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TRANSPORTATION SOLUTIONS LIMITED

Northwest Quadrant of Yonge Street and Green Lane Secondary Plan Area, East Gwillimbury, Transportation Mobility Plan

Paradigm Transportation Solutions Limited

2024-11
200089



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Project Summary

**Project Number:**

200089

Date and Version:

2024-11

1.0.2

Client:

**Northwest Yonge Green Lane
Landowners Group Inc.**

c/o

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Northwest Quadrant of Yonge Street and Green Lane Secondary Plan Area, Transportation Mobility Plan



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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct a Transportation Mobility Plan to assess a proposed community subdivision generally located in the northwest quadrant of the Yonge Street and Green Lane Secondary Plan area in the Town of East Gwillimbury (herein referred to as the NW Secondary Plan Area).

This study has been prepared in support of the Community Design Plan. The proposed community will be developed over a period of time. The purpose of this study is to provide an end-state (full build-out) review of the community to help confirm the basic structure of the community.

This Transportation Assessment includes a review of background studies completed including Municipal Class Environmental Assessment (EA) studies, a description of the NW Secondary Plan Area, an assessment of existing transportation conditions and future traffic conditions (with and without the NW Secondary Plan Area), and recommendations for transportation system improvements to mitigate projected traffic impacts, if any.

The findings, conclusions, and recommendations of this study are summarized below and outlined in further detail in the body of the report.

Proposed NW Secondary Plan Area

The subject subdivision is located in the northwest quadrant of the Yonge Street and Green Lane Secondary Plan area in the Town of East Gwillimbury. Herein, the proposed subdivision development will be referred to as the NW Secondary Plan Area. The proposed subdivision development is bound by the proposed east-west major collector to the north, Green Lane to the south, the Yonge Street and Green Lane Secondary Plan Area boundary to the west, and Yonge Street to the east.

A collection of land owners (i.e., Beechway Developments Inc., Northmarket Holdings Inc., Sundial, Rice Group) propose to develop a community subdivision comprised of single detached houses, townhouses, medium and high density residential dwellings, commercial/retail space, office space, schools, a neighbourhood park, and the supporting transportation road and laneway network.

A detailed breakdown of the proposed subdivision is as follows:



- ▶ 570 single family detached housing units;
- ▶ 1,776 townhouse dwelling units;
- ▶ 4,319 high-density residential dwelling units;
- ▶ Two elementary schools;
- ▶ 321 retirement/hotel units; and
- ▶ 12,550 SM of commercial/retail space.

Vehicle access is proposed via the following connections:

- ▶ Three minor collector roadways providing full-movement connections with Green Lane. These connections are proposed to align opposite of Lady Gwillim Avenue, Woodspring Avenue, and a commercial driveway (located approximately 270 metres west of Yonge Street), respectively;
- ▶ A restricted right-in/right-out (RI/RO) connection with Yonge Street, which would be aligned opposite of an existing commercial driveway (approximately 265 metres north of Green Lane);
- ▶ A minor collector roadway providing a full-movement connection with Yonge Street. The minor collector road would be provided at the location of the existing church driveway and will be located opposite of an existing commercial driveway (approximately 435 metres north of Green Lane); and
- ▶ A new proposed east-west major collector roadway providing a full-movement connection with Yonge Street.

The proposed internal road network provides connectivity throughout the NW Secondary Plan Area and aligns with existing intersections along Green Lane and Yonge Street, which improves continuity with the neighbourhood and commercial land uses to the south and east.

For assessment purposes it is anticipated 10% build-out/occupancy of the NW Secondary Plan Area will occur by 2030, 50% build-out/occupancy will occur by 2035, and full build-out/occupancy (i.e., remaining 50%) of the NW Secondary Plan Area will occur by 2040.

Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Base Year (2024) Traffic:** The study area intersections are currently operating at acceptable levels of service and within capacity during the weekday AM and PM peak hours. The exception includes several identified movements at the Green



Lane and Yonge Street intersection which are reported to be approaching or exceeding capacity during the AM and PM peak hours;

- ▶ **Future Background Traffic** (without the NW Secondary Plan Area development): Under 2030 background traffic conditions, without the provision of the planned east-west major collector roadway, traffic operations would be slightly exacerbated in comparison to base year conditions accounting for anticipated background growth and traffic contributions related to other area developments (i.e., the remaining Green Lane Secondary Plan Area lands).

The operational results provide indication the new east-west major collector may be required by the 2030 horizon to accommodate the forecast background traffic projections. The implementation of the new east-west major collector will be undertaken through development under approved Secondary Plans. That is, for properties which abut along the new east-west major collector will construct the portion of the roadway across their site frontages as each phase of their land develops.

Under 2035, 2040, and 2045 background traffic conditions, with the provision of the east-west major collector, several critical movements are identified at the intersections of Green Lane and Bathurst Street, Yonge Street and Green Lane, Yonge Street and Church Driveway/Existing Commercial Driveway, and Yonge Street and the east-west major collector during the AM and/or PM peak hours.

Mitigation measures will be required to address the contributions of general background growth and site traffic generated by other area background developments;

- ▶ **Trip Generation:** At 10% build-out of the NW Secondary Plan Area by 2030, a net total of 336 AM (84 inbound and 252 outbound) and 470 PM (296 inbound and 174 outbound) peak hour vehicular trips are forecast to be generated.

At 50% build-out of the NW Secondary Plan Area by 2035, a net total of 1,709 AM (430 inbound and 1,279 outbound) and 2,194 PM (1,372 inbound and 822 outbound) peak hour vehicular trips are forecast to be generated.

Under full build-out of the NW Secondary Plan Area by 2040, a net total of 2,660 AM (848 inbound and 1,812 outbound) and 2,964 PM (1,799 inbound and 1,165 outbound) peak hour vehicular trips are forecast to be generated;

- ▶ **Future Total Traffic** (with the NW Secondary Plan Area development): With the addition of site-generated traffic, the



previously identified critical movements under background traffic conditions are further exacerbated under total traffic conditions.

Several additional critical movements are identified due to the site-generated traffic including several movements approaching or exceeding capacity at the intersections of Green Lane and Bathurst Street, Yonge Street and Existing Commercial Driveway/Minor Collector, and at Yonge Street and East-West Major Collector during the AM and PM peak hours;

- ▶ **Mitigation Measures:** Beyond the planned road network improvements, the following remedial measures are identified for consideration to mitigate the forecast critical movements.
 - By 2030 (representative of 10% build-out of the NW Secondary Plan Area):
 - Implementation of the new east-west major collector.
It is understood the implementation of the new east-west major collector will be undertaken through development under approved Secondary Plans. That is, for properties which abut along the new east-west major collector will construct the portion of the roadway across their site frontages as each phase of their land develops;
 - At Green Lane and Bathurst Street, provision of westbound dual left-turn lanes and a corresponding fully protected left-turn phase, an advanced southbound left-turn phase during the PM peak hour, and adjustments to signal timings; and
 - Widening of Yonge Street (north of Green Lane) from four to six lanes. It is understood the planned widening of Yonge Street would stop at Green Lane, it is recommended this widening be carried further north to the new East-West Major Collector.
 - By 2035 (representative of 50% build-out of the NW Secondary Plan Area):
 - At Yonge Street and Existing Commercial Driveway/Minor Collector, provision of an eastbound auxiliary right-turn lane, and an advanced northbound left-turn phase; and
 - At Yonge Street and East-West Major Collector, provision of eastbound and westbound auxiliary right-turn lanes, and provision of advanced eastbound, westbound, northbound, and southbound advanced left-turn phases.



Figure ES.1 illustrates the recommended future lane configurations and traffic control for the study area intersections.

With the recommended mitigation measures, all study area intersections and movements are forecast to operate within capacity during the AM and PM peak hours under the furthest horizon (2045), with the exception of several movements at the intersection of Green Lane and Yonge Street forecast to operate over-capacity.

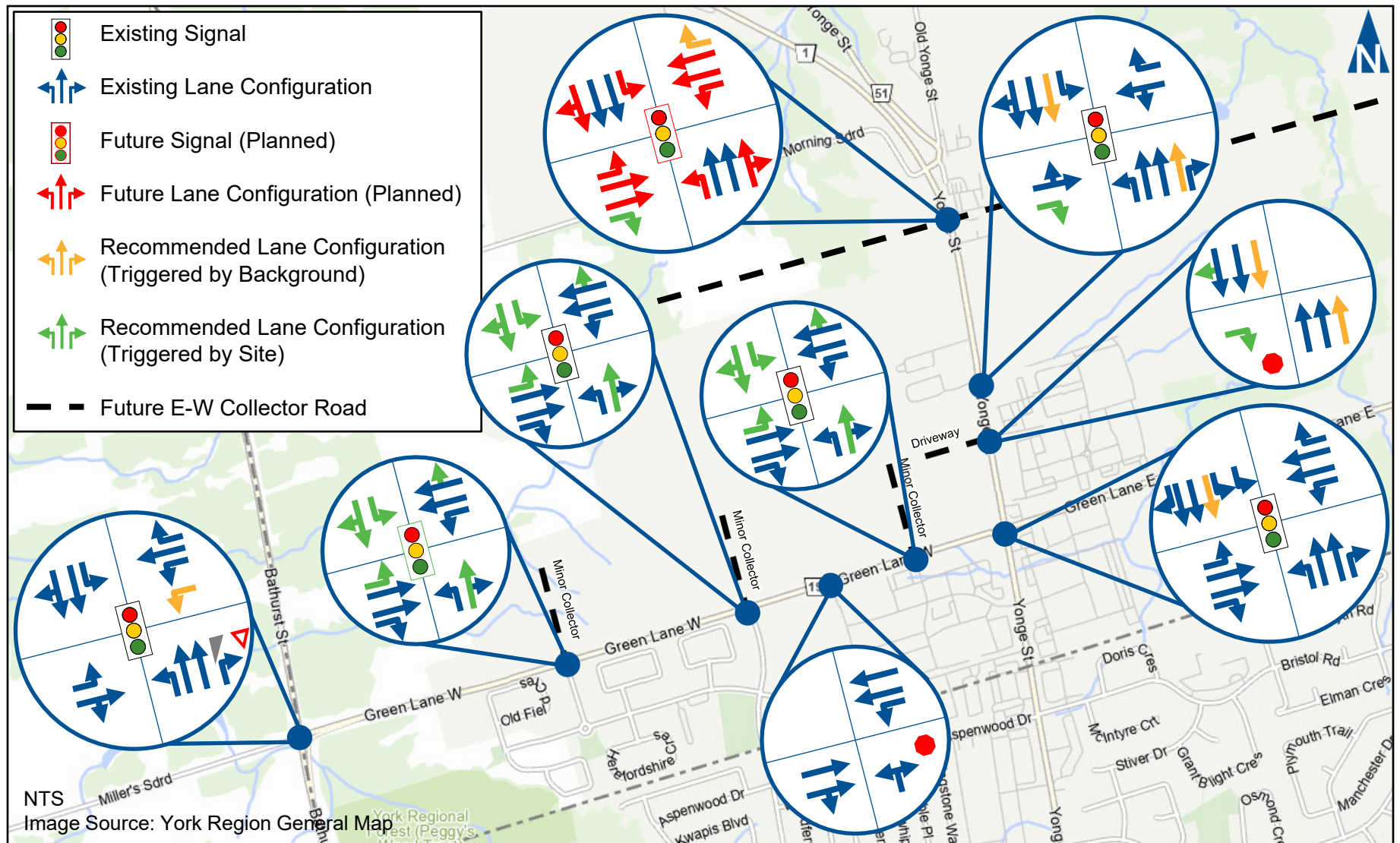
It is noted the majority of the mitigation measures are driven by background growth and site traffic contributions from other area developments. Section 6.3 details the measures triggered under background and total traffic conditions.

- ▶ **Transit Impact:** The proposed NW Secondary Plan Area is forecast to generate approximately 163 and 102 transit trips under the AM and PM peak hours, respectively.

Beyond the planned transit improvements for Green Lane and Yonge Street (i.e., bus rapid transit), it is recommended transit services be extended to service the NW Secondary Plan Area and other nearby future developments. This could include a new transit route or extension of existing services to be provided along the east-west major collector;

- ▶ **Active Transportation Impact:** The proposed NW Secondary Plan Area is forecast to generate 10 AM and 0 PM cycling trips, and 190 AM and 74 PM walking trips. With planned future cycling facilities to be implemented along Bathurst Street, Yonge Street, and Green Lane (east of Yonge Street), and accompanying active transportation infrastructure for the new east-west collector and internal minor collector roadways, it is anticipated the forecast active transportation trips would be accommodated by the proposed active transportation infrastructure; and
- ▶ **Transportation Demand Management (TDM):** A comprehensive TDM plan for the proposed development has been prepared, and applicable TDM measures and initiatives have been outlined. The implementation of these measures would further assist in reducing site-generated vehicular trips and associated parking demands, and provide a means for sustainable travel.





Recommendations

The following items are recommended based on the study results:

- ▶ The Town of East Gwillimbury and York Region recognize the conclusions drawn above;
- ▶ It is understood the mechanism for the delivery of the new east-west major collector roadway will be provided through development of lands under approved Secondary Plans.

The Town of East Gwillimbury may want to consider constructing the new east-west collector roadway prior to the development of lands within the Green Lane Secondary Plan area if feasible. Under existing conditions, the Green Lane corridor is noted to be approaching capacity. The provision of an additional east-west travel link within the transportation network would provide capacity and relief;

- ▶ The applicable governing jurisdiction should monitor the level of development within the NW Secondary Plan Area and the overall Secondary Plan Area, as development occurs and progresses. Traffic volumes and operations at the study area intersections should be monitored to determine the appropriate timing for implementation of planned road network improvements and remedial measures in response to actual growth realized and actual site traffic generated;
- ▶ York Region and The Town of East Gwillimbury should continue to encourage the use of more sustainable modes of transportation to reduce the general reliance on the automobile, which will assist in mitigating the adverse impacts of potential increases in traffic the study area; and
- ▶ From a transportation perspective, the required planning applications to allow the proposed development should be approved.



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1 Introduction

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct a Transportation Mobility Plan to assess a proposed community subdivision generally located in the northwest quadrant of the Yonge Street and Green Lane intersection in the Town of East Gwillimbury, York Region.

The subject lands form part of the Green Lane Secondary Plan area as designated by the Town's Official Plan Amendment No. 4-2018, and are referred to as the "NW Secondary Plan Area".

This study has been prepared in support of the Community Design Plan. The proposed community will be developed over a period of time. The purpose of this study is to provide an end-state (full build-out) review of the community to help confirm the basic structure of the community.

Figure 1.1 illustrates the NW Secondary Plan Area.

The purpose of the study is to:

- ▶ Determine and assess the current study area traffic conditions;
- ▶ Forecast the site traffic generated by the NW Secondary Plan Area;
- ▶ Analyze the impacts of the site-generated traffic on the study area transportation network; and
- ▶ Recommend necessary remedial measures to mitigate impacts, if any.

The intersections assessed within this study include:

- ▶ Green Lane (York Regional Road 19) and Bathurst Street (York Regional Road 38) (signalized);
- ▶ Green Lane (RR 19) and Lady Gwillim Avenue/Future Minor Collector (unsignalized);
- ▶ Green Lane (RR 19) and Woodspring Avenue/Future Minor Collector (signalized);
- ▶ Green Lane (RR 19) and Costco Driveway (unsignalized);
- ▶ Green Lane (RR 19) and Existing Commercial Driveway/Future Minor Collector (signalized);
- ▶ Green Lane (RR 19) and Yonge Street (RR 1) (signalized);



- ▶ Yonge Street (RR 1) and Proposed Commercial Mixed-Use Driveway (proposed unsignalized);
- ▶ Yonge Street (RR 1) and Church Driveway (Future Minor Collector)/Existing Commercial Driveway (signalized); and
- ▶ Yonge Street (RR 1) and Proposed East-West Collector Road (proposed signalized).

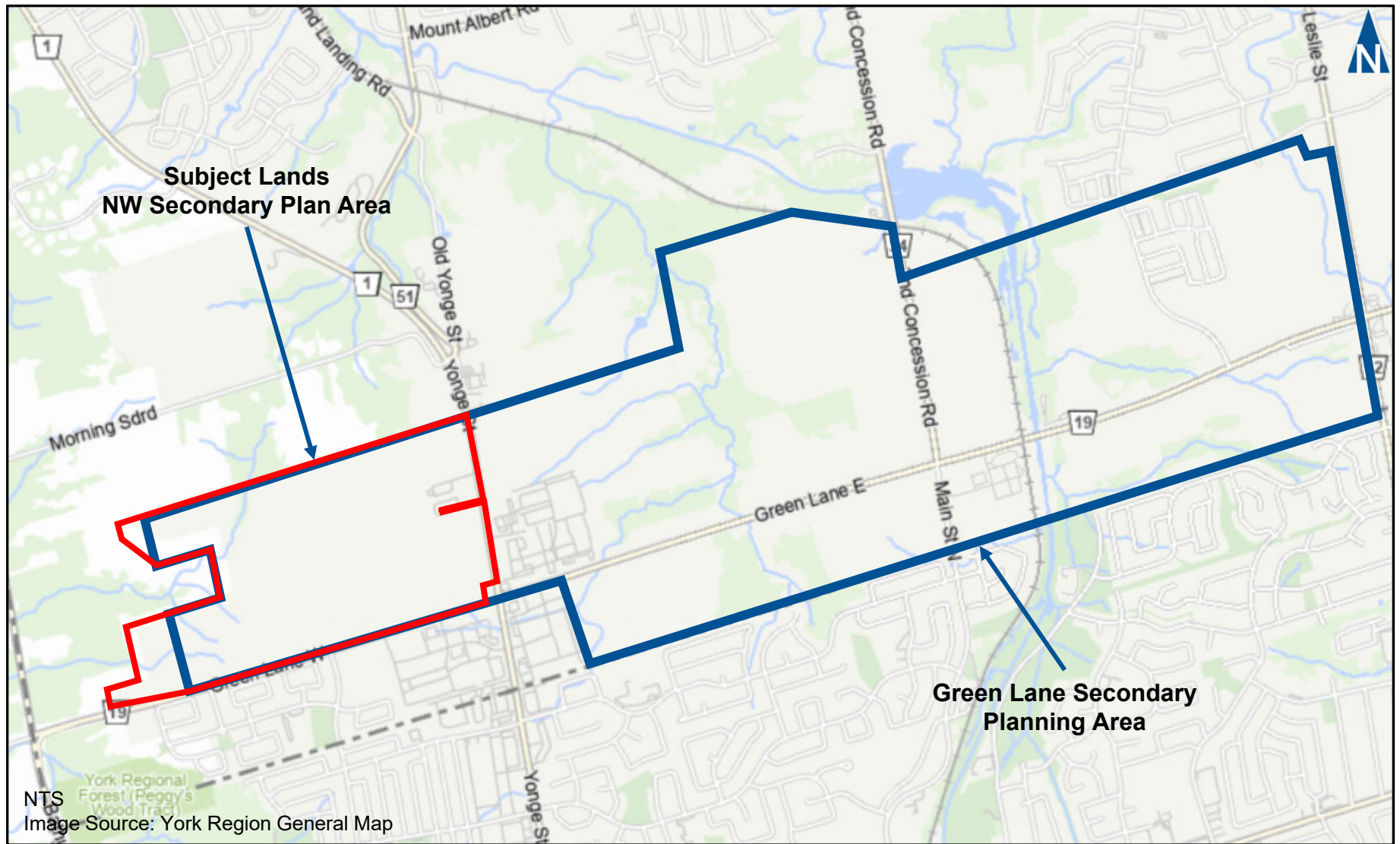
Traffic forecasts and analysis are completed for 2030, 2035, 2040, and 2045, representing the anticipated interim horizons (10% and 50% build-out of the NW Secondary Plan Area), full build-out year, and a period of five years beyond the full build-out, respectively. The analysis time periods include the weekday AM and PM peak hours, representative of typical commuter periods.

This study has been carried out in accordance with the York Region *Transportation Mobility Plan Guidelines for Development Applications* (November 2016)¹ and the Town of East Gwillimbury *Engineering Standards and Design Criteria* (September 2012)².

¹ York Region, *Transportation Mobility Plan Guidelines for Development Applications*, November 2016.

² Town of East Gwillimbury, *Engineering Standards and Design Criteria*, September 2012.





NW Secondary Plan Area

2 Background Studies

The following background reports/documents have been reviewed with key points and relevant information applicable to this study extracted. Specific planning policies and relevant studies include:

East-West Road Corridor Environmental Assessment (EA),
Environmental Study Report (May 2015, AECOM)

The EA study assessed the need for a new east-west collector road link through the Town of East Gwillimbury and selected the preferred corridor alignment that will provide direct access to future developments along Green Lane and to businesses in Sharon and Queensville.

The proposed east-west road is classified as a major collector that connects Bathurst Street and the Harry Walker Parkway Extension with the following attributes:

- ▶ The designated right-of-way (ROW) width is 30 meters (minimum);
- ▶ The roadway will provide four travel lanes (two lanes in each direction) with a 5.0-metre median to allow for turning lanes;
- ▶ The posted speed limit is 60 to 70 kilometres per hour; and
- ▶ A 1.5-metre sidewalk and a 1.5-metre on-street bike lane on both sides of the road.

The Town of East Gwillimbury TMP (2010) established the majority of traffic on the east-west major collector would likely serve local traffic and that Green Lane is still expected to carry the majority of through traffic.

The new east-west major collector is anticipated to be in place by 2031.

NW Yonge and Green Lane Secondary Plan, Transportation
Assessment (March 2016, Cole Engineering)

Cole Engineering previously completed a transportation assessment for the subject lands in March 2016.

It was concluded from the previous transportation assessment that the study area lands are ultimately expected to generate a total of 1,507 two-way (505 inbound and 1,002 outbound) trips during the AM peak hour and 1,968 two-way (1,147 inbound and 821 outbound) trips during the PM peak hour.

The following major road network improvements were recommended:



- ▶ Dual westbound left-turn lane at the Green Lane and Bathurst Street intersection;
- ▶ Traffic signal control at the Green Lane and Street D/Costco driveway intersection;
- ▶ Traffic signal control at the Green Lane and Lady Gwillim Avenue/Street A intersection; and
- ▶ Traffic signal control at the Yonge Street and Future Commercial Access intersection.

The following changes/updates are accounted for within this iteration of the study, which include:

- ▶ Updated community design plan. Refer to **Figure 3.1** for the current community design plan;
- ▶ Minor changes of the proposed road network. The current community design plan proposes that the most easterly minor collector connection with Green Lane aligns with the existing commercial driveway (approximately 275 metres west of Yonge Street). It is noted the previous iteration had this minor collector aligned across from the Costco driveway;
- ▶ New base year traffic volume data (collected on Wednesday, April 10, 2024). Refer to **Section 4.5** for detailed discussion;
- ▶ Updated growth rates and other area background developments to be accounted for in future traffic forecasts, if any. Refer to **Section 5.1.1** and **5.1.2** for detailed discussion;
- ▶ Updated assumptions for site-generated traffic. Refer to **Section 5.3** for detailed discussion; and
- ▶ Estimation of transit, cycling, and walking trips generated by the NW Secondary Plan Area and assessment of impacts on transit and active transportation networks.



3 Proposed Northwest Secondary Plan Area

3.1 Context

The subject lands are located in the northwest quadrant of the Yonge Street and Green Lane Secondary Plan Area (referred to as NW Secondary Plan Area) in the Town of East Gwillimbury. It is bounded by the proposed east-west major collector to the north, Green Lane to the south, the Yonge Street and Green Lane Secondary Plan Area boundary to the west, and Yonge Street to the east.

Several landowners (i.e., Beechway Developments Inc., Northmarket Holdings Inc., Sundial, Rice Group) propose to construct a community subdivision comprised of single detached houses, townhouses, medium and high density residential dwellings, commercial/retail space, office space, schools, a neighbourhood park, and the supporting transportation road and laneway network.

3.2 Proposed Development

A detailed breakdown of the proposed subdivision is as follows:

- ▶ 570 single family detached housing units;
- ▶ 1,776 townhouse dwelling units;
- ▶ 4,319 high-density residential dwelling units;
- ▶ Two elementary schools;
- ▶ 321 retirement/hotel units; and
- ▶ 12,550 SM of commercial/retail space.

Table 3.1 summarizes the detailed development breakdown by landowners.



TABLE 3.1: PROPOSED DEVELOPMENT

Ownership	Singles	Townhomes	Back to Back Townhomes	High-Density	Mixed- Use Residential	Mixed-Use Commercial	Institutional	Total
Beechway Developments Inc.	135 units	264 units	32 units	-	1,290 units 1,400 SM GFA retail/commercial	-	-	1,721 units 1,400 SM GFA retail/commercial
Northmarket Holdings Inc.	22 units	75 units	110 units	-	661 units 1,000 SM GFA retail/commercial	130 units 1,000 SM GFA retail/commercial	Elementary school	998 units 2,000 SM GFA retail/commercial Elementary school
Sundial	413 units	547 units	562 units	-	-	-	Elementary school	1,522 units Elementary school
Rice Group	-	186 units	-	1,033 units	-	1,205 units 9,150 SM GFA retail/commercial 321 retirement/hotel units	-	2,424 units 9,150 SM GFA retail/commercial 321 retirement/hotel units
Total	570 units	1,072 units	704 units	1,033 units	1,951 units 2,400 SM GFA retail/commercial	1,335 units 10,150 SM GFA retail/commercial 321 retirement/hotel units	2 elementary schools	



3.2.1 Vehicular Access Connections

Vehicle access is proposed via the following connections:

- ▶ Three minor collectors providing full-movement connections with Green Lane. They are located opposite of Lady Gwillim Avenue, Woodspring Avenue, and a commercial driveway (located approximately 270 metres west of Yonge Street), respectively;
- ▶ A restricted right-in/right-out connection with Yonge Street, which is located opposite of the existing commercial driveway (approximately 265 metres north of Green Lane);
- ▶ A minor collector providing a full-movement connection with Yonge Street. The minor collector road aligns with the existing church driveway and is located opposite of the existing commercial driveway (approximately 435 metres north of Green Lane); and
- ▶ The proposed east-west major collector providing a full-movement connection with Yonge Street.

3.2.2 Internal Roadways

The proposed internal road network provides connectivity throughout the NW Secondary Plan Area and aligns with existing intersections along Green Lane and Yonge Street, which improves continuity with the existing neighbourhood and commercial land uses to the south and east.

It is noted the proposed minor collector roads within the community design plan will be provided at a 22-metre right-of-way (ROW) width, and the proposed east-west major collector will have a 30-metre right-of-way.

As related to the minor collector road, a 22-metre ROW minor collector road would be appropriate as it will provide a 9.8-metre roadway width, consisting of two 3.65-metre travel lanes, and an adjacent 2.5-metre on-street parking lane. The 22-metre ROW also facilitates the provision of sidewalks on both sides of the roadway. The anticipated travel lane widths would also be appropriate to accommodate transit vehicles in the event transit services are extended to serve the subject lands internally. Furthermore, from a policy perspective the proposed minor collector ROW satisfies the newly adopted/modified Official Plan minimum ROW requirements for minor collector roads.



3.2.3 Anticipated Build-Out

For assessment purposes, it is anticipated 10% build-out of the NW Secondary Plan Area will occur by 2030, 50% build-out of the NW Secondary Plan Area will occur by 2035, and full build-out and occupancy of the NW Secondary Plan Area will occur by 2040.

Specifically, we were advised all landowners would construct concurrently with low-density residential to be constructed initially, followed by mid- to high-density residential, and with commercial/retail developments constructed last.

Figure 3.1 illustrates the current community design plan.





4 Existing Conditions

4.1 Roads

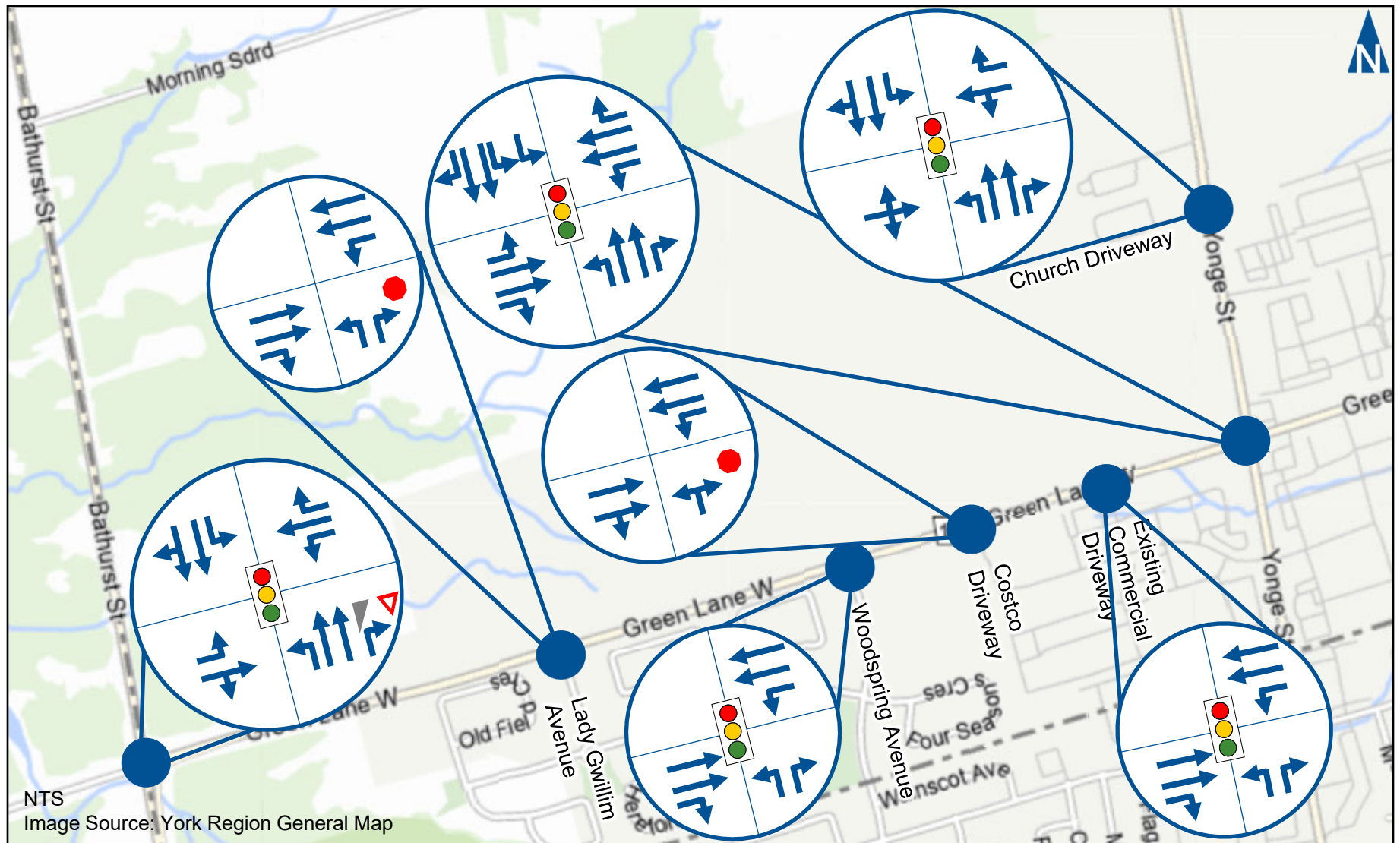
The characteristics of the roadways surrounding the NW Secondary Plan Area are described below. Reference has been made to Town of East Gwillimbury *Transportation Master Plan Update* (March 1, 2024)³.

- ▶ **Green Lane (York Regional Road (RR) 19)** is an east-west regional road with four travel lanes (two lanes in each direction) between Bathurst Street and Woodspring Avenue, and five travel lanes (two lanes in each direction and a centre two-way centre left-turn lane) between Woodspring Avenue and Yonge Street. East of Yonge Street, Green Lane provides four travel lanes (two lanes in each direction). The posted speed limit is 70 km/h within the study area. Green Lane transitions to Miller's Sideroad west of Bathurst Street providing two travel lanes (one lane in each direction);
- ▶ **Yonge Street (RR 1)** is a north-south regional road with four travel lanes (two lanes in each direction). The posted speed limit is 60 km/h, increasing to 70 km/h north of Green Lane;
- ▶ **Bathurst Street (RR 38)** is a north-south regional road with four travel lanes (two lanes in each direction) south of Green Lane. North of Green Lane, Bathurst Street transitions to a two-lane cross section (one lane in each direction). The posted speed limit is 70 km/h south of Green Lane, and 60 km/h north of Green Lane;
- ▶ **Lady Gwillim Avenue** is a north-south local road with two travel lanes (one lane in each direction) connecting Harvest Hills Boulevard and Green Lane. No speed limit signage is posted along the roadway; therefore, it is assumed the statutory speed limit of 50 km/h governs; and
- ▶ **Woodspring Avenue** is a generally north-south local road with three travel lanes (one lane in each direction and a centre two-way left-turn lane). The posted speed limit is 40 km/h. Woodspring Avenue is signed as a community safety zone.

Figure 4.1 illustrates the existing lane arrangements and traffic control devices at the study area intersections.

³ Town of East Gwillimbury, *Transportation Master Plan, Figure 4-7 – Existing Road Network*, March 1, 2024.





Existing Lane Configurations and Traffic Control

4.2 Transit

York Region Transit (YRT) is the public transit operator within the Town of East Gwillimbury. According to the *YRT System Map* (effective 07 January 2024)⁴ the transit routes currently serving the study area include YRT Route 44 (Bristol), Route 52 (Holland Landing), and Route 98 (Yonge). Details are noted as follows:

- ▶ **Route 44 (Bristol)** is a circular route departing from the Newmarket Terminal. The route travels eastbound along Woodspring Avenue and Green Lane within the study area. The nearest bus stop is located at the intersection of Green Lane/Woodspring Avenue. The route operates Monday to Friday during commuter periods with headways in the order of approximately 40 minutes;
- ▶ **Route 52 (Holland Landing)** provides bus service between Queensville Sideroad/Yonge Street and the Newmarket Terminal. The route travels along Yonge Street within the study area. The nearest bus stop is located at the intersection of Yonge Street/Green Lane. The route operates Monday to Friday during commuter periods with headways in the order of approximately 60 minutes; and
- ▶ **Route 98 (Yonge)** provides bus service between Yonge Street/Green Lane and the Bernard Terminal. The nearest bus stop is located at the intersection of Yonge Street/Green Lane (terminal stop). The route operates Monday to Sunday and statutory holidays with headways in the order of approximately 40 minutes during commuter peak hours, and up to 60 minutes on weekends.

YRT also provides the following Mobility On-Request services (a ride-sharing service) within the Town of East Gwillimbury:

- ▶ **65+ Service:** on-request ride-sharing service from an address to another address within five kilometres in York Region for seniors 65 years or older;
- ▶ **Holland Landing:** on-request ride-sharing service from an address in the service area to one of four select locations;
- ▶ **Mount Albert:** on-request ride-sharing service from an address in the service area to one of six select locations; and

⁴ York Region Transit, *System Map (Effective 07 January 2024)*.
https://www.yrt.ca/en/schedules-and-maps/resources/Documents/system-maps/YRT-System-Map_Web_Jan2024.pdf



- **North:** on-request ride-sharing service from an address in the service area to the closest bus stop.

The East Gwillimbury GO Station is located on the south side of Green Lane, approximately 2.5 kilometres east of the subject lands. The GO station is accessible through YRT Route 54 (Bayview), and provides direct connections to GO Bus Route 65, 66, and 68.

The Newmarket Terminal is located approximately 2.1 kilometres south of the subject lands. Connections can be made to other local transit routes including routes VIVA Blue, VIVA Yellow, YRT Routes 50, 55, 56, 57, and 96.

The existing transit network provides opportunities for local and inter-regional travel by public transit. Currently, the network and service area cater to existing areas and their demands. It is anticipated with development of the NW Secondary Plan Area, appropriate transit service/infrastructure will be provided to serve the community.

Figure 4.2 illustrates the existing transit network in proximity of the subject site.

It is further noted that a portion of the NW Green Lane Secondary Plan Area lands fall within the identified Protected Major Transit Station Area (PMTSA) 3 – Green Lane BRT Station limits.

4.3 Active Transportation

4.3.1 Walking

Pedestrian travel is facilitated by sidewalks on both sides of Yonge Street (south of Green Lane), Lady Gwillim Avenue, and Woodspring Avenue. No pedestrian infrastructure is provided on along Bathurst Street, Miller's Sideroad, and a 415-metre section of Green Lane (east of Bathurst Street) aside from paved shoulders within the study area.

A sidewalk is provided on the south side of Green Lane west of Yonge Street, north side of Green Lane east of Yonge Street, and on the east side of Yonge Street (north of Green Lane).

A multi-use path (MUP) is also provided on the south side of Green Lane starting from approximately 435 metres east of Bathurst Street to Yonge Street.

At the signalized study area intersections, delineated crosswalks, pedestrian push buttons, and pedestrian signal heads are provided for all intersection legs. The exceptions include the north leg at Yonge Street and Church Driveway/Existing Commercial Driveway and the



south leg at Green Lane and Bathurst Street where no east-west delineated crosswalk is provided. Signage is posted advising pedestrians to cross on the other side.

At the unsignalized intersections of Green Lane and Lady Gwillim Avenue, a crosswalk is provided at the south leg of the intersection. Additionally, a mixed crossride is provided at the south leg of the Green Lane and the Costco Driveway intersection.

Figure 4.3 illustrates the existing pedestrian network around the study area.

4.3.2 Cycling

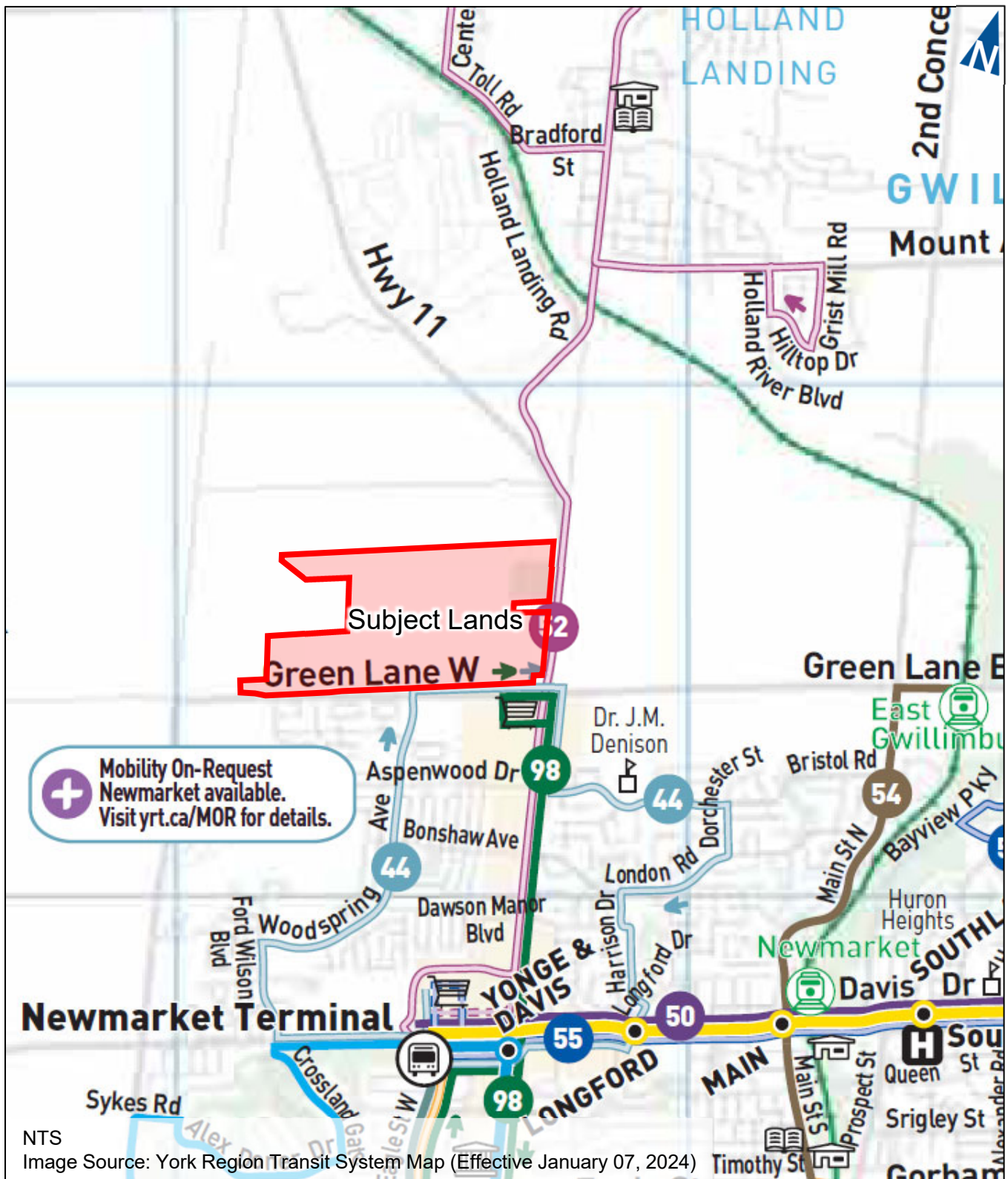
The existing cycling infrastructure provisions serving the study area roadways are described below. Reference was made to the *2021-2022 York Region Cycling Map - South Side (Vaughan, Richmond Hill, Markham, Whitchurch-Stouffville, East Gwillimbury, Aurora, Newmarket, King)*⁵.

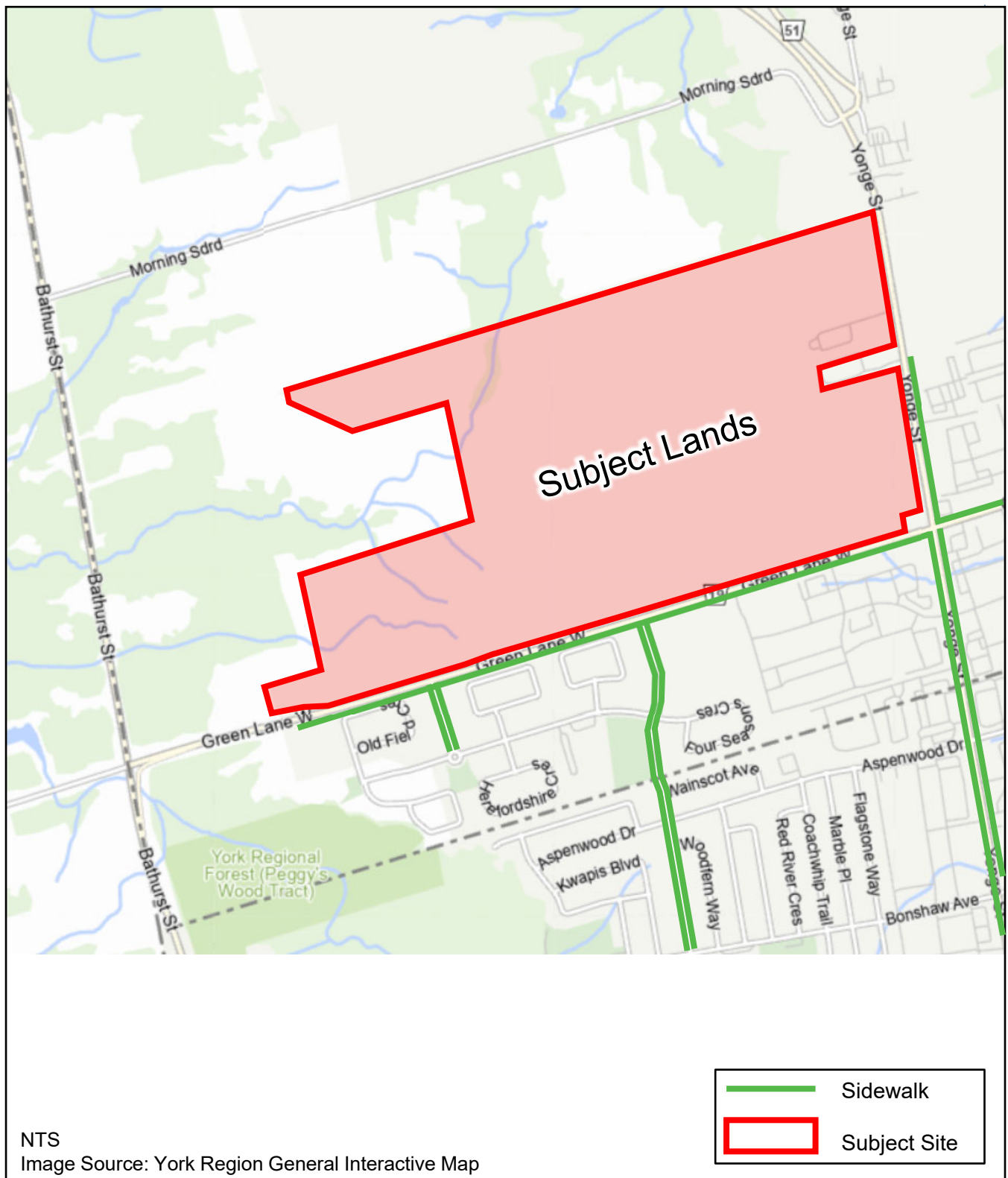
- ▶ **Green Lane** is classified as “shared pathway (in boulevard)” that provides a multi-use path, starting from approximately 415 metres east of Bathurst Street to Yonge Street. This pathway is physically separated from the roadway within the boulevard by a hard surface strip and is located on the south side for pedestrian and cyclist use;
- ▶ **Yonge Street** is classified as shared roadway between the Town of East Gwillimbury’s south boundary and Morning Sideroad. Cyclists are required to share the travelled roadway with motorists;
- ▶ **Bathurst Street** provides a paved shoulder on both sides of the roadway north of Green Lane. The paved shoulders provide a space for pedestrians and cyclists as there are no other active transportation facilities present.
South of Green Lane, Bathurst Street is designated as a shared roadway where cyclists are required to share the travelled roadway with motorists; and
- ▶ **Woodspring Avenue** provides a delineated on-street bike lane on both sides of the road.

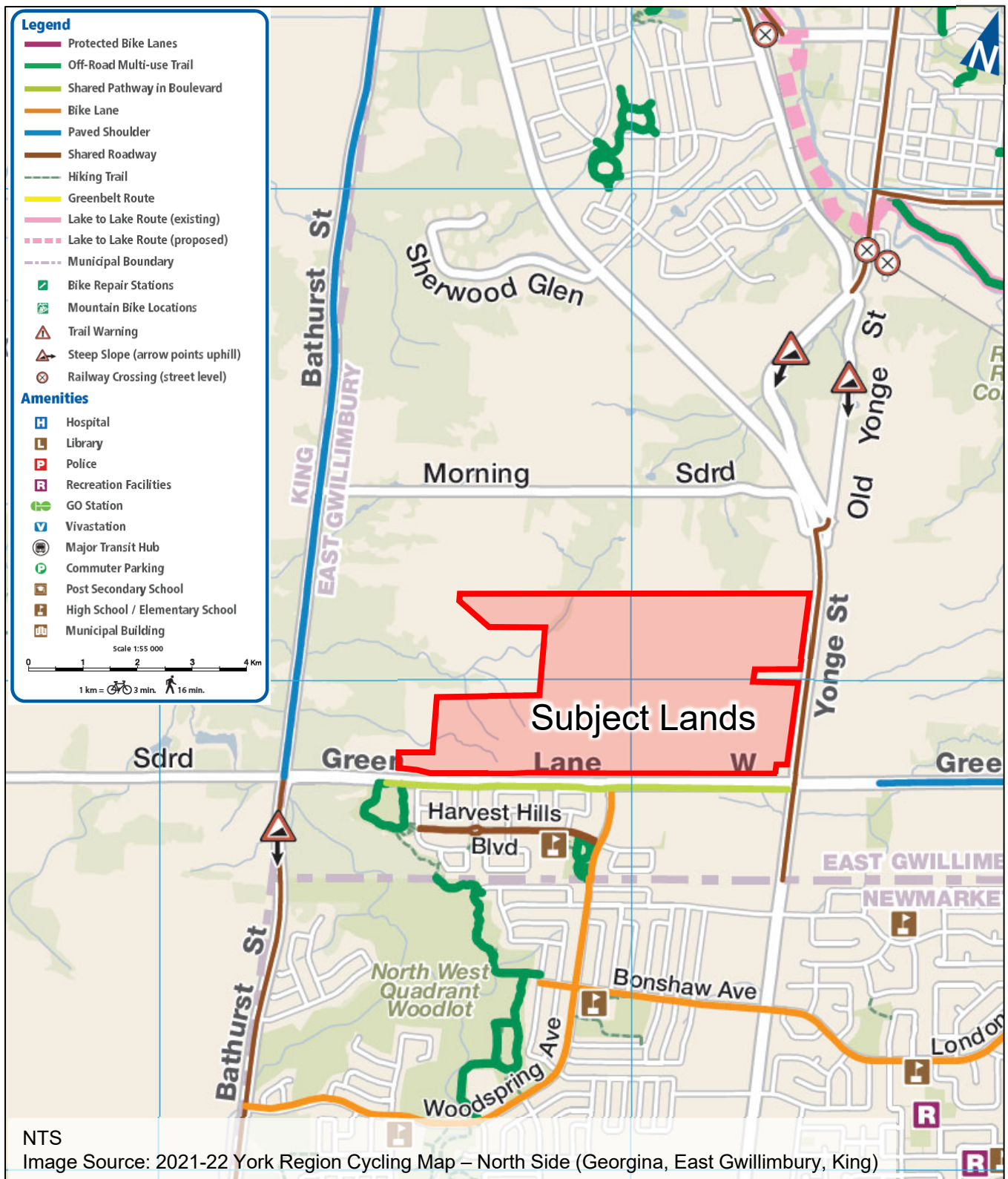
Figure 4.4 illustrates the existing cycling network around the study area.

⁵ York Region, 2021-22 York Region Cycling Map – North Side (Georgina, East Gwillimbury, King).









4.4 Modal Split

To better understand existing travel characteristics of the subject site and surrounding areas, 2016 Transportation Tomorrow Survey (TTS) data was reviewed for TTS Traffic Analysis Zones (TAZs) 2607, 2608, 2609, 2751, 2752, and 2753.

The subject lands are located within TAZ 2753, which is bound by Highway 11 to the north, Green Lane to the south, Bathurst Street to the west, and Yonge Street to the east. However, given the lack of residential and commercial land uses within the zone, adjacent TAZ 2607, 2608, 2609, 2751 and 2752 were examined as well. TAZ 2607, 2608, 2609, 2751 and 2752 together are bound by Green Lane to the north, Davis Drive West to the south, Bathurst Street to the west, and Yonge Street to the east.

The existing mode share for travel during the weekday AM and PM peak periods has been reviewed. Inbound and outbound trips during the morning three-hour travel period (6:00 – 9:00 AM) and the afternoon three-hour travel period (4:00 – 7:00 PM) were assessed.

Table 4.1 summarizes the existing modal share for TAZ 2607, 2608, 2609, 2751, 2752, and 2753.

TABLE 4.1: EXISTING MODE SPLIT (TAZ 2607, 2608, 2609, 2751, 2752, AND 2753)

Mode	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Auto Driver	76%	76%	77%	75%
Auto Passenger	12%	12%	17%	20%
Transit	4%	6%	4%	2%
Cycle	1%	0%	0%	0%
Walk	7%	6%	2%	3%
Total	100%	100%	100%	100%

The data suggests inbound and outbound trips are predominately automobile based (auto driver and auto passenger) accounting for 88-95% of all trips, whereas transit trips make up less than 6% of all trips. It is noted that almost no cycling trips were reported, and walking trips account for less than 10% of all trips.

4.5 Data Collection and Traffic Volumes

To assess intersection operations, turning movement counts (TMCs) are used to quantify the movement of vehicles, pedestrians, trucks, buses, and cyclists through an intersection. Existing traffic data at an

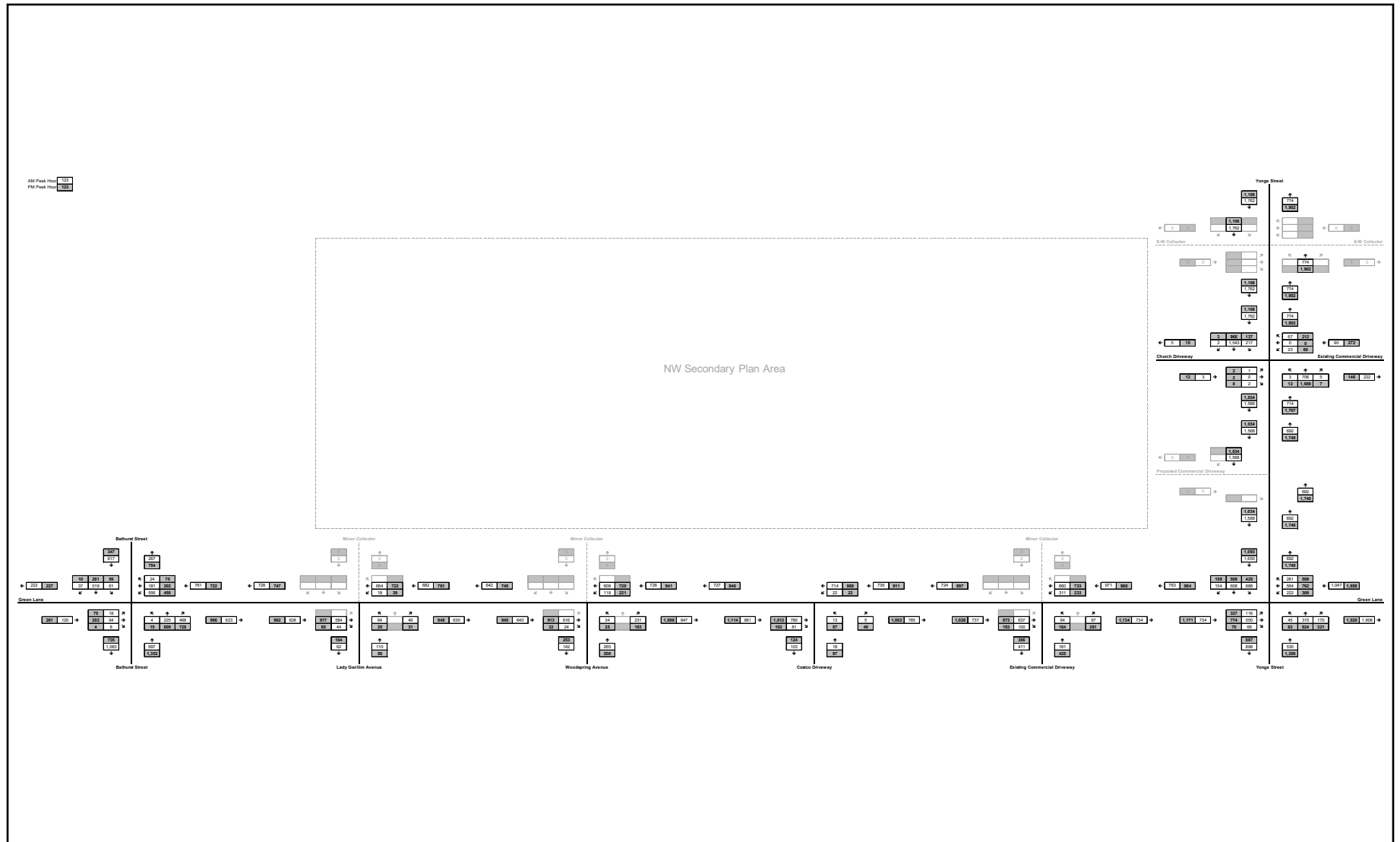


intersection or on a road section forms the foundation for operational analysis. The counts are usually collected during peak periods to complete level of service (LOS) analysis under its worst-case operating conditions.

Paradigm collected TMCs at the study area intersections on Wednesday, April 10, 2024 from 7:00 AM to 7:00 PM. The data was counted in 15-minute intervals and vehicles were classified by type.

Figure 4.5 illustrates the base year (2024) weekday AM and PM peak hour traffic volumes. **Appendix A** contains the raw traffic data for reference.





Base Year (2024) Traffic Volumes

4.6 Automobile Mode Performance

Intersection level of service (LOS) is a recognized method of quantifying the average delay experienced by drivers at intersections. It is based on delay experienced by individual vehicles executing various movements. The delay is related to the number of vehicles intending to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to opposing traffic flows, intersection geometry, and at signalized intersections, signal timing.

The highest possible rating is LOS A, under which the average total delay is equal or less than 10 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections, 50 seconds for unsignalized intersections or when the volume-to-capacity (v/c) ratio is greater than 1.00, the movement is classed as LOS F, and remedial measures are usually implemented if they are feasible. Capacity is evaluated in terms of the ratio of demand flow to capacity with an at-capacity condition represented by a v/c ratio of 1.00 (i.e., volume demand equals capacity).

The York Region *Transportation Mobility Plan Guidelines for Development Applications*⁶ identifies the following criteria for critical intersections and movements:

- ▶ An intersection where the overall v/c ratio exceeds 0.85 in urban areas or 0.70 in rural areas;
- ▶ An individual movement v/c ratio exceeds 0.85 in urban areas or 0.70 in rural areas;
- ▶ An exclusive turning movement results in queues exceeding the available storage space; and
- ▶ Exclusive left and right turn lanes that are inaccessible due to the length of queues in the adjacent through lanes.

To assess the base year peak hour automobile conditions, an operational analysis was conducted for the weekday AM and PM peak hour traffic conditions at the study area intersections using Synchro software, which implements the methods of the Highway Capacity Manual (HCM). The key parameters used in the analysis include:

- ▶ Existing lane configurations;

⁶ York Region, *Transportation Mobility Plan Guidelines for Development Applications*, November 2016, p40.



- ▶ Heavy vehicle percentages derived from existing traffic count data;
- ▶ Conflicting pedestrian volumes derived from existing traffic count data;
- ▶ Calculated intersection peak hour factors (PHF), which facilitates an assessment of the busiest 15-minute period within the peak hour;
- ▶ Existing signal timing plans as obtained from York Region, which are included for reference in **Appendix A**; and
- ▶ Synchro default values for all other inputs.

Table 4.2A and **Table 4.2B** summarize the automobile operational results indicating the LOS, average delay in seconds, v/c ratios, and 95th percentile queue lengths in metres for the weekday AM and PM peak hours, respectively. Any critical movements are highlighted. **Appendix B** contains the Synchro analysis outputs for reference.

The operational analysis results indicate all study area intersections currently operate at acceptable levels of service and well within capacity during the weekday AM and PM peak hours.

The exceptions being the eastbound and westbound movements at the intersection of Green Lane and Yonge Street, which are reported to be approaching capacity. Furthermore, it is noted the southbound left-turn movement is reported to operate over-capacity ($v/c > 1.00$) during the AM peak hour due to the volume of left-turning vehicles. However, it is noted this critical movement can be resolved with signal timing split adjustments (no changes to the cycle length).

The 95th percentile queue lengths were reviewed for all turn lanes against provided storage. Queue lengths for through movements were also checked. The following spillback issues are noted:

- ▶ The westbound left-turn movement at Green Lane and the Existing Commercial Driveway, the 95th percentile queue results in a theoretical storage deficiency of nine metres during the AM peak hour.

This is not considered a critical issue as the westbound left-turn lane transitions to a centre two-way left-turn lane east of the intersection. Additional queuing can be accommodated via the centre two-way left-turn lane;

- ▶ The southbound left-turn movement at Green Lane and Yonge Street, the 95th percentile queue results in a storage deficiency of 130 metres during the AM peak hour.



The eastbound left-turn, westbound right-turn, and northbound right-turn movements at Green Lane and Yonge Street result in storage deficiencies of 112, 20, and 48 metres during the PM peak hour, respectively; and

- ▶ The westbound left-turn movement at Green Lane and Woodspring Avenue, the 95th percentile queue results in a theoretical storage deficiency of 25 metres during the PM peak hour.

This is not considered a critical issue as the 95th percentile queue could be accommodated by the available storage east of the left-turn lane without impacting the adjacent through lane.

The base year operational results indicate applicable mitigation measures need to be investigated and considered to address the current poor traffic operations at the intersection of Green Lane and Yonge Street during the AM and PM peak hours.



TABLE 4.2A: BASE YEAR (2024) AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 7 0.03 4 100 96	A 8 > > >	> 8	C 23 0.81 148 200 52	A 8 0.17 26 - -	A 7 0.02 2 - -	B 19	C 24 0.04 3 140 137	C 25 0.29 25 - 140	A 1 0.32 0 140	A 9	C 25 0.24 18 75 57	C 31 0.71 60 - -	> > > >	C 30	B 18 0.78	
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.18 0 0 - 30	A 0 0.03 0 30	A 0	A 9 0.02 1 25 24	A 0 0.21 0 - -	A 0	D 27 0.3 10 35 25		B 11 0.07 2 - -	C 20						
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 3 0.24 30 - -	A 3 0.02 2 30 28	A 3	A 4 0.21 16 30 14	A 4 0.25 33 - -	A 4	E 56 0.24 20 30 10		E 56 0.16 26 - -	E 56					B 12 0.25	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.33 0 - -	A 0 > > >	A 0	B 10 0.03 1 50 49	A 0 0.23 0 - -	A 0	C 15 0.05 1 - -		> > > >	C 15						
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 8 0.30 48 - -	A 6 0.07 5 45 40	A 8	B 15 0.53 49 40 -9	A 2 0.27 18 - -	A 6	E 58 0.44 34 - -		D 55 0.07 18 - -	E 56					B 11 0.54	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 32 0.51 22 30 8	D 50 0.73 93 - -	D 39 0.05 3 30 27	D 46	E 75 0.92 66 170 104	D 50 0.73 93 - 156	C 21 0.18 14 170 156	D 48	C 30 0.16 12 90 78	D 38 0.34 50 - -	C 35 0.12 18 35 17	D 36	F 143 1.19 220 90 -130	B 20 0.38 82 - -	B 18 0.12 20 45 25	F 86	E 62 0.82
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	E 57 0.00 0 - -	> > > > >	E 57	< < < < <	E 60 0.27 16 - -	E 58 0.04 14 - -	E 58	A 10 0.01 1 30 29	B 14 0.29 73 - -	A 5 0 30 30	B 14	A 3 0.35 13 45 32	A 4 0.53 74 - -	> > > >	A 4	A 9 0.53

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



TABLE 4.2B: BASE YEAR (2024) PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.12 14 100 86	A 9 0.20 31 - -	> > > >	A 9	C 21 0.75 123 200 77	A 9 0.20 31 - -	A 8 0.05 6 - -	B 16	C 24 0.07 7 140 133	C 31 0.73 67 0 140	A 1 0.48 0 140	B 15	C 28 0.45 20 75 55	C 25 0.35 32 - -	> > > >	C 26	B 16 0.74
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.3 0 - -	A 0 0.04 0 30 30	A 0	B 11 0.07 2 25 23	A 0 0.23 0 - -		A 1	E 49 0.25 7 35 28		B 12 0.07 2 - -	D 29					
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 4 0.32 43 - -	A 2 0.02 3 30 27	A 3	B 11 0.49 55 30 -25	A 3 0.26 26 - -		A 5	E 61 0.18 17 30 13		E 61 0.22 28 - -	E 61					A 10 0.47
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.42 0 - -	> > > >	A 0	B 12 0.04 1 50 49	A 0 0.28 0 - -		A 0	C 20 0.31 10 - -		> > > >	C 20					
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		B 10 0.38 69 - -	A 7 0.11 9 45 36	A 10	C 21 0.49 31 40 9	A 1 0.29 8 - -		A 6	E 68 0.71 70 - -		E 56 0.37 41 - -	E 61					B 17 0.54
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 104 0.97 142 30 -112	D 52 0.87 127 - -	D 39 0.05 1 30 29	E 66	E 75 0.94 126 170 44	E 61 0.88 141 - -20	D 53 0.89 190 - -	E 61	C 33 0.19 19 90 71	E 55 0.83 152 - -	D 47 0.52 83 35 -48	D 52	E 74 0.83 84 90 6	C 29 0.38 65 - -	C 23 0.11 14 45 31	D 46	E 57 0.91
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	E 55 0.03 7 - -	> > > >	E 55	< < < <	E 59 0.38 30 - -	E 67 0.65 57 - -	E 65	A 7 0.05 1 30 29	B 13 0.74 216 - -	A 8 0.01 0 30 30	B 13	C 24 0.55 35 45 10	A 5 0.36 64 - -	> > > >	A 7	B 16 0.71

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



4.7 Transit Mode Performance

Using the criteria contained within the York Region *Transportation Mobility Plan Guidelines for Development Applications* (November 2016)⁷ the existing transit level of service is evaluated. Three measures of evaluation are utilized to assess the existing transit mode level of service performance.

Table 4.3 summarizes the transit level of service criteria from the Region's mobility guidelines. **Table 4.4** provides a summary of the existing transit level of service.

TABLE 4.3: TRANSIT LEVEL OF SERVICE CRITERIA

LOS	Access to Transit Stops	Transit Headways	Intersection Approach (transit or curb lanes)	
			Delay (secs/veh)	V/C
A	90% within ≤200 m	≤5 minutes	≤10	0 – 0.60
B	90% within ≤500 m and 70% within ≤200 m	>5-10 minutes	>10-20	0.61 – 0.70
C	90% within ≤500 m and 50% within ≤200 m	>10-15 minutes	>20-35	0.71 – 0.80
D	100% within ≤600 m	>15-20 minutes	>35-55	0.81 – 0.90
E	100% within ≤800 m	>20-30 minutes	>55-80	0.91 – 1.00
F	100% >800 m	>30 minutes	>80	>1.00

⁷ York Region, *Transportation Mobility Plan Guidelines for Development Applications*, November 2016.



TABLE 4.4: EXISTING TRANSIT LOS SUMMARY

Transit Stop Location	Dir	LOS		
		Access to Transit Stops	Transit Headways	Intersection Approach (transit or curb lanes)
Green Lane and Woodspring Avenue	NB	LOS A	LOS F	LOS A
	EB	LOS A	LOS F	LOS A
	WB	LOS A	LOS F	LOS A
Green Lane and Yonge Street	NB	LOS A	LOS F	LOS D
	SB	LOS A	LOS F	LOS A
	EB	LOS A	LOS F	LOS D
	WB	LOS A	LOS F	LOS D
Yonge Street and Church Driveway/Existing Commercial Driveway	NB	LOS A	LOS F	LOS C
	SB	LOS A	LOS F	LOS A
	EB	LOS A	LOS F	LOS A
	WB	LOS A	LOS F	LOS A

The mobility guidelines state the target transit LOS is a LOS C or better for access to transit stops and transit headways, and a LOS D or better for intersection approach.

The existing transit mode performance meets the target for access to transit stops and intersection approach; however, it does not meet the targets for transit headways.

It is anticipated future transit mode performance will be improved with planned transit infrastructure improvements. Detailed transit plans/improvements are documented in **Section 5.2.3**.

4.8 Bicycle Mode Performance

There are two required criteria for the bicycle mode level of service performance, at the segment (between two or more intersections) and at the intersection (signalized or unsignalized) areas. **Table 4.5** summarizes the bicycle LOS criteria from the *York Region's Guidelines*. **Table 4.6** provides a summary of the existing bicycle LOS.

The mobility guidelines state the target Bicycle LOS is LOS C or better for both the segment and intersection.

The existing mode performance does not meet the specified targets, except for Green Lane and Woodspring Avenue. Green Lane provides a multi-use path on the south side for pedestrians and cyclists, and



Woodspring Avenue provides a delineated on-street bike lane on both sides of the road within the study area.

This is not considered a critical issue, as we understand via the York Region Transportation Master Plan (August 2022) there are planned improvements related to active transportation infrastructure within the study area. Please refer to **Section 5.2.4** for detailed active transportation improvements.

TABLE 4.5: BICYCLE LEVEL OF SERVICE CRITERIA

LOS	Segment	Intersection
A	Separated cycling facilities (e.g. cycle tracks, multi-use path)	Separated cycling facilities, Bicycle box or clearly delineated bicycle treatment or bicycle signal head
B	≥ 1.8 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer)	> 1.8 m dedicated cycling facilities (e.g. bicycle lanes with and without buffer), Bicycle box, clearly delineated bicycle treatment or bicycle signal head
C	< 1.8 m dedicated cycling facilities with no buffer	< 1.8 m dedicated cycling facilities with no buffer, Bicycle box, clearly delineated bicycle treatment or bicycle signal head
D	≤ 1.5 m bicycle lane with no buffer	≤ 1.5 m bicycle lane and no buffer, no bicycle treatment
E	Shared facilities (e.g. signed routes, sharrows or paved shoulder with min. 1.2 m in constrained area)	Shared facilities (e.g. signed routes, sharrows or paved shoulder with min. 1.2 m in constrained area), No clearly delineated bicycle treatment
F	No bicycle provision	No bicycle provision



TABLE 4.6: EXISTING BICYCLE LOS SUMMARY

Intersection	Dir	Segment		Intersection
		Description	LOS	
Green Lane and Bathurst Street	NB	Bathurst Street	LOS E	LOS E
	SB		LOS E	LOS E
	EB	Green Lane	LOS E	LOS E
	WB		LOS E	LOS E
Green Lane and Lady Gwillim Avenue	NB	Lady Gwillim Avenue	LOS F	LOS F
	EB	Green Lane	LOS A	LOS E
	WB		LOS A	LOS E
Green Lane and Woodspring Avenue	NB	Woodspring Avenue	LOS C	LOS C
	EB	Green Lane	LOS A	LOS E
	WB		LOS A	LOS E
Green Lane and Costco Driveway	NB	Costco Driveway	LOS F	LOS F
	EB	Green Lane	LOS A	LOS E
	WB		LOS A	LOS E
Green Lane and Existing Commercial Driveway	NB	Existing Commercial Driveway	LOS F	LOS F
	EB	Green Lane	LOS A	LOS E
	WB		LOS A	LOS E
Green Lane and Yonge Street	NB	Yonge Street	LOS E	LOS E
	SB		LOS E	LOS E
	EB	Green Lane	LOS A	LOS E
	WB		LOS E	LOS E
Yonge Street and Existing Commercial Driveway	NB	Yonge Street	LOS E	LOS E
	SB		LOS E	LOS E
	WB	Existing Commercial Driveway	LOS F	LOS F
Yonge Street and Church Driveway/Existing Commercial Driveway	NB	Yonge Street	LOS E	LOS E
	SB		LOS E	LOS E
	EB	Church Driveway	LOS F	LOS F
	WB	Existing Commercial Driveway	LOS F	LOS F



4.9 Pedestrian Mode Performance

There are two locations where the pedestrian mode level of service is considered, i.e., along a mid-block road section between intersections and at an intersection (signalized or unsignalized). **Table 4.7** summarizes the pedestrian LOS criteria from the *York Region's Guidelines*. **Table 4.8** and **Table 4.9** provide a summary of the existing pedestrian LOS for segments and intersections, respectively.

The mobility guidelines state the target Pedestrian LOS is C or better for both the segment and intersection. The study area intersections meet both the targets for segments and intersections, except for Bathurst Street and existing commercial driveways where sidewalks are not provided or only provided on one side of the roads.

TABLE 4.7: PEDESTRIAN LEVEL OF SERVICE CRITERIA

LOS	Segment	Intersection
A	≥2.0 m sidewalk with minimum 3.5 m buffer including planting and edge zone; or ≥3.0 m multi-use path	• ≥2.0 m sidewalk within minimum 3.5 m buffer including planting and edge zone; or ≥3.0 m multi-use path • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
B	≥1.5 m sidewalk with minimum 1.0 m buffer including edge zone; or <3.0 m multi-use path	• ≥1.5 m sidewalk with minimum 1.0 m buffer including edge zone; or <3.0 m multi-use path • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
C	≥1.5 m curb-faced sidewalk (no buffer)	• ≥1.5 m curb-faced sidewalk (no buffer) • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
D	<1.5 m sidewalk	• <1.5 m sidewalk • Pedestrian signal head with sufficient pedestrian clearance time • Clearly delineated crosswalk
E	Paved shoulder or no sidewalk provision	• Paved shoulder or no sidewalk provision • No pedestrian signal head • No clearly delineated crosswalk
F	No sidewalk provision	• No sidewalk provision • No pedestrian signal head • No clearly delineated crosswalk



TABLE 4.8: EXISTING PEDESTRIAN LOS – SEGMENT

Dir	Segment		Notes:
	Description	LOS	
EB	Green Lane	LOS B	A sidewalk on the south side of Green Lane (west of Yonge Street) and on the north side of Green Lane (east of Yonge Street).
WB		LOS B	
NB	Bathurst Street	LOS E	Paved shoulder on both sides of Bathurst Street.
SB		LOS E	
NB	Yonge Street	LOS B	A sidewalk on both sides of Yonge Street (south of Green Lane) and on the east side of Yonge Street (north of Green Lane).
SB		LOS B	
NB	Lady Gwillim Avenue	LOS B	A sidewalk on both sides of Lady Gwillim Avenue.
SB		LOS B	
NB	Woodspring Avenue	LOS B	A sidewalk on both sides of Woodspring Avenue.
SB		LOS B	
NB	Costco Driveway	LOS F	No sidewalk provision.
SB		LOS F	
NB	Existing Commercial Driveway (on Green Lane)	LOS C	A sidewalk on the east side of the existing commercial driveway (on Green Lane).
SB		LOS F	
EB	Existing Commercial Driveway (on Yonge Street)	LOS F	A sidewalk on the south side of the existing commercial driveway (on Yonge Street).
WB		LOS C	
EB	Church Driveway	LOS F	No sidewalk provision.
WB			
EB	Existing Commercial Driveway (across Church Driveway)	LOS B	A sidewalk on the south side of the existing commercial driveway (across Church Driveway).
WB		LOS F	



TABLE 4.9: EXISTING PEDESTRIAN LOS – INTERSECTION

Intersection	Dir	Intersection LOS	Notes
Green Lane and Bathurst Street	NB	LOS E	No sidewalks, pedestrian signal heads, and delineated crosswalks provided on all intersection approaches except for the northbound approach.
	SB	LOS D	
	EB	LOS D	
	WB	LOS D	
Green Lane and Lady Gwillim Avenue	NB	LOS B	Sidewalk is provided on the south side of Green Lane and both sides of Lady Gwillim Avenue; a clearly delineated crosswalk is provided on the northbound approach.
	EB	LOS B	
	WB	LOS B	
Green Lane and Woodspring Avenue	NB	LOS B	Pedestrian signal heads, and delineated crosswalks provided on all intersection approaches.
	EB	LOS B	
	WB	LOS B	
Green Lane and Costco Driveway	NB	LOS F	Sidewalk is provided on the south side of Green Lane; a clearly delineated crosswalk is provided on the northbound approach.
	EB	LOS B	
	WB	LOS B	
Green Lane and Existing Commercial Driveway	NB	LOS B	Pedestrian signal heads, and delineated crosswalks provided on all intersection approaches.
	EB	LOS B	
	WB	LOS B	
Green Lane and Yonge Street	NB	LOS B	Pedestrian signal heads, and delineated crosswalks provided on all intersection approaches.
	SB	LOS B	
	EB	LOS B	
	WB	LOS B	
Yonge Street and Existing Commercial Driveway	NB	LOS E	Sidewalk is provided on the east side of Yonge Street and the south side of the existing commercial driveway; no delineated crosswalk is provided.
	SB	LOS E	
	WB	LOS E	
Yonge Street and Church Driveway/Existing Commercial Driveway	NB	LOS B	Pedestrian signal heads, and delineated crosswalks provided on all intersection approaches except for the southbound approach.
	SB	LOS E	
	EB	LOS D	
	WB	LOS B	



5 Forecasts

5.1 Horizon Years and Future Background Traffic

For assessment purposes, horizon years of 2030, 2035, 2040, and 2045 have been analyzed representing the anticipated interim horizons (10% and 50% build-out of the NW Secondary Plan Area), full build-out year, and a period of five years beyond the full build-out, respectively.

The future background traffic forecasts comprise higher non-site traffic volumes (i.e., background growth) and traffic generated by other area developments, if any.

5.1.1 Generalized Background Growth

Generalized traffic growth is estimated through the application of compounded growth rates to the base year traffic volumes.

Specifically, a 2.0% per annum compounded growth rate was applied to the base year (2024) traffic volumes to derive the 2030 generalized background forecasts.

A 1.0% per annum compounded growth rate was then applied to the 2030 generalized background growth forecasts to derive the 2035, 2040, and 2045 forecasts. It is noted the growth rates were applied to all movements at the intersections of Green Lane with Bathurst Street and Yonge Street, and the through movements along Green Lane and Yonge Street at the remaining study area intersections.

The 2.0% and 1.0% growth rates were determined from a review of the York Region Travel Demand Model 2016, 2031, and 2051 volume outputs for the study area.

Appendix C contains the model volume outputs and growth rate calculations for reference. It is noted the growth rates are consistent with the previous transportation assessment study (March 2016, Cole Engineering).

5.1.2 Other Area Developments

Aforementioned, the subject lands form part of the Green Lane Secondary Plan area as designated by the Town's Official Plan Amendment No. 4-2018. The remaining Green Lane Secondary Plan Area lands are identified as other area developments to be included as part of the background traffic forecasts. Reference is made to the



*Green Lane Secondary Plan Master Environmental Servicing Plan (MESP)*⁸.

Figure 5.1 illustrates the Green Lane Secondary Plan Area and associated traffic zones. Zones 1 to 7 represent the NW Secondary Plan Area (i.e., subject lands), while Zones 8 to 43 represent the remaining Green Lane Secondary Plan Area (i.e., other area developments).

Table 5.1 summarizes the proposed land uses for the remaining Green Lane Secondary Plan Area by traffic zone.

Vehicular trip generation of the remaining Green Lane Secondary Plan Area lands (i.e., other area developments) is estimated based on the available development statistics extracted from the MESP and using data from the ITE Trip Generation Manual (11th Edition).

Internal capture, pass-by trips, and mode share reduction are accounted for following similar methodologies used in this study.

Section 5.3.2, 5.3.3, and 5.3.4 provide detailed discussion regarding internal capture, pass-by trips, and modal split, respectively.

Based upon direction provided by the Land Owners Group, the adjacent development of the remaining Green Lane Secondary Plan Area lands is assumed to be constructed at the same pace and timing as the NW Secondary Plan Area (i.e. subject lands). That is, 10% build-out of the remaining Green Lane Secondary Plan Area lands will occur by 2030, 50% build-out by 2035, and full build-out and occupancy by 2040. The following assumptions were made:

- ▶ Under the 10% build-out, it is assumed 50% of the low-density residential dwelling units would be built-out/occupied;
- ▶ Under the 50% build-out, it is assumed all residential dwelling units (i.e., low-density, medium-density, and high-density) would be built-out/occupied; and
- ▶ Under full build-out, it is assumed all residential dwelling units (i.e., low-density, medium-density, and high-density), commercial and office establishments, and schools would be built-out/occupied.

Table 5.2, Table 5.3, and Table 5.4 summarize the vehicular trip generation for the remaining Green Lane Secondary Plan Area lands

⁸ The Municipal Infrastructure Group Ltd, *Green Lane Secondary Plan Master Environmental Servicing Plan*, January 2018.



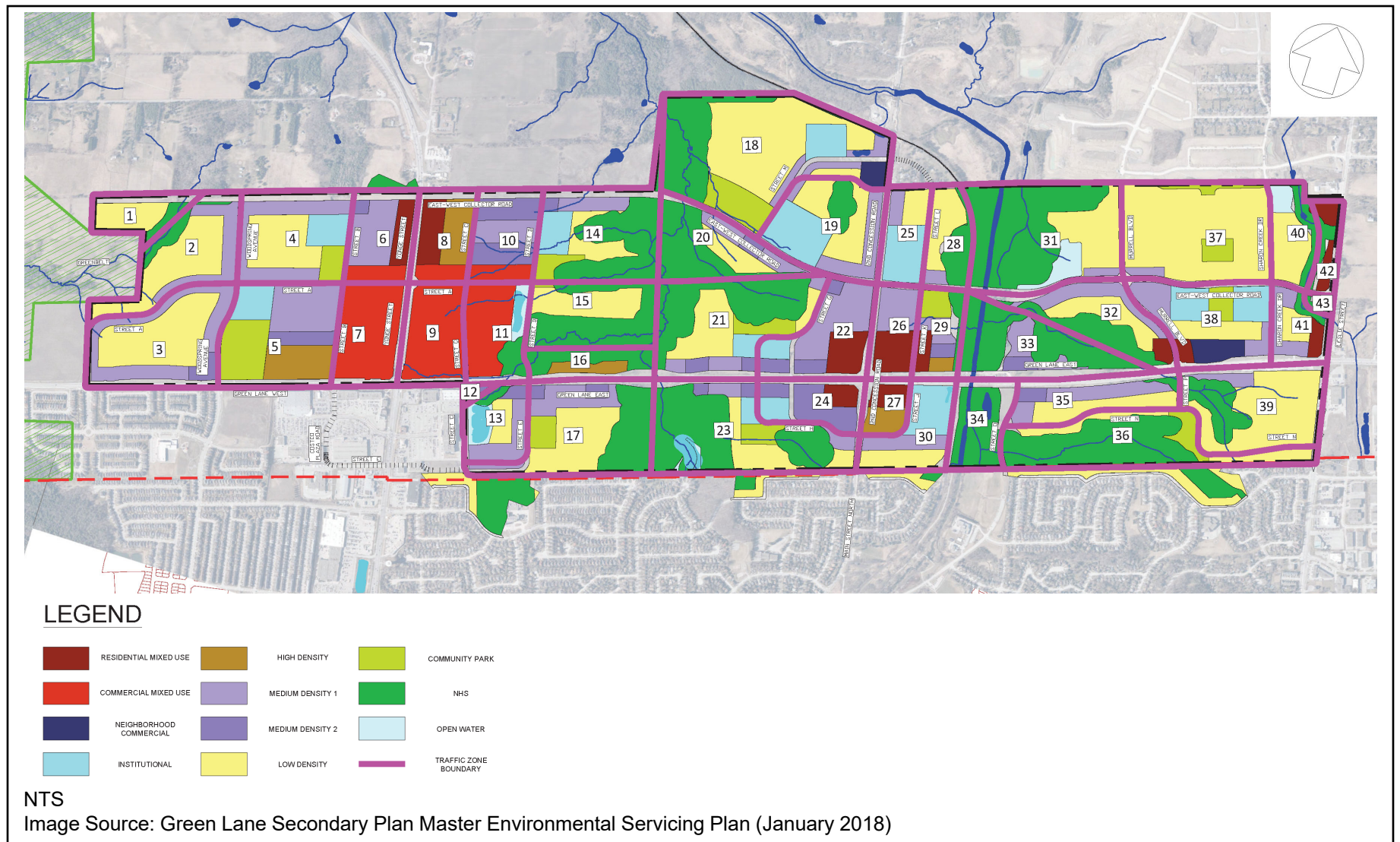
(i.e., other area development) for 10%, 50%, and full build-out, respectively.

