								
Departure Headway (s)	6.5	7.4	5.1	5.2								
Degree Utilization, x	0.21	0.02	1.11	0.81								
Capacity (veh/h)	524	445	704	686								
Control Delay (s)	11.2	10.6	89.3	26.2								
Approach Delay (s)	11.2	10.6	89.3	26.2								
Approach LOS	B	B	F	D								
Intersection Summary												
Delay			58.4									
HCM Level of Service			F									
Intersection Capacity Utilization			84.1%	ICU Level of Service	E							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall

Future 2021 Background Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	993	202	143	933	84	350	217	106	138	180	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3579	1574	1789	3614	1559	1774	1902	1535	1824	1921	1550
Flt Permitted	0.21	1.00	1.00	0.14	1.00	1.00	0.36	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)	399	3579	1574	266	3614	1559	669	1902	1535	1022	1921	1550
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)	68	1079	220	155	1014	91	380	236	115	150	196	29
RTOR Reduction (vph)	0	0	141	0	0	73	0	0	59	0	0	16
Lane Group Flow (vph)	68	1079	79	155	1014	18	380	236	56	150	196	13
Confl. Peds. (#/hr)	3		3	3		3	33		1	1		33
Heavy Vehicles (%)	0%	2%	1%	2%	1%	2%	2%	1%	5%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	60.8	54.4	17.8	69.2	58.8	23.1	36.8	23.1	58.8	27.5	17.8	54.4
Effective Green, g (s)	60.8	54.4	17.8	69.2	58.8	23.1	36.8	23.1	58.8	27.5	17.8	54.4
Actuated g/C Ratio	0.51	0.45	0.15	0.58	0.49	0.19	0.31	0.19	0.49	0.23	0.15	0.45
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	278	1622	233	290	1771	300	343	366	752	299	285	703
v/s Ratio Prot	0.01	c0.30		c0.05	0.28		c0.14	0.12		0.04	0.10	
v/s Ratio Perm	0.11		0.05	0.26		0.01	c0.20		0.04	0.07		0.01
v/c Ratio	0.24	0.67	0.34	0.53	0.57	0.06	1.11	0.64	0.07	0.50	0.69	0.02
Uniform Delay, d1	16.2	25.7	45.8	16.3	21.7	39.6	38.9	44.7	16.2	38.9	48.5	18.1
Progression Factor	0.59	0.66	2.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.0	0.8	1.9	1.4	0.1	80.9	3.9	0.2	1.3	6.7	0.0
Delay (s)	9.9	19.1	118.1	18.1	23.0	39.6	119.8	48.5	16.4	40.2	55.2	18.1
Level of Service	A	B	F	B	C	D	F	D	B	D	E	B
Approach Delay (s)		34.6			23.6			80.5			46.3	
Approach LOS		C			C			F			D	

Intersection Summary		
HCM Average Control Delay	41.1	HCM Level of Service D
HCM Volume to Capacity ratio	0.78	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	91.8%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Future 2021 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1271	27	42	1344	141	23	0	66	61	0	20
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1824	3614	1596	1824	3614	1592	1818		1610	1821		1608
Flt Permitted	0.16	1.00	1.00	0.18	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	315	3614	1596	346	3614	1592	1818		1610	1821		1608
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	1382	29	46	1461	153	25	0	72	66	0	22
RTOR Reduction (vph)	0	0	5	0	0	27	0	0	57	0	0	20
Lane Group Flow (vph)	189	1382	24	46	1461	126	25	0	15	66	0	2
Confl. Peds. (#/hr)	2		1	1		2	3		2	2		3
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Effective Green, g (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.82	0.82	0.07		0.07	0.07		0.07
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	259	2966	1310	284	2966	1307	129		114	129		114
v/s Ratio Prot		0.38			0.40							
v/s Ratio Perm	c0.60		0.01	0.13		0.08	0.01		0.01	c0.04		0.00
v/c Ratio	0.73	0.47	0.02	0.16	0.49	0.10	0.19		0.13	0.51		0.01
Uniform Delay, d1	4.8	3.1	2.0	2.2	3.2	2.1	52.5		52.3	53.7		51.9
Progression Factor	3.14	1.25	1.04	1.13	0.94	1.88	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.7	0.0	0.0	1.0	0.5	0.1	0.7		0.5	3.4		0.0
Delay (s)	16.7	3.9	2.0	3.5	3.5	4.0	53.3		52.8	57.1		51.9
Level of Service	B	A	A	A	A	A	D		D	E		D
Approach Delay (s)		5.4			3.6			52.9			55.8	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM Average Control Delay			7.2				HCM Level of Service			A		
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			90.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2021 Background Traffic Analysis
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	41	9	12	43	44	30
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	10	13	47	48	33
Pedestrians			1		1	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	150	97	129	2	1	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	150	97	129	2	1	
tC, single (s)	7.1	6.5	6.8	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.2	3.3	2.2	
p0 queue free %	94	99	98	96	97	
cM capacity (veh/h)	757	773	699	1086	1634	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	54	60	48	33
Volume Left	45	0	48	0
Volume Right	0	47	0	33
cSH	760	969	1634	1700
Volume to Capacity	0.07	0.06	0.03	0.02
Queue Length 95th (m)	1.8	1.5	0.7	0.0
Control Delay (s)	10.1	9.0	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.1	9.0	4.3	
Approach LOS	B	A		

Intersection Summary			
Average Delay		7.4	
Intersection Capacity Utilization		19.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St




















Future 2021 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1528	446	237	910	49	513	713	177	14	390	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3614	1601	1807	3622		1789	3614	1633	1825	3614	1617
Flt Permitted	0.10	1.00	1.00	0.11	1.00		0.26	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	193	3614	1601	217	3622		484	3614	1633	688	3614	1617
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)	454	1661	485	258	989	53	558	775	192	15	424	278
RTOR Reduction (vph)	0	0	232	0	4	0	0	0	130	0	0	210
Lane Group Flow (vph)	454	1661	253	258	1038	0	558	775	62	15	424	68
Heavy Vehicles (%)	2%	1%	2%	1%	0%	0%	2%	1%	0%	0%	1%	1%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	68.4	43.0	43.0	56.4	35.0		38.6	38.6	38.6	20.6	20.6	20.6
Effective Green, g (s)	68.4	43.0	43.0	56.4	35.0		38.6	38.6	38.6	20.6	20.6	20.6
Actuated g/C Ratio	0.57	0.36	0.36	0.47	0.29		0.32	0.32	0.32	0.17	0.17	0.17
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	501	1295	574	386	1056		308	1163	525	118	620	278
v/s Ratio Prot	c0.22	c0.46		0.12	0.29		c0.21	0.21			0.12	
v/s Ratio Perm	0.29		0.16	0.19			c0.37		0.04	0.02		0.04
v/c Ratio	0.91	1.28	0.44	0.67	0.98		1.81	0.67	0.12	0.13	0.68	0.24
Uniform Delay, d1	34.5	38.5	29.3	27.7	42.2		36.6	35.1	28.7	42.1	46.6	43.0
Progression Factor	1.00	1.00	1.00	0.98	1.06		0.90	0.89	0.96	1.00	1.00	1.00
Incremental Delay, d2	19.8	133.2	2.5	3.9	22.6		375.2	1.1	0.1	0.5	3.1	0.5
Delay (s)	54.3	171.7	31.8	31.1	67.5		408.0	32.6	27.6	42.6	49.8	43.4
Level of Service	D	F	C	C	E		F	C	C	D	D	D
Approach Delay (s)		125.1			60.2			169.3			47.2	
Approach LOS		F			E			F			D	
Intersection Summary												
HCM Average Control Delay			113.3			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.37									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		15.0				
Intersection Capacity Utilization			112.1%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2021 Background Traffic Analysis
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	11	0	12	0	1806	33	22	984	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0		
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95		
Frt				1.00	0.85			1.00		1.00	1.00		
Flt Protected				0.95	1.00			1.00		0.95	1.00		
Satd. Flow (prot)				1825	1633			3605		1807	3650		
Flt Permitted				0.76	1.00			1.00		0.08	1.00		
Satd. Flow (perm)				1455	1633			3605		159	3650		
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	0	12	0	13	0	1963	36	24	1070	0	
RTOR Reduction (vph)	0	0	0	0	12	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	12	1	0	0	1999	0	24	1070	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0		
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0		
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84		
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0		
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)				73	82			3034		134	3072		
v/s Ratio Prot					0.00			c0.55			0.29		
v/s Ratio Perm				c0.01						0.15			
v/c Ratio				0.16	0.01			0.66		0.18	0.35		
Uniform Delay, d1				54.6	54.2			3.4		1.8	2.1		
Progression Factor				1.00	1.00			1.00		2.31	2.53		
Incremental Delay, d2				1.1	0.0			1.1		2.4	0.3		
Delay (s)				55.7	54.2			4.5		6.5	5.6		
Level of Service				E	D			A		A	A		
Approach Delay (s)		0.0			54.9			4.5			5.7		
Approach LOS		A			D			A			A		
Intersection Summary													
HCM Average Control Delay			5.3									HCM Level of Service	A
HCM Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			70.1%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr











Future 2021 Background Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 18: Millard Ave & Eagle St W

Future 2021 Background Traffic Analysis
 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	92	170	504	70	98	386
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	185	548	76	107	420
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total (vph)	100	185	624	526		
Volume Left (vph)	100	0	0	107		
Volume Right (vph)	0	185	76	0		
Hadj (s)	0.52	-0.68	-0.06	0.05		
Departure Headway (s)	8.0	6.8	5.7	5.9		
Degree Utilization, x	0.22	0.35	0.99	0.87		
Capacity (veh/h)	439	517	624	606		
Control Delay (s)	12.1	12.2	55.8	35.5		
Approach Delay (s)	12.2		55.8	35.5		
Approach LOS	B		F	E		
Intersection Summary						
Delay			39.7			
HCM Level of Service			E			
Intersection Capacity Utilization			75.4%	ICU Level of Service	D	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Future 2021 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	309	757	189	304	825	285	239	1333	255	327	984	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1721	3476	1415	1806	3544	1556	1772	3579	1540	1772	3614	1504
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	207	3476	1415	217	3544	1556	153	3579	1540	149	3614	1504
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)	336	823	205	330	897	310	260	1449	277	355	1070	224
RTOR Reduction (vph)	0	0	154	0	0	161	0	0	102	0	0	113
Lane Group Flow (vph)	336	823	51	330	897	149	260	1449	175	355	1070	112
Confl. Peds. (#/hr)	22		22	22		22	18		14	14		18
Heavy Vehicles (%)	6%	5%	11%	1%	3%	1%	3%	2%	3%	3%	1%	5%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	51.0	35.0	35.0	51.0	35.0	35.0	67.0	50.0	48.8	67.0	48.8	50.0
Effective Green, g (s)	51.0	35.0	35.0	51.0	35.0	35.0	67.0	50.0	48.8	67.0	48.8	50.0
Actuated g/C Ratio	0.36	0.25	0.25	0.36	0.25	0.25	0.48	0.36	0.35	0.48	0.35	0.36
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	248	869	354	261	886	389	284	1278	537	268	1260	537
v/s Ratio Prot	c0.15	0.24		0.14	0.25		0.12	0.40		c0.16	0.30	
v/s Ratio Perm	c0.34		0.04	0.32		0.10	0.32		0.11	c0.47		0.07
v/c Ratio	1.35	0.95	0.14	1.26	1.01	0.38	0.92	1.13	0.33	1.32	0.85	0.21
Uniform Delay, d1	41.2	51.6	40.9	40.9	52.5	43.5	41.9	45.0	33.5	44.9	42.2	31.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.40	1.26	1.94	1.00	1.00	1.00
Incremental Delay, d2	183.8	18.7	0.2	145.9	33.3	0.6	4.7	61.3	0.1	169.7	7.3	0.9
Delay (s)	225.0	70.3	41.0	186.8	85.8	44.2	63.2	118.0	65.1	214.6	49.5	32.1
Level of Service	F	E	D	F	F	D	E	F	E	F	D	C
Approach Delay (s)		104.0			99.1			103.5			82.6	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM Average Control Delay	97.3	HCM Level of Service F
HCM Volume to Capacity ratio	1.23	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	116.5%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2021 Background Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	378	375	184	227	105	304	1853	188	180	1528	43
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1883	1564	1825	1865	1582	1789	3614	1589	1789	3614	1490
Flt Permitted	0.61	1.00	1.00	0.12	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1151	1883	1564	231	1865	1582	126	3614	1589	135	3614	1490
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)	180	411	408	200	247	114	330	2014	204	196	1661	47
RTOR Reduction (vph)	0	0	165	0	0	76	0	0	50	0	0	25
Lane Group Flow (vph)	180	411	243	200	247	38	330	2014	154	196	1661	22
Confl. Peds. (#/hr)	1		9	2		8	3		3	11		13
Heavy Vehicles (%)	1%	2%	2%	0%	3%	1%	2%	1%	0%	2%	1%	4%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	33.2	33.2	33.2	46.2	46.2	46.2	79.8	67.0	56.0	64.8	56.0	67.0
Effective Green, g (s)	33.2	33.2	33.2	46.2	46.2	46.2	79.8	67.0	56.0	64.8	56.0	67.0
Actuated g/C Ratio	0.24	0.24	0.24	0.33	0.33	0.33	0.57	0.48	0.40	0.46	0.40	0.48
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	447	371	179	615	522	307	1730	636	166	1446	713
v/s Ratio Prot		0.22		c0.07	0.13		c0.15	c0.56		0.07	0.46	
v/s Ratio Perm	0.16		0.16	c0.30		0.02	0.46		0.10	0.47		0.02
v/c Ratio	0.66	0.92	0.66	1.12	0.40	0.07	1.07	1.16	0.24	1.18	1.15	0.03
Uniform Delay, d1	48.3	52.1	48.2	41.2	36.2	32.2	47.5	36.5	27.9	39.1	42.0	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.20	2.45
Incremental Delay, d2	5.7	23.8	4.1	102.2	0.4	0.1	72.7	80.6	0.9	120.3	74.0	0.1
Delay (s)	53.9	75.9	52.4	143.4	36.7	32.2	120.2	117.1	28.8	163.4	124.4	47.4
Level of Service	D	E	D	F	D	C	F	F	C	F	F	D
Approach Delay (s)		62.3			73.8			110.5			126.5	
Approach LOS		E			E			F			F	
Intersection Summary												
HCM Average Control Delay			104.1									F
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			140.0								8.0	
Intersection Capacity Utilization			111.8%									H
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St























Future 2021 Background Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	164	128	75	176	77	108	1964	100	120	1244	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1806	1772		1784	1824		1825	3573		1789	3614	1581
Flt Permitted	0.29	1.00		0.57	1.00		0.09	1.00		0.06	1.00	1.00
Satd. Flow (perm)	544	1772		1067	1824		177	3573		107	3614	1581
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)	145	178	139	82	191	84	117	2135	109	130	1352	82
RTOR Reduction (vph)	0	20	0	0	11	0	0	3	0	0	0	0
Lane Group Flow (vph)	145	297	0	82	264	0	117	2241	0	130	1352	82
Confl. Peds. (#/hr)	3		3	3		3	6		5	5		4
Heavy Vehicles (%)	1%	1%	0%	2%	0%	0%	0%	1%	6%	2%	1%	1%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Effective Green, g (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Actuated g/C Ratio	0.31	0.31		0.21	0.21		0.56	0.49		0.55	0.50	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	256	543		221	378		203	1761		144	1812	1581
v/s Ratio Prot	0.04	c0.17			c0.14		0.04	c0.63		c0.05	0.37	
v/s Ratio Perm	0.13			0.08			0.28			0.45		c0.05
v/c Ratio	0.57	0.55		0.37	0.70		0.58	1.27		0.90	0.75	0.05
Uniform Delay, d1	37.8	40.4		47.7	51.4		21.9	35.5		37.9	27.8	0.0
Progression Factor	1.00	1.00		1.00	1.00		2.02	0.79		1.72	0.58	1.00
Incremental Delay, d2	2.9	1.1		1.1	5.5		0.4	123.2		27.5	1.3	0.0
Delay (s)	40.7	41.6		48.7	57.0		44.5	151.4		92.7	17.4	0.0
Level of Service	D	D		D	E		D	F		F	B	A
Approach Delay (s)		41.3			55.1			146.1			22.7	
Approach LOS		D			E			F			C	

Intersection Summary		
HCM Average Control Delay	88.4	HCM Level of Service F
HCM Volume to Capacity ratio	1.08	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 28.0
Intersection Capacity Utilization	120.0%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

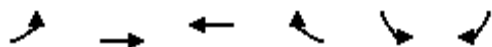
HCM Unsignalized Intersection Capacity Analysis
 25: Davis Dr W & GO Bus Access

Future 2021 Background Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (veh/h)	229	1260	6	7	1404	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	1370	7	8	1526	7	5	0	10	0	0	195
Pedestrians								6				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.80						0.80	0.80		0.80	0.80	0.80
vC, conflicting volume	1533			1382			2655	3424	694	2734	3421	763
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1157			1382			2567	3533	694	2666	3529	191
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	48			98			0	100	97	100	100	70
cM capacity (veh/h)	482			500			4	2	388	5	2	654
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	249	913	463	8	763	763	7	5	10	195		
Volume Left	249	0	0	8	0	0	0	5	0	0		
Volume Right	0	0	7	0	0	0	7	0	10	195		
cSH	482	1700	1700	500	1700	1700	1700	4	388	654		
Volume to Capacity	0.52	0.54	0.27	0.02	0.45	0.45	0.00	1.25	0.03	0.30		
Queue Length 95th (m)	22.1	0.0	0.0	0.4	0.0	0.0	0.0	11.4	0.6	9.4		
Control Delay (s)	20.2	0.0	0.0	12.3	0.0	0.0	0.0	1580.2	14.5	12.8		
Lane LOS	C			B				F	B	B		
Approach Delay (s)	3.1			0.1				573.7		12.8		
Approach LOS								F		B		
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization			64.8%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 37: Davis Dr W & Toth Farm Access

Future 2021 Background Traffic Analysis
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	37	1389	1545	55	34	22
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)	40	1510	1679	60	37	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				2515	840
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1739				2515	840
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				0	92
cM capacity (veh/h)	358				21	309

















Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	40	755	755	840	840	60	37	24
Volume Left	40	0	0	0	0	0	37	0
Volume Right	0	0	0	0	0	60	0	24
cSH	358	1700	1700	1700	1700	1700	21	309
Volume to Capacity	0.11	0.44	0.44	0.49	0.49	0.04	1.80	0.08
Queue Length 95th (m)	2.9	0.0	0.0	0.0	0.0	0.0	37.1	1.9
Control Delay (s)	16.3	0.0	0.0	0.0	0.0	0.0	777.7	17.6
Lane LOS	C						F	C
Approach Delay (s)	0.4			0.0			479.1	
Approach LOS							F	

Intersection Summary								
Average Delay			8.9					
Intersection Capacity Utilization			52.7%		ICU Level of Service			A
Analysis Period (min)			15					

APPENDIX I
Future (2016) Total Traffic
Level Of Service Calculations

















HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

Future 2016 Total Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	0	139	0	2	3	67	25	0	1	79	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	0	151	0	2	3	73	27	0	1	86	22
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	173	5	100	109								
Volume Left (vph)	22	0	73	1								
Volume Right (vph)	151	3	0	22								
Hadj (s)	-0.45	-0.33	0.23	-0.12								
Departure Headway (s)	3.9	4.2	4.6	4.3								
Degree Utilization, x	0.19	0.01	0.13	0.13								
Capacity (veh/h)	871	785	741	795								
Control Delay (s)	7.9	7.3	8.3	7.9								
Approach Delay (s)	7.9	7.3	8.3	7.9								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.0									
HCM Level of Service			A									
Intersection Capacity Utilization			35.9%	ICU Level of Service	A							
Analysis Period (min)			15									

























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2016 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	7	95	13	6	1	38	230	5	0	350	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	8	103	14	7	1	41	250	5	0	380	50
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	180	22	297	430								
Volume Left (vph)	70	14	41	0								
Volume Right (vph)	103	1	5	50								
Hadj (s)	-0.25	0.12	0.07	-0.04								
Departure Headway (s)	5.5	6.2	5.1	4.9								
Degree Utilization, x	0.27	0.04	0.42	0.58								
Capacity (veh/h)	590	470	670	716								
Control Delay (s)	10.5	9.5	11.8	14.4								
Approach Delay (s)	10.5	9.5	11.8	14.4								
Approach LOS	B	A	B	B								
Intersection Summary												
Delay			12.7									
HCM Level of Service			B									
Intersection Capacity Utilization			56.6%	ICU Level of Service	B							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall























Future 2016 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	885	301	69	641	44	171	65	72	15	21	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1689	3544	1542	1658	3510	1593	1700	1921	1492	1720	1921	1577
Flt Permitted	0.36	1.00	1.00	0.23	1.00	1.00	0.59	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	641	3544	1542	394	3510	1593	1064	1921	1492	1287	1921	1577
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)	37	962	327	75	697	48	186	71	78	16	23	7
RTOR Reduction (vph)	0	0	238	0	0	39	0	0	34	0	0	3
Lane Group Flow (vph)	37	962	89	75	697	9	186	71	44	16	23	4
Confl. Peds. (#/hr)	2		8	8		2	19		1	1		19
Heavy Vehicles (%)	8%	3%	2%	10%	4%	0%	6%	0%	8%	6%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	69.9	65.5	16.1	73.9	67.5	23.2	30.1	23.2	67.5	19.0	16.1	65.5
Effective Green, g (s)	69.9	65.5	16.1	73.9	67.5	23.2	30.1	23.2	67.5	19.0	16.1	65.5
Actuated g/C Ratio	0.58	0.55	0.13	0.62	0.56	0.19	0.25	0.19	0.56	0.16	0.13	0.55
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	412	1934	207	310	1974	308	320	371	839	214	258	861
v/s Ratio Prot	0.00	c0.27		c0.01	0.20		c0.05	0.04		0.00	0.01	
v/s Ratio Perm	0.05		0.06	0.14		0.01	c0.10		0.03	0.01		0.00
v/c Ratio	0.09	0.50	0.43	0.24	0.35	0.03	0.58	0.19	0.05	0.07	0.09	0.00
Uniform Delay, d1	10.8	17.0	47.7	10.6	14.3	39.3	38.2	40.5	11.8	42.9	45.5	12.4
Progression Factor	1.09	1.00	1.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.8	1.3	0.4	0.5	0.0	2.7	0.3	0.1	0.1	0.2	0.0
Delay (s)	11.8	17.9	87.8	11.0	14.8	39.3	40.9	40.8	12.0	43.1	45.7	12.4
Level of Service	B	B	F	B	B	D	D	D	B	D	D	B
Approach Delay (s)		34.9			15.9			34.1			39.7	
Approach LOS		C			B			C			D	

Intersection Summary		
HCM Average Control Delay	28.7	HCM Level of Service C
HCM Volume to Capacity ratio	0.51	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	74.5%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Future 2016 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	977	34	44	791	40	33	0	49	121	0	87
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1737	3544	1487	1656	3476	1520	1725		1517	1784		1497
Flt Permitted	0.27	1.00	1.00	0.20	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	500	3544	1487	346	3476	1520	1725		1517	1784		1497
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)	23	1062	37	48	860	43	36	0	53	132	0	95
RTOR Reduction (vph)	0	0	17	0	0	19	0	0	35	0	0	63
Lane Group Flow (vph)	23	1062	20	48	860	24	36	0	18	132	0	32
Confl. Peds. (#/hr)	1		6	6		1	5		2	2		5
Heavy Vehicles (%)	5%	3%	6%	10%	5%	5%	5%	0%	6%	2%	0%	7%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Effective Green, g (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.34		0.34	0.34		0.34
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	275	1949	818	190	1912	836	589		518	610		511
v/s Ratio Prot		c0.30			0.25							
v/s Ratio Perm	0.05		0.01	0.14		0.02	0.02		0.01	c0.07		0.02
v/c Ratio	0.08	0.54	0.02	0.25	0.45	0.03	0.06		0.03	0.22		0.06
Uniform Delay, d1	12.7	17.3	12.3	14.1	16.1	12.3	26.6		26.3	28.1		26.6
Progression Factor	1.41	1.06	2.37	1.07	0.95	1.48	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.5	0.0	3.0	0.7	0.1	0.2		0.1	0.8		0.2
Delay (s)	18.3	19.0	29.2	18.1	16.1	18.4	26.8		26.4	28.9		26.8
Level of Service	B	B	C	B	B	B	C		C	C		C
Approach Delay (s)		19.3			16.3			26.6			28.0	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay			19.2									B
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			120.0							13.0		
Intersection Capacity Utilization			78.3%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2016 Total Traffic Analysis
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	12	17	58	36	34
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	13	18	63	39	37
Pedestrians		1			1	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	153	79	116	1	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	153	79	116	1	0	
tC, single (s)	7.2	6.5	6.5	6.2	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.0	4.0	3.3	2.3	
p0 queue free %	97	98	98	94	98	
cM capacity (veh/h)	729	794	758	1080	1585	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	37	82	39	37		
Volume Left	24	0	39	0		
Volume Right	0	63	0	37		
cSH	751	985	1585	1700		
Volume to Capacity	0.05	0.08	0.02	0.02		
Queue Length 95th (m)	1.2	2.1	0.6	0.0		
Control Delay (s)	10.0	9.0	7.3	0.0		
Lane LOS	B	A	A			
Approach Delay (s)	10.0	9.0	3.8			
Approach LOS	B	A				
Intersection Summary						
Average Delay			7.1			
Intersection Capacity Utilization			18.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St



















Future 2016 Total Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	1070	273	175	676	54	317	231	90	24	506	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	3579	1570	1807	3576		1755	3614	1617	1738	3650	1555
Flt Permitted	0.16	1.00	1.00	0.11	1.00		0.20	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	278	3579	1570	206	3576		370	3614	1617	1091	3650	1555
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)	250	1163	297	190	735	59	345	251	98	26	550	363
RTOR Reduction (vph)	0	0	196	0	5	0	0	0	58	0	0	164
Lane Group Flow (vph)	250	1163	101	190	789	0	345	251	40	26	550	199
Heavy Vehicles (%)	12%	2%	4%	1%	1%	0%	4%	1%	1%	5%	0%	5%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	58.2	41.0	41.0	50.2	37.0		48.8	48.8	48.8	25.3	25.3	25.3
Effective Green, g (s)	58.2	41.0	41.0	50.2	37.0		48.8	48.8	48.8	25.3	25.3	25.3
Actuated g/C Ratio	0.49	0.34	0.34	0.42	0.31		0.41	0.41	0.41	0.21	0.21	0.21
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	329	1223	536	262	1103		376	1470	658	230	770	328
v/s Ratio Prot	c0.11	c0.32		0.08	0.22		c0.15	0.07			0.15	
v/s Ratio Perm	0.26		0.06	0.22			c0.22		0.02	0.02		0.13
v/c Ratio	0.76	0.95	0.19	0.73	0.72		0.92	0.17	0.06	0.11	0.71	0.61
Uniform Delay, d1	22.3	38.5	27.8	27.2	36.8		28.2	22.7	21.7	38.3	44.0	42.8
Progression Factor	1.00	1.00	1.00	1.38	1.46		0.85	0.82	1.30	1.00	1.00	1.00
Incremental Delay, d2	9.7	16.4	0.8	8.9	3.7		24.3	0.0	0.0	0.2	3.2	3.2
Delay (s)	32.0	54.9	28.6	46.5	57.6		48.3	18.8	28.2	38.5	47.2	46.0
Level of Service	C	D	C	D	E		D	B	C	D	D	D
Approach Delay (s)		47.0			55.5			34.8			46.5	
Approach LOS		D			E			C			D	
Intersection Summary												
HCM Average Control Delay			46.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			88.3%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St










Future 2016 Total Traffic Analysis
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	39	0	24	0	1384	27	21	1757	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0		
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95		
Frt				1.00	0.85			1.00		1.00	1.00		
Flt Protected				0.95	1.00			1.00		0.95	1.00		
Satd. Flow (prot)				1825	1633			3604		1825	3614		
Flt Permitted				0.76	1.00			1.00		0.15	1.00		
Satd. Flow (perm)				1455	1633			3604		288	3614		
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	0	42	0	26	0	1504	29	23	1910	0	
RTOR Reduction (vph)	0	0	0	0	24	0	0	1	0	0	0	0	
Lane Group Flow (vph)	0	0	0	42	2	0	0	1532	0	23	1910	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)				8.6	8.6			98.4		98.4	98.4		
Effective Green, g (s)				8.6	8.6			98.4		98.4	98.4		
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82		
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0		
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)				104	117			2955		236	2963		
v/s Ratio Prot					0.00			0.43			c0.53		
v/s Ratio Perm				c0.03						0.08			
v/c Ratio				0.40	0.02			0.52		0.10	0.64		
Uniform Delay, d1				53.2	51.8			3.4		2.1	4.1		
Progression Factor				1.00	1.00			1.00		1.31	2.26		
Incremental Delay, d2				2.6	0.1			0.7		0.8	1.1		
Delay (s)				55.8	51.8			4.0		3.6	10.4		
Level of Service				E	D			A		A	B		
Approach Delay (s)		0.0			54.3			4.0			10.3		
Approach LOS		A			D			A			B		
Intersection Summary													
HCM Average Control Delay			8.4	HCM Level of Service							A		
HCM Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			120.0	Sum of lost time (s)						13.0			
Intersection Capacity Utilization			67.7%	ICU Level of Service						C			
Analysis Period (min)			15										

c Critical Lane Group


















HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr

Future 2016 Total Traffic Analysis
 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
 18: Access #7 & Eagle St W

Future 2016 Total Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	9	0	72	0	106	0	174	104	115	337	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	10	0	78	0	115	0	189	113	125	366	1
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	12	78	115	302	492							
Volume Left (vph)	2	78	0	0	125							
Volume Right (vph)	0	0	115	113	1							
Hadj (s)	0.07	0.53	-0.68	-0.18	0.09							
Departure Headway (s)	6.5	7.0	5.8	5.0	5.0							
Degree Utilization, x	0.02	0.15	0.19	0.42	0.69							
Capacity (veh/h)	469	467	561	688	701							
Control Delay (s)	9.7	10.1	8.9	11.6	18.2							
Approach Delay (s)	9.7	9.4		11.6	18.2							
Approach LOS	A	A		B	C							
Intersection Summary												
Delay			14.4									
HCM Level of Service			B									
Intersection Capacity Utilization			60.6%	ICU Level of Service	B							
Analysis Period (min)			15									

























HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

Future 2016 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	633	151	250	497	139	114	527	177	215	1111	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1600	3544	1415	1789	3476	1571	1755	3476	1590	1754	3579	1486
Flt Permitted	0.33	1.00	1.00	0.15	1.00	1.00	0.08	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	551	3544	1415	290	3476	1571	142	3476	1590	646	3579	1486
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)	186	688	164	272	540	151	124	573	192	234	1208	272
RTOR Reduction (vph)	0	0	125	0	0	112	0	0	114	0	0	121
Lane Group Flow (vph)	186	688	39	272	540	39	124	573	78	234	1208	151
Confl. Peds. (#/hr)	6		8	8		6	5		4	4		5
Heavy Vehicles (%)	14%	3%	13%	2%	5%	2%	4%	5%	1%	4%	2%	8%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	43.7	31.2	31.2	48.7	33.7	33.7	61.8	47.9	52.6	61.8	52.6	47.9
Effective Green, g (s)	43.7	31.2	31.2	48.7	33.7	33.7	61.8	47.9	52.6	61.8	52.6	47.9
Actuated g/C Ratio	0.34	0.24	0.24	0.37	0.26	0.26	0.48	0.37	0.40	0.48	0.40	0.37
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	286	851	340	282	901	407	182	1281	643	426	1448	548
v/s Ratio Prot	0.06	0.19		c0.11	0.16		c0.05	0.16		0.06	c0.34	
v/s Ratio Perm	0.16		0.03	c0.25		0.02	0.28		0.05	0.20		0.10
v/c Ratio	0.65	0.81	0.12	0.96	0.60	0.10	0.68	0.45	0.12	0.55	0.83	0.28
Uniform Delay, d1	32.8	46.6	38.6	32.5	42.2	36.6	26.0	31.0	24.2	21.1	34.8	28.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.54	1.12	3.35	1.00	1.00	1.00
Incremental Delay, d2	5.2	5.7	0.2	43.6	1.1	0.1	9.5	1.1	0.4	1.5	5.8	1.2
Delay (s)	38.0	52.3	38.8	76.1	43.3	36.7	49.4	35.7	81.6	22.6	40.6	30.1
Level of Service	D	D	D	E	D	D	D	D	F	C	D	C
Approach Delay (s)		47.6			51.5			47.5			36.5	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			44.3				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)		19.0			
Intersection Capacity Utilization			93.5%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2016 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	218	221	196	231	113	337	1064	232	77	1328	116
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	1921	1578	1806	1902	1592	1772	3579	1574	1825	3544	1565
Flt Permitted	0.60	1.00	1.00	0.30	1.00	1.00	0.07	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	1101	1921	1578	564	1902	1592	136	3579	1574	260	3544	1565
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)	51	237	240	213	251	123	366	1157	252	84	1443	126
RTOR Reduction (vph)	0	0	164	0	0	91	0	0	117	0	0	70
Lane Group Flow (vph)	51	237	76	213	251	32	366	1157	135	84	1443	56
Confl. Peds. (#/hr)	3		2	2		3	1		3	3		1
Heavy Vehicles (%)	5%	0%	2%	1%	1%	1%	3%	2%	1%	0%	3%	2%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	22.0	22.0	22.0	34.0	34.0	34.0	82.0	58.0	51.0	71.0	51.0	58.0
Effective Green, g (s)	22.0	22.0	22.0	34.0	34.0	34.0	82.0	58.0	51.0	71.0	51.0	58.0
Actuated g/C Ratio	0.17	0.17	0.17	0.26	0.26	0.26	0.63	0.45	0.39	0.55	0.39	0.45
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	186	325	267	224	497	416	426	1597	617	383	1390	698
v/s Ratio Prot		0.12		c0.06	0.13		c0.18	0.32		0.03	c0.41	
v/s Ratio Perm	0.05		0.05	c0.19		0.02	0.36		0.09	0.09		0.04
v/c Ratio	0.27	0.73	0.28	0.95	0.51	0.08	0.86	0.72	0.22	0.22	1.04	0.08
Uniform Delay, d1	47.0	51.2	47.1	46.0	40.8	36.2	39.8	29.5	26.3	16.5	39.5	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.84	1.36	4.41
Incremental Delay, d2	0.8	8.0	0.6	46.3	0.8	0.1	19.7	2.9	0.8	0.6	27.8	0.1
Delay (s)	47.8	59.1	47.7	92.3	41.7	36.3	59.5	32.4	27.1	30.9	81.6	91.3
Level of Service	D	E	D	F	D	D	E	C	C	C	F	F
Approach Delay (s)		52.8			58.9			37.2			79.8	
Approach LOS		D			E			D			E	

Intersection Summary		
HCM Average Control Delay	57.3	HCM Level of Service E
HCM Volume to Capacity ratio	0.94	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	98.2%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St





















Future 2016 Total Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	115	140	104	124	51	166	709	45	63	1445	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	1.00
Frt	1.00	0.92		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1753	1739		1822	1829		1825	3473		1815	3579	1582
Flt Permitted	0.47	1.00		0.59	1.00		0.06	1.00		0.34	1.00	1.00
Satd. Flow (perm)	859	1739		1130	1829		118	3473		655	3579	1582
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)	55	125	152	113	135	55	180	771	49	68	1571	182
RTOR Reduction (vph)	0	35	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	55	242	0	113	178	0	180	817	0	68	1571	182
Confl. Peds. (#/hr)	3		2	2		3	3		7	7		3
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	0%	4%	3%	0%	2%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	40.2	40.2		29.0	29.0		75.8	75.8		61.0	61.0	130.0
Effective Green, g (s)	40.2	40.2		29.0	29.0		75.8	75.8		61.0	61.0	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.58	0.58		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	538		252	408		211	2025		307	1679	1582
v/s Ratio Prot	0.01	c0.14			0.10		c0.07	0.24			c0.44	
v/s Ratio Perm	0.04			0.10			0.43			0.10		0.12
v/c Ratio	0.17	0.45		0.45	0.44		0.85	0.40		0.22	0.94	0.12
Uniform Delay, d1	32.3	36.0		43.6	43.5		37.8	14.8		20.4	32.6	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.84	1.06		0.76	0.58	1.00
Incremental Delay, d2	0.3	0.6		1.3	0.8		21.4	0.5		1.1	8.2	0.1
Delay (s)	32.6	36.6		44.9	44.2		91.0	16.2		16.7	27.0	0.1
Level of Service	C	D		D	D		F	B		B	C	A
Approach Delay (s)		36.0			44.5			29.6			24.0	
Approach LOS		D			D			C			C	

Intersection Summary		
HCM Average Control Delay	28.5	HCM Level of Service C
HCM Volume to Capacity ratio	0.75	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	105.8%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Future 2016 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1210	6	5	859	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	1315	7	5	934	9	0	0	3	0	0	42
Pedestrians								6				1
Lane Width (m)								3.7				3.7
Walking Speed (m/s)								1.2				1.2
Percent Blockage								1				0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.90						0.90	0.90		0.90	0.90	0.90
vC, conflicting volume	943			1328			1941	2418	667	1746	2412	468
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	712			1328			1822	2352	667	1605	2346	183
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	91			99			100	100	99	100	100	94
cM capacity (veh/h)	776			524			38	29	404	59	29	735
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	70	877	445	5	467	467	9	0	3	42		
Volume Left	70	0	0	5	0	0	0	0	0	0		
Volume Right	0	0	7	0	0	0	9	0	3	42		
cSH	776	1700	1700	524	1700	1700	1700	1700	404	735		
Volume to Capacity	0.09	0.52	0.26	0.01	0.27	0.27	0.01	0.00	0.01	0.06		
Queue Length 95th (m)	2.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	1.4		
Control Delay (s)	10.1	0.0	0.0	11.9	0.0	0.0	0.0	0.0	14.0	10.2		
Lane LOS	B			B				A	B	B		
Approach Delay (s)	0.5			0.1				14.0		10.2		
Approach LOS								B		B		
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization			43.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
28: Alex Doner Dr & Street 'A'

Future 2016 Total Traffic Analysis
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	120	89	2	7	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)	1	130	97	2	8	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)						
pX, platoon unblocked						
vC, conflicting volume	99				230	98
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	99				230	98
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1494				757	958
Direction, Lane #						
	EB 1	WB 1	SB 1			
Volume Total	132	99	15			
Volume Left	1	0	8			
Volume Right	0	2	8			
cSH	1494	1700	846			
Volume to Capacity	0.00	0.06	0.02			
Queue Length 95th (m)	0.0	0.0	0.4			
Control Delay (s)	0.1	0.0	9.3			
Lane LOS	A		A			
Approach Delay (s)	0.1	0.0	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			17.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 30: Alex Doner Dr & Access #1










Future 2016 Total Traffic Analysis
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	
Volume (veh/h)	31	2	2	52	17	5
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)	34	2	2	57	18	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			36		96	35
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			36		96	35
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1575		903	1038
Direction, Lane #						
	EB 1	WB 1	NB 1			
Volume Total	36	59	24			
Volume Left	0	2	18			
Volume Right	2	0	5			
cSH	1700	1575	930			
Volume to Capacity	0.02	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.3	9.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.3	9.0			
Approach LOS			A			
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			14.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
32: Access #2 & Crossland Gate

Future 2016 Total Traffic Analysis
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	18	46	2	2	50
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	20	50	2	2	54
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	110	51			52	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	110	51			52	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	886	1017			1554	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	29	52	57			
Volume Left	10	0	2			
Volume Right	20	2	0			
cSH	969	1700	1554			
Volume to Capacity	0.03	0.03	0.00			
Queue Length 95th (m)	0.7	0.0	0.0			
Control Delay (s)	8.8	0.0	0.3			
Lane LOS	A		A			
Approach Delay (s)	8.8	0.0	0.3			
Approach LOS	A					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			14.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
34: Street 'A' & Crossland Gate







Future 2016 Total Traffic Analysis
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	0	0	48	52	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	0	52	57	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	111	59	62			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	111	59	62			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	885	1006	1541			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	10	52	62			
Volume Left	10	0	0			
Volume Right	0	0	5			
cSH	885	1541	1700			
Volume to Capacity	0.01	0.00	0.04			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	9.1	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.1	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

















HCM Unsignalized Intersection Capacity Analysis
37: Davis Dr W & Street 'B'

Future 2016 Total Traffic Analysis
AM Peak Hour

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑			
Volume (veh/h)	1253	3	10	879	4	34			
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)	1362	3	11	955	4	37			
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			1365			1861	681		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1365			1861	681		
tC, single (s)			4.1			6.8	6.9		
tC, 2 stage (s)									
tF (s)			2.2			3.5	3.3		
p0 queue free %			98			93	91		
cM capacity (veh/h)			499			63	393		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	681	681	3	11	478	478	4	37	
Volume Left	0	0	0	11	0	0	4	0	
Volume Right	0	0	3	0	0	0	0	37	
cSH	1700	1700	1700	499	1700	1700	63	393	
Volume to Capacity	0.40	0.40	0.00	0.02	0.28	0.28	0.07	0.09	
Queue Length 95th (m)	0.0	0.0	0.0	0.5	0.0	0.0	1.6	2.4	
Control Delay (s)	0.0	0.0	0.0	12.4	0.0	0.0	66.1	15.1	
Lane LOS				B			F	C	
Approach Delay (s)	0.0			0.1			20.5		
Approach LOS							C		
Intersection Summary									
Average Delay			0.4						
Intersection Capacity Utilization			44.6%		ICU Level of Service		A		
Analysis Period (min)			15						

HCM Unsignalized Intersection Capacity Analysis
38: Street 'D' & Eagle St W

Future 2016 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	5	5	0	0	2	291	2	0	391	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	5	5	0	0	2	316	2	0	425	1
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	747	748	426	753	748	317	426			318		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	747	748	426	753	748	317	426			318		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	98	100	100	100			100		
cM capacity (veh/h)	328	340	629	323	340	723	1133			1242		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	8	5	321	426								
Volume Left	2	5	2	0								
Volume Right	5	0	2	1								
cSH	499	323	1133	1242								
Volume to Capacity	0.02	0.02	0.00	0.00								
Queue Length 95th (m)	0.4	0.4	0.0	0.0								
Control Delay (s)	12.3	16.3	0.1	0.0								
Lane LOS	B	C	A									
Approach Delay (s)	12.3	16.3	0.1	0.0								
Approach LOS	B	C										
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			30.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
42: Millard Ave & Street 'D'

















Future 2016 Total Traffic Analysis
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	
Volume (veh/h)	247	1	2	191	3	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)	268	1	2	208	3	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)	367					
pX, platoon unblocked						
vC, conflicting volume			270		481	269
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			270		481	269
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	99
cM capacity (veh/h)			1294		543	770
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	270	210	10			
Volume Left	0	2	3			
Volume Right	1	0	7			
cSH	1700	1294	676			
Volume to Capacity	0.16	0.00	0.01			
Queue Length 95th (m)	0.0	0.0	0.3			
Control Delay (s)	0.0	0.1	10.4			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.1	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			23.1%	ICU Level of Service		A
Analysis Period (min)	15					

















HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

Future 2016 Total Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	0	59	0	1	2	91	59	0	3	39	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	64	0	1	2	99	64	0	3	42	12
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	75	3	163	58								
Volume Left (vph)	11	0	99	3								
Volume Right (vph)	64	2	0	12								
Hadj (s)	-0.45	-0.37	0.13	-0.08								
Departure Headway (s)	3.9	4.1	4.3	4.2								
Degree Utilization, x	0.08	0.00	0.19	0.07								
Capacity (veh/h)	864	813	823	841								
Control Delay (s)	7.3	7.1	8.3	7.5								
Approach Delay (s)	7.3	7.1	8.3	7.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.9									
HCM Level of Service			A									
Intersection Capacity Utilization			32.8%	ICU Level of Service	A							
Analysis Period (min)			15									




























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	8	71	10	1	0	119	515	13	3	411	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	9	77	11	1	0	129	560	14	3	447	67
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	122	12	703	517								
Volume Left (vph)	36	11	129	3								
Volume Right (vph)	77	0	14	67								
Hadj (s)	-0.30	0.18	0.04	-0.06								
Departure Headway (s)	6.5	7.5	5.1	5.2								
Degree Utilization, x	0.22	0.02	1.00	0.75								
Capacity (veh/h)	528	443	703	680								
Control Delay (s)	11.4	10.7	55.9	22.4								
Approach Delay (s)	11.4	10.7	55.9	22.4								
Approach LOS	B	B	F	C								
Intersection Summary												
Delay			38.7									
HCM Level of Service			E									
Intersection Capacity Utilization			78.6%	ICU Level of Service	D							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall

Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	63	908	198	143	855	84	308	197	106	138	163	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3579	1574	1789	3614	1559	1771	1902	1535	1824	1921	1550
Flt Permitted	0.25	1.00	1.00	0.18	1.00	1.00	0.38	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	471	3579	1574	340	3614	1559	717	1902	1535	1129	1921	1550
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)	68	987	215	155	929	91	335	214	115	150	177	29
RTOR Reduction (vph)	0	0	152	0	0	74	0	0	57	0	0	15
Lane Group Flow (vph)	68	987	63	155	929	17	335	214	58	150	177	14
Confl. Peds. (#/hr)	3		3	3		3	33		1	1		33
Heavy Vehicles (%)	0%	2%	1%	2%	1%	2%	2%	1%	5%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	62.6	56.3	16.5	70.4	60.2	21.8	35.5	21.8	60.2	26.2	16.5	56.3
Effective Green, g (s)	62.6	56.3	16.5	70.4	60.2	21.8	35.5	21.8	60.2	26.2	16.5	56.3
Actuated g/C Ratio	0.52	0.47	0.14	0.59	0.50	0.18	0.30	0.18	0.50	0.22	0.14	0.47
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	317	1679	216	323	1813	283	344	346	770	303	264	727
v/s Ratio Prot	0.01	c0.28		c0.04	0.26		c0.12	0.11		0.04	0.09	
v/s Ratio Perm	0.10		0.04	0.24		0.01	c0.17		0.04	0.07		0.01
v/c Ratio	0.21	0.59	0.29	0.48	0.51	0.06	0.97	0.62	0.07	0.50	0.67	0.02
Uniform Delay, d1	14.9	23.3	46.5	14.2	20.1	40.6	39.3	45.3	15.5	39.9	49.2	17.1
Progression Factor	0.42	0.57	2.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.4	0.7	1.1	1.0	0.1	41.2	3.3	0.2	1.3	6.5	0.0
Delay (s)	6.6	14.7	138.1	15.4	21.1	40.7	80.5	48.5	15.7	41.2	55.7	17.1
Level of Service	A	B	F	B	C	D	F	D	B	D	E	B
Approach Delay (s)		35.1			21.9			59.0			46.5	
Approach LOS		D			C			E			D	