The other area developments (i.e., the remaining Green Lane Secondary Plan Area) is estimated to generate a net total of 693 AM (173 inbound and 520 outbound) and 996 PM (627 inbound and 369 outbound) peak hour vehicular trips at 10% build-out, a net total of 2,321 AM (580 inbound and 1,741 outbound) and 3,207 PM (2,014 inbound and 1,193 outbound) peak hour vehicular trips at 50% build-out, and a net total of 4,550 AM (1,946 inbound and 2,604 outbound) and 4,190 PM (2,342 inbound and 1,848 outbound) peak hour vehicular trips at full build-out.

These site trips are distributed and assigned to the adjacent transportation network based upon 2016 Transportation Tomorrow Survey (TTS) data and a review of the York Region Travel Demand Model 2031 and 2051 volume outputs.

Appendix D contains the site traffic assignments for the other area developments, the details of internal trips, and the TTS trip distribution calculations for reference.





Green Lane Secondary Plan Area

TABLE 5.1: PROPOSED LAND USES (REMAINING GREEN LANE SECONDARY PLAN AREA)

Traffic Zone	Low Density (units)	Medium Density (units)	High Density (units)	Commercial Floor Area (SM)	Office Floor Area (SM)	School (students)
8,10,14 ¹		17	760	3,700		
9			285	24,021		
11			215	18,077		
12		11				
13	44	102				
15	106					
16			60			
17	158	157				
18	458					638
19	115	77		3,107		1,400
20	44	101				
21,22 ²	119	131		1,333	5,333	600
23	113	75				
24		108	108	672	2,690	638
25	29	29				
26		64	149	1,394	5,576	
27			214	746	2,982	
28	85					
29		88	88	510	2,039	
30	37	86				
31	131					
32	40	80	80	180	720	
33		110				
34						
35	69	161				
36	67					
37	326					638
38	93	93		5,581	1,261	600
39	200	38				
40	197					
41	14	28	96	425	1,701	
42			57			
43	6			7	279	
Total	2,451	1,556	2,112	59,753	22,581	4,514

Notes:

1. Zone 8,10, and 14 land uses were updated based on 18477 Yonge Street – Redwood Properties (file number: OPA.23.02 & ZBA.23.03) from the Town's interactive mapping tool.

2. Zone 21 and 22 land uses were updated based on 574 Green Lane East – Welland Land Development Inc. (file number: 19T-20201 & ZBA.20.06) from the Town's interactive mapping tool.



TABLE 5.2: SITE TRIP GENERATION (REMAINING GREEN LANE SECONDARY PLAN AREA – 10% BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	1,226 units	Eqn.	182	547	729	Eqn.	660	388	1,048
Modal Split Reduction		-5%	-9	-27	-36	-5%	-33	-19	-52
Total			173	520	693		627	369	996
1: AM peak hour: Ln(T) = 0.91Ln(X)+0.12 (25% In/75% Out); PM peak hour: Ln(T) = 0.94Ln(X)+0.27 (63% In/37% Out).									

1: AM peak hour: $\ln(T) = 0.91\ln(X)+0.12$ (25% In/75% Out); PM peak hour: $\ln(T) = 0.94\ln(X)+0.27$ (63% In/37% Out).

TABLE 5.3: SITE TRIP GENERATION (REMAINING GREEN LANE SECONDARY PLAN AREA – 50% BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	2,451 units	Eqn.	342	1,027	1,369	Eqn.	1,266	744	2,010
220 – Multifamily Housing (low-rise) ²	1,556 units	Eqn.	121	384	505	Eqn.	435	255	690
222 – Multifamily Housing (high-rise) ³	2,112 units	0.27	148	422	570	0.32	419	257	676
Modal Split Reduction		-5%	-31	-92	-123	-5%	-106	-63	-169
Total			580	1,741	2,321		2,014	1,193	3,207
1: AM peak hour: $\text{Ln}(T) = 0.91\text{Ln}(X)+0.12$ (25% In/75% Out); PM peak hour: $\text{Ln}(T) = 0.94\text{Ln}(X)+0.27$ (63% In/37% Out). 2: AM peak hour: $\text{Ln}(T) = 0.31\text{Ln}(X)+22.85$ (24% In/76% Out); PM peak hour: $T = 0.43(X)+20.55$ (63% In/37% Out). 3: AM peak hour trip rate = 0.27 per unit (26% In/74% Out); PM peak hour trip rate = 0.32 per unit (62% In/38% Out).									

1: AM peak hour: $\ln(T) = 0.91\ln(X)+0.12$ (25% In/75% Out); PM peak hour: $\ln(T) = 0.94\ln(X)+0.27$ (63% In/37% Out).

2: AM peak hour: $\ln(T) = 0.31\ln(X)+22.85$ (24% In/76% Out); PM peak hour: $T = 0.43(X)+20.55$ (63% In/37% Out).

3: AM peak hour trip rate = 0.27 per unit (26% In/74% Out); PM peak hour trip rate = 0.32 per unit (62% In/38% Out).

TABLE 5.4: SITE TRIP GENERATION (REMAINING GREEN LANE SECONDARY PLAN AREA – FULL BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	2,451 units	Eqn.	342	1,027	1,369	Eqn.	1,266	744	2,010
220 – Multifamily Housing (low-rise) ²	1,556 units	Eqn.	121	384	505	Eqn.	435	255	690
222 – Multifamily Housing (high-rise) ³	2,112 units	0.27	148	422	570	0.32	419	257	676
Modal Split Reduction		-5%	-31	-92	-123	-5%	-106	-63	-169
Internal Capture with Commercial Use			-12	-18	-30		-296	-105	-401



Internal Capture with Office Use			0	-9	-9		-6	-34	-40
<i>Sub Net Total</i>			568	1,714	2,282		1,712	1,054	2,766
Commercial									
820 – Shopping Centre ⁴	643,175 SF	0.84	335	205	540	3.40	1,050	1,137	2,187
Modal Split Reduction		-5%	-17	-10	-27	-5%	-53	-57	-110
Internal Capture with Residential Use			-18	-12	-30		-105	-296	-401
Internal Capture with Office Use			-12	-13	-25		-58	-18	-76
Pass-by		0%	0	0	0	-34%	-357	-357	-714
<i>Sub Net Total</i>			288	170	458		477	409	886
Institutional									
520 – Elementary School ⁵	4,514 students	0.74	1,804	1,536	3,340	0.16	332	390	722
Modal Split Reduction		-5%	-90	-77	-167	-5%	-17	-20	-37
Internal Capture		-50%	-902	-768	-1,670	-50%	-166	-195	-361
<i>Sub Net Total</i>			812	691	1,503		149	175	324
Office									
710 – General Office Building ⁶	243,060 SF	Eqn.	316	43	359	Eqn.	59	288	347
Modal Split Reduction		-5%	-16	-2	-18	-5%	-3	-14	-17
Internal Capture with Residential Use			-9	0	-9		-34	-6	-40
Internal Capture with Commercial Use			-13	-12	-25		-18	-58	-76
<i>Sub Net Total</i>			278	29	307		4	210	214
Total			1,946	2,604	4,550		2,342	1,848	4,190
1: AM peak hour: $\ln(T) = 0.91\ln(X)+0.12$ (25% In/75% Out); PM peak hour: $\ln(T) = 0.94\ln(X)+0.27$ (63% In/37% Out). 2: AM peak hour: $\ln(T) = 0.31\ln(X)+22.85$ (24% In/76% Out); PM peak hour: $T = 0.43(X)+20.55$ (63% In/37% Out). 3: AM peak hour trip rate = 0.27 per unit (26% In/74% Out); PM peak hour trip rate = 0.32 per unit (62% In/38% Out). 4: AM peak hour trip rate = 0.84 per 1,000 GLA (62% In/38% Out); PM peak hour trip rate = 3.40 per 1,000 GLA (48% In/52% Out). 5: AM peak hour trip rate = 0.74 per student (54% In/46% Out); PM peak hour trip rate = 0.16 per student (46% In/54% Out). 6: AM peak hour: $\ln(T) = 0.86\ln(X)+1.16$ (88% In/12% Out); PM peak hour: $\ln(T) = 0.83\ln(X)+1.29$ (17% In/83% Out).									



5.1.3 Future Background Traffic Forecasts – Future Network

As noted in **Section 2**, a new east-west major collector is proposed to connect Bathurst Street and the Harry Walker Parkway Extension by 2031. Under the 2035, 2040, and 2045 horizons, a portion of traffic would utilize the new east-west major collector as a by-pass of Green Lane. For assessment purposes, the following assumptions were made for the 2035, 2040, and 2045 background traffic forecast redistribution:

- ▶ At the intersection of Green Lane and Bathurst Street, 20% of the southbound left-turn, eastbound through, and northbound right-turn traffic would use the new east-west major collector; and
- ▶ At the intersection of Green Lane and Yonge Street, 20% of the southbound left-turn and right-turn, northbound left-turn and right-turn, and westbound left-turn, through, and right-turn traffic would use the new east-west major collector.

It is noted the redistribution percentage of 20% was estimated based on the projected 2031 peak hour traffic volumes documented in the *East-West Collector Road Municipal Class EA, Phase 3 and 4 Traffic Report* (May 2015).

Appendix E contains the redistribution adjustments for 2035, 2040, and 2045 horizons accounting for the provision of the new east-west major collector roadway.

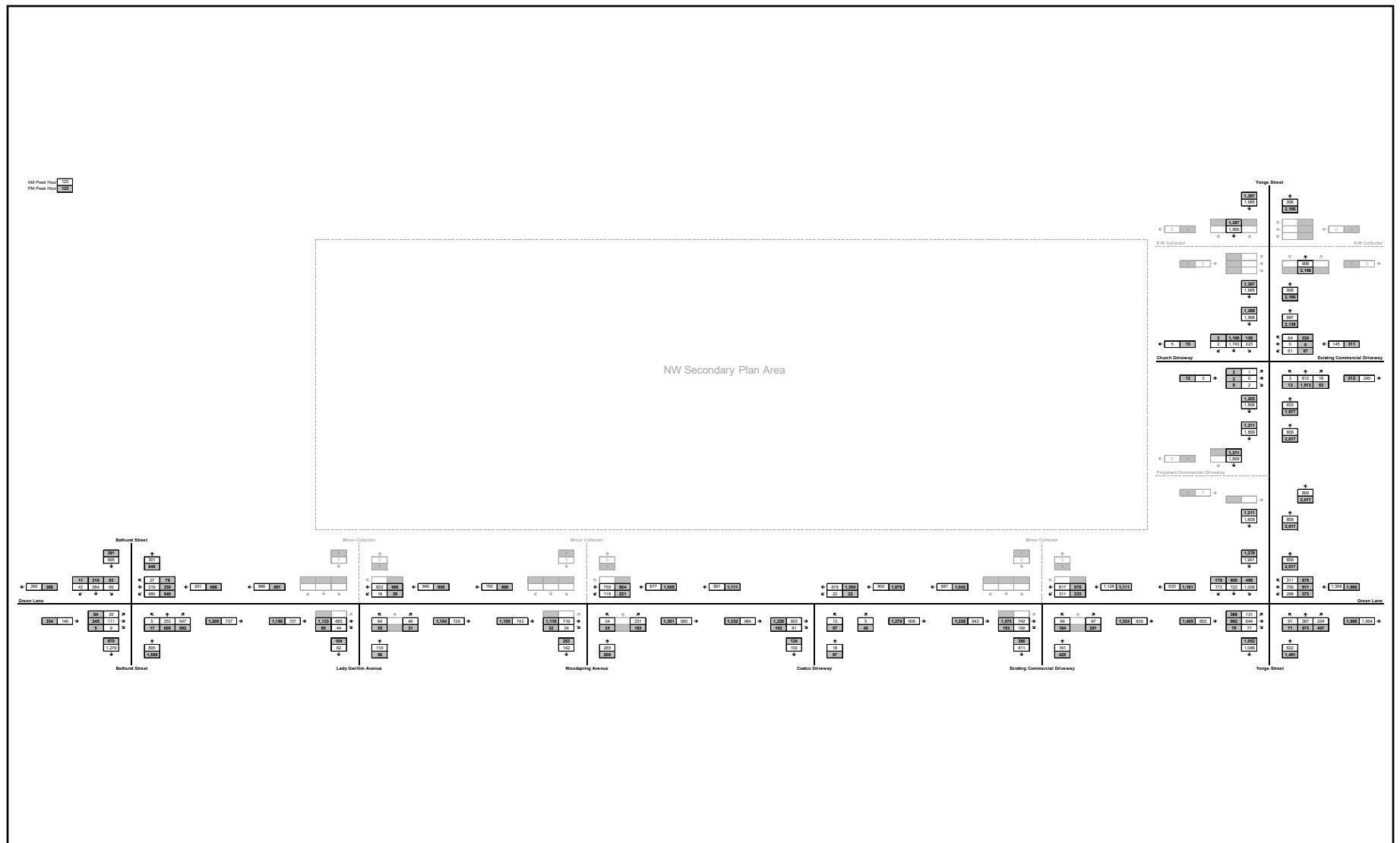
Figure 5.2 illustrates the 2030 background traffic forecasts (without the east-west major collector) for the weekday AM and PM peak hours.

Figure 5.3 illustrates the 2035 background traffic forecasts (with the east-west major collector) for the weekday AM and PM peak hours.

Figure 5.4 illustrates the 2040 background traffic forecasts (with the east-west major collector) for the weekday AM and PM peak hours.

Figure 5.5 illustrates the 2045 background traffic forecasts (with the east-west major collector) for the weekday AM and PM peak hours.

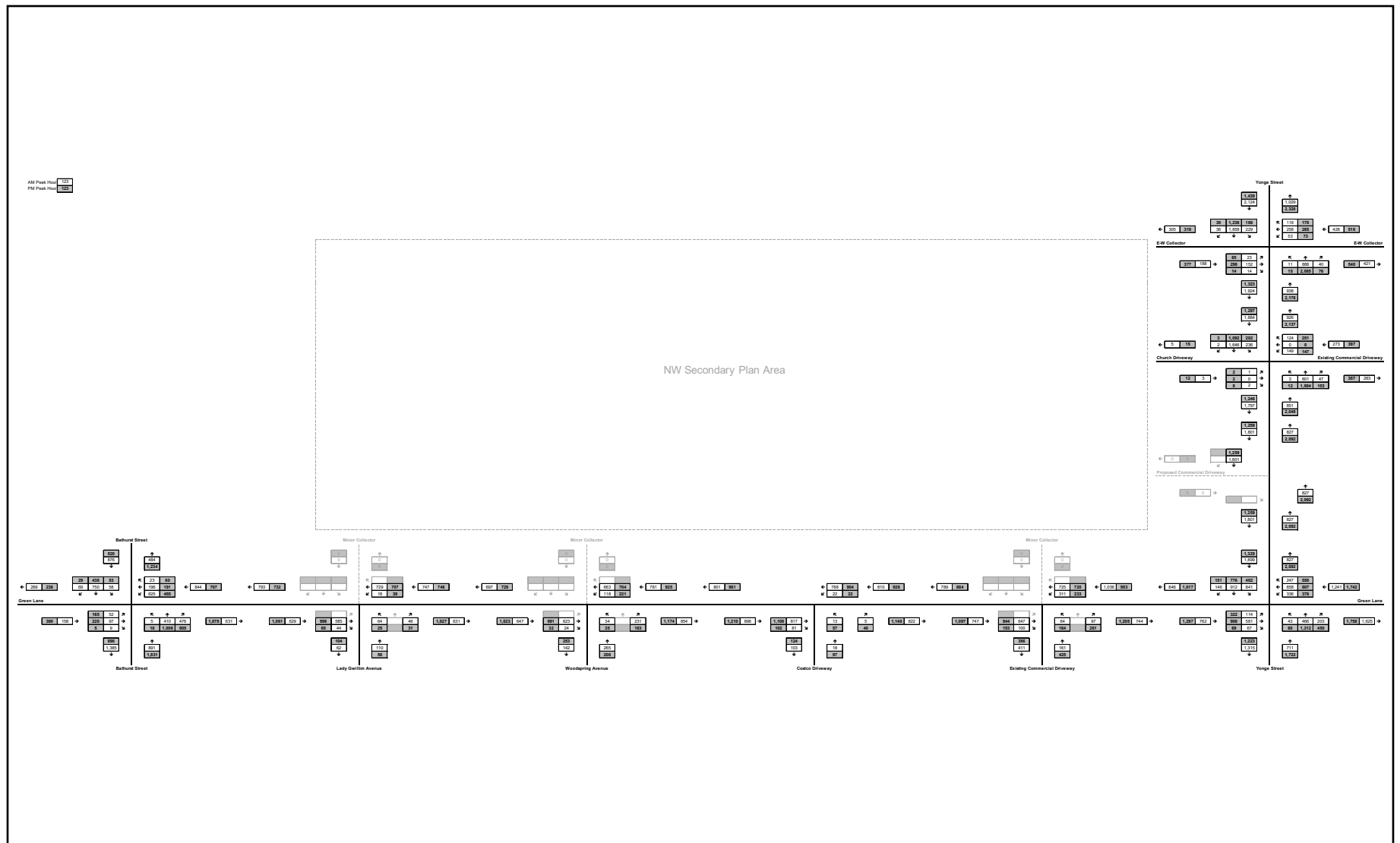




2030 Background Traffic Forecasts

Northwest Quadrant of Yonge Street and Green Lane Secondary Plan – Transportation Assessment
200089

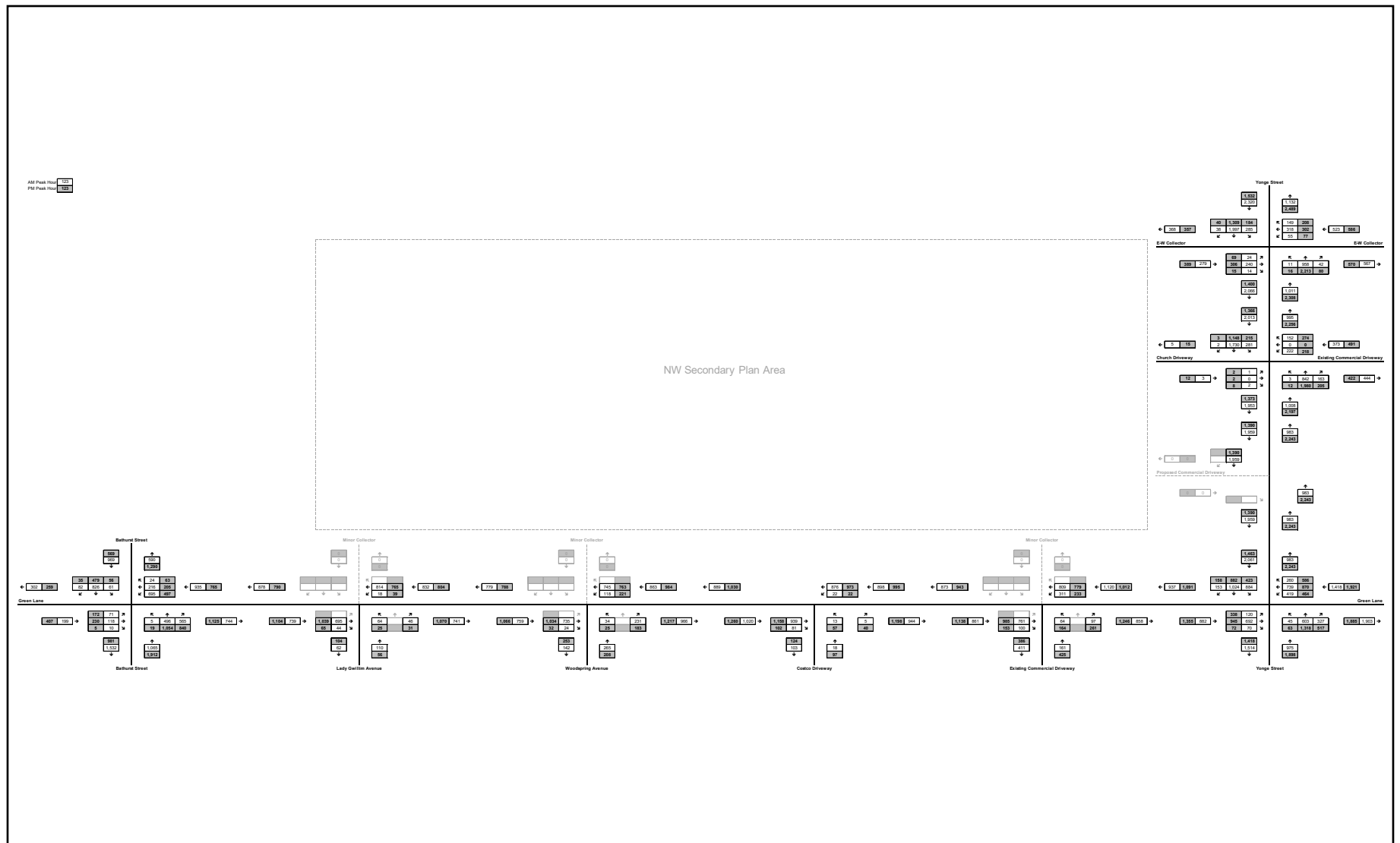
Figure 5.2



2035 Background Traffic Forecasts

Northwest Quadrant of Yonge Street and Green Lane Secondary Plan – Transportation Assessment
200089

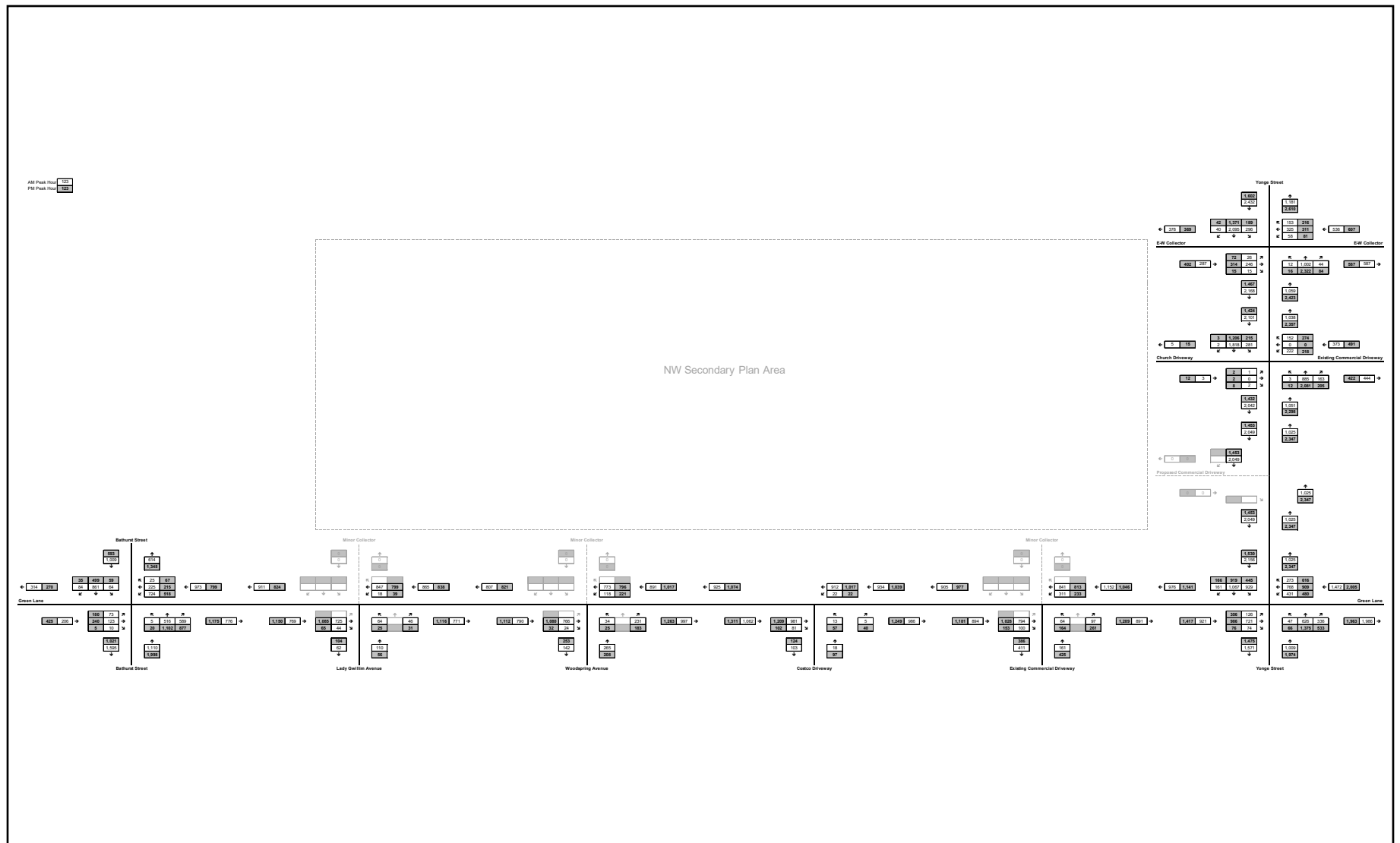
Figure 5.3



2040 Background Traffic Forecasts

Northwest Quadrant of Yonge Street and Green Lane Secondary Plan – Transportation Assessment
200089

Figure 5.4



2045 Background Traffic Forecasts

Northwest Quadrant of Yonge Street and Green Lane Secondary Plan – Transportation Assessment
200089

Figure 5.5

5.2 Future Transportation Network Improvements

5.2.1 Roads

Yonge Street, between Davis Drive and Green Lane

Through a review of the York Region *Transportation Master Plan (2022) Map 4 – 2051 Road Network*, road network improvements are proposed along Yonge Street between Davis Drive and Green Lane. Reference was made to the York Region *Yonge Street Improvements website*⁹.

Yonge Street is proposed to be widened from four lanes to six lanes from Davis Drive to Green Lane, including high occupancy vehicle (HOV) lanes by 2027. This road network improvement was accounted for in all future traffic operational analyses.

East-West Major Collector

A new east-west major collector is proposed to connect Bathurst Street and the Harry Walker Parkway Extension. The Town of East Gwillimbury TMP (2010) notes the new east-west major collector would be in place by 2031. It is acknowledged the provision of this east-west road in its entirety is not realistic.

The implementation of the new east-west major collector will be undertaken through development under approved Secondary Plans. That is, for properties which abut along the new east-west major collector will construct the portion of the roadway across their site frontages.

For a conservative approach, it was assumed the new road connection would not be completed/operational under the 2030 horizon; however, it is assumed a section west of Yonge Street across the subject lands frontage would be in place to provide access to the subject lands. Similarly, as the lands within the Green Lane Secondary Plan area develop, the new east-west major collector will be constructed. That is, the new east-west major collector is assumed to be fully in place by the 2035, 2040, and 2045 horizons as we assumed development would occur by 2030.

5.2.2 Future Lane Configurations and Traffic Control

Future lane configurations and traffic control at the study area intersections are based on the *East-West Road Corridor*

⁹ <https://www.york.ca/transportation/roads/road-construction-schedule/yonge-street-davis-drive-green-lane>



Environmental Assessment (EA), Environmental Study Report (May 2015, AECOM) and the previous transportation assessment conducted for the NW Secondary Plan Area (March 2016, Cole Engineering).

Specifically, Figure 4-2 of the East-West Road Corridor EA Study illustrates the proposed lane configurations and traffic control at the proposed east-west major collector intersections. Figure TR-12 of the previous transportation assessment of the subject lands illustrates the proposed lane configurations and traffic control at the site access intersections.

It is noted under future conditions, the northbound and southbound approaches at the intersection of Yonge Street and the east-west major collector indicate three through or shared through lanes, implying Yonge Street north of Green Lane will likely be widened from four to six lanes in the future.

Figure 5.6 and **Figure 5.7** illustrates the proposed future lane configurations and traffic control at the study area intersections for 2030 horizon and beyond 2030, respectively.

5.2.3 Transit

According to the York Region *Transportation Master Plan (2022) Map 3 – 2051 Rapid Transit Network*, Green Lane (between Yonge Street and the East Gwillimbury GO Station) and Yonge Street (south of Green Lane) are identified as future rapid transit corridors to be served by the VIVA Bus Rapid Transit (BRT) system.

It is anticipated York Region Transit, Town of East Gwillimbury, York Region, and other related parties will continue working to develop and implement an appropriate transit system serving the needs of the NW Secondary Plan Area.

5.2.4 Active Transportation

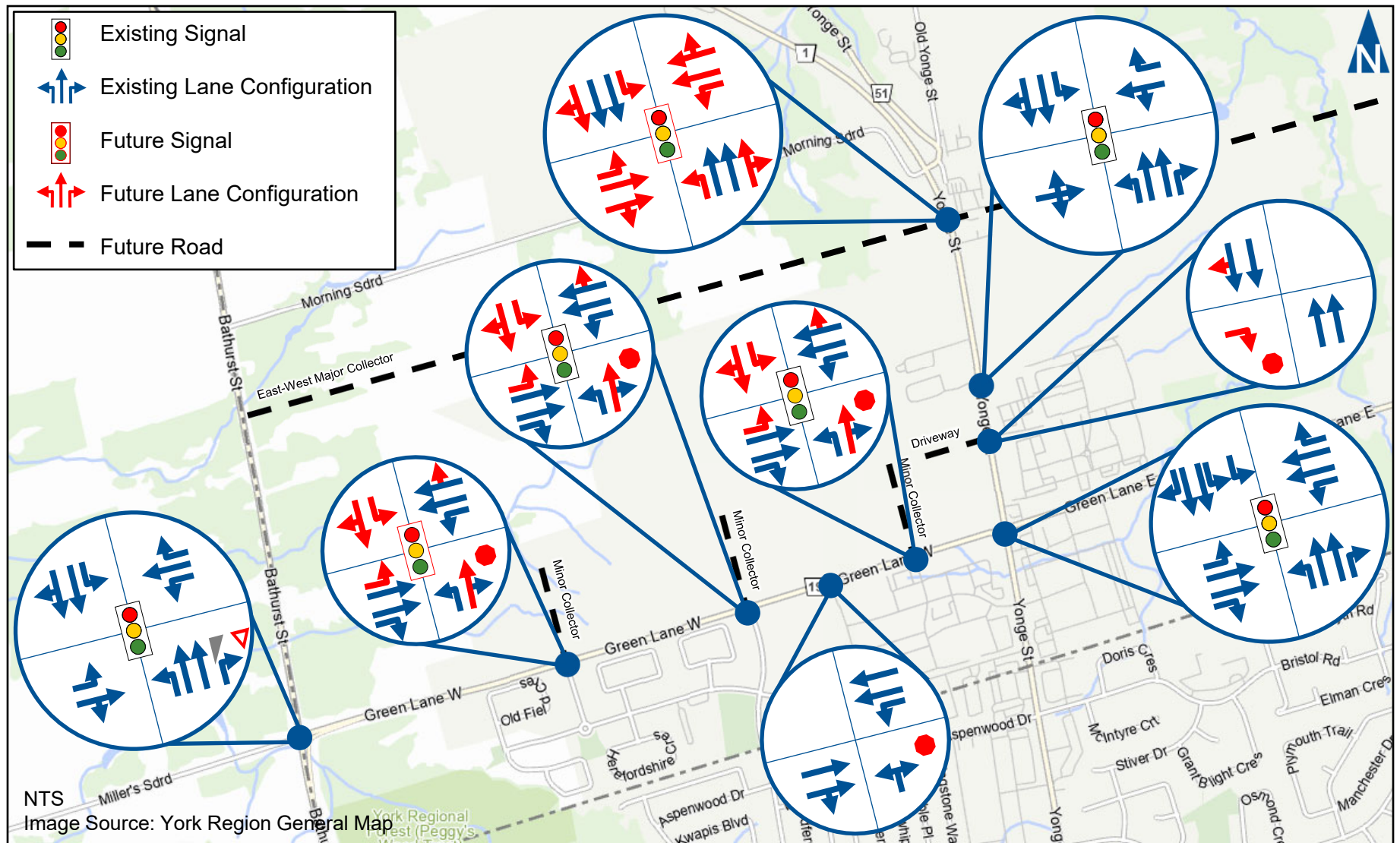
Based on the *East-West Road Corridor Environmental Assessment (EA)* (May 2015, AECOM), a sidewalk is proposed on both sides of the east-west major collector and connections to transit stops will also be considered.

Based upon the York Region *Transportation Master Plan (2022) Map 1 – 2051 Regional Road Cycling Network*, future cycling facilities are recommended along Bathurst Street, Yonge Street, and Green Lane (east of Yonge Street). The specific cycling facility type to be provided (i.e., protected bike lane, shared pathway) will be determined in consultation with Pedestrian and Cycling Planning and Design Guidelines. Additionally, the new east-west major collector is proposed



to provide a 1.5-metre delineated on-street bike lane on both sides of the road.





Future Lane Configurations and Traffic Control (2035, 2040, and 2045)

5.3 Site Trip Generation

5.3.1 Base Trip Generation

A detailed breakdown of the current proposed community design plan for the NW Secondary Plan Area is as follows:

- ▶ 570 single family detached housing units;
- ▶ 1,776 townhouse dwelling units;
- ▶ 4,319 high-density residential dwelling units;
- ▶ Two elementary schools;
- ▶ 321 retirement/hotel units; and
- ▶ 12,550 SM of commercial/retail space.

As related to vehicular trip generation, the assessment is reflective of a previous plan, which contemplated an overall larger total number of residential dwelling units, and a slightly different dwelling type breakdown. That is, the current plan proposes a total of 6,986 residential dwelling units, whereas the previous plan proposed a total of 7,319 residential dwelling units. The current plan results in an increase of 18 single family detached housing units, an increase of 83 townhouse units, and a decrease of 434 high-density residential units.

The assessment is conservative (i.e., errs on the high side) as the previous plan results in a higher vehicle trip generation.

Accordingly, the trip generation is developed based on the previous plan, which is as follows:

- ▶ 552 single family detached housing units;
- ▶ 1,693 townhouse dwelling units;
- ▶ 4,753 high-density residential dwelling units;
- ▶ Two elementary schools;
- ▶ 321 retirement/hotel units; and
- ▶ 12,550 SM of commercial/retail space.



The Institute of Transportation Engineers (ITE) publication, *Trip Generation Manual (11th Edition)*¹⁰ data was used to estimate the peak hour vehicular traffic volumes generated by the NW Secondary Plan Area. The following land use codes (LUCs) were used:

- ▶ LUC 210 – Single-Family Detached Housing;
- ▶ LUC 220 – Multifamily Housing (low-rise);
- ▶ LUC 222 – Multifamily Housing (high-rise);
- ▶ LUC 252 – Senior Adult Housing – Multifamily;
- ▶ LUC 310 – Hotel;
- ▶ LUC 520 – Elementary School; and
- ▶ LUC 820 – Shopping Centre.

The following assumptions were made as related to the base site trip generation:

- ▶ Under 10% build-out, it is assumed all low-density residential dwelling units (i.e., single-detached houses) would be built-out/occupied;
- ▶ For 50% build-out, it is assumed all low-density (i.e., single-detached houses), medium-density (i.e., townhouses), and 70% of high-density (i.e., apartment units) residential dwelling units would be built-out/occupied; and
- ▶ For full build-out, it is assumed all residential dwelling units (i.e., low-density, medium-density, and high-density), commercial establishments, elementary schools, and retirement/hotel units would be built-out/occupied.
 - The two elementary schools are assumed to accommodate a student enrollment of 1,238 students. This is based on the land uses information in the *Green Lane Secondary Plan Master Environmental Servicing Plan*; and
 - A 50/50 split between the number of retirement homes and hotel units. That is, a total of 161 retirement homes and 161 hotel units.

Table 5.5, Table 5.6, and Table 5.7 summarize the forecast base trip generation at 10% build-out, 50% build-out, and full build-out, respectively.

¹⁰ Institute of Transportation Engineers, *Trip Generation Manual (11th Edition)*, September 2021.



Without any trip reductions, the NW Secondary Plan Area is expected to generate 353 AM peak hour trips (88 inbound and 265 outbound) and 495 PM peak hour trips (312 inbound and 183 outbound) at 10% build-out, 1,799 AM peak hour trips (453 inbound and 1,346 outbound) and 2,309 PM peak hour trips (1,444 inbound and 865 outbound) at 50% build-out, and 3,317 AM peak hour trips (1,171 inbound and 2,146 outbound) and 3,553 PM peak hour trips (2,106 inbound and 1,447 outbound) at full build-out.

5.3.2 Internal Capture

As the NW Secondary Plan Area includes several different land uses, a portion of trips can both begin and end within the subdivision. For example, residents who live in the community may go shopping at retail stores in the same community without leaving the site. These trips are considered internally captured.

Internal trip rates were applied to residential trips and commercial trips based on the ITE Trip Generation Handbook (3rd Edition). **Appendix F** contains the details of internal trips for full build-out. Given the commercial components are anticipated not to be developed at the 10% and 50% level of build-out, no internal trips were accounted for under the 2030 and 2035 horizons.

A conservative approach has been taken and no internal capture reduction was assumed within each land use (e.g., no internal capture was accounted for among the commercial/retail uses).

It is understood the two proposed elementary schools will primarily serve the neighbourhoods within the NW Secondary Plan Area. Given this and the availability of other existing elementary schools nearby, it was assumed 50% of school-related trips would be internally captured.

5.3.3 Pass-by Trips

For the proposed commercial land uses in the NW Secondary Plan Area a portion of the site-related trips would be drawn from pass-by traffic.

Pass-by trips represent an intermediate stop at the subject site on the way from an origin to a primary trip destination without a route diversion. These trips do not add new traffic to the adjacent street system. The commercial/retail development would generate pass-by trips, and the average pass-by trip percentage obtained from the ITE *Trip Generation Handbook (3rd Edition)* is 0% during the AM peak hour and 34% during the PM peak hour.



5.3.4 Modal Share Reduction

Given the proximity of the NW Secondary Plan Area to transit infrastructure/facilities, and existing and future walking and cycling infrastructure to be provided, a portion of site trips generated by the proposed community subdivision are likely to travel via modes other than automobile (i.e., transit, walking, cycling).

Based on the information extracted from the 2016 TTS as discussed in **Section 4.4**, a 5% mode share reduction was applied to the base trip generation estimates to account for non-auto trips. This modal split is consistent with the modal share reductions used in the previous transportation assessment study (March 2016, Cole Engineering).

5.3.5 Net Site Traffic

Table 5.8, **Table 5.9**, and **Table 5.10** summarize the resultant site trip generation for 10% build-out, 50% build-out, and full build-out, respectively, which account for internal capture, pass-by trips, and modal split reduction.

The NW Secondary Plan Area is estimated to generate a net total of 336 AM (84 inbound and 252 outbound) and 470 PM (296 inbound and 174 outbound) peak hour vehicular trips at 10% build-out, a net total of 1,709 AM (430 inbound and 1,279 outbound) and 2,194 PM (1,372 inbound and 822 outbound) peak hour vehicular trips at 50% build-out, and a net total of 2,660 AM (848 inbound and 1,812 outbound) and 2,964 PM (1,799 inbound and 1,165 outbound) peak hour vehicular trips at full build-out.



TABLE 5.5: BASE SITE TRIP GENERATION (10% BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	552 units	Eqn.	88	265	353	Eqn.	312	183	495
Total			88	265	353		312	183	495
1: AM peak hour: Ln(T) = 0.91Ln(X)+0.12 (25% In/75% Out); PM peak hour: Ln(T) = 0.94Ln(X)+0.27 (63% In/37% Out).									

TABLE 5.6: BASE SITE TRIP GENERATION (50% BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	552 units	Eqn.	88	265	353	Eqn.	312	183	495
220 – Multifamily Housing (low-rise) ²	1,693 units	Eqn.	132	416	548	Eqn.	472	277	749
222 – Multifamily Housing (high-rise) ³	3,327 units	0.27	233	665	898	0.32	660	405	1,065
Total			453	1,346	1,799		1,444	865	2,309
1: AM peak hour: $Ln(T) = 0.91Ln(X)+0.12$ (25% In/75% Out); PM peak hour: $Ln(T) = 0.94Ln(X)+0.27$ (63% In/37% Out). 2: AM peak hour: $T = 0.31(X)+22.85$ (24% In/76% Out); PM peak hour: $T = 0.43(X)+20.55$ (63% In/37% Out). 3: AM peak hour trip rate = 0.27 per unit (26% In/74% Out); PM peak hour trip rate = 0.32 per unit (62% In/38% Out).									



TABLE 5.7: BASE SITE TRIP GENERATION (FULL BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	552 units	Eqn.	88	265	353	Eqn.	312	183	495
220 – Multifamily Housing (low-rise) ²	1,693 units	Eqn.	132	416	548	Eqn.	472	277	749
222 – Multifamily Housing (high-rise) ³	4,753 units	0.27	334	949	1,283	0.32	943	578	1,521
Commercial									
820 – Shopping Centre ⁴	135,087 SF	0.84	70	43	113	3.40	220	239	459
Institutional									
520 – Elementary School ⁵	1,238 students	0.74	495	421	916	0.16	91	107	198
Hotel and Retirement Homes									
310 – Hotel ⁶	161 rooms	Eqn.	41	32	73	Eqn.	46	45	91
252 – Senior Adult Housing (Multifamily) ⁷	161 units	Eqn.	11	20	31	Eqn.	22	18	40
Total			1,171	2,146	3,317		2,106	1,447	3,553
1: AM peak hour: $\text{Ln}(T) = 0.91\text{Ln}(X)+0.12$ (25% In/75% Out); PM peak hour: $\text{Ln}(T) = 0.94\text{Ln}(X)+0.27$ (63% In/37% Out). 2: AM peak hour: $T = 0.31(X)+22.85$ (24% In/76% Out); PM peak hour: $T = 0.43(X)+20.55$ (63% In/37% Out). 3: AM peak hour trip rate = 0.27 per unit (26% In/74% Out); PM peak hour trip rate = 0.32 per unit (62% In/38% Out). 4: AM peak hour trip rate = 0.84 per 1,000 GLA (62% In/38% Out); PM peak hour trip rate = 3.40 per 1,000 GLA (48% In/52% Out). 5: AM peak hour trip rate = 0.74 per student (54% In/46% Out); PM peak hour trip rate = 0.16 per student (46% In/54% Out). 6: AM peak hour: $T = 0.50(X)-7.45$ (56% In/44% Out); PM peak hour: $T = 0.74(X)-27.89$ (51% In/49% Out). 7: AM peak hour: $T = 0.19(X)+0.90$ (34% In/66% Out); PM peak hour: $T = 0.25(X)+0.07$ (56% In/44% Out).									



TABLE 5.8: NET SITE TRIP GENERATION (10% BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	522 units	Eqn.	88	265	353	Eqn.	312	183	495
Modal Split Reduction		-5%	-4	-13	-17	-5%	-16	-9	-25
Total			84	252	336		296	174	470
1: AM peak hour: Ln(T) = 0.91Ln(X)+0.12 (25% In/75% Out); PM peak hour: Ln(T) = 0.94Ln(X)+0.27 (63% In/37% Out).									

TABLE 5.9: NET SITE TRIP GENERATION (50% BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	522 units	Eqn.	88	265	353	Eqn.	312	183	495
220 – Multifamily Housing (low-rise) ²	1,693 units	Eqn.	132	416	548	Eqn.	472	277	749
222 – Multifamily Housing (high-rise) ³	3,327 units	0.27	233	665	898	0.32	660	405	1,065
Modal Split Reduction		-5%	-23	-67	-90	-5%	-72	-43	-115
Total			430	1,279	1,709		1,372	822	2,194
1: AM peak hour: Ln(T) = 0.91Ln(X)+0.12 (25% In/75% Out); PM peak hour: Ln(T) = 0.94Ln(X)+0.27 (63% In/37% Out). 2: AM peak hour: Ln(T) = 0.31 Ln(X)+22.85 (24% In/76% Out); PM peak hour: T = 0.43(X)+20.55 (63% In/37% Out). 3: AM peak hour trip rate = 0.27 per unit (26% In/74% Out); PM peak hour trip rate = 0.32 per unit (62% In/38% Out).									



TABLE 5.10: NET SITE TRIP GENERATION (FULL BUILD-OUT)

LUC	Unit	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
Residential									
210 – Single-Family Detached Housing ¹	552 units	Eqn.	88	265	353	Eqn.	312	183	495
220 – Multifamily Housing (low-rise) ²	1,693 units	Eqn.	132	416	548	Eqn.	472	277	749
222 – Multifamily Housing (high-rise) ³	4,753 units	0.27	334	949	1,283	0.32	943	578	1,521
Modal Split Reduction		-5%	-28	-82	-110	-5%	-86	-52	-138
Internal Capture			-6	-12	-18		-62	-22	-84
Sub Net Total			520	1,536	2,056		1,579	964	2,543
Commercial									
820 – Shopping Centre ⁴	135,087 SF	0.84	70	43	113	3.40	220	239	459
Modal Split Reduction		-5%	-4	-2	-6	-5%	-11	-12	-23
Internal Capture			-12	-6	-18		-22	-62	-84
Pass-by		0%	0	0	0	-34%	-75	-75	-150
Sub Net Total			54	35	89		112	90	202
Institutional									
520 – Elementary School ⁵	1,238 students	0.74	495	421	916	0.16	91	107	198
Modal Split Reduction		-5%	-25	-21	-46	-5%	-5	-5	-10
Internal Capture		-50%	-248	-211	-459	-50%	-46	-54	-100
Sub Net Total			222	189	411		40	48	88
Hotel and Retirement Homes									
310 – Hotel ⁶	161 rooms	Eqn.	41	32	73	Eqn.	46	45	91
252 – Senior Adult Housing (Multifamily) ⁷	161 units	Eqn.	11	20	31	Eqn.	22	18	40
Total			848	1,812	2,660		1,799	1,165	2,964
1: AM peak hour: $\ln(T) = 0.91\ln(X)+0.12$ (25% In/75% Out); PM peak hour: $\ln(T) = 0.94\ln(X)+0.27$ (63% In/37% Out). 2: AM peak hour: $T = 0.31(X)+22.85$ (24% In/76% Out); PM peak hour: $T = 0.43(X)+20.55$ (63% In/37% Out). 3: AM peak hour trip rate = 0.27 per unit (26% In/74% Out); PM peak hour trip rate = 0.32 per unit (62% In/38% Out). 4: AM peak hour trip rate = 0.84 per 1,000 GLA (62% In/38% Out); PM peak hour trip rate = 3.40 per 1,000 GLA (48% In/52% Out). 5: AM peak hour trip rate = 0.74 per student (54% In/46% Out); PM peak hour trip rate = 0.16 per student (46% In/54% Out). 6: AM peak hour: $T = 0.50(X)-7.45$ (56% In/44% Out); PM peak hour: $T = 0.74(X)-27.89$ (51% In/49% Out). 7: AM peak hour: $T = 0.19(X)+0.90$ (34% In/66% Out); PM peak hour: $T = 0.25(X)+0.07$ (56% In/44% Out).									



5.3.6 Transit, Cycling, and Walking Trips

Per **Section 4.4**, the existing modal split data has been utilized to estimate the transit, cycling, and walking trips generated by the NW Secondary Plan Area.

Table 5.11 provides an estimate of trips generated by the NW Secondary Plan Area based upon the 2016 TTS modal split data. This provides a good baseline of anticipated site trips by mode recognizing that travel by non-auto modes could be greater under future conditions once further supporting infrastructure is available and with successful implementation of a Transportation Demand Management (TDM) Plan.

Based upon the existing modal split data reported, the NW Secondary Plan Area is forecast to generate, in the weekday AM and PM peak hours, respectively:

- ▶ 2,660 and 2,964 automobile trips;
- ▶ 163 and 102 transit trips;
- ▶ 10 and 0 cycling trips; and
- ▶ 190 and 74 walking trips.



TABLE 5.11: SITE TRIP GENERATION BY MODE (FULL BUILD-OUT)

Mode	AM Peak Hour					PM Peak Hour				
	%		Trips			%		Trips		
	In	Out	In	Out	Total	In	Out	In	Out	Total
Automobile	88%	88%	848	1,812	2,660	94%	95%	1,799	1,165	2,964
Transit	4%	6%	39	124	163	4%	2%	77	25	102
Cycle	1%	0%	10	0	10	0%	0%	0	0	0
Walk	7%	6%	67	123	190	2%	3%	38	36	74
Total	100%	100%	964	2,059	3,023	100%	100%	1,914	1,226	3,140



5.3.7 Site Trip Distribution and Assignment

The directional distribution of traffic approaching and departing the NW Secondary Plan Area is a function of several variables including population densities, existing travel patterns, and efficiency of the roadways leading to the site.

Vehicular trip distribution for the NW Secondary Plan Area is based on a review of existing traffic patterns and 2016 Transportation Tomorrow Survey (TTS) data. Trip distribution was estimated separately for residential trips and commercial trips. **Appendix G** contains the trip distribution calculations for reference.

Table 5.12 and **Table 5.13** summarize the estimated directional distribution for the 2030 horizon and horizons beyond 2030, respectively.

TABLE 5.12: ESTIMATED TRIP DISTRIBUTION (2030 HORIZON)

Direction		Residential
North	Yonge Street	8%
	Bathurst Street	3%
South	Yonge Street	24%
	Bathurst Street	27%
East	Green Lane	25%
West ¹	Green Lane	13%
Total		100%
1: Trips to/from the west represent trips to/from south-west via Dufferin Street/Bathurst Street and Green Lane.		

TABLE 5.13: ESTIMATED TRIP DISTRIBUTION (2035, 2040, AND 2045 HORIZONS)

Direction		Residential	Commercial
North	Yonge Street	8%	20%
	Bathurst Street	3%	7%
South	Yonge Street	24%	27%
	Bathurst Street	27%	29%
East	Green Lane	12%	5%
	E-W Major Collector	12%	5%
West ¹	Green Lane	7%	7%
	E-W Major Collector	7%	0% ²
Total		100%	100%
1: Trips to/from the west represent trips to/from south-west via Dufferin Street/Bathurst Street and Green Lane.			
2: Commercial trips to/from the west were assumed not to use the E-W major collector given the commercial/retail areas are located at the southeast corner of the subdivision.			



The projected site traffic was assigned to the road network based upon the above estimated distribution. Under the 2035, 2040, and 2045 horizons, for east-west site traffic, it was assumed a 50%/50% assignment between Green Lane and the east-west major collector. The exception includes commercial trips to/from the west, where the east-west major collector was not used given the majority of commercial/retail areas are located at the southeast corner of the subdivision.

Our analysis assumed the future internal road network would be completed and available upon the earliest horizon year of 2030, which represents 10% build-out of the NW Secondary Plan Area.

Figure 5.8 illustrates the net site trip assignment at 10% build-out and at full build-out, respectively.

Figure 5.9 illustrates the net site trip assignment at 50% build-out and at full build-out, respectively.

Figure 5.10A, **Figure 5.10B**, and **Figure 5.10C** illustrate the net site residential, net site commercial, and commercial pass-by trip assignment at full build-out, respectively.

Figure 5.11 illustrates the total site trip assignment at full build-out.

Slight differences with respect to the trip generation estimates are due to rounding.

5.3.8 Future Total Traffic

The future weekday AM and PM peak hour background traffic forecasts were combined with the site traffic assignments to develop the total traffic forecasts for 2030, 2035, 2040, and 2045 horizon years.

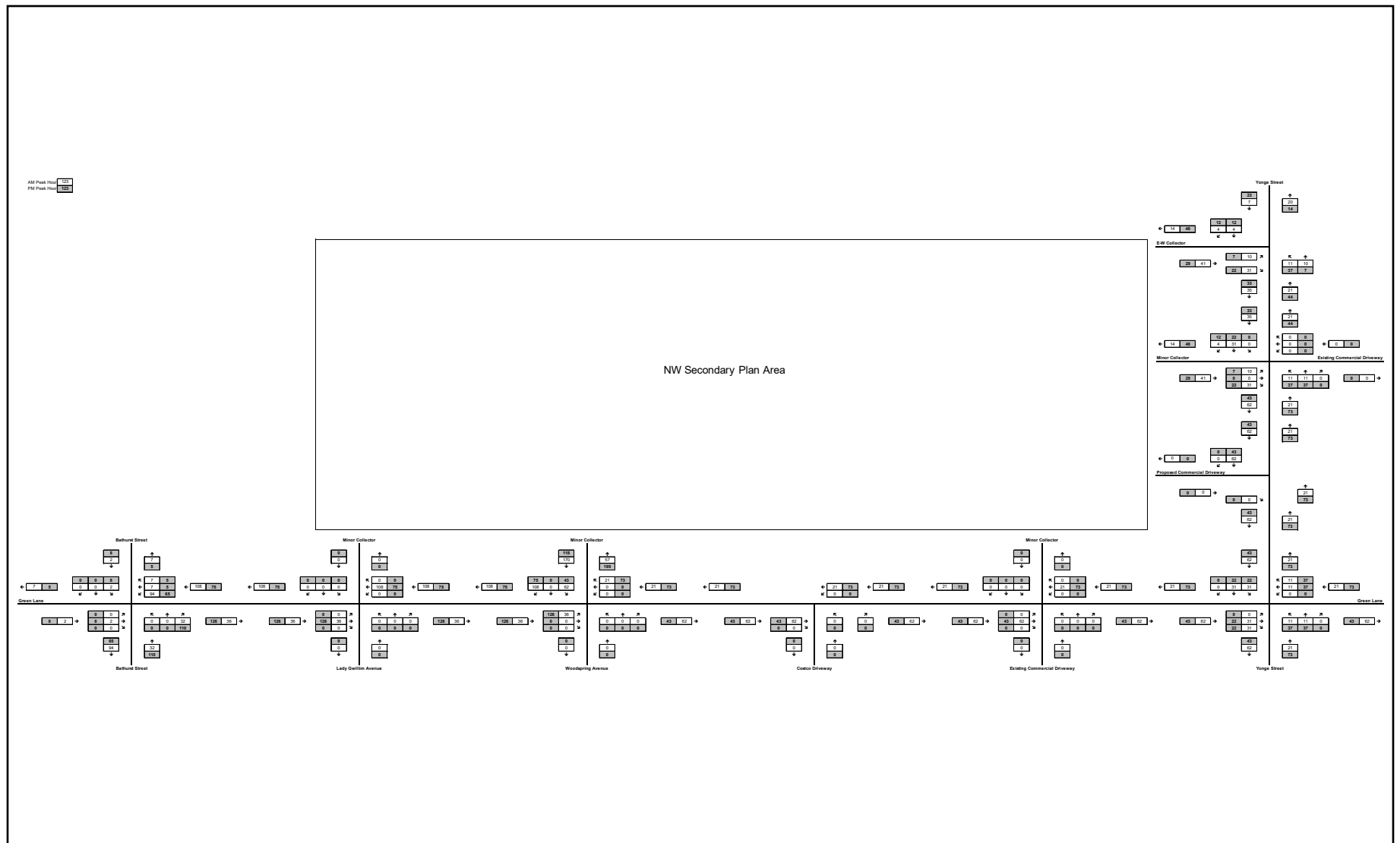
Figure 5.12 illustrates the 2030 total traffic forecasts (10% build-out) for the weekday AM and PM peak hours.

Figure 5.13 illustrates the 2035 total traffic forecasts (50% build-out) for the weekday AM and PM peak hours.

Figure 5.14 illustrates the 2040 total traffic forecasts (full build-out) for the weekday AM and PM peak hours.

Figure 5.15 illustrates the 2045 total traffic forecasts (a period of five years beyond full build-out) for the weekday AM and PM peak hours.

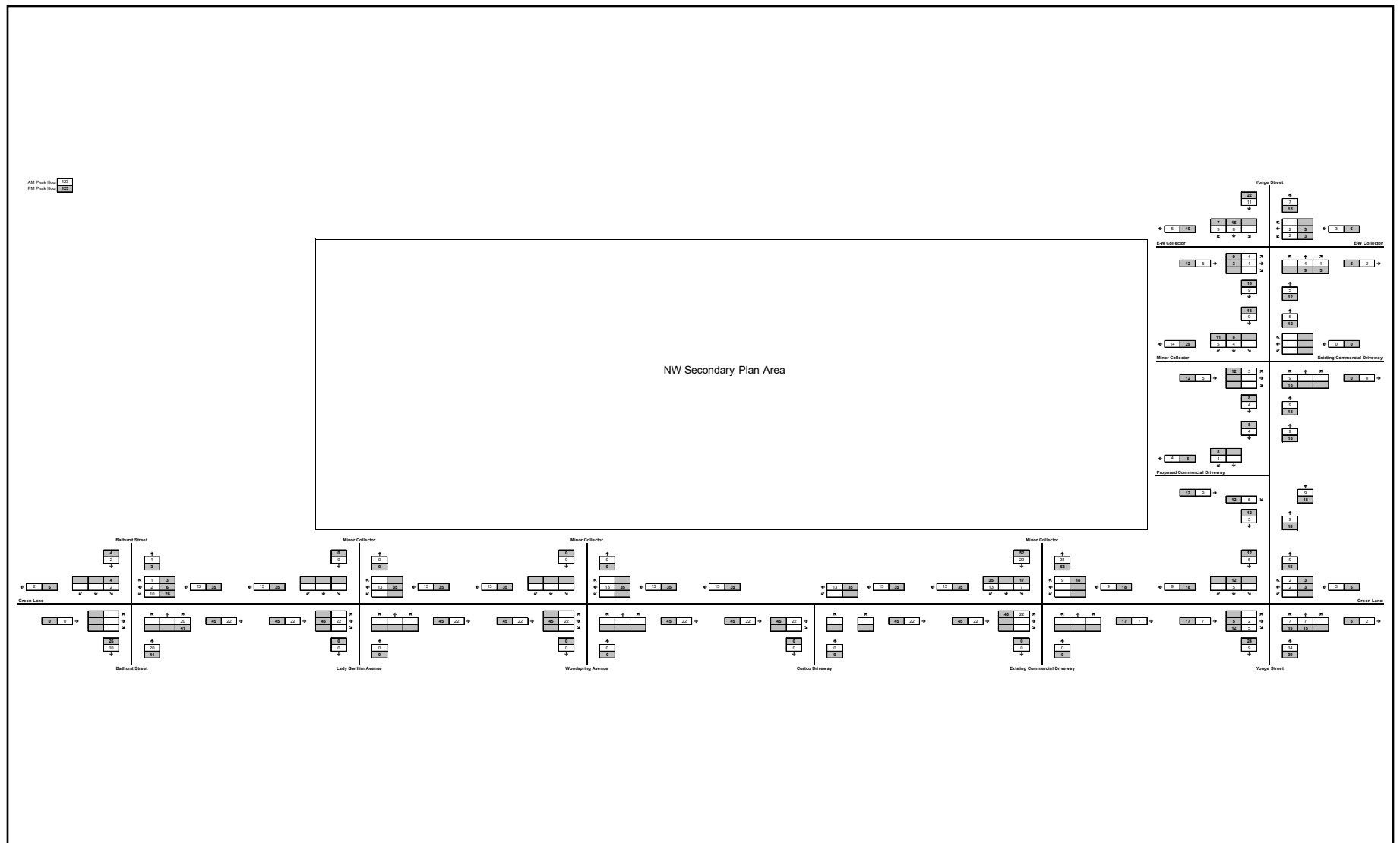


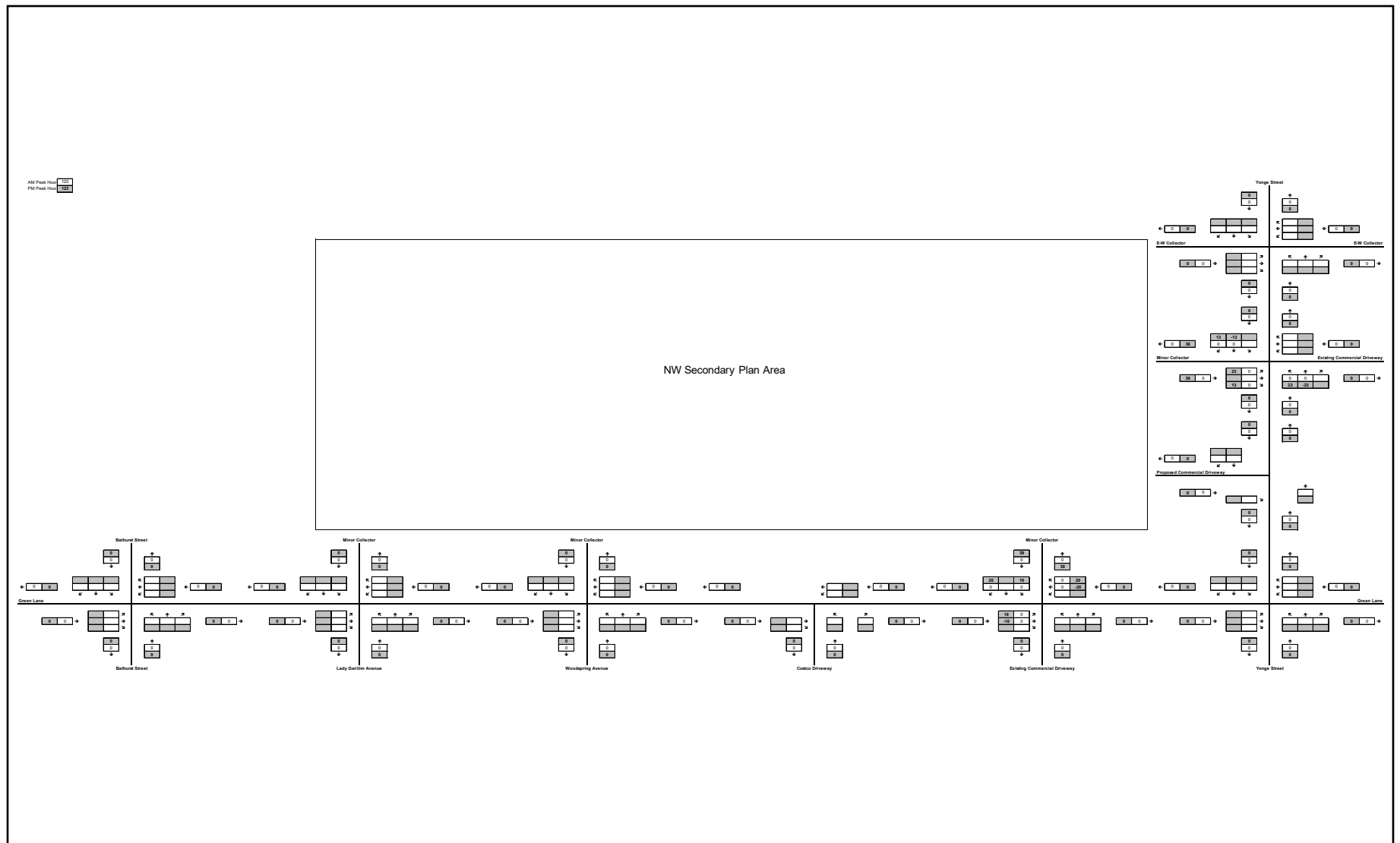


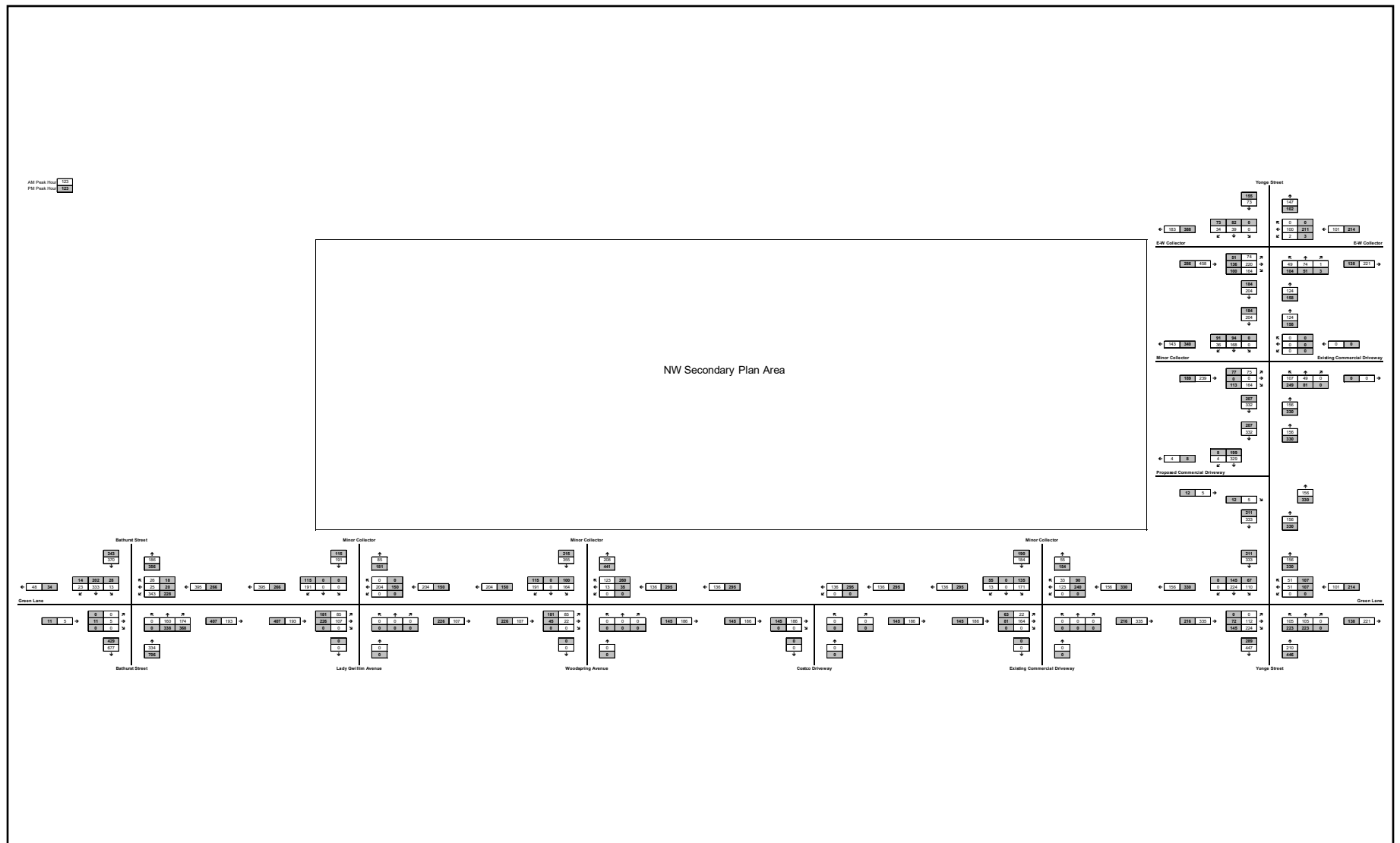
Net Site Trips (10% Build-out)

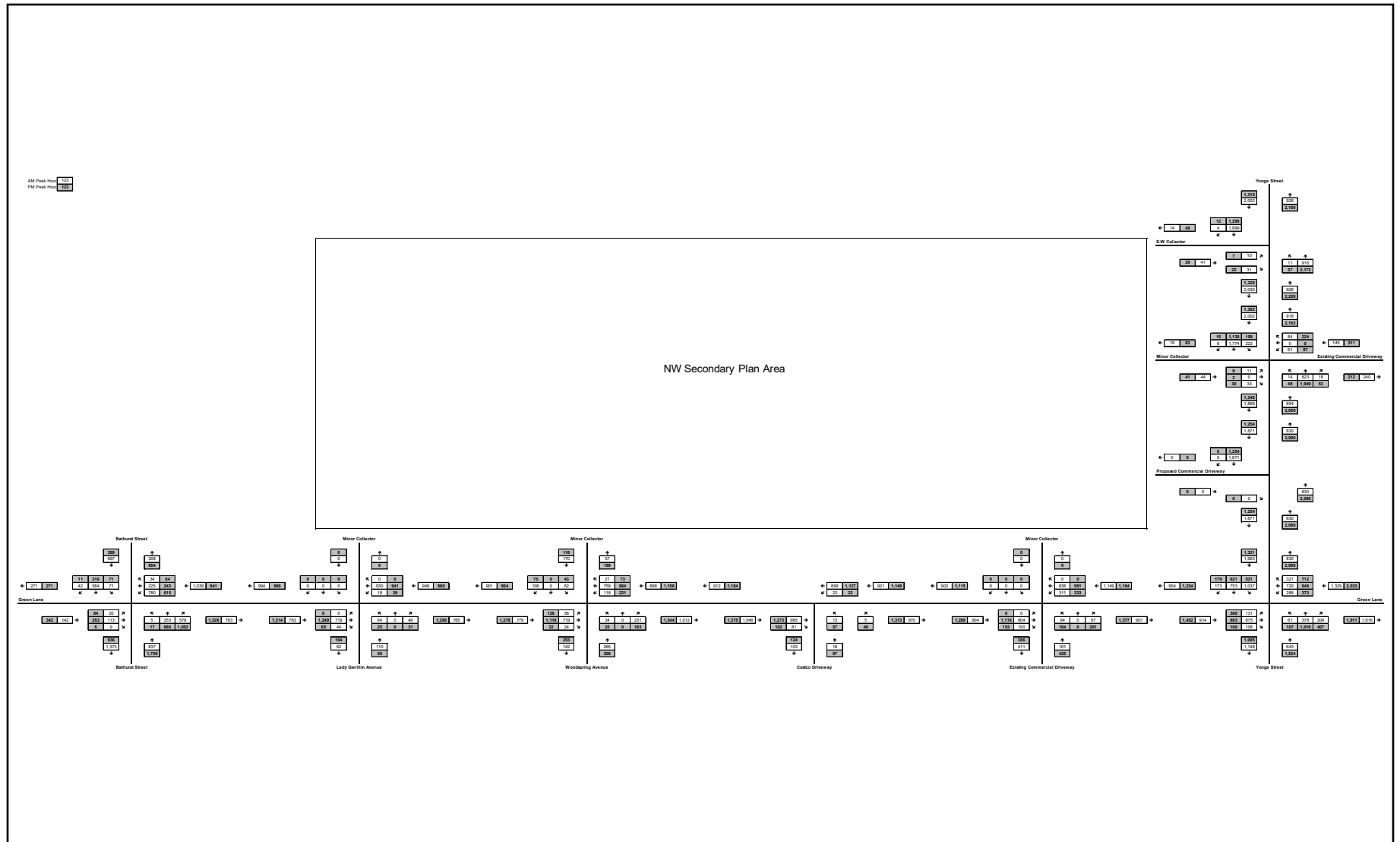
Northwest Quadrant of Yonge Street and Green Lane Secondary Plan – Transportation Assessment
200089

Figure 5.8

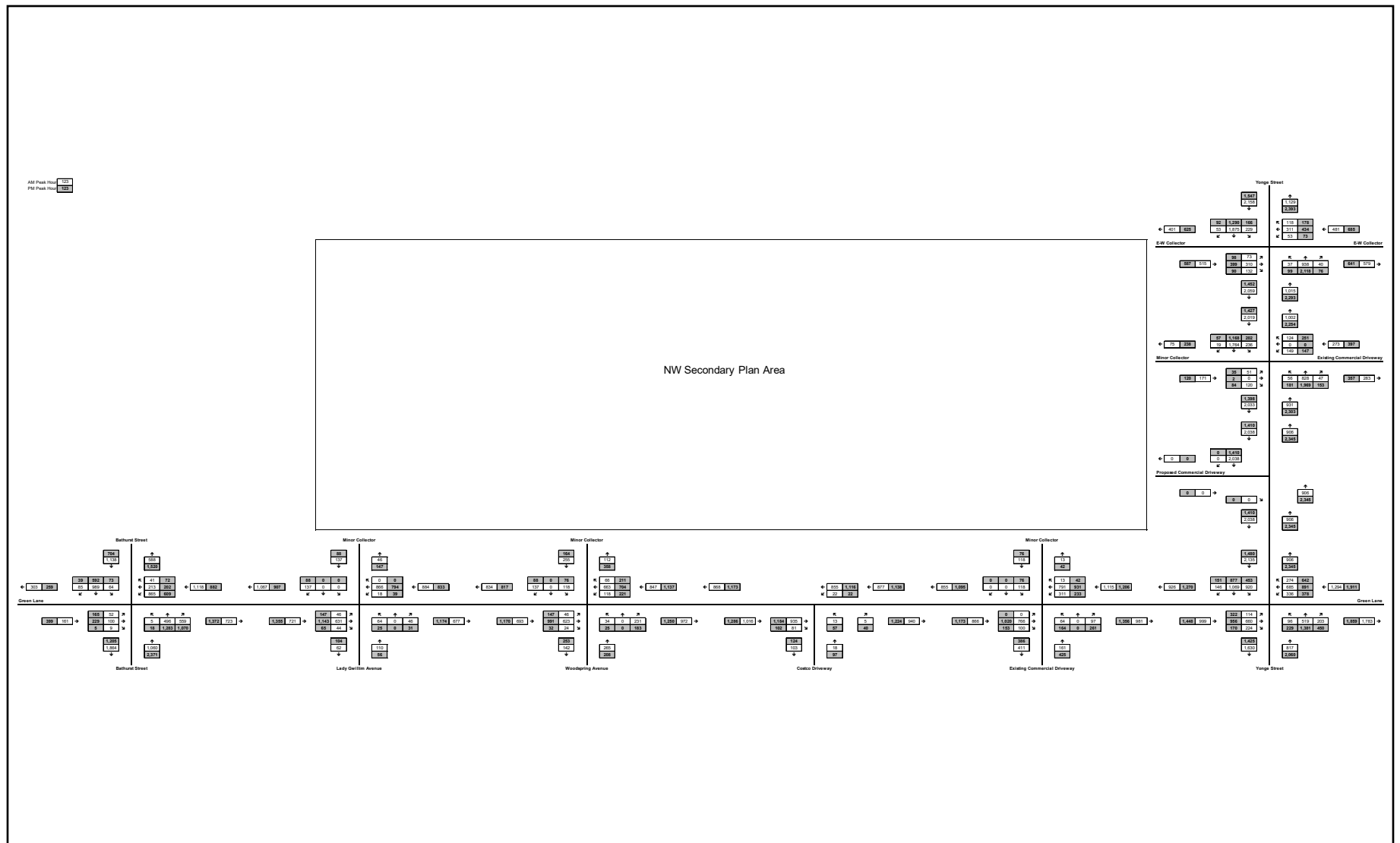








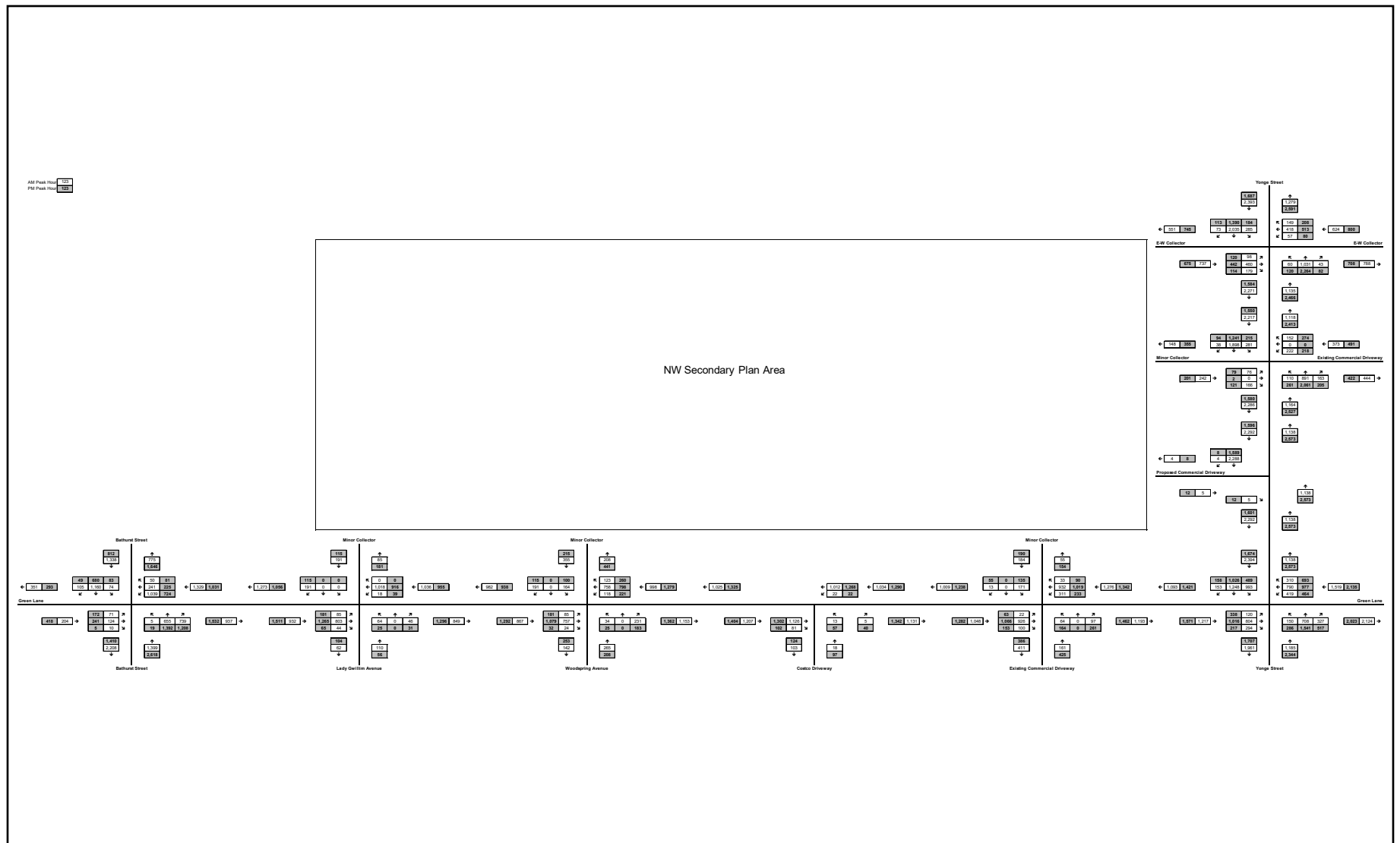
2030 Total Traffic Forecasts



2035 Total Traffic Forecasts

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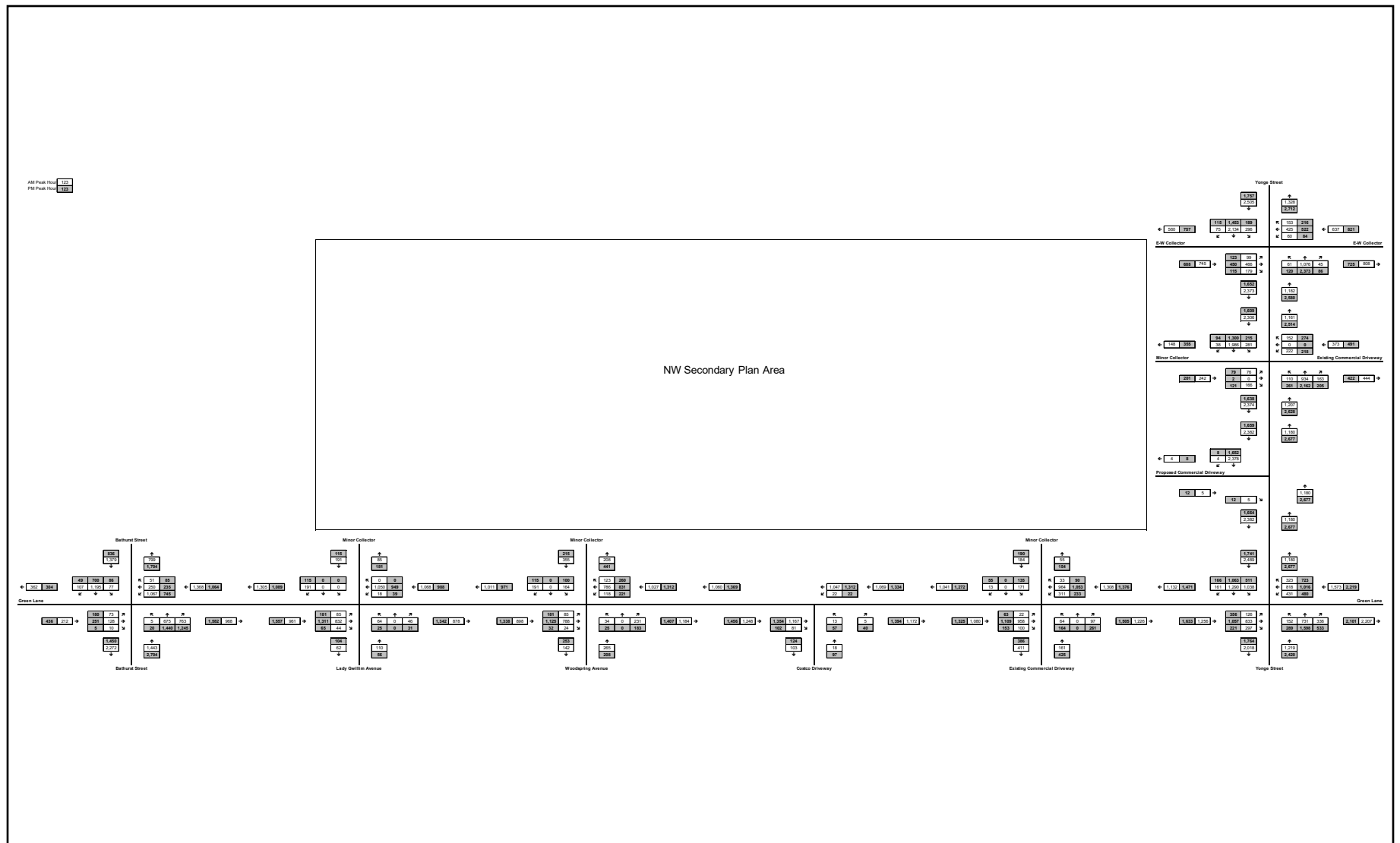
Figure 5.13



2040 Total Traffic Forecasts

Northwest Quadrant of Yonge Street and Green Lane Secondary Plan – Transportation Assessment
200089

Figure 5.14



2045 Total Traffic Forecasts

Northwest Quadrant of Yonge Street and Green Lane Secondary Plan – Transportation Assessment
200089

Figure 5.15

6 Transportation Impact Assessment

6.1 Future Background Traffic

To assess the automobile operating conditions for background traffic conditions (without development), a level of service analysis was undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as base year (2024) conditions. Notable exceptions include:

- Inclusion and assessment of the new east-west major collector under the 2035, 2040, and 2045 horizon years. The future lane configurations and traffic control assessed for the Yonge Street and East-West Major Collector intersection is identified in **Figure 5.6**. The storage length and taper length for proposed auxiliary turn lanes were both assumed to be 15 metres, respectively;

Regarding signal timing, cycle lengths (130 seconds during the AM peak hour and 140 seconds during the PM peak hour) were matched with adjacent signalized intersections. No advanced left-turn phases were initially assumed at the intersection; and

- Traffic signal optimization at the existing signalized intersections of Green Lane with Yonge Street and Bathurst Street during the AM and PM peak hours, and the intersection of Yonge Street and Church Driveway (Future Minor Collector)/Existing Commercial Driveway during the PM peak hour.