Intersection Summary		
HCM Average Control Delay	36.4	HCM Level of Service D
HCM Volume to Capacity ratio	0.71	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	86.8%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Future 2016 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1144	39	61	1177	141	30	0	74	61	0	20
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1824	3614	1596	1824	3614	1592	1818		1610	1821		1608
Flt Permitted	0.20	1.00	1.00	0.21	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	391	3614	1596	409	3614	1592	1818		1610	1821		1608
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	1243	42	66	1279	153	33	0	80	66	0	22
RTOR Reduction (vph)	0	0	8	0	0	27	0	0	74	0	0	20
Lane Group Flow (vph)	189	1243	34	66	1279	126	33	0	6	66	0	2
Confl. Peds. (#/hr)	2		1	1		2	3		2	2		3
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Effective Green, g (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.82	0.82	0.07		0.07	0.07		0.07
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	321	2966	1310	336	2966	1307	129		114	129		114
v/s Ratio Prot		0.34			0.35							
v/s Ratio Perm	c0.48		0.02	0.16		0.08	0.02		0.00	c0.04		0.00
v/c Ratio	0.59	0.42	0.03	0.20	0.43	0.10	0.26		0.05	0.51		0.01
Uniform Delay, d1	3.7	2.9	2.0	2.3	3.0	2.1	52.8		52.0	53.7		51.9
Progression Factor	2.80	0.68	0.39	0.93	0.82	1.26	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.7	0.0	0.0	1.2	0.4	0.1	1.1		0.2	3.4		0.0
Delay (s)	11.2	2.0	0.8	3.3	2.9	2.8	53.8		52.2	57.1		51.9
Level of Service	B	A	A	A	A	A	D		D	E		D
Approach Delay (s)		3.2			2.9			52.6			55.8	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM Average Control Delay			6.3				HCM Level of Service			A		
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			86.7%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2016 Total Traffic Analysis
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Volume (veh/h)	43	16	15	56	66	39
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	17	16	61	72	42
Pedestrians			1		1	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	214	144	187	2	1	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	214	144	187	2	1	
tC, single (s)	7.1	6.5	6.8	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.2	3.3	2.2	
p0 queue free %	93	98	97	94	96	
cM capacity (veh/h)	668	717	639	1086	1634	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	64	77	72	42
Volume Left	47	0	72	0
Volume Right	0	61	0	42
cSH	680	946	1634	1700
Volume to Capacity	0.09	0.08	0.04	0.02
Queue Length 95th (m)	2.4	2.0	1.0	0.0
Control Delay (s)	10.8	9.1	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.8	9.1	4.6	
Approach LOS	B	A		

Intersection Summary			
Average Delay		7.5	
Intersection Capacity Utilization		20.2%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St



















Future 2016 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1382	447	239	783	56	517	650	174	18	355	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3614	1601	1807	3613		1789	3614	1633	1825	3614	1617
Flt Permitted	0.11	1.00	1.00	0.12	1.00		0.28	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	204	3614	1601	231	3613		528	3614	1633	735	3614	1617
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)	454	1502	486	260	851	61	562	707	189	20	386	278
RTOR Reduction (vph)	0	0	253	0	4	0	0	0	129	0	0	232
Lane Group Flow (vph)	454	1502	233	260	908	0	562	707	60	20	386	46
Heavy Vehicles (%)	2%	1%	2%	1%	0%	0%	2%	1%	0%	0%	1%	1%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	68.7	42.3	42.3	55.4	33.0		38.3	38.3	38.3	19.3	19.3	19.3
Effective Green, g (s)	68.7	42.3	42.3	55.4	33.0		38.3	38.3	38.3	19.3	19.3	19.3
Actuated g/C Ratio	0.57	0.35	0.35	0.46	0.28		0.32	0.32	0.32	0.16	0.16	0.16
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	535	1274	564	401	994		326	1153	521	118	581	260
v/s Ratio Prot	c0.22	c0.42		0.12	0.25		c0.22	0.20			0.11	
v/s Ratio Perm	0.26		0.15	0.18			c0.33		0.04	0.03		0.03
v/c Ratio	0.85	1.18	0.41	0.65	0.91		1.72	0.61	0.12	0.17	0.66	0.18
Uniform Delay, d1	32.1	38.8	29.5	26.7	42.1		36.9	34.6	28.9	43.4	47.3	43.5
Progression Factor	1.00	1.00	1.00	0.96	1.06		0.89	0.88	1.03	1.00	1.00	1.00
Incremental Delay, d2	11.9	89.0	2.2	3.4	13.2		336.0	0.8	0.1	0.7	2.9	0.3
Delay (s)	44.0	127.8	31.7	29.0	57.9		368.8	31.2	29.9	44.1	50.2	43.8
Level of Service	D	F	C	C	E		F	C	C	D	D	D
Approach Delay (s)		93.1			51.5			161.2			47.4	
Approach LOS		F			D			F			D	
Intersection Summary												
HCM Average Control Delay			96.4			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		15.0				
Intersection Capacity Utilization			107.4%			ICU Level of Service		G				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	32	0	33	0	1633	59	26	894	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3596		1807	3650	
Flt Permitted				0.76	1.00			1.00		0.10	1.00	
Satd. Flow (perm)				1455	1633			3596		191	3650	
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	0	35	0	36	0	1775	64	28	972	0
RTOR Reduction (vph)	0	0	0	0	29	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	35	7	0	0	1838	0	28	972	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				8.3	8.3			98.7		98.7	98.7	
Effective Green, g (s)				8.3	8.3			98.7		98.7	98.7	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				101	113			2958		157	3002	
v/s Ratio Prot					0.00			c0.51			0.27	
v/s Ratio Perm				c0.02						0.15		
v/c Ratio				0.35	0.06			0.62		0.18	0.32	
Uniform Delay, d1				53.3	52.2			3.9		2.2	2.6	
Progression Factor				1.00	1.00			1.00		2.37	2.65	
Incremental Delay, d2				2.1	0.2			1.0		2.1	0.2	
Delay (s)				55.3	52.5			4.9		7.4	7.1	
Level of Service				E	D			A		A	A	
Approach Delay (s)		0.0			53.9			4.9			7.1	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			6.8									A
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			120.0								13.0	
Intersection Capacity Utilization			66.2%									C
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr










Future 2016 Total Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			


















HCM Unsignalized Intersection Capacity Analysis
 17: Alex Doner Dr & Access #1

Future 2016 Total Traffic Analysis
 PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	61	9	9	48	6	2
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)	66	10	10	52	7	2
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			76		143	71
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			76		143	71
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	100
cM capacity (veh/h)			1523		844	991
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	76	62	9			
Volume Left	0	10	7			
Volume Right	10	0	2			
cSH	1700	1523	877			
Volume to Capacity	0.04	0.01	0.01			
Queue Length 95th (m)	0.0	0.1	0.2			
Control Delay (s)	0.0	1.2	9.1			
Lane LOS		A	A			
Approach Delay (s)	0.0	1.2	9.1			
Approach LOS			A			
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			19.7%	ICU Level of Service		A
Analysis Period (min)	15					

























HCM Unsignalized Intersection Capacity Analysis
 18: Access #7 & Eagle St W

Future 2016 Total Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	6	0	97	0	172	0	420	71	101	342	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	105	0	187	0	457	77	110	372	2
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	8	105	187	534	484							
Volume Left (vph)	1	105	0	0	110							
Volume Right (vph)	0	0	187	77	2							
Hadj (s)	0.06	0.52	-0.68	-0.07	0.06							
Departure Headway (s)	7.8	7.8	6.5	5.6	5.8							
Degree Utilization, x	0.02	0.23	0.34	0.83	0.78							
Capacity (veh/h)	409	437	518	631	604							
Control Delay (s)	11.0	11.8	11.6	30.0	26.0							
Approach Delay (s)	11.0	11.7		30.0	26.0							
Approach LOS	B	B		D	D							
Intersection Summary												
Delay			24.4									
HCM Level of Service			C									
Intersection Capacity Utilization			73.1%	ICU Level of Service	D							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	306	697	183	297	758	270	223	1147	250	306	856	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1721	3476	1415	1806	3544	1556	1771	3579	1540	1772	3614	1504
Flt Permitted	0.11	1.00	1.00	0.12	1.00	1.00	0.15	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	208	3476	1415	237	3544	1556	278	3579	1540	153	3614	1504
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)	333	758	199	323	824	293	242	1247	272	333	930	233
RTOR Reduction (vph)	0	0	149	0	0	166	0	0	116	0	0	135
Lane Group Flow (vph)	333	758	50	323	824	127	242	1247	156	333	930	98
Confl. Peds. (#/hr)	22		22	22		22	18		14	14		18
Heavy Vehicles (%)	6%	5%	11%	1%	3%	1%	3%	2%	3%	3%	1%	5%
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5		2
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	53.9	34.9	34.9	53.9	34.9	34.9	60.2	45.0	48.9	68.0	48.9	45.0
Effective Green, g (s)	53.9	34.9	34.9	53.9	34.9	34.9	60.2	45.0	48.9	68.0	48.9	45.0
Actuated g/C Ratio	0.38	0.25	0.25	0.38	0.25	0.25	0.43	0.32	0.35	0.49	0.35	0.32
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	285	867	353	304	883	388	282	1150	538	295	1262	483
v/s Ratio Prot	c0.16	0.22		0.14	0.23		0.09	0.35		c0.15	0.26	
v/s Ratio Perm	c0.29		0.04	0.26		0.08	0.28		0.10	c0.40		0.07
v/c Ratio	1.17	0.87	0.14	1.06	0.93	0.33	0.86	1.08	0.29	1.13	0.74	0.20
Uniform Delay, d1	42.3	50.4	40.9	40.7	51.4	43.0	29.6	47.5	33.0	45.4	39.9	34.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.76	1.29	2.25	1.00	1.00	1.00
Incremental Delay, d2	106.9	9.8	0.2	69.1	16.4	0.5	2.5	39.7	0.1	91.7	3.9	0.9
Delay (s)	149.2	60.2	41.1	109.8	67.8	43.5	54.8	100.8	74.3	137.1	43.8	35.4
Level of Service	F	E	D	F	E	D	D	F	E	F	D	D
Approach Delay (s)		80.2			72.3			90.4			63.3	
Approach LOS		F			E			F			E	

Intersection Summary		
HCM Average Control Delay	77.1	HCM Level of Service E
HCM Volume to Capacity ratio	1.11	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	109.2%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		























HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	308	326	184	202	105	310	1646	188	180	1326	43
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1883	1564	1825	1865	1582	1789	3614	1589	1789	3614	1490
Flt Permitted	0.62	1.00	1.00	0.20	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1180	1883	1564	380	1865	1582	126	3614	1589	135	3614	1490
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)	133	335	354	200	220	114	337	1789	204	196	1441	47
RTOR Reduction (vph)	0	0	176	0	0	79	0	0	57	0	0	25
Lane Group Flow (vph)	133	335	178	200	220	35	337	1789	147	196	1441	22
Confl. Peds. (#/hr)	1		9	2		8	3		3	11		13
Heavy Vehicles (%)	1%	2%	2%	0%	3%	1%	2%	1%	0%	2%	1%	4%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	30.2	30.2	30.2	43.2	43.2	43.2	82.8	67.0	56.0	67.8	56.0	67.0
Effective Green, g (s)	30.2	30.2	30.2	43.2	43.2	43.2	82.8	67.0	56.0	67.8	56.0	67.0
Actuated g/C Ratio	0.22	0.22	0.22	0.31	0.31	0.31	0.59	0.48	0.40	0.48	0.40	0.48
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	255	406	337	210	575	488	345	1730	636	205	1446	713
v/s Ratio Prot		0.18		c0.06	0.12		c0.16	c0.50		0.08	0.40	
v/s Ratio Perm	0.11		0.11	c0.23		0.02	0.42		0.09	0.38		0.02
v/c Ratio	0.52	0.83	0.53	0.95	0.38	0.07	0.98	1.03	0.23	0.96	1.00	0.03
Uniform Delay, d1	48.5	52.4	48.6	44.5	37.9	34.2	47.1	36.5	27.8	41.9	41.9	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.21	2.45
Incremental Delay, d2	1.9	12.8	1.5	48.4	0.4	0.1	43.0	31.0	0.8	48.3	21.3	0.1
Delay (s)	50.4	65.2	50.1	92.9	38.4	34.3	90.0	67.5	28.6	93.7	72.2	47.4
Level of Service	D	E	D	F	D	C	F	E	C	F	E	D
Approach Delay (s)		56.3			57.9			67.3			74.0	
Approach LOS		E			E			E			E	
Intersection Summary												
HCM Average Control Delay			66.8								HCM Level of Service	E
HCM Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			140.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			103.4%								ICU Level of Service	G
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St





















Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	155	131	75	168	77	113	1702	100	120	1074	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1806	1766		1784	1821		1825	3567		1789	3614	1581
Flt Permitted	0.30	1.00		0.57	1.00		0.14	1.00		0.06	1.00	1.00
Satd. Flow (perm)	571	1766		1074	1821		277	3567		107	3614	1581
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)	148	168	142	82	183	84	123	1850	109	130	1167	90
RTOR Reduction (vph)	0	22	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	148	288	0	82	255	0	123	1956	0	130	1167	90
Confl. Peds. (#/hr)	3		3	3		3	6		5	5		4
Heavy Vehicles (%)	1%	1%	0%	2%	0%	0%	0%	1%	6%	2%	1%	1%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Effective Green, g (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Actuated g/C Ratio	0.31	0.31		0.21	0.21		0.56	0.49		0.55	0.50	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	262	541		222	377		253	1758		144	1812	1581
v/s Ratio Prot	0.04	c0.16			c0.14		0.03	c0.55		c0.05	0.32	
v/s Ratio Perm	0.13			0.08			0.24			0.45		c0.06
v/c Ratio	0.56	0.53		0.37	0.68		0.49	1.11		0.90	0.64	0.06
Uniform Delay, d1	37.8	40.3		47.6	51.2		18.6	35.5		37.9	25.7	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.52	0.75		1.73	0.59	1.00
Incremental Delay, d2	2.8	1.0		1.0	4.8		0.5	54.1		34.4	1.1	0.0
Delay (s)	40.6	41.3		48.7	55.9		28.8	80.9		99.8	16.3	0.0
Level of Service	D	D		D	E		C	F		F	B	A
Approach Delay (s)		41.0			54.2			77.8			23.1	
Approach LOS		D			D			E			C	

Intersection Summary		
HCM Average Control Delay	54.2	HCM Level of Service D
HCM Volume to Capacity ratio	0.97	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 28.0
Intersection Capacity Utilization	112.7%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		










HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	1149	6	7	1249	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	1249	7	8	1358	7	5	0	10	0	0	195
Pedestrians								6				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	1364			1261			2450	3135	634	2505	3132	679
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1017			1261			2333	3164	634	2400	3160	187
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	56			99			29	100	98	100	100	71
cM capacity (veh/h)	564			555			8	5	425	9	5	682
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	249	833	423	8	679	679	7	5	10	195		
Volume Left	249	0	0	8	0	0	0	5	0	0		
Volume Right	0	0	7	0	0	0	7	0	10	195		
cSH	564	1700	1700	555	1700	1700	1700	8	425	682		
Volume to Capacity	0.44	0.49	0.25	0.01	0.40	0.40	0.00	0.71	0.02	0.29		
Queue Length 95th (m)	17.0	0.0	0.0	0.3	0.0	0.0	0.0	9.9	0.5	8.9		
Control Delay (s)	16.3	0.0	0.0	11.6	0.0	0.0	0.0	805.6	13.7	12.4		
Lane LOS	C			B				F	B	B		
Approach Delay (s)	2.7			0.1				296.5		12.4		
Approach LOS								F		B		
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			60.5%		ICU Level of Service				B			
Analysis Period (min)			15									










HCM Unsignalized Intersection Capacity Analysis
28: Access #2 & Crossland Gate

Future 2016 Total Traffic Analysis
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	7	56	8	8	55
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	8	61	9	9	60
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	142	65			70	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	142	65			70	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	846	999			1531	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	12	70	68			
Volume Left	4	0	9			
Volume Right	8	9	0			
cSH	937	1700	1531			
Volume to Capacity	0.01	0.04	0.01			
Queue Length 95th (m)	0.3	0.0	0.1			
Control Delay (s)	8.9	0.0	1.0			
Lane LOS	A		A			
Approach Delay (s)	8.9	0.0	1.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization		19.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
31: Crossland Gate & Street 'A'

Future 2016 Total Traffic Analysis
PM Peak Hour

						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	0	64	59	15	6	0
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)	0	70	64	16	7	0
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	80				142	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80				142	72
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1517				851	990
Direction, Lane #	NB 1	SB 1	NE 1			
Volume Total	70	80	7			
Volume Left	0	0	7			
Volume Right	0	16	0			
cSH	1517	1700	851			
Volume to Capacity	0.00	0.05	0.01			
Queue Length 95th (m)	0.0	0.0	0.2			
Control Delay (s)	0.0	0.0	9.3			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			14.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
33: Alex Doner Dr & Street 'A'

Future 2016 Total Traffic Analysis
PM Peak Hour









Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	4	71	108	5	5	5
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	77	117	5	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	123				206	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				206	120
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1464				780	931

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	82	123	11
Volume Left	4	0	5
Volume Right	0	5	5
cSH	1464	1700	849
Volume to Capacity	0.00	0.07	0.01
Queue Length 95th (m)	0.1	0.0	0.3
Control Delay (s)	0.4	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		17.0%	ICU Level of Service A
Analysis Period (min)		15	

















HCM Unsignalized Intersection Capacity Analysis
37: Davis Dr W & Street 'B'

Future 2016 Total Traffic Analysis
PM Peak Hour

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑			
Volume (veh/h)	1281	11	31	1395	3	16			
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)	1392	12	34	1516	3	17			
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			1404			2218	696		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1404			2218	696		
tC, single (s)			4.1			6.8	6.9		
tC, 2 stage (s)									
tF (s)			2.2			3.5	3.3		
p0 queue free %			93			91	95		
cM capacity (veh/h)			482			34	384		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	696	696	12	34	758	758	3	17	
Volume Left	0	0	0	34	0	0	3	0	
Volume Right	0	0	12	0	0	0	0	17	
cSH	1700	1700	1700	482	1700	1700	34	384	
Volume to Capacity	0.41	0.41	0.01	0.07	0.45	0.45	0.09	0.05	
Queue Length 95th (m)	0.0	0.0	0.0	1.7	0.0	0.0	2.2	1.1	
Control Delay (s)	0.0	0.0	0.0	13.0	0.0	0.0	120.2	14.8	
Lane LOS				B			F	B	
Approach Delay (s)	0.0			0.3			31.5		
Approach LOS							D		
Intersection Summary									
Average Delay			0.4						
Intersection Capacity Utilization			48.6%		ICU Level of Service		A		
Analysis Period (min)			15						

HCM Unsignalized Intersection Capacity Analysis
38: Street 'D' & Eagle St W

Future 2016 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	0	3	4	0	0	5	537	6	0	469	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	3	4	0	0	5	584	7	0	510	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1110	1114	512	1114	1113	587	515			590		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1110	1114	512	1114	1113	587	515			590		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	98	100	100	99			100		
cM capacity (veh/h)	186	207	562	184	207	510	1050			985		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	4	4	596	515								
Volume Left	1	4	5	0								
Volume Right	3	0	7	5								
cSH	373	184	1050	985								
Volume to Capacity	0.01	0.02	0.01	0.00								
Queue Length 95th (m)	0.3	0.6	0.1	0.0								
Control Delay (s)	14.8	25.1	0.1	0.0								
Lane LOS	B	D	A									
Approach Delay (s)	14.8	25.1	0.1	0.0								
Approach LOS	B	D										
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			42.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
42: Millard Ave & Street 'D'

Future 2016 Total Traffic Analysis
PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (veh/h)	175	3	293	6	2	3
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)	190	3	318	7	2	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	363					
pX, platoon unblocked						
vC, conflicting volume			193	835		192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			193	835		192
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			77	99		100
cM capacity (veh/h)			1380	260		850
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	193	325	5			
Volume Left	0	318	2			
Volume Right	3	0	3			
cSH	1700	1380	445			
Volume to Capacity	0.11	0.23	0.01			
Queue Length 95th (m)	0.0	6.8	0.3			
Control Delay (s)	0.0	8.3	13.2			
Lane LOS			A		B	
Approach Delay (s)	0.0	8.3	13.2			
Approach LOS			B			
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization			39.3%	ICU Level of Service		A
Analysis Period (min)	15					

APPENDIX J
Signal Warrants Analysis

Signal Warrant Calculation



Cole Engineering

Major Street: Davis Drive

Minor Street: Stret 'B'

Comment: 2021 future condition 4-legged

Number of Approaches: 1 2

Tee Intersection Configuration: Yes No

Flow Condition: Free Flow (Rural)
Restricted Flow (Urban)

VOLUME	AM	PM	FACTOR *	
1A - All	2,712	3,384	n/a	2,286
1B - MiNor	226	129	75%	133
2A - Major	2,486	3,255	75%	2,153
2B - Cross	75	48	75%	46

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

OVERALL WARRANT	150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for new intersection with forecast traffic
	120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with forecast traffic
	100% Satisfied:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Warrant for existing intersection with existing traffic *
	COMBO 80% Satisfied:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Warrant for existing intersection with existing traffic
	80% Satisfied:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

* Consider full underground provisions if 100% for forecast traffi

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION	<input checked="" type="checkbox"/>				
ALL APPROACHES	480	720	600	900	2286
	% FULFILLED				476%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION	<input checked="" type="checkbox"/>				
MINOR STREET APPROACHES	120	170	120	170	133
	% FULFILLED				111%

150% Satisfied: Yes No

120% Satisfied: Yes No

100% Satisfied: Yes No

80% Satisfied: Yes No

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION	<input checked="" type="checkbox"/>				
MAJOR STREET APPROACHES	480	720	600	900	2153
	% FULFILLED				449%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION	<input checked="" type="checkbox"/>				
TRAFFIC CROSSING MAJOR STREET	50	75	50	75	46
	% FULFILLED				92%

150% Satisfied: Yes No

120% Satisfied: Yes No

100% Satisfied: Yes No

















80% Satisfied: Yes 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.

APPENDIX K
Future (2021) Total Traffic
Level Of Service Calculations

















HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

Future 2021 Total Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	0	96	0	2	3	61	28	0	1	71	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	0	104	0	2	3	66	30	0	1	77	22
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	126	5	97	100								
Volume Left (vph)	22	0	66	1								
Volume Right (vph)	104	3	0	22								
Hadj (s)	-0.40	-0.33	0.22	-0.13								
Departure Headway (s)	3.9	4.2	4.5	4.2								
Degree Utilization, x	0.14	0.01	0.12	0.12								
Capacity (veh/h)	869	806	768	834								
Control Delay (s)	7.6	7.2	8.1	7.7								
Approach Delay (s)	7.6	7.2	8.1	7.7								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.8									
HCM Level of Service			A									
Intersection Capacity Utilization			33.0%	ICU Level of Service	A							
Analysis Period (min)			15									

























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2021 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	7	95	13	6	1	38	259	5	0	431	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	8	103	14	7	1	41	282	5	0	468	50
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	180	22	328	518								
Volume Left (vph)	70	14	41	0								
Volume Right (vph)	103	1	5	50								
Hadj (s)	-0.25	0.12	0.07	-0.03								
Departure Headway (s)	5.8	6.6	5.3	5.0								
Degree Utilization, x	0.29	0.04	0.48	0.72								
Capacity (veh/h)	545	458	641	708								
Control Delay (s)	11.2	9.9	13.2	19.4								
Approach Delay (s)	11.2	9.9	13.2	19.4								
Approach LOS	B	A	B	C								
Intersection Summary												
Delay			15.8									
HCM Level of Service			C									
Intersection Capacity Utilization			62.4%	ICU Level of Service	B							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall























Future 2021 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1115	352	69	750	44	178	72	72	15	23	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1689	3544	1542	1659	3510	1593	1699	1921	1492	1720	1921	1577
Flt Permitted	0.30	1.00	1.00	0.13	1.00	1.00	0.62	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	526	3544	1542	228	3510	1593	1109	1921	1492	1279	1921	1577
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)	37	1212	383	75	815	48	193	78	78	16	25	7
RTOR Reduction (vph)	0	0	211	0	0	37	0	0	37	0	0	3
Lane Group Flow (vph)	37	1212	172	75	815	11	193	78	41	16	25	4
Confl. Peds. (#/hr)	2		8	8		2	19		1	1		19
Heavy Vehicles (%)	8%	3%	2%	10%	4%	0%	6%	0%	8%	6%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	65.3	60.9	20.5	69.7	63.1	27.6	34.5	27.6	63.1	23.4	20.5	60.9
Effective Green, g (s)	65.3	60.9	20.5	69.7	63.1	27.6	34.5	27.6	63.1	23.4	20.5	60.9
Actuated g/C Ratio	0.54	0.51	0.17	0.58	0.53	0.23	0.29	0.23	0.53	0.19	0.17	0.51
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	329	1799	263	211	1846	366	368	442	785	260	328	800
v/s Ratio Prot	0.00	c0.34		c0.02	0.23		c0.04	0.04		0.00	0.01	
v/s Ratio Perm	0.06		c0.11	0.19		0.01	0.11		0.03	0.01		0.00
v/c Ratio	0.11	0.67	0.65	0.36	0.44	0.03	0.52	0.18	0.05	0.06	0.08	0.00
Uniform Delay, d1	13.1	22.1	46.4	14.9	17.6	35.8	34.7	37.1	13.9	39.2	41.8	14.6
Progression Factor	1.38	1.18	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.6	4.6	1.0	0.8	0.0	1.4	0.2	0.1	0.1	0.1	0.0
Delay (s)	18.1	27.6	48.1	16.0	18.3	35.9	36.1	37.3	14.0	39.3	41.9	14.6
Level of Service	B	C	D	B	B	D	D	D	B	D	D	B
Approach Delay (s)		32.2			19.0			31.4			37.1	
Approach LOS		C			B			C			D	

Intersection Summary		
HCM Average Control Delay	28.0	HCM Level of Service C
HCM Volume to Capacity ratio	0.66	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 26.0
Intersection Capacity Utilization	76.7%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
 9: Davis Dr W & Ford Wilson Blvd

Future 2021 Total Traffic Analysis
 AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	21	1152	34	44	937	40	33	0	49	121	0	87	
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	7.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	
Satd. Flow (prot)	1737	3544	1487	1659	3476	1520	1725		1517	1784		1497	
Flt Permitted	0.21	1.00	1.00	0.14	1.00	1.00	0.95		1.00	0.95		1.00	
Satd. Flow (perm)	391	3544	1487	246	3476	1520	1725		1517	1784		1497	
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)	23	1252	37	48	1018	43	36	0	53	132	0	95	
RTOR Reduction (vph)	0	0	15	0	0	19	0	0	33	0	0	61	
Lane Group Flow (vph)	23	1252	22	48	1018	24	36	0	20	132	0	34	
Confl. Peds. (#/hr)	1		6	6		1	5		2	2		5	
Heavy Vehicles (%)	5%	3%	6%	10%	5%	5%	5%	0%	6%	2%	0%	7%	
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom	
Protected Phases		6			2								
Permitted Phases	6		6	2		2	8		8	4		4	
Actuated Green, G (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0	
Effective Green, g (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0	
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.34		0.34	0.34		0.34	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0	
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)	215	1949	818	135	1912	836	589		518	610		511	
v/s Ratio Prot		c0.35			0.29								
v/s Ratio Perm	0.06		0.01	0.19		0.02	0.02		0.01	c0.07		0.02	
v/c Ratio	0.11	0.64	0.03	0.36	0.53	0.03	0.06		0.04	0.22		0.07	
Uniform Delay, d1	12.9	18.8	12.3	15.1	17.2	12.3	26.6		26.4	28.1		26.6	
Progression Factor	1.41	1.26	2.18	1.31	1.09	2.64	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.1	0.0	6.7	1.0	0.1	0.2		0.1	0.8		0.2	
Delay (s)	18.3	23.9	26.8	26.4	19.7	32.7	26.8		26.5	28.9		26.9	
Level of Service	B	C	C	C	B	C	C		C	C		C	
Approach Delay (s)		23.9			20.5			26.6			28.0		
Approach LOS		C			C			C			C		
Intersection Summary													
HCM Average Control Delay			22.9									HCM Level of Service	C
HCM Volume to Capacity ratio			0.48										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	13.0
Intersection Capacity Utilization			78.3%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2021 Total Traffic Analysis
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	13	18	58	36	34
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	14	20	63	39	37
Pedestrians		1			1	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	153	79	116	1	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	153	79	116	1	0	
tC, single (s)	7.2	6.5	6.5	6.2	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.0	4.0	3.3	2.3	
p0 queue free %	97	98	97	94	98	
cM capacity (veh/h)	727	794	758	1080	1585	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	38	83	39	37		
Volume Left	24	0	39	0		
Volume Right	0	63	0	37		
cSH	751	981	1585	1700		
Volume to Capacity	0.05	0.08	0.02	0.02		
Queue Length 95th (m)	1.2	2.1	0.6	0.0		
Control Delay (s)	10.1	9.0	7.3	0.0		
Lane LOS	B	A	A			
Approach Delay (s)	10.1	9.0	3.8			
Approach LOS	B	A				
Intersection Summary						
Average Delay			7.2			
Intersection Capacity Utilization			18.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St



















Future 2021 Total Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	1252	273	188	798	54	317	255	95	24	559	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	3579	1570	1807	3582		1755	3614	1617	1738	3650	1555
Flt Permitted	0.10	1.00	1.00	0.11	1.00		0.18	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	176	3579	1570	217	3582		326	3614	1617	1064	3650	1555
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)	250	1361	297	204	867	59	345	277	103	26	608	363
RTOR Reduction (vph)	0	0	175	0	4	0	0	0	60	0	0	151
Lane Group Flow (vph)	250	1361	122	204	922	0	345	277	43	26	608	212
Heavy Vehicles (%)	12%	2%	4%	1%	1%	0%	4%	1%	1%	5%	0%	5%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	56.4	39.4	39.4	48.0	35.0		50.6	50.6	50.6	27.1	27.1	27.1
Effective Green, g (s)	56.4	39.4	39.4	48.0	35.0		50.6	50.6	50.6	27.1	27.1	27.1
Actuated g/C Ratio	0.47	0.33	0.33	0.40	0.29		0.42	0.42	0.42	0.23	0.23	0.23
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	294	1175	515	259	1045		370	1524	682	240	824	351
v/s Ratio Prot	c0.12	c0.38		0.09	0.26		c0.15	0.08			0.17	
v/s Ratio Perm	0.28		0.08	0.23			c0.24		0.03	0.02		0.14
v/c Ratio	0.85	1.16	0.24	0.79	0.88		0.93	0.18	0.06	0.11	0.74	0.60
Uniform Delay, d1	32.4	40.3	29.3	28.8	40.5		28.6	21.7	20.6	36.9	43.2	41.6
Progression Factor	1.00	1.00	1.00	1.42	1.39		0.84	0.80	1.24	1.00	1.00	1.00
Incremental Delay, d2	20.3	81.1	1.1	13.1	9.7		26.7	0.0	0.0	0.2	3.5	2.9
Delay (s)	52.7	121.4	30.4	54.1	66.0		50.9	17.5	25.7	37.1	46.6	44.6
Level of Service	D	F	C	D	E		D	B	C	D	D	D
Approach Delay (s)		98.2			63.8			34.5			45.6	
Approach LOS		F			E			C			D	
Intersection Summary												
HCM Average Control Delay			69.3			HCM Level of Service			E			
HCM Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		8.0				
Intersection Capacity Utilization			95.5%			ICU Level of Service		F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2021 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	39	0	24	0	1532	27	21	1952	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			1.00		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3605		1825	3614	
Flt Permitted				0.76	1.00			1.00		0.12	1.00	
Satd. Flow (perm)				1455	1633			3605		234	3614	
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	0	42	0	26	0	1665	29	23	2122	0
RTOR Reduction (vph)	0	0	0	0	24	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	42	2	0	0	1693	0	23	2122	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				8.6	8.6			98.4		98.4	98.4	
Effective Green, g (s)				8.6	8.6			98.4		98.4	98.4	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				104	117			2956		192	2963	
v/s Ratio Prot					0.00			0.47			c0.59	
v/s Ratio Perm				c0.03						0.10		
v/c Ratio				0.40	0.02			0.57		0.12	0.72	
Uniform Delay, d1				53.2	51.8			3.7		2.2	4.7	
Progression Factor				1.00	1.00			1.00		1.29	2.20	
Incremental Delay, d2				2.6	0.1			0.8		1.2	1.5	
Delay (s)				55.8	51.8			4.5		4.0	11.8	
Level of Service				E	D			A		A	B	
Approach Delay (s)		0.0			54.3			4.5			11.8	
Approach LOS		A			D			A			B	
Intersection Summary												
HCM Average Control Delay			9.3									A
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			120.0								13.0	
Intersection Capacity Utilization			73.1%									D
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr


















Future 2021 Total Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
 18: Access #7 & Eagle St W

Future 2021 Total Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	9	0	72	0	106	0	198	104	115	418	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	10	0	78	0	115	0	215	113	125	454	1
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	12	78	115	328	580							
Volume Left (vph)	2	78	0	0	125							
Volume Right (vph)	0	0	115	113	1							
Hadj (s)	0.07	0.53	-0.68	-0.16	0.08							
Departure Headway (s)	6.9	7.3	6.1	5.2	5.1							
Degree Utilization, x	0.02	0.16	0.19	0.47	0.82							
Capacity (veh/h)	465	457	549	665	697							
Control Delay (s)	10.1	10.5	9.4	12.8	27.0							
Approach Delay (s)	10.1	9.8		12.8	27.0							
Approach LOS	B	A		B	D							
Intersection Summary												
Delay			19.6									
HCM Level of Service			C									
Intersection Capacity Utilization			66.1%	ICU Level of Service	C							
Analysis Period (min)			15									

























HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

Future 2021 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	736	221	281	556	155	134	620	180	231	1302	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1600	3544	1415	1789	3476	1571	1755	3476	1590	1754	3579	1486
Flt Permitted	0.27	1.00	1.00	0.11	1.00	1.00	0.08	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	458	3544	1415	215	3476	1571	149	3476	1590	495	3579	1486
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)	227	800	240	305	604	168	146	674	196	251	1415	293
RTOR Reduction (vph)	0	0	133	0	0	123	0	0	121	0	0	115
Lane Group Flow (vph)	227	800	107	305	604	45	146	674	75	251	1415	178
Confl. Peds. (#/hr)	6		8	8		6	5		4	4		5
Heavy Vehicles (%)	14%	3%	13%	2%	5%	2%	4%	5%	1%	4%	2%	8%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.4	33.7	33.7	50.0	35.0	35.0	59.3	43.9	49.5	59.3	49.5	43.9
Effective Green, g (s)	47.4	33.7	33.7	50.0	35.0	35.0	59.3	43.9	49.5	59.3	49.5	43.9
Actuated g/C Ratio	0.36	0.26	0.26	0.38	0.27	0.27	0.46	0.34	0.38	0.46	0.38	0.34
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	287	919	367	264	936	423	189	1174	605	375	1363	502
v/s Ratio Prot	0.08	0.23		c0.13	0.17		c0.06	0.19		0.08	c0.40	
v/s Ratio Perm	0.20		0.08	c0.31		0.03	0.29		0.05	0.23		0.12
v/c Ratio	0.79	0.87	0.29	1.16	0.65	0.11	0.77	0.57	0.12	0.67	1.04	0.36
Uniform Delay, d1	31.4	46.1	38.6	37.0	42.0	35.7	29.6	35.4	26.2	23.6	40.2	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.58	0.93	2.57	1.00	1.00	1.00
Incremental Delay, d2	13.8	9.0	0.4	104.0	1.5	0.1	16.1	1.9	0.4	4.5	34.9	2.0
Delay (s)	45.2	55.1	39.0	141.0	43.5	35.9	63.0	34.9	67.7	28.1	75.1	34.4
Level of Service	D	E	D	F	D	D	E	C	E	C	E	C
Approach Delay (s)		50.3			70.0			45.3			63.0	
Approach LOS		D			E			D			E	
Intersection Summary												
HCM Average Control Delay			58.0		HCM Level of Service				E			
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)			15.0				
Intersection Capacity Utilization			99.7%		ICU Level of Service			F				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2021 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	246	231	196	279	113	439	1228	232	77	1563	116
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	1921	1578	1806	1902	1592	1772	3579	1574	1825	3544	1565
Flt Permitted	0.58	1.00	1.00	0.27	1.00	1.00	0.07	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1050	1921	1578	515	1902	1592	136	3579	1574	151	3544	1565
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)	59	267	251	213	303	123	477	1335	252	84	1699	126
RTOR Reduction (vph)	0	0	157	0	0	89	0	0	101	0	0	70
Lane Group Flow (vph)	59	267	94	213	303	34	477	1335	151	84	1699	56
Confl. Peds. (#/hr)	3		2	2		3	1		3	3		1
Heavy Vehicles (%)	5%	0%	2%	1%	1%	1%	3%	2%	1%	0%	3%	2%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	24.3	24.3	24.3	36.3	36.3	36.3	79.7	58.0	51.0	68.7	51.0	58.0
Effective Green, g (s)	24.3	24.3	24.3	36.3	36.3	36.3	79.7	58.0	51.0	68.7	51.0	58.0
Actuated g/C Ratio	0.19	0.19	0.19	0.28	0.28	0.28	0.61	0.45	0.39	0.53	0.39	0.45
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	359	295	223	531	445	394	1597	617	308	1390	698
v/s Ratio Prot		0.14		c0.06	0.16		c0.23	0.37		0.04	0.48	
v/s Ratio Perm	0.06		0.06	c0.21		0.02	c0.51		0.10	0.11		0.04
v/c Ratio	0.30	0.74	0.32	0.96	0.57	0.08	1.21	0.84	0.24	0.27	1.22	0.08
Uniform Delay, d1	45.5	49.9	45.7	44.8	40.2	34.5	43.2	31.8	26.5	20.1	39.5	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.72	1.39	4.55
Incremental Delay, d2	0.9	8.1	0.6	47.3	1.5	0.1	116.2	5.4	0.9	0.2	100.7	0.0
Delay (s)	46.4	58.0	46.3	92.1	41.7	34.6	159.4	37.2	27.5	34.8	155.6	94.2
Level of Service	D	E	D	F	D	C	F	D	C	C	F	F
Approach Delay (s)		51.7			57.1			64.2			146.2	
Approach LOS		D			E			E			F	

Intersection Summary		
HCM Average Control Delay	92.1	HCM Level of Service F
HCM Volume to Capacity ratio	1.05	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	112.7%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St





















Future 2021 Total Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	125	140	104	134	51	166	844	45	63	1763	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1753	1746		1822	1834		1825	3478		1817	3579	1582
Flt Permitted	0.45	1.00		0.58	1.00		0.06	1.00		0.30	1.00	1.00
Satd. Flow (perm)	823	1746		1119	1834		118	3478		567	3579	1582
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)	55	136	152	113	146	55	180	917	49	68	1916	182
RTOR Reduction (vph)	0	32	0	0	10	0	0	3	0	0	0	0
Lane Group Flow (vph)	55	256	0	113	191	0	180	963	0	68	1916	182
Confl. Peds. (#/hr)	3		2	2		3	3		7	7		3
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	0%	4%	3%	0%	2%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	40.2	40.2		29.0	29.0		75.8	75.8		61.0	61.0	130.0
Effective Green, g (s)	40.2	40.2		29.0	29.0		75.8	75.8		61.0	61.0	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.58	0.58		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	306	540		250	409		211	2028		266	1679	1582
v/s Ratio Prot	0.01	c0.15			0.10		c0.07	0.28			c0.54	
v/s Ratio Perm	0.05			0.10			0.43			0.12		0.12
v/c Ratio	0.18	0.47		0.45	0.47		0.85	0.47		0.26	1.14	0.12
Uniform Delay, d1	32.4	36.3		43.6	43.8		38.7	15.6		20.8	34.5	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.77	1.27		0.78	0.60	1.00
Incremental Delay, d2	0.3	0.7		1.3	0.8		18.5	0.5		1.0	67.1	0.1
Delay (s)	32.7	37.0		44.9	44.6		86.8	20.3		17.1	87.9	0.1
Level of Service	C	D		D	D		F	C		B	F	A
Approach Delay (s)		36.3			44.7			30.8			78.3	
Approach LOS		D			D			C			E	

Intersection Summary		
HCM Average Control Delay	58.3	HCM Level of Service E
HCM Volume to Capacity ratio	0.87	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	111.3%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Future 2021 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1519	6	5	994	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	1651	7	5	1080	9	0	0	3	0	0	42
Pedestrians								6				1
Lane Width (m)								3.7				3.7
Walking Speed (m/s)								1.2				1.2
Percent Blockage								1				0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		258			205							
pX, platoon unblocked	0.86			0.73			0.80	0.80	0.73	0.80	0.80	0.86
vC, conflicting volume	1090			1664			2351	2900	835	2060	2895	541
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	779			1165			1398	2087	27	1034	2080	141
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	90			99			100	100	100	100	100	94
cM capacity (veh/h)	700			440			70	38	760	137	38	749
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	70	1101	557	5	540	540	9	0	3	42		
Volume Left	70	0	0	5	0	0	0	0	0	0		
Volume Right	0	0	7	0	0	0	9	0	3	42		
cSH	700	1700	1700	440	1700	1700	1700	1700	760	749		
Volume to Capacity	0.10	0.65	0.33	0.01	0.32	0.32	0.01	0.00	0.00	0.06		
Queue Length 95th (m)	2.5	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	1.4		
Control Delay (s)	10.7	0.0	0.0	13.3	0.0	0.0	0.0	0.0	9.8	10.1		
Lane LOS	B			B				A	A	B		
Approach Delay (s)	0.4			0.1				9.8		10.1		
Approach LOS								A		B		
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			52.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
28: Alex Doner Dr & Street 'A'

Future 2021 Total Traffic Analysis
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	133	98	2	7	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)	1	145	107	2	8	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)						
pX, platoon unblocked						
vC, conflicting volume	109				254	108
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109				254	108
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1482				734	946
Direction, Lane #						
	EB 1	WB 1	SB 1			
Volume Total	146	109	15			
Volume Left	1	0	8			
Volume Right	0	2	8			
cSH	1482	1700	827			
Volume to Capacity	0.00	0.06	0.02			
Queue Length 95th (m)	0.0	0.0	0.4			
Control Delay (s)	0.1	0.0	9.4			
Lane LOS	A		A			
Approach Delay (s)	0.1	0.0	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			17.8%		ICU Level of Service	A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis
30: Alex Doner Dr & Access #1

Future 2021 Total Traffic Analysis
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (veh/h)	34	2	2	57	17	5
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)	37	2	2	62	18	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			39		104	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			39		104	38
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1571		892	1034
Direction, Lane #						
	EB 1	WB 1	NB 1			
Volume Total	39	64	24			
Volume Left	0	2	18			
Volume Right	2	0	5			
cSH	1700	1571	921			
Volume to Capacity	0.02	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.3	9.0			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.3	9.0			
Approach LOS			A			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			14.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
32: Access #2 & Crossland Gate

Future 2021 Total Traffic Analysis
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	18	51	2	2	52
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	20	55	2	2	57
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	117	57			58	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	117	57			58	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	877	1010			1547	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	29	58	59			
Volume Left	10	0	2			
Volume Right	20	2	0			
cSH	961	1700	1547			
Volume to Capacity	0.03	0.03	0.00			
Queue Length 95th (m)	0.7	0.0	0.0			
Control Delay (s)	8.9	0.0	0.3			
Lane LOS	A		A			
Approach Delay (s)	8.9	0.0	0.3			
Approach LOS	A					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization		14.4%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
34: Street 'A' & Crossland Gate

Future 2021 Total Traffic Analysis
AM Peak Hour

























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	0	0	53	56	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	0	58	61	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	121	64	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	121	64	66			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	874	1001	1535			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	10	58	66			
Volume Left	10	0	0			
Volume Right	0	0	5			
cSH	874	1535	1700			
Volume to Capacity	0.01	0.00	0.04			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

Future 2021 Total Traffic Analysis

















37: Davis Dr W & Street 'B'

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	1438	8	29	979	19	25	0	117	50	0	34
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	6.0	6.0	6.0	7.0	7.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	1789	1601		1789	1601	
Flt Permitted	0.23	1.00	1.00	0.11	1.00	1.00	0.73	1.00		0.67	1.00	
Satd. Flow (perm)	437	3579	1601	210	3579	1601	1381	1601		1262	1601	
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)	14	1563	9	32	1064	21	27	0	127	54	0	37
RTOR Reduction (vph)	0	0	2	0	0	6	0	39	0	0	29	0
Lane Group Flow (vph)	14	1563	7	32	1064	15	27	88	0	54	8	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			8				4
Permitted Phases	6		6	2		2	8			4		
Actuated Green, G (s)	81.0	81.0	81.0	82.0	82.0	82.0	25.0	25.0		26.0	26.0	
Effective Green, g (s)	81.0	81.0	81.0	82.0	82.0	82.0	25.0	25.0		26.0	26.0	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68	0.68	0.21	0.21		0.22	0.22	
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	7.0	7.0		6.0	6.0	
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)	295	2416	1081	144	2446	1094	288	334		273	347	
v/s Ratio Prot		c0.44			0.30			c0.06				0.01
v/s Ratio Perm	0.03		0.00	0.15		0.01	0.02			0.04		
v/c Ratio	0.05	0.65	0.01	0.22	0.43	0.01	0.09	0.26		0.20	0.02	
Uniform Delay, d1	6.5	11.3	6.4	7.1	8.6	6.1	38.4	39.8		38.5	37.0	
Progression Factor	1.88	1.77	2.11	0.57	0.66	0.58	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.2	0.0	3.3	0.5	0.0	0.1	0.4		1.6	0.1	
Delay (s)	12.6	21.1	13.5	7.4	6.2	3.6	38.5	40.2		40.1	37.1	
Level of Service	B	C	B	A	A	A	D	D		D	D	
Approach Delay (s)		21.0			6.2			39.9			38.9	
Approach LOS		C			A			D			D	
Intersection Summary												
HCM Average Control Delay			16.9				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			14.0		
Intersection Capacity Utilization			60.0%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
38: Street 'D' & Eagle St W