That is, signal timing splits within existing cycle lengths were optimized to provide the best possible traffic operations for all movements.

Table 6.1A and **Table 6.1B** summarize the results of the operational analysis for the 2030 background traffic conditions (without the new east-west major collector and the development of the NW Secondary Plan Area) during the AM and PM peak hour, respectively.

Table 6.2A and **Table 6.2B** summarize the results of the operational analysis for the 2035 background traffic conditions (without the development of the NW Secondary Plan Area) during the AM and PM peak hour, respectively.

Table 6.3A and **Table 6.3B** summarize the results of the operational analysis for the 2040 background traffic conditions (without the development of the NW Secondary Plan Area) during the AM and PM peak hour, respectively.



Table 6.4A and **Table 6.4B** summarize the results of the operational analysis for the 2045 background traffic conditions (without the development of the NW Secondary Plan Area) during the AM and PM peak hour, respectively.

Any movements identified as critical movements are highlighted within the results tables. **Appendix H** contains the Synchro analysis outputs for reference.



TABLE 6.1A: 2030 BACKGROUND AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 8 0.03 5 100 95	A 8 0.10 18 - -	> > > >	A 8 0.93 222 200 -22	D 37 0.19 32 - -	A 9 0.02 2 - -	C 30	C 32 0.07 4 140 136	C 34 0.33 36 - -	A 1 0.38 0 140 140	B 11	C 34 0.28 25 75 50	D 45 0.82 88 - -	> > > >	D 44	C 26 0.9	
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.22 0 0 - 30 30	A 0 0.03 0 0 30 30	A 0	A 9 0.02 1 25 24	A 0 0.26 0 - -	A 0	E 39 0.4 14 35 21		B 11 0.08 2 - -	D 28						
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 4 0.29 39 - 28	A 3 0.02 2 30 28	A 4	A 6 0.24 18 30 12	A 6 0.31 45 - -	A 6	E 55 0.22 20 30 10		E 56 0.32 34 - -	E 56					B 12 0.31	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.38 0 - -	A > > > >	A 0	B 11 0.04 1 50 49	A 0 0.28 0 - -	A 0	C 16 0.06 1 - -		> > > >	C 16						
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 8 0.35 56 -	A 5 0.07 5 45 40	A 8	C 21 0.59 58 40 -18	A 2 0.34 28 -	A 8	E 58 0.44 34 -		D 55 0.07 18 -	E 56					B 12 0.59	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	D 38 0.64 27 30 3	D 46 0.75 116 3 30 27	D 36 0.06 3 30 27	D 44 1.23 122 170 48	F 171 0.82 35 120 170 135	D 52 0.31 35 170 135	C 22 0.31 35 170 135	E 71	C 30 0.20 14 90 76	D 39 0.39 58 - -	D 35 0.15 20 - -	D 37 1.55 253 90 -163	F 300 0.48 101 - -	C 23 0.15 19 45 26	B 15 19 45 26	F 169	F 101 1.06
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 54 0.00 0 - -	> > > > >	D 54	< < < < <	E 59 0.48 31 - -	D 54 0.05 16 - -	E 56	B 11 0.02 1 30 29	B 16 0.35 94 - -	A 6 0.01 2 30 28	B 16	A 4 0.41 18 45 27	A 6 0.63 120 - -	> > > >	A 6	B 12 0.63

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.1B: 2030 BACKGROUND PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.13 16 100 84	A 10 0.23 39 - -	> > > >	A 10	C 33 0.88 183 200 17	A 10 0.22 37 - -	A 8 0.07 9 - -	C 24	C 30 0.09 9 140 131	D 44 0.83 97 - -	A 2 0.59 0 140	C 20	E 76 0.80 38 75 37	C 33 0.40 44 - -	> > > >	D 40	C 22 0.87
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.36 0 - 30 30	A 0 0.04 0 30 30	A 0	B 12 0.08 2 25 23	A 0		A 0	F 92 0.41 13 35 22		B 14 0.08 2 - -	E 49					
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 5 0.40 69 - 26	A 3 0.02 4 30 26	A 5	C 22 0.64 69 30 -39	A 4 0.32 41 - -		A 8	E 58 0.15 16 30 14		E 64 0.55 46 - -	E 63					B 11 0.63
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.51 0 - -	> > > >	A 0	B 13 0.05 1 50 49	A 0		A 0	D 26 0.38 14 - -		> > > >	D 26					
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		B 11 0.47 85 -	A 7 0.12 11 45 34	B 10	D 44 0.59 33 40 7	A 1 0.34 11 - -		B 10	E 68 0.71 70 -		E 60 0.57 57 -	E 63					B 18 0.62
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 142 1.10 174 30 -144	F 97 1.07 207 - 5	F 195 0.05 5 30 25	F 114	F 132 1.13 174 170 -4	F 90 1.03 194 - -19	E 76 1.00 189	F 93	C 34 0.24 21 90 69	F 89 1.03 205 - -	D 47 0.45 64 - -	E 74	F 85 0.93 110 90 -20	C 32 0.45 84 - -	C 30 0.15 24 45 21	D 52	F 85 1.07
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	E 56 0.03 7 - -	> > > >	E 56	< < < < <	E 64 0.57 51 - -	E 64	A 6 0.06 1 30 29	B 12 0.82 127 - -	A 3 0.04 0 30 30	B 12	E 59 0.76 59 45 -14	A 5 0.41 73 - -	> > > >	B 12	B 16 0.79	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.2A: 2035 BACKGROUND AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.07 10 100 90	A 9 0.09 16 - ->	> > > > >	A 9	C 30 0.86 191 200 9	A 10 0.18 28 - -	A 8 0.02 1 -	C 24	C 31 0.09 4 140 136	C 34 0.49 56 -	A 1 0.33 0 140	B 16	C 33 0.29 23 75 52	E 66 0.98 137 -	> > > > >	E 64	C 33 0.9
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.18 0 -	A 0 0.03 0 30 30	A 0	A 9 0.02 1 25 24	A 0 0.23 0 -		A 0	D 29 0.32 10 35 25		B 11 0.07 2 -	C 21					
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 3 0.25 30 -	A 3 0.02 2 30 28	A 3	A 6 0.21 19 30 11	A 5 0.27 43 -		A 5	E 56 0.24 20 30 10		E 56 0.16 26 -	E 56					B 12 0.27
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.34 0 -	> > > > >	A 0	B 10 0.03 1 50 49	A 0 0.25 0 -		A 0	C 16 0.05 1 -		> > > > >	C 16					
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 8 0.31 49 -	A 6 0.07 5 45 40	A 8	B 16 0.54 52 40 -12	A 2 0.30 17 -		A 6	E 58 0.44 34 -		D 55 0.07 18 -	E 56					B 11 0.54
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 31 0.54 22 30 8	D 44 0.71 99 -	D 37 0.05 3 30 27	D 42	F 221 1.35 143 170 27	D 51 0.79 27 -	C 21 0.24 27 170 143	F 91	C 30 0.19 12 90 78	D 41 0.50 75 -	D 35 0.14 19 -	D 39	F 163 1.23 203 90 -113	C 21 0.60 125 -	A 8 0.14 11 45 34	F 83	E 72 1.08
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 47 0.00 0 -	> > > > >	D 47	< < < < <	E 65 0.73 60 -	D 48 0.08 17 -	E 57	B 18 0.02 1 30 29	C 25 0.37 122 -	E 78 0.03 11 30 19	C 28	A 6 0.47 20 45 25	A 7 0.64 68 -	> > > > >	A 7	B 18 0.68
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	E 57 0.44 17 15 -2	D 52 0.38 35 -	> > > > >	D 53	D 54 0.41 30 15 -15	E 67 0.82 74 -	> > > > >	E 65	A 3 0.11 1 15 14	A 2 0.25 10 -	> > > > >	A 2	B 13 0.63 54 15 -39	A 5 0.51 66 -	> > > > >	A 6	B 14 0.66

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.2B: 2035 BACKGROUND PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.29 37 100 63	B 15 0.25 45 - -	> > > > >	B 15	D 37 0.86 158 200 42	B 14 0.21 39 - -	B 13 0.05 9 -	C 29	C 23 0.08 8 140 132	D 38 0.87 133 - 140	A 1 0.53 0 140	C 22	E 60 0.73 33 75 42	C 26 0.40 54 - -	> > > > >	C 29	C 24 0.86
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.32 0 -	A 0 0.04 0 30 30	A 0	B 11 0.07 2 25 23	A 0 0.23 0 -		A 1	F 57 0.28 9 35 26		B 13 0.07 2 -	D 33					
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 4 0.35 52 -	A 3 0.02 3 30 27	A 4	B 14 0.54 62 30 -32	A 3 0.26 26 -		A 6	E 60 0.17 17 30 13		E 62 0.38 36 -	E 62					B 10 0.53
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.46 0 -	> > > > >	A 0	B 12 0.04 1 50 49	A 0 0.28 0 -		A 0	C 23 0.34 12 -		> > > > >	C 23					
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		B 10 0.42 75 -	A 7 0.11 10 45 35	A 10	C 28 0.53 32 40 8	A 2 0.28 12 -		A 8	E 68 0.71 70 -		E 58 0.45 48 -	E 62					B 18 0.57
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 103 0.97 141 30 -111	E 76 1.01 191 -	D 39 0.05 3 30 27	F 81	F 138 1.14 178 170 -8	E 64 0.91 160 170 2	D 47 0.83 168 170 2	E 74	C 34 0.24 18 90 72	F 165 1.23 282 -	D 50 0.60 96 -	F 130	E 72 0.80 80 90 10	D 39 0.58 113 -	D 41 0.15 28 45 17	D 49	F 86 1.12
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 52 0.02 7 -	> > > > >	D 52	< < < < <	E 71 0.75 65 -	E 59 0.56 59 -	E 63	A 8 0.07 1 30 29	B 14 0.90 95 -	A 6 0.16 4 30 26	B 14	E 74 0.78 98 45 -53	A 6 0.43 59 -	> > > > >	B 17	B 20 0.86
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 299 1.34 61 15 -46	E 61 0.69 68 -	> > > > >	F 102	F 166 1.01 60 15 -45	F 101 1.00 111 -	> > > > >	F 110	A 4 0.06 2 15 13	A 6 0.58 80 -	> > > > >	A 6	F 655 2.34 114 15 -99	A 4 0.34 40 -	> > > > >	E 79	D 49 2.18

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.3A: 2040 BACKGROUND AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.10 12 100 88	A 9 0.11 19 - ->	> > > > >	A 9 0.98 228 200 -28	D 48 0.19 31 - -	A 8 0.02 1 -	D 38 -	C 31 0.09 4 140 136	D 36 0.59 69 - 140	A 1 0.39 0 140	B 17 -	C 35 0.39 25 75 50	F 99 1.09 160 - ->	> > > > >	F 95 -	D 47 1.01 -	
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.22 0 - -	A 0 0.03 0 30 30	A 0 -	A 9 0.02 1 25 24	A 0 0.26 0 -	A 0 -	E 40 0.41 14 35 21		B 11 0.08 2 - -	D 28 -						
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 4 0.29 41 - -	A 3 0.02 2 30 28	A 4 -	A 7 0.25 18 30 12	A 6 0.30 45 -	A 6 -	D 55 0.22 20 30 10		E 57 0.37 36 -	E 56 -					B 12 0.31 -	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.4 0 - ->	> > > > >	A 0 -	B 11 0.04 1 50 49	A 0 0.28 0 -	A 0 -	C 17 0.06 2 - ->		> > > > >	C 17 -						
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 9 0.36 58 - -	A 5 0.07 5 45 40	A 8 -	C 24 0.60 56 40 -16	A 2 0.33 29 -	A 8 -	E 58 0.44 34 -		D 55 0.07 18 -	E 56 -					B 12 0.60 -	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	D 37 0.61 26 30 4	D 48 0.80 126 -	D 36 0.05 3 30 27	D 46 -	F 455 1.89 218 170 -48	D 53 0.84 126 -	C 22 0.30 41 170 129	F 166 -	C 31 0.24 12 90 78	D 44 0.65 99 -	D 42 0.45 64 -	D 43 -	F 230 1.38 216 90 -126	C 23 0.69 140 -	A 7 0.15 8 45 37	F 111 1.39 -	
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 42 0.00 0 ->	> > > > >	D 42 -	< < < < <	E 72 0.85 92 -	D 43 0.10 18 -	E 60 -	C 22 0.03 1 30 29	C 30 0.42 132 -	D 44 0.13 36 -	C 32 -	B 12 0.63 23 45 22	A 10 0.71 71 ->	> > > > >	B 10 0.77 -	
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	E 57 0.46 19 15 -4	D 54 0.56 52 ->	> > > > >	D 54 -	E 60 0.57 34 15 -19	F 97 1.00 106 ->	> > > > >	F 93 -	A 4 0.13 1 15 14	A 2 0.27 10 ->	> > > > >	A 2 -	C 32 0.87 132 15 -117	A 6 0.55 75 ->	> > > > >	A 9 0.89 -	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.3B: 2040 BACKGROUND PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 13 0.28 33 100 67	B 13 0.23 40 - -	> > > > >	B 13	C 35 0.86 163 200 37	B 12 0.21 35 8 -	B 11 0.05 8 -	C 27	C 27 0.12 10 140 130	E 76 1.04 177 -	A 1 0.55 0 140	D 42	F 84 0.82 37 75 38	C 31 0.51 66 - >	D 36	C 35 0.92	
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.34 0 -	A 0 0.04 0 30 30	A 0	B 12 0.07 2 25 23	A 0 0.25 0 -		A 1	F 67 0.32 10 35 25		B 13 0.07 2 -	E 37					
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 4 0.37 58 -	A 3 0.02 3 30 27	A 4	B 16 0.57 64 30 -34	A 4 0.28 31 -		A 6	E 59 0.16 16 30 14		E 63 0.45 40 -	E 62				B 10 0.56	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.48 0 -	> > > > >	A 0	B 13 0.05 1 50 49	A 0 0.3 0 -		A 0	C 24 0.36 12 -		> > > > >	C 24					
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		B 10 0.43 78 -	A 7 0.12 10 45 35	A 10	C 32 0.55 30 40 10	A 2 0.30 13 -		A 9	E 68 0.71 70 -		E 58 0.49 51 -	E 62				B 18 0.58	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 114 1.01 153 30 -123	F 90 1.05 207 -	D 39 0.05 3 30 27	F 93	F 243 1.40 235 170 -65	E 78 0.99 180 -	D 51 0.88 188 170 -18	F 110	C 34 0.29 19 90 71	F 218 1.36 317 -	E 57 0.74 134 -	F 168	E 74 0.83 83 90 7	D 40 0.67 132 29 45 16	D 39 0.17 29 45 16	D 50	F 110 1.29
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 47 0.02 7 -	> > > > >	D 47	< < < < <	F 82 0.88 105 -	E 55 0.57 71 -	E 67	A 8 0.07 1 30 29	B 18 0.97 89 -	A 7 0.23 6 30 24	B 17	F 117 0.97 110 45 -65	A 8 0.47 60 -	> > > > >	C 25	C 26 0.96
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 327 1.42 64 15 -49	E 60 0.67 69 -	> > > > >	F 107	F 166 1.02 62 15 -47	F 134 1.11 134 -	> > > > >	F 138	A 5 0.07 2 15 13	A 7 0.62 88 -	> > > > >	A 7	F 1057 3.23 138 15 -123	A 5 0.37 45 -	> > > > >	F 131	E 70 2.93

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.4A: 2045 BACKGROUND AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.10 13 100 87	A 9 0.12 19 - ->	> > > > >	A 9 1.02 243 200 -43	E 61 0.20 32 - -	A 10 0.02 2 -	A 8 - -	D 48 -	C 31 0.09 4 140 136	D 37 0.62 72 - 140	A 1 0.41 0 140	B 18 -	D 35 0.42 26 75 49	F 116 170 - ->	> > > >	F 111 -	D 54 1.06 -
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.23 0 - -	A 0 0.03 0 30 30	A 0 -	A 10 0.02 1 25 24	A 0 0.27 0 -		A 0 -	E 45 0.44 16 35 19		B 11 0.08 2 - -	D 31 -					
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 4 0.31 45 - -	A 3 0.02 3 30 27	A 4 -	A 7 0.26 18 30 12	A 6 0.32 46 -		A 6 -	D 54 0.21 20 30 10		E 57 0.45 40 -	E 57 -					B 12 0.33 -
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.41 0 - ->	> > > > >	A 0 -	B 11 0.04 1 50 49	A 0 0.29 0 -		A 0 -	C 17 0.06 2 - ->		> > > > >	C 17 -					
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 9 0.38 60 - -	A 5 0.07 6 45 39	A 8 -	C 27 0.62 56 40 -16	A 2 0.35 30 -		A 9 -	E 58 0.44 34 -		D 55 0.07 18 -	E 56 -					B 12 0.61 -
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	D 43 0.65 31 30 -1	D 49 0.82 132 -	D 36 0.05 4 30 26	D 47 2.00 229 170 -59	F 55 0.87 133 -	C 23 0.33 46 170 124	F 180 -	C 31 0.27 13 90 77	D 45 0.67 103 -	D 42 0.48 68 -	D 43 276 1.48 231 90 -141	F 24 0.73 142 -	C 8 0.16 8 45 37	A 8 -	F 131 -	F 114 1.47 -	
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 42 0.00 0 ->	> > > > >	D 42 -	E 72 0.85 92 ->	D 43 0.10 18 -	E 60 -	C 21 0.03 1 30 29	C 30 0.44 139 -	D 41 0.13 36 ->	C 32 B 14 0.66 27 45 18	B 11 0.75 206 ->	> > > > >	B 11 -	C 22 0.79 -		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	E 58 0.49 22 15 -7	D 54 0.58 53 ->	> > > > >	D 54 0.62 38 15 -23	E 63 1.02 109 ->	F 103 > > >	F 99 -	A 5 0.16 1 15 14	A 2 0.28 10 ->	> > > > >	A 2 0.95 52 15 -37	D 50 0.58 82 ->	A 6 > > > >	> > > > >	B 11 -	C 23 0.96 -	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.4B: 2045 BACKGROUND PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 15 0.30 37 100 63	B 14 0.26 44 - -	> > > > >	B 14	D 50 0.95 181 200 19	B 14 0.23 39 - -	B 12 0.06 9 -	D 37	C 25 0.11 10 140 130	E 64 1.01 180 - -	A 2 0.58 0 140	D 36	F 90 0.85 39 75 36	C 29 0.49 67 - -	> > > > >	D 35	C 34 0.97
	Lady Gwillim Avenue & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.35 0 -	A 0 0.04 0 30 30	A 0	B 12 0.08 2 25 23	A 0 0.26 0 -		A 1	F 78 0.36 11 35 24		B 14 0.08 2 -	E 42					
	Woodspring Avenue & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		A 4 0.39 64 -	A 3 0.02 3 30 27	A 4	B 19 0.61 67 30 -37	A 4 0.29 35 -		A 7	E 59 0.15 16 30 14		E 63 0.51 44 -	E 62					B 11 0.6
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.5 0 -	> > > > >	A 0	B 13 0.05 1 50 49	A 0 0.32 0 -		A 0	D 25 0.37 13 -		> > > > >	D 25					
	Existing Commercial Driveway & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.		B 11 0.45 82 -	A 7 0.12 11 45 34	B 10	D 38 0.57 30 40 10	A 2 0.32 14 -		A 10	E 68 0.71 70 -		E 59 0.53 54 -	E 62					B 18 0.6
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 130 1.07 164 30 -134	F 106 1.09 217 -	F 458 0.05 4 30 26	F 131	F 263 1.45 246 170 -76	F 90 1.03 193 -	E 57 0.92 222 170 -52	F 121	C 35 0.33 20 90 70	F 249 1.43 335 -	E 61 0.79 146 -	F 191	E 76 0.86 91 90 -1	D 42 0.69 140 -	D 40 0.18 32 45 13	D 52	F 128 1.35
	Yonge Street & Church Driveway/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 47 0.02 7 -	> > > > >	D 47	< < < < <	F 82 0.88 105 -	E 55 0.58 72 -	E 67	A 8 0.08 1 30 29	C 29 1.02 91 -	A 7 0.23 6 30 24	C 27	F 117 0.97 110 45 -65	A 8 0.49 63 -	> > > > >	C 24	C 31 0.99
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 350 1.47 67 15 -52	E 61 0.69 70 -	> > > > >	F 112	F 195 1.11 66 15 -51	F 150 1.15 141 -	> > > > >	F 156	A 5 0.08 2 15 13	A 7 0.65 88 -	> > > > >	A 7	F 1384 3.94 147 15 -132	A 5 0.38 48 -	> > > > >	F 167	F 84 3.5

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



2030 Horizon

Under 2030 background traffic conditions (without the new east-west major collector and the development of the NW Secondary Plan Area), the study area intersections are forecast to continue operating at acceptable levels of service and within capacity. The exceptions include the following:

- ▶ Several traffic movements at Green Lane and Yonge Street are identified to be approaching or exceeding capacity during the AM and PM peak hours; and
- ▶ The westbound left-turn movement at Green Lane and Bathurst Street is identified to be approaching capacity during the AM and PM peak hours.

Aforementioned in **Section 5.2.1**, the Town of East Gwillimbury TMP (2010) has identified the planned east-west major collector to be in place by 2031. The operational results provide indication the new east-west major collector may be required for implementation sooner than planned. This would be dependent on the level of background growth realized and the completion of background developments.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. Several spillback issues are identified as highlighted in the results tables; however, the majority of the reported 95th percentile queues are not considered critical as the queue lengths can be accommodated by the existing taper provisions (assuming half of taper length could be used for storage) or available centre two-way left-turn lanes. Use of these available provisions would allow for the adjacent through lanes to not be blocked and remain accessible.

2035, 2040, and 2045 Horizons

Under 2035, 2040, and 2045 background traffic conditions (without the development of the NW Secondary Plan Area), the study area intersections are forecast to continue operating at acceptable levels of service and within capacity. The exceptions include the following:

- ▶ Several traffic movements at Green Lane and Bathurst Street are identified to be approaching or exceeding capacity during the AM and PM peak hours;
- ▶ Several traffic movements at Green Lane and Yonge Street are identified to be approaching or exceeding capacity during the AM and PM peak hours;



- ▶ Several traffic movements at Yonge Street and Church Driveway (Future Minor Collector)/Existing Commercial Driveway are forecast to approach or exceed capacity during the PM peak hour; and
- ▶ Several traffic movements at Yonge Street and East-West Major Collector are identified to be approaching or exceeding capacity during the PM peak hour.

Applicable mitigation measures (i.e., the introduction of advanced left-turn phases) need to be investigated and considered to address the anticipated poor levels of service.

It is noted these critical movements are triggered by background growth and site traffic contributions generated by the other area developments within the remaining Green Lane Secondary Plan Area.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. Similar spillback issues are identified as previously noted under the 2030 horizon. Additional queuing issues identified include the eastbound, westbound, and southbound left-turn movements at the intersection of Yonge Street and East-West Major Collector during the AM and PM peak hours under the 2035, 2040, and 2045 horizons. This indicates applicable mitigation measures (i.e., the introduction of advanced left-turn phases) need to be investigated and considered to resolve the reported queuing issues.



6.2 Future Total Traffic

To assess the automobile operating conditions for total traffic conditions (with development), an operational analysis was undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as in the analysis of background conditions.

The exceptions include the assessment of the proposed minor collector driveway access connections with Green Lane and Yonge Street, and the proposed restricted RIRO access driveway with Yonge Street. Future lane configurations and traffic control assessed for the 2030 horizon and beyond the 2030 horizon are illustrated in **Figure 5.6** and **Figure 5.7**, respectively.

It is noted the storage length and taper lengths for all proposed auxiliary turn lanes was initially assumed to be 15 metres.

Table 6.5A and **Table 6.5B** present the results of the operational analysis for the 2030 total traffic conditions (with the development of the NW Secondary Plan Area at 10% build-out) during the AM and PM peak hour, respectively.

Table 6.6A and **Table 6.6B** present the results of the operational analysis for the 2035 total traffic conditions (with the development of the NW Secondary Plan Area at 50% build-out) during the AM and PM peak hour, respectively.

Table 6.7A and **Table 6.7B** present the results of the operational analysis for the 2040 total traffic conditions (with the development of the NW Secondary Plan Area at full build-out) during the AM and PM peak hour, respectively.

Table 6.8A and **Table 6.8B** present the results of the operational analysis for the 2045 total traffic conditions (with the development of the NW Secondary Plan Area at full build-out) during the AM and PM peak hour, respectively.

Any movements identified as critical movements are highlighted within the results tables. **Appendix I** contains the Synchro analysis outputs for reference.



TABLE 6.5A: 2030 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 8 0.03 5 100 95	A 8 0.10 18 - -	> > > > >	A 8 1.06 269 200 -69	E 70 0.20 33 -	A 9 0.02 3 -	A 7 54	D 32 0.07 4 140 136	C 34 0.33 36 -	A 1 0.40 0 140	B 11	C 34 0.29 26 75 49	D 45 0.82 88 -	> > > > >	D 44	D 36 1	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 0 0.00 0 15 15	A 9 0.34 51 - -	A 6 0.03 4 30 26	A 8	A 5 0.04 3 25 22	A 7 > 39 - -	A 7	D 40 0.20 29 35 6	D 38 0.03 0 -	> > > > >	D 39	A 0 0.00 0 15 15	A 0 0.00 0 -	> > > > >	A 0	A 9 0.37	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 14 0.13 11 15 4	B 16 0.41 62 - -	B 13 0.02 3 30 27	B 16	C 25 0.38 46 30 -16	C 24 0.45 93 - -	C 24	C 31 0.09 16 30 14	C 34 0.26 37 -	> > > > >	C 34	C 34 0.22 26 15 -11	C 31 0.07 5 -	> > > > >	C 32	C 23 0.38	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.41 0 - -	> > > > >	A 0	B 11 0.04 1 50 49	A 0 0.28 0 -	A 0	C 15 0.05 1 -		> > > > >	C 15						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 0 0.00 0 15 15	C 22 0.52 98 - -	C 23 0.09 18 45 27	C 22	D 45 0.74 82 40 -42	A 9 0.42 62 - -	B 19	D 42 0.21 29 -	D 39 0.07 0 -	> > > > >	D 40	A 0 0.00 0 15 15	A 0 0.00 0 -	> > > > >	A 0	C 22 0.62	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	D 54 0.64 42 30 -12	D 39 0.79 53 - -	E 57 0.08 9 30 21	D 43	F 192 1.28 129 170 41	D 23 0.33 40 170 130	E 76	C 30 0.24 16 90 74	D 39 0.41 60 -	D 36 0.15 21 -	D 37	F 326 1.61 264 90 -174	C 21 0.51 100 -	B 13 0.16 19 45 26	F 182	F 107 1.11	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 54 0.03 5 -	> > > > >	D 54	< < < < <	E 59 0.50 31 -	D 54 0.05 16 -	E 56	B 13 0.09 5 30 25	B 16 0.35 96 -	A 6 0.01 2 30 28	B 16	A 4 0.42 20 45 25	A 7 0.64 173 -	> > > > >	A 7	B 12 0.65
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 0 0 0	A 0					A 0 0.27 0		A 0		A 0 0.8 0	> > >	A 0		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	E 60 0.14 9 -		E 66 0.47 20 -	E 64					A 6 0.10 6 15 9	A 5 0.32 115 -		A 5		A 4 0.69 113 -	> > > > >	A 4	A 5 0.68

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.5B: 2030 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 10 0.13 18 100 82	B 10 0.25 46 -> ->	> -> -> -> ->	B 10	E 69 1.05 228 200 -28	B 10 0.24 43 -> ->	A 9 0.07 10 -> ->	D 48	C 27 0.08 8 140 132	D 37 0.78 87 -> ->	A 2 0.66 0 140 ->	B 16	D 53 0.72 34 75 41	C 29 0.37 40 -> ->	> -> -> -> ->	C 33	C 27 0.99	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 0 0.00 0 15 15	A 7 0.51 82 -> ->	A 4 0.05 5 30 25	A 7	A 3 0.18 2 25 23	A 2 0.39 15 -> ->	> -> -> -> ->	A 2	D 50 0.11 16 35 19	D 49 0.02 0 -> ->	> -> -> -> ->	D 50	A 0 0.00 0 15 15	A 0 0.00 0 -> ->	> -> -> -> ->	A 0	A 6 0.43	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 13 0.4 25 15 -10	B 11 0.47 80 -> ->	A 7 0.02 3 30 27	B 11	D 41 0.84 112 30 -82	A 5 0.41 31 -> ->	> -> -> -> ->	B 12	D 45 0.09 15 30 15	D 48 0.28 41 -> ->	> -> -> -> ->	D 48	D 48 0.23 24 15 -9	D 44 0.05 0 -> ->	> -> -> -> ->	D 46	B 16 0.7	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.53 0 -> ->	> -> -> -> ->	A 0	B 13 0.05 1 50 49	A 0 0.35 0 -> ->	> -> -> -> ->	A 0	C 24 0.35 12 -> ->	> -> -> -> ->	> -> -> -> ->	C 24						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 0 0.00 0 15 15	C 28 0.63 141 -> ->	C 25 0.15 28 45 17	C 27	B 13 0.71 12 40 28	A 9 0.44 99 -> ->	> -> -> -> ->	A 10	D 50 0.48 67 -> ->	D 42 0.17 11 -> ->	> -> -> -> ->	D 45	A 0 0.00 0 15 15	A 0 0.00 0 -> ->	> -> -> -> ->	A 0	C 23 0.66	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 109 1.10 170 30 -140	F 115 1.09 220 -> ->	F 230 0.07 26 30 4	F 121	F 132 1.13 174 170 -4	F 104 1.07 206 -> ->	F 92 1.06 213 170 -43	F 105	C 34 0.33 29 90 61	F 101 1.07 216 -> ->	D 47 0.47 68 -> ->	F 82	F 94 0.97 116 90 -26	C 35 0.49 88 -> ->	C 33 0.16 26 45 19	E 58	F 93 1.1	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< 56 0.09 14 -> ->	E 56 0.09 14 -> ->	> -> -> -> ->	E 56	< 66 0.60 42 -> ->	E 64 0.57 51 -> ->	E 64	A 8 0.27 5 30 25	B 13 0.84 177 -> ->	A 3 0.04 0 30 30	B 13	E 57 0.77 60 45 -15	A 6 0.43 92 -> ->	> -> -> -> ->	B 12	B 17 0.8		
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 0 0 0	A 0						A 0 0.67 0		A 0		A 0 0.53 0	> -> -> -> ->	A 0		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	E 67 0.15 8 -> ->		E 68 0.15 12 -> ->	E 67						A 2 0.13 3 15 12	B 10 0.74 356 -> ->		B 10		A 2 0.45 39 -> ->	> -> -> -> ->	A 2	A 8 0.72

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.6A: 2035 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.07 10 100 90	A 9 0.10 16 - -	> > > > >	A 9 1.20 309 200 -109	F 123 0.19 31 - -	A 8 0.03 4 - -	F 97 -	C 31 0.09 4 140 136	D 36 0.59 69 -	A 1 0.38 0 140	B 17 -	C 35 0.40 26 75 49	F 178 1.29 202 -	> > > > >	F 170 -	F 92 1.22	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 8 0.14 10 15 5	A 6 0.29 43 - -	A 6 0.03 4 30 26	A 8 0.04 3 25 22	A 7 0.40 38 - -	A 7 -	D 42 0.26 30 35 5	D 38 0.03 0 - -	> > > > >	D 40 -	A 0 0.00 0 15 15	D 39 0.09 10 - -	> > > > >	D 39 -	B 12 0.36		
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 14 0.15 13 15 2	B 15 0.35 54 - -	B 13 0.02 3 30 27	B 15 0.33 44 30 -14	C 24 0.42 80 - -	> > > > >	C 23 -	C 32 0.09 16 30 14	C 33 0.19 24 - -	> > > > >	C 33 -	D 39 0.42 47 15 -32	C 31 0.09 4 - -	> > > > >	C 35 -	C 23 0.42	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.39 0 - -	> > > > >	A 0 0.04 1 50 49	B 11 0.27 0 - -		A 0 -	C 15 0.05 1 - -		> > > > >	C 15 -						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 0 0.00 0 15 15	C 21 0.50 96 - -	C 22 0.09 14 45 31	C 21 0.72 81 40 -41	D 42 0.41 54 - -	> > > > >	B 18 -	D 42 0.21 29 -	D 39 0.07 0 - -	> > > > >	D 40 -	D 47 0.43 50 15 -35	A 0 0.00 0 - -	> > > > >	D 47 -	C 22 0.66	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	D 39 0.54 32 30 -2	D 40 0.77 56 -	C 30 0.34 22 30 8	D 38 1.47 158 170 12	D 50 0.79 115 37 170 133	> > > > >	F 101 -	C 31 0.47 23 90 67	D 42 0.56 84 20 -	D 36 0.15 20 -	D 39 -	F 243 1.41 229 90 -139	C 26 0.76 153 8 45 37	A 8 0.14 8 - -	F 118 -	F 86 1.24	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 50 0.51 48 -	> > > > >	D 50 0.88 68 -	F 88 0.08 17 - -	> > > > >	E 69 -	D 42 0.52 31 30 -1	C 26 0.40 122 -	F 83 0.03 8 30 22	C 30 -	A 6 0.51 25 45 20	B 14 0.72 242 -	> > > > >	B 13 -	C 24 0.78	
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 0 0 0	A 0 -					A 0 0.29 0		A 0 -	A 0 0.87 0			> > >	A 0 -	
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 118 0.91 47 15 -32	D 54 0.75 79 - -	> > > > >	E 63 0.71 33 15 -18	E 74 0.66 69 - -	> > > > >	D 54 -	C 32 0.43 25 15 -10	B 18 0.28 101 -	> > > > >	B 18 -	C 23 0.74 107 15 -92	A 8 0.56 113 - -	> > > > >	A 10 -	C 23 0.77	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.6B: 2035 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall	
				Eastbound				Westbound				Northbound				Southbound					
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.28 35 100 65	B 15 0.25 44 -> ->	> > > > ->	B 15	F 104 1.13 229 200 -29	B 14 0.22 38 -> ->	B 13 0.06 10 -> ->	E 76	C 24 0.12 9 140 131	F 102 1.12 219 -> ->	A 3 0.70 0 140 140	E 56	F 157 1.06 49 75 26	C 29 0.56 79 -> ->	> > > > ->	D 42	D 54 1.12	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 8 0.37 24 15 -9	A 6 0.46 72 -> ->	A 4 0.05 4 30 26	A 6	A 3 0.15 3 25 22	A 2 0.33 17 -> ->	> > > > ->	A 2	D 51 0.13 16 35 19	D 49 0.02 0 -> ->	> > > > ->	D 50	A 0 0.00 0 15 15	D 49 0.06 0 -> ->	> > > > ->	D 49	A 8 0.4	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 14 0.47 29 15 -14	B 11 0.42 73 -> ->	A 8 0.02 3 30 27	B 11	C 25 0.72 97 30 -67	A 5 0.41 30 -> ->	> > > > ->	A 9	D 44 0.09 15 30 15	D 46 0.20 31 -> ->	> > > > ->	D 46	D 52 0.39 38 15 -23	D 44 0.06 0 -> ->	> > > > ->	D 48	B 15 0.64	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.49 0 -> ->	> > > > ->	A 0	B 12 0.05 1 50 49	A 0 0.35 0 -> ->	> > > > ->	A 0	C 22 0.33 11 -> ->	> > > > ->	> > > > ->	C 22						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 0 0.00 0 15 15	C 26 0.57 130 -> ->	C 25 0.14 26 45 19	C 25	B 11 0.67 10 40 30	A 8 0.45 83 -> ->	> > > > ->	A 8	D 50 0.48 67 -> ->	D 42 0.17 9 -> ->	> > > > ->	D 45	D 52 0.45 39 15 -24	A 0 0.00 0 -> ->	> > > > ->	D 52	C 22 0.63	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	E 69 0.97 140 30 -110	F 103 1.06 211 -> ->	F 82 0.19 47 30 -17	F 93	F 138 1.14 178 170 -8	F 83 1.00 187 -> ->	E 64 0.95 245 170 -75	F 87	E 78 0.94 82 90 8	F 257 1.44 337 108 -> ->	D 54 0.67 108 -> ->	F 193	E 79 0.86 94 90 -4	D 47 0.72 149 35 45 10	D 50 0.17 45 -> ->	E 57	F 114 1.2	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 54 0.34 35 -> ->	> > > > ->	D 54	< < < < <	F 90 0.86 78 -> ->	E 57 0.54 62 -> ->	E 69	F 95 1.16 53 30 -23	B 15 0.93 90 -> ->	A 5 0.16 3 30 27	C 20	F 90 0.90 101 45 -56	A 5 0.50 22 -> ->	> > > > ->	B 17	C 25 1.07	
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 0 0 0	A 0						A 0 0.75 0		A 0		A 0 0.6 0	> > > > ->	A 0		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 234 1.26 70 15 -55	D 46 0.58 77 -> ->	> > > > ->	E 77	D 52 0.59 35 15 -20	D 51 0.75 102 -> ->	> > > > ->	D 51	C 33 0.64 35 15 -20	C 27 0.70 253 -> ->	> > > > ->	C 28	F 1147 3.40 134 15 -119	B 11 0.44 104 -> ->	> > > > ->	F 133	E 68 2.78	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.7A: 2040 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.10 12 100 88	A 9 0.12 20 - -	> > > > -	A 9	F 241 1.47 396 200 -196	A 10 0.22 35 - -	A 8 0.04 5 - -	F 190	C 31 0.09 4 140 136	D 42 0.78 93 0 140	A 1 0.51 0 140	C 20	E 65 0.76 42 75 33	F 278 1.52 250 - -	> > > > -	F 267	F 150 1.48
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 11 0.33 20 15 -5	A 9 0.38 58 - -	A 6 0.03 4 30 26	A 9	A 4 0.05 2 25 23	A 7 > 50 - -	> > > > -	A 7	D 45 0.33 31 35 4	D 38 0.03 0 - -	> > > > -	D 42	A 0 0.00 0 15 15	D 42 0.28 40 - -	> > > > -	D 42	B 12 0.43
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 18 0.36 20 15 -5	B 16 0.43 65 - -	B 13 0.02 3 30 27	B 16	C 24 0.41 47 30 -17	C 24 0.51 111 - -	> > > > -	C 24	C 32 0.11 16 30 14	C 34 0.28 41 - -	> > > > -	C 34	D 45 0.59 67 15 -52	C 33 0.19 28 - -	> > > > -	D 39	C 24 0.54
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.47 0 - -	> > > > -	A 0	B 12 0.04 1 50 49	A 0 0.32 0 - -		A 0	C 17 0.06 2 - -		> > > > -	C 17					
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.10 9 15 6	C 23 0.62 119 - -	B 20 0.10 16 45 29	C 23	D 48 0.80 84 40 -44	B 11 0.49 74 - -	> > > > -	B 20	D 42 0.21 29 -	D 39 0.07 0 -	> > > > -	D 40	D 55 0.63 73 15 -58	D 39 0.01 0 -	> > > > -	D 54	C 24 0.77
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	D 51 0.63 42 30 -12	D 48 0.89 125 -	D 35 0.52 46 30 -16	D 46	F 552 2.12 236 170 -66	D 53 0.86 144 58 170 112	C 24 0.39 58 - -	F 185	D 50 0.78 56 90 34	D 48 0.76 119 66 -	D 42 0.46 66 -	D 47	F 357 1.66 245 90 -155	F 37 0.95 220 45 37	B 12 0.16 8 45 37	F 168	F 126 1.65
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	E 68 0.82 96 -	> > > > -	E 68	< < < < <	F 152 1.13 123 -	D 40 0.10 18 -	F 106	F 507 1.91 73 30 -43	C 31 0.46 133 -	D 42 0.13 34 -	E 78	B 15 0.72 22 45 23	B 17 0.84 289 -	> > > > -	B 17	D 46 1.63
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			B 12 0.01 0	B 12						A 0 0.36 0		A 0		A 0 0.98 0	> > > >	A 0	
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 131 0.99 60 15 -45	D 48 0.77 102 -	> > > > -	E 59	E 78 0.77 36 15 -21	D 44 0.65 84 -	> > > > -	D 47	F 208 1.14 54 15 -39	C 26 0.35 115 -	> > > > -	D 35	F 149 1.22 110 15 -95	B 14 0.68 181 -	> > > > -	C 30	D 38 1.15

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.7B: 2040 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.30 36 100 64	B 15 0.26 46 -> ->	> > > -> ->	B 15	F 203 1.37 289 200 -89	B 15 0.25 42 -> ->	B 13 0.08 12 -> ->	F 147	C 25 0.16 10 140 130	F 141 1.22 247 -> ->	A 4 0.79 0 140 140	E 77	F 203 1.19 55 75 20	C 31 0.64 93 -> ->	> > > -> ->	D 48	F 82 1.31	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 12 0.53 40 15 -25	A 7 0.51 84 -> ->	A 4 0.05 5 30 25	A 7	A 4 0.18 3 25 22	A 2 0.38 22 -> ->	> > > -> ->	A 3	D 52 0.15 16 35 19	D 49 0.02 0 -> ->	> > > -> ->	D 50	A 0 0.00 0 15 15	D 50 0.08 0 -> ->	> > > -> ->	D 50	A 8 0.46	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 18 0.64 31 15 -16	A 8 0.43 70 -> ->	A 6 0.02 2 30 28	A 10	C 24 0.73 99 30 -69	A 4 0.45 29 -> ->	> > > -> ->	A 8	D 50 0.12 16 30 14	D 52 0.25 35 -> ->	> > > -> ->	D 52	E 76 0.69 58 15 -43	D 49 0.08 0 -> ->	> > > -> ->	E 62	B 16 0.72	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.54 0 -> ->	> > > -> ->	A 0	B 14 0.05 1 50 49	A 0 0.4 0 -> ->		A 0	D 26 0.39 14 -> ->		> > > -> ->	D 26						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 23 0.29 25 15 -10	C 26 0.60 142 -> ->	C 24 0.15 28 45 17	C 26	B 10 0.69 7 40 33	A 8 0.52 61 -> ->	> > > -> ->	A 8	D 51 0.51 68 -> ->	D 42 0.17 10 -> ->	> > > -> ->	D 46	E 78 0.79 79 15 -64	D 40 0.04 0 -> ->	> > > -> ->	E 67	C 24 0.73	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	E 79 1.01 151 30 -121	F 126 1.13 229 -> ->	E 65 0.31 58 30 -28	F 107	F 243 1.40 235 170 -65	F 116 1.11 216 -> ->	F 83 1.03 201 170 -31	F 133	F 255 1.42 152 90 -62	F 341 1.63 388 -> ->	E 66 0.83 153 -> ->	F 270	F 80 0.91 93 90 -3	D 53 0.84 166 -> ->	D 48 0.18 32 45 13	E 60	F 153 1.43	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	F 173 1.14 110 -> ->	> > > -> ->	F 173	< < < < <	F 225 1.29 138 -> ->	E 55 0.57 72 -> ->	F 131	F 452 1.96 92 30 -62	B 19 0.99 84 -> ->	A 6 0.22 5 30 25	E 62	F 154 1.07 111 45 -66	A 6 0.57 23 -> ->	> > > -> ->	C 27	E 63 1.73	
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			B 12 0.03 1	B 12						A 0 0.82 0		A 0		A 0 0.68 0	> > >	A 0		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 185 1.17 76 15 -61	D 38 0.52 73 -> ->	> > > -> ->	E 64	D 39 0.49 32 15 -17	D 42 0.69 101 -> ->	> > > -> ->	D 42	F 147 1.15 59 15 -44	D 38 0.84 306 -> ->	> > > -> ->	D 44	F 1321 3.77 150 15 -135	B 17 0.54 151 -> ->	> > > -> ->	F 159	F 80 2.82	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.8A: 2045 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 0.11 13 100 87	A 9 0.12 21 - -	> > > > -	A 9 261 1.52 409 200 -209	F A 10 0.22 36 -	A 8 0.04 5 -	F 206 -	C 31 0.09 4 140 136	D 43 0.80 96 -	A 1 0.53 0 140	C 21 -	F 86 0.85 46 75 29	F 298 1.56 260 -	> > > > -	F 286 -	F 161 1.53 -	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 12 0.34 20 15 -5	A 9 0.39 61 -	A 6 0.03 4 30 26	A 9 4 0.05 2 25 23	A 7 7 0.48 52 -	> > > > -	A 7 -	D 45 0.33 31 35 4	D 38 0.03 0 -	> > > > -	D 42 -	A 0 0.00 0 15 15	D 42 0.30 42 -	> > > > -	D 42 -	B 12 0.44 -	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 19 0.38 20 15 -5	B 16 0.44 67 -	B 12 0.02 3 30 27	B 16 25 0.43 47 30 -17	C C 24 0.52 122 -	> > > > -	C 24 -	C 32 0.11 16 30 14	C 35 0.29 44 -	> > > > -	C 34 -	D 45 0.59 67 15 -52	C 33 0.21 31 -	> > > > -	D 39 -	C 24 0.55 -	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.49 0 -	> > > > -	A 0 12 0.04 1 50 49	B A 0 0.33 0 -		A 0 -	C 18 0.06 2 -		> > > > -	C 18 -						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 17 0.10 8 15 7	C 24 0.65 123 -	C 20 0.10 16 45 29	C 23 51 0.81 84 40 -44	D B 12 0.51 77 -	> > > > -	C 21 -	D 42 0.21 29 -	D 39 0.07 0 -	> > > > -	D 40 -	D 55 0.63 73 15 -58	D 39 0.01 0 -	> > > > -	D 54 -	C 25 0.78 -	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	E 58 0.67 44 30 -14	D 51 0.91 151 -	D 37 0.52 47 30 -17	D 48 594 2.21 244 170 -74	F E 55 0.42 64 170 106	C F 196 -	D 52 0.79 57 90 33	D 49 0.79 124 -	D 43 0.49 70 -	D 48 -	F 404 1.76 259 90 -169	F 44 0.99 234 -	B 14 0.18 9 45 36	F 192 -	F 139 1.73 -		
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	E 68 0.82 96 -	> > > > -	E 68 152 1.13 123 -	F D 40 0.10 18 -	F 106 -	F 505 1.91 72 30 -42	C 32 0.48 140 -	D 40 0.13 33 -	E 76 -	B 18 0.76 26 45 19	B 18 0.88 317 -	> > > > -	B 18 -	D 46 1.64 -		
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			B 14 0.01 0	B 14 -					A 0 0.38 0		A 0 -		A 0 1.01 0	> > >	A 0 -		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 134 1.00 60 15 -45	D 48 0.77 102 -	> > > > -	E 59 81 0.78 38 15 -23	F D 44 0.66 86 -	> > > > -	D 47 -	F 214 1.16 55 15 -40	C 26 0.36 122 -	> > > > -	D 36 -	F 208 1.36 126 15 -111	B 16 0.72 202 -	> > > > -	D 38 -	D 42 1.25 -	

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LOS - Level of Service

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V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 6.8B: 2045 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.32 39 100 61	B 15 0.27 48 - -	> > > -> ->	B 16	F 230 1.43 302 200 -102	B 15 0.26 44 - -	B 13 0.08 12 - -	F 165	C 25 0.18 10 140 130	F 159 1.26 259 - -	A 5 0.82 0 140	F 87	F 222 1.25 57 75 18	C 31 0.66 96 - -	> > > -> ->	D 51	F 92 1.36	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 13 0.55 43 15 -28	A 7 0.53 89 - -	A 4 0.05 5 30 25	A 8	A 4 0.20 3 25 22	A 2 0.40 23 - -	> > > -> ->	A 3	D 52 0.15 16 35 19	D 49 0.02 0 -> ->	> > > -> ->	D 50	A 0 0.00 0 15 15	D 50 0.08 3 -> ->	> > > -> ->	D 50	A 8 0.48	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 17 0.63 30 15 -15	A 7 0.44 68 - -	A 5 0.02 2 30 28	A 9	C 24 0.74 101 30 -71	A 4 0.45 29 - -	> > > -> ->	A 8	D 53 0.14 16 30 14	E 55 0.28 38 -> ->	> > > -> ->	D 55	F 104 0.84 67 15 -52	D 51 0.08 0 -> ->	> > > -> ->	E 76	B 16 0.75	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.56 0 -> ->	> > > -> ->	A 0	B 14 0.06 1 50 49	A 0 0.41 0 -> ->		A 0	D 29 0.42 15 -> ->		> > > -> ->	D 29						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 24 0.30 25 15 -10	C 27 0.63 153 -> ->	C 24 0.15 29 45 16	C 27	B 11 0.71 6 40 34	A 8 0.53 59 -> ->	> > > -> ->	A 9	D 51 0.51 68 -> ->	D 42 0.17 11 -> ->	> > > -> ->	D 46	E 78 0.79 79 15 -64	D 40 0.04 0 -> ->	> > > -> ->	E 67	C 24 0.75	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 94 1.07 164 30 -134	F 144 1.17 243 -> ->	E 64 0.32 60 30 -30	F 122	F 263 1.45 246 170 -76	F 133 1.15 228 -> ->	F 97 1.07 220 170 -50	F 149	F 283 1.49 160 90 -70	F 367 1.69 406 -> ->	E 71 0.87 164 -> ->	F 292	F 86 0.95 100 90 -10	F 56 0.87 176 -> ->	D 49 0.19 35 45 10	E 64	F 168 1.48	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	F < 1.14 < 110 -> ->	> > > > ->	F 173	< < < < <	F < 225 1.29 138 -> ->	E 55 0.57 72 -> ->	F 131	F 537 2.15 91 30 -61	C 34 1.04 85 -> ->	A 6 0.22 5 30 25	F 82	F 156 1.07 112 45 -67	A 6 0.59 24 -> ->	> > > -> ->	C 26	E 72 1.86	
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			B 12 0.03 1	B 12						A 0 0.86 0		A 0		A 0 0.7 0	> > > -> ->	A 0		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	F 181 1.17 78 15 -63	D 37 0.51 74 -> ->	> > > -> ->	E 62	D 38 0.50 33 15 -18	D 41 0.68 103 -> ->	> > > -> ->	D 41	F 222 1.34 60 15 -45	D 42 0.90 315 -> ->	> > > -> ->	D 50	F 1364 3.87 154 15 -139	B 19 0.57 162 -> ->	> > > -> ->	F 163	F 84 2.86	

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LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



2030 Horizon

The previously identified critical movements under 2030 background traffic conditions are further exacerbated under total traffic conditions. No additional critical movements are identified due to the addition of site-generated traffic.

The previously identified queue storage deficiencies noted under background traffic conditions are further exacerbated by the addition of site-generated traffic. The majority of newly identified queue deficiencies are reported at the new proposed auxiliary turn lanes (i.e., on new minor collectors and the east-west major collector) where a 15-metre storage length was initially assumed for analysis purposes. The operational results provide indication of the storage lengths required to accommodate the development.

2035, 2040, and 2045 Horizons

The previously identified critical movements under 2035, 2040, and 2045 background traffic conditions are further exacerbated under total traffic conditions. The additional critical movements identified due to the addition of site-generated traffic includes several movements approaching or exceeding capacity at the intersections of Green Lane and Bathurst Street, Yonge Street and Existing Commercial Driveway/Minor Collector, and Yonge Street and East-West Major Collector.

The previously identified queue storage deficiencies noted under background traffic conditions are further exacerbated by the addition of site-generated traffic. The majority of newly identified queue deficiencies are reported at the new proposed auxiliary turn lanes (i.e., on new minor collectors and the east-west major collector) where a 15-metre storage length was initially assumed for analysis purposes. The operational results provide indication of the storage lengths required to accommodate the development.



6.3 Mitigation Measures

From the preceding operational analyses conducted, several critical movements are identified at the study area intersections during the AM and PM peak hours under future background and total traffic conditions. These critical movements are mostly triggered by background growth and site contributions generated from other area developments in the remaining Green Lane Secondary Plan Area.

Table 6.9 provides a summary of the identified critical movements under 2030, 2035, 2040, and 2045 background traffic conditions, along with the corresponding applicable remedial measures considered to mitigate/improve the critical movements.

These remedial measures are applicable to future total traffic conditions as well. Additional mitigation measures that are proposed to address critical movements identified under 2030, 2035, 2040, and 2045 total traffic conditions include the following:

2030 horizon:

- ▶ At Green Lane and Bathurst Street, provision of westbound dual left-turn lanes and a corresponding fully protected left-turn signal phase, an advanced southbound left-turn phase during the PM peak hour, and increase of signal cycle lengths during the AM and PM peak hours.

2035 horizon:

- ▶ At Yonge Street and Existing Commercial Driveway/Minor Collector, provision of an eastbound right-turn lane and a northbound advanced left-turn signal phase; and
- ▶ At Yonge Street and East-West Major Collector, provision of an eastbound and westbound auxiliary right-turn lane.

2040 and 2045 horizons:

- ▶ At Yonge Street and Existing Commercial Driveway/Minor Collector, provision of an eastbound right-turn lane and a northbound advanced left-turn signal phase.

Figure 6.1 illustrates the recommended future lane configurations and traffic control at the study area intersections.



TABLE 6.9: SUMMARY OF CRITICAL MOVEMENTS (V/C) AND PROPOSED REMEDIAL MEASURES (BACKGROUND CONDITIONS)

Intersection/Movement		AM V/C	PM V/C	Proposed Mitigation Measures
2030 Background Conditions				
Green Lane and Bathurst Street	WBL	0.93	0.88	Implement the new east-west major collector by 2030.
Green Lane and Yonge Street	EBL	0.64	1.10	Widening of Yonge Street (north of Green Lane) from four to six lanes.
	EBT	0.75	1.07	
	WBL	1.23	1.13	
	WBT	0.82	1.03	
	WBR	0.31	1.00	
	NBT	0.39	1.03	
	SBL	1.55	0.93	
2035 Background Conditions				
Green Lane and Bathurst Street	WBL	0.86	0.86	Provision of westbound dual left-turn lanes and a fully protected left-turn phase.
	SBTR	0.98	0.87	Provision of an advanced southbound left-turn phase (permitted and protected) during the PM peak hour. Increase signal cycle length to 130 seconds during the AM peak hour and 140 seconds during the PM peak hour.
Green Lane and Yonge Street	EBL	0.54	0.97	Widening of Yonge Street (north of Green Lane) from four to six lanes.
	EBT	0.71	1.01	
	WBL	1.35	1.14	
	WBT	0.79	0.91	
	NBT	0.50	1.23	
	SBL	1.23	0.80	
Yonge Street and Church Driveway/Existing Commercial Driveway	NBT	0.37	0.90	Widening of Yonge Street (north of Green Lane) from four to six lanes.
Yonge Street and East-West Major Collector	EBL	0.44	1.34	Provision of advanced eastbound, westbound, northbound, and southbound left-turn phases (permitted and protected).
	WBL	0.41	1.01	
	WBTR	0.82	1.00	
	SBL	0.63	2.34	
2040 Background Conditions				
Green Lane and Bathurst Street	WBL	0.98	0.86	Provision of westbound dual left-turn lanes and a fully protected left-turn phase.
	NBT	0.59	1.04	
	SBTR	1.09	0.51	



Intersection/Movement		AM V/C	PM V/C	Proposed Mitigation Measures
				Provision of an advanced southbound left-turn phase (permitted and protected) during the PM peak hour. Increase signal cycle length to 130 seconds during the AM peak hour and 140 seconds during the PM peak hour.
Green Lane and Yonge Street	EBL	0.61	1.01	Widening of Yonge Street (north of Green Lane) from four to six lanes.
	EBT	0.80	1.05	
	WBL	1.89	1.40	
	WBT	0.84	0.99	
	WBR	0.30	0.88	
	NBT	0.65	1.36	
	SBL	1.38	0.83	
Yonge Street and Church Driveway/Existing Commercial Driveway	WBLT	0.85	0.88	Widening of Yonge Street (north of Green Lane) from four to six lanes.
	NBT	0.42	0.97	
	SBL	0.63	0.97	
Yonge Street and East-West Major Collector	EBL	0.46	1.42	Provision of eastbound and westbound right-turn lanes.
	WBL	0.57	1.02	
	WBTR	1.00	1.11	Provision of advanced eastbound, westbound, northbound, and southbound left-turn phases (permitted and protected).
	SBL	0.87	3.23	
2045 Background Conditions				
Green Lane and Bathurst Street	WBL	1.02	0.95	Provision of westbound dual left-turn lanes and a fully protected left-turn phase.
	NBT	0.62	1.01	Provision of an advanced southbound left-turn phase (permitted and protected) during the PM peak hour.
	SBTR	1.14	0.49	Increase signal cycle length to 130 seconds during the AM peak hour and 140 seconds during the PM peak hour.
Green Lane and Yonge Street	EBL	0.65	1.07	Widening of Yonge Street (north of Green Lane) from four to six lanes.
	EBT	0.82	1.09	
	WBL	2.00	1.45	
	WBT	0.87	1.03	
	WBR	0.33	0.92	



Intersection/Movement		AM V/C	PM V/C	Proposed Mitigation Measures
	NBT	0.67	1.43	
	SBL	1.48	0.86	
Yonge Street and Church Driveway/Existing Commercial Driveway	WBLT	0.85	0.88	Widening of Yonge Street (north of Green Lane) from four to six lanes.
	NBT	0.44	1.02	
	SBL	0.66	0.97	
Yonge Street and East-West Major Collector	EBL	0.49	1.47	Provision of eastbound and westbound right-turn lanes.
	WBL	0.62	1.11	
	WBTR	1.02	1.15	Provision of advanced eastbound, westbound, northbound, and southbound left-turn phases (permitted and protected).
	SBL	0.95	3.94	



Detailed discussion/rationale regarding each mitigation measure is provided as follows:

Green Lane and Bathurst Street

To improve the poor traffic operational performance at the intersection of Green Lane and Bathurst Street, intersection geometric improvements were investigated. The Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads recommends the consideration of dual left-turn lanes at intersections where left turning volumes exceed 300 vehicles per hour.

Based upon this guidance, the provision of westbound dual left-turn lanes could be considered for implementation. The westbound dual left-turn movement projects a volume greater than 450 vehicles per peak hour under all horizons and currently there are two receiving lanes to accommodate the westbound dual left-turn movements.

Accompanying the westbound dual left-turn lanes, the westbound left-turn phase would provide a fully protected left-turn phase.

To further improve traffic operations at Green Lane and Bathurst Street, it is also recommended an advanced southbound left-turn phase be provided during the PM peak hour, and traffic signal cycle lengths be increased to 130 seconds during the AM peak hour and to 140 seconds during the PM peak hour. The recommended cycle lengths are consistent with the cycle lengths used at adjacent signalized intersections.

Green Lane and Yonge Street

As noted in **Section 5.2.1**, Yonge Street between Davis Drive and Green Lane is proposed to be widened from four lanes to six lanes, including high occupancy vehicle (HOV) lanes by 2027. This road improvement has been accounted for in all future traffic analyses. However, north of Green Lane, the Yonge Street corridor is analyzed as existing conditions with a four-lane cross-section (two travel lanes in each direction).

It is indicated in Figure 4-2 of the East-West Road Corridor EA Study that at Yonge Street and the east-west major collector, the northbound and southbound approaches will each provide a left-turn lane, two through lanes, and a shared through/right-turn lane. This implies Yonge Street north of Green Lane will likely be widened from four to six lanes in the future.

Given the projected poor operations under existing and future traffic conditions, it is recommended Yonge Street be widened from four to



six lanes north of Green Lane extending to the new east-west collector, similar as the Yonge Street widening improvement south of Green Lane.

Yonge Street and Existing Commercial Driveway/Minor Collector

The eastbound approach is currently modelled as a shared left/through/right turn lane under all future total analyses. It is recommended an eastbound right-turn lane be provided due to the projected high eastbound right-turn volume.

Based on the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (June 2017) section 2.3.5.2, the provision of a right-turn auxiliary lane is recommended on urban and rural roads without separate signal indication when the volume of right-turning traffic is 10% to 20% of the total approaching volume. Under future total traffic conditions, the eastbound right-turn volume is approximately 60 to 70% of the eastbound approaching volume and would warrant a separate lane.

Currently, an advanced southbound left-turn phase is provided at Yonge Street and Existing Commercial Driveway/Minor Collector. Given the northbound and southbound left-turn volumes are forecast to have similar magnitudes during the AM and PM peak hours, it is recommended a northbound advanced left-turn phase be provided to improve the operational performance for the northbound approach.

Yonge Street and East-West Major Collector

The need for auxiliary right-turn lanes was investigated at the intersection of Yonge Street and East-West Major Collector. Following TAC guidance, the provision of a right-turn auxiliary lane is recommended on urban and rural roads without separate signal indication when the volume of right-turning traffic is 10% to 20% of the total approaching volume.

Under future background and total traffic conditions, the eastbound and westbound right-turn volumes account for more than 15% of the approaching volumes warranting consideration of auxiliary turn lanes.

Additionally, from an operational perspective, it is recommended an advanced left-turn phase be provided at each intersection approach.

Storage Lane Provisions

Table 6.10 summarizes the recommended storage lengths for the proposed auxiliary turn lanes to accommodate projected queue demands.



TABLE 6.10: RECOMMENDED STORAGE LENGTHS FOR PROPOSED AUXILIARY TURN LANES

Intersection	Movement	Recommended Storage Length
Green Lane and Lady Gwillim Avenue/Minor Collector	EBL	40 m
Green Lane and Woodspring Avenue/Minor Collector	EBL	40 m
	SBL	70 m
Green Lane and Existing Commercial Driveway/Minor Collector	EBL	25 m
	SBL	80 m
Yonge Street and Existing Commercial Driveway/Minor Collector	EBR	40 m
Yonge Street and East-West Major Collector	EBL	55 m
	EBR	40 m
	WBL	40 m
	WBR	60 m
	NBL	45 m
	SBL	120 m

Implementation/Feasibility

Reference is made to the Regional Official Plan 2022, Map 11 – Planned Street Widths.

Per the map, the following Regional Planned Street Widths are identified:

- ▶ Yonge Street: Up to 45 metres right-of-way;
- ▶ Green Lane East, between Yonge Street and railway line: Up to 45 metres right-of-way;
- ▶ Green Lane West, between Bathurst Street and Yonge Street: Up to 41 metres right-of-way; and
- ▶ Bathurst Street: Up to 36 metres right-of-way.

Based upon the identified right-of-way widths, it is anticipated the improvements noted above can be accommodated within the identified street widths.

6.4 Total Traffic Operations with Mitigation Measures

Table 6.11A and **Table 6.11B** present the 2045 total traffic operational results (representative of the worst-case scenario) with the proposed



mitigation measures during the AM and PM peak hours, respectively. That is, the mitigation measures triggered by background traffic conditions, and the additional mitigation measures required to accommodate the development of the subject lands. **Appendix J** contains the Synchro analysis outputs for reference.

It is noted an increased saturation flow rate of 2,000 vehicles per hour per lane (vphpl) is used in this analysis. The previously conducted traffic operational analyses uses a saturation flow rate of 1,900 vphpl, which represents the Synchro software default value.

A higher saturation flow rate is utilized based on the following rationale:

- ▶ Saturation flow rate represents the maximum number of vehicles that can pass through an intersection during one hour of continuous green time under the prevailing traffic and roadway conditions.

As the NW Secondary Plan Area and nearby subdivisions develop, a higher saturation flow rate might be considered for use. That is, development will lead to an increase in traffic and increased vehicle density on the study area roadways/intersections. Therefore, vehicle headways will be shorter resulting in a higher saturation flow rate; and
- ▶ The saturation flow rate of 2,000 vphpl is supported by the York Region *Transportation Mobility Plan Guidelines for Development Applications* (November 2016), which states a default ideal saturation flow of 2,000 vehicles per hour per lane may be used for all movements. However, the Region will not accept any value above 2,000 vehicles per hour per lane unless it is approved by the Region and/or supported by field measurements for the existing conditions¹¹.

¹¹ York Region, *Transportation Mobility Plan Guidelines for Development Applications*, November 2016, p18.



TABLE 6.11A: 2045 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS WITH MITIGATION MEASURES

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 96 0.75 64 100 36	F 99 0.86 107 -> ->	> -> -> -> ->	F 98 0.88 161 200 39	D 46 0.27 61 -> ->	C 21 0.03 8 -> ->	D 40 0.10 4 140 136	C 28 0.47 86 -> ->	A 1 0.50 0 300 300	B 14 0.33 28 75 47	C 27 0.92 202 -> ->	D 45 -> -> -> ->	> -> -> -> ->	D 44 -> -> -> ->	D 36 0.9 -> -> ->		
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 11 0.33 20 40 20	A 9 0.37 59 30 ->	A 6 0.03 4 30 26	A 9 0.05 5 25 20	B 10 0.46 87 -> ->	> -> -> -> ->	B 15 0.31 30 35 5	D 44 0.03 0 -> ->	D 38 -> -> -> ->	D 41 0.00 0 15 15	A 0 0.28 42 -> ->	D 42 -> -> -> ->	> -> -> -> ->	D 42 -> -> -> ->	B 16 0.42 -> -> ->		
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 18 0.36 20 40 20	B 16 0.42 67 -> ->	B 13 0.02 3 30 27	B 16 0.41 32 30 -2	B 14 0.50 53 -> ->	> -> -> -> ->	B 14 0.10 16 30 14	C 32 0.28 43 -> ->	C 34 -> -> -> ->	C 34 0.56 66 70 4	D 44 0.20 30 -> ->	C 33 -> -> -> ->	> -> -> -> ->	D 38 -> -> -> ->	C 20 0.52 -> -> ->		
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.49 0 -> ->	> -> -> -> ->	A 0 0.04 1 50 49	B 12 0.33 0 -> ->	A 0 -> -> -> ->	A 0 0.06 2 -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	C 18 -> -> -> ->	
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.10 9 25 16	C 23 0.61 122 -> ->	B 20 0.09 16 45 29	C 22 0.79 78 40 -38	D 51 0.48 42 -> ->	A 7 -> -> -> ->	> -> -> -> ->	B 17 0.20 29 -> ->	D 42 0.06 0 -> ->	D 39 -> -> -> ->	D 40 -> -> -> ->	D 40 0.60 72 80 8	D 53 0.01 0 -> ->	D 39 -> -> -> ->	> -> -> -> ->	D 52 -> -> -> ->	C 23 0.75 -> -> ->
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	E 65 0.72 55 30 -25	F 134 1.15 181 -> ->	E 65 0.54 66 30 -36	F 111 1.44 211 170 -41	F 253 0.85 141 -> ->	D 52 0.34 49 170 121	B 15 -> -> -> ->	F 100 0.74 43 90 47	D 52 1.15 167 -> ->	F 58 0.60 73 -> ->	F 105 0.60 197 -> ->	E 67 1.01 117 90 -107	C 23 0.62 13 -> ->	B 13 0.13 45 32	D 41 -> -> -> ->	F 80 1.26 -> -> ->	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< 0.45 34 -> ->	D 48 0.24 33 40 7	D 44 -> -> -> ->	D 45 0.63 85 -> ->	E 69 0.83 17 -> ->	D 43 0.09 -> ->	> -> -> -> ->	E 58 0.63 17 30 13	D 39 0.32 71 -> ->	A 9 0.12 18 30 12	A 7 -> -> -> ->	B 11 0.60 50 45 -5	B 18 0.65 83 -> ->	B 12 -> -> -> ->	> -> -> -> ->	B 12 -> -> -> ->	B 18 0.7 -> -> ->
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q Stor. Avail.			A 10 0.01 0	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->	A 10 -> -> -> ->
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	D 40 0.51 36 55 19	D 52 0.70 86 -> ->	D 44 0.22 31 40 9	D 48 0.37 24 40 16	D 55 0.72 79 -> ->	D 45 0.10 19 60 41	D 51 0.46 24 45 21	B 36 0.48 76 -> ->	B 17 -> -> -> ->	B 18 -> -> -> ->	C 30 0.79 78 120 42	C 24 0.79 219 -> ->	C 24 -> -> -> ->	> -> -> -> ->	C 25 -> -> -> ->	C 30 0.78 -> -> ->	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



TABLE 6.11B: 2045 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS WITH MITIGATION MEASURES

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 125 1.00 107 100 -7	F 82 0.86 125 -> ->	> -> -> -> ->	F 100	F 84 0.99 161 200 39	C 28 0.30 69 -> ->	C 25 0.05 11 -> ->	E 67	C 26 0.10 10 140 130	E 64 1.00 283 -> 300	A 4 0.78 0 300	D 36	D 46 0.69 32 75 43	C 25 0.45 95 -> ->	> -> -> -> ->	C 27	D 47 1.03	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 12 0.52 40 40 0	A 7 0.50 85 30 ->	A 4 0.05 5 25 25	A 7	A 4 0.19 3 25 22	A 3 -> 21 -> ->	> -> -> -> ->	A 3	D 51 0.15 16 35 19	D 49 0.02 0 -> ->	> -> -> -> ->	D 50	A 0 0.00 0 15 15	D 50 0.08 3 -> ->	> -> -> -> ->	D 50	A 8 0.46	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 26 0.70 40 40 0	B 11 0.46 82 -> ->	A 8 0.02 3 30 27	B 13	C 35 0.82 109 30 -79	A 5 0.47 34 -> ->	> -> -> -> ->	B 10	D 44 0.09 15 30 15	D 47 0.27 41 -> ->	> -> -> -> ->	D 47	D 55 0.48 49 70 21	D 44 0.08 0 -> ->	> -> -> -> ->	D 49	B 17 0.74	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.56 0 -> ->	> -> -> -> ->	A 0	B 14 0.05 1 50 49	A 0 0.41 0 -> ->		A 0	D 27 0.4 14 -> ->		> -> -> -> ->	D 27						
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.28 25 25 0	C 25 0.59 142 -> ->	C 23 0.14 27 45 18	C 25	B 15 0.69 5 40 35	A 7 0.50 60 -> ->	> -> -> -> ->	A 8	D 50 0.48 67 -> ->	D 42 0.16 11 -> ->	> -> -> -> ->	D 45	E 72 0.75 76 80 4	D 40 0.04 0 -> ->	> -> -> -> ->	E 63	C 23 0.72	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 199 1.31 183 30 -153	F 136 1.15 240 -> ->	E 62 0.30 72 30 -42	F 139	F 375 1.71 260 170 -90	F 110 1.09 221 -> ->	F 124 1.13 248 170 -78	F 172	D 43 0.84 87 90 3	F 149 1.21 346 -> ->	D 44 0.64 119 -> ->	F 113	F 198 1.24 137 90 -47	D 40 0.58 71 -> ->	D 42 0.17 22 45 23	F 86	F 129 1.45	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< -> -> -> ->	E 62 0.62 42 -> ->	D 48 0.07 18 40 22	D 53	< -> -> -> ->	F 84 0.88 106 -> ->	D 49 0.23 32 -> ->	E 65	C 32 0.82 45 30 -15	C 32 0.72 172 -> 4	C 26 0.22 26 30	C 32	D 54 0.85 83 45 -38	C 31 0.61 125 -> ->	> -> -> -> ->	C 34	D 37 0.85	
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 9 0.02 0	A 9						A 0 0.57 0		A 0		A 0 0.42 0	> -> -> ->	A 0		
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	E 60 0.76 50 55 5	E 56 0.70 88 -> ->	D 47 0.10 19 40 21	E 56	D 42 0.44 33 40 7	E 60 0.79 101 -> ->	D 51 0.44 57 60 3	E 56	D 42 0.58 37 45 8	C 24 0.95 96 -> ->	> -> -> -> ->	C 24	F 86 0.92 118 120 2	C 23 0.60 156 -> ->	> -> -> -> ->	C 30	C 34 0.9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



With the proposed mitigation measures and assessment with a higher saturation flow rate, all of the study area intersections are forecast to operate at acceptable levels of service and with all movements operating within capacity.

The exceptions include several movements at Green Lane and Yonge Street forecast to continue to be operating over-capacity during the AM and PM peak hours, and several movements at Green Lane and Bathurst Street are forecast to continue to be operating at-capacity during the PM peak hour.

The 95th percentile queue lengths were reviewed for all turn lanes against provided storage. Queue lengths for through movements were also checked. No spillback issues were found, except for the following movements:

- ▶ The westbound left-turn movement at Green Lane and Woodspring Avenue/Minor Collector with a 79-metre storage deficiency during the PM peak hour. This is not considered a critical issue as a two-way left-turn lane is provided beyond the auxiliary left-turn lane which provides additional queue storage without blocking the adjacent travel lane;
- ▶ The westbound left-turn movement at Green Lane and Existing Commercial Driveway/Minor Collector with a 38-metre storage deficiency during the AM peak hour. This is not considered a critical issue as a two-way left-turn lane is provided beyond the auxiliary left-turn lane which provides additional queue storage without blocking the adjacent travel lane;
- ▶ Several movements at Green Lane and Yonge Street; and
- ▶ The northbound and southbound left-turn movements at Yonge Street and Existing Commercial Driveway/Minor Collector with a 15-metre and 38-metre storage deficiency, respectively, during the PM peak hour. This is not a critical issue as the 95th percentile queue is noted as only have a five percent probability of occurring during the analysis period. It is not typical of what a motorist would experience on average. The 50th percentile average queue is estimated to be approximately 60 metres which would be accommodated by the existing storage and taper and is not anticipated to block the adjacent travel lane.



6.5 Sensitivity Analysis

6.5.1 Modal Split

The preceding future total traffic operations represent a conservative approach (i.e., errs on the high side) as only a 5% modal share reduction was accounted for.

This 5% modal share reduction is reflective of the information obtained from the 2016 TTS data. However, it is recognized travel by non-auto modes could be greater under future conditions once future supporting infrastructure becomes available and with the successful implementation of a Transportation Demand Management (TDM) Plan to further promote and leverage use of alternative travel modes.

A sensitivity analysis of 2045 total traffic conditions is undertaken employing 10% and 20% modal share reductions assumed for site trip generation. The modal share reductions are applied to both site generated and other area background traffic.

Table 6.12A and **Table 6.12B** present the 2045 total traffic operational results with the proposed mitigation measures and a 10% mode share reduction during the AM and PM peak hours, respectively.

Table 6.13A and **Table 6.13B** present the 2045 total traffic operational results with the proposed mitigation measures and a 20% mode share reduction during the AM and PM peak hours, respectively.

Appendix K contains the Synchro analysis outputs for reference.

The sensitivity analysis results indicate that with higher mode share reductions applied, the identified critical movements at Green Lane with Yonge Street and Bathurst Street would be slightly improved in terms of traffic operational performance. However, several over-capacity issues are still forecast at the Green Lane and Yonge Street intersection under the 2045 horizon if the projected traffic forecasts materialize (i.e., background growth occurs as projected).

It is recommended that Transportation Demand Management (TDM) measures be considered and implemented to facilitate a modal shift to further reduce reliance on the private automobile and to achieve a higher non-auto mode share.