Future 2021 Total Traffic Analysis
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	2	0	5	5	0	0	2	320	2	0	477	1	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	2	0	5	5	0	0	2	348	2	0	518	1	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	872	873	519	878	873	349	520					350	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	872	873	519	878	873	349	520					350	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	99	100	99	98	100	100	100					100	
cM capacity (veh/h)	270	288	557	266	288	694	1047					1209	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	8	5	352	520									
Volume Left	2	5	2	0									
Volume Right	5	0	2	1									
cSH	428	266	1047	1209									
Volume to Capacity	0.02	0.02	0.00	0.00									
Queue Length 95th (m)	0.4	0.5	0.0	0.0									
Control Delay (s)	13.6	18.8	0.1	0.0									
Lane LOS	B	C	A										
Approach Delay (s)	13.6	18.8	0.1	0.0									
Approach LOS	B	C											
Intersection Summary													
Average Delay			0.3										
Intersection Capacity Utilization			35.2%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
42: Millard Ave & Street 'D'

















Future 2021 Total Traffic Analysis
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	271	1	2	208	3	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)	295	1	2	226	3	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)	367					
pX, platoon unblocked						
vC, conflicting volume			296		526	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			296		526	295
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	99
cM capacity (veh/h)			1266		512	744
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	296	228	10			
Volume Left	0	2	3			
Volume Right	1	0	7			
cSH	1700	1266	646			
Volume to Capacity	0.17	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.4			
Control Delay (s)	0.0	0.1	10.7			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.1	10.7			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			24.3%	ICU Level of Service		A
Analysis Period (min)	15					

















HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

Future 2021 Total Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	0	59	0	1	2	91	64	0	3	49	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	64	0	1	2	99	70	0	3	53	12
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	75	3	168	68								
Volume Left (vph)	11	0	99	3								
Volume Right (vph)	64	2	0	12								
Hadj (s)	-0.45	-0.37	0.13	-0.06								
Departure Headway (s)	4.0	4.1	4.3	4.2								
Degree Utilization, x	0.08	0.00	0.20	0.08								
Capacity (veh/h)	854	803	821	838								
Control Delay (s)	7.3	7.2	8.3	7.5								
Approach Delay (s)	7.3	7.2	8.3	7.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.9									
HCM Level of Service			A									
Intersection Capacity Utilization			33.1%	ICU Level of Service	A							
Analysis Period (min)			15									

























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2021 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	9	71	10	1	0	119	608	13	3	461	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	10	77	11	1	0	129	661	14	3	501	67
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	123	12	804	572								
Volume Left (vph)	36	11	129	3								
Volume Right (vph)	77	0	14	67								
Hadj (s)	-0.30	0.18	0.04	-0.05								
Departure Headway (s)	6.5	7.5	5.2	5.2								
Degree Utilization, x	0.22	0.02	1.16	0.83								
Capacity (veh/h)	526	442	700	683								
Control Delay (s)	11.4	10.7	107.7	28.0								
Approach Delay (s)	11.4	10.7	107.7	28.0								
Approach LOS	B	B	F	D								
Intersection Summary												
Delay			68.9									
HCM Level of Service			F									
Intersection Capacity Utilization			86.2%	ICU Level of Service	E							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall


























Future 2021 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	1086	207	143	1088	84	353	217	106	138	180	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3579	1574	1789	3614	1559	1774	1902	1535	1824	1921	1550
Flt Permitted	0.15	1.00	1.00	0.11	1.00	1.00	0.36	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)	282	3579	1574	207	3614	1559	669	1902	1535	1022	1921	1550
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)	68	1180	225	155	1183	91	384	236	115	150	196	29
RTOR Reduction (vph)	0	0	131	0	0	73	0	0	59	0	0	16
Lane Group Flow (vph)	68	1180	94	155	1183	18	384	236	56	150	196	13
Confl. Peds. (#/hr)	3		3	3		3	33		1	1		33
Heavy Vehicles (%)	0%	2%	1%	2%	1%	2%	2%	1%	5%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	60.8	54.4	17.8	69.2	58.8	23.1	36.8	23.1	58.8	27.5	17.8	54.4
Effective Green, g (s)	60.8	54.4	17.8	69.2	58.8	23.1	36.8	23.1	58.8	27.5	17.8	54.4
Actuated g/C Ratio	0.51	0.45	0.15	0.58	0.49	0.19	0.31	0.19	0.49	0.23	0.15	0.45
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	225	1622	233	262	1771	300	343	366	752	299	285	703
v/s Ratio Prot	0.02	c0.33		c0.05	0.33		c0.14	0.12		0.04	0.10	
v/s Ratio Perm	0.14		0.06	0.29		0.01	c0.20		0.04	0.07		0.01
v/c Ratio	0.30	0.73	0.40	0.59	0.67	0.06	1.12	0.64	0.07	0.50	0.69	0.02
Uniform Delay, d1	17.3	26.8	46.3	18.1	23.2	39.6	38.9	44.7	16.2	38.9	48.5	18.1
Progression Factor	0.63	0.53	1.62	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	2.6	1.0	3.6	2.0	0.1	84.9	3.9	0.2	1.3	6.7	0.0
Delay (s)	11.6	16.9	76.1	21.6	25.2	39.6	123.8	48.5	16.4	40.2	55.2	18.1
Level of Service	B	B	E	C	C	D	F	D	B	D	E	B
Approach Delay (s)		25.7			25.7			82.8			46.3	
Approach LOS		C			C			F			D	

Intersection Summary		
HCM Average Control Delay	38.1	HCM Level of Service D
HCM Volume to Capacity ratio	0.82	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	94.6%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Davis Dr W & Ford Wilson Blvd

Future 2021 Total Traffic Analysis
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Volume (vph)	174	1334	39	61	1382	141	30	0	74	61	0	20	
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	7.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00		0.99	1.00		0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	
Satd. Flow (prot)	1824	3614	1596	1825	3614	1592	1818		1610	1821		1608	
Flt Permitted	0.16	1.00	1.00	0.17	1.00	1.00	0.95		1.00	0.95		1.00	
Satd. Flow (perm)	299	3614	1596	319	3614	1592	1818		1610	1821		1608	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	189	1450	42	66	1502	153	33	0	80	66	0	22	
RTOR Reduction (vph)	0	0	7	0	0	27	0	0	48	0	0	20	
Lane Group Flow (vph)	189	1450	35	66	1502	126	33	0	32	66	0	2	
Confl. Peds. (#/hr)	2		1	1		2	3		2	2		3	
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom	
Protected Phases		6			2								
Permitted Phases	6		6	2		2	8		8	4		4	
Actuated Green, G (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5	
Effective Green, g (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5	
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.82	0.82	0.07		0.07	0.07		0.07	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0	
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)	245	2966	1310	262	2966	1307	129		114	129		114	
v/s Ratio Prot		0.40			0.42								
v/s Ratio Perm	c0.63		0.02	0.21		0.08	0.02		0.02	c0.04		0.00	
v/c Ratio	0.77	0.49	0.03	0.25	0.51	0.10	0.26		0.28	0.51		0.01	
Uniform Delay, d1	5.3	3.2	2.0	2.4	3.3	2.1	52.8		52.8	53.7		51.9	
Progression Factor	3.07	1.35	0.65	1.30	1.06	2.92	1.00		1.00	1.00		1.00	
Incremental Delay, d2	2.2	0.1	0.0	1.9	0.5	0.1	1.1		1.3	3.4		0.0	
Delay (s)	18.3	4.4	1.3	5.1	4.0	6.2	53.8		54.2	57.1		51.9	
Level of Service	B	A	A	A	A	A	D		D	E		D	
Approach Delay (s)		5.9			4.3			54.1			55.8		
Approach LOS		A			A			D			E		
Intersection Summary													
HCM Average Control Delay			7.8										A
HCM Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			120.0									13.0	
Intersection Capacity Utilization			91.6%										F
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2021 Total Traffic Analysis
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	43	17	16	56	66	39
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	18	17	61	72	42
Pedestrians			1		1	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	214	144	187	2	1	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	214	144	187	2	1	
tC, single (s)	7.1	6.5	6.8	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.2	3.3	2.2	
p0 queue free %	93	97	97	94	96	
cM capacity (veh/h)	666	717	639	1086	1634	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	65	78	72	42
Volume Left	47	0	72	0
Volume Right	0	61	0	42
cSH	680	940	1634	1700
Volume to Capacity	0.10	0.08	0.04	0.02
Queue Length 95th (m)	2.4	2.1	1.0	0.0
Control Delay (s)	10.9	9.2	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.9	9.2	4.6	
Approach LOS	B	A		

Intersection Summary			
Average Delay		7.6	
Intersection Capacity Utilization		20.3%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St



















Future 2021 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1585	447	247	941	56	517	716	188	18	392	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3614	1601	1807	3619		1789	3614	1633	1825	3614	1617
Flt Permitted	0.11	1.00	1.00	0.12	1.00		0.25	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	198	3614	1601	224	3619		480	3614	1633	686	3614	1617
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)	454	1723	486	268	1023	61	562	778	204	20	426	278
RTOR Reduction (vph)	0	0	228	0	4	0	0	0	138	0	0	223
Lane Group Flow (vph)	454	1723	258	268	1080	0	562	778	66	20	426	55
Heavy Vehicles (%)	2%	1%	2%	1%	0%	0%	2%	1%	0%	0%	1%	1%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	68.4	43.0	43.0	55.4	34.0		38.6	38.6	38.6	20.6	20.6	20.6
Effective Green, g (s)	68.4	43.0	43.0	55.4	34.0		38.6	38.6	38.6	20.6	20.6	20.6
Actuated g/C Ratio	0.57	0.36	0.36	0.46	0.28		0.32	0.32	0.32	0.17	0.17	0.17
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	516	1295	574	386	1025		307	1163	525	118	620	278
v/s Ratio Prot	c0.22	c0.48		0.12	0.30		c0.21	0.22			0.12	
v/s Ratio Perm	0.28		0.16	0.20			c0.37		0.04	0.03		0.03
v/c Ratio	0.88	1.33	0.45	0.69	1.05		1.83	0.67	0.12	0.17	0.69	0.20
Uniform Delay, d1	33.6	38.5	29.5	28.3	43.0		36.5	35.2	28.8	42.4	46.7	42.6
Progression Factor	1.00	1.00	1.00	0.96	1.02		0.86	0.86	0.97	1.00	1.00	1.00
Incremental Delay, d2	15.7	154.1	2.5	4.8	42.0		383.1	1.1	0.1	0.7	3.2	0.4
Delay (s)	49.3	192.6	32.0	31.8	85.8		414.7	31.5	28.0	43.1	49.8	43.0
Level of Service	D	F	C	C	F		F	C	C	D	D	D
Approach Delay (s)		138.9			75.1			170.5			47.0	
Approach LOS		F			E			F			D	
Intersection Summary												
HCM Average Control Delay			122.3			HCM Level of Service			F			
HCM Volume to Capacity ratio			1.39									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)		15.0				
Intersection Capacity Utilization			114.5%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2021 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	32	0	22	0	1814	59	36	993	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			1.00		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3598		1807	3650	
Flt Permitted				0.76	1.00			1.00		0.08	1.00	
Satd. Flow (perm)				1455	1633			3598		143	3650	
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	0	35	0	24	0	1972	64	39	1079	0
RTOR Reduction (vph)	0	0	0	0	19	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	35	5	0	0	2035	0	39	1079	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				8.3	8.3			98.7		98.7	98.7	
Effective Green, g (s)				8.3	8.3			98.7		98.7	98.7	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				101	113			2959		118	3002	
v/s Ratio Prot					0.00			c0.57			0.30	
v/s Ratio Perm				c0.02						0.27		
v/c Ratio				0.35	0.05			0.69		0.33	0.36	
Uniform Delay, d1				53.3	52.2			4.4		2.6	2.7	
Progression Factor				1.00	1.00			1.00		2.80	2.70	
Incremental Delay, d2				2.1	0.2			1.3		6.1	0.3	
Delay (s)				55.3	52.3			5.7		13.4	7.5	
Level of Service				E	D			A		B	A	
Approach Delay (s)		0.0			54.1			5.7			7.7	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			7.3									A
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			120.0								13.0	
Intersection Capacity Utilization			71.2%									C
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr

Future 2021 Total Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 17: Alex Doner Dr & Access #1

Future 2021 Total Traffic Analysis
 PM Peak Hour




















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Volume (veh/h)	67	9	9	53	6	2
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)	73	10	10	58	7	2
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			83		155	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			83		155	78
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	100
cM capacity (veh/h)			1515		831	983

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	83	67	9
Volume Left	0	10	7
Volume Right	10	0	2
cSH	1700	1515	865
Volume to Capacity	0.05	0.01	0.01
Queue Length 95th (m)	0.0	0.1	0.2
Control Delay (s)	0.0	1.1	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	1.1	9.2
Approach LOS			A

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		20.0%	ICU Level of Service A
Analysis Period (min)		15	





























HCM Unsignalized Intersection Capacity Analysis
 18: Access #7 & Eagle St W

Future 2021 Total Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	6	0	97	0	172	0	504	71	101	386	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	105	0	187	0	548	77	110	420	2
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	8	105	187	625	532							
Volume Left (vph)	1	105	0	0	110							
Volume Right (vph)	0	0	187	77	2							
Hadj (s)	0.06	0.52	-0.68	-0.06	0.05							
Departure Headway (s)	8.5	8.2	6.9	5.8	6.0							
Degree Utilization, x	0.02	0.24	0.36	1.00	0.89							
Capacity (veh/h)	409	433	513	625	599							
Control Delay (s)	11.6	12.5	12.6	61.0	39.1							
Approach Delay (s)	11.6	12.5		61.0	39.1							
Approach LOS	B	B		F	E							
Intersection Summary												
Delay			43.0									
HCM Level of Service			E									
Intersection Capacity Utilization			79.8%	ICU Level of Service	D							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Future 2021 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	335	789	224	304	875	285	296	1336	255	327	992	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1721	3476	1415	1806	3544	1556	1772	3579	1540	1772	3614	1504
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.09	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	207	3476	1415	217	3544	1556	162	3579	1540	152	3614	1504
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)	364	858	243	330	951	310	322	1452	277	355	1078	276
RTOR Reduction (vph)	0	0	182	0	0	152	0	0	103	0	0	138
Lane Group Flow (vph)	364	858	61	330	951	158	322	1452	174	355	1078	138
Confl. Peds. (#/hr)	22		22	22		22	18		14	14		18
Heavy Vehicles (%)	6%	5%	11%	1%	3%	1%	3%	2%	3%	3%	1%	5%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	52.0	35.0	35.0	52.0	35.0	35.0	66.0	49.0	46.0	66.0	46.0	49.0
Effective Green, g (s)	52.0	35.0	35.0	52.0	35.0	35.0	66.0	49.0	46.0	66.0	46.0	49.0
Actuated g/C Ratio	0.37	0.25	0.25	0.37	0.25	0.25	0.47	0.35	0.33	0.47	0.33	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	261	869	354	274	886	389	306	1253	506	268	1187	526
v/s Ratio Prot	c0.17	0.25		0.15	0.27		0.15	0.41		c0.16	0.30	
v/s Ratio Perm	c0.35		0.04	0.30		0.10	0.34		0.11	c0.46		0.09
v/c Ratio	1.39	0.99	0.17	1.20	1.07	0.41	1.05	1.16	0.34	1.32	0.91	0.26
Uniform Delay, d1	42.0	52.3	41.1	41.7	52.5	43.8	44.5	45.5	35.6	44.7	45.0	32.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.36	1.29	1.95	1.00	1.00	1.00
Incremental Delay, d2	199.3	27.1	0.2	121.3	51.9	0.7	31.5	72.4	0.2	169.7	11.7	1.2
Delay (s)	241.3	79.4	41.4	163.0	104.4	44.5	92.0	131.3	69.6	214.4	56.7	33.8
Level of Service	F	E	D	F	F	D	F	F	E	F	E	C
Approach Delay (s)		113.3			104.9			116.8			85.7	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM Average Control Delay	105.5	HCM Level of Service F
HCM Volume to Capacity ratio	1.29	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	118.7%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2021 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	380	389	184	227	105	328	1915	188	180	1566	43
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1883	1564	1825	1865	1582	1789	3614	1589	1789	3614	1490
Flt Permitted	0.61	1.00	1.00	0.12	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1151	1883	1564	226	1865	1582	126	3614	1589	135	3614	1490
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)	180	413	423	200	247	114	357	2082	204	196	1702	47
RTOR Reduction (vph)	0	0	164	0	0	76	0	0	49	0	0	25
Lane Group Flow (vph)	180	413	259	200	247	38	357	2082	155	196	1702	22
Confl. Peds. (#/hr)	1		9	2		8	3		3	11		13
Heavy Vehicles (%)	1%	2%	2%	0%	3%	1%	2%	1%	0%	2%	1%	4%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	33.2	33.2	33.2	46.2	46.2	46.2	79.8	67.0	56.0	64.8	56.0	67.0
Effective Green, g (s)	33.2	33.2	33.2	46.2	46.2	46.2	79.8	67.0	56.0	64.8	56.0	67.0
Actuated g/C Ratio	0.24	0.24	0.24	0.33	0.33	0.33	0.57	0.48	0.40	0.46	0.40	0.48
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	447	371	177	615	522	307	1730	636	166	1446	713
v/s Ratio Prot		0.22		c0.07	0.13		c0.16	c0.58		0.07	0.47	
v/s Ratio Perm	0.16		0.17	c0.30		0.02	0.50		0.10	0.47		0.02
v/c Ratio	0.66	0.92	0.70	1.13	0.40	0.07	1.16	1.20	0.24	1.18	1.18	0.03
Uniform Delay, d1	48.3	52.2	48.8	40.9	36.2	32.2	47.5	36.5	27.9	39.1	42.0	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.19	2.45
Incremental Delay, d2	5.7	24.8	5.6	106.9	0.4	0.1	103.1	97.3	0.9	119.7	85.8	0.1
Delay (s)	53.9	76.9	54.5	147.8	36.7	32.2	150.5	133.8	28.8	162.5	135.9	47.4
Level of Service	D	E	D	F	D	C	F	F	C	F	F	D
Approach Delay (s)		63.5			75.4			128.0			136.5	
Approach LOS		E			E			F			F	

Intersection Summary		
HCM Average Control Delay	115.3	HCM Level of Service F
HCM Volume to Capacity ratio	1.09	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	113.6%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St

Future 2021 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	168	131	75	184	77	113	2021	100	120	1279	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1806	1772		1784	1827		1825	3574		1789	3614	1581
Flt Permitted	0.27	1.00		0.55	1.00		0.08	1.00		0.06	1.00	1.00
Satd. Flow (perm)	513	1772		1041	1827		159	3574		107	3614	1581
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)	148	183	142	82	200	84	123	2197	109	130	1390	90
RTOR Reduction (vph)	0	20	0	0	11	0	0	3	0	0	0	0
Lane Group Flow (vph)	148	305	0	82	273	0	123	2303	0	130	1390	90
Confl. Peds. (#/hr)	3		3	3		3	6		5	5		4
Heavy Vehicles (%)	1%	1%	0%	2%	0%	0%	0%	1%	6%	2%	1%	1%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Effective Green, g (s)	42.9	42.9		29.0	29.0		77.9	69.0		77.3	70.2	140.0
Actuated g/C Ratio	0.31	0.31		0.21	0.21		0.56	0.49		0.55	0.50	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	249	543		216	378		194	1761		144	1812	1581
v/s Ratio Prot	0.04	c0.17			c0.15		0.04	c0.64		c0.05	0.38	
v/s Ratio Perm	0.14			0.08			0.31			0.45		c0.06
v/c Ratio	0.59	0.56		0.38	0.72		0.63	1.31		0.90	0.77	0.06
Uniform Delay, d1	38.0	40.7		47.8	51.7		23.1	35.5		37.9	28.3	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.97	0.79		1.72	0.56	1.00
Incremental Delay, d2	3.8	1.3		1.1	6.7		0.6	139.0		25.8	1.4	0.0
Delay (s)	41.8	42.0		48.9	58.4		46.3	167.2		90.9	17.1	0.0
Level of Service	D	D		D	E		D	F		F	B	A
Approach Delay (s)		41.9			56.3			161.1			22.1	
Approach LOS		D			E			F			C	

Intersection Summary		
HCM Average Control Delay	95.8	HCM Level of Service F
HCM Volume to Capacity ratio	1.11	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 28.0
Intersection Capacity Utilization	121.6%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		










HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Future 2021 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	1358	6	7	1562	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	1476	7	8	1698	7	5	0	10	0	0	195
Pedestrians								6				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		258			205							
pX, platoon unblocked	0.74			0.88			0.80	0.80	0.88	0.80	0.80	0.74
vC, conflicting volume	1704			1489			2847	3703	747	2959	3699	849
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1255			1279			2128	3193	435	2267	3189	102
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	40			98			36	100	98	100	100	72
cM capacity (veh/h)	413			480			9	3	502	9	3	695
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	249	984	499	8	849	849	7	5	10	195		
Volume Left	249	0	0	8	0	0	0	5	0	0		
Volume Right	0	0	7	0	0	0	7	0	10	195		
cSH	413	1700	1700	480	1700	1700	1700	9	502	695		
Volume to Capacity	0.60	0.58	0.29	0.02	0.50	0.50	0.00	0.64	0.02	0.28		
Queue Length 95th (m)	29.2	0.0	0.0	0.4	0.0	0.0	0.0	9.5	0.5	8.7		
Control Delay (s)	26.1	0.0	0.0	12.6	0.0	0.0	0.0	704.0	12.3	12.2		
Lane LOS	D			B				F	B	B		
Approach Delay (s)	3.8			0.1				259.3		12.2		
Approach LOS								F		B		
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			69.2%		ICU Level of Service				C			
Analysis Period (min)			15									










HCM Unsignalized Intersection Capacity Analysis
28: Access #2 & Crossland Gate

Future 2021 Total Traffic Analysis
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	7	57	8	8	71
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	8	62	9	9	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	161	66			71	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	161	66			71	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	825	997			1530	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	12	71	86			
Volume Left	4	0	9			
Volume Right	8	9	0			
cSH	927	1700	1530			
Volume to Capacity	0.01	0.04	0.01			
Queue Length 95th (m)	0.3	0.0	0.1			
Control Delay (s)	8.9	0.0	0.8			
Lane LOS	A		A			
Approach Delay (s)	8.9	0.0	0.8			
Approach LOS	A					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization		20.4%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 31: Crossland Gate & Street "A"

Future 2021 Total Traffic Analysis
 PM Peak Hour

						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	0	65	60	15	6	0
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)	0	71	65	16	7	0
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	82				144	73
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82				144	73
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1516				849	988
Direction, Lane #	NB 1	SB 1	NE 1			
Volume Total	71	82	7			
Volume Left	0	0	7			
Volume Right	0	16	0			
cSH	1516	1700	849			
Volume to Capacity	0.00	0.05	0.01			
Queue Length 95th (m)	0.0	0.0	0.2			
Control Delay (s)	0.0	0.0	9.3			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			14.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
33: Alex Doner Dr & Street 'A'

Future 2021 Total Traffic Analysis
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	4	78	119	5	5	5
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	85	129	5	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	135				226	132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135				226	132
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1450				760	917
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	89	135	11			
Volume Left	4	0	5			
Volume Right	0	5	5			
cSH	1450	1700	831			
Volume to Capacity	0.00	0.08	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	0.4	0.0	9.4			
Lane LOS	A		A			
Approach Delay (s)	0.4	0.0	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			17.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

Future 2021 Total Traffic Analysis

















37: Davis Dr W & Street 'B'

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	1428	32	115	1588	55	14	0	59	34	0	22
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	7.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	1789	1601		1789	1601	
Flt Permitted	0.12	1.00	1.00	0.15	1.00	1.00	0.74	1.00		0.72	1.00	
Satd. Flow (perm)	223	3579	1601	278	3579	1601	1397	1601		1347	1601	
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)	40	1552	35	125	1726	60	15	0	64	37	0	24
RTOR Reduction (vph)	0	0	3	0	0	5	0	37	0	0	22	0
Lane Group Flow (vph)	40	1552	32	125	1726	55	15	27	0	37	2	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			8				4
Permitted Phases	6		6	2		2	8			4		
Actuated Green, G (s)	99.3	99.3	99.3	99.3	99.3	99.3	7.7	7.7		7.7	7.7	
Effective Green, g (s)	99.3	99.3	99.3	99.3	99.3	99.3	7.7	7.7		7.7	7.7	
Actuated g/C Ratio	0.83	0.83	0.83	0.83	0.83	0.83	0.06	0.06		0.06	0.06	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	6.0	
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)	185	2962	1325	230	2962	1325	90	103		86	103	
v/s Ratio Prot		0.43			c0.48			0.02				0.00
v/s Ratio Perm	0.18		0.02	0.45		0.03	0.01			c0.03		
v/c Ratio	0.22	0.52	0.02	0.54	0.58	0.04	0.17	0.26		0.43	0.01	
Uniform Delay, d1	2.2	3.2	1.8	3.2	3.4	1.8	53.1	53.4		54.0	52.6	
Progression Factor	2.76	3.40	2.70	1.15	0.75	0.94	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.6	0.0	7.1	0.7	0.0	0.9	1.3		3.4	0.1	
Delay (s)	8.4	11.3	5.0	10.8	3.3	1.8	54.0	54.8		57.5	52.7	
Level of Service	A	B	A	B	A	A	D	D		E	D	
Approach Delay (s)		11.1			3.7			54.6			55.6	
Approach LOS		B			A			D			E	
Intersection Summary												
HCM Average Control Delay			8.9				HCM Level of Service				A	
HCM Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			74.9%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

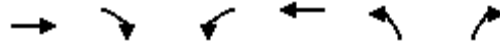
HCM Unsignalized Intersection Capacity Analysis
38: Street 'D' & Eagle St W

Future 2021 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	0	3	4	0	0	5	630	6	0	519	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	3	4	0	0	5	685	7	0	564	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1266	1269	567	1269	1268	688	570			691		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1266	1269	567	1269	1268	688	570			691		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	97	100	100	99			100		
cM capacity (veh/h)	145	167	523	144	167	446	1003			904		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	4	4	697	570								
Volume Left	1	4	5	0								
Volume Right	3	0	7	5								
cSH	317	144	1003	904								
Volume to Capacity	0.01	0.03	0.01	0.00								
Queue Length 95th (m)	0.3	0.7	0.1	0.0								
Control Delay (s)	16.5	30.8	0.1	0.0								
Lane LOS	C	D	A									
Approach Delay (s)	16.5	30.8	0.1	0.0								
Approach LOS	C	D										
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			47.5%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
42: Millard Ave & Street 'D'

Future 2021 Total Traffic Analysis
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	208	3	322	6	2	3
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)	226	3	350	7	2	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)				363		
pX, platoon unblocked						
vC, conflicting volume			229		934 228	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			229		934 228	
tC, single (s)			4.1		6.4 6.2	
tC, 2 stage (s)						
tF (s)			2.2		3.5 3.3	
p0 queue free %			74		99 100	
cM capacity (veh/h)			1339		218 812	

















Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	229	357	5
Volume Left	0	350	2
Volume Right	3	0	3
cSH	1700	1339	388
Volume to Capacity	0.13	0.26	0.01
Queue Length 95th (m)	0.0	8.0	0.3
Control Delay (s)	0.0	8.5	14.4
Lane LOS		A	B
Approach Delay (s)	0.0	8.5	14.4
Approach LOS			B

Intersection Summary			
Average Delay		5.3	
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX L
Future (2026) Total Traffic
Level Of Service Calculations

















HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

Future 2026 Total Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	0	96	0	2	3	61	30	0	1	78	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	0	104	0	2	3	66	33	0	1	85	22
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	126	5	99	108								
Volume Left (vph)	22	0	66	1								
Volume Right (vph)	104	3	0	22								
Hadj (s)	-0.40	-0.33	0.21	-0.12								
Departure Headway (s)	4.0	4.2	4.5	4.2								
Degree Utilization, x	0.14	0.01	0.12	0.12								
Capacity (veh/h)	863	799	767	832								
Control Delay (s)	7.6	7.2	8.1	7.8								
Approach Delay (s)	7.6	7.2	8.1	7.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.8									
HCM Level of Service			A									
Intersection Capacity Utilization			33.2%	ICU Level of Service	A							
Analysis Period (min)			15									

























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2026 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	8	95	13	7	1	38	284	5	0	465	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	9	103	14	8	1	41	309	5	0	505	50
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	182	23	355	555								
Volume Left (vph)	70	14	41	0								
Volume Right (vph)	103	1	5	50								
Hadj (s)	-0.25	0.11	0.07	-0.03								
Departure Headway (s)	6.0	6.8	5.4	5.0								
Degree Utilization, x	0.30	0.04	0.53	0.78								
Capacity (veh/h)	547	452	633	698								
Control Delay (s)	11.5	10.1	14.4	23.4								
Approach Delay (s)	11.5	10.1	14.4	23.4								
Approach LOS	B	B	B	C								
Intersection Summary												
Delay			18.3									
HCM Level of Service			C									
Intersection Capacity Utilization			64.9%	ICU Level of Service	C							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall























Future 2026 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1204	352	69	812	44	178	79	72	15	26	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	3544	1542	1659	3510	1593	1699	1921	1492	1720	1921	1577
Flt Permitted	0.26	1.00	1.00	0.10	1.00	1.00	0.62	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	468	3544	1542	176	3510	1593	1114	1921	1492	1270	1921	1577
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)	37	1309	383	75	883	48	193	86	78	16	28	7
RTOR Reduction (vph)	0	0	194	0	0	37	0	0	38	0	0	4
Lane Group Flow (vph)	37	1309	189	75	883	11	193	86	40	16	28	4
Confl. Peds. (#/hr)	2		8	8		2	19		1	1		19
Heavy Vehicles (%)	8%	3%	2%	10%	4%	0%	6%	0%	8%	6%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	64.4	60.0	21.4	68.8	62.2	28.5	35.4	28.5	62.2	24.3	21.4	60.0
Effective Green, g (s)	64.4	60.0	21.4	68.8	62.2	28.5	35.4	28.5	62.2	24.3	21.4	60.0
Actuated g/C Ratio	0.54	0.50	0.18	0.57	0.52	0.24	0.30	0.24	0.52	0.20	0.18	0.50
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	296	1772	275	182	1819	378	377	456	773	268	343	789
v/s Ratio Prot	0.00	c0.37		c0.02	0.25		c0.04	0.04		0.00	0.01	
v/s Ratio Perm	0.06		c0.12	0.21		0.01	0.11		0.03	0.01		0.00
v/c Ratio	0.12	0.74	0.69	0.41	0.49	0.03	0.51	0.19	0.05	0.06	0.08	0.00
Uniform Delay, d1	13.7	23.8	46.2	16.9	18.6	35.1	34.0	36.5	14.3	38.5	41.1	15.0
Progression Factor	1.43	1.23	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	2.1	5.2	1.5	0.9	0.0	1.2	0.2	0.1	0.1	0.1	0.0
Delay (s)	19.7	31.4	41.7	18.5	19.5	35.2	35.2	36.7	14.4	38.6	41.2	15.0
Level of Service	B	C	D	B	B	D	D	D	B	D	D	B
Approach Delay (s)		33.4			20.2			31.0			36.8	
Approach LOS		C			C			C			D	

Intersection Summary		
HCM Average Control Delay	29.0	HCM Level of Service C
HCM Volume to Capacity ratio	0.72	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 26.0
Intersection Capacity Utilization	79.1%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
 9: Davis Dr W & Ford Wilson Blvd

Future 2026 Total Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	1250	34	44	1013	40	33	0	49	121	0	87
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1738	3544	1487	1659	3476	1520	1725		1517	1784		1497
Flt Permitted	0.19	1.00	1.00	0.11	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	340	3544	1487	198	3476	1520	1725		1517	1784		1497
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)	23	1359	37	48	1101	43	36	0	53	132	0	95
RTOR Reduction (vph)	0	0	14	0	0	19	0	0	25	0	0	49
Lane Group Flow (vph)	23	1359	23	48	1101	24	36	0	28	132	0	46
Confl. Peds. (#/hr)	1		6	6		1	5		2	2		5
Heavy Vehicles (%)	5%	3%	6%	10%	5%	5%	5%	0%	6%	2%	0%	7%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Effective Green, g (s)	66.0	66.0	66.0	66.0	66.0	66.0	41.0		41.0	41.0		41.0
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.34		0.34	0.34		0.34
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	187	1949	818	109	1912	836	589		518	610		511
v/s Ratio Prot		c0.38			0.32							
v/s Ratio Perm	0.07		0.02	0.24		0.02	0.02		0.02	c0.07		0.03
v/c Ratio	0.12	0.70	0.03	0.44	0.58	0.03	0.06		0.05	0.22		0.09
Uniform Delay, d1	13.0	19.7	12.3	16.0	17.8	12.3	26.6		26.5	28.1		26.8
Progression Factor	1.41	1.38	2.09	1.40	1.15	2.89	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	0.2	0.0	11.2	1.1	0.1	0.2		0.2	0.8		0.3
Delay (s)	18.5	27.5	25.8	33.6	21.7	35.7	26.8		26.7	28.9		27.2
Level of Service	B	C	C	C	C	D	C		C	C		C
Approach Delay (s)		27.3			22.7			26.7			28.2	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			25.4				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			78.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2026 Total Traffic Analysis
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	14	18	58	36	34
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	15	20	63	39	37
Pedestrians		1			1	
Lane Width (m)		3.7			3.7	
Walking Speed (m/s)		1.2			1.2	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	153	79	116	1	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	153	79	116	1	0	
tC, single (s)	7.2	6.5	6.5	6.2	4.2	
tC, 2 stage (s)						
tF (s)	3.6	4.0	4.0	3.3	2.3	
p0 queue free %	97	98	97	94	98	
cM capacity (veh/h)	727	794	758	1080	1585	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	39	83	39	37		
Volume Left	24	0	39	0		
Volume Right	0	63	0	37		
cSH	752	981	1585	1700		
Volume to Capacity	0.05	0.08	0.02	0.02		
Queue Length 95th (m)	1.2	2.1	0.6	0.0		
Control Delay (s)	10.1	9.0	7.3	0.0		
Lane LOS	B	A	A			
Approach Delay (s)	10.1	9.0	3.8			
Approach LOS	B	A				
Intersection Summary						
Average Delay			7.2			
Intersection Capacity Utilization			18.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St




















Future 2026 Total Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	1363	273	188	863	54	317	281	95	24	616	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	3579	1570	1807	3584		1755	3614	1617	1738	3650	1555
Flt Permitted	0.10	1.00	1.00	0.11	1.00		0.15	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	176	3579	1570	217	3584		275	3614	1617	1036	3650	1555
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)	250	1482	297	204	938	59	345	305	103	26	670	363
RTOR Reduction (vph)	0	0	162	0	4	0	0	0	58	0	0	143
Lane Group Flow (vph)	250	1482	135	204	993	0	345	305	45	26	670	220
Heavy Vehicles (%)	12%	2%	4%	1%	1%	0%	4%	1%	1%	5%	0%	5%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	54.9	39.0	39.0	46.9	35.0		52.1	52.1	52.1	28.5	28.5	28.5
Effective Green, g (s)	54.9	39.0	39.0	46.9	35.0		52.1	52.1	52.1	28.5	28.5	28.5
Actuated g/C Ratio	0.46	0.32	0.32	0.39	0.29		0.43	0.43	0.43	0.24	0.24	0.24
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	1163	510	242	1045		361	1569	702	246	867	369
v/s Ratio Prot	c0.12	c0.41		0.08	0.28		c0.16	0.08			0.18	
v/s Ratio Perm	0.30		0.09	0.24			c0.26		0.03	0.03		0.14
v/c Ratio	0.92	1.27	0.26	0.84	0.95		0.96	0.19	0.06	0.11	0.77	0.60
Uniform Delay, d1	33.9	40.5	29.9	29.6	41.7		31.7	21.0	19.8	35.8	42.7	40.6
Progression Factor	1.00	1.00	1.00	1.53	1.39		0.84	0.78	1.11	1.00	1.00	1.00
Incremental Delay, d2	32.9	130.2	1.3	19.9	16.4		30.9	0.0	0.0	0.2	4.3	2.6
Delay (s)	66.8	170.7	31.2	65.3	74.2		57.4	16.4	21.9	36.0	47.0	43.2
Level of Service	E	F	C	E	E		E	B	C	D	D	D
Approach Delay (s)		137.5			72.7			35.9			45.5	
Approach LOS		F			E			D			D	
Intersection Summary												
HCM Average Control Delay			87.6			HCM Level of Service			F			
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			100.2%			ICU Level of Service			G			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2026 Total Traffic Analysis
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	39	0	24	0	1689	27	21	2152	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0		
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95		
Frt				1.00	0.85			1.00		1.00	1.00		
Flt Protected				0.95	1.00			1.00		0.95	1.00		
Satd. Flow (prot)				1825	1633			3606		1825	3614		
Flt Permitted				0.76	1.00			1.00		0.10	1.00		
Satd. Flow (perm)				1455	1633			3606		185	3614		
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	0	42	0	26	0	1836	29	23	2339	0	
RTOR Reduction (vph)	0	0	0	0	24	0	0	1	0	0	0	0	
Lane Group Flow (vph)	0	0	0	42	2	0	0	1864	0	23	2339	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)				8.6	8.6			98.4		98.4	98.4		
Effective Green, g (s)				8.6	8.6			98.4		98.4	98.4		
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82		
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0		
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)				104	117			2957		152	2963		
v/s Ratio Prot					0.00			0.52			c0.65		
v/s Ratio Perm				c0.03						0.12			
v/c Ratio				0.40	0.02			0.63		0.15	0.79		
Uniform Delay, d1				53.2	51.8			4.0		2.2	5.5		
Progression Factor				1.00	1.00			1.00		1.31	2.13		
Incremental Delay, d2				2.6	0.1			1.0		2.0	2.1		
Delay (s)				55.8	51.8			5.1		4.9	13.9		
Level of Service				E	D			A		A	B		
Approach Delay (s)		0.0			54.3			5.1			13.8		
Approach LOS		A			D			A			B		
Intersection Summary													
HCM Average Control Delay			10.6		HCM Level of Service						B		
HCM Volume to Capacity ratio			0.76										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					13.0			
Intersection Capacity Utilization			78.7%		ICU Level of Service					D			
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr


















Future 2026 Total Traffic Analysis
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

























HCM Unsignalized Intersection Capacity Analysis
 18: Access #7 & Eagle St W

Future 2026 Total Traffic Analysis
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	9	0	72	0	106	0	217	104	115	451	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	10	0	78	0	115	0	236	113	125	490	1
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	12	78	115	349	616							
Volume Left (vph)	2	78	0	0	125							
Volume Right (vph)	0	0	115	113	1							
Hadj (s)	0.07	0.53	-0.68	-0.15	0.08							
Departure Headway (s)	7.1	7.5	6.2	5.3	5.1							
Degree Utilization, x	0.02	0.16	0.20	0.51	0.88							
Capacity (veh/h)	460	455	545	646	693							
Control Delay (s)	10.3	10.7	9.6	13.7	33.8							
Approach Delay (s)	10.3	10.0		13.7	33.8							
Approach LOS	B	B		B	D							
Intersection Summary												
Delay			23.6									
HCM Level of Service			C									
Intersection Capacity Utilization			68.8%	ICU Level of Service	C							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Future 2026 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	209	804	221	281	607	155	134	675	180	231	1418	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1600	3544	1415	1789	3476	1571	1755	3476	1590	1754	3579	1486
Flt Permitted	0.22	1.00	1.00	0.12	1.00	1.00	0.08	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	367	3544	1415	218	3476	1571	146	3476	1590	436	3579	1486
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)	227	874	240	305	660	168	146	734	196	251	1541	293
RTOR Reduction (vph)	0	0	125	0	0	123	0	0	120	0	0	104
Lane Group Flow (vph)	227	874	115	305	660	45	146	734	76	251	1541	189
Confl. Peds. (#/hr)	6		8	8		6	5		4	4		5
Heavy Vehicles (%)	14%	3%	13%	2%	5%	2%	4%	5%	1%	4%	2%	8%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.6	34.6	34.6	47.6	34.6	34.6	60.4	44.6	50.7	60.4	50.7	44.6
Effective Green, g (s)	47.6	34.6	34.6	47.6	34.6	34.6	60.4	44.6	50.7	60.4	50.7	44.6
Actuated g/C Ratio	0.37	0.27	0.27	0.37	0.27	0.27	0.46	0.34	0.39	0.46	0.39	0.34
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	258	943	377	237	925	418	188	1193	620	363	1396	510
v/s Ratio Prot	0.09	0.25		c0.13	0.19		0.06	0.21		c0.08	c0.43	
v/s Ratio Perm	0.23		0.08	c0.34		0.03	0.30		0.05	0.24		0.13
v/c Ratio	0.88	0.93	0.30	1.29	0.71	0.11	0.78	0.62	0.12	0.69	1.10	0.37
Uniform Delay, d1	32.6	46.5	38.1	35.7	43.2	36.0	29.5	35.6	25.4	23.4	39.6	32.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.60	0.87	2.32	1.00	1.00	1.00
Incremental Delay, d2	27.0	14.6	0.5	157.1	2.6	0.1	16.2	2.1	0.4	5.6	57.8	2.1
Delay (s)	59.6	61.1	38.5	192.8	45.8	36.1	63.3	33.1	59.2	29.0	97.5	34.2
Level of Service	E	E	D	F	D	D	E	C	E	C	F	C
Approach Delay (s)		56.8			84.0			42.0			80.3	
Approach LOS		E			F			D			F	

Intersection Summary		
HCM Average Control Delay	68.1	HCM Level of Service E
HCM Volume to Capacity ratio	1.13	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 19.0
Intersection Capacity Utilization	104.4%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2026 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	270	231	196	302	113	439	1343	232	77	1697	116
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1734	1921	1578	1807	1902	1592	1772	3579	1574	1825	3544	1565
Flt Permitted	0.53	1.00	1.00	0.25	1.00	1.00	0.07	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	968	1921	1578	470	1902	1592	136	3579	1574	151	3544	1565
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)	59	293	251	213	328	123	477	1460	252	84	1845	126
RTOR Reduction (vph)	0	0	152	0	0	86	0	0	93	0	0	70
Lane Group Flow (vph)	59	293	99	213	328	37	477	1460	159	84	1845	56
Confl. Peds. (#/hr)	3		2	2		3	1		3	3		1
Heavy Vehicles (%)	5%	0%	2%	1%	1%	1%	3%	2%	1%	0%	3%	2%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	26.0	26.0	26.0	38.0	38.0	38.0	78.0	58.0	51.0	67.0	51.0	58.0
Effective Green, g (s)	26.0	26.0	26.0	38.0	38.0	38.0	78.0	58.0	51.0	67.0	51.0	58.0
Actuated g/C Ratio	0.20	0.20	0.20	0.29	0.29	0.29	0.60	0.45	0.39	0.52	0.39	0.45
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	384	316	220	556	465	371	1597	617	284	1390	698
v/s Ratio Prot		0.15		c0.06	0.17		c0.23	0.41		0.04	0.52	
v/s Ratio Perm	0.06		0.06	c0.22		0.02	c0.55		0.10	0.12		0.04
v/c Ratio	0.30	0.76	0.31	0.97	0.59	0.08	1.29	0.91	0.26	0.30	1.33	0.08
Uniform Delay, d1	44.3	49.1	44.4	44.0	39.3	33.3	43.4	33.7	26.7	22.9	39.5	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.74	1.40	4.61
Incremental Delay, d2	0.9	8.7	0.6	51.0	1.6	0.1	147.6	9.6	1.0	0.2	147.8	0.0
Delay (s)	45.2	57.8	45.0	95.1	40.9	33.4	191.0	43.3	27.7	40.1	203.1	95.3
Level of Service	D	E	D	F	D	C	F	D	C	D	F	F
Approach Delay (s)		51.2			56.9			73.7			189.9	
Approach LOS		D			E			E			F	

Intersection Summary		
HCM Average Control Delay	112.5	HCM Level of Service F
HCM Volume to Capacity ratio	1.10	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	117.5%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St





















Future 2026 Total Traffic Analysis
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	137	140	104	145	51	166	918	45	63	1908	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.92		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1753	1754		1822	1839		1825	3481		1818	3579	1582
Flt Permitted	0.42	1.00		0.58	1.00		0.06	1.00		0.26	1.00	1.00
Satd. Flow (perm)	784	1754		1106	1839		118	3481		505	3579	1582
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)	55	149	152	113	158	55	180	998	49	68	2074	182
RTOR Reduction (vph)	0	29	0	0	9	0	0	3	0	0	0	0
Lane Group Flow (vph)	55	272	0	113	204	0	180	1044	0	68	2074	182
Confl. Peds. (#/hr)	3		2	2		3	3		7	7		3
Heavy Vehicles (%)	4%	0%	1%	0%	0%	0%	0%	4%	3%	0%	2%	1%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	40.2	40.2		29.0	29.0		75.8	75.8		61.0	61.0	130.0
Effective Green, g (s)	40.2	40.2		29.0	29.0		75.8	75.8		61.0	61.0	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.58	0.58		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	296	542		247	410		211	2030		237	1679	1582
v/s Ratio Prot	0.01	c0.16			0.11		c0.07	0.30			c0.58	
v/s Ratio Perm	0.05			0.10			0.43			0.13		0.12
v/c Ratio	0.19	0.50		0.46	0.50		0.85	0.51		0.29	1.24	0.12
Uniform Delay, d1	32.5	36.7		43.7	44.1		38.7	16.1		21.2	34.5	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.74	1.36		0.75	0.59	1.00
Incremental Delay, d2	0.3	0.7		1.3	0.9		15.8	0.5		1.0	107.7	0.0
Delay (s)	32.8	37.4		45.0	45.1		82.9	22.4		16.9	128.2	0.0
Level of Service	C	D		D	D		F	C		B	F	A
Approach Delay (s)		36.7			45.1			31.3			114.9	
Approach LOS		D			D			C			F	