TABLE 6.12A: 2045 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS (SENSITIVITY ANALYSIS – 10% MODE SHARE REDUCTION)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 81 0.65 63 100 37	F 81 0.76 105 -> ->	> > -> ->	F 81	D 45 0.87 154 200 46	B 20 0.26 60 -> ->	B 17 0.03 8 -> ->	D 40	C 25 0.10 4 140 136	C 28 0.46 84 0 300	A 1 0.49 0 -> 300	B 14	C 27 0.33 28 75 47	D 44 0.90 195 -> ->	> > -> ->	D 43	C 34 0.88
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 11 0.30 18 40 22	A 9 0.36 58 -> 26	A 6 0.03 4 30 ->	A 9	B 10 0.05 5 25 20	B 15 0.45 84 -> ->	> > -> ->	B 15	D 43 0.30 30 35 5	D 38 0.03 0 -> ->	> > -> ->	D 41	A 0 0.00 0 15 15	D 41 0.24 36 -> ->	> > -> ->	D 41	B 16 0.41
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 17 0.33 20 40 20	B 16 0.42 66 -> ->	B 13 0.02 3 30 27	B 16	B 16 0.40 32 30 -2	B 13 0.49 51 -> ->	> > -> ->	B 14	C 32 0.10 16 30 14	C 34 0.27 42 -> ->	> > -> ->	C 34	D 42 0.53 62 70 8	C 32 0.17 26 -> ->	> > -> ->	D 37	B 20 0.5
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.48 0 -> ->	> > -> ->	A 0	B 12 0.04 1 50 49	A 0 0.32 0 -> ->		A 0	C 18 0.06 2 -> ->		> > -> ->	C 18					
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.09 9 25 16	C 22 0.59 120 -> ->	B 20 0.09 16 45 29	C 22	D 50 0.78 78 40 -38	A 7 0.47 41 -> ->	> > -> ->	B 17	D 42 0.20 29 -> ->	D 39 0.06 0 -> ->	> > -> ->	D 40	D 51 0.56 68 80 12	D 39 0.01 0 -> ->	> > -> ->	D 50	C 23 0.74
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	E 62 0.71 54 30 -24	F 124 1.13 175 -> ->	E 65 0.50 63 30 -33	F 104	F 234 1.39 203 170 -33	D 51 0.84 137 -> ->	B 15 0.34 48 170 122	F 93	D 49 0.71 40 90 50	F 126 1.12 160 68 -> ->	E 56 0.56 68 -> ->	F 97	E 65 1.01 195 90 -105	C 23 0.61 113 -> ->	B 13 0.13 14 45 31	D 40	E 76 1.23
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 48 0.43 32 -> ->	D 45 0.22 30 40 10	D 46	< < < < <	E 68 0.81 79 -> ->	D 44 0.09 17 -> ->	E 58	D 35 0.58 15 30 15	A 8 0.32 72 -> 13	A 6 0.11 17 30	B 10	B 17 0.58 49 45 -4	B 11 0.63 81 -> ->	> > -> ->	B 12	B 17 0.69
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 10 0.01 0	A 10						A 0 0.25 0		A 0		A 0 0.6 0	> > ->	A 0	
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	D 40 0.48 35 55 20	D 52 0.69 82 -> ->	D 45 0.19 28 40 12	D 49	D 43 0.36 24 40 16	D 55 0.71 76 -> ->	D 46 0.10 19 60 41	D 51	C 34 0.45 24 45 21	B 17 0.47 74 -> ->	> > -> ->	B 18	C 27 0.77 74 120 46	C 23 0.78 217 -> ->	> > -> ->	C 24	C 29 0.77

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



TABLE 6.12B: 2045 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS (SENSITIVITY ANALYSIS – 10% MODE SHARE REDUCTION)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 119 0.98 105 100 -5	F 81 0.85 122 - ->	> -> -> -> ->	F 97	E 77 0.96 154 200 46	C 28 0.30 68 - ->	C 25 0.05 11 - ->	E 62	C 26 0.09 10 140 130	E 60 0.98 274 - 300	A 3 0.76 0 300	C 34	D 46 0.68 32 75 43	C 24 0.43 92 - ->	> -> -> -> ->	C 27	D 44 1	
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 10 0.48 34 40 6	A 7 0.49 83 - -	A 4 0.05 5 30 25	A 7	A 4 0.18 3 25 22	A 3 0.37 21 -> ->	> -> -> -> ->	A 3	D 51 0.14 16 35 19	D 49 0.02 0 -> ->	> -> -> -> ->	D 50	A 0 0.00 0 15 15	D 50 0.07 0 -> ->	> -> -> -> ->	D 50	A 8 0.43	
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.64 33 40 7	B 11 0.45 81 - -	A 8 0.02 3 30 27	B 12	C 32 0.80 108 30 -78	A 5 0.46 34 -> ->	> -> -> -> ->	A 10	D 44 0.09 15 30 15	D 47 0.26 40 -> ->	> -> -> -> ->	D 47	D 54 0.45 46 70 24	D 44 0.07 0 -> ->	> -> -> -> ->	D 48	B 16 0.72	
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.	-	A 0 0.56 0 -> ->	> -> -> -> ->	A 0	B 14 0.05 1 50 49	A 0 0.4 0 -> ->	-	A 0	D 27 0.39 14 -> ->	-	> -> -> -> ->	D 27	-	-	-	-	-	-
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.25 23 25 2	C 25 0.58 140 -> ->	C 23 0.14 27 45 18	C 25	B 14 0.68 6 40 34	A 7 0.49 58 -> ->	> -> -> -> ->	A 8	D 50 0.48 67 -> ->	D 42 0.16 11 -> ->	> -> -> -> ->	D 45	E 68 0.71 69 80 11	D 40 0.03 0 -> ->	> -> -> -> ->	E 60	C 23 0.7	
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 199 1.31 184 30 -154	F 130 1.13 235 -> ->	E 63 0.29 70 30 -40	F 136	F 354 1.66 251 170 -81	F 105 1.08 216 -> ->	F 120 1.12 243 170 -73	F 163	D 39 0.81 71 90 19	F 140 1.19 338 -> ->	D 42 0.61 112 -> ->	F 107	F 194 1.23 135 90 -45	D 39 0.56 68 -> ->	D 42 0.16 21 45 24	F 85	F 124 1.42	
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< -> -> -> ->	E 59 0.58 40 -> ->	D 48 0.07 17 40 23	D 53	< -> -> -> ->	E 80 0.85 95 -> ->	D 50 0.22 30 -> ->	E 63	C 29 0.79 40 30 -10	C 31 0.70 174 -> ->	C 24 0.20 24 30 6	C 30	D 53 0.84 80 45 -35	C 29 0.58 123 -> ->	> -> -> -> ->	C 32	C 35 0.83	
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q	-	-	A 9 0.01 0	A 9	-	-	-	-	-	A 0 0.56 0	-	A 0	-	A 0 0.42 0	-	> -> ->	A 0	-
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	E 58 0.73 49 55 6	E 56 0.69 84 -> ->	D 48 0.07 17 40 23	E 55	D 43 0.43 32 40 8	E 60 0.78 97 -> ->	D 51 0.42 55 60 5	E 56	D 40 0.55 35 45 10	C 24 0.95 94 -> ->	> -> -> -> ->	C 24	E 73 0.87 114 120 6	C 22 0.58 154 -> ->	> -> -> -> ->	C 28	C 33 0.89	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



TABLE 6.13A: 2045 TOTAL AM PEAK HOUR TRAFFIC OPERATIONS (SENSITIVITY ANALYSIS – 20% MODE SHARE REDUCTION)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	E 62 62 0.48 59 100 41	E 62 0.58 100 - -	> > > > >	E 62	D 45 0.86 142 200 58	B 19 0.25 58 - -	B 16 0.03 7 - -	D 39	C 25 0.10 4 140 136	C 28 0.45 79 0 -	A 1 0.46 0 300 300	B 14	C 27 0.31 27 75 48	D 42 0.88 180 - -	> > > > >	D 41	C 32 0.85
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 9 9 0.24 14 40 26	A 9 9 0.35 55 - -	A 6 0.03 4 30 26	A 9	B 10 0.05 5 25 20	B 15 0.43 78 - -	> > > > >	B 15	D 42 0.27 30 35 5	D 38 0.03 0 - -	> > > > >	D 40	A 0 0.00 0 15 15	D 40 0.15 25 - -	> > > > >	D 40	B 15 0.39
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 16 0.26 17 40 23	B 16 16 0.40 64 - -	B 13 0.02 3 30 27	B 16	B 15 0.39 32 30 -2	B 12 0.46 49 - -	> > > > >	B 13	C 32 0.09 16 30 14	C 34 0.26 40 - -	> > > > >	C 34	D 40 0.47 54 70 16	C 32 0.11 17 - -	> > > > >	D 36	B 19 0.46
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0 0.47 0 - -	> > > > >	A 0	B 12 0.04 1 50 49	A 0 0.31 0 - -		A 0	C 17 0.06 2 - -		> > > > >	C 17					
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 22 16 0.07 8 25 17	C 22 22 0.56 114 - -	B 20 0.09 17 45 28	C 22	D 49 0.76 76 40 -36	A 6 0.45 38 - -	> > > > >	B 17	D 42 0.20 29 -	D 39 0.06 0 -	> > > > >	D 40	D 49 0.49 59 80 21	D 39 0.01 0 -	> > > > >	D 48	C 22 0.7
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	E 90 55 0.67 49 30 -19	F 90 105 1.08 165 -	E 62 0.41 56 30 -26	F 90	F 196 1.30 185 170 -15	D 49 0.80 130 -	B 15 0.33 46 170 124	F 81	D 45 0.64 33 90 57	F 106 1.06 149 -	D 53 0.47 58 -	F 84	E 61 1.00 192 90 -102	C 22 0.58 103 -	B 13 0.13 45 32	D 38	E 66 1.17
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< 47 < 49 < 0.37 < 28 < - < -	D 47 49 0.17 24 40 16	D 46 0.17 24 40 16	D 47	< 65 < 0.77 < 70 < - < -	E 45 0.08 17 -	D 45 0.08 17 -	E 57	C 31 0.49 12 30 18	A 7 0.30 72 -	A 4 0.09 11 30 19	A 8	B 14 0.55 46 45 -1	A 10 0.61 77 -	> > > > >	B 10	B 15 0.65
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 9 9 0 0	A 9						A 0 0.24 0		A 0		A 0 0.58 0	> > > >	A 0	
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	D 49 41 0.43 33 55 22	D 49 52 0.66 74 -	D 45 0.13 22 40 18	D 49	D 44 0.34 24 40 16	D 55 0.68 69 -	D 47 0.09 19 60 41	D 52	C 32 0.39 20 45 25	B 15 0.44 64 -	> > > > >	B 15	C 20 0.74 65 120 55	C 22 0.75 213 -	> > > > >	C 21	C 27 0.74

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



TABLE 6.13B: 2045 TOTAL PM PEAK HOUR TRAFFIC OPERATIONS (SENSITIVITY ANALYSIS – 20% MODE SHARE REDUCTION)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Bathurst Street & Miller's Sideroad/Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 101 0.91 102 100 -2	E 73 0.79 120 -> ->	> -> -> -> ->	F 85	E 70 0.93 140 200 60	C 28 0.29 66 -> ->	C 24 0.05 10 -> ->	E 57	C 26 0.09 10 140 130	D 54 0.95 257 -> 300	A 3 0.72 0 300	C 31	D 42 0.64 28 75 47	C 24 0.41 86 -> ->	> -> -> -> ->	C 26	D 40 0.97
	Lady Gwillim Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	A 8 0.41 27 40 13	A 6 0.48 78 -> ->	A 4 0.05 5 30 25	A 7	A 3 0.17 3 25 22	A 3 0.35 20 -> ->	> -> -> -> ->	A 3	D 51 0.13 16 35 19	D 49 0.02 0 -> ->	> -> -> -> ->	D 50	A 0 0.00 0 15 15	D 49 0.06 0 -> ->	> -> -> -> ->	D 49	A 8 0.41
	Woodspring Avenue/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	B 16 0.53 30 40 10	B 11 0.44 79 -> ->	A 8 0.02 3 30 27	B 11	C 29 0.77 103 30 -73	A 5 0.43 33 -> ->	> -> -> -> ->	A 10	D 44 0.09 15 30 15	D 47 0.24 38 -> ->	> -> -> -> ->	D 46	D 52 0.40 41 70 29	D 44 0.06 0 -> ->	> -> -> -> ->	D 48	B 15 0.68
	Costco Driveway & Green Lane	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.54 0 -> ->	> -> -> -> ->	A 0	B 13 0.05 1 50 49	A 0 0.39 0 -> ->		A 0	D 25 0.37 13 -> ->		> -> -> -> ->	D 25					
	Existing Commercial Driveway/Minor Collector & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	C 20 0.20 19 25 6	C 25 0.56 135 -> ->	C 24 0.14 27 45 18	C 25	B 14 0.66 7 40 33	A 7 0.47 48 -> ->	> -> -> -> ->	A 8	D 50 0.48 67 -> ->	D 42 0.16 10 -> ->	> -> -> -> ->	D 45	E 61 0.63 56 80 24	D 40 0.03 0 -> ->	> -> -> -> ->	E 56	C 22 0.67
	Yonge Street & Green Lane	TCS	LOS Delay V/C Q Stor. Avail.	F 201 1.31 183 30 -153	F 119 1.10 225 -> ->	E 65 0.27 64 30 -34	F 131	F 308 1.55 231 170 -61	F 94 1.05 207 -> ->	F 113 1.11 237 170 -67	F 144	C 33 0.74 58 90 32	F 122 1.15 320 -> ->	D 41 0.56 98 -> ->	F 94	F 187 1.21 133 90 -43	D 37 0.52 62 -> ->	D 40 0.16 20 45 25	F 82	F 113 1.35
	Yonge Street & Minor Collector/Existing Commerical Driveway	TCS	LOS Delay V/C Q Stor. Avail.	< -> -> -> ->	E 57 0.51 36 -> ->	D 50 0.06 17 40 23	D 53	< -> -> -> ->	E 75 0.80 76 -> ->	D 51 0.18 26 -> ->	E 61	C 23 0.74 35 30 -5	C 28 0.67 179 -> 11	C 22 0.16 19 30	C 27	D 53 0.84 77 45 -32	C 24 0.53 114 -> ->	> -> -> -> ->	C 27	C 31 0.81
	Yonge Street & Driveway	TWSC	LOS Delay V/C Q			A 9 0.01 0	A 9						A 0 0.55 0		A 0		A 0 0.4 0	> -> ->	A 0	
	Yonge Street & E-W Major Collector	TCS	LOS Delay V/C Q Stor. Avail.	D 54 0.68 43 55 12	E 58 0.68 78 -> ->	D 49 0.06 14 40 26	E 56	D 44 0.42 33 40 7	E 60 0.76 90 -> ->	D 52 0.40 50 60 10	E 56	C 33 0.50 29 45 16	C 25 0.95 91 -> ->	> -> -> -> ->	C 25	D 54 0.74 101 120 19	C 20 0.55 145 -> ->	> -> -> -> ->	C 24	C 32 0.86

MOE - Measure of Effectiveness

LOS - Level of Service

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V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



6.5.2 Highway 413

Background

The Landowners group requested an investigation of the potential implications to the adjacent transportation network in consideration of the forthcoming Highway 413 route and adjacent transitway.

As we understand, the proposed 52-kilometre Highway 413 and transitway will extend from Highway 400 (approximately between Kirby Road and King-Vaughan Road) at its east limits, to the Highway 401/407 ETR interchange at its west limits. This project will provide another transportation link connecting the regions of York, Peel, and Halton. It is anticipated there will be extensions to Highway 410 and Highway 427 to facilitate connections with the new highway.

Along with the construction of a new 400-series highway, a transitway would be constructed which would be within a separate corridor running alongside the highway dedicated exclusively for public transit, such as buses or light rail transit.

The anticipated benefit a new 400-series highway and transitway would provide includes significantly reducing travel time for motorists in York, Peel, and Halton Regions.

The adjacent transitway would further promote and provide a realistic and appealing option for public transit in many communities along the route that are currently underserved. Combined with Ontario's other transit incentives including Ontario's Priority Transit Projects (that is, Ontario Line Subway, Scarborough Subway Extension, Eglinton Crosstown West Extension, and Yonge North Subway Extension), the GO Transit Expansion (that is, increased service, capacity, etc.), and the Hazel McCallion Light Rail Transit, this provision of transit infrastructure will facilitate a mode shift allowing thousands of people the option to leave their cars at home.

Assessment and Discussion

Reference was made to the GTA West Corridor Planning and Environmental Assessment Study, Transportation Model – Technical Background Report (April 2013).

Based upon the preferred route and location of connections for the new 400-series highway, it is anticipated that traffic patterns will likely result in some changes. However, the magnitude may not be that significant where we see paradigm shifts from existing travel corridors within our adjacent study area.



East-west travel along Green Lane is anticipated to be similar, given motorists would still be travelling to/from Highway 400. Notwithstanding, the new Highway 413 connection with Highway 400 in Vaughan may result in motorists utilizing alternative routes to access the new highway. This may include diversions along north-south and east-west arterial roadways.

The provision of the planned accompanying transitway is anticipated to assist in achieving a higher transit mode share. This infrastructure would further assist in achieving the modal share reduction sensitivity operational results previously documented.

6.6 Impact Assessment

6.6.1 Automobile

The NW Secondary Plan Area is a large vehicle trip generator. It is anticipated to generate a net total of 2,660 trips (848 inbound and 1,812 outbound) during the AM peak hour, and a net total of 2,964 trips (1,799 inbound and 1,165 outbound) during the PM peak hour at full build-out.

As reported in **Section 6.1**, several critical movements are identified under future background traffic conditions. With the addition of site traffic generated by the NW Secondary Plan Area, the previously identified critical movements under background traffic conditions would be exacerbated under total traffic conditions. Several additional critical movements are identified due to the site traffic contributions.

Planned future road network improvements include:

- ▶ The widening of Yonge Street between Davis Drive and Green Lane from four lanes to six lanes, including high occupancy vehicle (HOV) lanes by 2027; and
- ▶ A new east-west major collector road connecting Bathurst Street and the Harry Walker Parkway Extension by 2031; however, the 2030 background and total traffic operational results provide indication the new road may be required for implementation sooner than planned.

Additional proposed mitigation measures identified to improve the projected poor operations include:

By 2030 (representative of 10% build-out of the NW Secondary Plan Area):



- Implementation of the new east-west major collector to provide an additional east-west travel link.

For assessment purposes the adjacent Green Lane Secondary Plan areas were assumed to follow the same development phasing as the subject lands; however, under the 2030 horizon it was assumed the new east-west major collector east of Yonge Street would not be provided to determine/illustrate the impacts it may have on the Green Lane corridor;

- At Green Lane and Bathurst Street, provision of westbound dual left-turn lanes and a corresponding fully protected left-turn phase, an advanced southbound left-turn phase during the PM peak hour, and increase of signal cycle lengths during the AM and PM peak hours; and
- Widening of Yonge Street (north of Green Lane) from four to six lanes northly to the new east-west major collector connection.

By 2035 (representative of 50% build-out of the NW Secondary Plan Area):

- At Yonge Street and Existing Commercial Driveway/Minor Collector, provision of an eastbound auxiliary right-turn lane and a northbound advanced left-turn phase; and
- At Yonge Street and East-West Major Collector, provision of an eastbound and westbound auxiliary right-turn lane, and provision of advanced eastbound, westbound, northbound, and southbound advanced left-turn phases.

The recommended storage lengths for the proposed auxiliary turn lanes were previously detailed in **Table 6.10**.

As documented in **Section 6.4**, the site traffic generated by the NW Secondary Plan Area will be accommodated by the future planned road network with the proposed mitigation measures. However, poor traffic operations are still noted at the Green Lane and Yonge Street intersection.

As demonstrated in **Section 6.5**, the sensitivity analysis indicates if higher modal splits are achieved (i.e., higher transit usage, walking and cycling trips) the remaining identified critical movements operational performance would be improved. Appropriate Transportation Demand Management (TDM) measures should be considered and implemented to facilitate a modal shift to further reduce reliance on the private automobile.

It is also recommended the applicable jurisdictions monitor traffic conditions at the intersection Green Lane and Yonge Street as



development of the NW Secondary Plan Area and adjacent lands occurs.

6.6.2 Transit

The proposed NW Secondary Plan Area is forecast to generate 163 and 102 transit trips under the AM and PM peak hour, respectively. It is acknowledged and reiterated this estimate is based on the 2016 TTS modal split data, noting that the transit mode share is anticipated to be greater under future conditions once transit infrastructure and service upgrades are provided.

The forecast number of new transit trips generated by the NW Secondary Plan Area is unlikely to result in severe impacts on the current transit capacity.

As we understand, several transit improvements are planned in proximity to the NW Secondary Plan Area. Namely, along Green Lane between Yonge Street and the East Gwillimbury GO Station, and along Yonge Street, south of Green Lane, are identified as future rapid transit corridors which will be served by the VIVA Bus Rapid Transit (BRT) system. Accordingly, it is anticipated the new transit trips would be accommodated by the proposed transit network upgrades under future horizons.

As the NW Secondary Plan Area develops, it is anticipated York Region Transit, Town of East Gwillimbury, York Region, and other related parties will work together to develop and implement an appropriate transit system serving the needs of the NW Secondary Plan Area.

Specifically, a new transit route along the east-west major collector is recommended to serve the NW Secondary Plan Area and nearby future developments. This would bring transit service to within approximately 400 metres of all residents of the NW Secondary Plan Area.

Future bus stops are recommended be located at the intersection of Yonge Street and East-West Major Collector. It would be beneficial and is recommended that the new transit route connects with the East Gwillimbury GO Station, providing the community and its residents with direct access to inter-regional transit services.

It is also recommended that with development of the NW Secondary Plan Area, consideration be made to extend/expand existing transit routes to serve the new community area. Extension of services would likely be dependent on the level of development and associated demands.



6.6.3 Active Transportation

The proposed NW Secondary Plan Area is forecast to generate 10 AM and 0 PM cycling trips, and 190 AM and 74 PM walking trips, based on the 2016 modal split data. It is acknowledged these modal splits are based upon existing available infrastructure. With planned future expansions of the municipal sidewalk network and bicycle network, the proposed community development could generate higher walking and cycling demands.

As noted in **Section 5.2.4**, future cycling facilities are planned along Bathurst Street, Yonge Street, and Green Lane (east of Yonge Street); however, the specific cycling facility types still need to be determined.

In addition, a sidewalk and an on-street bike lane are proposed on both sides of the east-west major collector. It is anticipated appropriate cycling and walking infrastructure will be provided along all of the minor collector roads to serve active transportation trips generated by the NW Secondary Plan Area.

Given above, it is anticipated new active transportation trips would be accommodated by the proposed active transportation infrastructure under future horizons.



7 Transportation Demand Management (TDM) Plan

A comprehensive Transportation Demand Management (TDM) plan has been developed for the proposed community development plan. The proposed TDM measures are anticipated to facilitate a modal shift to further reduce reliance on private automobiles.

Transportation Demand Management (TDM) supports a shift from dependence on single-occupant vehicle trips to various other modes including transit and active transportation modes. TDM includes programs, policies, and infrastructure that promote a shift in thinking towards a multifaceted approach to planning. With proper implementation, TDM can encourage cycling, walking, and transit usage as an alternative to personal automobile use.

The concept of TDM and its associated initiatives and policies are established within York Region and are outlined according to the York Region *Transportation Mobility Plan Guidelines for Development Applications*.¹² The policy document establishes the TDM guidelines and policy measures which are adhered to by developments as applications are submitted.

A TDM Plan has been developed to outline TDM initiatives that will be incorporated into the development project and proposed steps towards future monitoring and evaluation. The following outlines the required components of the TDM Plan for the proposed residential community.

7.1 Project Description

The proposed development is located in the northwest quadrant of the Yonge Street and Green Lane Secondary Plan area (referred to as NW Secondary Plan Area) in the Town of East Gwillimbury. **Section 3** provides a full detailed description of the subject lands.

7.2 Description of the Existing Conditions Affecting Non-Auto Mode

The study area is currently served by YRT Route 44 (Bristol), Route 52 (Holland Landing), and Route 98 (Yonge). Located approximately 2.1 kilometres south of the subject lands is the Newmarket Terminal. This transit terminal provides connections to other local transit routes.

¹² York Region, *Transportation Mobility Plan Guidelines for Development Applications*, November 2016, p46-48.



In addition to the Newmarket Terminal, the East Gwillimbury GO Station is located approximately 2.5 kilometers east of the subject lanes. The GO station can be accessed via YRT Route 54 (Bayview) and facilitates inter-regional travel by public transit.

The study area roadways currently provide designated or shared cycling facilities, which includes a multi-use path provided on the south side of Green Lane.

Pedestrian travel is facilitated by the municipal sidewalk network. It is noted that north of Green Lane, there is limited or no pedestrian infrastructure provided.

Given the limited provision of transit and active transportation infrastructure serving the area, consideration should be given to providing necessary infrastructure once the immediate and adjacent areas are developed.

7.3 Existing Performance Analysis for Each Mode

The existing automobile mode performance at the study area intersections indicates that most traffic movements are currently operating at acceptable levels of service and within capacity.

Transit mode performance meets the target for intersection approach and for access to transit stops (LOS D or better), while it does not meet the targets (LOS C or better) transit headways.

Bicycle mode performance does not meet the Region's mobility plan guidelines specified target (LOS C or better), except for Green Lane and Woodspring Avenue where a multi-use path is provided on the south side of Green Lane, and Woodspring Avenue provides a delineated on-street bike lane within the study area.

In regard to pedestrian mode performance, the study area intersections and segment designs meet the Region's mobility plan guidelines specified target (LOS C or better). The exceptions include Bathurst Street where no sidewalk is provided.

Refer to **Section 4.6: Automobile Mode Performance**, **Section 4.7: Transit Mode Performance**, **Section 4.8: Bicycle Mode Performance**, and **Section 4.9: Pedestrian Mode Performance** for full analysis details.

7.4 Non-Auto Trip Forecast

Please refer to **Section 5.3.6: Transit, Cycling, and Walking Trip Generation** for detailed discussion.



7.5 Future Conditions Analysis and Mitigation Measures

The automobile impacts under background and total traffic conditions have been analyzed in **Section 6.1** and **Section 6.2**. It is noted the site-generated traffic would result in incremental impacts to the future road network. Several mitigation measures were investigated; however, over-capacity issues would still exist at Yonge Street/Green Lane under the total traffic conditions.

It is determined that implementation of the east-west collector road would be required by the 2030 horizon to accommodate background growth and site contributions generated from the other area developments in the remaining Green Lane Secondary Plan Area.

Section 6.3 details the proposed mitigation measures.

In regard to transit impacts, the area south of the subject site are predominately served by public transit. Several transit improvements are planned to encourage transit usage (refer to **Section 5.2.3** for detailed improvements). Following the development of the NW Secondary Plan Area, extension of existing transit routes or provision of a new transit route along the east-west collector roadway is recommended to further promote transit usage.

In regard to active transportation impacts, the proposed development will provide appropriate pedestrian facilities. It is anticipated connections to the active transportation facilities will be provided.

7.6 Planned TDM Measures

TDM strategies are aimed at influencing land use patterns, development design, parking availability and cost, and/or the relative cost, convenience, and availability of other travel modes to reduce reliance on motor vehicles for travel. These strategies can be divided into two categories:

- ▶ Pre-occupancy: Measures implemented in the design and construction of the development; and
- ▶ Post-occupancy: Measures implemented once the development is operational.

Measures taken pre-occupancy can influence how attractive, convenient, and safe travel by modes other than the single-occupant vehicle will be once the site is developed and occupied. At this stage, the site can be designed to better facilitate travel by walking, cycling, and transit, while ensuring sufficient vehicle parking is provided to meet but not exceed demand. The Town of East Gwillimbury also has



greater influence on their implementation than post-occupancy measures.

Offering incentives after the development is completed can influence behaviour but may not be as effective if the site and its surroundings are still oriented to travel by automobile. Measures in this category include subsidies to use transit, provision of trip-end facilities like bicycle parking, and information about where and how to use different travel modes.

The following sections outline the TDM measures planned for the site and are categorized into pre-occupancy and post-occupancy initiatives. **Table 7.1** summarizes the measures and denotes responsibility. The TDM measures identified are focused towards residents and visitors of the proposed residential subdivision.

TABLE 7.1: PROPOSED TDM INITIATIVES

Measure	Description	Responsibility
Walking and Cycling	Connect buildings and sidewalks with internal pathways. Provision of bicycle parking on-site. Install pedestrian and cyclist-oriented pavement markings and signing on-site. Include lighting details on external pedestrian walkways.	Developers
Transit Infrastructure	Develop and implement an appropriate transit system serving the needs of the future residential community area.	York Region Transit
Transit Usage	Incentives to encourage transit usage through the education/promotion.	Developers
Vehicle Parking	Reduce the provision of surplus parking if feasible.	Developers
Bikeshare	Implementation of on-site bikeshare services as opportunities arise/available in the area.	Developers/ Property Management for on-site coordination and implementation
Education/Promotion and Incentives	Monitor emerging programs to educate and promote TDM, including provision of transit passes to residents. The Developer/Owner will commit to a TDM Communications Strategy	Developers



	Outreach to effectively delivery transit incentives and information packages to residents.	

7.6.1 Walking and Cycling (Pre-Occupancy)

Walking will be supported and encouraged through the provision of secure internal connections and walkway connections to the existing/proposed pedestrian network. This would include internal site walkways and/or paths that are well designed in terms of accessibility, lighting, and where necessary, wayfinding signage. With sufficient on-site pedestrian infrastructure planned, pedestrian connectivity to the public sidewalks will be adequately provided for.

The promotion of cycling will likely be achieved through the provision of cycling infrastructure. The provision of cycling facilities makes a strong statement about a 'cycle-friendly' community or city and further encourages this mode of transportation.

Furthermore, walking and cycling will be supported within the area through the provision of pedestrian and cycling infrastructure as part of the overall active transportation network.

7.6.2 Transit (Pre-Occupancy & Post-Occupancy)

Increasing public transit use as part of the TDM Plan or through York Region Transit initiatives has many benefits such as reducing traffic congestion on Regional and Town roads. A proposed transit network within and serving the NW Secondary Plan Area provides transit patrons direct access to the wider regional YRT and TTC transit networks.

Anticipating expanded transit routes, with the available transit services, the subject site is accessible to residents and their visitors to travel outside the Town of East Gwillimbury (inter-regional) and provides a suitable alternative to automobile travel.

In addition, Green Lane and Yonge Street are both identified as a future rapid transit corridors to be served by the VIVA BRT system.

Transit usage can be further promoted through marketing efforts through the provision of transit informational packages containing route maps, schedules, identifying routes to key locations within the City including hospitals, other institutions, recreational facilities, etc., and other applicable information to residents with the purchase of units.



Consideration may also be given towards providing monthly transit passes or other forms of transit subsidies to residents for a limited time period as a means of attracting transit users and/or encourage automobile drivers to consider transit.

7.6.3 Vehicle Parking (Pre-Occupancy)

By providing sufficient parking to accommodate demands and not having an overly excess supply of parking available encourages residents within walking distance to walk rather than utilize a vehicle and create a vehicle trip.

To further encourage residents of the development to utilize sustainable travel modes, the development should consider appropriate parking rates for the residential dwellings and consider unbundling parking stalls from the cost to purchase an apartment unit. This is more equitable and efficient since occupants are not forced to pay for parking they do not need and allows consumers to adjust their parking supply to reflect their needs.

7.6.4 School Travel Planning

School Travel Planning (STP) encourages active transportation to and from schools by developing an action plan to address barriers to and incentives for cycling and walking to school.

It is recommended the School Boards develop a STP plan to encourage more sustainable school commutes. Those may include but not be limited to bicycle parking facilities and bike repair stations on-site.

7.6.5 Bikeshare (Post-Occupancy)

It is noted there are bikeshare companies actively seeking partners for operating stations/facilities. The land owner/future property management company are recommended to monitor and consider opportunities to pursue.

Specifically, the land owner/future property management company are responsible for identifying the cost and responsibilities for coordination and implementation of the on-site bikeshare and carshare services.

7.6.6 Wayfinding and Travel Planning (Post-Occupancy)

The location and nature of the proposed development is conducive to the placement of wayfinding signs. The provision of proper directional signage and accompanying illumination will create and foster an



environment attractive to pedestrians and cyclists. All pedestrian crossings should be clearly delineated.

7.6.7 Education/Promotion and Incentives (Pre-Occupancy)

The land owner/future property management company will consult with Smart Commute Markham, Richmond Hill (i.e., workplace and community-based travel planning) to discuss a membership for the subject property to provide TDM services. The TDM services offered will assist with post-occupancy initiatives including but not limited to assistance with a monitor program, coordination of bikeshare services, distribution of transit incentives and preparing informational packages of available transportation options for residents. Smart Commute is expanding with community-based transportation demand management to reduce reliance on private automobiles.

All related costs will be the responsibility of the land owner/future property management company. A copy of the agreement/membership with Smart Commute Central York to implement TDM services for the development will be provided to the Region.

7.6.8 Education/Promotion and Incentives (Post-Occupancy)

The applicant/future property management company will provide information on available travel options including active transportation (cycling and walking) and transit to residents.

Specifically, a TDM Communications Outreach Strategy will be developed to assist York Region to effectively deliver the information packages to residents.

Several outreach events are anticipated (a typical outreach event serves and caters 100 residential units over a four-hour period). At these events, York Region will supply information to provide to residents. These events are anticipated to be held within a building lobby or at a nearby community centre.

Subject to confirmation from the Region, the land owner/future property management company is committed to notifying the Region when the occupancy level of the development reaches 50%, at which point it triggers the delivery process.

The land owner/future property management company will coordinate specific event details with York Region/York Region Transit staff allowing a minimum of two month's advance notice.



Using York Region’s “Transportation Demand Management Checklist” as a guide, **Table 7.2** summarizes the TDM initiatives and strategies applicable to this proposed development.



TABLE 7.2: TDM CHECKLIST

TDM Measure	3975 Elgin Mills Road East		
	Applicable	Responsibility	Estimated Cost ¹
Information Packages	Yes	Applicant	Cost of venue.
TDM Communication Strategy	Yes		<u>Venue:</u> Building lobby (free) or local Community Centre & Library <u>Region staff time:</u> Approx. 4 hours per event
Pedestrian Connections	Yes	Applicant	Cost included in site construction
Cycling Connections	Yes		
Pedestrian/Cycling Connections to Transit Facilities	Yes		
Internal Pedestrian Circulation	Yes		
Active Transportation Network	Yes		
Bicycle Parking	Yes		
Benches/ Receptacles	Yes		\$1,500/bench ¹ \$600/receptacle ¹
Illumination of Pedestrian/Cycling Connections	Yes		Cost included in site construction
Parking Reduction	Yes		-
Monitoring Program/Report	Yes		\$2,500 ¹
¹ Costs provided are estimates, actual cost may vary depending on products			



7.7 Communication Strategy

The following strategy will assist in effectively delivering informational packages to potential residents.

The applicant/future property management company will undertake the preparation and distribution of information packages of available transportation options for residents.

It is anticipated the venue for the distribution of information packages would be the local community centre. It is anticipated the applicant/future property management company will be responsible for the coordination and supply the venue space for the outreach sessions.

The applicant/future property management company is committed to notifying the Region when the occupancy level of the development reaches 50%, at which point in time it triggers the delivery process. Residents will be contacted (via appropriate communications, i.e., electronic or hardcopy) informing them of the outreach sessions.

The applicant/future property management company will coordinate specific event details with the Region/York Region Transit staff a minimum of two months prior to the outreach events.

7.8 Monitoring Program

To evaluate the success of or the need for improvements to the proposed TDM plan, a monitoring program would be put in place.

Travel surveys would be prepared and distributed to residents to gather information regarding their mode of travel to and from work, and what further measures could be implemented to encourage or change their current mode of travel to a non-vehicle mode.

Initial baseline surveys would be conducted at 50% occupancy. The travel surveys would be conducted once every other year post-occupancy for up to two surveys (in addition to the baseline survey). The results of each survey would be reported back to the Region.



8 Conclusions and Recommendations

8.1 Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Base Year (2024) Traffic:** The study area intersections are currently operating at acceptable levels of service and within capacity during the weekday AM and PM peak hours. The exception includes several identified movements at the Green Lane and Yonge Street intersection which are reported to be approaching or exceeding capacity during the AM and PM peak hours;
- ▶ **Future Background Traffic** (without the NW Secondary Plan Area development): Under 2030 background traffic conditions, without the provision of the planned east-west major collector roadway, traffic operations would be slightly exacerbated in comparison to base year conditions accounting for anticipated background growth and traffic contributions related to other area developments (i.e., the remaining Green Lane Secondary Plan Area lands).

The operational results provide indication the new east-west major collector may be required by the 2030 horizon to accommodate the forecast background traffic projections. The implementation of the new east-west major collector will be undertaken through development under approved Secondary Plans. That is, for properties which abut along the new east-west major collector will construct the portion of the roadway across their site frontages as each phase of their land develops.

Under 2035, 2040, and 2045 background traffic conditions, with the provision of the east-west major collector, several critical movements are identified at the intersections of Green Lane and Bathurst Street, Yonge Street and Green Lane, Yonge Street and Church Driveway/Existing Commercial Driveway, and Yonge Street and the east-west major collector during the AM and/or PM peak hours.

Mitigation measures will be required to address the contributions of general background growth and site traffic generated by other area background developments;

- ▶ **Trip Generation:** At 10% build-out of the NW Secondary Plan Area by 2030, a net total of 336 AM (84 inbound and 252 outbound) and 470 PM (296 inbound and 174 outbound) peak hour vehicular trips are forecast to be generated.



At 50% build-out of the NW Secondary Plan Area by 2035, a net total of 1,709 AM (430 inbound and 1,279 outbound) and 2,194 PM (1,372 inbound and 822 outbound) peak hour vehicular trips are forecast to be generated.

Under full build-out of the NW Secondary Plan Area by 2040, a net total of 2,660 AM (848 inbound and 1,812 outbound) and 2,964 PM (1,799 inbound and 1,165 outbound) peak hour vehicular trips are forecast to be generated;

- ▶ **Future Total Traffic** (with the NW Secondary Plan Area development): With the addition of site-generated traffic, the previously identified critical movements under background traffic conditions are further exacerbated under total traffic conditions.

Several additional critical movements are identified due to the site-generated traffic including several movements approaching or exceeding capacity at the intersections of Green Lane and Bathurst Street, Yonge Street and Existing Commercial Driveway/Minor Collector, and at Yonge Street and East-West Major Collector during the AM and PM peak hours;

- ▶ **Mitigation Measures:** Beyond the planned road network improvements, the following remedial measures are identified for consideration to mitigate the forecast critical movements.
 - By 2030 (representative of 10% build-out of the NW Secondary Plan Area):
 - Implementation of the new east-west major collector.
It is understood the implementation of the new east-west major collector will be undertaken through development under approved Secondary Plans. That is, for properties which abut along the new east-west major collector will construct the portion of the roadway across their site frontages as each phase of their land develops;
 - At Green Lane and Bathurst Street, provision of westbound dual left-turn lanes and a corresponding fully protected left-turn phase, an advanced southbound left-turn phase during the PM peak hour, and adjustments to signal timings; and
 - Widening of Yonge Street (north of Green Lane) from four to six lanes. It is understood the planned widening of Yonge Street would stop at Green Lane, it is recommended this widening be carried further north to the new East-West Major Collector.
 - By 2035 (representative of 50% build-out of the NW Secondary Plan Area):



- At Yonge Street and Existing Commercial Driveway/Minor Collector, provision of an eastbound auxiliary right-turn lane, and an advanced northbound left-turn phase; and
- At Yonge Street and East-West Major Collector, provision of eastbound and westbound auxiliary right-turn lanes, and provision of advanced eastbound, westbound, northbound, and southbound advanced left-turn phases.

Figure ES.1 illustrates the recommended future lane configurations and traffic control for the study area intersections.

With the recommended mitigation measures, all study area intersections and movements are forecast to operate within capacity during the AM and PM peak hours under the furthest horizon (2045), with the exception of several movements at the intersection of Green Lane and Yonge Street forecast to operate over-capacity.

It is noted the majority of the mitigation measures are driven by background growth and site traffic contributions from other area developments. Section 6.3 details the measures triggered under background and total traffic conditions.

- ▶ **Transit Impact:** The proposed NW Secondary Plan Area is forecast to generate approximately 163 and 102 transit trips under the AM and PM peak hours, respectively.

Beyond the planned transit improvements for Green Lane and Yonge Street (i.e., bus rapid transit), it is recommended transit services be extended to service the NW Secondary Plan Area and other nearby future developments. This could include a new transit route or extension of existing services to be provided along the east-west major collector;

- ▶ **Active Transportation Impact:** The proposed NW Secondary Plan Area is forecast to generate 10 AM and 0 PM cycling trips, and 190 AM and 74 PM walking trips. With planned future cycling facilities to be implemented along Bathurst Street, Yonge Street, and Green Lane (east of Yonge Street), and accompanying active transportation infrastructure for the new east-west collector and internal minor collector roadways, it is anticipated the forecast active transportation trips would be accommodated by the proposed active transportation infrastructure; and
- ▶ **Transportation Demand Management (TDM):** A comprehensive TDM plan for the proposed development has been prepared, and applicable TDM measures and initiatives have been outlined. The implementation of these measures



would further assist in reducing site-generated vehicular trips and associated parking demands, and provide a means for sustainable travel.

8.2 Recommendations

The following items are recommended based on the study results:

- ▶ The Town of East Gwillimbury and York Region recognize the conclusions drawn above;
- ▶ It is understood the mechanism for the delivery of the new east-west major collector roadway will be provided through development of lands under approved Secondary Plans.

The Town of East Gwillimbury may want to consider constructing the new east-west collector roadway prior to the development of lands within the Green Lane Secondary Plan area if feasible. Under existing conditions, the Green Lane corridor is noted to be approaching capacity. The provision of an additional east-west travel link within the transportation network would provide capacity and relief;

- ▶ The applicable governing jurisdiction should monitor the level of development within the NW Secondary Plan Area and the overall Secondary Plan Area, as development occurs and progresses. Traffic volumes and operations at the study area intersections should be monitored to determine the appropriate timing for implementation of planned road network improvements and remedial measures in response to actual growth realized and actual site traffic generated;
- ▶ York Region and The Town of East Gwillimbury should continue to encourage the use of more sustainable modes of transportation to reduce the general reliance on the automobile, which will assist in mitigating the adverse impacts of potential increases in traffic the study area; and
- ▶ From a transportation perspective, the required planning applications to allow the proposed development should be approved.



Appendix A

Traffic Data





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Bathurst Street
Site Code: 200089
Start Date: 04/10/2024
Page No: 1

Turning Movement Data

Start Time	Miller's Sideroad Eastbound						Green Lane Westbound						Bathurst Street Northbound						Bathurst Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	2	16	0	0	0	18	114	40	4	0	0	158	0	33	70	0	0	103	9	125	7	0	0	141	420
7:15 AM	0	16	2	0	0	18	131	39	7	0	0	177	0	43	97	0	0	140	11	145	10	0	0	166	501
7:30 AM	2	16	0	0	0	18	121	53	8	0	0	182	0	40	101	0	0	141	12	158	9	0	0	179	520
7:45 AM	5	29	2	0	0	36	140	46	6	0	0	192	0	45	94	0	0	139	19	147	12	0	0	178	545
Hourly Total	9	77	4	0	0	90	506	178	25	0	0	709	0	161	362	0	0	523	51	575	38	0	0	664	1986
8:00 AM	3	25	2	0	0	30	142	41	5	0	0	188	3	63	109	0	0	175	13	126	12	0	0	151	544
8:15 AM	6	13	1	0	0	20	143	49	9	0	0	201	0	58	133	0	0	191	22	124	5	0	0	151	563
8:30 AM	4	27	3	0	0	34	131	45	4	0	0	180	1	59	132	0	0	192	7	122	8	0	0	137	543
8:45 AM	2	24	2	0	0	28	124	28	3	0	0	155	1	60	127	0	0	188	13	109	7	0	0	129	500
Hourly Total	15	89	8	0	0	112	540	163	21	0	0	724	5	240	501	0	0	746	55	481	32	0	0	568	2150
9:00 AM	3	13	0	0	0	16	125	20	5	0	0	150	1	53	121	0	0	175	14	82	2	0	0	98	439
9:15 AM	2	29	0	0	0	31	138	32	8	0	0	178	1	60	136	0	0	197	14	98	2	0	0	114	520
9:30 AM	2	28	1	0	0	31	137	20	5	0	0	162	1	44	128	0	0	173	12	87	9	0	0	108	474
9:45 AM	4	14	0	0	0	18	106	19	4	0	0	129	2	44	121	0	0	167	5	65	1	0	0	71	385
Hourly Total	11	84	1	0	0	96	506	91	22	0	0	619	5	201	506	0	0	712	45	332	14	0	0	391	1818
10:00 AM	1	18	0	0	0	19	102	18	13	0	0	133	1	37	84	0	0	122	10	62	5	0	0	77	351
10:15 AM	1	22	3	0	0	26	81	24	11	0	0	116	3	55	97	0	0	155	13	61	4	0	0	78	375
10:30 AM	2	10	0	0	0	12	86	18	8	0	0	112	0	48	110	0	0	158	10	56	1	0	0	67	349
10:45 AM	3	20	1	0	0	24	108	18	10	0	0	136	3	48	107	0	0	158	12	72	5	0	0	89	407
Hourly Total	7	70	4	0	0	81	377	78	42	0	0	497	7	188	398	0	0	593	45	251	15	0	0	311	1482
11:00 AM	2	12	0	0	0	14	109	22	13	0	0	144	0	53	113	1	0	167	13	46	4	0	0	63	388
11:15 AM	1	28	1	0	0	30	98	19	11	0	0	128	0	57	100	0	0	157	6	64	2	0	0	72	387
11:30 AM	2	18	1	0	0	21	104	23	15	0	0	142	0	47	143	0	0	190	17	64	3	0	0	84	437
11:45 AM	4	24	1	0	0	29	121	24	21	0	0	166	2	70	124	0	0	196	10	71	4	0	0	85	476
Hourly Total	9	82	3	0	0	94	432	88	60	0	0	580	2	227	480	1	0	710	46	245	13	0	0	304	1688
12:00 PM	3	11	1	0	0	15	112	22	13	0	0	147	0	46	105	0	0	151	6	52	1	0	0	59	372
12:15 PM	3	19	1	0	0	23	96	23	10	0	0	129	1	54	122	0	0	177	9	67	5	0	0	81	410
12:30 PM	5	23	0	0	0	28	97	21	16	0	2	134	2	59	106	0	0	167	5	55	4	0	2	64	393
12:45 PM	6	16	0	0	0	22	105	14	12	0	0	131	0	62	113	0	0	175	4	58	2	0	0	64	392
Hourly Total	17	69	2	0	0	88	410	80	51	0	2	541	3	221	446	0	0	670	24	232	12	0	2	268	1567
1:00 PM	5	23	1	0	0	29	108	28	16	0	0	152	3	88	106	0	0	197	11	51	1	0	0	63	441
1:15 PM	2	27	0	0	0	29	93	28	12	0	0	133	4	70	105	0	0	179	8	65	1	0	0	74	415
1:30 PM	4	21	2	0	0	27	99	24	8	0	0	131	1	71	97	0	0	169	10	56	0	0	0	66	393
1:45 PM	6	22	1	0	0	29	108	20	25	0	0	153	0	70	149	0	0	219	10	67	4	0	0	81	482
Hourly Total	17	93	4	0	0	114	408	100	61	0	0	569	8	299	457	0	0	764	39	239	6	0	0	284	1731

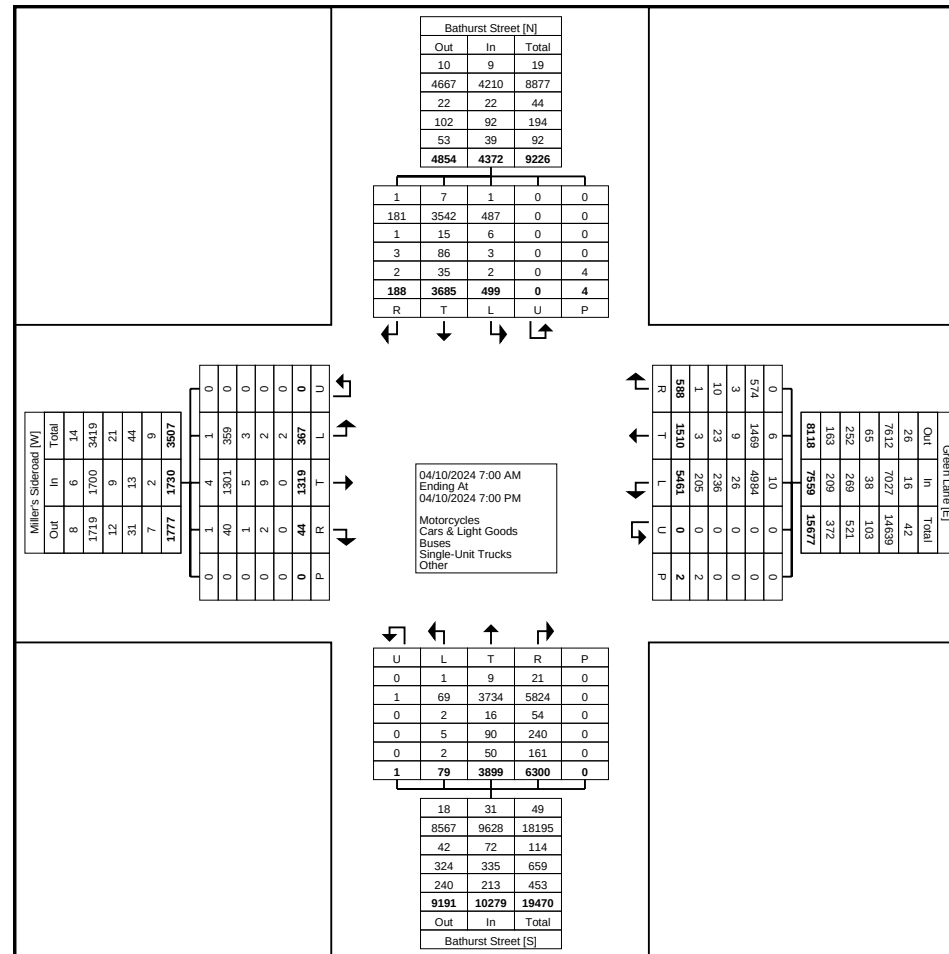
2:00 PM	5	16	0	0	0	21	108	19	4	0	0	131	0	80	108	0	0	188	4	76	2	0	0	82	422
2:15 PM	5	14	1	0	0	20	110	26	17	0	0	153	0	81	97	0	0	178	13	78	1	0	0	92	443
2:30 PM	9	22	2	0	0	33	129	27	14	0	0	170	2	88	137	0	0	227	13	78	2	0	0	93	523
2:45 PM	11	32	0	0	0	43	110	34	20	0	0	164	5	86	161	0	0	252	6	50	5	0	0	61	520
Hourly Total	30	84	3	0	0	117	457	106	55	0	0	618	7	335	503	0	0	845	36	282	10	0	0	328	1908
3:00 PM	9	32	2	0	0	43	118	34	18	0	0	170	3	107	155	0	0	265	5	53	3	0	0	61	539
3:15 PM	14	40	2	0	0	56	149	41	17	0	0	207	4	135	162	0	0	301	11	57	3	0	0	71	635
3:30 PM	15	47	2	0	0	64	122	46	16	0	0	184	0	118	176	0	0	294	10	72	3	0	0	85	627
3:45 PM	12	53	1	0	0	66	113	38	19	0	0	170	2	125	164	0	0	291	11	54	2	0	0	67	594
Hourly Total	50	172	7	0	0	229	502	159	70	0	0	731	9	485	657	0	0	1151	37	236	11	0	0	284	2395
4:00 PM	22	42	1	0	0	65	127	35	24	0	0	186	3	133	150	0	0	286	10	79	5	0	0	94	631
4:15 PM	18	46	2	0	0	66	118	53	21	0	0	192	5	151	150	0	0	306	11	97	4	0	1	112	676
4:30 PM	26	51	0	0	0	77	122	47	22	0	0	191	4	128	151	0	0	283	11	71	3	0	0	85	636
4:45 PM	19	64	1	0	0	84	112	69	18	0	0	199	5	147	177	0	0	329	11	79	2	0	0	92	704
Hourly Total	85	203	4	0	0	292	479	204	85	0	0	768	17	559	628	0	0	1204	43	326	14	0	1	383	2647
5:00 PM	19	43	1	0	0	63	102	53	17	0	0	172	3	151	164	0	0	318	17	66	2	0	1	85	638
5:15 PM	23	47	2	0	0	72	115	46	15	0	0	176	4	164	198	0	0	366	15	71	5	0	0	91	705
5:30 PM	14	48	0	0	0	62	121	34	20	0	0	175	3	147	189	0	0	339	13	65	1	0	0	79	655
5:45 PM	16	50	0	0	0	66	114	39	15	0	0	168	2	105	177	0	0	284	10	67	2	0	0	79	597
Hourly Total	72	188	3	0	0	263	452	172	67	0	0	691	12	567	728	0	0	1307	55	269	10	0	1	334	2595
6:00 PM	16	26	0	0	0	42	97	31	6	0	0	134	0	123	187	0	0	310	7	72	3	0	0	82	568
6:15 PM	17	40	0	0	0	57	102	22	11	0	0	135	1	105	172	0	0	278	6	56	5	0	0	67	537
6:30 PM	8	25	0	0	0	33	103	15	7	0	0	125	3	99	128	0	0	230	3	39	1	0	0	43	431
6:45 PM	4	17	1	0	0	22	90	23	5	0	0	118	0	89	147	0	0	236	7	50	4	0	0	61	437
Hourly Total	45	108	1	0	0	154	392	91	29	0	0	512	4	416	634	0	0	1054	23	217	13	0	0	253	1973
Grand Total	367	1319	44	0	0	1730	5461	1510	588	0	2	7559	79	3899	6300	1	0	10279	499	3685	188	0	4	4372	23940
Approach %	21.2	76.2	2.5	0.0	-	-	72.2	20.0	7.8	0.0	-	-	0.8	37.9	61.3	0.0	-	-	11.4	84.3	4.3	0.0	-	-	-
Total %	1.5	5.5	0.2	0.0	-	7.2	22.8	6.3	2.5	0.0	-	31.6	0.3	16.3	26.3	0.0	-	42.9	2.1	15.4	0.8	0.0	-	18.3	-
Motorcycles	1	4	1	0	-	6	10	6	0	0	-	16	1	9	21	0	-	31	1	7	1	0	-	9	62
% Motorcycles	0.3	0.3	2.3	-	-	0.3	0.2	0.4	0.0	-	-	0.2	1.3	0.2	0.3	0.0	-	0.3	0.2	0.2	0.5	-	-	0.2	0.3
Cars & Light Goods	359	1301	40	0	-	1700	4984	1469	574	0	-	7027	69	3734	5824	1	-	9628	487	3542	181	0	-	4210	22565
% Cars & Light Goods	97.8	98.6	90.9	-	-	98.3	91.3	97.3	97.6	-	-	93.0	87.3	95.8	92.4	100.0	-	93.7	97.6	96.1	96.3	-	-	96.3	94.3
Buses	3	5	1	0	-	9	26	9	3	0	-	38	2	16	54	0	-	72	6	15	1	0	-	22	141
% Buses	0.8	0.4	2.3	-	-	0.5	0.5	0.6	0.5	-	-	0.5	2.5	0.4	0.9	0.0	-	0.7	1.2	0.4	0.5	-	-	0.5	0.6
Single-Unit Trucks	2	9	2	0	-	13	236	23	10	0	-	269	5	90	240	0	-	335	3	86	3	0	-	92	709
% Single-Unit Trucks	0.5	0.7	4.5	-	-	0.8	4.3	1.5	1.7	-	-	3.6	6.3	2.3	3.8	0.0	-	3.3	0.6	2.3	1.6	-	-	2.1	3.0
Articulated Trucks	0	0	0	0	-	0	205	3	1	0	-	209	1	46	161	0	-	208	2	34	1	0	-	37	454
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	3.8	0.2	0.2	-	-	2.8	1.3	1.2	2.6	0.0	-	2.0	0.4	0.9	0.5	-	-	0.8	1.9
Bicycles on Road	2	0	0	0	-	2	0	0	0	0	-	0	1	4	0	0	-	5	0	1	1	0	-	2	9
% Bicycles on Road	0.5	0.0	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	1.3	0.1	0.0	0.0	-	0.0	0.0	0.0	0.5	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	2	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	50.0	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	2	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	50.0	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Bathurst Street
Site Code: 200089
Start Date: 04/10/2024
Page No: 3



Turning Movement Data Plot

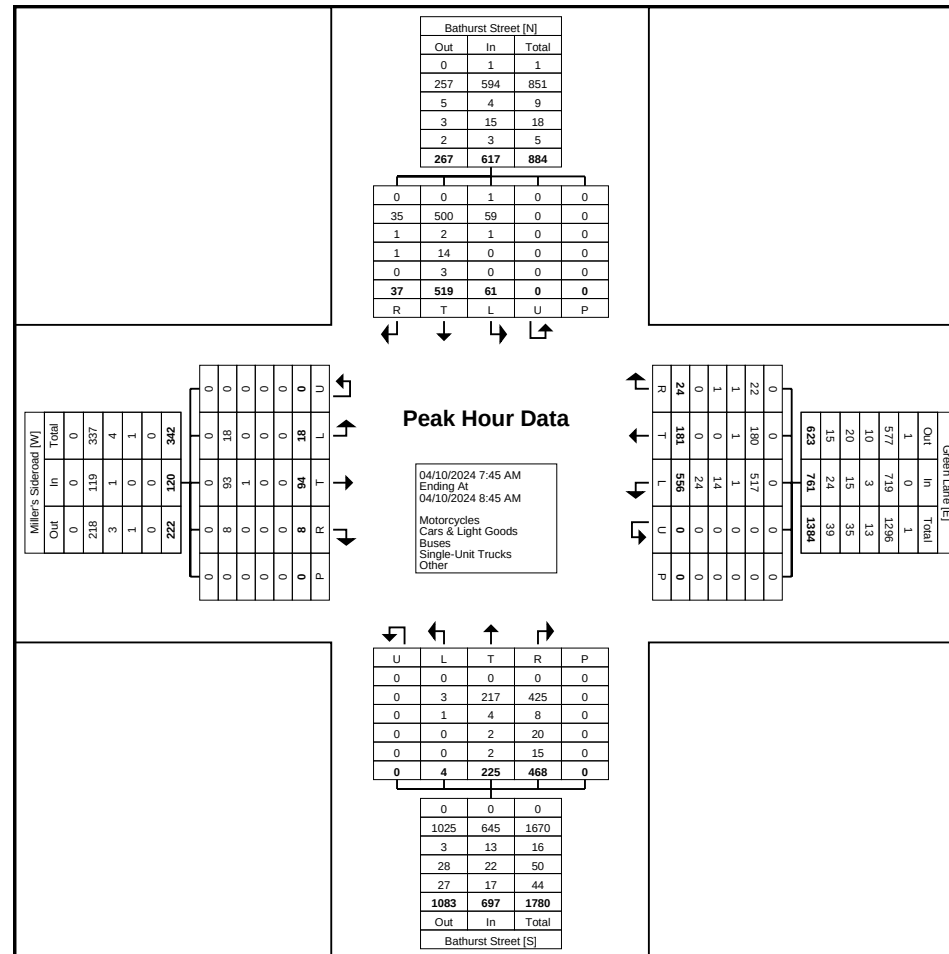
Start Time	Miller's Sideroad Eastbound						Green Lane Westbound						Bathurst Street Northbound						Bathurst Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	5	29	2	0	0	36	140	46	6	0	0	192	0	45	94	0	0	139	19	147	12	0	0	178	545
8:00 AM	3	25	2	0	0	30	142	41	5	0	0	188	3	63	109	0	0	175	13	126	12	0	0	151	544
8:15 AM	6	13	1	0	0	20	143	49	9	0	0	201	0	58	133	0	0	191	22	124	5	0	0	151	563
8:30 AM	4	27	3	0	0	34	131	45	4	0	0	180	1	59	132	0	0	192	7	122	8	0	0	137	543
Total	18	94	8	0	0	120	556	181	24	0	0	761	4	225	468	0	0	697	61	519	37	0	0	617	2195
Approach %	15.0	78.3	6.7	0.0	-	-	73.1	23.8	3.2	0.0	-	-	0.6	32.3	67.1	0.0	-	-	9.9	84.1	6.0	0.0	-	-	-
Total %	0.8	4.3	0.4	0.0	-	5.5	25.3	8.2	1.1	0.0	-	34.7	0.2	10.3	21.3	0.0	-	31.8	2.8	23.6	1.7	0.0	-	28.1	-
PHF	0.750	0.810	0.667	0.000	-	0.833	0.972	0.923	0.667	0.000	-	0.947	0.333	0.893	0.880	0.000	-	0.908	0.693	0.883	0.771	0.000	-	0.867	0.975
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	1.6	0.0	0.0	-	-	0.2	0.0
Cars & Light Goods	18	93	8	0	-	119	517	180	22	0	-	719	3	217	425	0	-	645	59	500	35	0	-	594	2077
% Cars & Light Goods	100.0	98.9	100.0	-	-	99.2	93.0	99.4	91.7	-	-	94.5	75.0	96.4	90.8	-	-	92.5	96.7	96.3	94.6	-	-	96.3	94.6
Buses	0	1	0	0	-	1	1	1	0	-	3	1	4	8	0	-	13	1	2	1	0	-	4	21	
% Buses	0.0	1.1	0.0	-	-	0.8	0.2	0.6	4.2	-	0.4	25.0	1.8	1.7	-	-	1.9	1.6	0.4	2.7	-	-	0.6	1.0	
Single-Unit Trucks	0	0	0	0	-	0	14	0	1	0	-	15	0	2	20	0	-	22	0	14	1	0	-	15	52
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	2.5	0.0	4.2	-	-	2.0	0.0	0.9	4.3	-	-	3.2	0.0	2.7	2.7	-	-	2.4	2.4
Articulated Trucks	0	0	0	0	-	0	24	0	0	0	-	24	0	2	15	0	-	17	0	3	0	0	-	3	44
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	4.3	0.0	0.0	-	-	3.2	0.0	0.9	3.2	-	-	2.4	0.0	0.6	0.0	-	-	0.5	2.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

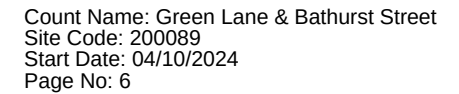


Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cdowness@pts1.com

Count Name: Green Lane & Bathurst Street
Site Code: 200089
Start Date: 04/10/2024
Page No: 5





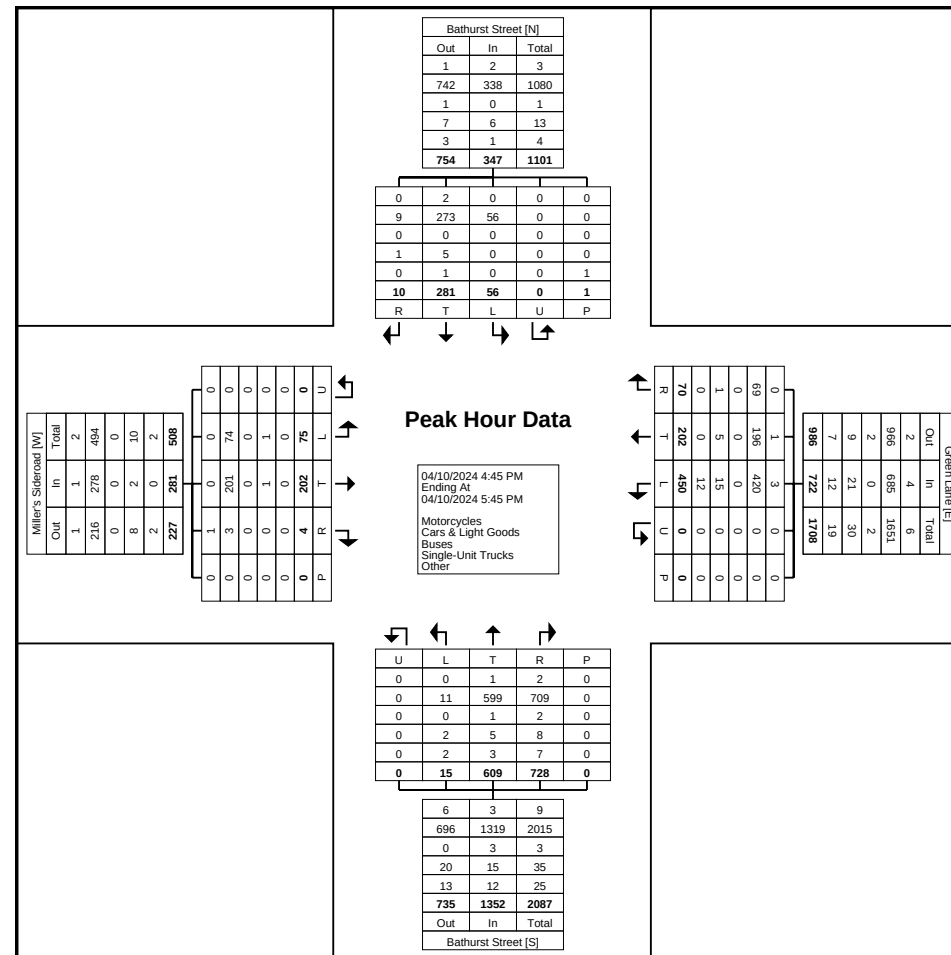
Start Time	Miller's Sideroad Eastbound						Green Lane Westbound						Bathurst Street Northbound						Bathurst Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	19	64	1	0	0	84	112	69	18	0	0	199	5	147	177	0	0	329	11	79	2	0	0	92	704
5:00 PM	19	43	1	0	0	63	102	53	17	0	0	172	3	151	164	0	0	318	17	66	2	0	1	85	638
5:15 PM	23	47	2	0	0	72	115	46	15	0	0	176	4	164	198	0	0	366	15	71	5	0	0	91	705
5:30 PM	14	48	0	0	0	62	121	34	20	0	0	175	3	147	189	0	0	339	13	65	1	0	0	79	655
Total	75	202	4	0	0	281	450	202	70	0	0	722	15	609	728	0	0	1352	56	281	10	0	1	347	2702
Approach %	26.7	71.9	1.4	0.0	-	-	62.3	28.0	9.7	0.0	-	-	1.1	45.0	53.8	0.0	-	-	16.1	81.0	2.9	0.0	-	-	-
Total %	2.8	7.5	0.1	0.0	-	10.4	16.7	7.5	2.6	0.0	-	26.7	0.6	22.5	26.9	0.0	-	50.0	2.1	10.4	0.4	0.0	-	12.8	-
PHF	0.815	0.789	0.500	0.000	-	0.836	0.930	0.732	0.875	0.000	-	0.907	0.750	0.928	0.919	0.000	-	0.923	0.824	0.889	0.500	0.000	-	0.943	0.958
Motorcycles	0	0	1	0	-	1	3	1	0	0	-	4	0	1	2	0	-	3	0	2	0	0	-	2	10
% Motorcycles	0.0	0.0	25.0	-	-	0.4	0.7	0.5	0.0	-	-	0.6	0.0	0.2	0.3	-	-	0.2	0.0	0.7	0.0	-	-	0.6	0.4
Cars & Light Goods	74	201	3	0	-	278	420	196	69	0	-	685	11	599	709	0	-	1319	56	273	9	0	-	338	2620
% Cars & Light Goods	98.7	99.5	75.0	-	-	98.9	93.3	97.0	98.6	-	-	94.9	73.3	98.4	97.4	-	-	97.6	100.0	97.2	90.0	-	-	97.4	97.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	1	2	0	-	3	0	0	0	0	-	0	3
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.3	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	1	1	0	0	-	2	15	5	1	0	-	21	2	5	8	0	-	15	0	5	1	0	-	6	44
% Single-Unit Trucks	1.3	0.5	0.0	-	-	0.7	3.3	2.5	1.4	-	-	2.9	13.3	0.8	1.1	-	-	1.1	0.0	1.8	10.0	-	-	1.7	1.6
Articulated Trucks	0	0	0	0	-	0	12	0	0	0	-	12	1	3	7	0	-	11	0	1	0	0	-	1	24
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	2.7	0.0	0.0	-	-	1.7	6.7	0.5	1.0	-	-	0.8	0.0	0.4	0.0	-	-	0.3	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	6.7	0.0	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	1	-	-	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Bathurst Street
Site Code: 200089
Start Date: 04/10/2024
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Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Costco Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 1

Turning Movement Data

Start Time	Green Lane Eastbound					Green Lane Westbound					Costco Driveway Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:00 AM	118	2	0	0	120	1	147	0	0	148	0	1	0	0	1	269
7:15 AM	167	4	0	0	171	3	168	0	0	171	5	4	0	0	9	351
7:30 AM	178	0	0	0	178	3	206	0	0	209	1	0	0	0	1	388
7:45 AM	176	4	0	0	180	1	195	0	0	196	2	1	0	0	3	379
Hourly Total	639	10	0	0	649	8	716	0	0	724	8	6	0	0	14	1387
8:00 AM	180	3	0	0	183	1	197	0	0	198	0	1	0	0	1	382
8:15 AM	231	7	0	0	238	5	189	0	0	194	1	2	0	0	3	435
8:30 AM	226	12	0	0	238	8	164	0	0	172	1	1	0	0	2	412
8:45 AM	176	20	0	0	196	7	172	0	0	179	1	2	0	0	3	378
Hourly Total	813	42	0	0	855	21	722	0	0	743	3	6	0	0	9	1607
9:00 AM	147	42	0	0	189	2	189	0	0	191	10	0	0	0	10	390
9:15 AM	171	33	0	0	204	8	182	0	0	190	10	1	0	0	11	405
9:30 AM	153	23	0	0	176	4	149	0	0	153	9	5	0	0	14	343
9:45 AM	150	25	0	0	175	5	139	0	0	144	10	7	0	0	17	336
Hourly Total	621	123	0	0	744	19	659	0	0	678	39	13	0	0	52	1474
10:00 AM	124	22	0	0	146	5	123	0	0	128	13	8	0	0	21	295
10:15 AM	127	27	0	0	154	10	129	0	0	139	15	7	0	0	22	315
10:30 AM	138	26	0	0	164	8	128	0	0	136	8	6	0	0	14	314
10:45 AM	134	40	0	0	174	10	145	0	0	155	11	2	0	0	13	342
Hourly Total	523	115	0	0	638	33	525	0	0	558	47	23	0	0	70	1266
11:00 AM	150	43	0	0	193	11	153	0	0	164	14	8	0	0	22	379
11:15 AM	136	31	0	0	167	9	135	0	0	144	11	12	0	0	23	334
11:30 AM	196	43	0	0	239	20	175	0	0	195	8	13	0	0	21	455
11:45 AM	180	47	0	0	227	11	178	0	0	189	33	7	0	0	40	456
Hourly Total	662	164	0	0	826	51	641	0	0	692	66	40	0	0	106	1624
12:00 PM	133	32	0	0	165	6	132	0	0	138	26	12	0	0	38	341
12:15 PM	149	46	0	0	195	22	135	0	0	157	18	17	0	0	35	387
12:30 PM	163	34	0	0	197	7	137	0	0	144	18	26	0	0	44	385
12:45 PM	143	36	0	0	179	7	125	0	0	132	20	12	0	0	32	343
Hourly Total	588	148	0	0	736	42	529	0	0	571	82	67	0	0	149	1456
1:00 PM	157	55	0	0	212	9	161	0	0	170	21	21	0	0	42	424
1:15 PM	136	31	0	0	167	7	135	0	0	142	23	18	0	0	41	350
1:30 PM	148	36	0	0	184	13	142	0	0	155	18	14	0	0	32	371
1:45 PM	190	52	0	0	242	16	155	0	0	171	25	11	0	0	36	449
Hourly Total	631	174	0	0	805	45	593	0	0	638	87	64	0	0	151	1594
2:00 PM	144	36	0	0	180	10	159	0	0	169	10	12	0	0	22	371

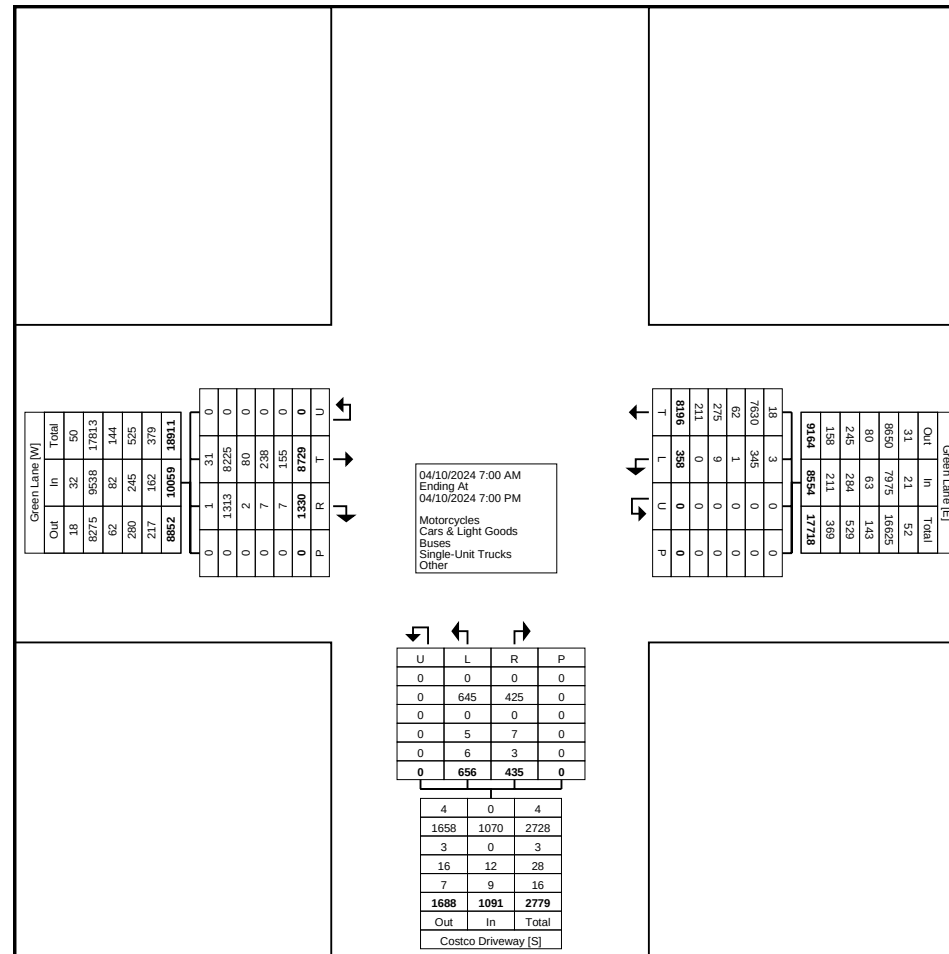
2:15 PM 2:30 PM 2:45 PM	136	33	0	0	169	2	172	0	0	174	19	18	0	0	37	380
	169	25	0	0	194	15	180	0	0	195	18	13	0	0	31	420
	220	34	0	0	254	12	168	0	0	180	22	8	0	0	30	464
Hourly Total	669	128	0	0	797	39	679	0	0	718	69	51	0	0	120	1635
3:00 PM 3:15 PM 3:30 PM 3:45 PM	216	26	0	0	242	3	193	0	0	196	9	16	0	0	25	463
	224	31	0	0	255	4	214	0	0	218	22	7	0	0	29	502
	215	31	0	0	246	6	206	0	0	212	17	13	0	0	30	488
	226	26	0	0	252	18	185	0	0	203	16	7	0	0	23	478
Hourly Total	881	114	0	0	995	31	798	0	0	829	64	43	0	0	107	1931
4:00 PM 4:15 PM 4:30 PM 4:45 PM	218	22	0	0	240	5	187	0	0	192	20	5	0	0	25	457
	234	29	0	0	263	4	215	0	0	219	20	11	0	0	31	513
	234	24	0	0	258	6	210	0	0	216	11	7	0	0	18	492
	273	27	0	0	300	11	228	0	0	239	15	13	0	0	28	567
Hourly Total	959	102	0	0	1061	26	840	0	0	866	66	36	0	0	102	2029
5:00 PM 5:15 PM 5:30 PM 5:45 PM	234	21	0	0	255	1	218	0	0	219	13	2	0	0	15	489
	239	32	0	0	271	2	222	0	0	224	14	9	0	0	23	518
	266	22	0	0	288	8	221	0	0	229	15	16	0	0	31	548
	226	35	0	0	261	5	179	0	0	184	16	14	0	0	30	475
Hourly Total	965	110	0	0	1075	16	840	0	0	856	58	41	0	0	99	2030
6:00 PM 6:15 PM 6:30 PM 6:45 PM	215	33	0	0	248	9	193	0	0	202	18	17	0	0	35	485
	211	23	0	0	234	7	167	0	0	174	13	8	0	0	21	429
	185	22	0	0	207	5	155	0	0	160	20	11	0	0	31	398
	167	22	0	0	189	6	139	0	0	145	16	9	0	0	25	359
Hourly Total	778	100	0	0	878	27	654	0	0	681	67	45	0	0	112	1671
Grand Total	8729	1330	0	0	10059	358	8196	0	0	8554	656	435	0	0	1091	19704
Approach %	86.8	13.2	0.0	-	-	4.2	95.8	0.0	-	-	60.1	39.9	0.0	-	-	-
Total %	44.3	6.7	0.0	-	51.1	1.8	41.6	0.0	-	43.4	3.3	2.2	0.0	-	5.5	-
Motorcycles	31	1	0	-	32	3	18	0	-	21	0	0	0	-	0	53
% Motorcycles	0.4	0.1	-	-	0.3	0.8	0.2	-	-	0.2	0.0	0.0	-	-	0.0	0.3
Cars & Light Goods	8225	1313	0	-	9538	345	7630	0	-	7975	645	425	0	-	1070	18583
% Cars & Light Goods	94.2	98.7	-	-	94.8	96.4	93.1	-	-	93.2	98.3	97.7	-	-	98.1	94.3
Buses	80	2	0	-	82	1	62	0	-	63	0	0	0	-	0	145
% Buses	0.9	0.2	-	-	0.8	0.3	0.8	-	-	0.7	0.0	0.0	-	-	0.0	0.7
Single-Unit Trucks	238	7	0	-	245	9	275	0	-	284	5	7	0	-	12	541
% Single-Unit Trucks	2.7	0.5	-	-	2.4	2.5	3.4	-	-	3.3	0.8	1.6	-	-	1.1	2.7
Articulated Trucks	155	7	0	-	162	0	210	0	-	210	6	3	0	-	9	381
% Articulated Trucks	1.8	0.5	-	-	1.6	0.0	2.6	-	-	2.5	0.9	0.7	-	-	0.8	1.9
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Costco Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 3



Turning Movement Data Plot

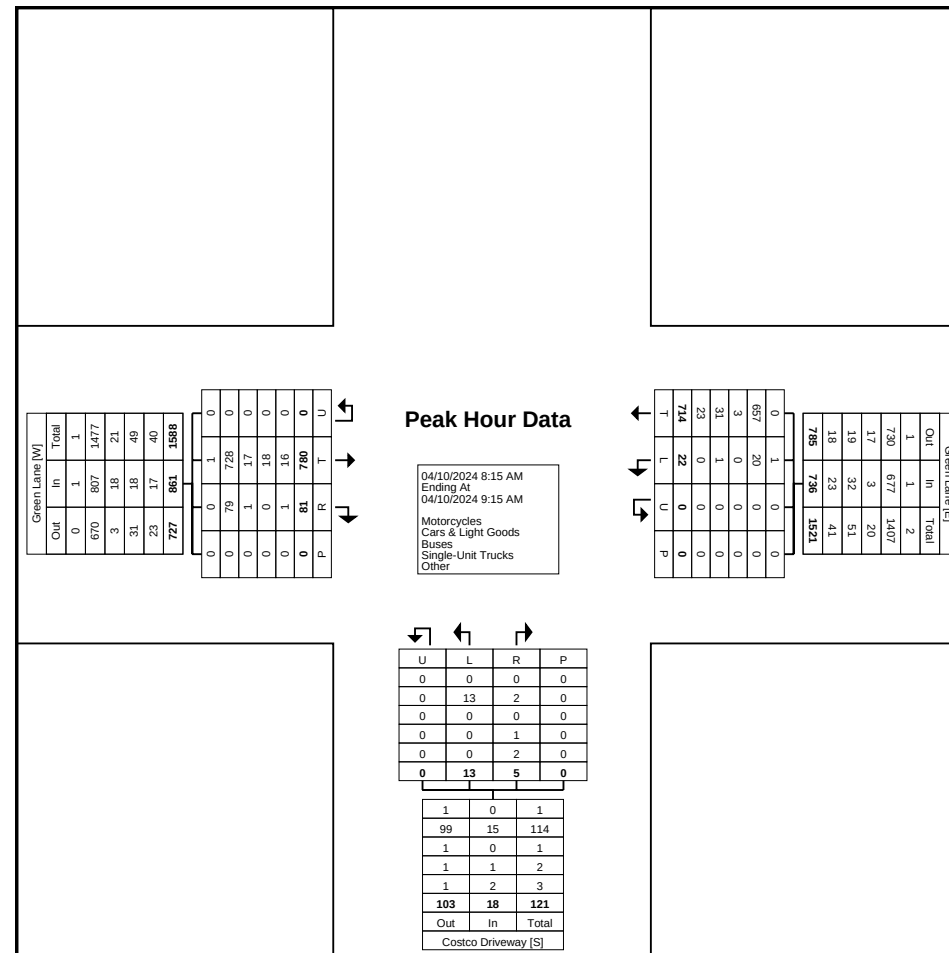
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Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Costco Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 5



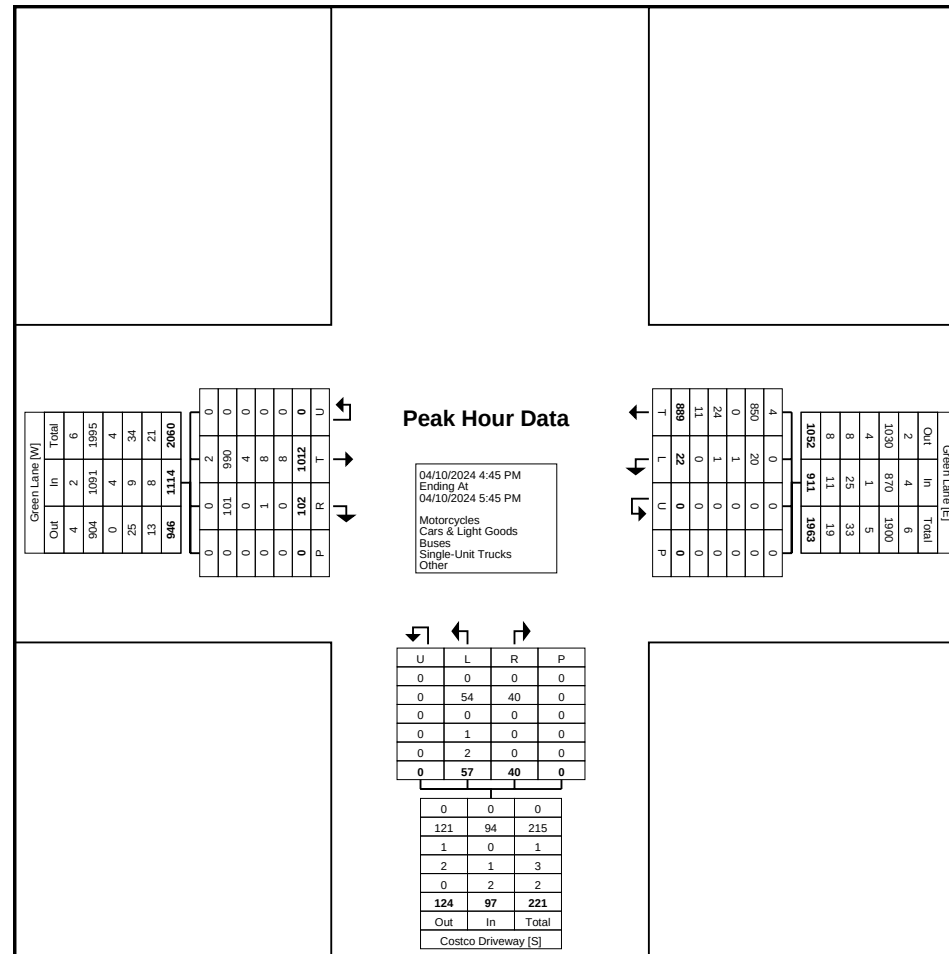
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Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Green Lane & Costco Driveway
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Peak Hour Data Plot (4:45 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsll.com

Count Name: Green Lane & Exisiting
Commercial Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 1

Turning Movement Data

Start Time	Green Lane Eastbound					Green Lane Westbound					Commercial Driveway Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:00 AM	104	16	0	0	120	16	145	0	0	161	9	16	0	0	25	306
7:15 AM	152	17	0	0	169	22	160	0	0	182	5	23	0	0	28	379
7:30 AM	156	22	0	0	178	18	194	0	0	212	11	17	0	0	28	418
7:45 AM	177	8	0	0	185	8	178	1	0	187	9	13	0	0	22	394
Hourly Total	589	63	0	0	652	64	677	1	0	742	34	69	0	0	103	1497
8:00 AM	161	14	0	0	175	22	190	0	0	212	13	9	0	0	22	409
8:15 AM	202	25	0	0	227	19	181	0	0	200	10	12	0	0	22	449
8:30 AM	202	25	0	0	227	55	165	1	0	221	13	12	0	0	25	473
8:45 AM	155	25	0	0	180	75	167	1	0	243	7	20	0	1	27	450
Hourly Total	720	89	0	0	809	171	703	2	0	876	43	53	0	1	96	1781
9:00 AM	119	23	0	0	142	87	170	0	0	257	19	20	0	0	39	438
9:15 AM	161	27	0	0	188	91	158	1	0	250	25	45	0	0	70	508
9:30 AM	134	28	0	0	162	78	133	0	0	211	21	49	0	0	70	443
9:45 AM	127	23	0	0	150	84	121	0	0	205	20	43	0	0	63	418
Hourly Total	541	101	0	0	642	340	582	1	0	923	85	157	0	0	242	1807
10:00 AM	92	32	0	0	124	83	99	0	0	182	26	57	0	0	83	389
10:15 AM	108	21	1	0	130	78	103	0	0	181	30	43	0	0	73	384
10:30 AM	127	26	0	0	153	73	111	0	0	184	26	60	0	0	86	423
10:45 AM	105	31	0	0	136	115	125	0	0	240	25	57	0	0	82	458
Hourly Total	432	110	1	0	543	349	438	0	0	787	107	217	0	0	324	1654
11:00 AM	124	35	0	0	159	82	132	0	0	214	30	63	0	0	93	466
11:15 AM	122	28	0	0	150	80	114	0	0	194	32	69	0	0	101	445
11:30 AM	154	49	0	0	203	78	149	0	0	227	51	89	0	1	140	570
11:45 AM	130	56	0	0	186	92	153	0	0	245	45	82	0	2	127	558
Hourly Total	530	168	0	0	698	332	548	0	0	880	158	303	0	3	461	2039
12:00 PM	101	42	0	0	143	93	100	0	0	193	30	71	0	2	101	437
12:15 PM	133	34	0	0	167	103	124	0	0	227	36	75	0	0	111	505
12:30 PM	155	31	0	0	186	68	106	0	0	174	28	71	0	2	99	459
12:45 PM	109	35	0	0	144	81	100	0	0	181	36	77	0	2	113	438
Hourly Total	498	142	0	0	640	345	430	0	0	775	130	294	0	6	424	1839
1:00 PM	142	40	0	0	182	86	101	1	0	188	44	76	0	0	120	490
1:15 PM	124	27	0	0	151	101	101	1	0	203	33	76	0	0	109	463
1:30 PM	136	26	0	0	162	84	115	0	0	199	28	57	0	0	85	446
1:45 PM	147	46	0	0	193	113	119	0	0	232	31	80	0	2	111	536
Hourly Total	549	139	0	0	688	384	436	2	0	822	136	289	0	2	425	1935
2:00 PM	125	26	0	0	151	82	119	0	0	201	38	85	0	1	123	475

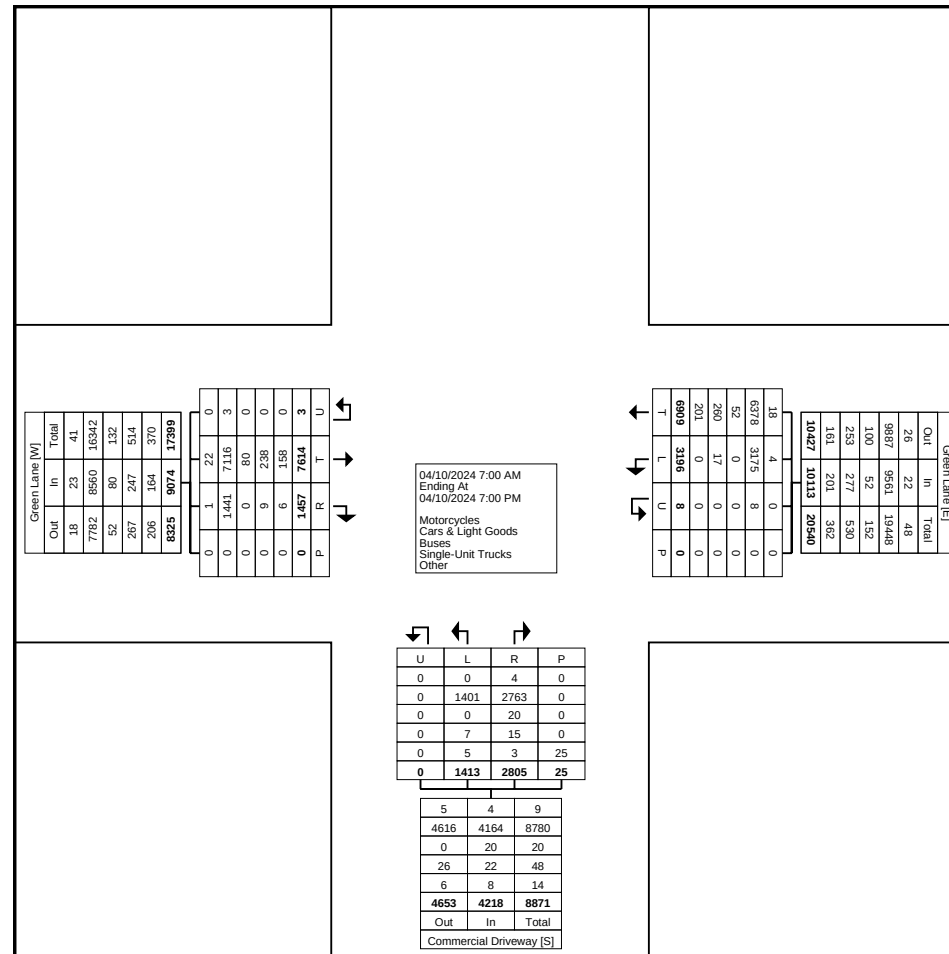
2:15 PM 2:30 PM 2:45 PM	133	18	0	0	151	74	135	0	0	209	39	64	0	0	103	463
	147	34	0	0	181	51	121	0	0	172	42	79	0	0	121	474
	191	26	0	0	217	69	134	0	0	203	34	78	0	0	112	532
Hourly Total	596	104	0	0	700	276	509	0	0	785	153	306	0	1	459	1944
3:00 PM 3:15 PM 3:30 PM 3:45 PM	197	38	0	0	235	60	163	0	0	223	30	63	0	0	93	551
	199	41	0	0	240	49	171	0	0	220	40	83	0	0	123	583
	209	31	0	0	240	60	179	0	0	239	36	71	0	0	107	586
	191	27	2	0	220	64	161	0	0	225	31	63	0	1	94	539
Hourly Total	796	137	2	0	935	233	674	0	0	907	137	280	0	1	417	2259
4:00 PM 4:15 PM 4:30 PM 4:45 PM	184	34	0	0	218	57	192	0	0	249	28	77	0	2	105	572
	188	37	0	0	225	51	165	0	0	216	45	91	0	0	136	577
	201	33	0	0	234	71	161	0	0	232	43	72	0	1	115	581
	242	43	0	0	285	41	192	0	0	233	46	62	0	2	108	626
Hourly Total	815	147	0	0	962	220	710	0	0	930	162	302	0	5	464	2356
5:00 PM 5:15 PM 5:30 PM 5:45 PM	189	30	0	0	219	73	178	0	0	251	38	62	0	3	100	570
	212	42	0	0	254	57	190	1	0	248	38	61	0	1	99	601
	230	38	0	0	268	62	173	1	0	236	42	76	0	0	118	622
	211	28	0	0	239	52	146	0	0	198	39	63	0	0	102	539
Hourly Total	842	138	0	0	980	244	687	2	0	933	157	262	0	4	419	2332
6:00 PM 6:15 PM 6:30 PM 6:45 PM	192	31	0	0	223	68	148	0	0	216	35	92	0	1	127	566
	196	32	0	0	228	51	135	0	0	186	28	65	0	0	93	507
	172	26	0	0	198	63	120	0	0	183	25	59	0	1	84	465
	146	30	0	0	176	56	112	0	0	168	23	57	0	0	80	424
Hourly Total	706	119	0	0	825	238	515	0	0	753	111	273	0	2	384	1962
Grand Total	7614	1457	3	0	9074	3196	6909	8	0	10113	1413	2805	0	25	4218	23405
Approach %	83.9	16.1	0.0	-	-	31.6	68.3	0.1	-	-	33.5	66.5	0.0	-	-	-
Total %	32.5	6.2	0.0	-	38.8	13.7	29.5	0.0	-	43.2	6.0	12.0	0.0	-	18.0	-
Motorcycles	22	1	0	-	23	4	18	0	-	22	0	4	0	-	4	49
% Motorcycles	0.3	0.1	0.0	-	0.3	0.1	0.3	0.0	-	0.2	0.0	0.1	-	-	0.1	0.2
Cars & Light Goods	7116	1441	3	-	8560	3175	6378	8	-	9561	1401	2763	0	-	4164	22285
% Cars & Light Goods	93.5	98.9	100.0	-	94.3	99.3	92.3	100.0	-	94.5	99.2	98.5	-	-	98.7	95.2
Buses	80	0	0	-	80	0	52	0	-	52	0	20	0	-	20	152
% Buses	1.1	0.0	0.0	-	0.9	0.0	0.8	0.0	-	0.5	0.0	0.7	-	-	0.5	0.6
Single-Unit Trucks	238	9	0	-	247	17	260	0	-	277	7	15	0	-	22	546
% Single-Unit Trucks	3.1	0.6	0.0	-	2.7	0.5	3.8	0.0	-	2.7	0.5	0.5	-	-	0.5	2.3
Articulated Trucks	158	5	0	-	163	0	200	0	-	200	5	3	0	-	8	371
% Articulated Trucks	2.1	0.3	0.0	-	1.8	0.0	2.9	0.0	-	2.0	0.4	0.1	-	-	0.2	1.6
Bicycles on Road	0	1	0	-	1	0	1	0	-	1	0	0	0	-	0	2
% Bicycles on Road	0.0	0.1	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	7	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	28.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	18	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	72.0	-	-



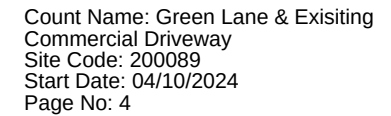
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Exising
Commercial Driveway
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Data Plot



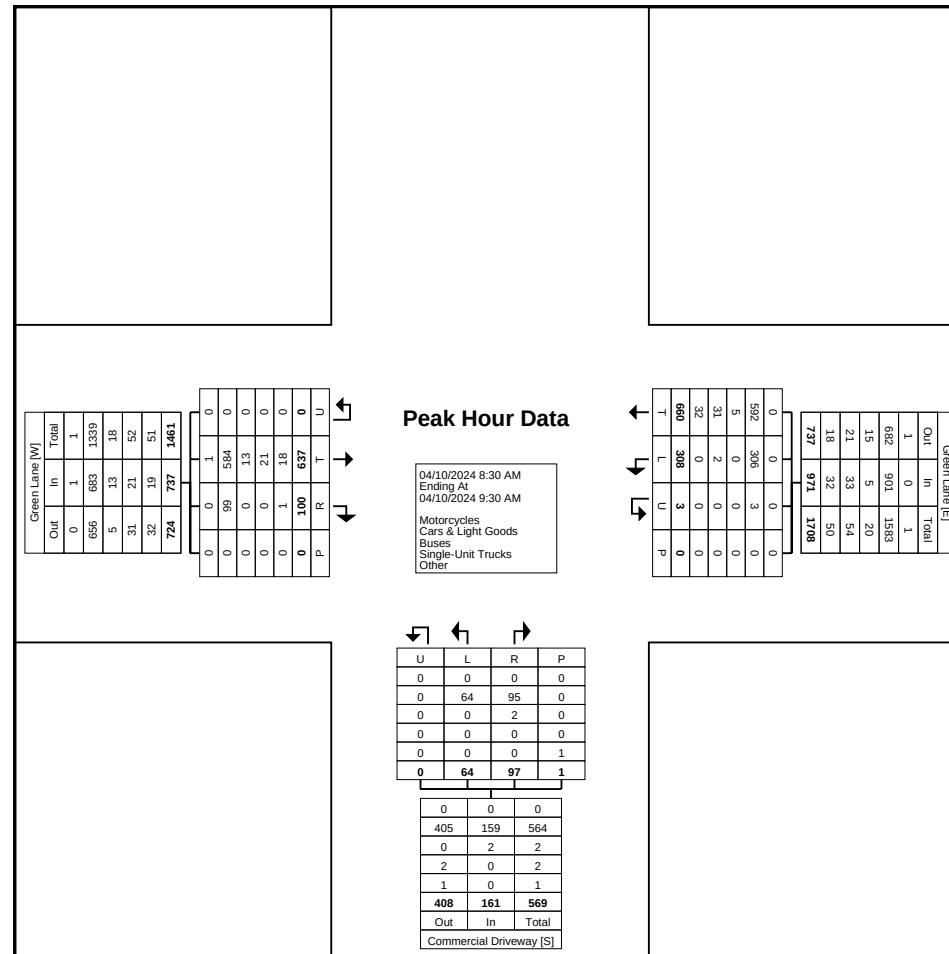
Start Time	Green Lane Eastbound					Green Lane Westbound					Commercial Driveway Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
8:30 AM	202	25	0	0	227	55	165	1	0	221	13	12	0	0	25	473
8:45 AM	155	25	0	0	180	75	167	1	0	243	7	20	0	1	27	450
9:00 AM	119	23	0	0	142	87	170	0	0	257	19	20	0	0	39	438
9:15 AM	161	27	0	0	188	91	158	1	0	250	25	45	0	0	70	508
Total	637	100	0	0	737	308	660	3	0	971	64	97	0	1	161	1869
Approach %	86.4	13.6	0.0	-	-	31.7	68.0	0.3	-	-	39.8	60.2	0.0	-	-	-
Total %	34.1	5.4	0.0	-	39.4	16.5	35.3	0.2	-	52.0	3.4	5.2	0.0	-	8.6	-
PHF	0.788	0.926	0.000	-	0.812	0.846	0.971	0.750	-	0.945	0.640	0.539	0.000	-	0.575	0.920
Motorcycles	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	0.2	0.0	-	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	584	99	0	-	683	306	592	3	-	901	64	95	0	-	159	1743
% Cars & Light Goods	91.7	99.0	-	-	92.7	99.4	89.7	100.0	-	92.8	100.0	97.9	-	-	98.8	93.3
Buses	13	0	0	-	13	0	5	0	-	5	0	2	0	-	2	20
% Buses	2.0	0.0	-	-	1.8	0.0	0.8	0.0	-	0.5	0.0	2.1	-	-	1.2	1.1
Single-Unit Trucks	21	0	0	-	21	2	31	0	-	33	0	0	0	-	0	54
% Single-Unit Trucks	3.3	0.0	-	-	2.8	0.6	4.7	0.0	-	3.4	0.0	0.0	-	-	0.0	2.9
Articulated Trucks	18	1	0	-	19	0	32	0	-	32	0	0	0	-	0	51
% Articulated Trucks	2.8	1.0	-	-	2.6	0.0	4.8	0.0	-	3.3	0.0	0.0	-	-	0.0	2.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Green Lane & Existing
Commercial Driveway
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Peak Hour Data Plot (8:30 AM)

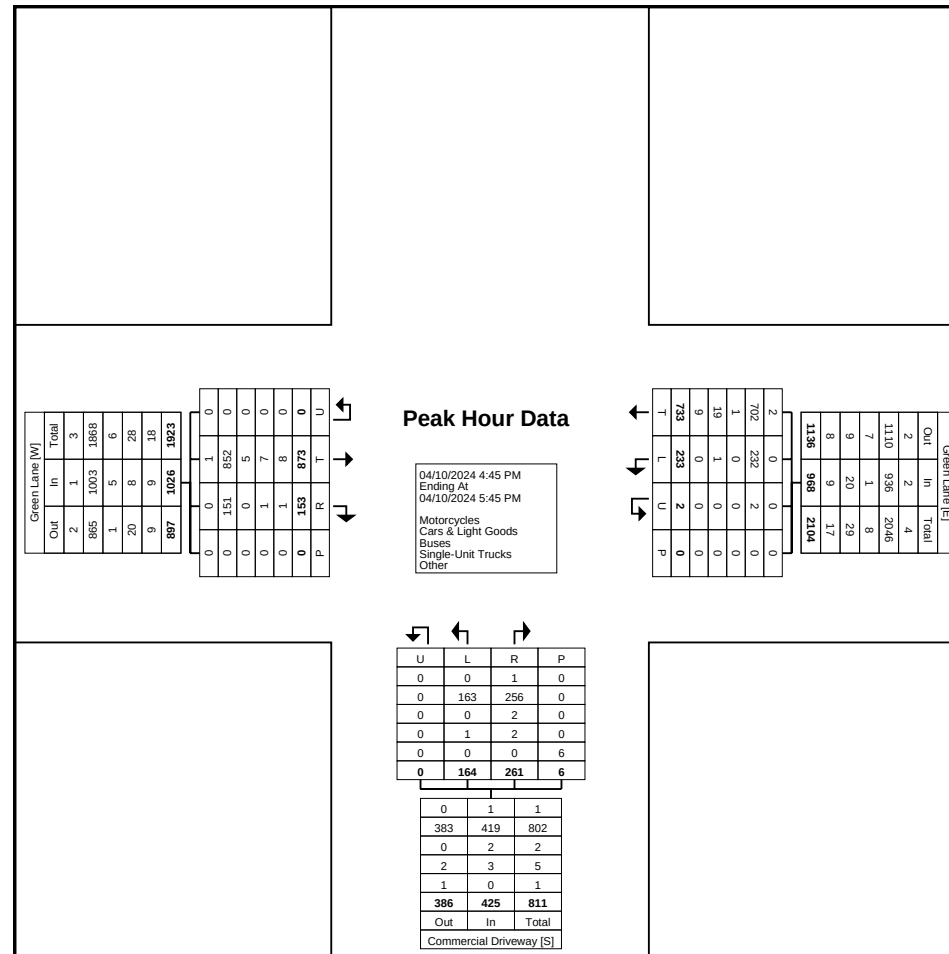
Start Time	Green Lane Eastbound					Green Lane Westbound					Commercial Driveway Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
4:45 PM	242	43	0	0	285	41	192	0	0	233	46	62	0	2	108	626
5:00 PM	189	30	0	0	219	73	178	0	0	251	38	62	0	3	100	570
5:15 PM	212	42	0	0	254	57	190	1	0	248	38	61	0	1	99	601
5:30 PM	230	38	0	0	268	62	173	1	0	236	42	76	0	0	118	622
Total	873	153	0	0	1026	233	733	2	0	968	164	261	0	6	425	2419
Approach %	85.1	14.9	0.0	-	-	24.1	75.7	0.2	-	-	38.6	61.4	0.0	-	-	-
Total %	36.1	6.3	0.0	-	42.4	9.6	30.3	0.1	-	40.0	6.8	10.8	0.0	-	17.6	-
PHF	0.902	0.890	0.000	-	0.900	0.798	0.954	0.500	-	0.964	0.891	0.859	0.000	-	0.900	0.966
Motorcycles	1	0	0	-	1	0	2	0	-	2	0	1	0	-	1	4
% Motorcycles	0.1	0.0	-	-	0.1	0.0	0.3	0.0	-	0.2	0.0	0.4	-	-	0.2	0.2
Cars & Light Goods	852	151	0	-	1003	232	702	2	-	936	163	256	0	-	419	2358
% Cars & Light Goods	97.6	98.7	-	-	97.8	99.6	95.8	100.0	-	96.7	99.4	98.1	-	-	98.6	97.5
Buses	5	0	0	-	5	0	1	0	-	1	0	2	0	-	2	8
% Buses	0.6	0.0	-	-	0.5	0.0	0.1	0.0	-	0.1	0.0	0.8	-	-	0.5	0.3
Single-Unit Trucks	7	1	0	-	8	1	19	0	-	20	1	2	0	-	3	31
% Single-Unit Trucks	0.8	0.7	-	-	0.8	0.4	2.6	0.0	-	2.1	0.6	0.8	-	-	0.7	1.3
Articulated Trucks	8	0	0	-	8	0	9	0	-	9	0	0	0	-	0	17
% Articulated Trucks	0.9	0.0	-	-	0.8	0.0	1.2	0.0	-	0.9	0.0	0.0	-	-	0.0	0.7
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.7	-	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	83.3	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Green Lane & Exisiting
Commercial Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 7



Turning Movement Peak Hour Data Plot (4:45 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Lady Gwillim
Avenue
Site Code: 200089
Start Date: 04/10/2024
Page No: 1

Turning Movement Data

Start Time	Green Lane Eastbound					Green Lane Westbound					Lady Gwillim Avenue Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:00 AM	91	3	0	0	94	2	133	0	0	135	14	5	0	0	19	248
7:15 AM	124	3	0	0	127	4	160	0	0	164	15	15	0	0	30	321
7:30 AM	122	3	0	0	125	1	171	0	0	172	15	9	0	0	24	321
7:45 AM	135	14	0	0	149	2	155	0	0	157	23	6	0	1	29	335
Hourly Total	472	23	0	0	495	9	619	0	0	628	67	35	0	1	102	1225
8:00 AM	131	10	0	0	141	0	179	0	0	179	11	8	0	0	19	339
8:15 AM	157	13	0	0	170	7	168	0	0	175	20	17	0	1	37	382
8:30 AM	161	7	0	0	168	9	162	0	0	171	10	15	0	0	25	364
8:45 AM	160	5	0	0	165	3	145	0	0	148	6	7	0	1	13	326
Hourly Total	609	35	0	0	644	19	654	0	0	673	47	47	0	2	94	1411
9:00 AM	139	4	0	0	143	5	137	0	0	142	7	3	0	0	10	295
9:15 AM	176	3	0	0	179	3	157	0	0	160	10	9	0	0	19	358
9:30 AM	158	3	0	0	161	2	138	0	0	140	7	3	0	0	10	311
9:45 AM	131	0	0	0	131	3	126	0	0	129	4	4	0	0	8	268
Hourly Total	604	10	0	0	614	13	558	0	0	571	28	19	0	0	47	1232
10:00 AM	111	4	0	0	115	3	116	0	0	119	4	6	0	2	10	244
10:15 AM	132	1	0	0	133	2	107	0	0	109	2	4	0	1	6	248
10:30 AM	121	8	0	0	129	4	116	0	0	120	5	3	1	0	9	258
10:45 AM	137	3	0	0	140	1	118	0	0	119	5	1	0	0	6	265
Hourly Total	501	16	0	0	517	10	457	0	0	467	16	14	1	3	31	1015
11:00 AM	123	4	0	0	127	3	136	0	0	139	3	6	0	0	9	275
11:15 AM	136	4	0	0	140	3	112	0	0	115	6	5	0	0	11	266
11:30 AM	168	2	0	0	170	2	128	0	0	130	3	3	0	1	6	306
11:45 AM	162	2	0	0	164	2	179	0	0	181	5	5	0	0	10	355
Hourly Total	589	12	0	0	601	10	555	0	0	565	17	19	0	1	36	1202
12:00 PM	121	6	0	0	127	8	131	1	0	140	6	7	0	0	13	280
12:15 PM	142	6	0	0	148	2	120	0	0	122	5	6	0	0	11	281
12:30 PM	131	1	0	0	132	1	137	0	0	138	4	2	0	4	6	276
12:45 PM	135	2	0	0	137	1	115	0	0	116	4	2	0	1	6	259
Hourly Total	529	15	0	0	544	12	503	1	0	516	19	17	0	5	36	1096
1:00 PM	136	5	0	0	141	2	155	0	0	157	4	5	0	0	9	307
1:15 PM	135	3	0	0	138	2	122	0	0	124	5	5	1	0	11	273
1:30 PM	128	6	0	0	134	6	137	0	0	143	5	6	0	0	11	288
1:45 PM	169	5	0	0	174	5	141	0	0	146	7	9	0	2	16	336
Hourly Total	568	19	0	0	587	15	555	0	0	570	21	25	1	2	47	1204
2:00 PM	125	8	0	0	133	5	123	0	0	128	2	4	0	0	6	267

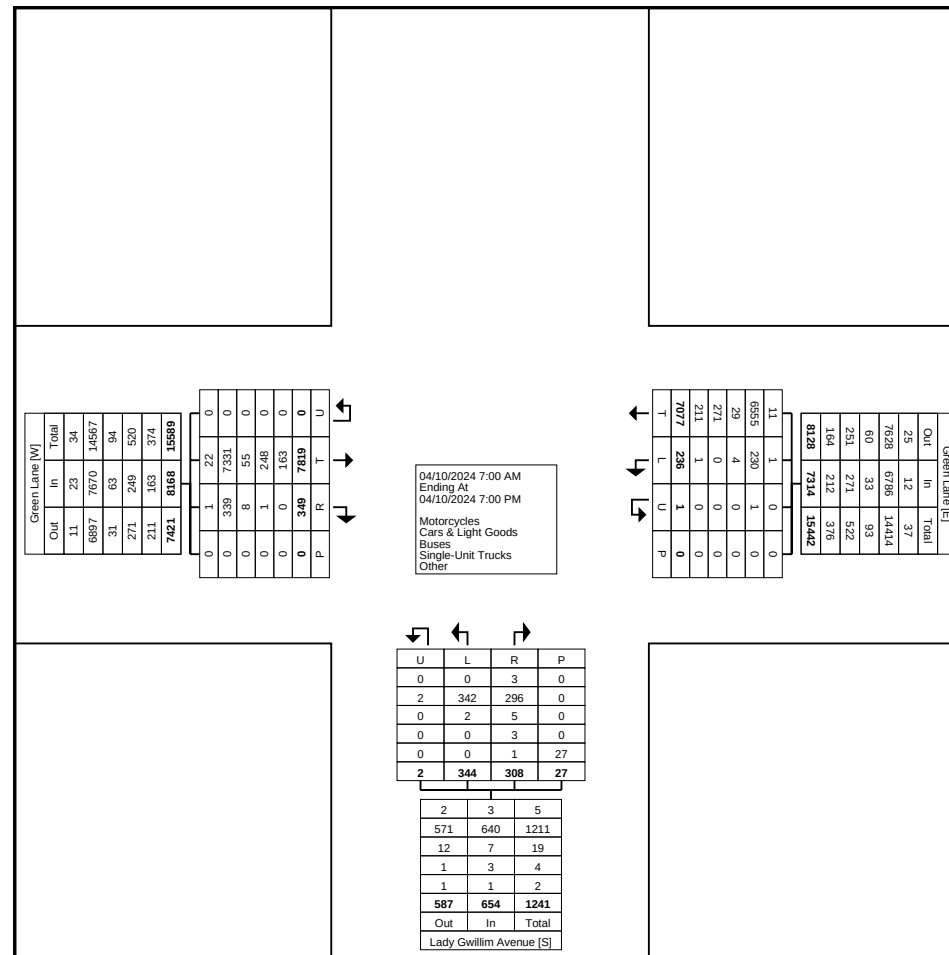
2:15 PM 2:30 PM 2:45 PM	124	4	0	0	128	4	139	0	0	143	5	0	0	2	5	276
	158	11	0	0	169	3	159	0	0	162	9	4	0	1	13	344
	195	9	0	0	204	8	139	0	0	147	9	8	0	0	17	368
Hourly Total	602	32	0	0	634	20	560	0	0	580	25	16	0	3	41	1255
3:00 PM 3:15 PM 3:30 PM 3:45 PM	181	7	0	0	188	3	174	0	0	177	3	9	0	0	12	377
	206	9	0	0	215	8	193	0	0	201	15	10	0	0	25	441
	225	9	0	0	234	4	176	0	0	180	8	4	0	0	12	426
	224	14	0	0	238	9	172	0	0	181	10	8	0	3	18	437
Hourly Total	836	39	0	0	875	24	715	0	0	739	36	31	0	3	67	1681
4:00 PM 4:15 PM 4:30 PM 4:45 PM	196	10	0	0	206	7	168	0	0	175	6	9	0	2	15	396
	228	6	0	0	234	9	199	0	0	208	5	5	0	0	10	452
	223	12	0	0	235	7	171	0	0	178	9	8	0	0	17	430
	249	19	0	0	268	6	206	0	0	212	7	6	0	0	13	493
Hourly Total	896	47	0	0	943	29	744	0	0	773	27	28	0	2	55	1771
5:00 PM 5:15 PM 5:30 PM 5:45 PM	208	13	0	0	221	9	166	0	0	175	9	4	0	0	13	409
	223	17	0	0	240	12	179	0	0	191	5	12	0	3	17	448
	237	16	0	0	253	12	171	0	0	183	4	9	0	2	13	449
	216	17	0	0	233	8	149	0	0	157	5	7	0	0	12	402
Hourly Total	884	63	0	0	947	41	665	0	0	706	23	32	0	5	55	1708
6:00 PM 6:15 PM 6:30 PM 6:45 PM	207	16	0	0	223	9	142	0	0	151	1	2	0	0	3	377
	206	12	0	0	218	10	121	0	0	131	6	4	0	0	10	359
	158	4	0	0	162	8	118	0	0	126	4	9	0	0	13	301
	158	6	0	0	164	7	111	0	0	118	7	10	0	0	17	299
Hourly Total	729	38	0	0	767	34	492	0	0	526	18	25	0	0	43	1336
Grand Total	7819	349	0	0	8168	236	7077	1	0	7314	344	308	2	27	654	16136
Approach %	95.7	4.3	0.0	-	-	3.2	96.8	0.0	-	-	52.6	47.1	0.3	-	-	-
Total %	48.5	2.2	0.0	-	50.6	1.5	43.9	0.0	-	45.3	2.1	1.9	0.0	-	4.1	-
Motorcycles	22	1	0	-	23	1	11	0	-	12	0	3	0	-	3	38
% Motorcycles	0.3	0.3	-	-	0.3	0.4	0.2	0.0	-	0.2	0.0	1.0	0.0	-	0.5	0.2
Cars & Light Goods	7331	339	0	-	7670	230	6555	1	-	6786	342	296	2	-	640	15096
% Cars & Light Goods	93.8	97.1	-	-	93.9	97.5	92.6	100.0	-	92.8	99.4	96.1	100.0	-	97.9	93.6
Buses	55	8	0	-	63	4	29	0	-	33	2	5	0	-	7	103
% Buses	0.7	2.3	-	-	0.8	1.7	0.4	0.0	-	0.5	0.6	1.6	0.0	-	1.1	0.6
Single-Unit Trucks	248	1	0	-	249	0	271	0	-	271	0	3	0	-	3	523
% Single-Unit Trucks	3.2	0.3	-	-	3.0	0.0	3.8	0.0	-	3.7	0.0	1.0	0.0	-	0.5	3.2
Articulated Trucks	163	0	0	-	163	1	211	0	-	212	0	1	0	-	1	376
% Articulated Trucks	2.1	0.0	-	-	2.0	0.4	3.0	0.0	-	2.9	0.0	0.3	0.0	-	0.2	2.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	6	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	22.2	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	21	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	77.8	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Green Lane & Lady Gwillim
Avenue
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Lady Gwillim
Avenue
Site Code: 200089
Start Date: 04/10/2024
Page No: 4

Turning Movement Peak Hour Data (7:45 AM)

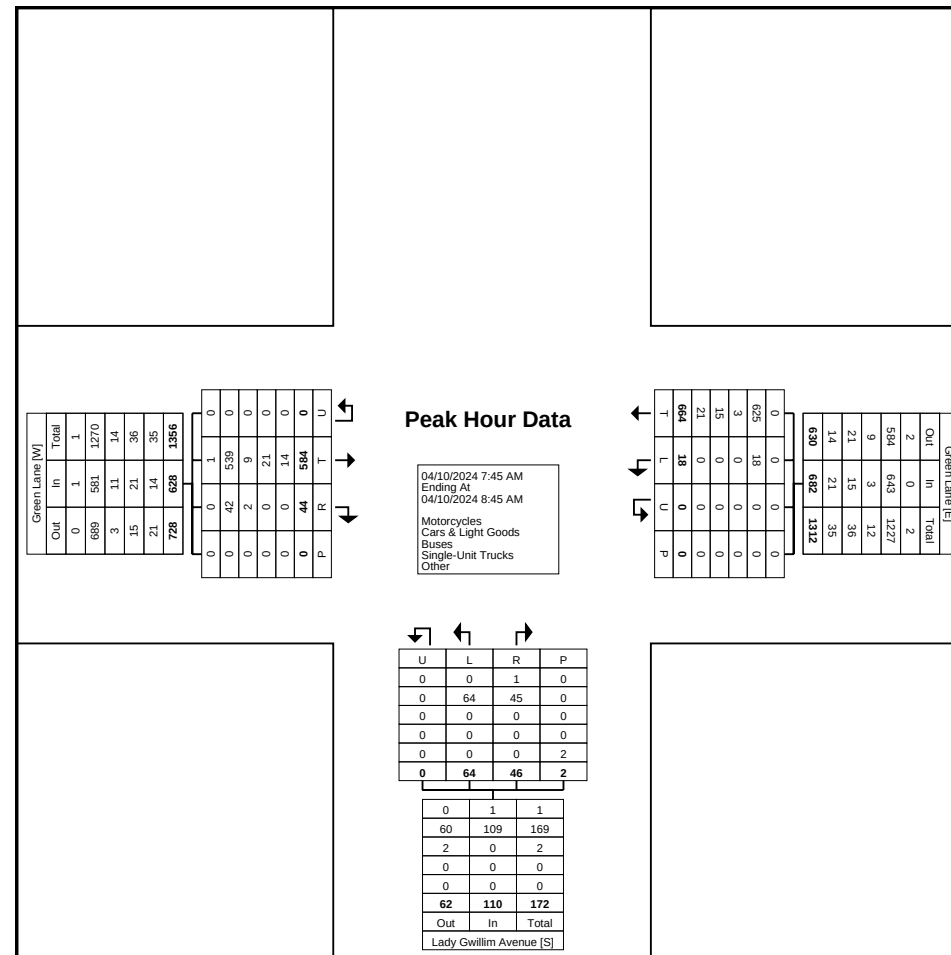
Start Time	Green Lane Eastbound					Green Lane Westbound					Lady Gwillim Avenue Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:45 AM	135	14	0	0	149	2	155	0	0	157	23	6	0	1	29	335
8:00 AM	131	10	0	0	141	0	179	0	0	179	11	8	0	0	19	339
8:15 AM	157	13	0	0	170	7	168	0	0	175	20	17	0	1	37	382
8:30 AM	161	7	0	0	168	9	162	0	0	171	10	15	0	0	25	364
Total	584	44	0	0	628	18	664	0	0	682	64	46	0	2	110	1420
Approach %	93.0	7.0	0.0	-	-	2.6	97.4	0.0	-	-	58.2	41.8	0.0	-	-	-
Total %	41.1	3.1	0.0	-	44.2	1.3	46.8	0.0	-	48.0	4.5	3.2	0.0	-	7.7	-
PHF	0.907	0.786	0.000	-	0.924	0.500	0.927	0.000	-	0.953	0.696	0.676	0.000	-	0.743	0.929
Motorcycles	1	0	0	-	1	0	0	0	-	0	0	1	0	-	1	2
% Motorcycles	0.2	0.0	-	-	0.2	0.0	0.0	-	-	0.0	0.0	2.2	-	-	0.9	0.1
Cars & Light Goods	539	42	0	-	581	18	625	0	-	643	64	45	0	-	109	1333
% Cars & Light Goods	92.3	95.5	-	-	92.5	100.0	94.1	-	-	94.3	100.0	97.8	-	-	99.1	93.9
Buses	9	2	0	-	11	0	3	0	-	3	0	0	0	-	0	14
% Buses	1.5	4.5	-	-	1.8	0.0	0.5	-	-	0.4	0.0	0.0	-	-	0.0	1.0
Single-Unit Trucks	21	0	0	-	21	0	15	0	-	15	0	0	0	-	0	36
% Single-Unit Trucks	3.6	0.0	-	-	3.3	0.0	2.3	-	-	2.2	0.0	0.0	-	-	0.0	2.5
Articulated Trucks	14	0	0	-	14	0	21	0	-	21	0	0	0	-	0	35
% Articulated Trucks	2.4	0.0	-	-	2.2	0.0	3.2	-	-	3.1	0.0	0.0	-	-	0.0	2.5
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



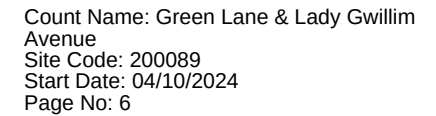
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Green Lane & Lady Gwillim
Avenue
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Peak Hour Data Plot (7:45 AM)

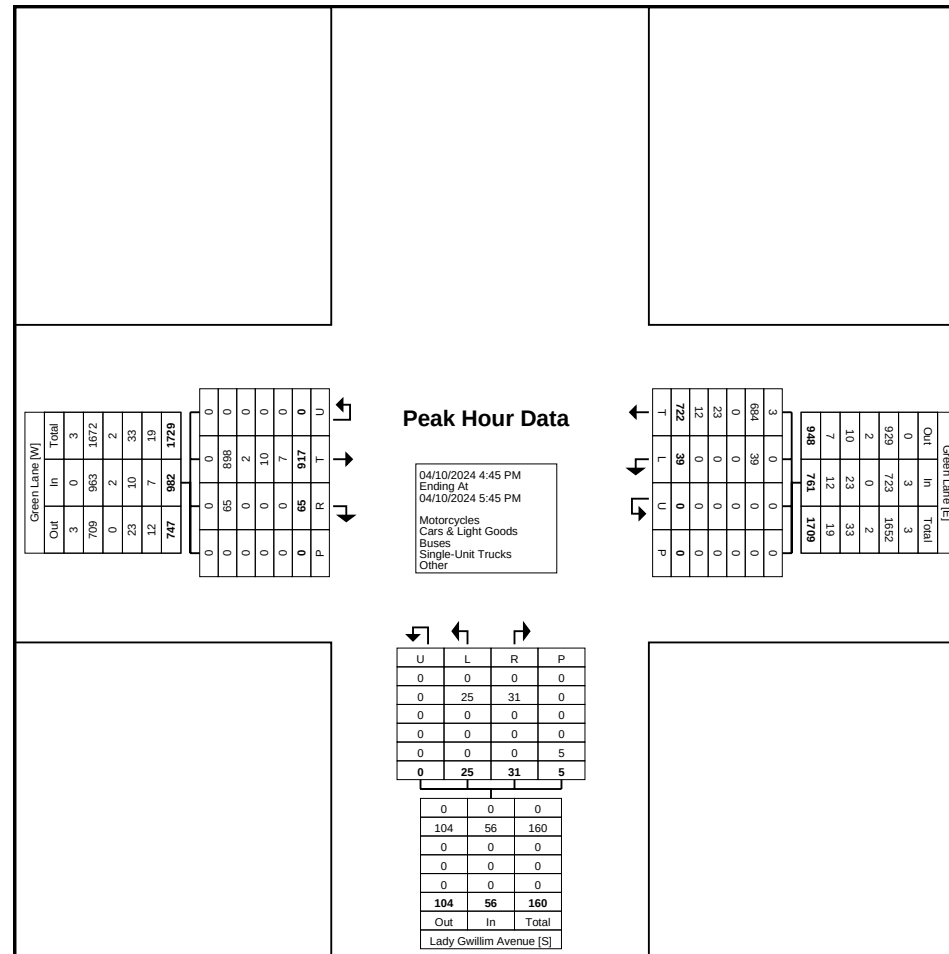
[illegible]



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Count Name: Green Lane & Lady Gwillim
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Turning Movement Peak Hour Data Plot (4:45 PM)



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Count Name: Green Lane & Woodspring Avenue
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Data

Start Time	Green Lane Eastbound					Green Lane Westbound					Woodspring Avenue Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:00 AM	86	4	0	0	90	9	142	0	0	151	6	32	0	0	38	279
7:15 AM	126	5	0	0	131	15	158	0	0	173	10	41	0	0	51	355
7:30 AM	117	8	0	0	125	24	176	0	0	200	5	52	0	0	57	382
7:45 AM	127	11	0	0	138	47	145	0	0	192	7	47	0	0	54	384
Hourly Total	456	28	0	0	484	95	621	0	0	716	28	172	0	0	200	1400
8:00 AM	122	9	0	0	131	36	167	0	0	203	6	53	0	2	59	393
8:15 AM	170	5	0	0	175	26	151	0	0	177	17	69	0	1	86	438
8:30 AM	165	3	0	0	168	21	148	0	0	169	7	70	0	1	77	414
8:45 AM	159	7	0	0	166	35	142	0	0	177	4	39	0	1	43	386
Hourly Total	616	24	0	0	640	118	608	0	0	726	34	231	0	5	265	1631
9:00 AM	137	4	0	0	141	41	148	0	0	189	5	53	0	0	58	388
9:15 AM	173	4	0	0	177	52	146	1	0	199	8	38	0	0	46	422
9:30 AM	148	3	0	0	151	24	133	0	0	157	5	29	0	0	34	342
9:45 AM	131	3	0	0	134	22	125	0	0	147	4	27	0	0	31	312
Hourly Total	589	14	0	0	603	139	552	1	0	692	22	147	0	0	169	1464
10:00 AM	115	3	0	0	118	20	112	0	0	132	4	27	0	0	31	281
10:15 AM	127	2	0	0	129	28	108	0	0	136	1	31	0	1	32	297
10:30 AM	118	3	0	0	121	22	100	0	0	122	8	40	0	0	48	291
10:45 AM	133	3	0	0	136	34	113	0	0	147	9	54	0	0	63	346
Hourly Total	493	11	0	0	504	104	433	0	0	537	22	152	0	1	174	1215
11:00 AM	121	7	0	0	128	33	131	1	0	165	4	63	0	0	67	360
11:15 AM	136	6	0	0	142	34	111	0	0	145	5	41	0	0	46	333
11:30 AM	169	5	0	0	174	51	137	0	0	188	9	74	0	3	83	445
11:45 AM	152	7	0	0	159	45	158	0	0	203	11	86	0	0	97	459
Hourly Total	578	25	0	0	603	163	537	1	0	701	29	264	0	3	293	1597
12:00 PM	127	2	0	0	129	31	138	0	0	169	6	39	0	0	45	343
12:15 PM	141	7	0	0	148	38	112	0	0	150	9	57	0	0	66	364
12:30 PM	125	9	0	0	134	23	139	0	0	162	8	64	0	4	72	368
12:45 PM	127	3	0	0	130	33	123	0	0	156	5	54	0	0	59	345
Hourly Total	520	21	0	0	541	125	512	0	0	637	28	214	0	4	242	1420
1:00 PM	137	3	0	0	140	38	147	0	0	185	9	67	0	0	76	401
1:15 PM	127	4	0	0	131	33	116	0	0	149	10	35	0	0	45	325
1:30 PM	128	5	0	0	133	31	133	0	0	164	3	45	0	0	48	345
1:45 PM	159	8	0	0	167	45	131	0	0	176	14	68	0	2	82	425
Hourly Total	551	20	0	0	571	147	527	0	0	674	36	215	0	2	251	1496
2:00 PM	121	7	0	0	128	36	133	0	0	169	2	52	0	0	54	351

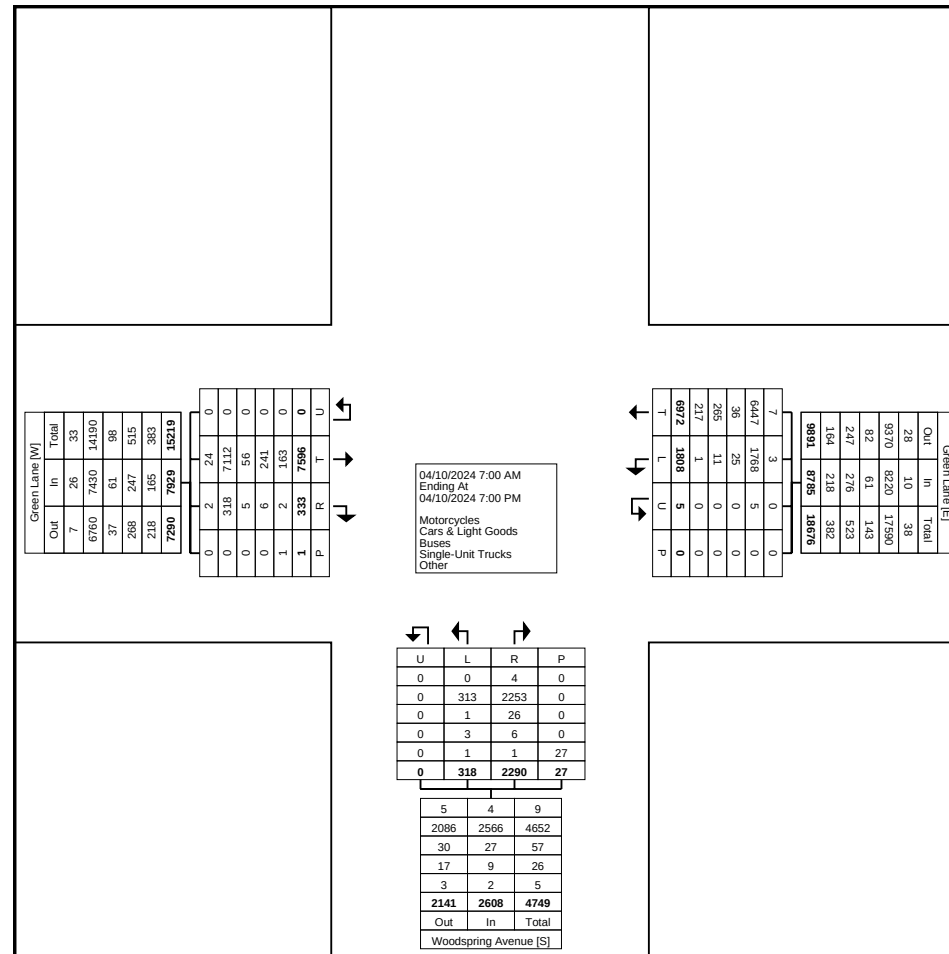
2:15 PM 2:30 PM 2:45 PM	115	8	0	0	123	53	136	0	0	189	10	58	0	0	68	380
	140	10	0	0	150	37	157	0	0	194	10	52	0	0	62	406
	195	8	0	0	203	44	148	0	0	192	11	61	0	1	72	467
Hourly Total	571	33	0	0	604	170	574	0	0	744	33	223	0	1	256	1604
3:00 PM 3:15 PM 3:30 PM 3:45 PM	184	6	0	0	190	36	161	0	0	197	11	53	0	0	64	451
	191	11	0	0	202	37	193	0	0	230	4	44	0	2	48	480
	201	6	0	0	207	36	182	1	0	219	4	31	0	0	35	461
	208	16	0	0	224	43	158	1	0	202	4	38	0	2	42	468
Hourly Total	784	39	0	0	823	152	694	2	0	848	23	166	0	4	189	1860
4:00 PM 4:15 PM 4:30 PM 4:45 PM	200	7	0	0	207	38	162	0	0	200	4	33	0	0	37	444
	191	12	0	0	203	45	194	0	0	239	10	38	0	1	48	490
	204	16	0	0	220	47	168	0	0	215	6	47	0	2	53	488
	231	5	0	0	236	54	188	0	0	242	6	43	0	0	49	527
Hourly Total	826	40	0	0	866	184	712	0	0	896	26	161	0	3	187	1949
5:00 PM 5:15 PM 5:30 PM 5:45 PM	208	8	0	0	216	54	178	0	0	232	7	51	0	1	58	506
	231	14	0	1	245	55	184	0	0	239	3	40	0	0	43	527
	243	5	0	0	248	57	170	1	0	228	9	49	0	2	58	534
	220	12	0	0	232	53	147	0	0	200	5	46	0	0	51	483
Hourly Total	902	39	0	1	941	219	679	1	0	899	24	186	0	3	210	2050
6:00 PM 6:15 PM 6:30 PM 6:45 PM	202	13	0	0	215	57	152	0	0	209	6	46	0	0	52	476
	187	9	0	0	196	50	130	0	0	180	2	40	0	0	42	418
	170	6	0	0	176	48	125	0	0	173	1	34	0	1	35	384
	151	11	0	0	162	37	116	0	0	153	4	39	0	0	43	358
Hourly Total	710	39	0	0	749	192	523	0	0	715	13	159	0	1	172	1636
Grand Total	7596	333	0	1	7929	1808	6972	5	0	8785	318	2290	0	27	2608	19322
Approach %	95.8	4.2	0.0	-	-	20.6	79.4	0.1	-	-	12.2	87.8	0.0	-	-	-
Total %	39.3	1.7	0.0	-	41.0	9.4	36.1	0.0	-	45.5	1.6	11.9	0.0	-	13.5	-
Motorcycles	24	2	0	-	26	3	7	0	-	10	0	4	0	-	4	40
% Motorcycles	0.3	0.6	-	-	0.3	0.2	0.1	0.0	-	0.1	0.0	0.2	-	-	0.2	0.2
Cars & Light Goods	7112	318	0	-	7430	1768	6447	5	-	8220	313	2253	0	-	2566	18216
% Cars & Light Goods	93.6	95.5	-	-	93.7	97.8	92.5	100.0	-	93.6	98.4	98.4	-	-	98.4	94.3
Buses	56	5	0	-	61	25	36	0	-	61	1	26	0	-	27	149
% Buses	0.7	1.5	-	-	0.8	1.4	0.5	0.0	-	0.7	0.3	1.1	-	-	1.0	0.8



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Woodspring Avenue
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Start Date: 04/10/2024
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Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Green Lane & Woodspring Avenue
Site Code: 200089
Start Date: 04/10/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

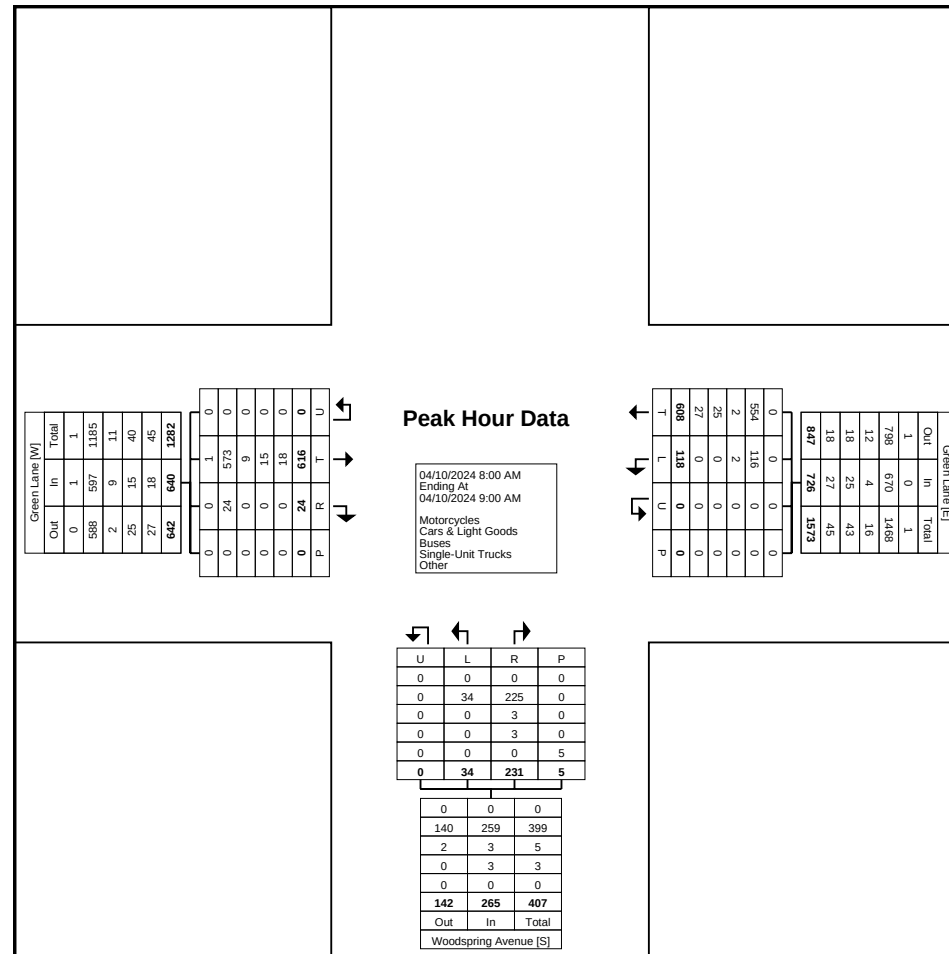
Start Time	Green Lane Eastbound					Green Lane Westbound					Woodspring Avenue Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
8:00 AM	122	9	0	0	131	36	167	0	0	203	6	53	0	2	59	393
8:15 AM	170	5	0	0	175	26	151	0	0	177	17	69	0	1	86	438
8:30 AM	165	3	0	0	168	21	148	0	0	169	7	70	0	1	77	414
8:45 AM	159	7	0	0	166	35	142	0	0	177	4	39	0	1	43	386
Total	616	24	0	0	640	118	608	0	0	726	34	231	0	5	265	1631
Approach %	96.3	3.8	0.0	-	-	16.3	83.7	0.0	-	-	12.8	87.2	0.0	-	-	-
Total %	37.8	1.5	0.0	-	39.2	7.2	37.3	0.0	-	44.5	2.1	14.2	0.0	-	16.2	-
PHF	0.906	0.667	0.000	-	0.914	0.819	0.910	0.000	-	0.894	0.500	0.825	0.000	-	0.770	0.931
Motorcycles	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	0.2	0.0	-	-	0.2	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	573	24	0	-	597	116	554	0	-	670	34	225	0	-	259	1526
% Cars & Light Goods	93.0	100.0	-	-	93.3	98.3	91.1	-	-	92.3	100.0	97.4	-	-	97.7	93.6
Buses	9	0	0	-	9	2	2	0	-	4	0	3	0	-	3	16
% Buses	1.5	0.0	-	-	1.4	1.7	0.3	-	-	0.6	0.0	1.3	-	-	1.1	1.0
Single-Unit Trucks	15	0	0	-	15	0	25	0	-	25	0	3	0	-	3	43
% Single-Unit Trucks	2.4	0.0	-	-	2.3	0.0	4.1	-	-	3.4	0.0	1.3	-	-	1.1	2.6
Articulated Trucks	18	0	0	-	18	0	27	0	-	27	0	0	0	-	0	45
% Articulated Trucks	2.9	0.0	-	-	2.8	0.0	4.4	-	-	3.7	0.0	0.0	-	-	0.0	2.8
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Green Lane & Woodspring Avenue
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Peak Hour Data Plot (8:00 AM)

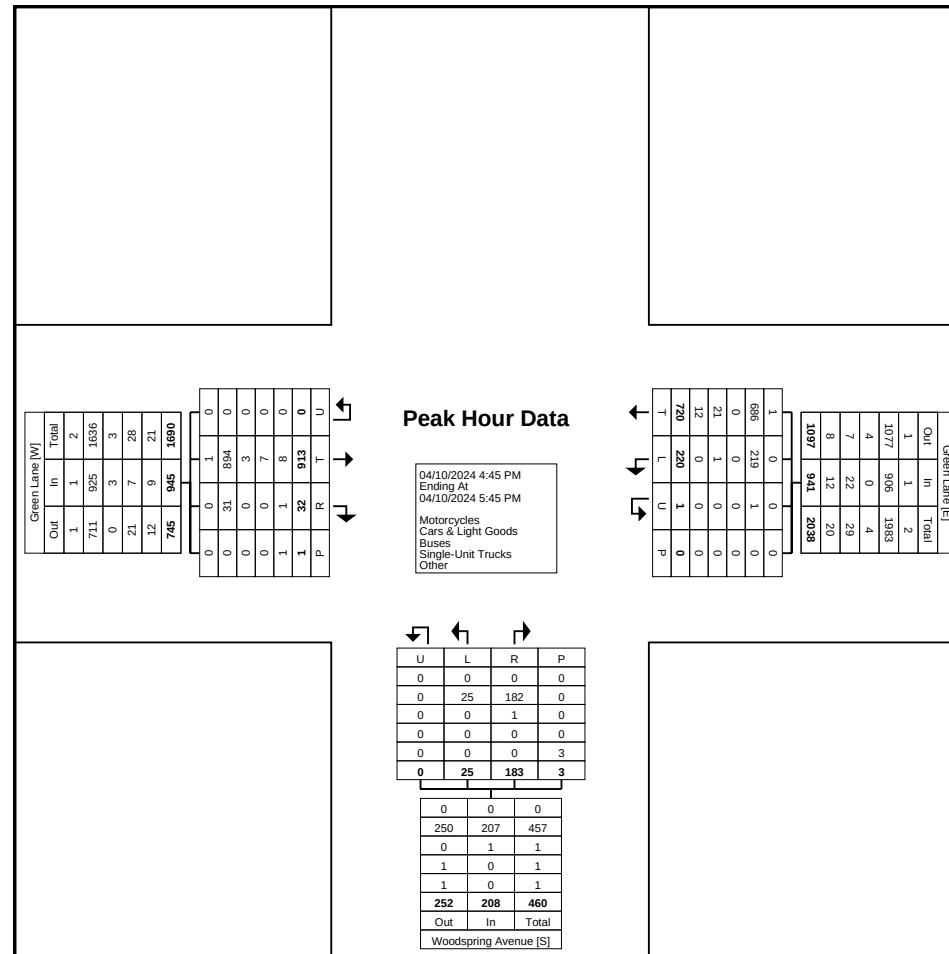
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Count Name: Green Lane & Woodspring Avenue
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Peak Hour Data Plot (4:45 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Yonge Street
Site Code: 200089
Start Date: 04/10/2024
Page No: 1

Turning Movement Data

Start Time	Green Lane Eastbound						Green Lane Westbound						Yonge Street Northbound						Yonge Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	16	114	7	0	7	137	34	115	60	0	1	209	9	33	40	0	1	82	270	97	41	0	2	408	836
7:15 AM	13	154	15	0	2	182	45	133	55	0	0	233	5	42	41	0	0	88	241	101	42	0	2	384	887
7:30 AM	26	138	8	0	1	172	49	151	62	1	2	263	11	64	39	0	2	114	260	140	45	0	0	445	994
7:45 AM	22	150	13	0	1	185	60	146	72	0	2	278	2	56	35	0	0	93	245	184	35	0	1	464	1020
Hourly Total	77	556	43	0	11	676	188	545	249	1	5	983	27	195	155	0	3	377	1016	522	163	0	5	1701	3737
8:00 AM	25	104	21	0	0	150	53	130	60	0	1	243	18	100	44	0	0	162	192	141	40	0	2	373	928
8:15 AM	43	158	26	0	1	227	59	137	67	0	0	263	14	95	52	0	2	161	191	143	34	0	1	368	1019
8:30 AM	33	165	22	0	0	220	56	143	76	0	2	275	12	93	32	0	0	137	140	130	58	0	3	328	960
8:45 AM	33	108	8	0	1	149	48	160	57	0	2	265	13	78	37	0	1	128	166	146	60	0	2	372	914
Hourly Total	134	535	77	0	2	746	216	570	260	0	5	1046	57	366	165	0	3	588	689	560	192	0	8	1441	3821
9:00 AM	24	111	4	0	1	139	39	158	70	0	3	267	13	45	30	0	1	88	168	95	76	0	1	339	833
9:15 AM	53	156	12	0	0	221	57	160	82	0	2	299	15	84	25	0	0	124	160	99	62	0	0	321	965
9:30 AM	40	161	4	0	0	205	54	147	68	0	3	269	9	79	33	0	1	121	159	109	51	0	1	319	914
9:45 AM	37	140	16	0	4	193	55	142	61	1	2	259	7	65	36	0	3	108	152	112	58	0	3	322	882
Hourly Total	154	568	36	0	5	758	205	607	281	1	10	1094	44	273	124	0	5	441	639	415	247	0	5	1301	3594
10:00 AM	41	117	9	0	0	167	56	111	56	2	1	225	7	79	34	0	0	120	85	42	75	0	0	202	714
10:15 AM	36	97	8	0	1	141	56	118	86	1	4	261	14	69	32	0	2	115	102	106	44	0	1	252	769
10:30 AM	53	109	9	0	1	171	58	121	71	0	4	250	7	66	22	0	0	95	104	68	42	0	2	214	730
10:45 AM	45	112	8	2	7	167	25	146	69	0	0	240	9	82	25	0	0	116	94	78	77	0	4	249	772
Hourly Total	175	435	34	2	9	646	195	496	282	3	9	976	37	296	113	0	2	446	385	294	238	0	7	917	2985
11:00 AM	45	123	9	0	1	177	61	154	84	1	1	300	7	61	15	0	0	83	87	99	50	0	0	236	796
11:15 AM	48	143	11	0	1	202	65	123	65	0	1	253	7	71	15	0	1	93	112	90	61	0	0	263	811
11:30 AM	60	161	8	0	0	229	25	126	75	4	3	230	15	32	25	0	1	72	105	58	91	0	0	254	785
11:45 AM	68	157	11	0	2	236	30	179	59	0	1	268	8	43	9	0	2	60	105	76	52	0	1	233	797
Hourly Total	221	584	39	0	4	844	181	582	283	5	6	1051	37	207	64	0	4	308	409	323	254	0	1	986	3189
12:00 PM	52	117	4	0	1	173	77	123	74	0	1	274	1	88	31	1	2	121	99	47	56	0	1	202	770
12:15 PM	55	152	10	0	1	217	65	145	82	0	5	292	12	71	17	0	0	100	91	90	44	0	1	225	834
12:30 PM	63	137	11	0	0	211	56	112	65	0	2	233	5	82	19	0	1	106	83	75	54	0	0	212	762
12:45 PM	63	127	10	0	0	200	63	153	77	0	2	293	5	70	26	0	3	101	81	80	44	0	2	205	799
Hourly Total	233	533	35	0	2	801	261	533	298	0	10	1092	23	311	93	1	6	428	354	292	198	0	4	844	3165
1:00 PM	64	150	4	0	0	218	64	138	71	2	0	275	10	114	25	0	2	149	84	58	49	0	0	191	833
1:15 PM	60	129	14	1	1	204	66	136	83	2	7	287	16	105	42	0	1	163	91	86	57	0	0	234	888
1:30 PM	57	134	5	0	0	196	54	132	82	2	6	270	5	117	34	0	1	156	94	63	62	0	0	219	841
1:45 PM	70	133	13	0	1	216	23	149	92	10	3	274	4	50	11	0	1	65	104	45	90	0	1	239	794
Hourly Total	251	546	36	1	2	834	207	555	328	16	16	1106	35	386	112	0	5	533	373	252	258	0	1	883	3356

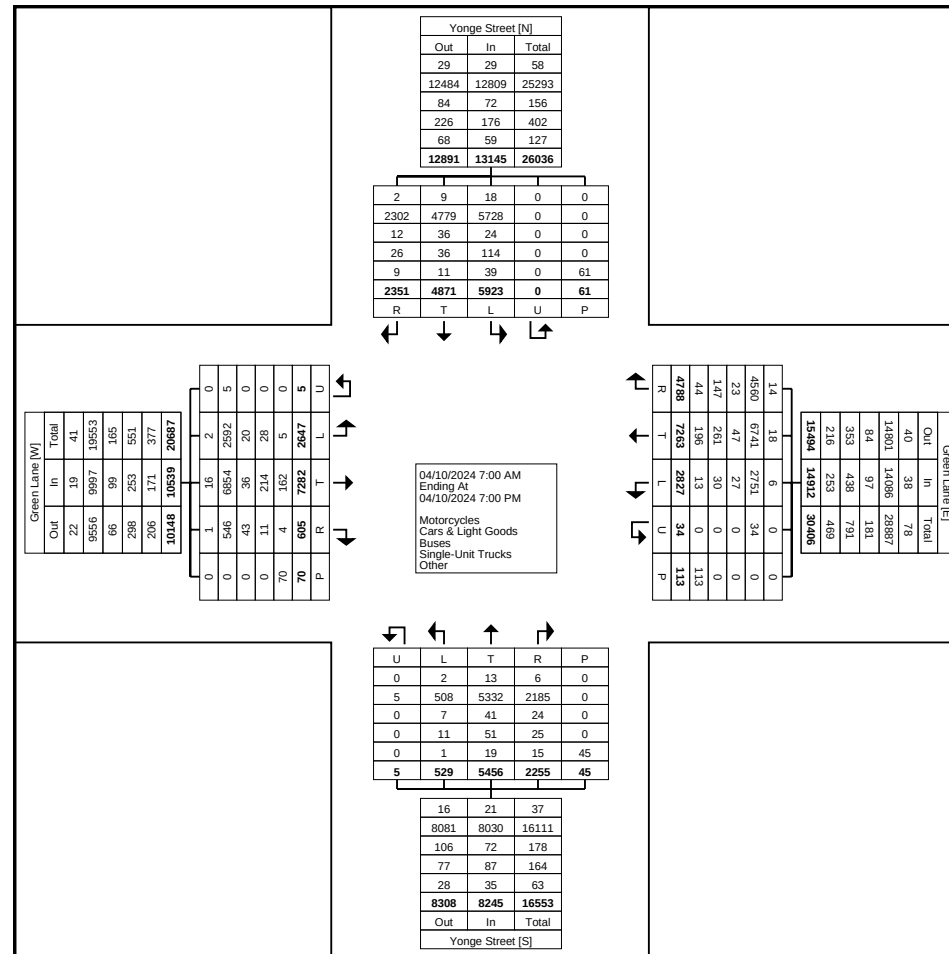
2:00 PM	64	136	7	0	5	207	66	126	85	0	3	277	7	77	25	0	1	109	108	73	66	0	4	247	840
2:15 PM	46	154	12	0	1	212	40	177	128	4	3	349	5	89	32	0	2	126	87	81	56	0	0	224	911
2:30 PM	59	150	9	0	2	218	69	126	114	0	1	309	7	154	47	0	0	208	103	109	34	0	2	246	981
2:45 PM	76	192	16	0	1	284	49	159	113	1	2	322	21	151	68	0	0	240	79	111	49	0	3	239	1085
Hourly Total	245	632	44	0	9	921	224	588	440	5	9	1257	40	471	172	0	3	683	377	374	205	0	9	956	3817
3:00 PM	58	149	26	0	0	233	69	166	144	0	4	379	22	154	75	0	1	251	109	108	29	0	0	246	1109
3:15 PM	75	178	15	1	6	269	76	174	156	0	4	406	19	190	68	0	1	277	88	80	26	0	5	194	1146
3:30 PM	64	202	10	0	1	276	67	191	190	0	4	448	15	155	82	0	5	252	130	108	38	0	0	276	1252
3:45 PM	70	165	9	0	3	244	63	165	156	1	4	385	12	200	78	0	0	290	121	144	49	0	1	314	1233
Hourly Total	267	694	60	1	10	1022	275	696	646	1	16	1618	68	699	303	0	7	1070	448	440	142	0	6	1030	4740
4:00 PM	73	205	6	0	1	284	68	189	162	0	2	419	12	191	77	0	0	280	95	102	42	0	0	239	1222
4:15 PM	66	198	14	0	3	278	74	176	152	0	1	402	9	203	98	1	1	311	114	122	40	0	2	276	1267
4:30 PM	80	192	15	0	0	287	80	193	161	0	0	434	18	197	86	0	0	301	117	105	34	0	1	256	1278
4:45 PM	80	196	18	0	2	294	77	173	159	0	2	409	11	202	75	0	1	288	124	126	47	0	2	297	1288
Hourly Total	299	791	53	0	6	1143	299	731	634	0	5	1664	50	793	336	1	2	1180	450	455	163	0	5	1068	5055
5:00 PM	85	187	14	1	0	287	85	206	139	0	2	430	15	189	92	1	0	297	99	106	39	0	1	244	1258
5:15 PM	76	184	20	0	1	280	68	202	157	0	5	427	21	197	80	0	1	298	107	145	36	0	3	288	1293
5:30 PM	85	207	18	0	5	310	77	181	134	1	1	393	15	236	74	0	0	325	95	132	37	0	2	264	1292
5:45 PM	75	210	21	0	0	306	65	179	107	0	3	351	8	170	68	0	0	246	117	104	30	0	0	251	1154
Hourly Total	321	788	73	1	6	1183	295	768	537	1	11	1601	59	792	314	1	1	1166	418	487	142	0	6	1047	4997
6:00 PM	73	176	18	0	1	267	80	166	163	1	3	410	12	181	74	0	1	267	85	122	43	0	1	250	1194
6:15 PM	83	180	19	0	1	282	72	163	144	0	4	379	16	138	84	1	0	239	86	111	38	0	1	235	1135
6:30 PM	62	139	16	0	2	217	66	138	140	0	1	344	11	173	70	0	0	254	94	112	30	0	2	236	1051
6:45 PM	52	125	22	0	0	199	63	125	103	0	3	291	13	175	76	1	3	265	100	112	38	0	0	250	1005
Hourly Total	270	620	75	0	4	965	281	592	550	1	11	1424	52	667	304	2	4	1025	365	457	149	0	4	971	4385
Grand Total	2647	7282	605	5	70	10539	2827	7263	4788	34	113	14912	529	5456	2255	5	45	8245	5923	4871	2351	0	61	13145	46841
Approach %	25.1	69.1	5.7	0.0	-	-	19.0	48.7	32.1	0.2	-	-	6.4	66.2	27.3	0.1	-	-	45.1	37.1	17.9	0.0	-	-	-
Total %	5.7	15.5	1.3	0.0	-	22.5	6.0	15.5	10.2	0.1	-	31.8	1.1	11.6	4.8	0.0	-	17.6	12.6	10.4	5.0	0.0	-	28.1	-
Motorcycles	2	16	1	0	-	19	6	18	14	0	-	38	2	13	6	0	-	21	18	9	2	0	-	29	107
% Motorcycles	0.1	0.2	0.2	0.0	-	0.2	0.2	0.2	0.3	0.0	-	0.3	0.4	0.2	0.3	0.0	-	0.3	0.3	0.2	0.1	-	-	0.2	0.2
Cars & Light Goods	2592	6854	546	5	-	9997	2751	6741	4560	34	-	14086	508	5332	2185	5	-	8030	5728	4779	2302	0	-	12809	44922
% Cars & Light Goods	97.9	94.1	90.2	100.0	-	94.9	97.3	92.8	95.2	100.0	-	94.5	96.0	97.7	96.9	100.0	-	97.4	96.7	98.1	97.9	-	-	97.4	95.9
Buses	20	36	43	0	-	99	27	47	23	0	-	97	7	41	24	0	-	72	24	36	12	0	-	72	340
% Buses	0.8	0.5	7.1	0.0	-	0.9	1.0	0.6	0.5	0.0	-	0.7	1.3	0.8	1.1	0.0	-	0.9	0.4	0.7	0.5	-	-	0.5	0.7
Single-Unit Trucks	28	214	11	0	-	253	30	261	147	0	-	438	11	51	25	0	-	87	114	36	26	0	-	176	954
% Single-Unit Trucks	1.1	2.9	1.8	0.0	-	2.4	1.1	3.6	3.1	0.0	-	2.9	2.1	0.9	1.1	0.0	-	1.1	1.9	0.7	1.1	-	-	1.3	2.0
Articulated Trucks	5	162	3	0	-	170	13	196	44	0	-	253	1	19	14	0	-	34	39	10	9	0	-	58	515
% Articulated Trucks	0.2	2.2	0.5	0.0	-	1.6	0.5	2.7	0.9	0.0	-	1.7	0.2	0.3	0.6	0.0	-	0.4	0.7	0.2	0.4	-	-	0.4	1.1
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	0	1	0	-	1	0	1	0	0	-	1	3
% Bicycles on Road	0.0	0.0	0.2	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	15	-	-	-	-	-	1	-	-	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	-	-	2.9	-	-	-	-	-	13.3	-	-	-	-	-	2.2	-	-	-	-	-	4.9	-	-
Pedestrians	-	-	-	-	68	-	-	-	-	-	98	-	-	-	-	-	44	-	-	-	-	-	58	-	-
% Pedestrians	-	-	-	-	97.1	-	-	-	-	-	86.7	-	-	-	-	-	97.8	-	-	-	-	-	95.1	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Green Lane & Yonge Street
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Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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519-896-3163 cbowness@pts1.com

Count Name: Green Lane & Yonge Street
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Peak Hour Data (7:30 AM)

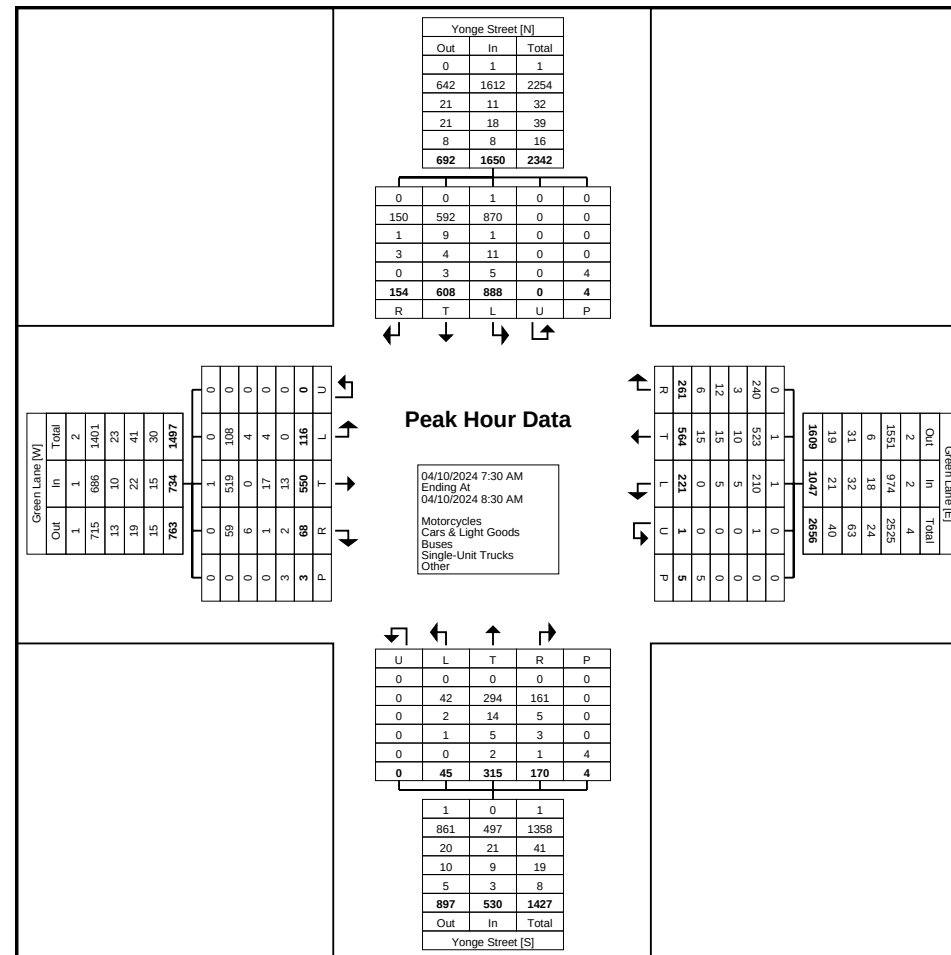
Start Time	Green Lane Eastbound						Green Lane Westbound						Yonge Street Northbound						Yonge Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	26	138	8	0	1	172	49	151	62	1	2	263	11	64	39	0	2	114	260	140	45	0	0	445	994
7:45 AM	22	150	13	0	1	185	60	146	72	0	2	278	2	56	35	0	0	93	245	184	35	0	1	464	1020
8:00 AM	25	104	21	0	0	150	53	130	60	0	1	243	18	100	44	0	0	162	192	141	40	0	2	373	928
8:15 AM	43	158	26	0	1	227	59	137	67	0	0	263	14	95	52	0	2	161	191	143	34	0	1	368	1019
Total	116	550	68	0	3	734	221	564	261	1	5	1047	45	315	170	0	4	530	888	608	154	0	4	1650	3961
Approach %	15.8	74.9	9.3	0.0	-	-	21.1	53.9	24.9	0.1	-	-	8.5	59.4	32.1	0.0	-	-	53.8	36.8	9.3	0.0	-	-	-
Total %	2.9	13.9	1.7	0.0	-	18.5	5.6	14.2	6.6	0.0	-	26.4	1.1	8.0	4.3	0.0	-	13.4	22.4	15.3	3.9	0.0	-	41.7	-
PHF	0.674	0.870	0.654	0.000	-	0.808	0.921	0.934	0.906	0.250	-	0.942	0.625	0.788	0.817	0.000	-	0.818	0.854	0.826	0.856	0.000	-	0.889	0.971
Motorcycles	0	1	0	0	-	1	1	1	0	0	-	2	0	0	0	0	-	0	1	0	0	0	-	1	4
% Motorcycles	0.0	0.2	0.0	-	-	0.1	0.5	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1	0.0	0.0	-	-	0.1	0.1
Cars & Light Goods	108	519	59	0	-	686	210	523	240	1	-	974	42	294	161	0	-	497	870	592	150	0	-	1612	3769
% Cars & Light Goods	93.1	94.4	86.8	-	-	93.5	95.0	92.7	92.0	100.0	-	93.0	93.3	93.3	94.7	-	-	93.8	98.0	97.4	97.4	-	-	97.7	95.2
Buses	4	0	6	0	-	10	5	10	3	0	-	18	2	14	5	0	-	21	1	9	1	0	-	11	60
% Buses	3.4	0.0	8.8	-	-	1.4	2.3	1.8	1.1	0.0	-	1.7	4.4	4.4	2.9	-	-	4.0	0.1	1.5	0.6	-	-	0.7	1.5
Single-Unit Trucks	4	17	1	0	-	22	5	15	12	0	-	32	1	5	3	0	-	9	11	4	3	0	-	18	81
% Single-Unit Trucks	3.4	3.1	1.5	-	-	3.0	2.3	2.7	4.6	0.0	-	3.1	2.2	1.6	1.8	-	-	1.7	1.2	0.7	1.9	-	-	1.1	2.0
Articulated Trucks	0	13	2	0	-	15	0	15	6	0	-	21	0	2	1	0	-	3	5	3	0	0	-	8	47
% Articulated Trucks	0.0	2.4	2.9	-	-	2.0	0.0	2.7	2.3	0.0	-	2.0	0.0	0.6	0.6	-	-	0.6	0.6	0.5	0.0	-	-	0.5	1.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	5	-	-	-	-	-	4	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



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Turning Movement Peak Hour Data (4:45 PM)