Intersection Summary		
HCM Average Control Delay	78.7	HCM Level of Service E
HCM Volume to Capacity ratio	0.94	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	115.3%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
25: Davis Dr W & GO Bus Access

Future 2026 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1639	6	5	1077	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	1782	7	5	1171	9	0	0	3	0	0	42
Pedestrians								6				1
Lane Width (m)								3.7				3.7
Walking Speed (m/s)								1.2				1.2
Percent Blockage								1				0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		258			205							
pX, platoon unblocked	0.84			0.67			0.75	0.75	0.67	0.75	0.75	0.84
vC, conflicting volume	1180			1794			2526	3121	900	2216	3116	586
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	833			1193			1401	2198	0	986	2190	126
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	89			99			100	100	100	100	100	94
cM capacity (veh/h)	652			393			64	30	724	138	30	748
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	70	1188	600	5	585	585	9	0	3	42		
Volume Left	70	0	0	5	0	0	0	0	0	0		
Volume Right	0	0	7	0	0	0	9	0	3	42		
cSH	652	1700	1700	393	1700	1700	1700	1700	724	748		
Volume to Capacity	0.11	0.70	0.35	0.01	0.34	0.34	0.01	0.00	0.00	0.06		
Queue Length 95th (m)	2.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	1.4		
Control Delay (s)	11.2	0.0	0.0	14.3	0.0	0.0	0.0	0.0	10.0	10.1		
Lane LOS	B			B				A	A	B		
Approach Delay (s)	0.4			0.1				10.0		10.1		
Approach LOS								A		B		
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			55.5%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 28: Alex Doner Dr & Street 'A'

Future 2026 Total Traffic Analysis
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	1	147	108	2	7	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)	1	160	117	2	8	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)						
pX, platoon unblocked						
vC, conflicting volume	120				280	118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120				280	118
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1468				709	933
Direction, Lane #						
	EB 1	WB 1	SB 1			
Volume Total	161	120	15			
Volume Left	1	0	8			
Volume Right	0	2	8			
cSH	1468	1700	806			
Volume to Capacity	0.00	0.07	0.02			
Queue Length 95th (m)	0.0	0.0	0.4			
Control Delay (s)	0.1	0.0	9.6			
Lane LOS	A		A			
Approach Delay (s)	0.1	0.0	9.6			
Approach LOS			A			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			18.5%		ICU Level of Service	A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis
 30: Alex Doner Dr & Access #1

Future 2026 Total Traffic Analysis
 AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (veh/h)	37	2	2	61	17	5
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)	40	2	2	66	18	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			42		112	41
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			42		112	41
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1567		884	1030
Direction, Lane #						
	EB 1	WB 1	NB 1			
Volume Total	42	68	24			
Volume Left	0	2	18			
Volume Right	2	0	5			
cSH	1700	1567	913			
Volume to Capacity	0.02	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.2	9.0			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.2	9.0			
Approach LOS			A			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			14.8%	ICU Level of Service		A
Analysis Period (min)			15			










HCM Unsignalized Intersection Capacity Analysis
 32: Access #2 & Crossland Gate

Future 2026 Total Traffic Analysis
 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	18	55	2	2	52
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	20	60	2	2	57
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	122	61			62	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	122	61			62	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	872	1004			1541	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	29	62	59			
Volume Left	10	0	2			
Volume Right	20	2	0			
cSH	956	1700	1541			
Volume to Capacity	0.03	0.04	0.00			
Queue Length 95th (m)	0.7	0.0	0.0			
Control Delay (s)	8.9	0.0	0.3			
Lane LOS	A		A			
Approach Delay (s)	8.9	0.0	0.3			
Approach LOS	A					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			14.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 34: Street 'A' & Crossland Gate

Future 2026 Total Traffic Analysis
 AM Peak Hour























						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	9	0	0	57	61	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	0	62	66	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	131	69	72			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	131	69	72			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	863	994	1528			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	10	62	72			
Volume Left	10	0	0			
Volume Right	0	0	5			
cSH	863	1528	1700			
Volume to Capacity	0.01	0.00	0.04			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			13.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

Future 2026 Total Traffic Analysis

















37: Davis Dr W & Street 'B'

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	1566	8	29	1065	19	25	0	117	50	0	34
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	6.0	6.0	6.0	7.0	7.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	1789	1601		1789	1601	
Flt Permitted	0.20	1.00	1.00	0.08	1.00	1.00	0.73	1.00		0.67	1.00	
Satd. Flow (perm)	381	3579	1601	159	3579	1601	1381	1601		1266	1601	
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)	14	1702	9	32	1158	21	27	0	127	54	0	37
RTOR Reduction (vph)	0	0	1	0	0	5	0	27	0	0	29	0
Lane Group Flow (vph)	14	1702	8	32	1158	16	27	100	0	54	8	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			8				4
Permitted Phases	6		6	2		2	8			4		
Actuated Green, G (s)	80.0	80.0	80.0	81.0	81.0	81.0	26.0	26.0		27.0	27.0	
Effective Green, g (s)	80.0	80.0	80.0	81.0	81.0	81.0	26.0	26.0		27.0	27.0	
Actuated g/C Ratio	0.67	0.67	0.67	0.68	0.68	0.68	0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0	7.0	6.0	6.0	6.0	7.0	7.0		6.0	6.0	
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)	254	2386	1067	107	2416	1081	299	347		285	360	
v/s Ratio Prot		c0.48			0.32			c0.06				0.01
v/s Ratio Perm	0.04		0.00	0.20		0.01	0.02			0.04		
v/c Ratio	0.06	0.71	0.01	0.30	0.48	0.01	0.09	0.29		0.19	0.02	
Uniform Delay, d1	6.9	12.7	6.7	7.9	9.4	6.4	37.6	39.3		37.6	36.2	
Progression Factor	1.71	1.56	1.83	0.55	0.60	0.50	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.5	0.0	6.5	0.6	0.0	0.1	0.5		1.5	0.1	
Delay (s)	12.2	21.4	12.3	10.9	6.3	3.2	37.7	39.7		39.1	36.3	
Level of Service	B	C	B	B	A	A	D	D		D	D	
Approach Delay (s)		21.2			6.3			39.4			38.0	
Approach LOS		C			A			D			D	
Intersection Summary												
HCM Average Control Delay			16.9				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			14.0		
Intersection Capacity Utilization			63.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											










HCM Unsignalized Intersection Capacity Analysis
38: Street 'D' & Eagle St W

Future 2026 Total Traffic Analysis
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	0	5	5	0	0	2	345	2	0	517	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	5	5	0	0	2	375	2	0	562	1
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	943	944	562	948	943	376	563			377		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	943	944	562	948	943	376	563			377		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	98	100	100	100			100		
cM capacity (veh/h)	242	262	526	238	262	670	1008			1181		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	8	5	379	563								
Volume Left	2	5	2	0								
Volume Right	5	0	2	1								
cSH	394	238	1008	1181								
Volume to Capacity	0.02	0.02	0.00	0.00								
Queue Length 95th (m)	0.4	0.5	0.0	0.0								
Control Delay (s)	14.3	20.5	0.1	0.0								
Lane LOS	B	C	A									
Approach Delay (s)	14.3	20.5	0.1	0.0								
Approach LOS	B	C										
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			37.3%		ICU Level of Service				A			
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
42: Millard Ave & Street 'D'

Future 2026 Total Traffic Analysis
AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	298	1	2	227	3	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)	324	1	2	247	3	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)	367					
pX, platoon unblocked						
vC, conflicting volume			325		576	324
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			325		576	324
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	99
cM capacity (veh/h)			1235		479	717
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	325	249	10			
Volume Left	0	2	3			
Volume Right	1	0	7			
cSH	1700	1235	615			
Volume to Capacity	0.19	0.00	0.02			
Queue Length 95th (m)	0.0	0.0	0.4			
Control Delay (s)	0.0	0.1	11.0			
Lane LOS			A	B		
Approach Delay (s)	0.0	0.1	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			25.7%	ICU Level of Service		A
Analysis Period (min)	15					

















HCM Unsignalized Intersection Capacity Analysis
 1: Alex Doner Dr & Crossland Gate

Future 2026 Total Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	0	59	0	1	2	91	70	0	3	47	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	64	0	1	2	99	76	0	3	51	12
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	75	3	175	66								
Volume Left (vph)	11	0	99	3								
Volume Right (vph)	64	2	0	12								
Hadj (s)	-0.45	-0.37	0.13	-0.07								
Departure Headway (s)	4.0	4.2	4.3	4.2								
Degree Utilization, x	0.08	0.00	0.21	0.08								
Capacity (veh/h)	851	800	822	836								
Control Delay (s)	7.3	7.2	8.4	7.5								
Approach Delay (s)	7.3	7.2	8.4	7.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.9									
HCM Level of Service			A									
Intersection Capacity Utilization			33.4%	ICU Level of Service	A							
Analysis Period (min)			15									

























HCM Unsignalized Intersection Capacity Analysis
5: Crossland Gate & Eagle St W

Future 2026 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	9	71	10	1	0	119	661	13	3	507	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	10	77	11	1	0	129	718	14	3	551	67
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	123	12	862	622								
Volume Left (vph)	36	11	129	3								
Volume Right (vph)	77	0	14	67								
Hadj (s)	-0.30	0.18	0.04	-0.05								
Departure Headway (s)	6.6	7.6	5.3	5.2								
Degree Utilization, x	0.23	0.03	1.26	0.90								
Capacity (veh/h)	526	442	694	685								
Control Delay (s)	11.5	10.8	147.7	37.1								
Approach Delay (s)	11.5	10.8	147.7	37.1								
Approach LOS	B	B	F	E								
Intersection Summary												
Delay			93.8									
HCM Level of Service			F									
Intersection Capacity Utilization			91.4%	ICU Level of Service	F							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
6: Davis Dr W & Upper Canada Mall

Future 2026 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	1178	207	143	1172	84	353	240	106	138	199	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.99	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3579	1574	1789	3614	1559	1776	1902	1535	1824	1921	1550
Flt Permitted	0.11	1.00	1.00	0.08	1.00	1.00	0.33	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	213	3579	1574	146	3614	1559	625	1902	1535	915	1921	1550
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)	68	1280	225	155	1274	91	384	261	115	150	216	29
RTOR Reduction (vph)	0	0	119	0	0	72	0	0	60	0	0	16
Lane Group Flow (vph)	68	1280	106	155	1274	19	384	261	55	150	216	13
Confl. Peds. (#/hr)	3		3	3		3	33		1	1		33
Heavy Vehicles (%)	0%	2%	1%	2%	1%	2%	2%	1%	5%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	59.8	53.4	19.2	67.8	57.4	24.5	38.2	24.5	57.4	28.9	19.2	53.4
Effective Green, g (s)	59.8	53.4	19.2	67.8	57.4	24.5	38.2	24.5	57.4	28.9	19.2	53.4
Actuated g/C Ratio	0.50	0.44	0.16	0.56	0.48	0.20	0.32	0.20	0.48	0.24	0.16	0.44
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	1593	252	225	1729	318	343	388	734	294	307	690
v/s Ratio Prot	0.02	c0.36		c0.06	0.35		c0.14	0.14		0.04	0.11	
v/s Ratio Perm	0.16		0.07	0.33		0.01	c0.22		0.04	0.08		0.01
v/c Ratio	0.35	0.80	0.42	0.69	0.74	0.06	1.12	0.67	0.07	0.51	0.70	0.02
Uniform Delay, d1	19.1	28.8	45.4	23.1	25.2	38.5	37.9	44.1	16.9	37.8	47.7	18.6
Progression Factor	0.87	0.65	1.44	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	3.9	1.0	8.5	2.8	0.1	84.9	4.6	0.2	1.5	7.1	0.0
Delay (s)	17.6	22.6	66.4	31.6	28.1	38.5	122.9	48.6	17.1	39.2	54.8	18.7
Level of Service	B	C	E	C	C	D	F	D	B	D	D	B
Approach Delay (s)		28.6			29.0			81.4			46.3	
Approach LOS		C			C			F			D	

Intersection Summary		
HCM Average Control Delay	39.9	HCM Level of Service D
HCM Volume to Capacity ratio	0.87	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization	97.4%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
 9: Davis Dr W & Ford Wilson Blvd

Future 2026 Total Traffic Analysis
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1451	39	61	1502	141	30	0	74	61	0	20
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	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1824	3614	1596	1825	3614	1592	1818		1610	1821		1608
Flt Permitted	0.13	1.00	1.00	0.14	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	253	3614	1596	272	3614	1592	1818		1610	1821		1608
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	1577	42	66	1633	153	33	0	80	66	0	22
RTOR Reduction (vph)	0	0	7	0	0	27	0	0	37	0	0	20
Lane Group Flow (vph)	189	1577	35	66	1633	126	33	0	43	66	0	2
Confl. Peds. (#/hr)	2		1	1		2	3		2	2		3
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Effective Green, g (s)	98.5	98.5	98.5	98.5	98.5	98.5	8.5		8.5	8.5		8.5
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.82	0.82	0.07		0.07	0.07		0.07
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
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)	208	2966	1310	223	2966	1307	129		114	129		114
v/s Ratio Prot		0.44			0.45							
v/s Ratio Perm	c0.75		0.02	0.24		0.08	0.02		0.03	c0.04		0.00
v/c Ratio	0.91	0.53	0.03	0.30	0.55	0.10	0.26		0.38	0.51		0.01
Uniform Delay, d1	7.6	3.4	2.0	2.5	3.5	2.1	52.8		53.2	53.7		51.9
Progression Factor	3.22	2.22	1.32	1.48	1.23	3.41	1.00		1.00	1.00		1.00
Incremental Delay, d2	6.7	0.1	0.0	2.7	0.6	0.1	1.1		2.1	3.4		0.0
Delay (s)	31.1	7.6	2.6	6.4	4.9	7.3	53.8		55.3	57.1		51.9
Level of Service	C	A	A	A	A	A	D		E	E		D
Approach Delay (s)		10.0			5.1			54.9			55.8	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM Average Control Delay			10.0				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		13.0			
Intersection Capacity Utilization			94.9%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 11: Alex Doner Dr & Ford Wilson Blvd

Future 2026 Total Traffic Analysis
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	43	17	17	56	66	39
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	18	18	61	72	42
Pedestrians			1		1	
Lane Width (m)			3.7		3.7	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		0	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	215	144	187	2	1	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215	144	187	2	1	
tC, single (s)	7.1	6.5	6.8	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.2	3.3	2.2	
p0 queue free %	93	97	97	94	96	
cM capacity (veh/h)	665	717	639	1086	1634	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total	65	79	72	42		
Volume Left	47	0	72	0		
Volume Right	0	61	0	42		
cSH	679	934	1634	1700		
Volume to Capacity	0.10	0.08	0.04	0.02		
Queue Length 95th (m)	2.4	2.1	1.0	0.0		
Control Delay (s)	10.9	9.2	7.3	0.0		
Lane LOS	B	A	A			
Approach Delay (s)	10.9	9.2	4.6			
Approach LOS	B	A				
Intersection Summary						
Average Delay			7.6			
Intersection Capacity Utilization			20.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
12: Davis Dr W & Bathurst St

Future 2026 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	418	1731	447	247	1019	56	517	790	188	18	433	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3614	1601	1807	3622		1789	3614	1633	1825	3614	1617
Flt Permitted	0.10	1.00	1.00	0.11	1.00		0.23	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	188	3614	1601	211	3622		434	3614	1633	553	3614	1617
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)	454	1882	486	268	1108	61	562	859	204	20	471	278
RTOR Reduction (vph)	0	0	209	0	4	0	0	0	136	0	0	191
Lane Group Flow (vph)	454	1882	277	268	1166	0	562	859	68	20	471	87
Heavy Vehicles (%)	2%	1%	2%	1%	0%	0%	2%	1%	0%	0%	1%	1%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	66.9	43.0	43.0	55.9	36.0		40.1	40.1	40.1	22.1	22.1	22.1
Effective Green, g (s)	66.9	43.0	43.0	55.9	36.0		40.1	40.1	40.1	22.1	22.1	22.1
Actuated g/C Ratio	0.56	0.36	0.36	0.47	0.30		0.33	0.33	0.33	0.18	0.18	0.18
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	464	1295	574	363	1087		303	1208	546	102	666	298
v/s Ratio Prot	c0.22	c0.52		0.12	0.32		c0.22	0.24			0.13	
v/s Ratio Perm	0.33		0.17	0.22			c0.40		0.04	0.04		0.05
v/c Ratio	0.98	1.45	0.48	0.74	1.07		1.85	0.71	0.12	0.20	0.71	0.29
Uniform Delay, d1	36.8	38.5	29.9	29.8	42.0		35.3	34.9	27.8	41.4	45.9	42.2
Progression Factor	1.00	1.00	1.00	0.95	1.03		0.84	0.84	0.90	1.00	1.00	1.00
Incremental Delay, d2	35.8	208.3	2.9	6.7	47.2		393.1	1.3	0.1	0.9	3.4	0.5
Delay (s)	72.6	246.8	32.8	34.9	90.5		422.5	30.7	25.0	42.4	49.4	42.8
Level of Service	E	F	C	C	F		F	C	C	D	D	D
Approach Delay (s)		181.9			80.2			165.5			46.8	
Approach LOS		F			F			F			D	




















Intersection Summary

HCM Average Control Delay	140.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	119.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
15: Sykes Rd & Bathurst St

Future 2026 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	32	0	22	0	1998	59	26	1094	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Fr _t				1.00	0.85			1.00		1.00	1.00	
Fl _t Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3599		1807	3650	
Fl _t Permitted				0.76	1.00			1.00		0.05	1.00	
Satd. Flow (perm)				1455	1633			3599		102	3650	
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	0	35	0	24	0	2172	64	28	1189	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	35	12	0	0	2235	0	28	1189	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				8.3	8.3			98.7		98.7	98.7	
Effective Green, g (s)				8.3	8.3			98.7		98.7	98.7	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				101	113			2960		84	3002	
v/s Ratio Prot					0.01			c0.62			0.33	
v/s Ratio Perm				c0.02						0.27		
v/c Ratio				0.35	0.11			0.76		0.33	0.40	
Uniform Delay, d ₁				53.3	52.4			5.0		2.6	2.8	
Progression Factor				1.00	1.00			1.00		2.55	2.50	
Incremental Delay, d ₂				2.1	0.4			1.8		8.4	0.3	
Delay (s)				55.3	52.8			6.8		15.1	7.3	
Level of Service				E	D			A		B	A	
Approach Delay (s)		0.0			54.3			6.8			7.5	
Approach LOS		A			D			A			A	
Intersection Summary												
HCM Average Control Delay			7.9									A
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			120.0								13.0	
Intersection Capacity Utilization			76.3%									D
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: Sykes Rd & Alex Doner Dr

Future 2026 Total Traffic Analysis
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	0	0	0			
Volume Left (vph)	0	0	0			
Volume Right (vph)	0	0	0			
Hadj (s)	0.00	0.00	0.00			
Departure Headway (s)	3.9	3.9	3.9			
Degree Utilization, x	0.00	0.00	0.00			
Capacity (veh/h)	917	917	917			
Control Delay (s)	6.9	6.9	6.9			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			0.0			
HCM Level of Service			A			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			


















HCM Unsignalized Intersection Capacity Analysis
 17: Alex Doner Dr & Access #1

Future 2026 Total Traffic Analysis
 PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (veh/h)	73	9	9	58	6	2
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)	79	10	10	63	7	2
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			89		167	84
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			89		167	84
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	100
cM capacity (veh/h)			1506		818	975
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	89	73	9			
Volume Left	0	10	7			
Volume Right	10	0	2			
cSH	1700	1506	852			
Volume to Capacity	0.05	0.01	0.01			
Queue Length 95th (m)	0.0	0.1	0.2			
Control Delay (s)	0.0	1.0	9.3			
Lane LOS		A	A			
Approach Delay (s)	0.0	1.0	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			20.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 18: Access #7 & Eagle St W

Future 2026 Total Traffic Analysis
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	6	0	97	0	172	0	548	71	101	424	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	0	105	0	187	0	596	77	110	461	2
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	8	105	187	673	573							
Volume Left (vph)	1	105	0	0	110							
Volume Right (vph)	0	0	187	77	2							
Hadj (s)	0.06	0.52	-0.68	-0.05	0.05							
Departure Headway (s)	8.3	8.1	6.9	5.8	5.9							
Degree Utilization, x	0.02	0.24	0.36	1.09	0.94							
Capacity (veh/h)	409	433	513	618	598							
Control Delay (s)	11.4	12.3	12.4	86.9	48.1							
Approach Delay (s)	11.4	12.4		86.9	48.1							
Approach LOS	B	B		F	E							
Intersection Summary												
Delay			58.1									
HCM Level of Service			F									
Intersection Capacity Utilization			84.1%	ICU Level of Service	E							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
20: Davis Dr W & Yonge St

























Future 2026 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	335	863	224	304	956	285	296	1458	255	327	1082	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1721	3476	1415	1807	3544	1556	1772	3579	1540	1772	3614	1504
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	207	3476	1415	217	3544	1556	155	3579	1540	149	3614	1504
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)	364	938	243	330	1039	310	322	1585	277	355	1176	276
RTOR Reduction (vph)	0	0	182	0	0	140	0	0	94	0	0	126
Lane Group Flow (vph)	364	938	61	330	1039	171	322	1585	183	355	1176	150
Confl. Peds. (#/hr)	22		22	22		22	18		14	14		18
Heavy Vehicles (%)	6%	5%	11%	1%	3%	1%	3%	2%	3%	3%	1%	5%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	51.0	35.0	35.0	51.0	35.0	35.0	67.0	50.0	48.0	67.0	48.0	50.0
Effective Green, g (s)	51.0	35.0	35.0	51.0	35.0	35.0	67.0	50.0	48.0	67.0	48.0	50.0
Actuated g/C Ratio	0.36	0.25	0.25	0.36	0.25	0.25	0.48	0.36	0.34	0.48	0.34	0.36
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	248	869	354	261	886	389	294	1278	528	268	1239	537
v/s Ratio Prot	c0.17	0.27		0.14	0.29		0.15	0.44		c0.16	0.33	
v/s Ratio Perm	c0.37		0.04	0.32		0.11	0.37		0.12	c0.47		0.10
v/c Ratio	1.47	1.08	0.17	1.26	1.17	0.44	1.10	1.24	0.35	1.32	0.95	0.28
Uniform Delay, d1	41.3	52.5	41.1	41.4	52.5	44.2	44.9	45.0	34.3	44.9	44.8	32.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.36	1.26	1.85	1.00	1.00	1.00
Incremental Delay, d2	231.2	54.3	0.2	145.9	89.7	0.8	48.5	108.7	0.2	169.7	16.0	1.3
Delay (s)	272.5	106.8	41.4	187.3	142.2	45.0	109.8	165.5	63.5	214.6	60.8	33.4
Level of Service	F	F	D	F	F	D	F	F	E	F	E	C
Approach Delay (s)		135.5			133.1			144.3			86.8	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM Average Control Delay	125.4	HCM Level of Service F
HCM Volume to Capacity ratio	1.28	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	123.2%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
21: Eagle St W & Yonge St