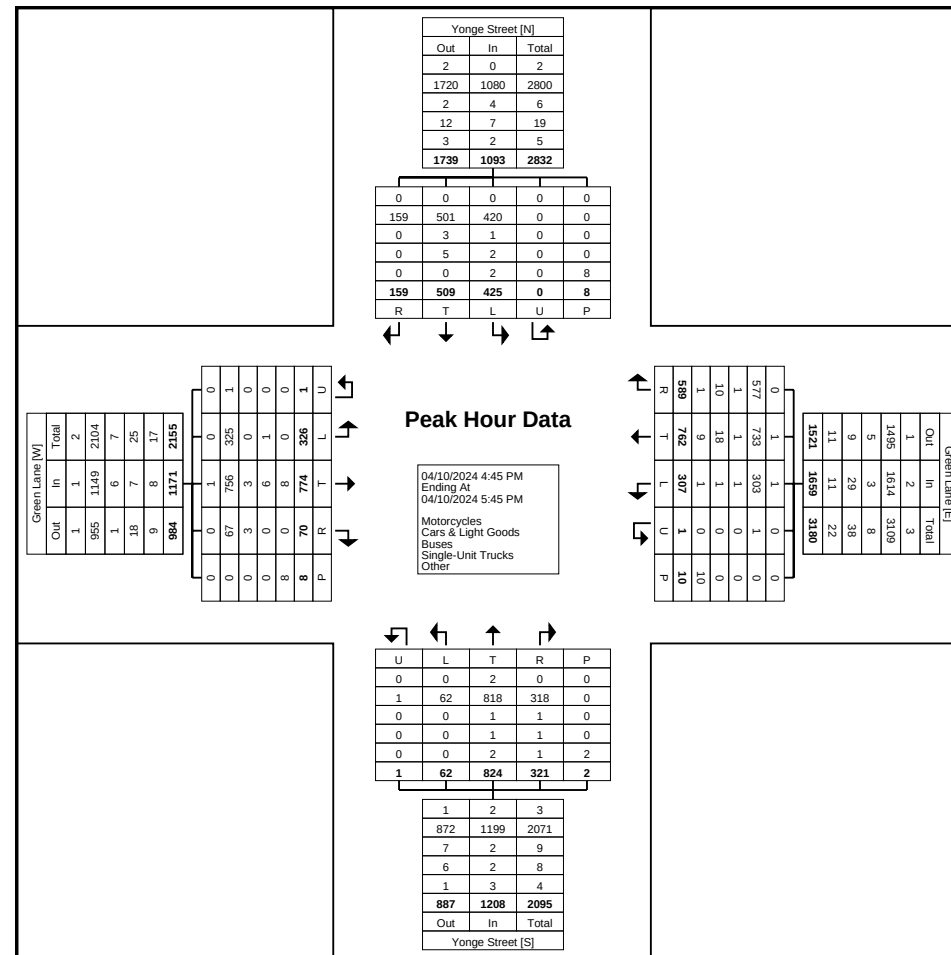
Start Time	Green Lane Eastbound						Green Lane Westbound						Yonge Street Northbound						Yonge Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	80	196	18	0	2	294	77	173	159	0	2	409	11	202	75	0	1	288	124	126	47	0	2	297	1288
5:00 PM	85	187	14	1	0	287	85	206	139	0	2	430	15	189	92	1	0	297	99	106	39	0	1	244	1258
5:15 PM	76	184	20	0	1	280	68	202	157	0	5	427	21	197	80	0	1	298	107	145	36	0	3	288	1293
5:30 PM	85	207	18	0	5	310	77	181	134	1	1	393	15	236	74	0	0	325	95	132	37	0	2	264	1292
Total	326	774	70	1	8	1171	307	762	589	1	10	1659	62	824	321	1	2	1208	425	509	159	0	8	1093	5131
Approach %	27.8	66.1	6.0	0.1	-	-	18.5	45.9	35.5	0.1	-	-	5.1	68.2	26.6	0.1	-	-	38.9	46.6	14.5	0.0	-	-	-
Total %	6.4	15.1	1.4	0.0	-	22.8	6.0	14.9	11.5	0.0	-	32.3	1.2	16.1	6.3	0.0	-	23.5	8.3	9.9	3.1	0.0	-	21.3	-
PHF	0.959	0.935	0.875	0.250	-	0.944	0.903	0.925	0.926	0.250	-	0.965	0.738	0.873	0.872	0.250	-	0.929	0.857	0.878	0.846	0.000	-	0.920	0.992
Motorcycles	0	1	0	0	-	1	1	1	0	0	-	2	0	2	0	0	-	2	0	0	0	0	-	0	5
% Motorcycles	0.0	0.1	0.0	0.0	-	0.1	0.3	0.1	0.0	0.0	-	0.1	0.0	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	325	756	67	1	-	1149	303	733	577	1	-	1614	62	818	318	1	-	1199	420	501	159	0	-	1080	5042
% Cars & Light Goods	99.7	97.7	95.7	100.0	-	98.1	98.7	96.2	98.0	100.0	-	97.3	100.0	99.3	99.1	100.0	-	99.3	98.8	98.4	100.0	-	-	98.8	98.3
Buses	0	3	3	0	-	6	1	1	1	0	-	3	0	1	1	0	-	2	1	3	0	0	-	4	15
% Buses	0.0	0.4	4.3	0.0	-	0.5	0.3	0.1	0.2	0.0	-	0.2	0.0	0.1	0.3	0.0	-	0.2	0.2	0.6	0.0	-	-	0.4	0.3
Single-Unit Trucks	1	6	0	0	-	7	1	18	10	0	-	29	0	1	1	0	-	2	2	5	0	0	-	7	45
% Single-Unit Trucks	0.3	0.8	0.0	0.0	-	0.6	0.3	2.4	1.7	0.0	-	1.7	0.0	0.1	0.3	0.0	-	0.2	0.5	1.0	0.0	-	-	0.6	0.9
Articulated Trucks	0	8	0	0	-	8	1	9	1	0	-	11	0	2	0	0	-	2	2	0	0	0	-	2	23
% Articulated Trucks	0.0	1.0	0.0	0.0	-	0.7	0.3	1.2	0.2	0.0	-	0.7	0.0	0.2	0.0	0.0	-	0.2	0.5	0.0	0.0	-	-	0.2	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.3	0.0	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	30.0	-	-	-	-	-	50.0	-	-	-	-	-	12.5	-	-
Pedestrians	-	-	-	-	8	-	-	-	-	-	7	-	-	-	-	-	1	-	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	70.0	-	-	-	-	-	50.0	-	-	-	-	-	87.5	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Green Lane & Yonge Street
Site Code: 200089
Start Date: 04/10/2024
Page No: 7



Turning Movement Peak Hour Data Plot (4:45 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Yonge Street & Church Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 1

Turning Movement Data

Start Time	Church Driveway Eastbound						Commercial Driveway Westbound						Yonge Street Northbound						Yonge Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	2	0	6	0	0	8	2	0	10	0	0	12	3	101	0	0	2	104	43	404	0	0	0	447	571
7:15 AM	0	0	4	0	1	4	3	1	5	0	0	9	2	104	1	0	0	107	40	387	0	0	0	427	547
7:30 AM	0	0	0	0	1	0	8	0	6	0	1	14	0	135	3	0	1	138	41	443	0	1	0	485	637
7:45 AM	0	0	0	0	0	0	7	0	8	0	0	15	1	135	0	0	0	136	62	438	1	0	0	501	652
Hourly Total	2	0	10	0	2	12	20	1	29	0	1	50	6	475	4	0	3	485	186	1672	1	1	0	1860	2407
8:00 AM	0	0	1	0	1	1	4	0	16	0	1	20	0	170	0	0	0	170	52	402	0	0	0	454	645
8:15 AM	0	0	0	0	1	0	4	0	16	0	0	20	0	203	3	0	0	206	47	359	0	0	0	406	632
8:30 AM	1	0	1	0	0	2	8	0	27	0	0	35	1	198	2	1	0	202	56	344	1	0	0	401	640
8:45 AM	0	1	0	0	0	1	16	0	22	0	0	38	0	131	3	1	0	135	63	357	0	0	0	420	594
Hourly Total	1	1	2	0	2	4	32	0	81	0	1	113	1	702	8	2	0	713	218	1462	1	0	0	1681	2511
9:00 AM	0	1	4	0	0	5	7	0	21	0	0	28	8	125	1	0	1	134	56	302	2	0	0	360	527
9:15 AM	0	0	3	0	0	3	12	0	24	0	1	36	1	189	4	1	1	195	48	267	0	0	0	315	549
9:30 AM	0	0	0	0	1	0	7	0	26	0	1	33	0	156	4	0	1	160	44	313	0	0	0	357	550
9:45 AM	0	0	1	0	2	1	16	0	22	0	1	38	1	149	4	1	1	155	44	285	1	0	0	330	524
Hourly Total	0	1	8	0	3	9	42	0	93	0	3	135	10	619	13	2	4	644	192	1167	3	0	0	1362	2150
10:00 AM	0	1	1	0	0	2	11	0	29	0	0	40	1	160	4	0	0	165	38	247	1	1	0	287	494
10:15 AM	0	0	0	0	0	0	19	0	23	0	0	42	0	150	6	1	0	157	40	220	0	0	0	260	459
10:30 AM	0	0	0	1	0	1	19	0	26	0	1	45	0	182	1	0	0	183	43	244	1	0	0	288	517
10:45 AM	1	0	0	1	2	2	16	0	27	0	0	43	0	173	3	1	0	177	39	227	0	0	0	266	488
Hourly Total	1	1	1	2	2	5	65	0	105	0	1	170	1	665	14	2	0	682	160	938	2	1	0	1101	1958
11:00 AM	0	0	1	0	0	1	16	0	30	0	2	46	0	186	2	0	0	188	37	204	0	0	0	241	476
11:15 AM	0	0	1	0	0	1	21	0	31	0	0	52	1	171	3	3	0	178	39	211	1	0	0	251	482
11:30 AM	0	0	2	0	0	2	19	0	34	0	0	53	2	156	4	0	0	162	49	242	0	0	0	291	508
11:45 AM	0	1	0	0	0	1	19	0	45	0	0	64	0	161	0	1	0	162	54	197	0	0	0	251	478
Hourly Total	0	1	4	0	0	5	75	0	140	0	2	215	3	674	9	4	0	690	179	854	1	0	0	1034	1944
12:00 PM	0	0	0	0	0	0	21	0	30	0	0	51	0	203	6	0	1	209	41	208	0	0	0	249	509
12:15 PM	0	0	0	0	0	0	15	1	29	0	0	45	0	201	3	0	0	204	50	196	0	0	0	246	495
12:30 PM	0	0	0	0	0	0	18	0	31	0	1	49	0	213	2	1	0	216	22	189	0	0	0	211	476
12:45 PM	0	0	0	0	0	0	19	0	26	0	2	45	1	192	3	0	0	196	35	196	0	0	0	231	472
Hourly Total	0	0	0	0	0	0	73	1	116	0	3	190	1	809	14	1	1	825	148	789	0	0	0	937	1952
1:00 PM	0	0	2	0	0	2	12	0	45	0	2	57	1	238	1	0	0	240	38	188	0	0	0	226	525
1:15 PM	0	0	0	0	0	0	16	0	35	0	2	51	1	249	4	1	0	255	37	208	0	0	0	245	551
1:30 PM	0	0	1	0	0	1	16	0	27	0	2	43	3	228	1	0	0	232	21	193	0	0	0	214	490
1:45 PM	0	0	2	0	1	2	22	0	37	0	2	59	3	193	0	1	0	197	42	232	1	0	0	275	533
Hourly Total	0	0	5	0	1	5	66	0	144	0	8	210	8	908	6	2	0	924	138	821	1	0	0	960	2099

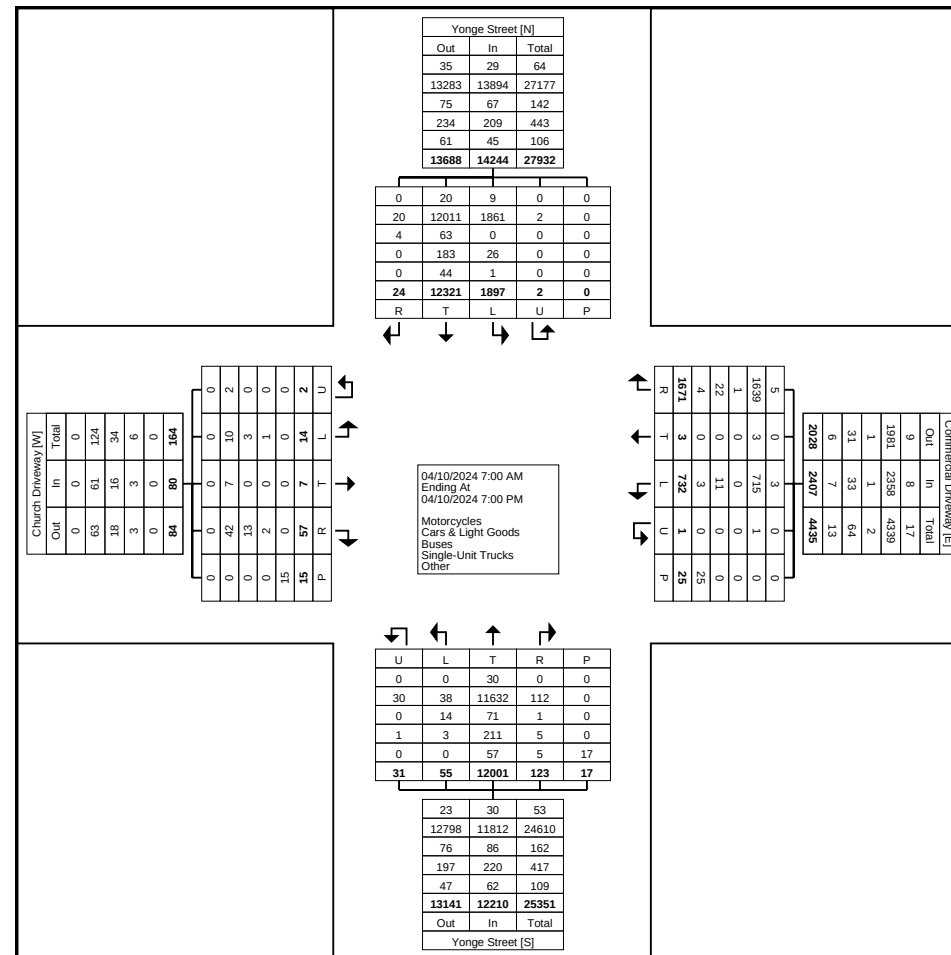
2:00 PM	0	0	2	0	0	2	21	0	43	0	0	64	1	219	1	1	1	222	22	202	1	0	0	225	513
2:15 PM	0	0	3	0	0	3	16	0	42	0	0	58	2	270	7	0	0	279	31	196	0	0	0	227	567
2:30 PM	0	0	3	0	0	3	11	0	37	0	2	48	3	297	5	0	1	305	32	240	1	0	0	273	629
2:45 PM	1	0	2	0	0	3	20	0	46	0	0	66	2	309	2	0	0	313	29	223	0	0	0	252	634
Hourly Total	1	0	10	0	0	11	68	0	168	0	2	236	8	1095	15	1	2	1119	114	861	2	0	0	977	2343
3:00 PM	0	0	0	0	1	0	12	0	35	0	0	47	0	363	2	1	0	366	37	186	0	0	0	223	636
3:15 PM	1	1	0	0	0	2	15	0	33	0	0	48	1	405	3	1	0	410	28	186	0	0	0	214	674
3:30 PM	2	0	1	0	0	3	16	0	58	0	0	74	1	388	3	1	0	393	48	215	0	0	0	263	733
3:45 PM	0	0	4	0	2	4	21	0	66	1	1	88	1	394	3	2	3	400	37	258	2	0	0	297	789
Hourly Total	3	1	5	0	3	9	64	0	192	1	1	257	3	1550	11	5	3	1569	150	845	2	0	0	997	2832
4:00 PM	1	1	1	0	0	3	16	0	52	0	1	68	3	416	1	2	2	422	35	232	0	0	0	267	760
4:15 PM	0	0	1	0	0	1	14	0	66	0	0	80	1	404	0	0	0	405	38	241	1	0	0	280	766
4:30 PM	0	1	4	0	0	5	12	0	45	0	1	57	2	434	2	0	0	438	23	248	2	0	0	273	773
4:45 PM	1	0	2	0	0	3	18	0	49	0	0	67	2	434	4	2	0	442	41	245	0	0	0	286	798
Hourly Total	2	2	8	0	0	12	60	0	212	0	2	272	8	1688	7	4	2	1707	137	966	3	0	0	1106	3097
5:00 PM	2	0	2	0	1	4	23	0	57	0	0	80	1	366	2	1	0	370	33	245	0	0	0	278	732
5:15 PM	2	0	0	0	0	2	24	0	55	0	0	79	0	364	0	0	1	364	40	253	0	0	0	293	738
5:30 PM	0	0	0	0	1	0	20	0	49	0	1	69	0	388	3	0	1	391	36	296	0	0	0	332	792
5:45 PM	0	0	0	0	0	0	21	0	42	0	0	63	0	319	2	2	0	323	39	248	0	0	0	287	673
Hourly Total	4	0	2	0	2	6	88	0	203	0	1	291	1	1437	7	3	2	1448	148	1042	0	0	0	1190	2935
6:00 PM	0	0	0	0	0	0	22	0	43	0	0	65	0	389	5	2	0	396	34	216	0	0	0	250	711
6:15 PM	0	0	0	0	0	0	16	0	53	0	0	69	1	327	3	1	0	332	28	239	0	0	0	267	668
6:30 PM	0	0	0	0	0	0	18	0	55	0	0	73	1	346	2	1	0	350	34	213	0	0	0	247	670
6:45 PM	0	0	2	0	0	2	23	1	37	0	0	61	3	317	5	1	0	326	31	236	8	0	0	275	664
Hourly Total	0	0	2	0	0	2	79	1	188	0	0	268	5	1379	15	5	0	1404	127	904	8	0	0	1039	2713
Grand Total	14	7	57	2	15	80	732	3	1671	1	25	2407	55	12001	123	31	17	12210	1897	12321	24	2	0	14244	28941
Approach %	17.5	8.8	71.3	2.5	-	-	30.4	0.1	69.4	0.0	-	-	0.5	98.3	1.0	0.3	-	-	13.3	86.5	0.2	0.0	-	-	-
Total %	0.0	0.0	0.2	0.0	-	0.3	2.5	0.0	5.8	0.0	-	8.3	0.2	41.5	0.4	0.1	-	42.2	6.6	42.6	0.1	0.0	-	49.2	-
Motorcycles	0	0	0	0	-	0	3	0	5	0	-	8	0	30	0	0	-	30	9	20	0	0	-	29	67
% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.4	0.0	0.3	0.0	-	0.3	0.0	0.2	0.0	0.0	-	0.2	0.5	0.2	0.0	0.0	-	0.2	0.2
Cars & Light Goods	10	7	42	2	-	61	715	3	1639	1	-	2358	38	11632	112	30	-	11812	1861	12011	20	2	-	13894	28125
% Cars & Light Goods	71.4	100.0	73.7	100.0	-	76.3	97.7	100.0	98.1	100.0	-	98.0	69.1	96.9	91.1	96.8	-	96.7	98.1	97.5	83.3	100.0	-	97.5	97.2
Buses	3	0	13	0	-	16	0	0	1	0	-	1	14	71	1	0	-	86	0	63	4	0	-	67	170
% Buses	21.4	0.0	22.8	0.0	-	20.0	0.0	0.0	0.1	0.0	-	0.0	25.5	0.6	0.8	0.0	-	0.7	0.0	0.5	16.7	0.0	-	0.5	0.6
Single-Unit Trucks	1	0	2	0	-	3	11	0	22	0	-	33	3	211	5	1	-	220	26	183	0	0	-	209	465
% Single-Unit Trucks	7.1	0.0	3.5	0.0	-	3.8	1.5	0.0	1.3	0.0	-	1.4	5.5	1.8	4.1	3.2	-	1.8	1.4	1.5	0.0	0.0	-	1.5	1.6
Articulated Trucks	0	0	0	0	-	0	3	0	2	0	-	5	0	51	5	0	-	56	1	42	0	0	-	43	104
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	0.4	0.0	0.1	0.0	-	0.2	0.0	0.4	4.1	0.0	-	0.5	0.1	0.3	0.0	0.0	-	0.3	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	2	0	-	2	0	6	0	0	-	6	0	2	0	0	-	2	10
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	0.0	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	20.0	-	-	-	-	-	28.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	12	-	-	-	-	-	18	-	-	-	-	-	17	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	80.0	-	-	-	-	-	72.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



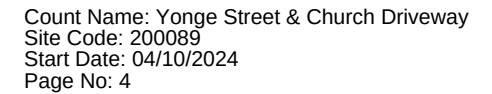
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Yonge Street & Church Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 3



Turning Movement Data Plot



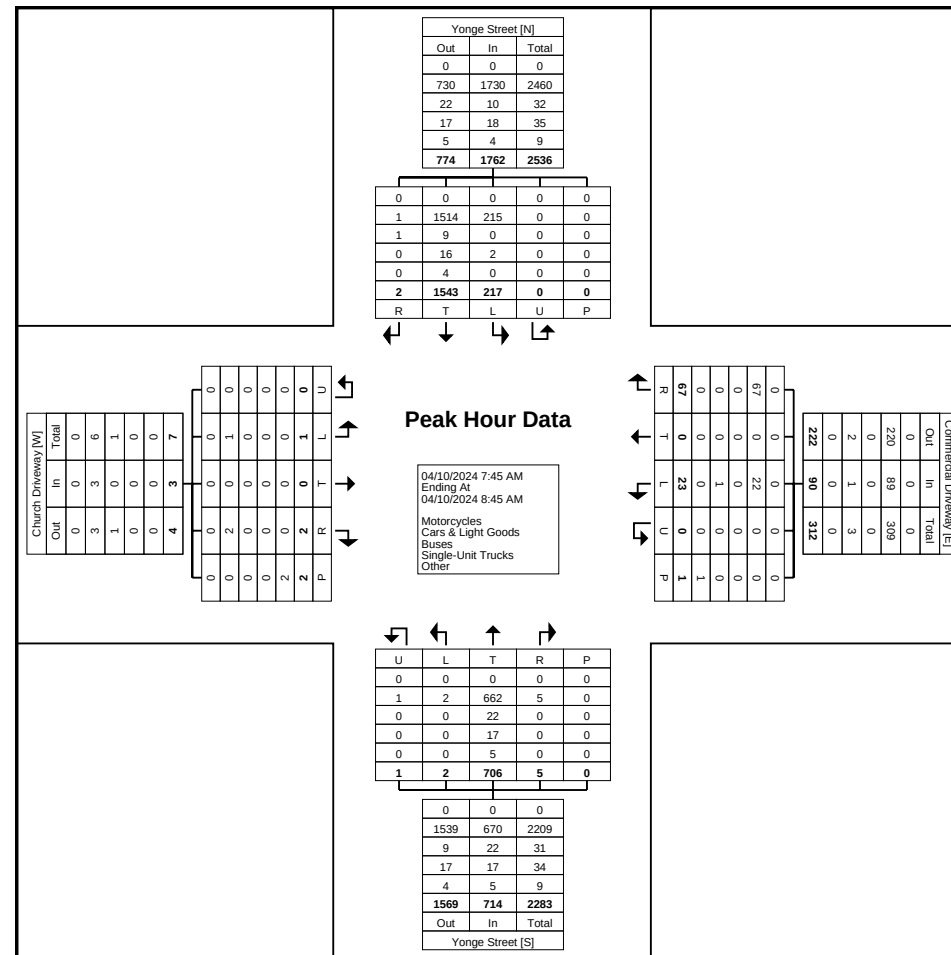
Start Time	Church Driveway Eastbound						Commercial Driveway Westbound						Yonge Street Northbound						Yonge Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	0	0	0	0	0	0	7	0	8	0	0	15	1	135	0	0	0	136	62	438	1	0	0	501	652
8:00 AM	0	0	1	0	1	1	4	0	16	0	1	20	0	170	0	0	0	170	52	402	0	0	0	454	645
8:15 AM	0	0	0	0	1	0	4	0	16	0	0	20	0	203	3	0	0	206	47	359	0	0	0	406	632
8:30 AM	1	0	1	0	0	2	8	0	27	0	0	35	1	198	2	1	0	202	56	344	1	0	0	401	640
Total	1	0	2	0	2	3	23	0	67	0	1	90	2	706	5	1	0	714	217	1543	2	0	0	1762	2569
Approach %	33.3	0.0	66.7	0.0	-	-	25.6	0.0	74.4	0.0	-	-	0.3	98.9	0.7	0.1	-	-	12.3	87.6	0.1	0.0	-	-	-
Total %	0.0	0.0	0.1	0.0	-	0.1	0.9	0.0	2.6	0.0	-	3.5	0.1	27.5	0.2	0.0	-	27.8	8.4	60.1	0.1	0.0	-	68.6	-
PHF	0.250	0.000	0.500	0.000	-	0.375	0.719	0.000	0.620	0.000	-	0.643	0.500	0.869	0.417	0.250	-	0.867	0.875	0.881	0.500	0.000	-	0.879	0.985
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	1	0	2	0	-	3	22	0	67	0	-	89	2	662	5	1	-	670	215	1514	1	0	-	1730	2492
% Cars & Light Goods	100.0	-	100.0	-	-	100.0	95.7	-	100.0	-	-	98.9	100.0	93.8	100.0	100.0	-	93.8	99.1	98.1	50.0	-	-	98.2	97.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	22	0	0	-	22	0	9	1	0	-	10	32
% Buses	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	3.1	0.0	0.0	-	3.1	0.0	0.6	50.0	-	-	0.6	1.2
Single-Unit Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	17	0	0	-	17	2	16	0	0	-	18	36
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	4.3	-	0.0	-	-	1.1	0.0	2.4	0.0	0.0	-	2.4	0.9	1.0	0.0	-	-	1.0	1.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	0	4	0	0	-	4	9
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.7	0.0	0.0	-	0.7	0.0	0.3	0.0	-	-	0.2	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	50.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	50.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
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Count Name: Yonge Street & Church Driveway
Site Code: 200089
Start Date: 04/10/2024
Page No: 5



Turning Movement Peak Hour Data Plot (7:45 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Yonge Street & Church Driveway
Site Code: 200089
Start Date: 04/10/2024
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Turning Movement Peak Hour Data (4:00 PM)

Start Time	Church Driveway Eastbound						Commercial Driveway Westbound						Yonge Street Northbound						Yonge Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	1	1	1	0	0	3	16	0	52	0	1	68	3	416	1	2	2	422	35	232	0	0	0	267	760
4:15 PM	0	0	1	0	0	1	14	0	66	0	0	80	1	404	0	0	0	405	38	241	1	0	0	280	766
4:30 PM	0	1	4	0	0	5	12	0	45	0	1	57	2	434	2	0	0	438	23	248	2	0	0	273	773
4:45 PM	1	0	2	0	0	3	18	0	49	0	0	67	2	434	4	2	0	442	41	245	0	0	0	286	798
Total	2	2	8	0	0	12	60	0	212	0	2	272	8	1688	7	4	2	1707	137	966	3	0	0	1106	3097
Approach %	16.7	16.7	66.7	0.0	-	-	22.1	0.0	77.9	0.0	-	-	0.5	98.9	0.4	0.2	-	-	12.4	87.3	0.3	0.0	-	-	-
Total %	0.1	0.1	0.3	0.0	-	0.4	1.9	0.0	6.8	0.0	-	8.8	0.3	54.5	0.2	0.1	-	55.1	4.4	31.2	0.1	0.0	-	35.7	-
PHF	0.500	0.500	0.500	0.000	-	0.600	0.833	0.000	0.803	0.000	-	0.850	0.667	0.972	0.438	0.500	-	0.965	0.835	0.974	0.375	0.000	-	0.967	0.970
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	2	2	0	0	-	4	7
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.2	0.0	0.0	-	0.2	1.5	0.2	0.0	-	-	0.4	0.2
Cars & Light Goods	2	2	8	0	-	12	60	0	211	0	-	271	1	1663	6	4	-	1674	133	942	1	0	-	1076	3033
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	100.0	-	99.5	-	-	99.6	12.5	98.5	85.7	100.0	-	98.1	97.1	97.5	33.3	-	-	97.3	97.9
Buses	0	0	0	0	-	0	0	0	0	0	-	0	6	5	0	0	-	11	0	6	2	0	-	8	19
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	75.0	0.3	0.0	0.0	-	0.6	0.0	0.6	66.7	-	-	0.7	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	1	16	1	0	-	18	2	13	0	0	-	15	34
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	-	0.5	-	-	0.4	12.5	0.9	14.3	0.0	-	1.1	1.5	1.3	0.0	-	-	1.4	1.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	3	0	0	-	3	4
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.1	0.0	0.0	-	0.1	0.0	0.3	0.0	-	-	0.3	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

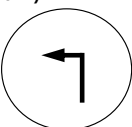
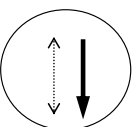
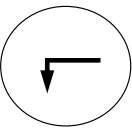
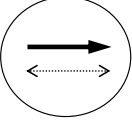
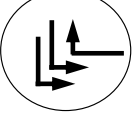
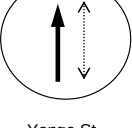
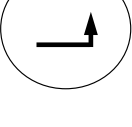
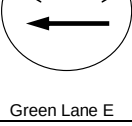
Turning Movement Peak Hour Data Plot (4:00 PM)

LOCATION: Green Lane (YR 19) & Bathurst St (YR 38)		MUNICIPALITY: East Gwillimbury		COMPUTER SYSTEM: Centracs		N ↑
CTCS: 603		CONTROLLER/CABINET TYPE: Econolite EOS / TS2T1		CONFLICT FLASH: Red & Red		
MODE/COMMENT: SA		DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s)		CHANNEL/DROP:		
PREPARED/CHECKED BY: MQL						
PREPARATION DATE: September 7, 2023						
IMPLEMENTATION DATE: September 7, 2023						
NEMA Phase (York)		AM & PM 7:00-9:00, 15:30-18:30 M-F	Free All Other Times	Phase Mode	Remarks	
	Local Plan	Pattern 98	Pattern 99			
	System Plan	Plan 98	Plan 99			
1. E/B Left Turn Arrow NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT				NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received.	
2. Westbound ←→ ← Green Lane	WLK 7 FDW 24 MIN 31 EXT 0 MAX1 35 MAX2 45 AMB 5.0 ALR 3.0 SPLIT	USE MAX2		Fixed	Vehicle clearance changed due to speed limit reduction. Revised amber & red based on speed limit reduction from 80 to 70 km/h according to 2019 Speed Limit Revisions Report, effective Apr 18, 2019	
3. N/B Left Turn Arrow NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT				Upgrade to EOS firmware	
4. Southbound ↑↓ ↓ Bathurst St	WLK 7 FDW 19 MIN 10 EXT 3 MAX1 19 MAX2 45 AMB 5.0 ALR 2.5 SPLIT	USE MAX2		Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop		
5. W/B Left Turn Arrow NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT					
6. Eastbound → Green Lane	WLK 0 FDW 0 MIN 31 EXT 0 MAX1 35 MAX2 45 AMB 5.0 ALR 3.0 SPLIT	USE MAX2		Fixed		
7. NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT				LEGEND: SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR - All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFd - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera	
8. Northbound ↑ ↑↓ Bathurst St	WLK 7 FDW 19 MIN 10 EXT 3 MAX1 19 MAX2 45 AMB 5.0 ALR 2.5 SPLIT	USE MAX2		Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop		
	CL OF VP	0 0 0	0 (FREE) 0 (FREE) 0 (FREE)			

NOTES:

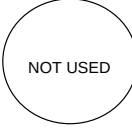
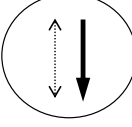
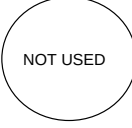
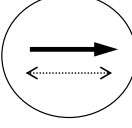
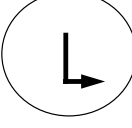
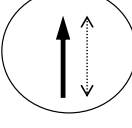
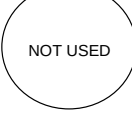
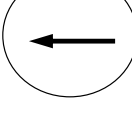
LOCATION: Green Lane (YR 19) & Woodspring Ave		MUNICIPALITY: East Gwillimbury		N					
CTCS: 767		COMPUTER SYSTEM: Centrac							
MODE/COMMENT: SA		CONTROLLER/CABINET TYPE: Econolite EOS / TS2T1							
PREPARED/CHECKED BY: MQL		CONFLICT FLASH: Red & Red							
PREPARATION DATE: April 11, 2024		DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s)							
IMPLEMENTATION DATE: April 11, 2024		CHANNEL/DROP:							
NEMA Phase (York)		AM 6:00-10:00 M-F	PM 15:00- 19:30 M-F	OFF 10:00- 15:00, 19:30- 23:59 M-F	AM Weekend 8:00-10:00	PM Weekend 10:00-23:59	Free 00:00-6:00 M-F 00:00-8:00 Sat & Sun	Phase Mode	Remarks
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 99		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 99		
1. E/B Left Turn Arrow	NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							Emergency vehicle pre-emption 3: Serve EWG/EWDW min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction.
2. Westbound	Green Lane	WLK 0 FDW 0 MIN 32 EXT 0 MAX1 32 MAX2 0 AMB 5.0 ALR 2.5 SPLIT						Fixed	NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.
3. N/B Left Turn Arrow	NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand.
4. Southbound		WLK 7 FDW 24 MIN 10 EXT 3 MAX1 19 MAX2 0 AMB 3.5 ALR 3.5 SPLIT						Callable by pushbutton	EWFD reverts to EWWK if there is no side street demand at the end of the EWFD.
									Upgrade to EOS firmware
									EOS adaptive splits disabled
									Cycle length decreased in PM.
5. W/B Left Turn Arrow	NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							10 secs detection delay placed on NBRT only to avoid signals cycling to side st unnecessarily
6. Eastbound	Green Lane	WLK 7 FDW 25 MIN 32 EXT 0 MAX1 32 MAX2 0 AMB 5.0 ALR 2.5 SPLIT						Fixed	
7.	NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT							LEGEND: SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR -All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera
8. Northbound	Woodspring Ave	WLK 7 FDW 24 MIN 10 EXT 3 MAX1 19 MAX2 0 AMB 3.5 ALR 3.5 SPLIT						Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop	10 secs detection delay on NBRT only
		CL OF VP	130 1 25	140 76 25	120 1 25	130 96 25	140 79 25	0 (FREE) 0 (FREE) 0 (FREE)	

NOTES:

LOCATION: CTCS: MODE/COMMENT: PREPARED/CHECKED BY: PREPARATION DATE: IMPLEMENTATION DATE:		Yonge St (YR 1) & Green Lane East/West (YR 19) 492 SA with RLC MQL March 5, 2024 March 5, 2024							MUNICIPALITY: COMPUTER SYSTEM: CONTROLLER/CABINET TYPE: CONFLICT FLASH: DESIGN WALK SPEED: CHANNEL/DROP:		East Gwillimbury Centracs Econolite EOS / TS2T1 Red & Red 1.0 m/s (FDW based on full crossing at 1.2 m/s)		N
NEMA Phase (York)		AM 8:30-10:00 M-F	PM 14:00-19:30 M-F	OFF 10:00-14:00, 19:30-23:59 M-F	AM WKND 8:00-10:00, 19:00-23:59 Sat& Sun	PM WKND 10:00-19:00 Sat& Sun	Free AM 6:00-8:30 M-F	Free 00:00-6:00 M-F, 00:00- 8:00 Sat& Sun	Phase Mode (Fixed/Demanded/ Callable)	Remarks			
	Local Plan System Plan	Pattern 1 Plan 1	Pattern 2 Plan 2	Pattern 3 Plan 3	Pattern 4 Plan 4	Pattern 5 Plan 5	Pattern 98 Plan 98	Pattern 99 Plan 99					
1. N/B Left Turn Arrow (Prot/Perm) 	WLK								Callable/Extendable by Setback Loop Protected/Permissive	Pedestrian Minimums: NSWK = 7 sec., NSFD = 29 sec. EWWK = 7 sec., EWFD = 28 sec.			
	FDW									Emergency vehicle pre-emption 3:			
	MIN 7									Serve NSG/NSDW min 20 secs and up to 100 secs if there are continuous emergency calls in NS direction.			
	EXT 3									Emergency vehicle pre-emption 4:			
2. Southbound  Yonge St	MAX1 10						Use MAX2		Veh Max Recall No ped recall	Serve EWG/EWDW min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction.			
	MAX2 10									EW phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum EWG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the EWG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 40 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The EWWK & EWFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the NSG.			
	AMB 3.0												
	ALR 1.0												
3. W/B Left Turn Arrow 	SPLIT	16	15	16	16	22	0	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.				
	WLK									Fully Protected Callable/Extendable by Stopbar Loop WBRT overlapped	During free plan, signal rests in NSWK and does not cycle through NSFD unless there is side street vehicle or pedestrian demand.		
	FDW										NSFD reverts to NSWK if there is no side street demand at the end of the NSFD.		
	MIN 7										Upgrade to EOS firmware		
4. Eastbound  Green Lane W	EXT 3						Use MAX2		Veh Max Recall No ped recall	EBLT loop damaged and added to loop repair list as of Sep 20, 2023			
	MAX1 10									EOS adaptive splits disabled Cycle length decreased in PM.			
	MAX2 10												
	AMB 3.0												
5. S/B Left Turn Arrow (Fully Prot.) 	ALR 1.0								Callable/Extendable by Setback Loop	LEGEND: SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR - All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera			
	SPLIT	28	27	22	20	34	0	0					
	WLK												
	FDW												
6. Northbound  Yonge St	MIN 10								Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.				
	EXT 3												
	MAX1 35												
	MAX2 20												
7. E/B Left Turn Arrow 	AMB 5.0								Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.				
	ALR 2.0												
	SPLIT	44	44	44	52	44	0	0					
	WLK												
8. Westbound  Green Lane E	FDW								Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.				
	MIN 10												
	EXT 5												
	MAX1 35												
	MAX2 35												
	AMB 5.0												
	ALR 2.0												
	SPLIT	43	43	43	46	43	0	0					
	CL	130	140	130	130	140	0 (FREE)	0 (FREE)					
	OF	80	14	20	60	10	0 (FREE)	0 (FREE)					
	VP	29	29	29	29	29	0 (FREE)	0 (FREE)					

LOCATION:		Green Lane (YR 19) & Commercial Entrance (Costco)					MUNICIPALITY:		East Gwillimbury		N ↑
CTCS:		695					COMPUTER SYSTEM:		Centrac		
MODE/COMMENT:		SA with APS					CONTROLLER/CABINET TYPE:		Econolite EOS / TS2T1		
PREPARED/CHECKED BY:		MQL					CONFLICT FLASH:		Red & Red		
PREPARATION DATE:		March 5, 2024					DESIGN WALK SPEED:		1.0 m/s (FDW based on full crossing at 1.2 m/s)		
IMPLEMENTATION DATE:		March 5, 2024					CHANNEL/DROP:				
NEMA Phase (York)		AM 6:00-10:00 M-F	PM 15:00- 19:30 M-F	OFF 10:00- 15:00, 19:30- 23:59 M-F	AM Weekend 8:00-10:00	PM Weekend 10:00-23:59	Free 00:00-6:00 M-F 00:00-8:00 Sat & Sun	Phase Mode	Remarks		
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 99				
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 99				
1. E/B Left Turn Arrow NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT								<u>Emergency vehicle pre-emption 3:</u> Serve EWG/EWDW min 20 secs and up to 100 secs if there are continuous emergency calls in EW direction.		
2. Westbound ← Green Lane	WLK 0 FDW 0 MIN 30 EXT 0 MAX1 30 MAX2 0 AMB 5.0 ALR 2.5 SPLIT	93	100	75	80	90	0	Fixed	NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green. If a pedestrian call is received, the pedestrian minimum will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.		
3. N/B Left Turn Arrow NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT								During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand.		
4. Southbound ↕	WLK 7 FDW 22 MIN 10 EXT 3 MAX1 19 MAX2 0 AMB 4.0 ALR 3.0 SPLIT	37	40	45	50	50	0	Callable by pushbutton	EWFD reverts to EWWK if there is no side street demand at the end of the EWFD.		
5. W/B Left Turn Arrow ↙	WLK FDW MIN 7 EXT 3 MAX1 7 MAX2 0 AMB 3.0 ALR 1.0 SPLIT	12	12	12	12	12	0	Callable/Extendable by Setback Loop	APS Extended Push Activation = 3 sec When activated, APS is on for 7 seconds. APS installed on 2016-10-25 Upgrade to EOS firmware EOS adaptive splits disabled Cycle length decreased in PM.		
6. Eastbound → Green Lane	WLK 7 FDW 20 MIN 30 EXT 0 MAX1 30 MAX2 0 AMB 5.0 ALR 2.5 SPLIT	81	88	63	68	78	0	Fixed			
7. NOT USED	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT								LEGEND: SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR - All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera		
8. Northbound ↑ Commercial Ent. (Costco)	WLK 7 FDW 22 MIN 10 EXT 3 MAX1 19 MAX2 0 AMB 4.0 ALR 3.0 SPLIT	37	40	45	50	50	0	Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop			
	CL OF VP	130 118 20	140 77 20	120 1 20	130 96 20	140 48 20	0 (FREE) 0 (FREE) 0 (FREE)				

NOTES:

LOCATION: Yonge St (YR 1) & Commercial Plaza (Loves)/Church Entrance CTCS: 710 MODE/COMMENT: SA PREPARED/CHECKED BY: MQL PREPARATION DATE: August 12, 2021 IMPLEMENTATION DATE: September 27, 2021		MUNICIPALITY: East Gwillimbury COMPUTER SYSTEM: Centrac CONTROLLER/CABINET TYPE: Econolite Cobalt / TS2T1 CONFLICT FLASH: Red & Red DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s) CHANNEL/DROP:							
NEMA Phase (York)		AM	PM	OFF	AM WKND	PM WKND	Free	Phase Mode (Fixed/Demanded/Callable)	Remarks
		6:30-9:00 M-F	15:30- 19:30 M-F	9:00-15:30, 19:30-23:59 M-F	8:00-10:00, 19:00-23:59 Sat& Sun	10:00- 19:00 Sat& Sun	0:00-6:30 M-F 0:00-8:00 Sat& Sun		
		Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
1.	 NOT USED WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 99		Pedestrian Minimums: NSWK = 7 sec., NSFD = 21 sec. EWWK = 7 sec., EWFD = 21 sec. Emergency vehicle pre-emption 3: Serve NSG/NSDW min 20 secs and up to 100 secs if there are continuous emergency calls in NS direction.
2. Southbound	 Yonge St WLK 7 FDW 21 MIN 50 EXT 0 MAX1 50 MAX2 0 AMB 5.0 ALR 2.5 SPLIT							Fixed	EW phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum EWG is 10 seconds. If ongoing vehicle demand exists on the stopbar loop, the EWG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or 19 secs during Free operation. If a pedestrian call is received, the pedestrian minimum will be served. The EWWK & EWFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the NSG.
3.	 NOT USED WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT								During coordinated operation, the signal constantly cycles through main street FDW to improve response time to side street vehicle and pedestrian demand.
4. Eastbound	 Church Entrance WLK 7 FDW 21 MIN 10 EXT 3 MAX1 19 MAX2 0 AMB 3.5 ALR 3.5 SPLIT							Callable by stopbar loop Extendable by stopbar loop.	During free plan, signal rests in NSWK and does not cycle through NSFD unless there is side street vehicle or pedestrian demand.
5. S/B Left Turn Arrow	 WLK FDW MIN 7 EXT 3 MAX1 7 MAX2 0 AMB 3.0 ALR 1.0 SPLIT							Callable/Extendable by Setback Loop	NSFD reverts to NSWK if there is no side street demand at the end of the NSFD. Clearances changes due to speed limit revision. Veh min recall placed on phase 8 due to detection issue-loop to be recut
6. Northbound	 Yonge St WLK 7 FDW 21 MIN 50 EXT 0 MAX1 50 MAX2 0 AMB 5.0 ALR 2.5 SPLIT							Fixed	
7.	 NOT USED WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT								LEGEND: SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR - All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFD - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal RLC - Red Light Camera
8. Westbound	 Commercial (Loves) WLK 7 FDW 21 MIN 10 EXT 3 MAX1 19 MAX2 0 AMB 3.5 ALR 3.5 SPLIT							Callable by stopbar loop and/or pushbutton; Extendable by stopbar loop.	
	CL OF VP	130 29 21	140 21 21	120 114 21	130 29 21	140 37 21	0 (FREE) 0 (FREE) 0 (FREE)		

NOTES:

Appendix B

Base Year (2024) Traffic Operations Reports



Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

Base Year (2024) AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	18	104	567	185	24	4	230	478	62	568
v/c Ratio	0.03	0.10	0.81	0.17	0.03	0.04	0.29	0.32	0.24	0.71
Control Delay	8.7	8.4	26.1	9.2	1.3	23.5	25.6	0.6	26.7	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	8.4	26.1	9.2	1.3	23.5	25.6	0.6	26.7	32.7
Queue Length 50th (m)	1.1	6.3	64.0	12.4	0.0	0.5	15.6	0.0	8.0	42.6
Queue Length 95th (m)	4.5	15.4	#147.6	26.1	1.7	2.9	25.1	0.0	18.1	59.5
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	697	1067	701	1076	875	285	1987	1482	648	1970
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.10	0.81	0.17	0.03	0.01	0.12	0.32	0.10	0.29

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

Base Year (2024) AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	18	94	8	556	181	24	4	225	468	61	519	37	
Future Volume (vph)	18	94	8	556	181	24	4	225	468	61	519	37	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1805	1861		1687	1881	1495	1444	3471	1482	1770	3434		
Flt Permitted	0.64	1.00		0.69	1.00	1.00	0.33	1.00	1.00	0.61	1.00		
Satd. Flow (perm)	1218	1861		1225	1881	1495	498	3471	1482	1133	3434		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	18	96	8	567	185	24	4	230	478	62	530	38	
RTOR Reduction (vph)	0	2	0	0	0	10	0	0	0	0	7	0	
Lane Group Flow (vph)	18	102	0	567	185	14	4	230	478	62	561	0	
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA		
Protected Phases		6			2			8			4		
Permitted Phases	6			2		2	8		Free	4			
Actuated Green, G (s)	45.1	45.1		45.1	45.1	45.1	18.1	18.1	78.7	18.1	18.1		
Effective Green, g (s)	45.1	45.1		45.1	45.1	45.1	18.1	18.1	78.7	18.1	18.1		
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57	0.23	0.23	1.00	0.23	0.23		
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5		
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	697	1066		702	1077	856	114	798	1482	260	789		
v/s Ratio Prot		0.05			0.10			0.07			c0.16		
v/s Ratio Perm	0.01			c0.46		0.01	0.01		0.32	0.05			
v/c Ratio	0.03	0.10		0.81	0.17	0.02	0.04	0.29	0.32	0.24	0.71		
Uniform Delay, d1	7.3	7.6		13.4	8.0	7.2	23.5	25.0	0.0	24.7	27.9		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	0.2		9.7	0.3	0.0	0.1	0.2	0.6	0.5	3.0		
Delay (s)	7.3	7.8		23.0	8.3	7.3	23.6	25.2	0.6	25.2	30.9		
Level of Service	A	A		C	A	A	C	C	A	C	C		
Approach Delay (s)		7.7			19.0			8.7			30.4		
Approach LOS		A			B			A			C		
Intersection Summary													
HCM 2000 Control Delay			18.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.78										
Actuated Cycle Length (s)			78.7									Sum of lost time (s)	15.5
Intersection Capacity Utilization			80.5%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

Base Year (2024) AM Peak Hour

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↱	↲	↑↑	↲	↱			
Traffic Volume (veh/h)	584	44	18	664	64	46			
Future Volume (Veh/h)	584	44	18	664	64	46			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93			
Hourly flow rate (vph)	628	47	19	714	69	49			
Pedestrians						2			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			677		1025	316			
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			677		1025	316			
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		70	93			
cM capacity (veh/h)			923		229	685			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	314	314	47	19	357	357	69	49	
Volume Left	0	0	0	19	0	0	69	0	
Volume Right	0	0	47	0	0	0	0	49	
cSH	1700	1700	1700	923	1700	1700	229	685	
Volume to Capacity	0.18	0.18	0.03	0.02	0.21	0.21	0.30	0.07	
Queue Length 95th (m)	0.0	0.0	0.0	0.5	0.0	0.0	9.7	1.8	
Control Delay (s)	0.0	0.0	0.0	9.0	0.0	0.0	27.3	10.7	
Lane LOS				A			D	B	
Approach Delay (s)	0.0			0.2			20.4		
Approach LOS							C		
Intersection Summary									
Average Delay				1.7					
Intersection Capacity Utilization				28.6%		ICU Level of Service		A	
Analysis Period (min)				15					

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

Base Year (2024) AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	662	26	127	654	37	248
v/c Ratio	0.24	0.02	0.21	0.25	0.24	0.69
Control Delay	3.5	1.2	4.9	3.9	58.6	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	1.2	4.9	3.9	58.6	16.9
Queue Length 50th (m)	17.8	0.0	4.9	15.1	9.6	0.0
Queue Length 95th (m)	29.6	2.1	16.4	33.3	20.4	26.0
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2708	1262	595	2658	444	572
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.02	0.21	0.25	0.08	0.43
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

Base Year (2024) AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	616	24	118	608	34	231
Future Volume (vph)	616	24	118	608	34	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3374	1567	1762	3312	1805	1568
Flt Permitted	1.00	1.00	0.40	1.00	0.95	1.00
Satd. Flow (perm)	3374	1567	742	3312	1805	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	662	26	127	654	37	248
RTOR Reduction (vph)	0	5	0	0	0	227
Lane Group Flow (vph)	662	21	127	654	37	21
Confl. Peds. (#/hr)		5	5			
Heavy Vehicles (%)	7%	0%	2%	9%	0%	3%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	104.3	104.3	104.3	104.3	11.2	11.2
Effective Green, g (s)	104.3	104.3	104.3	104.3	11.2	11.2
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2706	1257	595	2657	155	135
v/s Ratio Prot	0.20			c0.20	c0.02	
v/s Ratio Perm		0.01	0.17			0.01
v/c Ratio	0.24	0.02	0.21	0.25	0.24	0.16
Uniform Delay, d1	3.2	2.6	3.1	3.2	55.4	55.0
Progression Factor	1.00	1.00	1.19	1.11	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.8	0.2	0.8	0.6
Delay (s)	3.4	2.6	4.5	3.7	56.2	55.6
Level of Service	A	A	A	A	E	E
Approach Delay (s)	3.3			3.9	55.7	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			12.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.25			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			80.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

Base Year (2024) AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱		↱	↑↑	↘↘	
Traffic Volume (veh/h)	780	81	22	714	13	5
Future Volume (Veh/h)	780	81	22	714	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	839	87	24	768	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.98		0.99	0.98
vC, conflicting volume			926		1314	463
vC1, stage 1 conf vol					882	
vC2, stage 2 conf vol					432	
vCu, unblocked vol			877		1185	403
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			97		96	99
cM capacity (veh/h)			730		350	450
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	559	367	24	384	384	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	730	1700	1700	372
Volume to Capacity	0.33	0.22	0.03	0.23	0.23	0.05
Queue Length 95th (m)	0.0	0.0	0.8	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	10.1	0.0	0.0	15.2
Lane LOS			B		C	
Approach Delay (s)	0.0		0.3			15.2
Approach LOS					C	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			34.1%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

Base Year (2024) AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	692	109	338	717	70	105
v/c Ratio	0.30	0.10	0.52	0.27	0.45	0.45
Control Delay	8.5	1.4	13.0	2.2	65.0	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	1.4	13.0	2.2	65.0	16.1
Queue Length 50th (m)	34.1	0.1	22.8	12.7	18.4	0.0
Queue Length 95th (m)	47.6	5.3	49.4	17.7	33.6	17.8
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2294	1107	653	2628	416	446
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.10	0.52	0.27	0.17	0.24
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

Base Year (2024) AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (vph)	637	100	311	660	64	97
Future Volume (vph)	637	100	311	660	64	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3343	1563	1787	3282	1805	1583
Flt Permitted	1.00	1.00	0.36	1.00	0.95	1.00
Satd. Flow (perm)	3343	1563	677	3282	1805	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	692	109	338	717	70	105
RTOR Reduction (vph)	0	34	0	0	0	96
Lane Group Flow (vph)	692	75	338	717	70	9
Confl. Peds. (#/hr)		1	1			
Heavy Vehicles (%)	8%	1%	1%	10%	0%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	89.2	89.2	104.1	104.1	11.4	11.4
Effective Green, g (s)	89.2	89.2	104.1	104.1	11.4	11.4
Actuated g/C Ratio	0.69	0.69	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2293	1072	635	2628	158	138
v/s Ratio Prot	0.21		c0.04	0.22	c0.04	
v/s Ratio Perm		0.05	c0.38			0.01
v/c Ratio	0.30	0.07	0.53	0.27	0.44	0.07
Uniform Delay, d1	8.1	6.7	3.5	3.3	56.3	54.4
Progression Factor	0.96	0.80	4.05	0.56	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.8	0.2	2.0	0.2
Delay (s)	8.0	5.5	15.1	2.1	58.3	54.6
Level of Service	A	A	B	A	E	D
Approach Delay (s)	7.7			6.3	56.1	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			11.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			66.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

Base Year (2024) AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	120	567	70	229	581	269	46	325	175	915	627	159
v/c Ratio	0.49	0.73	0.16	0.89	0.73	0.32	0.14	0.34	0.32	1.19	0.38	0.20
Control Delay	30.5	51.2	3.0	66.1	51.5	3.0	17.2	38.0	6.6	137.5	21.0	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	51.2	3.0	66.1	51.5	3.0	17.2	38.0	6.6	137.5	21.0	5.3
Queue Length 50th (m)	12.2	75.1	1.7	44.5	77.0	0.0	5.3	36.6	0.0	~155.2	58.0	8.7
Queue Length 95th (m)	21.7	93.4	3.0	#66.3	92.6	14.0	12.5	50.5	17.6	#220.3	82.3	19.6
Internal Link Dist (m)	262.9			265.2			202.7			420.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0		35.0	90.0		45.0
Base Capacity (vph)	255	943	492	258	934	845	381	960	555	770	1666	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.60	0.14	0.89	0.62	0.32	0.12	0.34	0.32	1.19	0.38	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

Base Year (2024) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	550	68	222	564	261	45	315	170	888	608	154
Future Volume (vph)	116	550	68	222	564	261	45	315	170	888	608	154
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1686	3406	1406	1718	3374	1483	1686	3374	1511	3433	3505	1544
Flt Permitted	0.25	1.00	1.00	0.24	1.00	1.00	0.41	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	445	3406	1406	438	3374	1483	735	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	120	567	70	229	581	269	46	325	175	915	627	159
RTOR Reduction (vph)	0	0	54	0	0	145	0	0	125	0	0	75
Lane Group Flow (vph)	120	567	16	229	581	124	46	325	50	915	627	84
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	40.0	29.8	29.8	41.6	30.6	59.8	43.2	37.0	37.0	29.2	61.0	61.0
Effective Green, g (s)	40.0	29.8	29.8	41.6	30.6	59.8	43.2	37.0	37.0	29.2	61.0	61.0
Actuated g/C Ratio	0.31	0.23	0.23	0.32	0.24	0.46	0.33	0.28	0.28	0.22	0.47	0.47
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	234	780	322	248	794	682	289	960	430	771	1644	724
v/s Ratio Prot	0.04	0.17		c0.08	0.17	0.04	0.01	0.10		c0.27	c0.18	
v/s Ratio Perm	0.12		0.01	c0.22		0.04	0.05		0.03			0.05
v/c Ratio	0.51	0.73	0.05	0.92	0.73	0.18	0.16	0.34	0.12	1.19	0.38	0.12
Uniform Delay, d1	34.3	46.3	39.1	38.5	45.9	20.7	29.8	36.8	34.4	50.4	22.3	19.4
Progression Factor	0.88	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.87	0.94
Incremental Delay, d2	1.8	4.0	0.1	36.9	4.2	0.1	0.3	1.0	0.5	95.7	0.6	0.3
Delay (s)	32.0	50.1	39.2	75.3	50.2	20.8	30.0	37.8	34.9	142.8	20.0	18.5
Level of Service	C	D	D	E	D	C	C	D	C	F	C	B
Approach Delay (s)		46.2			48.2			36.2			85.9	
Approach LOS		D			D			D			F	
Intersection Summary												
HCM 2000 Control Delay			61.9			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			103.7%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

Base Year (2024) AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	23	68	3	713	5	219	1561
v/c Ratio	0.02	0.21	0.36	0.01	0.28	0.00	0.33	0.52
Control Delay	0.0	61.3	17.3	12.0	14.4	0.2	3.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	61.3	17.3	12.0	14.4	0.2	3.2	4.3
Queue Length 50th (m)	0.0	5.9	0.0	0.4	63.9	0.0	8.4	60.5
Queue Length 95th (m)	0.0	15.6	14.1	m1.3	72.6	m0.0	13.1	74.0
Internal Link Dist (m)	94.9	97.1			420.1			399.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	396	308	415	229	2524	1187	655	3001
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.07	0.16	0.01	0.28	0.00	0.33	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

Base Year (2024) AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	2	23	0	67	3	706	5	217	1543	2
Future Volume (vph)	1	0	2	23	0	67	3	706	5	217	1543	2
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1736	1615	1804	3406	1579	1787	3536	
Flt Permitted		0.88			0.76	1.00	0.16	1.00	1.00	0.36	1.00	
Satd. Flow (perm)		1529			1381	1615	309	3406	1579	674	3536	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	1	0	2	23	0	68	3	713	5	219	1559	2
RTOR Reduction (vph)	0	3	0	0	0	64	0	0	1	0	0	0
Lane Group Flow (vph)	0	0	0	0	23	4	3	713	4	219	1561	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		8.1			8.1	8.1	94.9	94.9	94.9	107.4	107.4	
Effective Green, g (s)		8.1			8.1	8.1	94.9	94.9	94.9	107.4	107.4	
Actuated g/C Ratio		0.06			0.06	0.06	0.73	0.73	0.73	0.83	0.83	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		95			86	100	225	2486	1152	629	2921	
v/s Ratio Prot								0.21		0.02	c0.44	
v/s Ratio Perm		0.00			c0.02	0.00	0.01		0.00	0.26		
v/c Ratio		0.00			0.27	0.04	0.01	0.29	0.00	0.35	0.53	
Uniform Delay, d1		57.2			58.1	57.3	4.8	6.0	4.7	2.4	3.5	
Progression Factor		1.00			1.00	1.00	2.06	2.27	1.00	1.00	1.00	
Incremental Delay, d2		0.0			1.7	0.2	0.1	0.3	0.0	0.3	0.7	
Delay (s)		57.2			59.8	57.5	10.0	13.9	4.8	2.8	4.2	
Level of Service		E			E	E	A	B	A	A	A	
Approach Delay (s)		57.2			58.1			13.8			4.0	
Approach LOS		E			E			B			A	
Intersection Summary												
HCM 2000 Control Delay		8.7										
HCM 2000 Volume to Capacity ratio		0.53										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		111.0%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

Base Year (2024) PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	78	214	469	210	73	16	634	758	58	303
v/c Ratio	0.12	0.20	0.75	0.20	0.08	0.07	0.73	0.48	0.45	0.35
Control Delay	10.0	10.0	24.0	10.1	2.9	23.4	33.3	1.0	37.5	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	10.0	24.0	10.1	2.9	23.4	33.3	1.0	37.5	25.6
Queue Length 50th (m)	5.3	15.3	51.6	15.1	0.0	2.0	49.2	0.0	7.9	20.8
Queue Length 95th (m)	13.9	31.4	#122.7	31.0	6.1	6.8	67.2	0.0	19.8	31.6
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	661	1055	628	1037	918	504	1989	1583	298	1975
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.20	0.75	0.20	0.08	0.03	0.32	0.48	0.19	0.15

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

Base Year (2024) PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	202	4	450	202	70	15	609	728	56	281	10
Future Volume (vph)	75	202	4	450	202	70	15	609	728	56	281	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1579	1504	3539	1583	1805	3513	
Flt Permitted	0.63	1.00		0.62	1.00	1.00	0.57	1.00	1.00	0.28	1.00	
Satd. Flow (perm)	1178	1876		1119	1845	1579	898	3539	1583	531	3513	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	78	210	4	469	210	73	16	634	758	58	293	10
RTOR Reduction (vph)	0	0	0	0	0	32	0	0	0	0	3	0
Lane Group Flow (vph)	78	214	0	469	210	41	16	634	758	58	300	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	45.1	45.1		45.1	45.1	45.1	19.6	19.6	80.2	19.6	19.6	
Effective Green, g (s)	45.1	45.1		45.1	45.1	45.1	19.6	19.6	80.2	19.6	19.6	
Actuated g/C Ratio	0.56	0.56		0.56	0.56	0.56	0.24	0.24	1.00	0.24	0.24	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	662	1054		629	1037	887	219	864	1583	129	858	
v/s Ratio Prot		0.11			0.11			c0.18			0.09	
v/s Ratio Perm	0.07			c0.42		0.03	0.02		0.48	0.11		
v/c Ratio	0.12	0.20		0.75	0.20	0.05	0.07	0.73	0.48	0.45	0.35	
Uniform Delay, d1	8.2	8.7		13.2	8.7	7.9	23.3	27.9	0.0	25.7	25.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.4		7.8	0.4	0.1	0.1	3.3	1.0	2.5	0.2	
Delay (s)	8.6	9.1		21.1	9.1	8.0	23.5	31.2	1.0	28.2	25.3	
Level of Service	A	A		C	A	A	C	C	A	C	C	
Approach Delay (s)		9.0			16.5			14.9			25.8	
Approach LOS		A			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			16.1									
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			80.2									
Intersection Capacity Utilization			102.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue & Green Lane

Base Year (2024) PM Peak Hour

	→	↘	↙	←	↖	↗						
Movement	EBT	EBR	WBL	WBT	NBL	NBR						
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗						
Traffic Volume (veh/h)	917	65	39	722	25	31						
Future Volume (Veh/h)	917	65	39	722	25	31						
Sign Control	Free			Free	Stop							
Grade	0%			0%	0%							
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91						
Hourly flow rate (vph)	1008	71	43	793	27	34						
Pedestrians						5						
Lane Width (m)						3.6						
Walking Speed (m/s)						1.2						
Percent Blockage						0						
Right turn flare (veh)												
Median type	None		None									
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume			1084			1496	509					
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol			1084			1496	509					
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			75	93					
cM capacity (veh/h)			648			108	512					
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2				
Volume Total	504	504	71	43	396	396	27	34				
Volume Left	0	0	0	43	0	0	27	0				
Volume Right	0	0	71	0	0	0	0	34				
cSH	1700	1700	1700	648	1700	1700	108	512				
Volume to Capacity	0.30	0.30	0.04	0.07	0.23	0.23	0.25	0.07				
Queue Length 95th (m)	0.0	0.0	0.0	1.7	0.0	0.0	7.4	1.7				
Control Delay (s)	0.0	0.0	0.0	10.9	0.0	0.0	49.3	12.5				
Lane LOS				B			E	B				
Approach Delay (s)	0.0			0.6			28.8					
Approach LOS							D					
Intersection Summary												
Average Delay				1.1								
Intersection Capacity Utilization				42.0%	ICU Level of Service		A					
Analysis Period (min)				15								

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

Base Year (2024) PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	932	33	226	735	26	187
v/c Ratio	0.32	0.03	0.49	0.26	0.18	0.65
Control Delay	3.6	1.3	12.3	2.9	62.3	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	1.3	12.3	2.9	62.3	22.0
Queue Length 50th (m)	27.4	0.4	11.7	12.7	7.3	3.9
Queue Length 95th (m)	42.7	2.6	55.2	25.6	16.9	28.3
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2890	1288	461	2808	412	498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.03	0.49	0.26	0.06	0.38
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

Base Year (2024) PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (vph)	913	32	221	720	25	183
Future Volume (vph)	913	32	221	720	25	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1572	1784	3438	1805	1599
Flt Permitted	1.00	1.00	0.30	1.00	0.95	1.00
Satd. Flow (perm)	3539	1572	565	3438	1805	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	932	33	226	735	26	187
RTOR Reduction (vph)	0	5	0	0	0	159
Lane Group Flow (vph)	932	28	226	735	26	28
Confl. Peds. (#/hr)		3	3		1	
Heavy Vehicles (%)	2%	0%	1%	5%	0%	1%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	114.4	114.4	114.4	114.4	11.1	11.1
Effective Green, g (s)	114.4	114.4	114.4	114.4	11.1	11.1
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.08	0.08
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2891	1284	461	2809	143	126
v/s Ratio Prot	0.26			0.21	0.01	
v/s Ratio Perm		0.02	c0.40			c0.02
v/c Ratio	0.32	0.02	0.49	0.26	0.18	0.22
Uniform Delay, d1	3.2	2.4	3.9	3.0	60.2	60.4
Progression Factor	1.00	1.00	1.85	0.86	1.00	1.00
Incremental Delay, d2	0.3	0.0	3.6	0.2	0.6	0.9
Delay (s)	3.5	2.4	10.8	2.8	60.8	61.3
Level of Service	A	A	B	A	E	E
Approach Delay (s)	3.4			4.7	61.2	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			9.7		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			80.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

Base Year (2024) PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↘	
Traffic Volume (veh/h)	1012	102	22	889	57	40
Future Volume (Veh/h)	1012	102	22	889	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1077	109	23	946	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.94		0.97	0.94
vC, conflicting volume			1186		1650	593
vC1, stage 1 conf vol					1132	
vC2, stage 2 conf vol					519	
vCu, unblocked vol			1074		1369	444
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		77	92
cM capacity (veh/h)			570		266	534
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	718	468	23	473	473	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	570	1700	1700	336
Volume to Capacity	0.42	0.28	0.04	0.28	0.28	0.31
Queue Length 95th (m)	0.0	0.0	1.0	0.0	0.0	10.3
Control Delay (s)	0.0	0.0	11.6	0.0	0.0	20.4
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			20.4
Approach LOS						C
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			43.5%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	900	158	240	756	169	269
v/c Ratio	0.38	0.15	0.48	0.29	0.72	0.67
Control Delay	11.1	2.5	17.0	1.1	74.3	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	2.5	17.0	1.1	74.3	20.6
Queue Length 50th (m)	51.6	2.1	23.5	3.7	47.9	12.7
Queue Length 95th (m)	69.2	9.0	m31.1	m8.2	69.9	41.4
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2341	1066	502	2651	421	542
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.15	0.48	0.29	0.40	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

Base Year (2024) PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	873	153	233	733	164	261
Future Volume (vph)	873	153	233	733	164	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1543	1804	3471	1787	1583
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	3539	1543	517	3471	1787	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	900	158	240	756	169	269
RTOR Reduction (vph)	0	45	0	0	0	192
Lane Group Flow (vph)	900	113	240	756	169	77
Confl. Peds. (#/hr)		6	6			
Heavy Vehicles (%)	2%	1%	0%	4%	1%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	92.6	92.6	106.9	106.9	18.6	18.6
Effective Green, g (s)	92.6	92.6	106.9	106.9	18.6	18.6
Actuated g/C Ratio	0.66	0.66	0.76	0.76	0.13	0.13
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2340	1020	489	2650	237	210
v/s Ratio Prot	0.25		c0.04	0.22	c0.09	
v/s Ratio Perm		0.07	c0.34			0.05
v/c Ratio	0.38	0.11	0.49	0.29	0.71	0.37
Uniform Delay, d1	10.8	8.7	5.6	5.0	58.1	55.3
Progression Factor	0.91	0.84	3.60	0.17	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.5	0.2	9.7	1.1
Delay (s)	10.2	7.4	20.6	1.0	67.9	56.4
Level of Service	B	A	C	A	E	E
Approach Delay (s)	9.8			5.8	60.8	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			17.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			62.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

Base Year (2024) PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	330	782	71	311	770	595	64	832	324	429	514	161
v/c Ratio	0.96	0.87	0.15	0.93	0.88	0.87	0.17	0.83	0.61	0.83	0.37	0.23
Control Delay	94.3	53.8	1.5	71.9	62.5	44.5	22.1	56.0	30.4	77.7	30.0	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.3	53.8	1.5	71.9	62.5	44.5	22.1	56.0	30.4	77.7	30.0	4.8
Queue Length 50th (m)	81.8	104.8	0.0	70.0	113.4	129.8	9.9	122.6	48.0	64.9	50.5	0.0
Queue Length 95th (m)	#141.6	#127.4	1.4	#126.2	#141.3	#190.3	18.8	#152.3	83.0	83.8	65.1	13.8
Internal Link Dist (m)	262.9			265.2			202.7			420.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0		35.0	90.0		45.0
Base Capacity (vph)	347	910	491	342	892	697	403	1004	535	544	1382	712
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.86	0.14	0.91	0.86	0.85	0.16	0.83	0.61	0.79	0.37	0.23

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

Base Year (2024) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	327	774	70	308	762	589	63	824	321	425	509	159
Future Volume (vph)	327	774	70	308	762	589	63	824	321	425	509	159
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1801	3610	1562	3467	3539	1581
Flt Permitted	0.12	1.00	1.00	0.12	1.00	1.00	0.46	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	229	3539	1531	225	3471	1562	877	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	330	782	71	311	770	595	64	832	324	429	514	161
RTOR Reduction (vph)	0	0	53	0	0	37	0	0	100	0	0	96
Lane Group Flow (vph)	330	782	18	311	770	558	64	832	224	429	514	65
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	57.6	35.8	35.8	56.8	35.4	56.3	45.9	38.9	38.9	20.9	53.8	53.8
Effective Green, g (s)	57.6	35.8	35.8	56.8	35.4	56.3	45.9	38.9	38.9	20.9	53.8	53.8
Actuated g/C Ratio	0.41	0.26	0.26	0.41	0.25	0.40	0.33	0.28	0.28	0.15	0.38	0.38
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	339	904	391	330	877	628	333	1003	434	517	1359	607
v/s Ratio Prot	c0.15	0.22		0.14	0.22	c0.13	0.01	c0.23		0.12	0.15	
v/s Ratio Perm	c0.25		0.01	0.24		0.22	0.05		0.14			0.04
v/c Ratio	0.97	0.87	0.05	0.94	0.88	0.89	0.19	0.83	0.52	0.83	0.38	0.11
Uniform Delay, d1	41.2	49.8	39.2	40.4	50.2	38.9	32.8	47.4	42.6	57.8	31.1	27.7
Progression Factor	1.56	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.11	0.92	0.82
Incremental Delay, d2	39.8	8.8	0.1	34.6	10.7	14.3	0.3	7.9	4.3	10.2	0.8	0.3
Delay (s)	104.0	52.2	39.3	75.0	60.9	53.3	33.1	55.4	46.9	74.3	29.4	23.0
Level of Service	F	D	D	E	E	D	C	E	D	E	C	C
Approach Delay (s)		65.8			60.8			51.9			45.9	
Approach LOS		E			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			56.7			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			102.4%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

Base Year (2024) PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	62	219	12	1740	7	141	999
v/c Ratio	0.06	0.38	0.77	0.05	0.74	0.01	0.54	0.36
Control Delay	31.9	62.4	46.1	9.9	14.0	0.0	22.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	62.4	46.1	9.9	14.0	0.0	22.0	5.5
Queue Length 50th (m)	1.1	17.1	30.4	1.1	114.0	0.0	9.1	38.7
Queue Length 95th (m)	7.2	30.5	56.8	m1.3	m216.5	m0.0	34.7	64.1
Internal Link Dist (m)	94.9	97.1			420.1			399.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	392	334	464	227	2361	933	259	2762
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.19	0.47	0.05	0.74	0.01	0.54	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

Base Year (2024) PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	8	60	0	212	12	1688	7	137	966	3
Future Volume (vph)	2	2	8	60	0	212	12	1688	7	137	966	3
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1698			1800	1599	1142	3574	1381	1770	3531	
Flt Permitted		0.96			0.75	1.00	0.29	1.00	1.00	0.07	1.00	
Satd. Flow (perm)		1638			1420	1599	345	3574	1381	133	3531	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	2	8	62	0	219	12	1740	7	141	996	3
RTOR Reduction (vph)	0	7	0	0	0	101	0	0	2	0	0	0
Lane Group Flow (vph)	0	5	0	0	62	118	12	1740	5	141	999	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		16.0			16.0	16.0	92.5	92.5	92.5	109.5	109.5	
Effective Green, g (s)		16.0			16.0	16.0	92.5	92.5	92.5	109.5	109.5	
Actuated g/C Ratio		0.11			0.11	0.11	0.66	0.66	0.66	0.78	0.78	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		187			162	182	227	2361	912	256	2761	
v/s Ratio Prot								c0.49		c0.05	0.28	
v/s Ratio Perm		0.00			0.04	c0.07	0.03		0.00	0.38		
v/c Ratio		0.03			0.38	0.65	0.05	0.74	0.01	0.55	0.36	
Uniform Delay, d1		55.1			57.4	59.3	8.3	15.7	8.1	21.6	4.6	
Progression Factor		1.00			1.00	1.00	0.83	0.74	1.00	1.00	1.00	
Incremental Delay, d2		0.1			1.5	7.7	0.2	1.0	0.0	2.6	0.4	
Delay (s)		55.1			58.9	67.0	7.2	12.6	8.1	24.2	5.0	
Level of Service		E			E	E	A	B	A	C	A	
Approach Delay (s)		55.1			65.2			12.6			7.4	
Approach LOS		E			E			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.5		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					18.5		
Intersection Capacity Utilization			111.7%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

Appendix C

Growth Rate Calculations



Disclaimer

It is advised that peak hour auto volumes and peak period transit volumes presented in the plots are simulated assignment results from York Region Activity-Based Model (ABM). The ABM considers AM peak period from 6 to 9 a.m. and PM peak period from 3 to 7 p.m.

Caution should be exercised when interpreting the values shown in the plots, as volumes on each individual link may not be representative of what may occur. The plots are provided for information purposes.

The population and employment data used in the model are projections, should be used only for the purposes of studies on a regional context and for estimating transportation demands on Regional Roads.

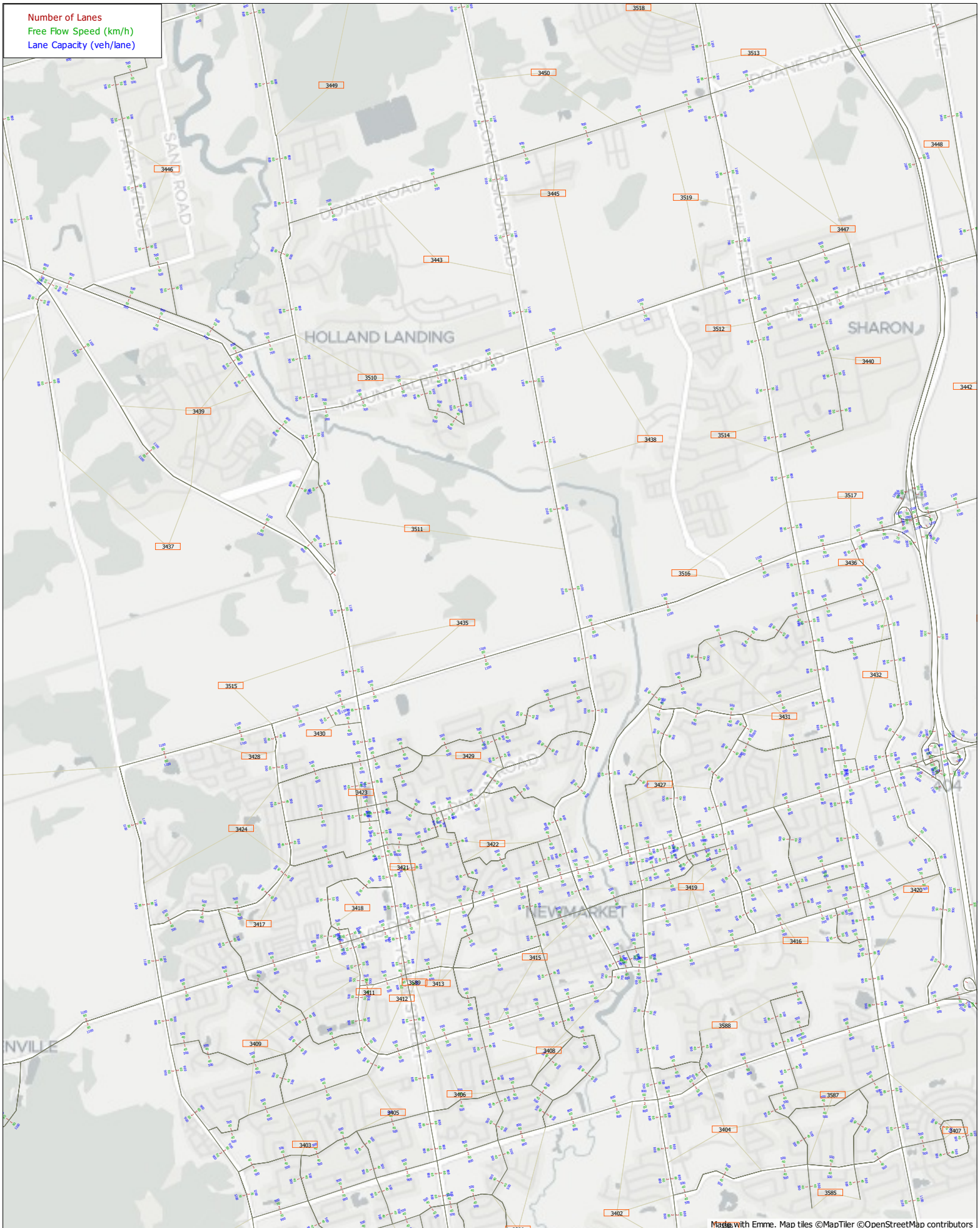
The consultant should be fully aware of modelling assumptions and understand limitations of the model.

While efforts are made to see that the supplied information is accurate and up-to-date:

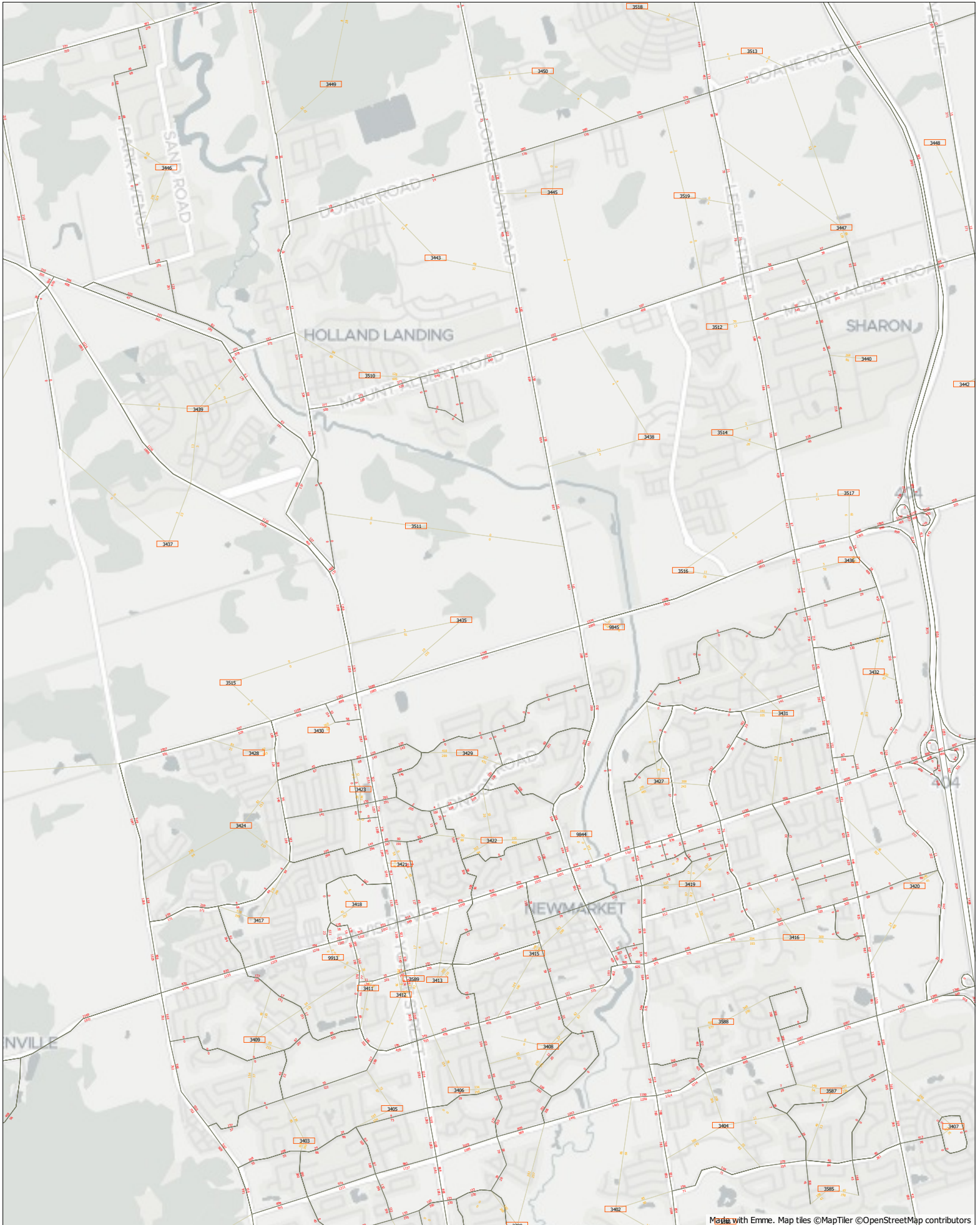
- i. neither The Regional Municipality of York, the Owners, nor any of the respective employees, officers, or servants shall be liable for any damages or suffer any loss arising from any errors or inaccuracies in the information, or from any misuse, misinterpretation or misapplication thereof, whether due to the negligence of such employees, officers, servants or otherwise: and
- ii. the information is made available to the recipient thereof solely on condition that the recipient and all the recipient's heirs, executors, administrators, successors and assigns shall assume full responsibility for any risk associated with the use or misuse thereof and agree to indemnify and hold harmless The Regional Municipality of York, the Owners, and the respective employees, officers and servants from any and all damages or losses whether arising directly or indirectly from the release of digital data including all damages and losses of the type described in Clause i.