Future 2026 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	410	389	184	250	105	328	2088	188	180	1704	43
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	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1883	1564	1825	1865	1582	1789	3614	1589	1789	3614	1490
Flt Permitted	0.59	1.00	1.00	0.11	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1125	1883	1564	202	1865	1582	126	3614	1589	135	3614	1490
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)	180	446	423	200	272	114	357	2270	204	196	1852	47
RTOR Reduction (vph)	0	0	161	0	0	76	0	0	45	0	0	25
Lane Group Flow (vph)	180	446	262	200	272	38	357	2270	159	196	1852	22
Confl. Peds. (#/hr)	1		9	2		8	3		3	11		13
Heavy Vehicles (%)	1%	2%	2%	0%	3%	1%	2%	1%	0%	2%	1%	4%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	34.0	34.0	34.0	47.0	47.0	47.0	79.0	67.0	56.0	64.0	56.0	67.0
Effective Green, g (s)	34.0	34.0	34.0	47.0	47.0	47.0	79.0	67.0	56.0	64.0	56.0	67.0
Actuated g/C Ratio	0.24	0.24	0.24	0.34	0.34	0.34	0.56	0.48	0.40	0.46	0.40	0.48
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	457	380	172	626	531	297	1730	636	156	1446	713
v/s Ratio Prot		0.24		c0.07	0.15		c0.16	c0.63		0.07	0.51	
v/s Ratio Perm	0.16		0.17	c0.32		0.02	0.52		0.10	0.50		0.02
v/c Ratio	0.66	0.98	0.69	1.16	0.43	0.07	1.20	1.31	0.25	1.26	1.28	0.03
Uniform Delay, d1	47.8	52.6	48.2	40.0	36.2	31.7	47.4	36.5	28.0	37.7	42.0	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.21	2.57
Incremental Delay, d2	5.7	35.5	5.1	119.2	0.5	0.1	118.6	144.7	0.9	148.1	130.4	0.1
Delay (s)	53.4	88.1	53.3	159.2	36.6	31.7	165.9	181.2	28.9	189.5	181.3	49.7
Level of Service	D	F	D	F	D	C	F	F	C	F	F	D
Approach Delay (s)		68.1			77.5			168.3			179.1	
Approach LOS		E			E			F			F	

Intersection Summary		
HCM Average Control Delay	147.6	HCM Level of Service F
HCM Volume to Capacity ratio	1.16	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	119.5%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
22: Millard Ave & Yonge St

Future 2026 Total Traffic Analysis
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	184	131	75	201	77	113	2201	100	120	1391	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1806	1779		1785	1833		1825	3578		1789	3614	1581
Flt Permitted	0.24	1.00		0.52	1.00		0.06	1.00		0.06	1.00	1.00
Satd. Flow (perm)	452	1779		976	1833		111	3578		108	3614	1581
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)	148	200	142	82	218	84	123	2392	109	130	1512	90
RTOR Reduction (vph)	0	18	0	0	10	0	0	3	0	0	0	0
Lane Group Flow (vph)	148	324	0	82	292	0	123	2498	0	130	1512	90
Confl. Peds. (#/hr)	3		3	3		3	6		5	5		4
Heavy Vehicles (%)	1%	1%	0%	2%	0%	0%	0%	1%	6%	2%	1%	1%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	42.9	42.9		29.0	29.0		78.1	69.0		77.1	70.0	140.0
Effective Green, g (s)	42.9	42.9		29.0	29.0		78.1	69.0		77.1	70.0	140.0
Actuated g/C Ratio	0.31	0.31		0.21	0.21		0.56	0.49		0.55	0.50	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	234	545		202	380		173	1763		145	1807	1581
v/s Ratio Prot	0.04	c0.18			c0.16		c0.05	c0.70		0.05	0.42	
v/s Ratio Perm	0.15			0.08			0.35			0.45		c0.06
v/c Ratio	0.63	0.59		0.41	0.77		0.71	1.42		0.90	0.84	0.06
Uniform Delay, d1	38.2	41.2		48.0	52.4		30.0	35.5		37.8	30.1	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.62	0.79		1.70	0.56	1.00
Incremental Delay, d2	5.5	1.7		1.3	9.1		1.3	188.0		21.3	1.7	0.0
Delay (s)	43.7	42.9		49.4	61.4		49.9	216.0		85.5	18.6	0.0
Level of Service	D	D		D	E		D	F		F	B	A
Approach Delay (s)		43.2			58.9			208.2			22.6	
Approach LOS		D			E			F			C	

Intersection Summary		
HCM Average Control Delay	120.3	HCM Level of Service F
HCM Volume to Capacity ratio	1.16	
Actuated Cycle Length (s)	140.0	Sum of lost time (s) 25.0
Intersection Capacity Utilization	126.5%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		










HCM Unsignalized Intersection Capacity Analysis
 25: Davis Dr W & GO Bus Access

Future 2026 Total Traffic Analysis
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	1474	6	7	1684	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	249	1602	7	8	1830	7	5	0	10	0	0	195
Pedestrians								6				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		258			205							
pX, platoon unblocked	0.70			0.84			0.78	0.78	0.84	0.78	0.78	0.70
vC, conflicting volume	1837			1615			3040	3961	810	3154	3958	915
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1346			1358			2151	3331	405	2298	3327	36
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	31			98			21	100	98	100	100	73
cM capacity (veh/h)	361			430			7	2	504	7	2	726
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1		
Volume Total	249	1068	541	8	915	915	7	5	10	195		
Volume Left	249	0	0	8	0	0	0	5	0	0		
Volume Right	0	0	7	0	0	0	7	0	10	195		
cSH	361	1700	1700	430	1700	1700	1700	7	504	726		
Volume to Capacity	0.69	0.63	0.32	0.02	0.54	0.54	0.00	0.79	0.02	0.27		
Queue Length 95th (m)	37.5	0.0	0.0	0.4	0.0	0.0	0.0	10.2	0.5	8.2		
Control Delay (s)	34.5	0.0	0.0	13.5	0.0	0.0	0.0	915.5	12.3	11.8		
Lane LOS	D			B				F	B	B		
Approach Delay (s)	4.6			0.1				334.9		11.8		
Approach LOS								F		B		
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			72.6%		ICU Level of Service				C			
Analysis Period (min)			15									










HCM Unsignalized Intersection Capacity Analysis
28: Access #2 & Crossland Gate

Future 2026 Total Traffic Analysis
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	7	58	8	8	71
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	8	63	9	9	77
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	162	67			72	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	162	67			72	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	824	996			1528	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	12	72	86			
Volume Left	4	0	9			
Volume Right	8	9	0			
cSH	926	1700	1528			
Volume to Capacity	0.01	0.04	0.01			
Queue Length 95th (m)	0.3	0.0	0.1			
Control Delay (s)	8.9	0.0	0.8			
Lane LOS	A		A			
Approach Delay (s)	8.9	0.0	0.8			
Approach LOS	A					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			20.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
31: Crossland Gate & Street 'A'

Future 2026 Total Traffic Analysis
PM Peak Hour

						
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Volume (veh/h)	0	66	60	15	6	0
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)	0	72	65	16	7	0
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	82				145	73
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82				145	73
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1516				847	988
Direction, Lane #	NB 1	SB 1	NE 1			
Volume Total	72	82	7			
Volume Left	0	0	7			
Volume Right	0	16	0			
cSH	1516	1700	847			
Volume to Capacity	0.00	0.05	0.01			
Queue Length 95th (m)	0.0	0.0	0.2			
Control Delay (s)	0.0	0.0	9.3			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.3			
Approach LOS			A			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			14.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 33: Alex Doner Dr & Street 'A'

Future 2026 Total Traffic Analysis
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Volume (veh/h)	4	86	132	5	5	5
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	93	143	5	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	149				248	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149				248	146
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1433				738	901

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	98	149	11
Volume Left	4	0	5
Volume Right	0	5	5
cSH	1433	1700	811
Volume to Capacity	0.00	0.09	0.01
Queue Length 95th (m)	0.1	0.0	0.3
Control Delay (s)	0.4	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		17.8%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis

Future 2026 Total Traffic Analysis

37: Davis Dr W & Street 'B'

PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	1561	32	115	1731	55	14	0	58	34	0	22
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	7.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3579	1601	1789	3579	1601	1789	1601		1789	1601	
Flt Permitted	0.10	1.00	1.00	0.12	1.00	1.00	0.74	1.00		0.72	1.00	
Satd. Flow (perm)	180	3579	1601	231	3579	1601	1397	1601		1348	1601	
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)	40	1697	35	125	1882	60	15	0	63	37	0	24
RTOR Reduction (vph)	0	0	3	0	0	4	0	27	0	0	18	0
Lane Group Flow (vph)	40	1697	32	125	1882	56	15	36	0	37	6	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		6			2			8				4
Permitted Phases	6		6	2		2	8			4		
Actuated Green, G (s)	99.3	99.3	99.3	99.3	99.3	99.3	7.7	7.7		7.7	7.7	
Effective Green, g (s)	99.3	99.3	99.3	99.3	99.3	99.3	7.7	7.7		7.7	7.7	
Actuated g/C Ratio	0.83	0.83	0.83	0.83	0.83	0.83	0.06	0.06		0.06	0.06	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	6.0	
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)	149	2962	1325	191	2962	1325	90	103		86	103	
v/s Ratio Prot		0.47			0.53			0.02			0.00	
v/s Ratio Perm	0.22		0.02	c0.54		0.03	0.01			c0.03		
v/c Ratio	0.27	0.57	0.02	0.65	0.64	0.04	0.17	0.35		0.43	0.06	
Uniform Delay, d1	2.3	3.4	1.8	3.9	3.8	1.8	53.1	53.7		54.0	52.8	
Progression Factor	2.50	3.07	2.41	1.27	0.79	0.87	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.7	0.0	12.6	0.8	0.0	0.9	2.0		3.4	0.2	
Delay (s)	9.7	11.2	4.4	17.5	3.8	1.7	54.0	55.8		57.5	53.0	
Level of Service	A	B	A	B	A	A	D	E		E	D	
Approach Delay (s)		11.0			4.5			55.4			55.7	
Approach LOS		B			A			E			E	

Intersection Summary

HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

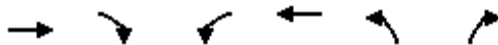
HCM Unsignalized Intersection Capacity Analysis
38: Street 'D' & Eagle St W

Future 2026 Total Traffic Analysis
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	0	3	4	0	0	5	683	6	0	565	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	3	4	0	0	5	742	7	0	614	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1373	1377	617	1377	1376	746	620			749		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1373	1377	617	1377	1376	746	620			749		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	96	100	100	99			100		
cM capacity (veh/h)	122	144	490	121	144	414	961			860		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	4	4	754	620								
Volume Left	1	4	5	0								
Volume Right	3	0	7	5								
cSH	280	121	961	860								
Volume to Capacity	0.02	0.04	0.01	0.00								
Queue Length 95th (m)	0.4	0.8	0.1	0.0								
Control Delay (s)	18.1	35.9	0.2	0.0								
Lane LOS	C	E	A									
Approach Delay (s)	18.1	35.9	0.2	0.0								
Approach LOS	C	E										
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			50.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
42: Millard Ave & Street 'D'

Future 2026 Total Traffic Analysis
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	→
Volume (veh/h)	227	3	6	355	2	3
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)	247	3	7	386	2	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)				363		
pX, platoon unblocked					1.00	
vC, conflicting volume			250	647	248	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250	643	248	
tC, single (s)			4.1	6.4	6.2	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	99	100	
cM capacity (veh/h)			1316	433	790	

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	250	392	5
Volume Left	0	7	2
Volume Right	3	0	3
cSH	1700	1316	595
Volume to Capacity	0.15	0.00	0.01
Queue Length 95th (m)	0.0	0.1	0.2
Control Delay (s)	0.0	0.2	11.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	11.1
Approach LOS			B

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		33.5%	ICU Level of Service A
Analysis Period (min)		15	

APPENDIX M
Left Turn Lane Warrants And Storage Lane Lengths

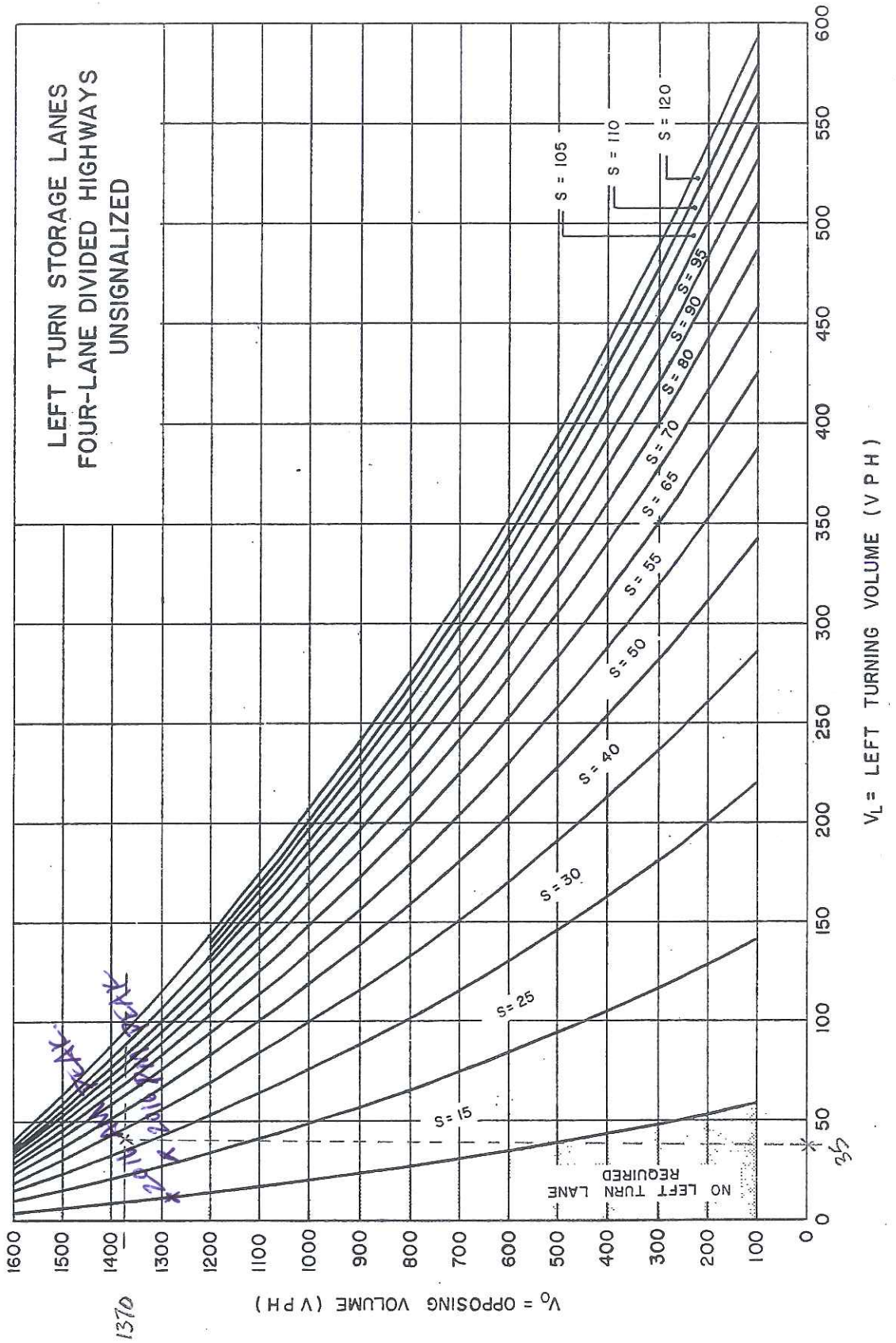


Figure EC-1

APPENDIX N
Town Of Newmarket Community Improvement Policy
Area Plan

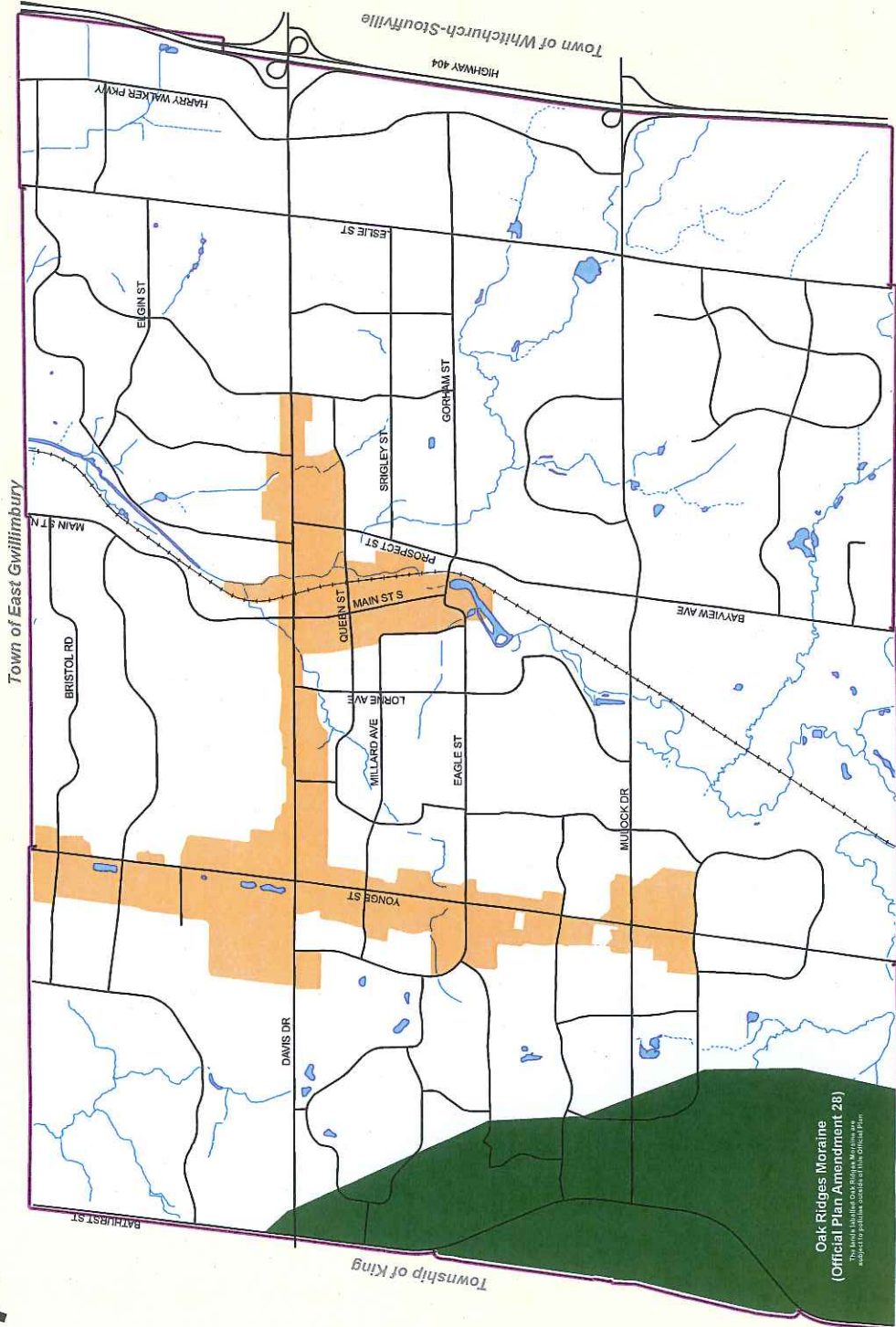
4

Schedule F Community Improvement Policy Area Plan Town of Newmarket

-  Community Improvement Policy Area
-  Oak Ridges Moraine Area
The latter is subject to the Oak Ridges Moraine Plan
-  Municipal Boundary
-  Waterbodies
-  Watercourse
-  Watercourse - Intermittent
-  Railway
-  Roads



A community well beyond the ordinary



Scale 1:15 000

0 625 1,250 2,500 Metres

Oak Ridges Moraine
(Official Plan Amendment 28)
subject to updates outside of the Official Plan

Designed & Produced by Information Technology - GIS Printed: July 2006. Source: Roads, Municipal Boundary, Railway, Waterbodies - Geomatics Division, Planning and Development Services Department © The Regional Municipality of York, 2005. Flood Plain (DRAFT) - Lake Simcoe Region Conservation Authority. All other map layers - Town of Newmarket. DISCLAIMER: This document is provided by the Town of Newmarket for your personal, non-commercial use. The information depicted on this map has been compiled from various sources. While every effort has been made to accurately depict the information, data mapping errors may exist. This map has been produced for illustrative purposes only. It is not a substitute for a legal survey. Please see Lake Simcoe Region Conservation Authority for detailed flood and fill line mapping.

APPENDIX O
Statement Of Limiting Conditions And Assumptions

Statement of Limiting Conditions and Assumptions

1. This Report/Study (the “Work”) has been prepared at the request of, and for the exclusive use of, the Owner, and its affiliates (the “Intended Users”). No one other than the Intended Users has the right to use and rely on the Work without first obtaining the written authorization of Cole Engineering Group Ltd. (Cole Engineering) and its Owner.
2. Cole Engineering expressly excludes liability to any party except the Intended Users for any use of, and/or reliance upon, the Work.
3. Cole Engineering notes that the following assumptions were made in completing the Work:
 - a) the land use description(s) supplied to us are correct;
 - b) the surveys and data supplied to Cole Engineering by the Owner are accurate;
 - c) market timing, approval delivery and secondary source information is within the control of Parties other than Cole Engineering; and
 - d) there are no encroachments, leases, covenants, binding agreements, restrictions, pledges, charges, liens or special assessments outstanding, or encumbrances which would significantly affect the use or servicing.

Investigations have not been carried out to verify these assumptions. Cole Engineering deems the sources of data and statistical information contained herein to be reliable, but we extend no guarantee of accuracy in these respects.

4. Cole Engineering accepts no responsibility for legal interpretations, questions of survey, opinion of title, hidden or inconspicuous conditions of the property, toxic wastes or contaminated materials, soil or sub-soil conditions, environmental, engineering or other factual and technical matters disclosed by the Owner, the Client, or any public agency, which by their nature, may change the outcome of the Work. Such factors, beyond the scope of this Work, could affect the findings, conclusions and opinions rendered in the Work. We have made disclosure of related potential problems that have come to our attention. Responsibility for diligence with respect to all matters of fact reported herein rests with the Intended Users.
5. Cole Engineering practices engineering in the general areas of infrastructure and transportation. It is not qualified to and is not providing legal or planning advice in this Work.
6. The legal description of the property and the area of the site were based upon surveys and data supplied to us by the Owner. The plans, photographs, and sketches contained in this report are included solely to aide in visualizing the location of the property, the configuration and boundaries of the site, and the relative position of the improvements on the said lands.
7. We have made investigations from secondary sources as documented in the Work, but we have not checked for compliance with by-laws, codes, agency and governmental regulations, etc., unless specifically noted in the Work.
8. Because conditions, including capacity, allocation, economic, social, and political factors change rapidly and, on occasion, without notice or warning, the findings of the Work expressed herein, are as of the date of the Work and cannot necessarily be relied upon as of any other date without subsequent advice from Cole Engineering.
9. The value of proposed improvements should be applied only with regard to the purpose and function of the Work, as outlined in the body of this Work. Any cost estimates set out in the Work are based on construction averages and subject to change.
10. Neither possession of the Work, nor a copy of it, carries the right of publication. All copyright in the Work is reserved to Cole Engineering. The Work shall not be disclosed, produced or reproduced, quoted from, or referred to, in whole or in part, or published in any manner, without the express written consent of Cole Engineering and the Owner.
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