2016 Link Attributes

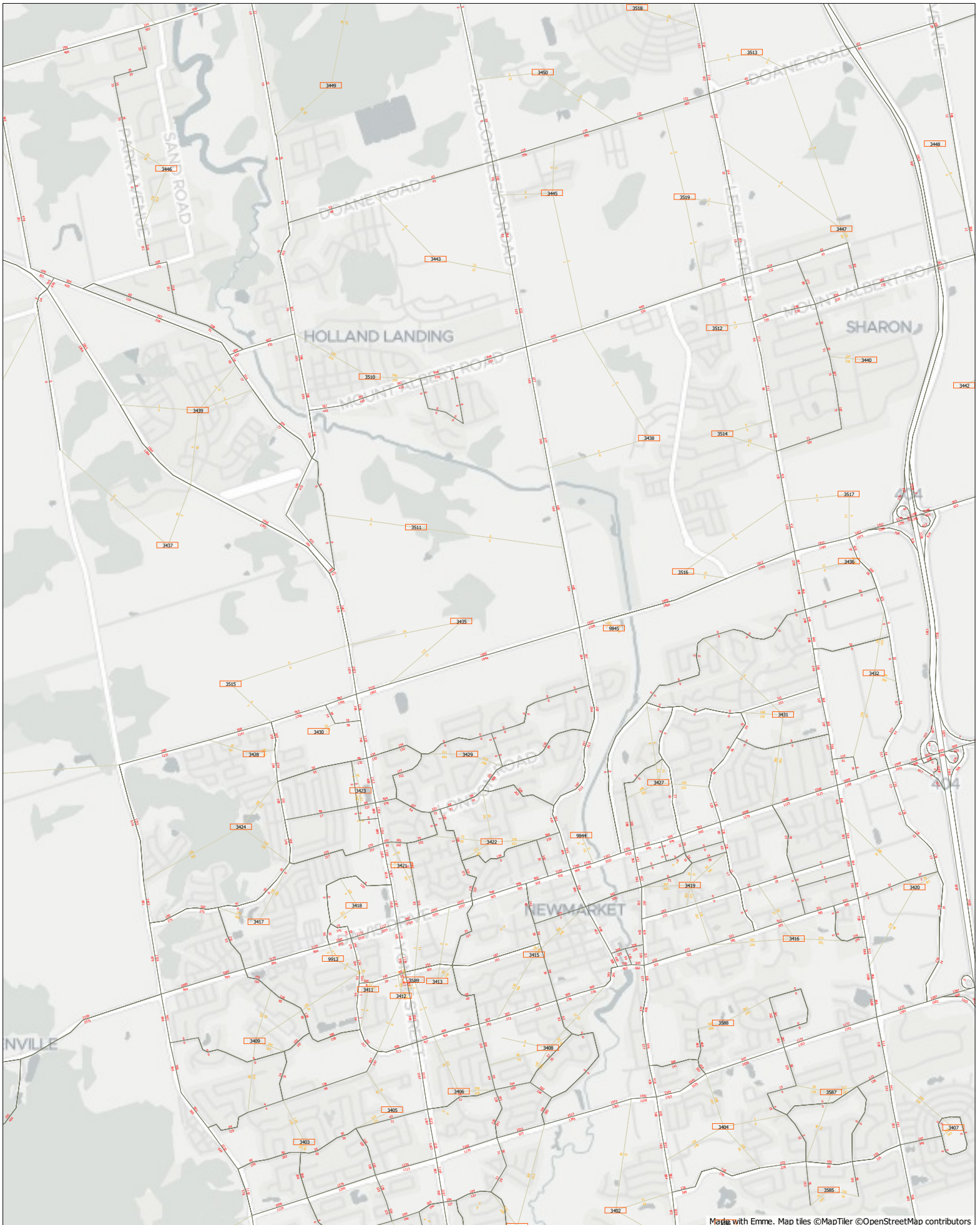
Number of Lanes
Free Flow Speed (km/h)
Lane Capacity (veh/lane)



2016 AM Pkhr Auto Link Volumes

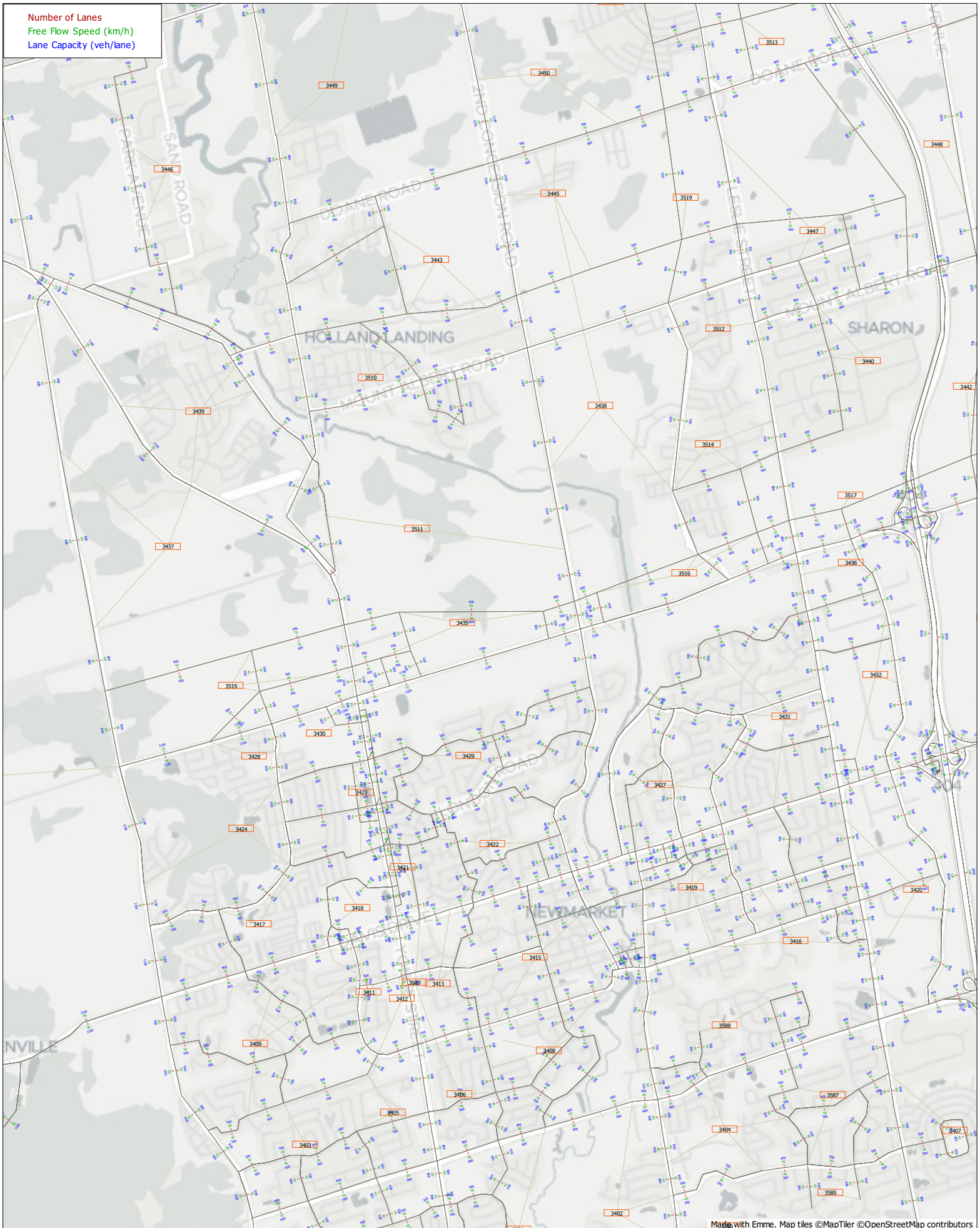


2016 PM Pkhr Auto Link Volumes

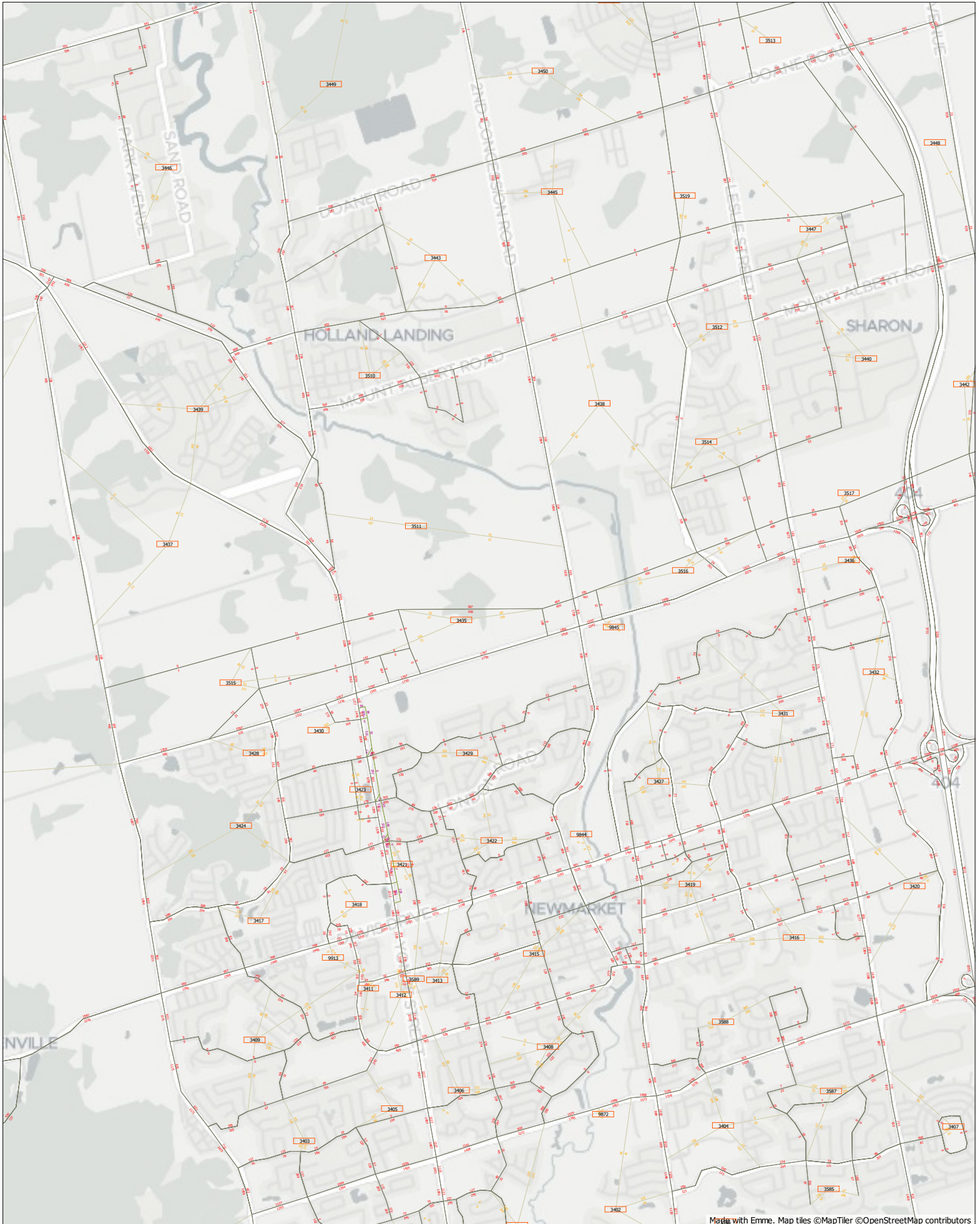


2031 Link Attributes

Number of Lanes
Free Flow Speed (km/h)
Lane Capacity (veh/lane)

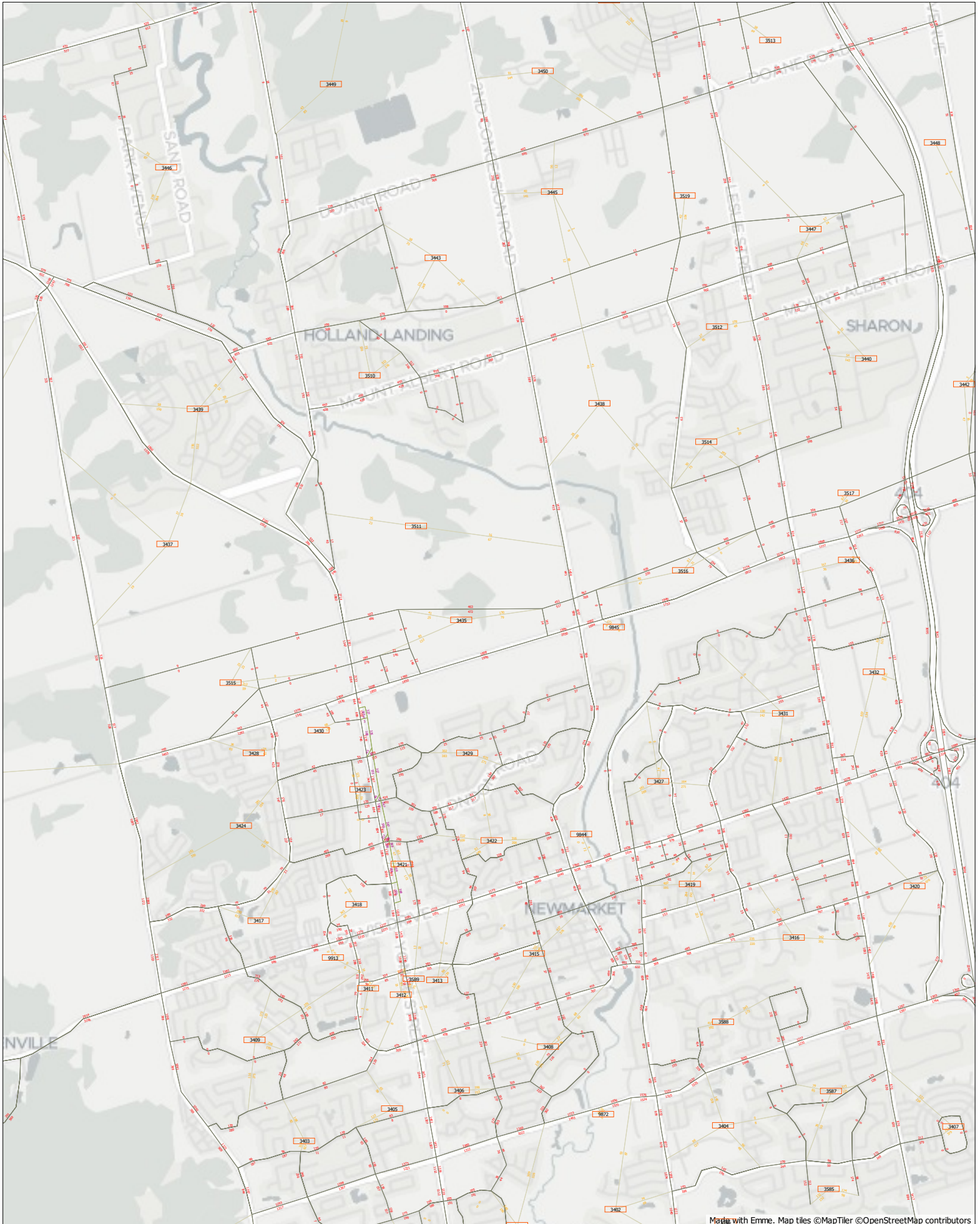


2031 AM Pkhr Auto Link Volumes



Made with Emme. Map tiles ©MapTiler ©OpenStreetMap contributors

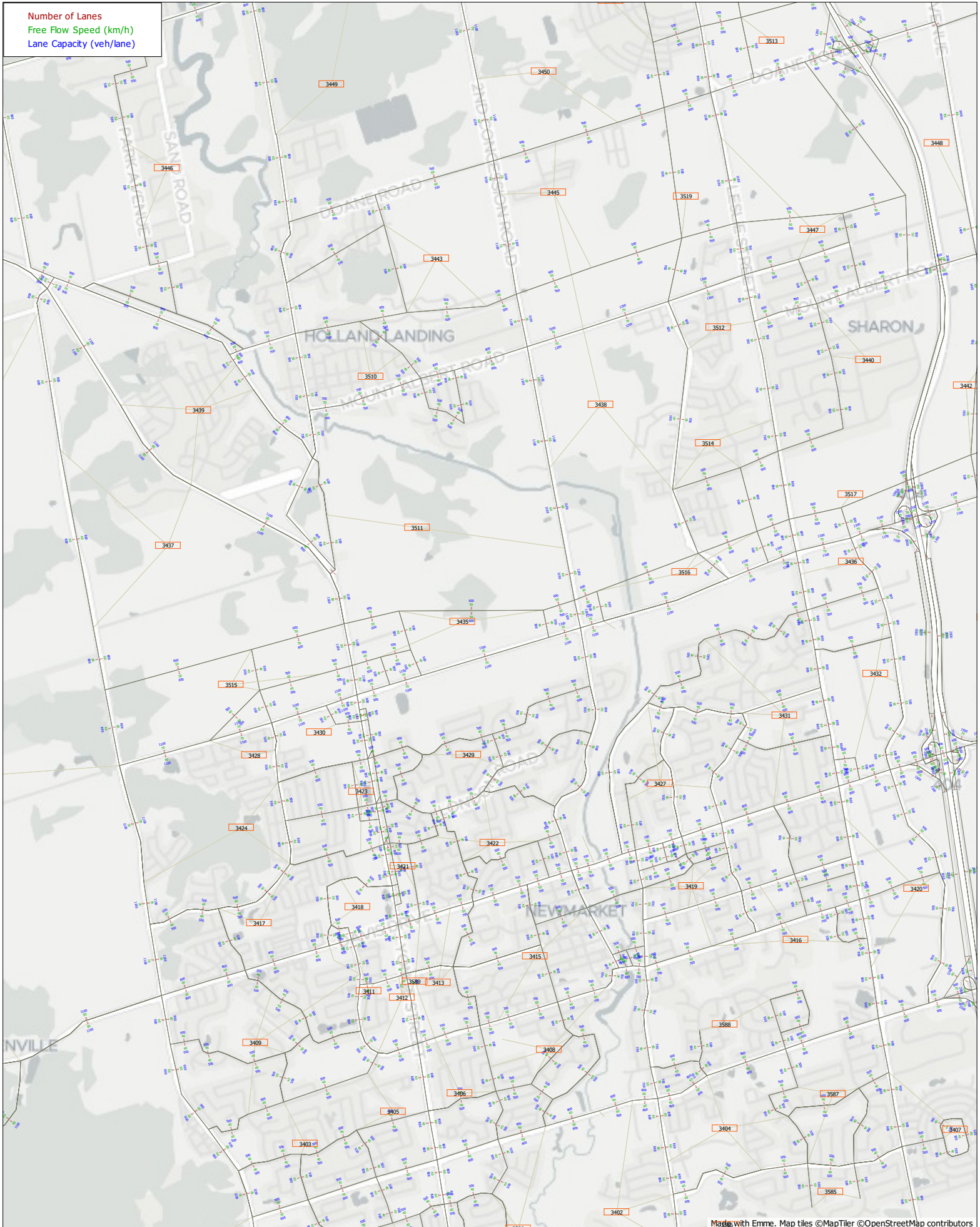
2031 PM Pkhr Auto Link Volumes



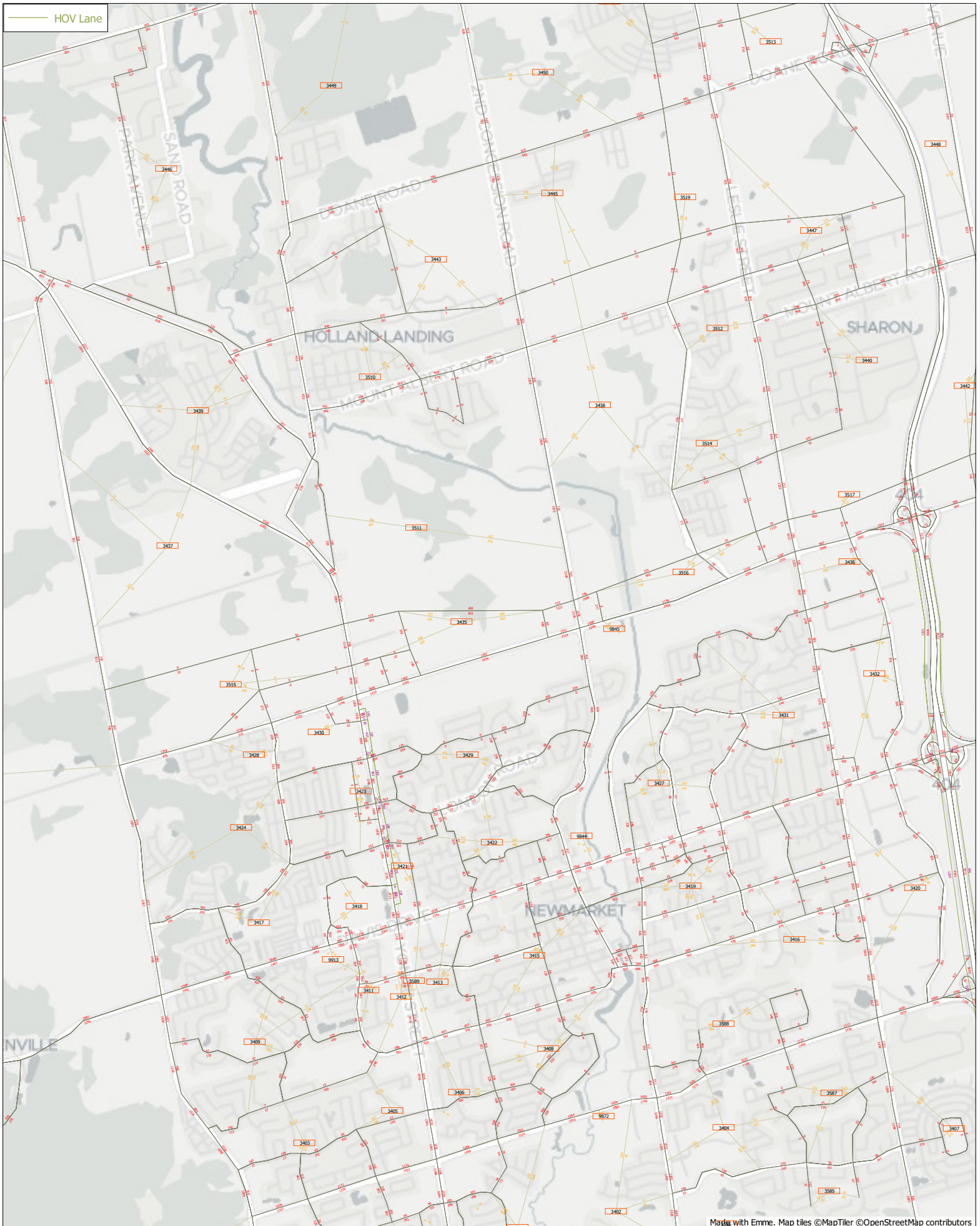
Made with Emme. Map tiles ©MapTiler ©OpenStreetMap contributors

2051 Link Attributes

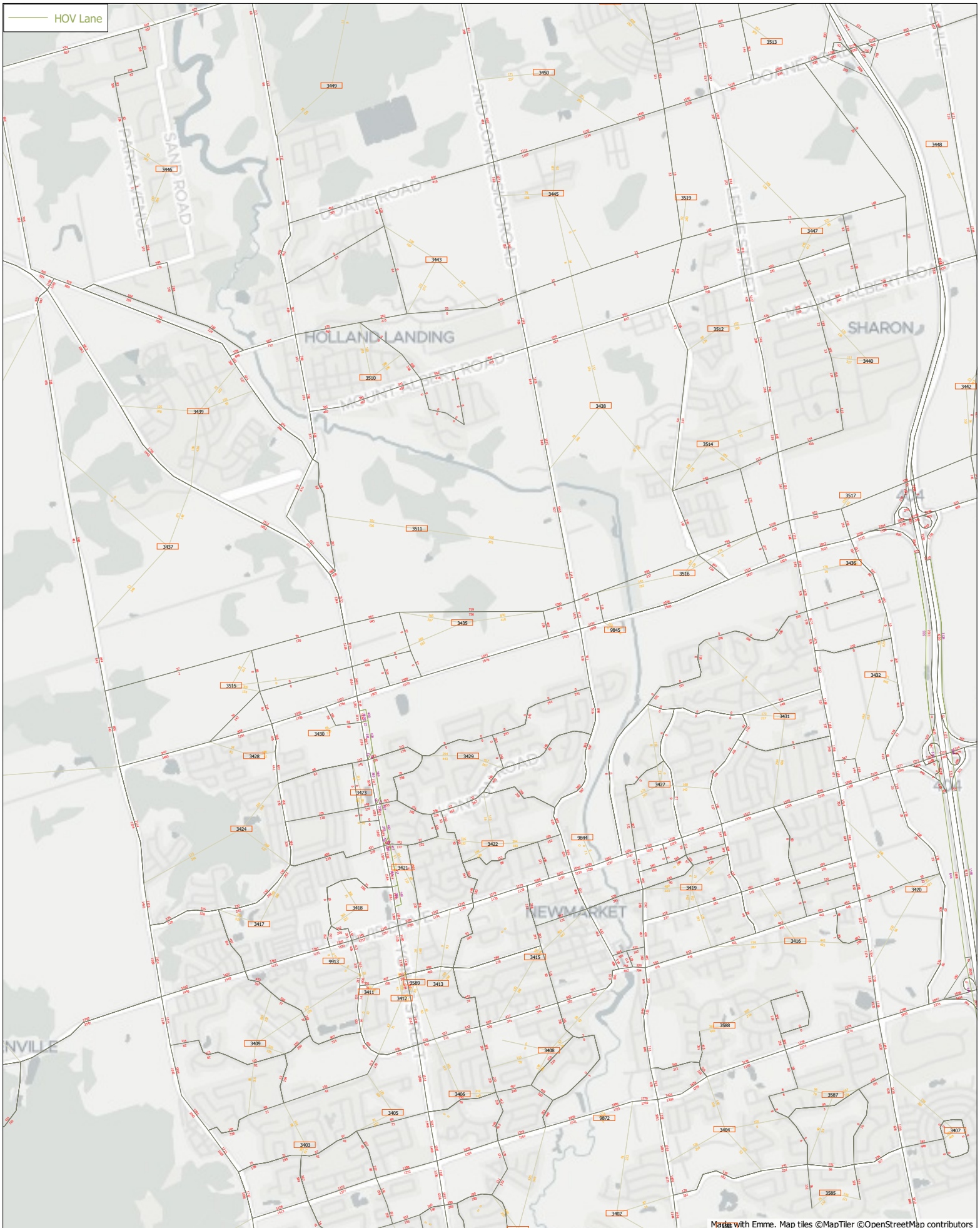
Number of Lanes
Free Flow Speed (km/h)
Lane Capacity (veh/lane)



2051 AM Pkhr Auto Link Volumes



2051 PM Pkhr Auto Link Volumes



From the previous TIS report
A growth rate of 2% per annum to through movements along both Yonge Street and Green Lane was applied (p12 of PDF)

Town TMP (March 1 2024)			
Year	own Population	Emplon	Total
2016	36500	10300	46800
2051	127700	63100	190800
GR	3.6%	5.3%	4.1%

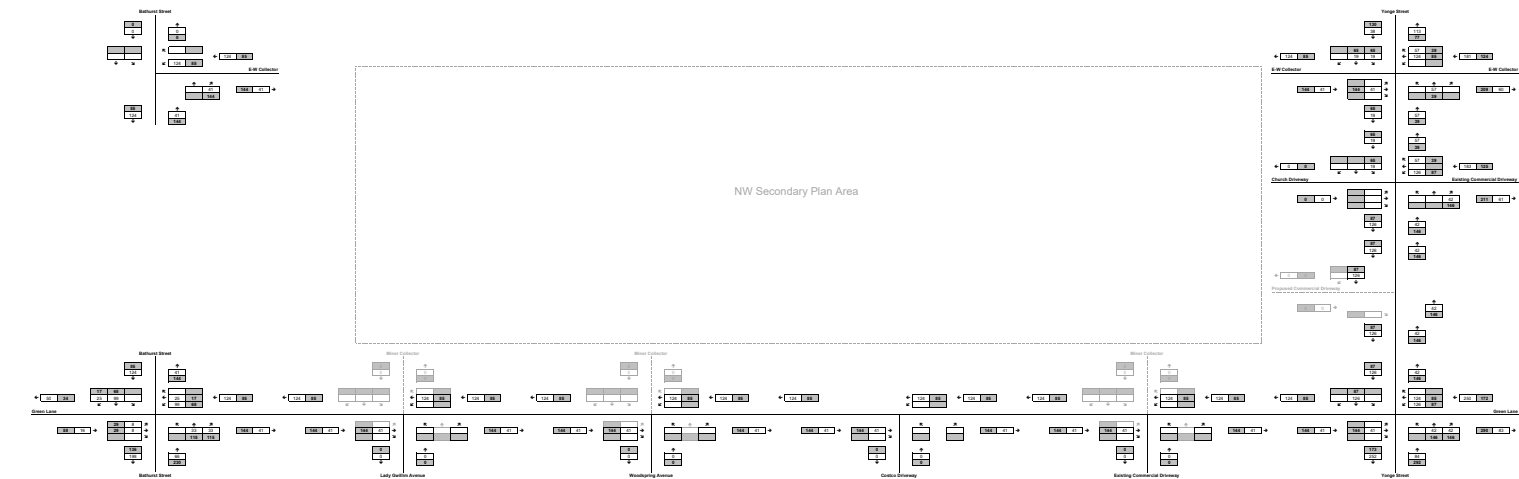
Traffic Volume Forecast EMME Model:

2016 AM Green Lane	WB	1007	927	1108	1182	1689	1748	Bathurst Street	NB	549	Yonge Street	NB	547	1253	1256	Woodspring Avenue	NB	309	381	
	EB	551	529	916	889	1685	1607		SB	1047		SB	1344	2339	2389		SB	224	185	
	2016 PM Green Lane	WB	590	558	915	897	1715	1666	Bathurst Street	NB	1255	Yonge Street	NB	1236	2433	2467	Woodspring Avenue	NB	234	209
		EB	1231	1147	1356	1403	1892	1944		SB	574		SB	705	1574	1575		SB	294	353
2016	AM & PM & Both Directions	3379	3161	4295	4371	6981	6965			3425			3832	7599	7687		1061	1128		
2031 AM Green Lane	WB	1254	1097	1294	1417	1797	1797	Bathurst Street	NB	780	Yonge Street	NB	602	1039	966	Woodspring Avenue	NB	467	570	
	EB	582	532	1317	1216	1545	1730		SB	1697		SB	1777	2163	2206		SB	252	188	
	2031 PM Green Lane	WB	795	743	1376	1304	1608	1786	Bathurst Street	NB	1842	Yonge Street	NB	1629	2132	2201	Woodspring Avenue	NB	278	232
		EB	1403	1282	1542	1630	1850	1850		SB	1095		SB	864	1284	1347		SB	425	490
2031	AM & PM & Both Directions	4034	3654	5529	5567	6800	7163			5414			4872	6618	6720		1422	1480		
2051 AM Green Lane	WB	1318	1138	1489	1620	1805	1492	Bathurst Street	NB	930	Yonge Street	NB	1128	1146	968	Woodspring Avenue	NB	509	601	
	EB	643	572	1223	1164	1419	1455		SB	1921		SB	2359	2446	2118		SB	563	503	
	2051 PM Green Lane	WB	947	858	1366	1323	1512	1586	Bathurst Street	NB	2114	Yonge Street	NB	2245	2402	2056	Woodspring Avenue	NB	622	566
		EB	1485	1261	1709	1764	1905	1670		SB	1374		SB	1392	1501	1236		SB	441	491
2051	AM & PM & Both Directions	4393	3829	5787	5871	6641	6203			6339			7124	7495	6378		2135	2161		
Growth Rate Calculations																				
2% 2016 to 2031		1.2%	1.0%	1.7%	1.6%	-0.2%	0.2%			3.1%			1.6%	-0.9%	-0.9%			2.0%	1.8%	
1% 2031 to 2051		0.4%	0.2%	0.2%	0.3%	-0.1%	-0.7%			0.8%			1.9%	0.6%	-0.3%			2.1%	1.9%	

Appendix D

Other Area Developments Site Traffic





10% Build-out	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Residential (50% single detached)	173	520	637	369

From 2016 TTS (from the 'Back Comp. TTS Distribution' tab)

Direction	Residential
North	12%
South	36%
East	27%
West	14%
Total	100%

From York Region EMME Model Outputs (2031 and 2051) Final Distribution

Direction		%	Direction		%	
North	Transit St	50%	North	Transit St	50%	
	2nd Concession Rpt	30%		North	2nd Concession Rpt	30%
	Leslie St	20%			North	Leslie St
South	Yonge St	40%	South			Yonge St
	2nd Concession Rpt	20%		South		2nd Concession Rpt
	Leslie St	40%			South	Leslie St
East	Green L.R.	100%	East			Green L.R.
West	Green L.R.	100%	West	Green L.R.		100%

Tip Assignment

		Add Phase - Hour		PMT Phase - Hour	
		in	Out	in	Out
South	Village St	17	260	487	260
	1st Connection Rd	6	113	260	260
	Little St	6	113	260	113
South	Village St	234	774	591	824
	1st Connection Rd	11	360	487	271
	Little St	234	774	591	591
East	Greene Ls	633	1062	2306	1361
West	Greene Ls	271	774	660	511

red numbers assigned to study area intersections

173 519 627 309

North via Yonge St		W via Green Lane	
Exiting Commercial Driveway	50%	Miller's sid	20%
Green Ln	50%	Bathurst S	80%

Check

	In	Out	In	Out
Internal	61	183	222	130
External	61	183	222	130
	61	183	222	130

50% Build-out	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
West-South	681	1,741	2,014	1,061

From 2016 TTS (from the 'Back Cwp: TTS Distribution' tab)

Direction	Percentage
North	17%
South	30%
East	37%
West	14%
Total	100%

From York Region EMME Model Outputs (2031 and 2051) Final Distribution

Direction	From	To	From	To
North	Florida St	50%	Florida St	9%
	2nd Concession Rd	30%	2nd Concession Rd	4%
	Little St	20%	Little St	2%
South	Florida St	40%	Florida St	14%
	2nd Concession Rd	20%	2nd Concession Rd	7%
	Little St	40%	Little St	11%
East	Green Ln	50%	Green Ln	100%
	C-W Collector	50%	C-W Collector	100%
West	Green Ln	50%	Green Ln	7%
	C-W Collector	50%	C-W Collector	7%

Age Group/Device		Mid Peak Hour		Mid Peak Hour	
		In	Out	In	Out
North	Orange St	24	113	120	71
	2nd Concession Rd	21	55	78	45
	Lexie St	11	43	52	21
	Orange St	84	250	250	175
South	2nd Concession Rd	47	120	140	80
	Lexie St	84	250	250	175
	Green Lb	102	312	228	218
	S-W Collector	100	314	300	218

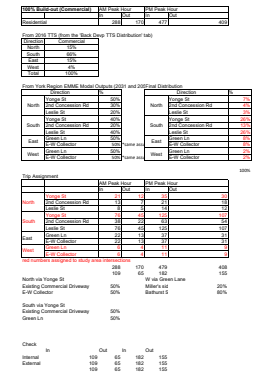
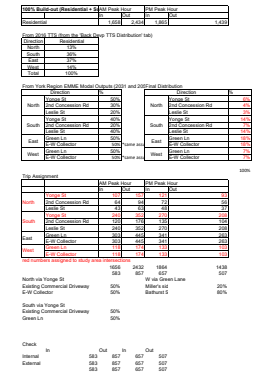
Asset	Green Lb.	41	124	144	31
	E-W Collector	41	124	144	31

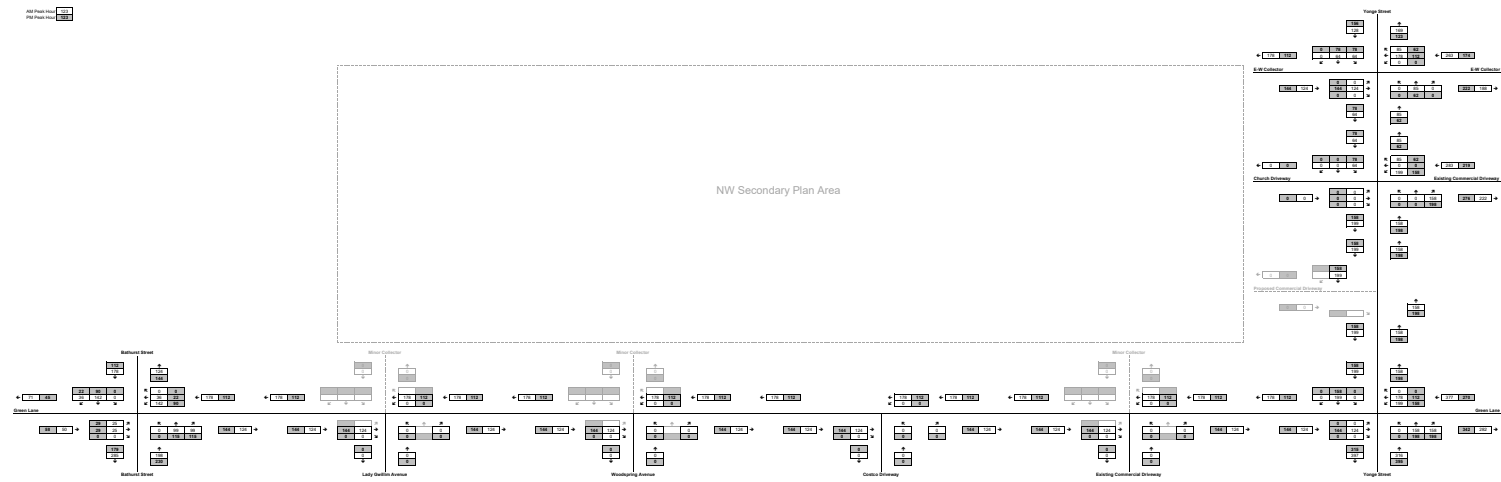
	580	1740	2014	1182
North via Yonge St			W via Green Lane	

Leading Commercial Driveway	50%	Miller's Rd	20%
E-W Collector	50%	Bathurst St	80%

South via Yonge St	
Exiting Commercial Driveway	50%
Green Ln	50%

Check	In	Out	In	Out
Internal		204	613	710
External		204	613	420





Unconstrained Internal Capture Rates for Trip Origins within a Multi-Use Development

Weekday PM Peak of Adjacent Street

From Residential	to Retail	1%
	to Office	2%
From Retail	to Residential	14%
	to Office	29%
From Office	to Residential	1%
	to Retail	28%

Unconstrained Internal Capture Rates for Trip Destinations within a Multi-Use Development

Weekday PM Peak of Adjacent Street

To Residential	from Retail	2%
	from Office	0%
To Retail	from Residential	17%
	from Office	32%
To Office	from Residential	3%
	from Retail	4%

Time Period

AM Peak Hour

LAND USE A		Residential	
ITE LU Code		411	
Size		6119	
	Total	Internal	External
Enter	611	12	599
Exit	1833	28	1805
Total	2444	40	2404
%	100%		

1805
Exit to External
←
→
Enter from External
599

18 1%
Demand

18
Balanced

57 17%
Demand

12 2%
Demand

12
Balanced

29 14%
Demand

LAND USE C		Retail	
ITE LU Code		820	
Size		643,175	
	Total	Internal	External
Enter	335	30	305
Exit	205	25	180
Total	540	55	485
%	100%		

180
Exit to External
←
→
Enter from External
305

Demand	Balanced	Demand
0 0%	0	0 1%
37 2%	9	9 3%
Demand	Balanced	Demand

12 28%
Demand

12
Balanced

107 32%
Demand

13 4%
Demand

13
Balanced

59 29%
Demand

LAND USE B		Office	
ITE LU Code		710	
Size		243,060	
	Total	Internal	External
Enter	316	22	294
Exit	43	12	31
Total	359	34	325
%	100%		

294
Enter from External
←
→
Exit to External
31

31
Exit to External

Net External Trips for Multi-Use Development					
	Land Use A	Land Use B	Land Use C		TOTAL
Enter	598.78	293.88	304.63		1197.29
Exit	1805.19	30.96	180.14		2016.29
Total	2403.97	324.84	484.77		3213.58
Single Use Trip Gen	2444	359	540		3343

Internal Capture
4%

Unconstrained Internal Capture Rates for Trip Origins within a Multi-Use Development

Weekday PM Peak of Adjacent Street

From Residential	to Retail	42%
	to Office	4%
From Retail	to Residential	26%
	to Office	2%
From Office	to Residential	2%
	to Retail	20%

Unconstrained Internal Capture Rates for Trip Destinations within a Multi-Use Development

Weekday PM Peak of Adjacent Street

To Residential	from Retail	46%
	from Office	4%
To Retail	from Residential	10%
	from Office	8%
To Office	from Residential	57%
	from Retail	31%

Time Period

PM Peak Hour

LAND USE A			
ITE LU Code		Residential	
		411	
Size		6119	
		Total	Internal External
Enter	2120	301	1819
Exit	1256	139	1117
Total	3376	440	2936
%	100%		

1117
Exit to External
←
→
Enter from External
1819

528 42%
Demand

105
Balanced

105 10%
Demand

975 46%
Demand

296
Balanced

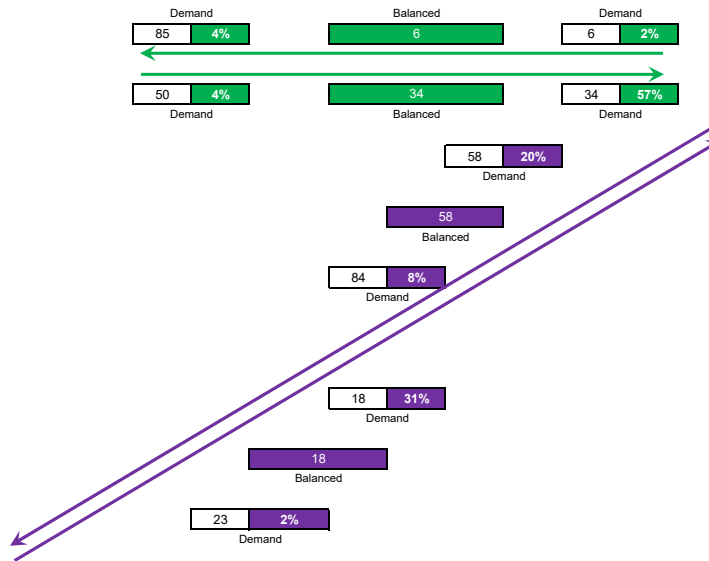
296 26%
Demand

LAND USE C			
ITE LU Code		Retail	
		820	
Size		643,175	
		Total	Internal External
Enter	1050	163	887
Exit	1137	314	823
Total	2187	477	1710
%	100%		

823
Exit to External
←
→
Enter from External
887

LAND USE B			
ITE LU Code		Office	
		710	
Size		243,060	
		Total	Internal External
Enter	59	52	7
Exit	288	63	225
Total	347	115	232
%	100%		

7
Enter from External
←
→
Exit to External
225



Net External Trips for Multi-Use Development					
	Land Use A	Land Use B	Land Use C		TOTAL
Enter	1818.62	7.08	887.4		2713.1
Exit	1117.37	224.64	823.09		2165.1
Total	2935.99	231.72	1710.49		4878.2
Single Use Trip Gen	3376	347	2187		5910

Internal Capture
17%

[illegible]

Structure	Topic	%
Adult	100%	100%
Adult	100%	100%
Adult	100%	100%
Adult	100%	100%
Adult	100%	100%
Total	100%	100%

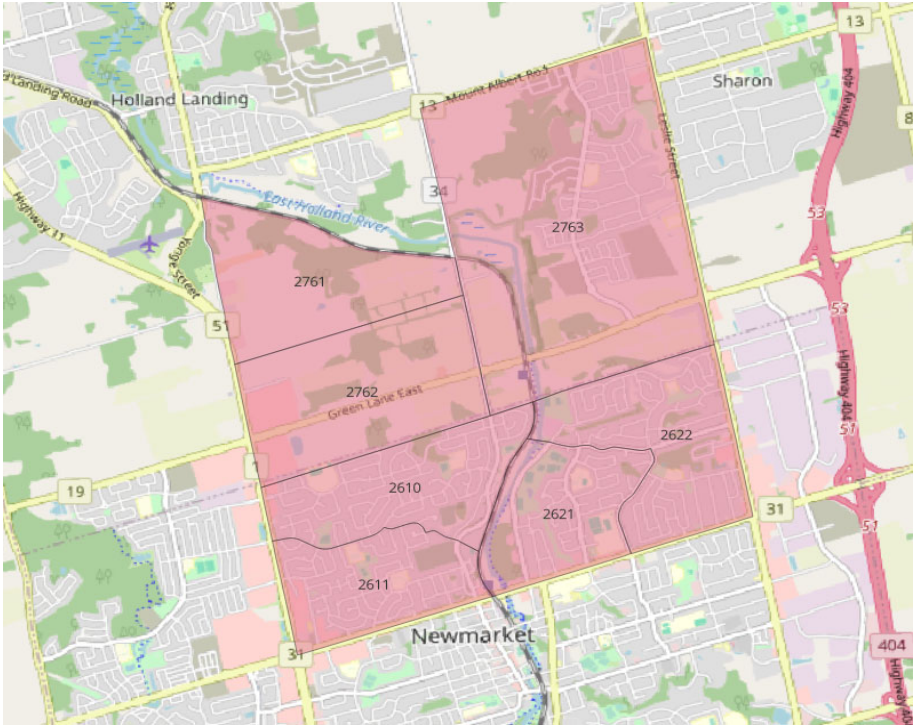
[illegible]

Source	Topic
North	South
South	North
East	West
West	East
Total	20000

[illegible]

2016 TTS Results

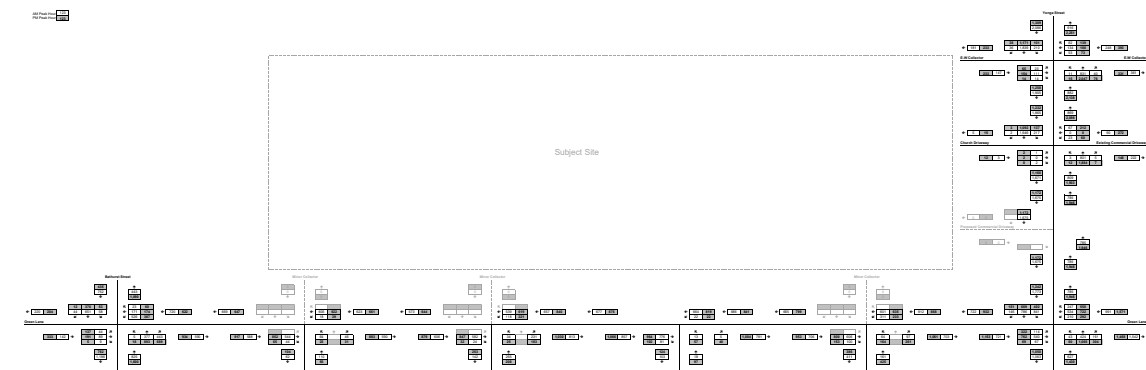
Direction	Residential	Commerical
North	13%	15%
South	36%	66%
East	37%	15%
West	14%	4%
Total	100%	100%

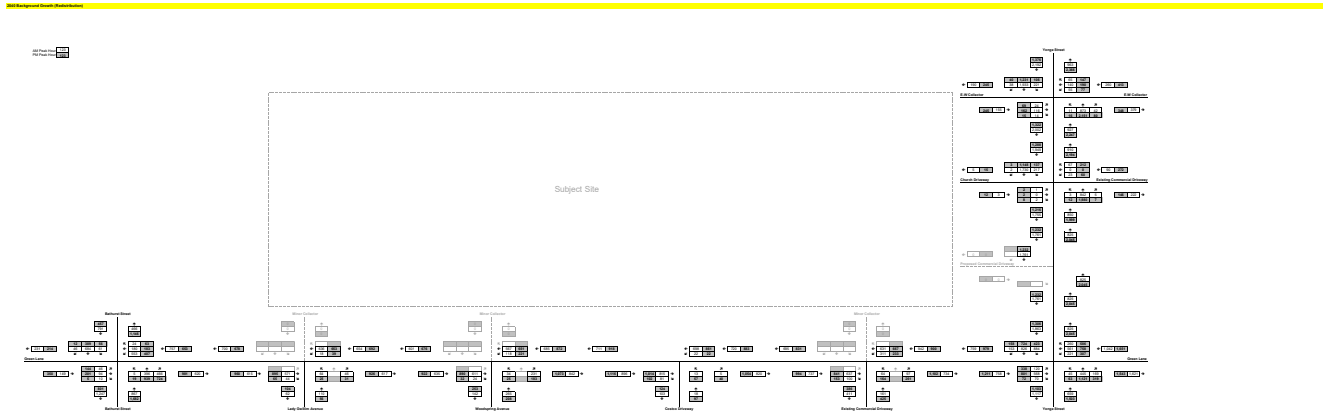
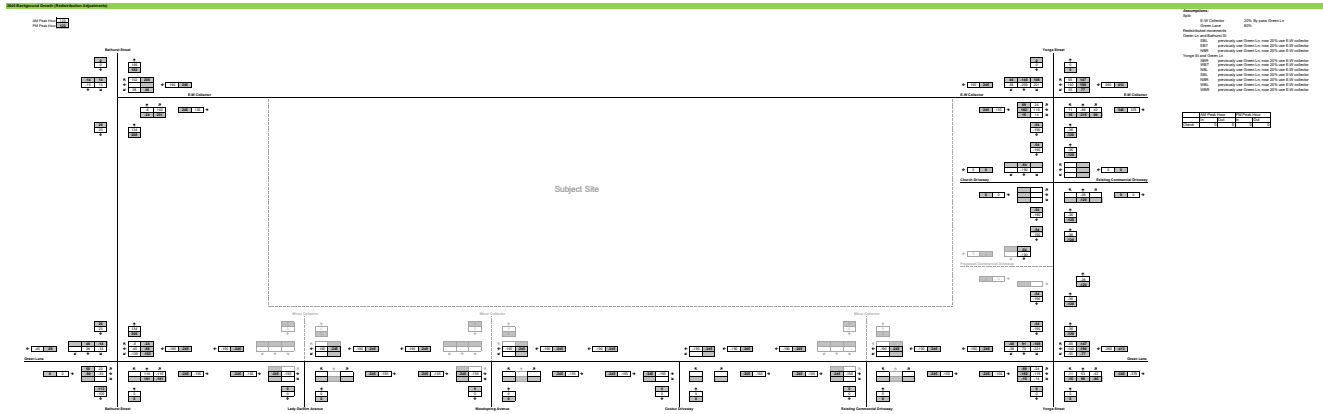
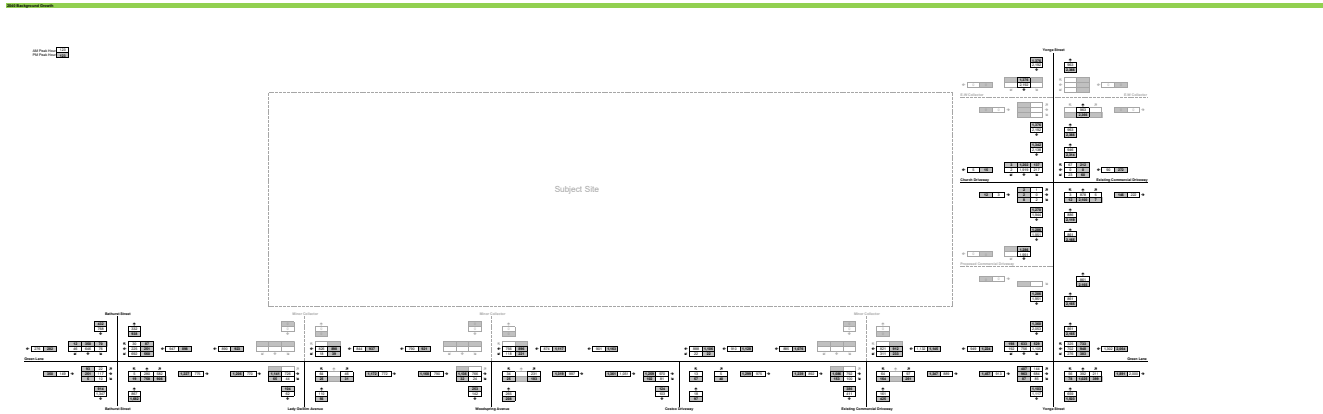


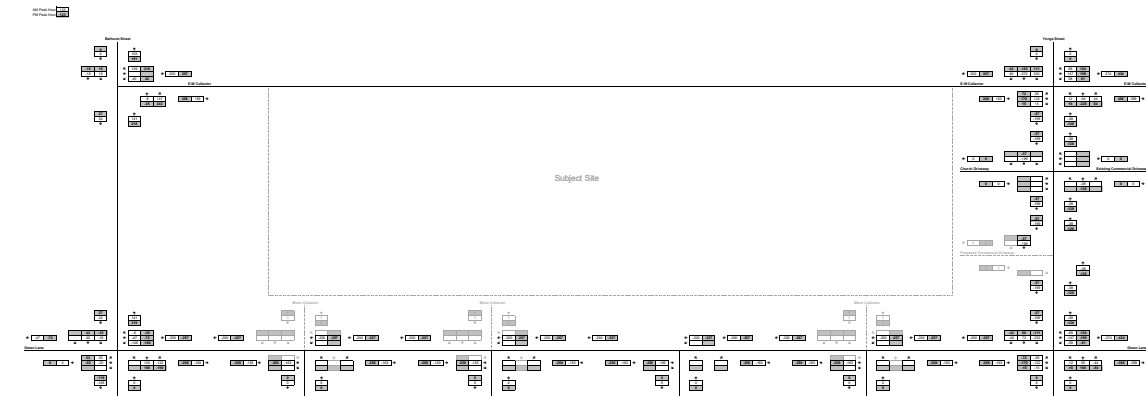
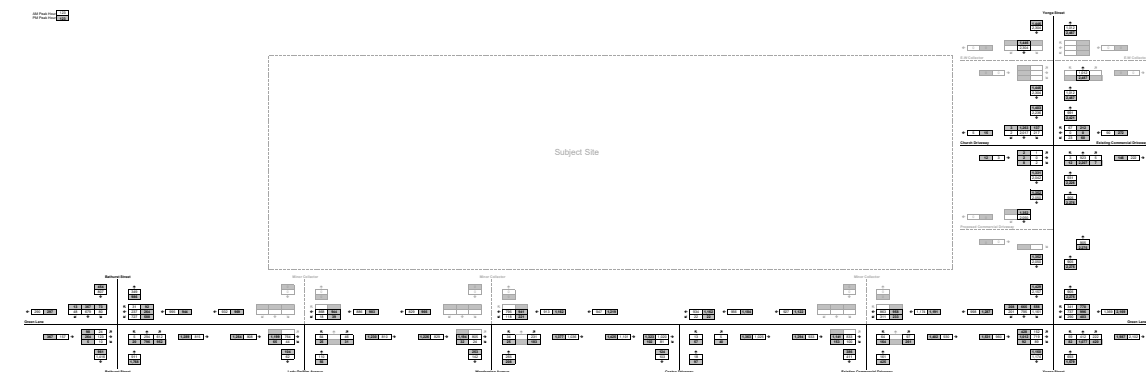
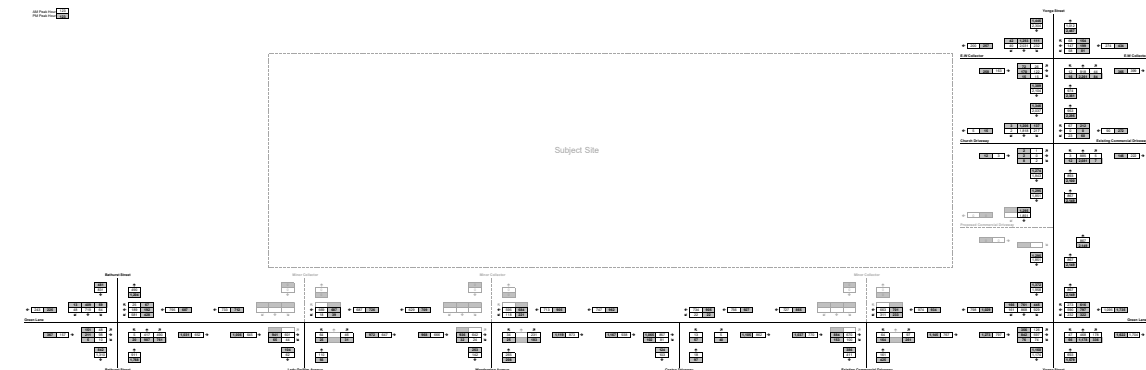
Appendix E

Future Background Traffic Redistribution



[illegible]



[illegible]

Appendix F

Site Traffic Internal Capture



AM PEAK HOUR

Unconstrained Internal Capture Rates for Trip Origins within a Multi-Use Development

Weekday AM Peak of Adjacent Street

From Retail to Residential 14%

From Residential to Retail 1%

Unconstrained Internal Capture Rates for Trip Destinations within a Multi-Use Development

Weekday AM Peak of Adjacent Street

To Retail from Residential 17%

To Residential from Retail 2%

Time Period

AM Peak Hour

37

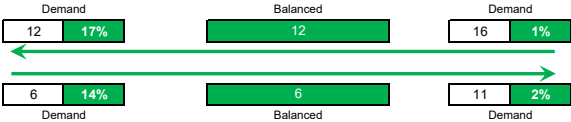
Exit to External



Enter from External

58

LAND USE A		Retail	
ITE LU Code		LUC 820	
Size			
	Total	Internal	External
Enter	70	12	58
Exit	43	6	37
Total	113	18	95
%	100%		



LAND USE B		Residential	
ITE LU Code		LUC 210, 220,222	
Size			
	Total	Internal	External
Enter	554	6	548
Exit	1,630	12	1618
Total	2184	18	2166
%	100%		

548

Enter from External



Exit to External

1618

Net External Trips for Multi-Use Development					
	Land Use A	Land Use B			TOTAL
Enter	58	548			606
Exit	37	1618			1655
Total	95	2166			2261
Single Use Trip Gen	113	2184			2297

Internal Capture

2%

PM PEAK HOUR

Unconstrained Internal Capture Rates for Trip Origins within a Multi-Use Development

Weekday PM Peak of Adjacent Street

From Retail to Residential 26%

From Residential to Retail 42%

Unconstrained Internal Capture Rates for Trip Destinations within a Multi-Use Development

Weekday PM Peak of Adjacent Street

To Retail from Residential 10%

To Residential from Retail 46%

Time Period

AM Peak Hour

177

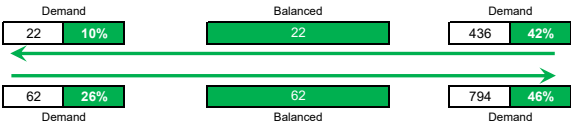
Exit to External



Enter from External

198

LAND USE A		Retail	
ITE LU Code		LUC 820	
Size			
	Total	Internal	External
Enter	220	22	198
Exit	239	62	177
Total	459	84	375
%	100%		



LAND USE B		Residential	
ITE LU Code		LUC 210, 220,222	
Size			
	Total	Internal	External
Enter	1,727	62	1665
Exit	1,038	22	1016
Total	2765	84	2681
%	100%		

1665

Enter from External



Exit to External

1016

Net External Trips for Multi-Use Development					
	Land Use A	Land Use B			TOTAL
Enter	198	1665			1863
Exit	177	1016			1193
Total	375	2681			3056
Single Use Trip Gen	459	2765			3224

Internal Capture

5%

Appendix G

Trip Distribution



2016 TTS Results

Direction	Residential	Commerical
North	11%	27%
South	52%	56%
East	25%	11%
West	13%	7%
Total	100%	100%

Existing Travel Patterns

Direction		%
North	Yonge Street	74%
	Bathurst Street	26%
South	Yonge Street	48%
	Bathurst Street	52%
East	Green Lane	50%
	E-W Collector Road	50%
West	Green Lane	50%
	E-W Collector Road	50%

Final Trip Distribution

Direction		Residential	Commerical
North	Yonge Street	8%	20%
	Bathurst Street	3%	7%
South	Yonge Street	25%	27%
	Bathurst Street	27%	29%
East	Green Lane	12%	5%
	E-W Collector Road	12%	5%
West	Green Lane	7%	7%
	E-W Collector Road	7%	0%

Total

100%

100%

HOME BASED DISCRETIONARY AND NON HOME BASED

Fri Apr 26 2024 11:33:24 GMT-0400 (Eastern Daylight Time) - Run Time: 2670ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_destFilters:
(2006 GTA zone of origin - gta06_orig in 2751, 2752, 2753
and
Trip purpose - trip_purp in 3, 4,)

Trip 2016

ROW : gta06_orig

COLUMN : gta06_dest

gta06_orig gta06_dest total

gta06_orig	gta06_dest	total	PO	PO Name	Dir	Direction	Trips	%
2751	2211	62	29	Richmond Hill	South	North	2051	28%
2751	2267	15	29	Richmond Hill	South	South	3830	54%
2751	2720	29	29	Richmond Hill	South	East	836	12%
2751	2554	36	28	Aurora	South	West	417	6%
2751	2558	62	28	Aurora	South	Total	7234	100%
2751	2560	33	28	Aurora	South			
2751	2602	69	27	Newmarket	South			
2751	2606	29	27	Newmarket	South			
2751	2608	152	27	Newmarket	South			
2751	2610	52	27	Newmarket	South			
2751	2618	65	27	Newmarket	South			
2751	2620	30	27	Newmarket	South			
2751	2751	279	26	East Gwillburiy	North			
2751	2752	27	26	East Gwillburiy	North			
2751	2760	71	26	East Gwillburiy	North			
2751	2774	39	26	East Gwillburiy	North			
2751	8564	21	83	Bradford-West Gwillburiy	North			
2751	8641	25	83	Bradford-West Gwillburiy	North			
2752	369	9	9	Toronto	East			
2752	475	21	11	Toronto	East			
2752	1311	5	18	Uxbridge	East			
2752	1312	8	18	Uxbridge	East			
2752	1314	10	18	Uxbridge	East			
2752	1325	15	17	Brck	East			
2752	2218	15	29	Richmond Hill	South			
2752	2268	29	29	Richmond Hill	South			
2752	2367	9	31	Markham	East			
2752	2371	21	31	Markham	East			
2752	2552	9	28	Aurora	South			
2752	2553	50	28	Aurora	South			
2752	2554	25	28	Aurora	South			
2752	2555	106	28	Aurora	South			
2752	2556	14	28	Aurora	South			
2752	2557	82	28	Aurora	South			
2752	2558	65	28	Aurora	South			
2752	2560	32	28	Aurora	South			
2752	2566	8	28	Aurora	South			
2752	2568	4	28	Aurora	South			
2752	2569	8	28	Aurora	South			
2752	2570	14	28	Aurora	South			
2752	2571	37	28	Aurora	South			
2752	2601	15	27	Newmarket	South			
2752	2602	28	27	Newmarket	South			
2752	2603	335	27	Newmarket	South			
2752	2604	118	27	Newmarket	South			
2752	2605	82	27	Newmarket	South			
2752	2606	21	27	Newmarket	South			
2752	2607	199	27	Newmarket	South			
2752	2608	89	27	Newmarket	South			
2752	2609	312	27	Newmarket	South			
2752	2610	221	27	Newmarket	South			
2752	2611	63	27	Newmarket	South			
2752	2612	79	27	Newmarket	South			
2752	2613	86	27	Newmarket	South			
2752	2615	74	27	Newmarket	South			
2752	2616	4	27	Newmarket	South			
2752	2617	26	27	Newmarket	South			
2752	2618	116	27	Newmarket	South			
2752	2619	122	27	Newmarket	South			
2752	2620	151	27	Newmarket	South			
2752	2621	38	27	Newmarket	South			
2752	2622	199	27	Newmarket	South			
2752	2623	54	27	Newmarket	South			
2752	2624	185	27	Newmarket	South			
2752	2625	20	27	Newmarket	South			
2752	2651	20	32	King	West			
2752	2652	8	32	King	West			
2752	2653	60	32	King	West			
2752	2655	15	32	King	West			
2752	2662	31	32	King	West			
2752	2664	153	32	King	West			
2752	2667	20	32	King	West			
2752	2672	16	32	King	West			
2752	2702	49	30	Whitchurch-Stouffville	East			
2752	2704	47	30	Whitchurch-Stouffville	East			
2752	2708	11	30	Whitchurch-Stouffville	East			
2752	2710	14	30	Whitchurch-Stouffville	East			
2752	2718	57	30	Whitchurch-Stouffville	East			
2752	2752	243	26	East Gwillburiy	North			
2752	2755	151	26	East Gwillburiy	North			
2752	2756	12	26	East Gwillburiy	North			
2752	2758	17	26	East Gwillburiy	North			
2752	2759	20	26	East Gwillburiy	North			
2752	2760	252	26	East Gwillburiy	North			
2752	2762	129	26	East Gwillburiy	North			
2752	2763	8	26	East Gwillburiy	North			
2752	2774	47	26	East Gwillburiy	North			
2752	2781	26	26	East Gwillburiy	North			
2752	2783	161	26	East Gwillburiy	North			
2752	2855	8	25	Georgina	East			
2752	2859	156	25	Georgina	East			
2752	2860	62	25	Georgina	East			
2752	2861	34	25	Georgina	East			
2752	2863	12	25	Georgina	East			
2752	2868	101	25	Georgina	East			
2752	2869	49	25	Georgina	East			
2752	2871	50	25	Georgina	East			
2752	2872	29	25	Georgina	East			
2752	2873	12	25	Georgina	East			
2752	3100	7	34	Caledon	West			
2752	3107	13	34	Caledon	West			
2752	3199	9	34	Caledon	West			
2752	6144	29	55	St. Catharines	West			
2752	8501	9	81	Barrie	North			
2752	8559	39	82	Innisfil	North			
2752	8563	23	84	Tecumseth	North			
2752	8564	88	83	Bradford-West Gwillburiy	North			
2752	8565	54	83	Bradford-West Gwillburiy	North			
2752	8599	23	83	Bradford-West Gwillburiy	North			
2752	8635	60	83	Bradford-West Gwillburiy	North			
2752	8640	44	83	Bradford-West Gwillburiy	North			
2752	8648	22	88	Springwater	West			
2752	8662	18	84	Tecumseth	North			
2752	8663	37	84	Tecumseth	North			
2753	1197	3	21	Oshawa	East			
2753	1118	17	18	Uxbridge	East			
2753	2117	14	33	Vaughan	East			
2753	2552	12	28	Aurora	South			
2753	2553	16	28	Aurora	South			
2753	2560	24	28	Aurora	South			
2753	2605	14	27	Newmarket	South			
2753	2606	17	27	Newmarket	South			
2753	2611	21	27	Newmarket	South			
2753	2612	26	27	Newmarket	South			
2753	2613	30	27	Newmarket	South			
2753	2621	11	27	Newmarket	South			
2753	2760	55	26	East Gwillburiy	North			
2753	2777	34	26	East Gwillburiy	North			
2753	2781	26	26	East Gwillburiy	North			
2753	2783	13	26	East Gwillburiy	North			
2753	2869	14	25	Georgina	East			
2753	2871	13	25	Georgina	East			

Fri Apr 26 2024 11:32:50 GMT-0400 (Eastern Daylight Time) - Run Time: 3288ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_destFilters:
(2006 GTA zone of destination - gta06_dest in 2751, 2752, 2753
and
Trip purpose - trip_purp in 3, 4,)

Trip 2016

ROW : gta06_orig

COLUMN : gta06_dest

gta06_orig gta06_dest total

15	2753	13	1	Toronto	East	North	1825	26%
56	2752	10	1	Toronto	East	South	4053	57%
63	2752	10	1	Toronto	East	East	673	9%
133	2752	9	3	Toronto	East	West	575	8%
						Total	7126	100%
186	2752	9	4	Toronto	East			
187	2752	35	4	Toronto	East			
1236	2752	24	13	Toronto	East			
1333	2752	33	17	Brck	East			
2020	2752	29	33	Vaughan	West			
2070	2752	31	33	Vaughan	West			
2101	2752	17	33	Vaughan	West			
2117	2753	14	33	Vaughan	West			
2208	2752	11	29	Richmond Hill	South			
2211	2751	62	29	Richmond Hill	South			
2213	2752	15	29	Richmond Hill	South			
2241	2752	28	29	Richmond Hill	South			
2257	2752	19	29	Richmond Hill	South			
2267	2751	15	29	Richmond Hill	South			
2367	2752	9	31	Markham	East			
2370	2751	21	31	Markham	East			
2374	2752	64	31	Markham	East			
2399	2752	40	31	Markham	East			
2441	2752	18	31	Markham	East			
2552	2752	9	28	Aurora	South			
2553	2752	35	28	Aurora	South			
2553	2753	16	28	Aurora	South			
2554	2752	5	28	Aurora	South			
2555	2752	106	28	Aurora	South			
2556	2752	20	28	Aurora	South			
2557	2752	15	28	Aurora	South			
2558	2751	62	28	Aurora	South			
2558	2752	76	28	Aurora	South			
2559	2752	101	28	Aurora	South			
2560	2751	23	28	Aurora	South			
2560	2752	8	28	Aurora	South			
2560	2753	20	28	Aurora	South			
2561	2752	31	28	Aurora	South			
2568	2752	4	28	Aurora	South			
2569	2752	16	28	Aurora	South			
2570	2752	14	28	Aurora	South			
2571	2752	15	28	Aurora	South			
2601	2752	15	27	Newmarket	South			
2602	2751	61	27	Newmarket	South			
2603	2752	335	27	Newmarket	South			
2604	2752	8	27	Newmarket	South			
2605	2752	78	27	Newmarket	South			
2606	2752	57	27	Newmarket	South			
2606	2753	17	27	Newmarket	South			
2607	2752	178	27	Newmarket	South			
2608	2751	179	27	Newmarket	South			
2608	2752	99	27	Newmarket	South			
2609	2751	29	27	Newmarket	South			
2609	2752	512	27	Newmarket	South			
2610	2751	4	27	Newmarket	South			
2610	2752	216	27	Newmarket	South			
2610	2753	21	27	Newmarket	South			
2611	2752	132	27	Newmarket	South			
2611	2753	14	27	Newmarket	South			
2612	2752	64	27	Newmarket	South			
2613	2752	80	27	Newmarket	South			
2614	2751	73	27	Newmarket	South			
2614	2752	38	27	Newmarket	South			
2615	2752	58	27	Newmarket	South			
2616	2752	20	27	Newmarket	South			
2617	2752	66	27	Newmarket	South			
2618	2751	45	27	Newmarket	South			
2618	2752	19	27	Newmarket	South			
2619	2752	254	27	Newmarket	South			
2620	2751	30	27	Newmarket	South			
2620	2752	116	27	Newmarket	South			
2621	2752	51	27	Newmarket	South			
2622	2752	123	27	Newmarket	South			
2623	2752	58	27	Newmarket	South			
2623	2753	24	27	Newmarket	South			
2624	2752	23	27	Newmarket	South			
2624	2753	12	27	Newmarket	South			
2625	2751	10	27	Newmarket	South			
2625	2752	8	27	Newmarket	South			
2653	2752	44	32	King	West			
2662	2752	31	32	King	West			
2664	2752	33	32	King	West			
2664	2753	34	32	King	West			
2666	2752	13	32	King	West			
2667	2752	20	32	King	West			
2702	2752	10	30	Whitchurch-Stouffville	East			
2703	2752	19	30	Whitchurch-Stouffville	East			
2704	2752	31	30	Whitchurch-Stouffville	East			
2706	2752	25	30	Whitchurch-Stouffville	East			
2718	2752	26	30	Whitchurch-Stouffville	East			
2751	2751	279	26	East Gwillbury	North			
2751	2752	27	26	East Gwillbury	North			
2752	2753	243	26	East Gwillbury	North			
2755	2752	100	26	East Gwillbury	North			
2756	2752	12	26	East Gwillbury	North			
2756	2753	11	26	East Gwillbury	North			
2758	2751	17	26	East Gwillbury	North			
2758	2752	8	26	East Gwillbury	North			
2759	2752	48	26	East Gwillbury	North			
2760	2751	71	26	East Gwillbury	North			
2760	2752	223	26	East Gwillbury	North			
2760	2753	55	26	East Gwillbury	North			
2762	2752	109	26	East Gwillbury	North			
2762	2753	30	26	East Gwillbury	North			
2763	2752	8	26	East Gwillbury	North			
2763	2753	8	26	East Gwillbury	North			
2774	2751	21	26	East Gwillbury	North			
2774	2752	47	26	East Gwillbury	North			
2780	2752	21	26	East Gwillbury	North			
2781	2752	26	26	East Gwillbury	North			
2781	2753	52	26	East Gwillbury	North			
2782	2752	11	26	East Gwillbury	North			
2783	2752	12	26	East Gwillbury	North			
2855	2752	5	25	Georgina	East			
2859	2752	49	25	Georgina	East			
2860	2752	51	25	Georgina	East			
2861	2752	25	25	Georgina	East			
2863	2752	19	25	Georgina	East			
2869	2752	49	25	Georgina	East			
2869	2753	14	25	Georgina	East			
2871	2753	13	25	Georgina	East			
2872	2752	29	25	Georgina	East			
3100	2752	7	34	Caledon	West			
3107	2752	13	34	Caledon	West			
3199	2752	9	34	Caledon	West			
3480	2752	8	25	Brampton	West			
3608	2752	96	36	Mississauga	West			
3706	2752	16	36	Mississauga	West			
4056	2752	5	40	Burlington	West			
8559	2752	39	82	Innisfil	North			
8560	2752	14	82	Innisfil	North			
8564	2751	21	83	Bradford-West Gwillimbury	North			
8564	2752	72	83	Bradford-West Gwillimbury	North			
8565	2752	46	83	Bradford-West Gwillimbury	North			
8589	2752	10	135	Ramara	East			
8599	2752	25	83	Bradford-West Gwillimbury	North			
8635	2752	23	83	Bradford-West Gwillimbury	North			
8640	2752	64	83	Bradford-West Gwillimbury	North			
8641	2751	25	83	Bradford-West Gwillimbury	North			
8662	2752	36	84	Tecumseh	North			
8663	2752	29	84	Tecumseh	North			

Home Based Work

Fri Apr 26 2024 11:08:21 GMT -0400 (Eastern Daylight Time) - Run Time: 2860ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of origin - gta06_orig

Column: 2006 GTA zone of destination - gta06_dest

Filters:

(2006 GTA zone of origin - gta06_orig In 2751, 2752, 2753

and

Trip purpose - trip_purp In 1,)

Trip 2016

ROW : gta06_orig

COLUMN : gta06_dest

gta06_orig	gta06_dest	total	PD	PD Name	Dir	Direction	Trips	%
2751	43	10	1	Toronto	East	North	86	6%
2751	2032	34	33	Vaughan	West	South	785	55%
2751	2209	10	29	Richmond Hill	South	East	366	26%
2751	2243	14	29	Richmond Hill	South	West	194	14%
2751	2259	13	29	Richmond Hill	South	Total	1431	100%
2751	2395	4	31	Markham	East			
2751	2555	48	28	Aurora	South			
2751	2558	62	28	Aurora	South			
2751	2603	26	27	Newmarket	South			
2751	2617	71	27	Newmarket	South			
2751	2618	26	27	Newmarket	South			
2751	2624	48	27	Newmarket	South			
2751	3621	13	36	Mississauga	West			
2751	3693	21	36	Mississauga	West			
2751	8591	28	86	Issa	West			
2752	45	6	1	Toronto	East			
2752	47	24	1	Toronto	East			
2752	347	60	8	Toronto	East			
2752	359	20	9	Toronto	East			
2752	608	15	16	Toronto	East			
2752	1154	24	22	Whitby	East			
2752	1312	11	18	Unbridge	East			
2752	1318	10	18	Unbridge	East			
2752	2083	30	33	Vaughan	West			
2752	2098	30	33	Vaughan	West			
2752	2226	35	29	Richmond Hill	South			
2752	2408	27	31	Markham	East			
2752	2417	33	31	Markham	East			
2752	2554	20	28	Aurora	South			
2752	2555	19	28	Aurora	South			
2752	2571	30	28	Aurora	South			
2752	2603	63	27	Newmarket	South			
2752	2605	52	27	Newmarket	South			
2752	2608	44	27	Newmarket	South			
2752	2615	13	27	Newmarket	South			
2752	2618	20	27	Newmarket	South			
2752	2619	20	27	Newmarket	South			
2752	2620	29	27	Newmarket	South			
2752	2621	26	27	Newmarket	South			
2752	2622	47	27	Newmarket	South			
2752	2664	12	32	King	West			
2752	2708	64	30	Whitchurch-Stouffville	East			
2752	2781	7	26	East Gwillibury	North			
2752	3612	26	36	Mississauga	West			
2752	8517	9	81	Barrie	North			
2752	8564	10	83	Bradford-West Gwillimbury	North			
2752	8596	14	84	Tecumseth	North			
2752	8662	10	84	Tecumseth	North			
2753	469	28	12	Toronto	East			
2753	1206	14	23	Oshawa	East			
2753	2377	16	31	Markham	East			
2753	2610	21	27	Newmarket	South			
2753	2618	28	27	Newmarket	South			
2753	8412	9	141	Shelburne	North			
2753	8506	27	81	Barrie	North			

Fri Apr 26 2024 11:08:41 GMT -0400 (Eastern Daylight Time) - Run Time: 2440ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of origin - gta06_orig

Column: 2006 GTA zone of destination - gta06_dest

Filters:

(2006 GTA zone of destination - gta06_dest In 2751, 2752, 2753

and

Trip purpose - trip_purp In 1,)

Trip 2016

ROW : gta06_orig

COLUMN : gta06_dest

gta06_orig	gta06_dest	total	PD	PD Name	Dir	Direction	Trips	%
36	2751	29	1	Toronto	East	North	239	15%
43	2751	10	1	Toronto	East	South	756	48%
45	2752	6	1	Toronto	East	East	370	24%
47	2752	24	1	Toronto	East	West	194	12%
347	2752	60	8	Toronto	East	Total	1559	100%
359	2752	20	9	Toronto	East			
469	2753	28	12	Toronto	East			
608	2752	15	16	Toronto	East			
1206	2753	14	23	Oshawa	East			
1312	2752	11	18	Unbridge	East			
1318	2752	10	18	Unbridge	East			
2032	2751	34	33	Vaughan	West			
2083	2752	30	33	Vaughan	West			
2098	2752	30	33	Vaughan	West			
2209	2751	10	29	Richmond Hill	South			
2243	2751	14	29	Richmond Hill	South			
2259	2751	13	29	Richmond Hill	South			
2377	2753	16	31	Markham	East			
2395	2751	4	31	Markham	East			
2408	2752	27	31	Markham	East			
2417	2752	33	31	Markham	East			
2554	2752	20	28	Aurora	South			
2555	2751	48	28	Aurora	South			
2558	2751	62	28	Aurora	South			
2601	2752	20	27	Newmarket	South			
2603	2752	63	27	Newmarket	South			
2605	2752	52	27	Newmarket	South			
2607	2751	19	27	Newmarket	South			
2608	2752	44	27	Newmarket	South			
2610	2753	21	27	Newmarket	South			
2615	2751	18	27	Newmarket	South			
2615	2752	13	27	Newmarket	South			
2617	2751	71	27	Newmarket	South			
2618	2751	26	27	Newmarket	South			
2618	2752	20	27	Newmarket	South			
2618	2753	28	27	Newmarket	South			
2619	2752	20	27	Newmarket	South			
2621	2752	26	27	Newmarket	South			
2622	2752	81	27	Newmarket	South			
2624	2751	48	27	Newmarket	South			
2664	2752	12	32	King	West			
2755	2752	42	26	East Gwillibury	North			
2781	2752	7	26	East Gwillibury	North			
2859	2752	29	25	Georgina	East			
3612	2752	26	36	Mississauga	West			
3621	2751	13	36	Mississauga	West			
3693	2751	21	36	Mississauga	West			
8412	2753	9	141	Shelburne	North			
8506	2753	27	81	Barrie	North			
8517	2752	9	81	Barrie	North			
8562	2752	111	84	Tecumseth	North			
8564	2752	10	83	Bradford-West Gwillimbur	North			
8591	2751	28	86	Issa	West			
8596	2752	14	84	Tecumseth	North			
8662	2752	10	84	Tecumseth	North			
8711	2751	34	89	Kawartha Lakes	East			

PD

- District
- 1 Toronto
- 2 Toronto
- 3 Toronto
- 4 Toronto
- 5 Toronto
- 6 Toronto
- 7 Toronto
- 8 Toronto
- 9 Toronto
- 10 Toronto
- 11 Toronto
- 12 Toronto
- 13 Toronto
- 14 Toronto
- 15 Toronto
- 16 Toronto
- 17 Brock
- 18 Unbridge
- 19 Scugog
- 20 Pickering
- 21 Ajax
- 22 Whitby
- 23 Oshawa
- 24 Clarington
- 25 Georgina
- 26 East Gwillibury
- 27 Newmarket
- 28 Aurora
- 29 Richmond Hill
- 30 Whitchurch-Stouffville
- 31 Markham
- 32 King
- 33 Vaughan
- 34 Caledon
- 35 Brampton
- 36 Mississauga
- 37 Halton Hills
- 38 Milton
- 39 Oakville
- 40 Burlington
- 41 Flamborough
- 42 Dundas
- 43 Ancaster
- 44 Glanbrook
- 45 Stoney Creek
- 46 Hamilton
- 47 Unassigned
- 48 Unassigned
- 49 Unassigned
- 50 Unassigned
- 51 Grimsby
- 52 Lincoln
- 53 Pelham
- 54 Nott
- 55 St. Catharines
- 56 Thorold
- 57 Niagara Falls
- 58 Welland
- 59 Port Colborne
- 60 Fort Erie
- 61 West Lincoln
- 62 Wainfleet
- 63 Waterloo
- 64 Kitchener
- 65 Cambridge
- 66 North Dumfries
- 67 Wilmet
- 68 Wellesley
- 69 Woolwich
- 70 City of Guelph
- 71 Puslinch
- 72 Guelph/Eramosa
- 73 Centre Wellington
- 74 Eora
- 75 Nichol
- 76 Fergus
- 77 West Garafaxa
- 78 Eramosa
- 79 Erin
- 80 Orangeville
- 81 Barrie
- 82 Inverif
- 83 Bradford-West Gwillimbury
- 84 Tecumseth
- 85 Adjala-Tosoronto
- 86 Issa
- 87 Clearview
- 88 Springwater
- 89 Kawartha Lakes
- 90 OPS
- 91 Mainvers
- 92 Mariposa
- 93 Eldon
- 94 Carden
- 95 Dalton
- 96 I-D-I
- 97 Somerville
- 98 Berley
- 99 Fenelon
- 100 Varulam
- 101 Bobcaggon
- 102 Emily
- 103 Peterborough
- 104 Cavan-Millbrook-North Monaghan
- 105 North Monaghan
- 106 Otonabee-South
- 107 Otonabee
- 108 Asphodel-Norwood
- 109 Drummer-Douro
- 110 Douro
- 111 Lakefield-Smith-Ennismore
- 112 Ennismore
- 113 Northumberland County
- 114 Rest of Peterborough County
- 115 Hastings County
- 116 Haliburton County
- 117 Muskoka District
- 118 Rest of Simcoe
- 119 Dufferin County
- 120 Grey County
- 121 Wellington County
- 122 Perth County
- 123 Oxford County
- 124 Brant County
- 125 Haldimand and Norfolk County
- 126 Unassigned
- 127 Collingwood
- 128 Wasaga Beach
- 129 Tiny
- 130 Penetanguishene
- 131 Midland
- 132 Tay
- 133 Oro-Medonte
- 134 Severn
- 135 Ramara
- 136 Orilla
- 137 Unassigned
- 138 Unassigned
- 139 Unassigned
- 140 Alimur
- 141 Shelburne
- 142 Amaranth
- 143 Melancthon
- 144 Mono
- 145 East Luther Grand Valley
- 146 East Gararaxa
- 147 Brantford
- 888 No Usual Place of Work or School
- 997 External Undefined
- 998 External
- 999 Unknown

Appendix H

Future Background Traffic Operations Reports



Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2030 Background AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	122	699	223	28	5	258	558	70	639
v/c Ratio	0.03	0.10	0.93	0.19	0.03	0.07	0.33	0.38	0.28	0.82
Control Delay	8.4	8.2	39.6	9.2	1.2	33.2	34.3	0.7	35.9	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	8.2	39.6	9.2	1.2	33.2	34.3	0.7	35.9	46.9
Queue Length 50th (m)	1.6	9.4	127.6	19.4	0.0	0.8	23.8	0.0	12.2	66.5
Queue Length 95th (m)	4.8	17.5	#222.4	31.6	1.9	4.0	35.6	0.0	25.1	87.7
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	733	1163	752	1172	949	84	883	1482	280	879
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.10	0.93	0.19	0.03	0.06	0.29	0.38	0.25	0.73

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2030 Background AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	20	111	9	685	219	27	5	253	547	69	584	42	
Future Volume (vph)	20	111	9	685	219	27	5	253	547	69	584	42	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1805	1862		1687	1881	1495	1444	3471	1482	1770	3434		
Flt Permitted	0.62	1.00		0.68	1.00	1.00	0.22	1.00	1.00	0.59	1.00		
Satd. Flow (perm)	1176	1862		1205	1881	1495	332	3471	1482	1103	3434		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	20	113	9	699	223	28	5	258	558	70	596	43	
RTOR Reduction (vph)	0	3	0	0	0	11	0	0	0	0	5	0	
Lane Group Flow (vph)	20	119	0	699	223	17	5	258	558	70	634	0	
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA		
Protected Phases		6			2			8			4		
Permitted Phases	6			2		2	8		Free	4			
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	23.1	23.1	102.6	23.1	23.1		
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	23.1	23.1	102.6	23.1	23.1		
Actuated g/C Ratio	0.62	0.62		0.62	0.62	0.62	0.23	0.23	1.00	0.23	0.23		
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5		
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	733	1161		751	1173	932	74	781	1482	248	773		
v/s Ratio Prot		0.06			0.12			0.07			c0.18		
v/s Ratio Perm	0.02			c0.58		0.01	0.02		0.38	0.06			
v/c Ratio	0.03	0.10		0.93	0.19	0.02	0.07	0.33	0.38	0.28	0.82		
Uniform Delay, d1	7.4	7.8		17.3	8.2	7.3	31.3	33.3	0.0	32.9	37.8		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	0.2		19.7	0.4	0.0	0.4	0.2	0.7	0.6	6.8		
Delay (s)	7.5	7.9		37.0	8.6	7.4	31.7	33.5	0.7	33.5	44.6		
Level of Service	A	A		D	A	A	C	C	A	C	D		
Approach Delay (s)		7.9			29.5			11.2			43.5		
Approach LOS		A			C			B			D		
Intersection Summary													
HCM 2000 Control Delay			26.4									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			102.6									Sum of lost time (s)	15.5
Intersection Capacity Utilization			89.6%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2030 Background AM Peak Hour

	→	↘	↙	←	↖	↗			
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗			
Traffic Volume (veh/h)	683	44	18	822	64	46			
Future Volume (Veh/h)	683	44	18	822	64	46			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93			
Hourly flow rate (vph)	734	47	19	884	69	49			
Pedestrians						2			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			783			1216	369		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			783			1216	369		
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			60	92		
cM capacity (veh/h)			843			172	633		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	367	367	47	19	442	442	69	49	
Volume Left	0	0	0	19	0	0	69	0	
Volume Right	0	0	47	0	0	0	0	49	
cSH	1700	1700	1700	843	1700	1700	172	633	
Volume to Capacity	0.22	0.22	0.03	0.02	0.26	0.26	0.40	0.08	
Queue Length 95th (m)	0.0	0.0	0.0	0.6	0.0	0.0	14.1	2.0	
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	39.3	11.2	
Lane LOS				A			E	B	
Approach Delay (s)	0.0			0.2			27.6		
Approach LOS								D	
Intersection Summary									
Average Delay				1.9					
Intersection Capacity Utilization			32.9%	ICU Level of Service			A		
Analysis Period (min)				15					

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2030 Background AM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	773	26	127	816	37	248
v/c Ratio	0.29	0.02	0.24	0.31	0.22	0.72
Control Delay	4.0	1.5	7.2	6.0	56.6	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	1.5	7.2	6.0	56.6	22.0
Queue Length 50th (m)	21.7	0.2	9.5	33.3	9.6	6.7
Queue Length 95th (m)	38.9	2.4	18.1	45.0	20.0	33.7
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2685	1252	529	2635	444	553
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.02	0.24	0.31	0.08	0.45
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2030 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	719	24	118	759	34	231
Future Volume (vph)	719	24	118	759	34	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3374	1567	1763	3312	1805	1568
Flt Permitted	1.00	1.00	0.36	1.00	0.95	1.00
Satd. Flow (perm)	3374	1567	664	3312	1805	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	773	26	127	816	37	248
RTOR Reduction (vph)	0	5	0	0	0	202
Lane Group Flow (vph)	773	21	127	816	37	46
Confl. Peds. (#/hr)		5	5			
Heavy Vehicles (%)	7%	0%	2%	9%	0%	3%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	103.5	103.5	103.5	103.5	12.0	12.0
Effective Green, g (s)	103.5	103.5	103.5	103.5	12.0	12.0
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2686	1247	528	2636	166	144
v/s Ratio Prot	0.23			c0.25	0.02	
v/s Ratio Perm		0.01	0.19			c0.03
v/c Ratio	0.29	0.02	0.24	0.31	0.22	0.32
Uniform Delay, d1	3.5	2.7	3.3	3.6	54.7	55.2
Progression Factor	1.00	1.00	1.56	1.48	1.00	1.00
Incremental Delay, d2	0.3	0.0	1.0	0.3	0.7	1.3
Delay (s)	3.8	2.8	6.2	5.6	55.4	56.5
Level of Service	A	A	A	A	E	E
Approach Delay (s)	3.7			5.7	56.4	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			12.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.31			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			80.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 4: Costco Driveway & Green Lane

2030 Background AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↘	
Traffic Volume (veh/h)	903	81	22	878	13	5
Future Volume (Veh/h)	903	81	22	878	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	971	87	24	944	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.96		0.97	0.96
vC, conflicting volume			1058		1534	529
vC1, stage 1 conf vol					1014	
vC2, stage 2 conf vol					520	
vCu, unblocked vol			972		1290	420
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		95	99
cM capacity (veh/h)			658		308	428
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	647	411	24	472	472	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	658	1700	1700	333
Volume to Capacity	0.38	0.24	0.04	0.28	0.28	0.06
Queue Length 95th (m)	0.0	0.0	0.9	0.0	0.0	1.4
Control Delay (s)	0.0	0.0	10.7	0.0	0.0	16.5
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			16.5
Approach LOS						C
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			37.5%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	807	109	338	888	70	105
v/c Ratio	0.35	0.10	0.57	0.34	0.45	0.45
Control Delay	8.9	1.4	16.7	2.6	65.0	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	1.4	16.7	2.6	65.0	16.1
Queue Length 50th (m)	40.8	0.0	31.1	13.3	18.4	0.0
Queue Length 95th (m)	56.5	5.2	m58.3	28.3	33.6	17.8
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2286	1102	590	2628	416	446
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.10	0.57	0.34	0.17	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2030 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (vph)	742	100	311	817	64	97
Future Volume (vph)	742	100	311	817	64	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3343	1563	1787	3282	1805	1583
Flt Permitted	1.00	1.00	0.31	1.00	0.95	1.00
Satd. Flow (perm)	3343	1563	588	3282	1805	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	807	109	338	888	70	105
RTOR Reduction (vph)	0	34	0	0	0	96
Lane Group Flow (vph)	807	75	338	888	70	9
Confl. Peds. (#/hr)		1	1			
Heavy Vehicles (%)	8%	1%	1%	10%	0%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	88.9	88.9	104.1	104.1	11.4	11.4
Effective Green, g (s)	88.9	88.9	104.1	104.1	11.4	11.4
Actuated g/C Ratio	0.68	0.68	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2286	1068	574	2628	158	138
v/s Ratio Prot	0.24		c0.05	0.27	c0.04	
v/s Ratio Perm		0.05	c0.42			0.01
v/c Ratio	0.35	0.07	0.59	0.34	0.44	0.07
Uniform Delay, d1	8.6	6.8	3.9	3.5	56.3	54.4
Progression Factor	0.94	0.77	5.20	0.63	1.00	1.00
Incremental Delay, d2	0.4	0.1	1.4	0.3	2.0	0.2
Delay (s)	8.4	5.4	21.4	2.5	58.3	54.6
Level of Service	A	A	C	A	E	D
Approach Delay (s)	8.1			7.8	56.1	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			11.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			66.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2030 Background AM Peak Hour

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Group Flow (vph)	135	664	79	297	731	321	53	378	210	1037	744	178	
v/c Ratio	0.62	0.76	0.17	1.19	0.83	0.40	0.17	0.39	0.36	1.55	0.48	0.23	
Control Delay	36.6	47.6	3.9	147.7	53.8	7.9	18.2	39.0	7.0	284.7	23.6	5.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	36.6	47.6	3.9	147.7	53.8	7.9	18.2	39.0	7.0	284.7	23.6	5.6	
Queue Length 50th (m)	11.7	78.3	2.4	~63.0	96.0	15.5	6.8	43.3	1.0	~213.9	79.4	11.6	
Queue Length 95th (m)	27.3	116.3	3.3	#122.5	120.4	35.4	13.8	58.4	20.1	#253.2	101.3	18.7	
Internal Link Dist (m)	262.9				265.2				202.7		420.1		
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0	45.0
Base Capacity (vph)	227	943	492	250	934	811	357	960	576	671	1558	760	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.59	0.70	0.16	1.19	0.78	0.40	0.15	0.39	0.36	1.55	0.48	0.23	

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2030 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	644	77	288	709	311	51	367	204	1006	722	173
Future Volume (vph)	131	644	77	288	709	311	51	367	204	1006	722	173
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1481	1686	3374	1511	3433	3505	1544
Flt Permitted	0.17	1.00	1.00	0.20	1.00	1.00	0.37	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	299	3406	1406	367	3374	1481	655	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	135	664	79	297	731	321	53	378	210	1037	744	178
RTOR Reduction (vph)	0	0	59	0	0	114	0	0	147	0	0	75
Lane Group Flow (vph)	135	664	20	297	731	207	53	378	63	1037	744	103
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	44.0	33.6	33.6	45.2	34.2	59.6	43.4	37.0	37.0	25.4	57.0	57.0
Effective Green, g (s)	44.0	33.6	33.6	45.2	34.2	59.6	43.4	37.0	37.0	25.4	57.0	57.0
Actuated g/C Ratio	0.34	0.26	0.26	0.35	0.26	0.46	0.33	0.28	0.28	0.20	0.44	0.44
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	212	880	363	242	887	678	269	960	430	670	1536	676
v/s Ratio Prot	0.05	0.19		c0.10	0.22	0.06	0.01	0.11		c0.30	c0.21	
v/s Ratio Perm	0.16		0.01	c0.32		0.08	0.06		0.04			0.07
v/c Ratio	0.64	0.75	0.06	1.23	0.82	0.31	0.20	0.39	0.15	1.55	0.48	0.15
Uniform Delay, d1	32.6	44.4	36.3	37.7	45.1	22.2	29.8	37.5	34.7	52.3	26.0	22.0
Progression Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.84	0.67
Incremental Delay, d2	5.9	4.2	0.1	133.1	7.0	0.3	0.4	1.2	0.7	252.6	0.9	0.4
Delay (s)	37.6	46.2	36.4	170.8	52.1	22.4	30.1	38.7	35.4	300.2	22.8	15.1
Level of Service	D	D	D	F	D	C	C	D	D	F	C	B
Approach Delay (s)		44.0			71.2			36.9			168.9	
Approach LOS		D			E			D			F	
Intersection Summary												
HCM 2000 Control Delay			101.3									F
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			130.0							23.0		
Intersection Capacity Utilization			113.0%								H	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2030 Background AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	62	85	3	820	18	225	1763
v/c Ratio	0.01	0.48	0.37	0.02	0.35	0.02	0.40	0.63
Control Delay	0.0	68.1	15.4	14.7	17.2	3.2	4.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	68.1	15.4	14.7	17.2	3.2	4.7	6.9
Queue Length 50th (m)	0.0	16.3	0.0	0.4	68.8	0.3	9.3	81.1
Queue Length 95th (m)	0.0	30.7	16.0	m1.0	93.7	m1.7	18.3	120.0
Internal Link Dist (m)	94.9	97.1			420.1			399.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	405	308	426	160	2370	1119	564	2813
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.20	0.20	0.02	0.35	0.02	0.40	0.63

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2030 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	2	61	0	84	3	812	18	223	1743	2
Future Volume (vph)	1	0	2	61	0	84	3	812	18	223	1743	2
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1736	1615	1804	3406	1579	1787	3537	
Flt Permitted		0.91			0.76	1.00	0.12	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1570			1381	1615	230	3406	1579	583	3537	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	1	0	2	62	0	85	3	820	18	225	1761	2
RTOR Reduction (vph)	0	3	0	0	0	77	0	0	5	0	0	0
Lane Group Flow (vph)	0	0	0	0	62	8	3	820	13	225	1763	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		12.1			12.1	12.1	90.5	90.5	90.5	103.4	103.4	
Effective Green, g (s)		12.1			12.1	12.1	90.5	90.5	90.5	103.4	103.4	
Actuated g/C Ratio		0.09			0.09	0.09	0.70	0.70	0.70	0.80	0.80	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		146			128	150	160	2371	1099	546	2813	
v/s Ratio Prot								0.24		0.03	c0.50	
v/s Ratio Perm		0.00			c0.04	0.00	0.01		0.01	0.30		
v/c Ratio		0.00			0.48	0.05	0.02	0.35	0.01	0.41	0.63	
Uniform Delay, d1		53.5			56.0	53.7	6.1	7.9	6.0	3.6	5.4	
Progression Factor		1.00			1.00	1.00	1.84	2.01	1.00	1.00	1.00	
Incremental Delay, d2		0.0			2.9	0.1	0.2	0.4	0.0	0.5	1.1	
Delay (s)		53.5			58.9	53.9	11.4	16.2	6.1	4.1	6.5	
Level of Service		D			E	D	B	B	A	A	A	
Approach Delay (s)		53.5			56.0			16.0			6.2	
Approach LOS		D			E			B			A	
Intersection Summary												
HCM 2000 Control Delay	11.5			HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio	0.63											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)					18.5			
Intersection Capacity Utilization	116.7%			ICU Level of Service					H			
Analysis Period (min)	15											
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2030 Background PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	88	260	572	248	82	18	715	929	66	340
v/c Ratio	0.13	0.23	0.88	0.22	0.08	0.09	0.83	0.59	0.80	0.40
Control Delay	9.9	10.3	35.4	10.3	4.9	30.8	46.2	1.6	92.7	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	10.3	35.4	10.3	4.9	30.8	46.2	1.6	92.7	33.5
Queue Length 50th (m)	7.7	24.1	98.6	23.1	2.9	2.9	75.0	0.0	13.0	31.2
Queue Length 95th (m)	15.5	38.7	#183.4	37.2	9.4	9.0	97.2	0.0	#38.1	44.5
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	689	1137	651	1118	974	227	968	1583	94	963
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.88	0.22	0.08	0.08	0.74	0.59	0.70	0.35

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2030 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	245	5	549	238	79	17	686	892	63	316	11
Future Volume (vph)	84	245	5	549	238	79	17	686	892	63	316	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3513	
Flt Permitted	0.61	1.00		0.60	1.00	1.00	0.52	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	1138	1876		1073	1845	1578	829	3539	1583	343	3513	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	88	255	5	572	248	82	18	715	929	66	329	11
RTOR Reduction (vph)	0	1	0	0	0	18	0	0	0	0	2	0
Lane Group Flow (vph)	88	259	0	572	248	64	18	715	929	66	338	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	62.1	62.1		62.1	62.1	62.1	24.8	24.8	102.4	24.8	24.8	
Effective Green, g (s)	62.1	62.1		62.1	62.1	62.1	24.8	24.8	102.4	24.8	24.8	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.24	0.24	1.00	0.24	0.24	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	690	1137		650	1118	956	200	857	1583	83	850	
v/s Ratio Prot		0.14			0.13			c0.20			0.10	
v/s Ratio Perm	0.08			c0.53		0.04	0.02		0.59	0.19		
v/c Ratio	0.13	0.23		0.88	0.22	0.07	0.09	0.83	0.59	0.80	0.40	
Uniform Delay, d1	8.6	9.2		17.0	9.2	8.3	30.1	36.8	0.0	36.4	32.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5		15.7	0.5	0.1	0.2	7.0	1.6	39.3	0.3	
Delay (s)	9.0	9.7		32.7	9.6	8.4	30.3	43.9	1.6	75.7	32.8	
Level of Service	A	A		C	A	A	C	D	A	E	C	
Approach Delay (s)		9.5			24.2			20.1			39.8	
Approach LOS		A			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			22.5									
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			102.4									
Intersection Capacity Utilization			109.4%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2030 Background PM Peak Hour

	→	↘	↙	←	↖	↗			
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗			
Traffic Volume (veh/h)	1123	65	39	866	25	31			
Future Volume (Veh/h)	1123	65	39	866	25	31			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91			
Hourly flow rate (vph)	1234	71	43	952	27	34			
Pedestrians						5			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None			None					
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			1310			1801	622		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1310			1801	622		
tC, single (s)			4.1			6.8	6.9		
tC, 2 stage (s)									
tF (s)			2.2			3.5	3.3		
p0 queue free %			92			59	92		
cM capacity (veh/h)			533			66	433		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	617	617	71	43	476	476	27	34	
Volume Left	0	0	0	43	0	0	27	0	
Volume Right	0	0	71	0	0	0	0	34	
cSH	1700	1700	1700	533	1700	1700	66	433	
Volume to Capacity	0.36	0.36	0.04	0.08	0.28	0.28	0.41	0.08	
Queue Length 95th (m)	0.0	0.0	0.0	2.1	0.0	0.0	12.5	2.0	
Control Delay (s)	0.0	0.0	0.0	12.4	0.0	0.0	92.2	14.0	
Lane LOS				B			F	B	
Approach Delay (s)	0.0			0.5			48.6		
Approach LOS							E		
Intersection Summary									
Average Delay				1.5					
Intersection Capacity Utilization				42.4%			ICU Level of Service		
Analysis Period (min)				15					
							A		

Queues

3: Woodspring Avenue & Green Lane

(200089) - NW of Yonge St and Green Ln Secondary Plan

2030 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1141	33	226	882	26	187
v/c Ratio	0.40	0.03	0.64	0.32	0.15	0.72
Control Delay	5.0	2.1	28.4	4.7	57.4	40.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	2.1	28.4	4.7	57.4	40.5
Queue Length 50th (m)	41.0	0.6	32.4	27.0	7.1	21.0
Queue Length 95th (m)	68.6	3.6	69.2	40.7	16.2	46.1
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2825	1258	351	2744	412	452
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.03	0.64	0.32	0.06	0.41
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2030 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1118	32	221	864	25	183
Future Volume (vph)	1118	32	221	864	25	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1572	1785	3438	1805	1599
Flt Permitted	1.00	1.00	0.23	1.00	0.95	1.00
Satd. Flow (perm)	3539	1572	440	3438	1805	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1141	33	226	882	26	187
RTOR Reduction (vph)	0	4	0	0	0	102
Lane Group Flow (vph)	1141	29	226	882	26	85
Confl. Peds. (#/hr)		3	3		1	
Heavy Vehicles (%)	2%	0%	1%	5%	0%	1%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	111.8	111.8	111.8	111.8	13.7	13.7
Effective Green, g (s)	111.8	111.8	111.8	111.8	13.7	13.7
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.10	0.10
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2826	1255	351	2745	176	156
v/s Ratio Prot	0.32			0.26	0.01	
v/s Ratio Perm		0.02	c0.51			c0.05
v/c Ratio	0.40	0.02	0.64	0.32	0.15	0.55
Uniform Delay, d1	4.2	2.9	5.8	3.8	57.8	60.2
Progression Factor	1.00	1.00	2.27	1.05	1.00	1.00
Incremental Delay, d2	0.4	0.0	8.5	0.3	0.4	3.9
Delay (s)	4.6	2.9	21.8	4.3	58.2	64.0
Level of Service	A	A	C	A	E	E
Approach Delay (s)	4.6			7.9	63.3	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			11.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			84.2%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 4: Costco Driveway & Green Lane

2030 Background PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1230	102	22	1054	57	40
Future Volume (Veh/h)	1230	102	22	1054	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1309	109	23	1121	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.90		0.94	0.90
vC, conflicting volume			1418		1970	709
vC1, stage 1 conf vol					1364	
vC2, stage 2 conf vol					606	
vCu, unblocked vol			1244		1545	458
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		71	91
cM capacity (veh/h)			467		210	501
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	873	545	23	560	560	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	467	1700	1700	276
Volume to Capacity	0.51	0.32	0.05	0.33	0.33	0.38
Queue Length 95th (m)	0.0	0.0	1.2	0.0	0.0	13.5
Control Delay (s)	0.0	0.0	13.1	0.0	0.0	25.7
Lane LOS			B			D
Approach Delay (s)	0.0		0.3			25.7
Approach LOS						D
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			49.5%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1106	158	240	905	169	269
v/c Ratio	0.47	0.15	0.58	0.34	0.71	0.75
Control Delay	11.6	3.4	27.3	1.3	74.1	33.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	3.4	27.3	1.3	74.1	33.6
Queue Length 50th (m)	62.3	3.9	29.9	5.2	47.9	26.9
Queue Length 95th (m)	85.0	11.1	m32.6	m11.2	69.8	57.2
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2331	1053	416	2650	421	505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.15	0.58	0.34	0.40	0.53

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2030 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1073	153	233	878	164	261
Future Volume (vph)	1073	153	233	878	164	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1543	1804	3471	1787	1583
Flt Permitted	1.00	1.00	0.21	1.00	0.95	1.00
Satd. Flow (perm)	3539	1543	391	3471	1787	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1106	158	240	905	169	269
RTOR Reduction (vph)	0	37	0	0	0	150
Lane Group Flow (vph)	1106	121	240	905	169	119
Confl. Peds. (#/hr)		6	6			
Heavy Vehicles (%)	2%	1%	0%	4%	1%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	92.2	92.2	106.9	106.9	18.6	18.6
Effective Green, g (s)	92.2	92.2	106.9	106.9	18.6	18.6
Actuated g/C Ratio	0.66	0.66	0.76	0.76	0.13	0.13
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2330	1016	406	2650	237	210
v/s Ratio Prot	0.31		c0.05	0.26	c0.09	
v/s Ratio Perm		0.08	c0.41			0.08
v/c Ratio	0.47	0.12	0.59	0.34	0.71	0.57
Uniform Delay, d1	11.9	8.9	7.1	5.3	58.1	56.9
Progression Factor	0.85	0.81	5.95	0.20	1.00	1.00
Incremental Delay, d2	0.7	0.2	1.1	0.2	9.7	3.5
Delay (s)	10.8	7.4	43.5	1.2	67.9	60.4
Level of Service	B	A	D	A	E	E
Approach Delay (s)	10.4			10.1	63.3	
Approach LOS	B			B	E	
Intersection Summary						
HCM 2000 Control Delay			18.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			67.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2030 Background PM Peak Hour

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Group Flow (vph)	372	972	80	377	920	682	72	983	411	504	606	181	
v/c Ratio	1.09	1.07	0.16	1.11	1.03	0.97	0.21	1.03	0.65	0.93	0.45	0.26	
Control Delay	125.4	94.2	3.5	120.8	88.8	60.1	22.7	87.1	16.8	86.5	32.7	8.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	125.4	94.2	3.5	120.8	88.8	60.1	22.7	87.1	16.8	86.5	32.7	8.5	
Queue Length 50th (m)	~106.1	~159.6	0.0	~107.7	~150.7	165.7	11.2	~161.0	25.2	78.0	59.8	3.4	
Queue Length 95th (m)	#174.4	#207.1	4.7	#173.9	#194.0	#189.3	20.7	#204.9	63.8	#109.8	83.6	24.2	
Internal Link Dist (m)	262.9				265.2		202.7				420.1		
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0	45.0
Base Capacity (vph)	342	910	491	339	892	704	370	954	637	544	1352	696	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.09	1.07	0.16	1.11	1.03	0.97	0.19	1.03	0.65	0.93	0.45	0.26	

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2030 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	962	79	373	911	675	71	973	407	499	600	179
Future Volume (vph)	368	962	79	373	911	675	71	973	407	499	600	179
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1802	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.42	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	209	3471	1562	802	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	372	972	80	377	920	682	72	983	411	504	606	181
RTOR Reduction (vph)	0	0	59	0	0	36	0	0	225	0	0	93
Lane Group Flow (vph)	372	972	21	377	920	646	72	983	186	504	606	88
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	58.0	36.0	36.0	58.0	36.0	58.0	44.3	37.0	37.0	22.0	52.7	52.7
Effective Green, g (s)	58.0	36.0	36.0	58.0	36.0	58.0	44.3	37.0	37.0	22.0	52.7	52.7
Actuated g/C Ratio	0.41	0.26	0.26	0.41	0.26	0.41	0.32	0.26	0.26	0.16	0.38	0.38
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	337	910	393	334	892	647	305	954	412	544	1332	595
v/s Ratio Prot	0.17	0.27		c0.18	0.27	c0.16	0.01	c0.27		0.15	0.17	
v/s Ratio Perm	0.28		0.01	c0.29		0.26	0.06		0.12			0.06
v/c Ratio	1.10	1.07	0.05	1.13	1.03	1.00	0.24	1.03	0.45	0.93	0.45	0.15
Uniform Delay, d1	43.6	52.0	39.2	43.7	52.0	40.9	34.1	51.5	43.0	58.2	32.8	28.8
Progression Factor	1.49	0.93	4.98	1.00	1.00	1.00	1.00	1.00	1.00	1.10	0.95	1.01
Incremental Delay, d2	77.5	48.3	0.1	88.8	38.5	34.6	0.4	37.2	3.5	20.9	1.1	0.5
Delay (s)	142.5	96.7	195.2	132.5	90.5	75.5	34.5	88.7	46.6	84.9	32.3	29.7
Level of Service	F	F	F	F	F	E	C	F	D	F	C	C
Approach Delay (s)		114.2			93.3			74.2			52.5	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM 2000 Control Delay			85.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			110.8%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2030 Background PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	90	231	12	1972	55	163	1145
v/c Ratio	0.07	0.59	0.76	0.06	0.82	0.06	0.75	0.41
Control Delay	32.8	73.9	37.5	8.4	13.5	0.8	54.7	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	73.9	37.5	8.4	13.5	0.8	54.7	5.5
Queue Length 50th (m)	1.1	25.6	23.2	0.9	121.7	0.0	28.7	45.0
Queue Length 95th (m)	7.3	42.1	51.2	m1.0	m126.8	m0.0	#59.2	73.3
Internal Link Dist (m)	94.9	97.1			420.1			399.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	297	253	407	199	2391	944	231	2785
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.36	0.57	0.06	0.82	0.06	0.71	0.41

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2030 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	8	87	0	224	12	1913	53	158	1108	3
Future Volume (vph)	2	2	8	87	0	224	12	1913	53	158	1108	3
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1698			1800	1599	1142	3574	1381	1770	3532	
Flt Permitted		0.95			0.75	1.00	0.25	1.00	1.00	0.04	1.00	
Satd. Flow (perm)		1628			1420	1599	298	3574	1381	78	3532	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	2	8	90	0	231	12	1972	55	163	1142	3
RTOR Reduction (vph)	0	7	0	0	0	133	0	0	18	0	0	0
Lane Group Flow (vph)	0	5	0	0	90	98	12	1972	37	163	1145	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		15.1			15.1	15.1	93.7	93.7	93.7	110.4	110.4	
Effective Green, g (s)		15.1			15.1	15.1	93.7	93.7	93.7	110.4	110.4	
Actuated g/C Ratio		0.11			0.11	0.11	0.67	0.67	0.67	0.79	0.79	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		175			153	172	199	2392	924	214	2785	
v/s Ratio Prot								c0.55		c0.07	0.32	
v/s Ratio Perm		0.00			c0.06	0.06	0.04		0.03	0.53		
v/c Ratio		0.03			0.59	0.57	0.06	0.82	0.04	0.76	0.41	
Uniform Delay, d1		55.9			59.5	59.4	8.0	17.1	7.9	44.0	4.6	
Progression Factor		1.00			1.00	1.00	0.77	0.68	0.35	1.00	1.00	
Incremental Delay, d2		0.1			5.7	4.5	0.1	0.3	0.0	14.7	0.5	
Delay (s)		55.9			65.2	63.9	6.2	11.9	2.7	58.8	5.1	
Level of Service		E			E	E	A	B	A	E	A	
Approach Delay (s)		55.9			64.2			11.6			11.8	
Approach LOS		E			E			B			B	
Intersection Summary												
HCM 2000 Control Delay		16.4			HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)				18.5			
Intersection Capacity Utilization		113.2%			ICU Level of Service				H			
Analysis Period (min)		15										
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Background AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	53	108	638	200	23	5	418	486	59	835
v/c Ratio	0.07	0.10	0.86	0.18	0.02	0.09	0.49	0.33	0.29	0.98
Control Delay	8.9	8.3	31.4	9.6	0.8	35.2	36.4	0.6	37.2	66.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	8.3	31.4	9.6	0.8	35.2	36.4	0.6	37.2	66.7
Queue Length 50th (m)	4.4	8.4	105.4	17.7	0.0	0.8	40.8	0.0	10.4	93.8
Queue Length 95th (m)	9.7	15.7	#190.9	28.4	1.2	4.2	56.5	0.0	23.0	#136.8
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	728	1130	740	1141	925	57	855	1482	201	850
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.10	0.86	0.18	0.02	0.09	0.49	0.33	0.29	0.98

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	97	9	625	196	23	5	410	476	58	750	69
Future Volume (vph)	52	97	9	625	196	23	5	410	476	58	750	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1859		1687	1881	1495	1444	3471	1482	1770	3425	
Flt Permitted	0.63	1.00		0.69	1.00	1.00	0.15	1.00	1.00	0.44	1.00	
Satd. Flow (perm)	1201	1859		1220	1881	1495	234	3471	1482	816	3425	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	53	99	9	638	200	23	5	418	486	59	765	70
RTOR Reduction (vph)	0	3	0	0	0	9	0	0	0	0	7	0
Lane Group Flow (vph)	53	105	0	638	200	14	5	418	486	59	828	0
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	26.0	26.0	105.5	26.0	26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	26.0	26.0	105.5	26.0	26.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.25	0.25	1.00	0.25	0.25	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	728	1127		740	1141	906	57	855	1482	201	844	
v/s Ratio Prot		0.06			0.11			0.12			c0.24	
v/s Ratio Perm	0.04			c0.52		0.01	0.02		0.33	0.07		
v/c Ratio	0.07	0.09		0.86	0.18	0.02	0.09	0.49	0.33	0.29	0.98	
Uniform Delay, d1	8.5	8.7		17.1	9.1	8.2	30.6	34.1	0.0	32.3	39.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.2		12.6	0.3	0.0	0.7	0.4	0.6	0.8	26.3	
Delay (s)	8.7	8.8		29.8	9.5	8.3	31.3	34.5	0.6	33.1	65.8	
Level of Service	A	A		C	A	A	C	C	A	C	E	
Approach Delay (s)		8.8			24.5			16.4			63.6	
Approach LOS		A			C			B			E	
Intersection Summary												
HCM 2000 Control Delay			33.4									
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			105.5									
Intersection Capacity Utilization			93.6%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2035 Background AM Peak Hour

	→	↘	↙	←	↖	↗			
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗			
Traffic Volume (veh/h)	585	44	18	729	64	46			
Future Volume (Veh/h)	585	44	18	729	64	46			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93			
Hourly flow rate (vph)	629	47	19	784	69	49			
Pedestrians						2			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			678		1061	316			
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			678		1061	316			
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		68	93			
cM capacity (veh/h)			922		217	684			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	314	314	47	19	392	392	69	49	
Volume Left	0	0	0	19	0	0	69	0	
Volume Right	0	0	47	0	0	0	0	49	
cSH	1700	1700	1700	922	1700	1700	217	684	
Volume to Capacity	0.18	0.18	0.03	0.02	0.23	0.23	0.32	0.07	
Queue Length 95th (m)	0.0	0.0	0.0	0.5	0.0	0.0	10.4	1.8	
Control Delay (s)	0.0	0.0	0.0	9.0	0.0	0.0	29.1	10.7	
Lane LOS				A			D	B	
Approach Delay (s)	0.0			0.2			21.4		
Approach LOS							C		
Intersection Summary									
Average Delay				1.7					
Intersection Capacity Utilization				30.4%		ICU Level of Service		A	
Analysis Period (min)				15					

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2035 Background AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	670	26	127	713	37	248
v/c Ratio	0.25	0.02	0.21	0.27	0.24	0.69
Control Delay	3.5	1.2	6.1	5.1	58.6	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	1.2	6.1	5.1	58.6	16.9
Queue Length 50th (m)	18.0	0.0	8.0	27.4	9.6	0.0
Queue Length 95th (m)	30.1	2.1	19.4	42.6	20.4	26.0
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2708	1262	591	2658	444	572
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.02	0.21	0.27	0.08	0.43
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2035 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	623	24	118	663	34	231
Future Volume (vph)	623	24	118	663	34	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3374	1567	1763	3312	1805	1568
Flt Permitted	1.00	1.00	0.40	1.00	0.95	1.00
Satd. Flow (perm)	3374	1567	737	3312	1805	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	670	26	127	713	37	248
RTOR Reduction (vph)	0	5	0	0	0	227
Lane Group Flow (vph)	670	21	127	713	37	21
Confl. Peds. (#/hr)		5	5			
Heavy Vehicles (%)	7%	0%	2%	9%	0%	3%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	104.3	104.3	104.3	104.3	11.2	11.2
Effective Green, g (s)	104.3	104.3	104.3	104.3	11.2	11.2
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2706	1257	591	2657	155	135
v/s Ratio Prot	0.20			c0.22	c0.02	
v/s Ratio Perm		0.01	0.17			0.01
v/c Ratio	0.25	0.02	0.21	0.27	0.24	0.16
Uniform Delay, d1	3.2	2.6	3.1	3.2	55.4	55.0
Progression Factor	1.00	1.00	1.55	1.45	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.8	0.2	0.8	0.6
Delay (s)	3.4	2.6	5.6	4.9	56.2	55.6
Level of Service	A	A	A	A	E	E
Approach Delay (s)	3.4			5.0	55.7	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			12.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.27			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			80.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2035 Background AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↰	↑↑	↰	
Traffic Volume (veh/h)	817	81	22	788	13	5
Future Volume (Veh/h)	817	81	22	788	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	878	87	24	847	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			965		1393	482
vC1, stage 1 conf vol					922	
vC2, stage 2 conf vol					472	
vCu, unblocked vol			914		1240	419
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			97		96	99
cM capacity (veh/h)			705		333	436
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	585	380	24	424	424	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	705	1700	1700	356
Volume to Capacity	0.34	0.22	0.03	0.25	0.25	0.05
Queue Length 95th (m)	0.0	0.0	0.8	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	10.3	0.0	0.0	15.7
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			15.7
Approach LOS						C
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			35.2%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	703	109	338	788	70	105
v/c Ratio	0.31	0.10	0.52	0.30	0.45	0.45
Control Delay	8.5	1.4	13.9	1.9	65.0	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	1.4	13.9	1.9	65.0	16.1
Queue Length 50th (m)	34.8	0.0	24.2	12.0	18.4	0.0
Queue Length 95th (m)	48.7	5.4	52.3	17.1	33.6	17.8
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2294	1107	645	2628	416	446
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.10	0.52	0.30	0.17	0.24
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2035 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	647	100	311	725	64	97
Future Volume (vph)	647	100	311	725	64	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3343	1563	1787	3282	1805	1583
Flt Permitted	1.00	1.00	0.36	1.00	0.95	1.00
Satd. Flow (perm)	3343	1563	668	3282	1805	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	703	109	338	788	70	105
RTOR Reduction (vph)	0	34	0	0	0	96
Lane Group Flow (vph)	703	75	338	788	70	9
Confl. Peds. (#/hr)		1	1			
Heavy Vehicles (%)	8%	1%	1%	10%	0%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	89.2	89.2	104.1	104.1	11.4	11.4
Effective Green, g (s)	89.2	89.2	104.1	104.1	11.4	11.4
Actuated g/C Ratio	0.69	0.69	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2293	1072	628	2628	158	138
v/s Ratio Prot	0.21		c0.05	0.24	c0.04	
v/s Ratio Perm		0.05	c0.39			0.01
v/c Ratio	0.31	0.07	0.54	0.30	0.44	0.07
Uniform Delay, d1	8.1	6.7	3.5	3.4	56.3	54.4
Progression Factor	0.96	0.81	4.42	0.48	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.8	0.3	2.0	0.2
Delay (s)	8.1	5.6	16.5	1.9	58.3	54.6
Level of Service	A	A	B	A	E	D
Approach Delay (s)	7.8			6.3	56.1	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			66.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Background AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	118	599	69	346	678	255	44	480	209	867	940	151
v/c Ratio	0.52	0.71	0.15	1.31	0.79	0.32	0.17	0.50	0.36	1.23	0.59	0.20
Control Delay	30.5	45.5	2.8	191.0	52.2	7.0	18.2	41.0	6.4	156.1	22.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	45.5	2.8	191.0	52.2	7.0	18.2	41.0	6.4	156.1	22.2	3.8
Queue Length 50th (m)	10.7	71.6	1.7	~82.5	89.0	10.9	5.5	56.9	0.0	~153.9	103.1	4.2
Queue Length 95th (m)	22.3	99.4	2.9	#142.6	110.2	27.2	12.0	74.7	19.0	#202.9	125.1	10.6
Internal Link Dist (m)	262.9			265.2			202.7			420.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	238	943	492	265	934	796	321	960	579	704	1598	759
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.64	0.14	1.31	0.73	0.32	0.14	0.50	0.36	1.23	0.59	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	581	67	336	658	247	43	466	203	841	912	146
Future Volume (vph)	114	581	67	336	658	247	43	466	203	841	912	146
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1482	1687	3374	1511	3433	3505	1544
Flt Permitted	0.20	1.00	1.00	0.24	1.00	1.00	0.30	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	351	3406	1406	433	3374	1482	540	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	118	599	69	346	678	255	44	480	209	867	940	151
RTOR Reduction (vph)	0	0	52	0	0	94	0	0	150	0	0	56
Lane Group Flow (vph)	118	599	17	346	678	161	44	480	59	867	940	95
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	42.6	32.4	32.4	44.2	33.2	59.9	43.1	36.9	36.9	26.7	58.4	58.4
Effective Green, g (s)	42.6	32.4	32.4	44.2	33.2	59.9	43.1	36.9	36.9	26.7	58.4	58.4
Actuated g/C Ratio	0.33	0.25	0.25	0.34	0.26	0.46	0.33	0.28	0.28	0.21	0.45	0.45
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	219	848	350	256	861	682	233	957	428	705	1574	693
v/s Ratio Prot	0.04	0.18		c0.11	0.20	0.05	0.01	0.14		c0.25	c0.27	
v/s Ratio Perm	0.13		0.01	c0.35		0.06	0.05		0.04			0.06
v/c Ratio	0.54	0.71	0.05	1.35	0.79	0.24	0.19	0.50	0.14	1.23	0.60	0.14
Uniform Delay, d1	32.8	44.5	37.1	39.0	45.1	21.2	29.8	38.9	34.7	51.6	26.9	21.0
Progression Factor	0.88	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.74	0.37
Incremental Delay, d2	2.5	3.3	0.1	181.7	5.6	0.2	0.4	1.9	0.7	113.6	1.4	0.3
Delay (s)	31.3	44.3	37.2	220.7	50.7	21.4	30.2	40.7	35.4	162.9	21.4	8.1
Level of Service	C	D	D	F	D	C	C	D	D	F	C	A
Approach Delay (s)		41.7			90.8			38.6			83.0	
Approach LOS		D			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			71.5			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			109.5%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2035 Background AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	151	125	3	809	47	238	1665
v/c Ratio	0.01	0.73	0.36	0.02	0.37	0.05	0.46	0.64
Control Delay	0.0	72.1	10.3	23.7	27.3	11.8	7.1	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	72.1	10.3	23.7	27.3	11.8	7.1	8.0
Queue Length 50th (m)	0.0	39.4	0.0	0.6	93.7	2.9	13.2	62.0
Queue Length 95th (m)	0.0	59.7	16.9	m1.3	122.5	m11.1	19.9	68.2
Internal Link Dist (m)	94.9	97.1			420.1			262.4
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	410	308	457	153	2160	1026	524	2613
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.49	0.27	0.02	0.37	0.05	0.45	0.64

Intersection Summary

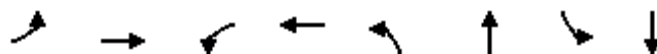
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2035 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	2	149	0	124	3	801	47	236	1646	2
Future Volume (vph)	1	0	2	149	0	124	3	801	47	236	1646	2
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1736	1615	1804	3406	1579	1787	3536	
Flt Permitted		0.92			0.76	1.00	0.13	1.00	1.00	0.30	1.00	
Satd. Flow (perm)		1594			1381	1615	241	3406	1579	567	3536	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	1	0	2	151	0	125	3	809	47	238	1663	2
RTOR Reduction (vph)	0	3	0	0	0	106	0	0	17	0	0	0
Lane Group Flow (vph)	0	0	0	0	151	19	3	809	30	238	1665	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		19.5			19.5	19.5	82.4	82.4	82.4	96.0	96.0	
Effective Green, g (s)		19.5			19.5	19.5	82.4	82.4	82.4	96.0	96.0	
Actuated g/C Ratio		0.15			0.15	0.15	0.63	0.63	0.63	0.74	0.74	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		239			207	242	152	2158	1000	508	2611	
v/s Ratio Prot								0.24		0.03	c0.47	
v/s Ratio Perm		0.00			c0.11	0.01	0.01		0.02	0.31		
v/c Ratio		0.00			0.73	0.08	0.02	0.37	0.03	0.47	0.64	
Uniform Delay, d1		47.0			52.7	47.5	8.8	11.4	8.9	5.9	8.4	
Progression Factor		1.00			1.00	1.00	2.00	2.17	8.80	0.97	0.74	
Incremental Delay, d2		0.0			12.1	0.1	0.2	0.5	0.1	0.6	1.1	
Delay (s)		47.0			64.8	47.7	17.9	25.3	78.2	6.3	7.3	
Level of Service		D			E	D	B	C	E	A	A	
Approach Delay (s)		47.0			57.1			28.2			7.2	
Approach LOS		D			E			C			A	
Intersection Summary												
HCM 2000 Control Delay	17.7			HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)					18.5			
Intersection Capacity Utilization	120.5%			ICU Level of Service					H			
Analysis Period (min)	15											
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	25	180	58	408	12	1008	249	2059
v/c Ratio	0.44	0.39	0.41	0.84	0.11	0.25	0.63	0.51
Control Delay	76.1	52.2	61.0	64.5	3.3	1.5	14.1	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	52.2	61.0	64.5	3.3	1.5	14.1	5.0
Queue Length 50th (m)	6.3	22.6	14.5	50.5	0.3	8.9	23.4	59.0
Queue Length 95th (m)	#17.0	34.8	29.5	#73.8	m0.8	9.6	54.3	66.5
Internal Link Dist (m)		175.3		134.9		101.4		140.7
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	60	488	147	507	114	4040	395	4050
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.37	0.39	0.80	0.11	0.25	0.63	0.51

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2035 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	152	14	53	258	118	11	888	40	229	1858	36
Future Volume (vph)	23	152	14	53	258	118	11	888	40	229	1858	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3495		1770	3373		1770	5053		1770	5071	
Flt Permitted	0.23	1.00		0.57	1.00		0.08	1.00		0.27	1.00	
Satd. Flow (perm)	433	3495		1067	3373		143	5053		496	5071	
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)	25	165	15	58	280	128	12	965	43	249	2020	39
RTOR Reduction (vph)	0	5	0	0	41	0	0	4	0	0	1	0
Lane Group Flow (vph)	25	175	0	58	367	0	12	1004	0	249	2058	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	17.2	17.2		17.2	17.2		103.8	103.8		103.8	103.8	
Effective Green, g (s)	17.2	17.2		17.2	17.2		103.8	103.8		103.8	103.8	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	57	462		141	446		114	4034		396	4048	
v/s Ratio Prot		0.05			c0.11			0.20			0.41	
v/s Ratio Perm	0.06			0.05			0.08			c0.50		
v/c Ratio	0.44	0.38		0.41	0.82		0.11	0.25		0.63	0.51	
Uniform Delay, d1	52.0	51.5		51.8	54.9		2.9	3.3		5.3	4.4	
Progression Factor	1.00	1.00		1.00	1.00		0.43	0.42		1.00	1.00	
Incremental Delay, d2	5.3	0.5		1.9	11.7		1.8	0.1		7.4	0.5	
Delay (s)	57.3	52.0		53.7	66.6		3.0	1.5		12.7	4.9	
Level of Service	E	D		D	E		A	A		B	A	
Approach Delay (s)		52.7			65.0			1.5			5.7	
Approach LOS		D			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			14.0			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			70.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Background PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	172	234	474	199	63	19	1050	839	55	486
v/c Ratio	0.29	0.25	0.86	0.21	0.08	0.08	0.87	0.53	0.74	0.41
Control Delay	17.2	15.8	40.3	15.5	6.3	23.1	39.7	1.3	83.2	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	15.8	40.3	15.5	6.3	23.1	39.7	1.3	83.2	25.9
Queue Length 50th (m)	20.6	27.3	85.5	22.8	1.7	2.6	105.6	0.0	9.9	39.3
Queue Length 95th (m)	37.3	45.1	#157.7	38.9	8.9	8.1	132.6	0.0	#32.8	53.5
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	600	946	554	930	819	260	1364	1583	84	1350
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.25	0.86	0.21	0.08	0.07	0.77	0.53	0.65	0.36

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	220	5	455	191	60	18	1008	805	53	438	29
Future Volume (vph)	165	220	5	455	191	60	18	1008	805	53	438	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3490	
Flt Permitted	0.63	1.00		0.61	1.00	1.00	0.43	1.00	1.00	0.12	1.00	
Satd. Flow (perm)	1189	1876		1099	1845	1578	676	3539	1583	219	3490	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	172	229	5	474	199	62	19	1050	839	55	456	30
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	5	0
Lane Group Flow (vph)	172	234	0	474	199	40	19	1050	839	55	481	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	51.1	51.1		51.1	51.1	51.1	34.7	34.7	101.3	34.7	34.7	
Effective Green, g (s)	51.1	51.1		51.1	51.1	51.1	34.7	34.7	101.3	34.7	34.7	
Actuated g/C Ratio	0.50	0.50		0.50	0.50	0.50	0.34	0.34	1.00	0.34	0.34	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	599	946		554	930	796	231	1212	1583	75	1195	
v/s Ratio Prot		0.12			0.11			c0.30			0.14	
v/s Ratio Perm	0.14			c0.43		0.03	0.03		0.53	0.25		
v/c Ratio	0.29	0.25		0.86	0.21	0.05	0.08	0.87	0.53	0.73	0.40	
Uniform Delay, d1	14.5	14.2		21.9	13.9	12.8	22.5	31.1	0.0	29.2	25.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.6		15.5	0.5	0.1	0.2	6.7	1.3	30.6	0.2	
Delay (s)	15.8	14.8		37.4	14.5	12.9	22.7	37.9	1.3	59.8	25.6	
Level of Service	B	B		D	B	B	C	D	A	E	C	
Approach Delay (s)		15.2			29.1			21.6			29.1	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			23.6									
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			101.3									
Intersection Capacity Utilization			113.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2035 Background PM Peak Hour

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑			
Traffic Volume (veh/h)	996	65	39	707	25	31			
Future Volume (Veh/h)	996	65	39	707	25	31			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91			
Hourly flow rate (vph)	1095	71	43	777	27	34			
Pedestrians						5			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			1171			1574	552		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1171			1574	552		
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			72	93		
cM capacity (veh/h)			601			95	480		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	548	548	71	43	388	388	27	34	
Volume Left	0	0	0	43	0	0	27	0	
Volume Right	0	0	71	0	0	0	0	34	
cSH	1700	1700	1700	601	1700	1700	95	480	
Volume to Capacity	0.32	0.32	0.04	0.07	0.23	0.23	0.28	0.07	
Queue Length 95th (m)	0.0	0.0	0.0	1.8	0.0	0.0	8.5	1.8	
Control Delay (s)	0.0	0.0	0.0	11.4	0.0	0.0	57.4	13.1	
Lane LOS				B			F	B	
Approach Delay (s)	0.0			0.6			32.7		
Approach LOS								D	
Intersection Summary									
Average Delay			1.2						
Intersection Capacity Utilization			42.4%		ICU Level of Service		A		
Analysis Period (min)			15						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2035 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1011	33	226	718	26	187
v/c Ratio	0.35	0.03	0.54	0.26	0.17	0.69
Control Delay	4.1	1.6	16.4	3.4	60.3	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	1.6	16.4	3.4	60.3	29.3
Queue Length 50th (m)	30.5	0.4	14.2	15.2	7.3	11.3
Queue Length 95th (m)	52.4	3.0	61.8	26.1	16.6	36.2
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2866	1277	416	2784	412	478
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.03	0.54	0.26	0.06	0.39
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2035 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	991	32	221	704	25	183
Future Volume (vph)	991	32	221	704	25	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1572	1784	3438	1805	1599
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	3539	1572	515	3438	1805	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1011	33	226	718	26	187
RTOR Reduction (vph)	0	4	0	0	0	134
Lane Group Flow (vph)	1011	29	226	718	26	53
Confl. Peds. (#/hr)		3	3		1	
Heavy Vehicles (%)	2%	0%	1%	5%	0%	1%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	113.4	113.4	113.4	113.4	12.1	12.1
Effective Green, g (s)	113.4	113.4	113.4	113.4	12.1	12.1
Actuated g/C Ratio	0.81	0.81	0.81	0.81	0.09	0.09
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2866	1273	417	2784	156	138
v/s Ratio Prot	0.29			0.21	0.01	
v/s Ratio Perm		0.02	c0.44			c0.03
v/c Ratio	0.35	0.02	0.54	0.26	0.17	0.38
Uniform Delay, d1	3.5	2.6	4.5	3.2	59.3	60.4
Progression Factor	1.00	1.00	1.99	0.93	1.00	1.00
Incremental Delay, d2	0.3	0.0	4.9	0.2	0.5	1.8
Delay (s)	3.9	2.6	13.8	3.2	59.8	62.2
Level of Service	A	A	B	A	E	E
Approach Delay (s)	3.8			5.7	61.9	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			10.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			80.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2035 Background PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1108	102	22	904	57	40
Future Volume (Veh/h)	1108	102	22	904	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1179	109	23	962	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.93		0.95	0.93
vC, conflicting volume			1288		1760	644
vC1, stage 1 conf vol					1234	
vC2, stage 2 conf vol					527	
vCu, unblocked vol			1153		1468	459
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		74	92
cM capacity (veh/h)			522		239	514
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	786	502	23	481	481	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	522	1700	1700	307
Volume to Capacity	0.46	0.30	0.04	0.28	0.28	0.34
Queue Length 95th (m)	0.0	0.0	1.1	0.0	0.0	11.6
Control Delay (s)	0.0	0.0	12.2	0.0	0.0	22.6
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			22.6
Approach LOS						C
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			46.1%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	973	158	240	742	169	269
v/c Ratio	0.42	0.15	0.51	0.28	0.72	0.70
Control Delay	11.2	2.8	21.2	1.9	74.3	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	2.8	21.2	1.9	74.3	25.3
Queue Length 50th (m)	54.9	2.7	26.0	8.3	47.9	17.9
Queue Length 95th (m)	75.2	9.7	m32.4	m12.4	69.9	47.7
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2341	1063	470	2651	421	527
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.15	0.51	0.28	0.40	0.51

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2035 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (vph)	944	153	233	720	164	261
Future Volume (vph)	944	153	233	720	164	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1543	1804	3471	1787	1583
Flt Permitted	1.00	1.00	0.25	1.00	0.95	1.00
Satd. Flow (perm)	3539	1543	470	3471	1787	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	973	158	240	742	169	269
RTOR Reduction (vph)	0	42	0	0	0	175
Lane Group Flow (vph)	973	116	240	742	169	94
Confl. Peds. (#/hr)		6	6			
Heavy Vehicles (%)	2%	1%	0%	4%	1%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	92.6	92.6	106.9	106.9	18.6	18.6
Effective Green, g (s)	92.6	92.6	106.9	106.9	18.6	18.6
Actuated g/C Ratio	0.66	0.66	0.76	0.76	0.13	0.13
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2340	1020	457	2650	237	210
v/s Ratio Prot	0.27		c0.04	0.21	c0.09	
v/s Ratio Perm		0.08	c0.36			0.06
v/c Ratio	0.42	0.11	0.53	0.28	0.71	0.45
Uniform Delay, d1	11.1	8.7	6.0	5.0	58.1	56.0
Progression Factor	0.89	0.82	4.57	0.33	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.7	0.2	9.7	1.5
Delay (s)	10.4	7.3	28.0	1.8	67.9	57.5
Level of Service	B	A	C	A	E	E
Approach Delay (s)	9.9			8.2	61.5	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			18.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			63.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Background PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	325	915	70	382	815	564	61	1224	455	406	784	153
v/c Ratio	0.96	1.01	0.14	1.13	0.91	0.82	0.22	1.24	0.73	0.80	0.58	0.23
Control Delay	94.1	76.3	1.9	126.6	65.3	39.5	22.9	156.8	25.8	75.3	39.1	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.1	76.3	1.9	126.6	65.3	39.5	22.9	156.8	25.8	75.3	39.1	18.0
Queue Length 50th (m)	81.8	~127.3	0.0	~111.1	122.1	118.3	9.4	~237.7	50.7	61.3	92.2	12.2
Queue Length 95th (m)	#141.0	#191.0	2.7	#178.0	#159.6	167.5	18.0	#282.2	95.5	79.9	113.2	28.1
Internal Link Dist (m)	262.9			265.2			202.7			420.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	342	910	491	338	896	706	318	991	626	544	1363	668
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.01	0.14	1.13	0.91	0.80	0.19	1.24	0.73	0.75	0.58	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	906	69	378	807	558	60	1212	450	402	776	151
Future Volume (vph)	322	906	69	378	807	558	60	1212	450	402	776	151
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1804	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.32	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	208	3471	1562	599	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	325	915	70	382	815	564	61	1224	455	406	784	153
RTOR Reduction (vph)	0	0	52	0	0	37	0	0	197	0	0	60
Lane Group Flow (vph)	325	915	18	382	815	527	61	1224	258	406	784	93
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	57.8	36.0	36.0	58.2	36.2	56.7	45.4	38.5	38.5	20.5	53.1	53.1
Effective Green, g (s)	57.8	36.0	36.0	58.2	36.2	56.7	45.4	38.5	38.5	20.5	53.1	53.1
Actuated g/C Ratio	0.41	0.26	0.26	0.42	0.26	0.41	0.32	0.28	0.28	0.15	0.38	0.38
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	335	910	393	334	897	632	253	992	429	507	1342	599
v/s Ratio Prot	0.15	0.26		c0.18	0.23	c0.12	0.01	c0.34		0.12	0.22	
v/s Ratio Perm	0.25		0.01	c0.30		0.22	0.07		0.17			0.06
v/c Ratio	0.97	1.01	0.05	1.14	0.91	0.83	0.24	1.23	0.60	0.80	0.58	0.15
Uniform Delay, d1	42.3	52.0	39.1	43.6	50.3	37.4	33.2	50.8	44.1	57.8	34.6	28.7
Progression Factor	1.51	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.07	1.42
Incremental Delay, d2	39.3	30.1	0.1	94.1	13.5	9.3	0.5	114.1	6.1	8.2	1.7	0.5
Delay (s)	103.0	76.5	39.2	137.8	63.8	46.7	33.6	164.8	50.2	72.0	38.7	41.2
Level of Service	F	E	D	F	E	D	C	F	D	E	D	D
Approach Delay (s)		81.1			74.4			130.2			49.1	
Approach LOS		F			E			F			D	
Intersection Summary												
HCM 2000 Control Delay			86.1	HCM 2000 Level of Service					F			
HCM 2000 Volume to Capacity ratio			1.12									
Actuated Cycle Length (s)			140.0	Sum of lost time (s)					23.0			
Intersection Capacity Utilization			110.4%	ICU Level of Service					H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2035 Background PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	152	259	12	1942	158	208	1129
v/c Ratio	0.05	0.75	0.72	0.07	0.90	0.18	0.78	0.42
Control Delay	29.6	78.1	34.1	8.9	15.3	4.1	66.2	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	78.1	34.1	8.9	15.3	4.1	66.2	6.4
Queue Length 50th (m)	1.0	43.0	29.8	1.0	293.1	6.0	46.3	47.9
Queue Length 95th (m)	7.0	64.8	58.7	m0.9	m94.9	m3.9	m#97.7	m58.7
Internal Link Dist (m)	94.9	97.1			420.1			262.4
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	332	284	441	182	2158	858	267	2658
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.54	0.59	0.07	0.90	0.18	0.78	0.42

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2035 Background PM Peak Hour

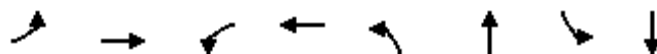
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	8	147	0	251	12	1884	153	202	1092	3
Future Volume (vph)	2	2	8	147	0	251	12	1884	153	202	1092	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1698			1800	1599	1142	3574	1381	1770	3532	
Flt Permitted		0.95			0.75	1.00	0.25	1.00	1.00	0.05	1.00	
Satd. Flow (perm)		1631			1420	1599	303	3574	1381	84	3532	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	2	8	152	0	259	12	1942	158	208	1126	3
RTOR Reduction (vph)	0	7	0	0	0	130	0	0	25	0	0	0
Lane Group Flow (vph)	0	5	0	0	152	129	12	1942	133	208	1129	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		20.2			20.2	20.2	84.5	84.5	84.5	105.3	105.3	
Effective Green, g (s)		20.2			20.2	20.2	84.5	84.5	84.5	105.3	105.3	
Actuated g/C Ratio		0.14			0.14	0.14	0.60	0.60	0.60	0.75	0.75	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		235			204	230	182	2157	833	265	2656	
v/s Ratio Prot								c0.54		c0.09	0.32	
v/s Ratio Perm		0.00			c0.11	0.08	0.04		0.10	0.49		
v/c Ratio		0.02			0.75	0.56	0.07	0.90	0.16	0.78	0.43	
Uniform Delay, d1		51.4			57.4	55.8	11.5	24.1	12.2	46.5	6.3	
Progression Factor		1.00			1.00	1.00	0.66	0.56	0.50	1.31	0.86	
Incremental Delay, d2		0.0			13.7	3.1	0.1	0.7	0.0	13.4	0.5	
Delay (s)		51.5			71.2	58.9	7.7	14.2	6.2	74.4	5.9	
Level of Service		D			E	E	A	B	A	E	A	
Approach Delay (s)		51.5			63.4			13.6			16.6	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			20.0									
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			140.0									
Intersection Capacity Utilization			116.5%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2035 Background PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	339	79	481	16	2349	180	1384
v/c Ratio	1.34	0.69	1.01	1.00	0.06	0.58	2.34	0.34
Control Delay	283.2	64.9	164.2	96.7	4.7	5.5	657.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	283.2	64.9	164.2	96.7	4.7	5.5	657.6	4.2
Queue Length 50th (m)	~26.8	49.7	~23.6	71.4	0.9	64.6	~63.2	34.6
Queue Length 95th (m)	#60.7	67.5	#59.7	#110.7	m1.5	79.8	#114.1	39.5
Internal Link Dist (m)		175.3		134.9		101.4		140.7
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	53	492	78	483	254	4032	77	4036
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.69	1.01	1.00	0.06	0.58	2.34	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2035 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	298	14	73	265	178	15	2085	76	166	1236	38
Future Volume (vph)	65	298	14	73	265	178	15	2085	76	166	1236	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3516		1770	3326		1770	5058		1770	5063	
Flt Permitted	0.21	1.00		0.30	1.00		0.17	1.00		0.05	1.00	
Satd. Flow (perm)	382	3516		562	3326		321	5058		97	5063	
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)	71	324	15	79	288	193	16	2266	83	180	1343	41
RTOR Reduction (vph)	0	3	0	0	20	0	0	3	0	0	2	0
Lane Group Flow (vph)	71	336	0	79	461	0	16	2346	0	180	1382	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	19.5	19.5		19.5	19.5		111.5	111.5		111.5	111.5	
Effective Green, g (s)	19.5	19.5		19.5	19.5		111.5	111.5		111.5	111.5	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	53	489		78	463		255	4028		77	4032	
v/s Ratio Prot		0.10			0.14			0.46			0.27	
v/s Ratio Perm	c0.19			0.14			0.05			c1.85		
v/c Ratio	1.34	0.69		1.01	1.00		0.06	0.58		2.34	0.34	
Uniform Delay, d1	60.2	57.4		60.2	60.2		3.1	5.4		14.2	4.0	
Progression Factor	1.00	1.00		1.00	1.00		1.39	0.95		1.00	1.00	
Incremental Delay, d2	238.6	4.0		105.5	40.5		0.3	0.4		640.4	0.2	
Delay (s)	298.9	61.4		165.7	100.8		4.5	5.5		654.6	4.2	
Level of Service	F	E		F	F		A	A		F	A	
Approach Delay (s)		102.5			109.9			5.5			79.1	
Approach LOS		F			F			A			E	
Intersection Summary												
HCM 2000 Control Delay			49.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			2.18									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			83.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2040 Background AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	130	709	220	24	5	506	577	62	927
v/c Ratio	0.10	0.11	0.98	0.19	0.03	0.09	0.59	0.39	0.38	1.09
Control Delay	9.2	8.6	49.9	9.8	0.9	35.2	38.4	0.8	41.4	96.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	8.6	49.9	9.8	0.9	35.2	38.4	0.8	41.4	96.9
Queue Length 50th (m)	6.1	10.4	137.3	19.6	0.0	0.8	50.9	0.0	11.2	~118.7
Queue Length 95th (m)	12.4	18.6	#228.4	31.3	1.4	4.2	68.7	0.0	25.0	#160.2
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	715	1131	726	1141	925	57	855	1482	162	849
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.11	0.98	0.19	0.03	0.09	0.59	0.39	0.38	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2040 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	118	10	695	216	24	5	496	565	61	826	82
Future Volume (vph)	71	118	10	695	216	24	5	496	565	61	826	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1861		1687	1881	1495	1444	3471	1482	1770	3421	
Flt Permitted	0.62	1.00		0.67	1.00	1.00	0.15	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	1179	1861		1196	1881	1495	234	3471	1482	657	3421	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	72	120	10	709	220	24	5	506	577	62	843	84
RTOR Reduction (vph)	0	3	0	0	0	9	0	0	0	0	7	0
Lane Group Flow (vph)	72	127	0	709	220	15	5	506	577	62	920	0
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	26.0	26.0	105.5	26.0	26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	26.0	26.0	105.5	26.0	26.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.25	0.25	1.00	0.25	0.25	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	715	1128		725	1141	906	57	855	1482	161	843	
v/s Ratio Prot		0.07			0.12			0.15			c0.27	
v/s Ratio Perm	0.06			c0.59		0.01	0.02		0.39	0.09		
v/c Ratio	0.10	0.11		0.98	0.19	0.02	0.09	0.59	0.39	0.39	1.09	
Uniform Delay, d1	8.7	8.8		20.1	9.2	8.2	30.6	35.1	0.0	33.1	39.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.2		28.5	0.4	0.0	0.7	1.1	0.8	1.5	59.0	
Delay (s)	9.0	9.0		48.5	9.6	8.3	31.3	36.2	0.8	34.6	98.7	
Level of Service	A	A		D	A	A	C	D	A	C	F	
Approach Delay (s)		9.0			38.5			17.4			94.7	
Approach LOS		A			D			B			F	
Intersection Summary												
HCM 2000 Control Delay			46.8	HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			105.5	Sum of lost time (s)					15.5			
Intersection Capacity Utilization			123.9%	ICU Level of Service					H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2040 Background AM Peak Hour

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗			
Traffic Volume (veh/h)	695	44	18	814	64	46			
Future Volume (Veh/h)	695	44	18	814	64	46			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93			
Hourly flow rate (vph)	747	47	19	875	69	49			
Pedestrians						2			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			796		1224		376		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			796		1224		376		
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		59		92		
cM capacity (veh/h)			833		170		627		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	374	374	47	19	438	438	69	49	
Volume Left	0	0	0	19	0	0	69	0	
Volume Right	0	0	47	0	0	0	0	49	
cSH	1700	1700	1700	833	1700	1700	170	627	
Volume to Capacity	0.22	0.22	0.03	0.02	0.26	0.26	0.41	0.08	
Queue Length 95th (m)	0.0	0.0	0.0	0.6	0.0	0.0	14.4	2.0	
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	0.0	40.0	11.2	
Lane LOS				A			E	B	
Approach Delay (s)	0.0			0.2			28.0		
Approach LOS							D		
Intersection Summary									
Average Delay				1.9					
Intersection Capacity Utilization				32.7%		ICU Level of Service		A	
Analysis Period (min)				15					

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2040 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	790	26	127	801	37	248
v/c Ratio	0.29	0.02	0.25	0.30	0.22	0.73
Control Delay	4.2	1.6	7.7	6.4	56.0	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	1.6	7.7	6.4	56.0	23.7
Queue Length 50th (m)	22.3	0.2	10.6	35.4	9.6	8.8
Queue Length 95th (m)	41.0	2.5	18.2	44.8	19.8	36.0
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2678	1248	517	2628	444	547
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.02	0.25	0.30	0.08	0.45
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2040 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	735	24	118	745	34	231
Future Volume (vph)	735	24	118	745	34	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3374	1567	1764	3312	1805	1568
Flt Permitted	1.00	1.00	0.35	1.00	0.95	1.00
Satd. Flow (perm)	3374	1567	652	3312	1805	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	790	26	127	801	37	248
RTOR Reduction (vph)	0	5	0	0	0	194
Lane Group Flow (vph)	790	21	127	801	37	54
Confl. Peds. (#/hr)		5	5			
Heavy Vehicles (%)	7%	0%	2%	9%	0%	3%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	103.2	103.2	103.2	103.2	12.3	12.3
Effective Green, g (s)	103.2	103.2	103.2	103.2	12.3	12.3
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.09	0.09
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2678	1243	517	2629	170	148
v/s Ratio Prot	0.23			c0.24	0.02	
v/s Ratio Perm		0.01	0.19			c0.03
v/c Ratio	0.29	0.02	0.25	0.30	0.22	0.37
Uniform Delay, d1	3.6	2.8	3.4	3.6	54.4	55.2
Progression Factor	1.00	1.00	1.62	1.55	1.00	1.00
Incremental Delay, d2	0.3	0.0	1.1	0.3	0.6	1.5
Delay (s)	3.9	2.8	6.7	5.9	55.0	56.7
Level of Service	A	A	A	A	E	E
Approach Delay (s)	3.9			6.0	56.5	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			12.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.31			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			80.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 4: Costco Driveway & Green Lane

2040 Background AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (veh/h)	939	81	22	876	13	5
Future Volume (Veh/h)	939	81	22	876	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1010	87	24	942	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.95		0.97	0.95
vC, conflicting volume			1097		1572	548
vC1, stage 1 conf vol					1054	
vC2, stage 2 conf vol					519	
vCu, unblocked vol			1006		1318	431
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		95	99
cM capacity (veh/h)			636		297	418
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	673	424	24	471	471	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	636	1700	1700	321
Volume to Capacity	0.40	0.25	0.04	0.28	0.28	0.06
Queue Length 95th (m)	0.0	0.0	0.9	0.0	0.0	1.5
Control Delay (s)	0.0	0.0	10.9	0.0	0.0	16.9
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			16.9
Approach LOS						C
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			38.5%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	827	109	338	879	70	105
v/c Ratio	0.36	0.10	0.58	0.33	0.45	0.45
Control Delay	9.0	1.4	18.0	2.4	65.0	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	1.4	18.0	2.4	65.0	16.1
Queue Length 50th (m)	42.0	0.0	32.8	11.4	18.4	0.0
Queue Length 95th (m)	57.8	5.3	m56.5	28.7	33.6	17.8
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2281	1100	580	2628	416	446
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.10	0.58	0.33	0.17	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2040 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	761	100	311	809	64	97
Future Volume (vph)	761	100	311	809	64	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3343	1563	1787	3282	1805	1583
Flt Permitted	1.00	1.00	0.30	1.00	0.95	1.00
Satd. Flow (perm)	3343	1563	573	3282	1805	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	827	109	338	879	70	105
RTOR Reduction (vph)	0	34	0	0	0	96
Lane Group Flow (vph)	827	75	338	879	70	9
Confl. Peds. (#/hr)		1	1			
Heavy Vehicles (%)	8%	1%	1%	10%	0%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	88.7	88.7	104.1	104.1	11.4	11.4
Effective Green, g (s)	88.7	88.7	104.1	104.1	11.4	11.4
Actuated g/C Ratio	0.68	0.68	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2280	1066	565	2628	158	138
v/s Ratio Prot	0.25		c0.05	0.27	c0.04	
v/s Ratio Perm		0.05	c0.43			0.01
v/c Ratio	0.36	0.07	0.60	0.33	0.44	0.07
Uniform Delay, d1	8.7	6.9	3.9	3.5	56.3	54.4
Progression Factor	0.93	0.74	5.69	0.58	1.00	1.00
Incremental Delay, d2	0.4	0.1	1.5	0.3	2.0	0.2
Delay (s)	8.6	5.3	23.9	2.3	58.3	54.6
Level of Service	A	A	C	A	E	D
Approach Delay (s)	8.2			8.3	56.1	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			11.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			66.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Background AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	713	72	432	762	268	46	622	337	911	1056	158
v/c Ratio	0.59	0.80	0.15	1.84	0.84	0.35	0.21	0.65	0.59	1.38	0.68	0.21
Control Delay	35.8	49.5	3.5	416.1	54.8	11.5	19.2	44.5	20.2	217.0	23.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	49.5	3.5	416.1	54.8	11.5	19.2	44.5	20.2	217.0	23.8	3.6
Queue Length 50th (m)	10.6	84.8	2.0	~149.9	101.3	21.7	5.9	77.6	30.7	~173.8	130.4	4.6
Queue Length 95th (m)	26.0	126.1	3.3	#217.6	126.5	40.9	12.5	98.8	63.7	#216.1	139.8	m8.4
Internal Link Dist (m)	262.9				265.2				202.7		420.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	221	943	492	235	934	765	280	960	573	660	1553	740
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.76	0.15	1.84	0.82	0.35	0.16	0.65	0.59	1.38	0.68	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	692	70	419	739	260	45	603	327	884	1024	153
Future Volume (vph)	120	692	70	419	739	260	45	603	327	884	1024	153
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1481	1687	3374	1511	3433	3505	1544
Flt Permitted	0.15	1.00	1.00	0.17	1.00	1.00	0.23	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	275	3406	1406	311	3374	1481	405	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	713	72	432	762	268	46	622	337	911	1056	158
RTOR Reduction (vph)	0	0	53	0	0	64	0	0	143	0	0	57
Lane Group Flow (vph)	124	713	19	432	762	204	46	622	194	911	1056	101
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	44.2	34.0	34.0	45.8	34.8	59.8	43.2	37.0	37.0	25.0	56.8	56.8
Effective Green, g (s)	44.2	34.0	34.0	45.8	34.8	59.8	43.2	37.0	37.0	25.0	56.8	56.8
Actuated g/C Ratio	0.34	0.26	0.26	0.35	0.27	0.46	0.33	0.28	0.28	0.19	0.44	0.44
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	204	890	367	228	903	681	195	960	430	660	1531	674
v/s Ratio Prot	0.05	0.21		c0.16	0.23	0.06	0.01	0.18		c0.27	c0.30	
v/s Ratio Perm	0.16		0.01	c0.51		0.08	0.07		0.13			0.07
v/c Ratio	0.61	0.80	0.05	1.89	0.84	0.30	0.24	0.65	0.45	1.38	0.69	0.15
Uniform Delay, d1	32.4	44.8	35.9	36.4	45.0	22.0	29.9	40.8	38.2	52.5	29.5	22.1
Progression Factor	0.98	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.72	0.32
Incremental Delay, d2	4.8	5.7	0.1	418.7	8.0	0.2	0.6	3.4	3.4	178.2	1.9	0.4
Delay (s)	36.7	48.0	36.0	455.1	53.0	22.2	30.6	44.2	41.6	230.0	23.2	7.4
Level of Service	D	D	D	F	D	C	C	D	D	F	C	A
Approach Delay (s)		45.5			166.2			42.7			110.7	
Approach LOS		D			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			102.2									F
HCM 2000 Volume to Capacity ratio			1.39									
Actuated Cycle Length (s)			130.0									
Intersection Capacity Utilization			118.0%									H
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2040 Background AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	224	154	3	851	165	284	1749
v/c Ratio	0.01	0.85	0.36	0.03	0.42	0.17	0.61	0.71
Control Delay	0.0	77.4	8.6	25.3	31.5	17.5	12.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	77.4	8.6	25.3	31.5	17.5	12.5	10.6
Queue Length 50th (m)	0.0	57.9	0.0	0.5	111.0	21.5	17.1	65.5
Queue Length 95th (m)	0.0	#92.4	18.0	m1.1	131.6	36.3	23.2	71.3
Internal Link Dist (m)	94.9	97.1			420.1			262.4
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	411	308	479	111	2029	986	464	2464
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.73	0.32	0.03	0.42	0.17	0.61	0.71

Intersection Summary

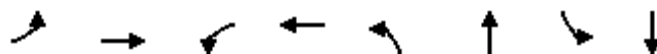
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan 7: Yonge Street & Church Driveway/Existing Commerical Driveway 2040 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	2	222	0	152	3	842	163	281	1730	2
Future Volume (vph)	1	0	2	222	0	152	3	842	163	281	1730	2
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1736	1615	1805	3406	1579	1787	3537	
Flt Permitted		0.92			0.76	1.00	0.10	1.00	1.00	0.28	1.00	
Satd. Flow (perm)		1598			1381	1615	187	3406	1579	518	3537	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	1	0	2	224	0	154	3	851	165	284	1747	2
RTOR Reduction (vph)	0	2	0	0	0	125	0	0	46	0	0	0
Lane Group Flow (vph)	0	1	0	0	224	29	3	851	119	284	1749	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		24.9			24.9	24.9	77.5	77.5	77.5	90.6	90.6	
Effective Green, g (s)		24.9			24.9	24.9	77.5	77.5	77.5	90.6	90.6	
Actuated g/C Ratio		0.19			0.19	0.19	0.60	0.60	0.60	0.70	0.70	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		306			264	309	111	2030	941	449	2465	
v/s Ratio Prot								0.25		0.04	c0.49	
v/s Ratio Perm		0.00			c0.16	0.02	0.02		0.08	0.40		
v/c Ratio		0.00			0.85	0.10	0.03	0.42	0.13	0.63	0.71	
Uniform Delay, d1		42.5			50.7	43.3	10.8	14.1	11.5	8.5	11.8	
Progression Factor		1.00			1.00	1.00	1.97	2.09	3.80	1.06	0.71	
Incremental Delay, d2		0.0			21.6	0.1	0.4	0.5	0.2	2.5	1.5	
Delay (s)		42.5			72.3	43.4	21.6	30.1	43.9	11.5	9.9	
Level of Service		D			E	D	C	C	D	B	A	
Approach Delay (s)		42.5			60.5			32.3			10.1	
Approach LOS		D			E			C			B	
Intersection Summary												
HCM 2000 Control Delay		22.3										
HCM 2000 Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		126.9%										
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	276	60	508	12	1087	310	2212
v/c Ratio	0.46	0.56	0.57	1.00	0.13	0.27	0.87	0.55
Control Delay	78.0	56.6	74.5	89.7	4.3	1.6	35.8	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.0	56.6	74.5	89.7	4.3	1.6	35.8	5.6
Queue Length 50th (m)	6.5	36.5	15.4	66.4	0.3	9.9	46.0	66.9
Queue Length 95th (m)	#19.2	51.9	#34.2	#105.5	m0.7	9.5	#132.5	74.9
Internal Link Dist (m)		175.3		134.9		101.4		140.7
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	57	489	105	509	91	4008	358	4018
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.56	0.57	1.00	0.13	0.27	0.87	0.55

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2040 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	240	14	55	318	149	11	958	42	285	1997	38
Future Volume (vph)	24	240	14	55	318	149	11	958	42	285	1997	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3510		1770	3370		1770	5053		1770	5071	
Flt Permitted	0.22	1.00		0.41	1.00		0.06	1.00		0.24	1.00	
Satd. Flow (perm)	414	3510		763	3370		116	5053		452	5071	
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)	26	261	15	60	346	162	12	1041	46	310	2171	41
RTOR Reduction (vph)	0	3	0	0	43	0	0	4	0	0	1	0
Lane Group Flow (vph)	26	273	0	60	465	0	12	1083	0	310	2211	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		103.0	103.0		103.0	103.0	
Effective Green, g (s)	18.0	18.0		18.0	18.0		103.0	103.0		103.0	103.0	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.79	0.79		0.79	0.79	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	57	486		105	466		91	4003		358	4017	
v/s Ratio Prot		0.08			c0.14			0.21			0.44	
v/s Ratio Perm	0.06			0.08			0.10			c0.69		
v/c Ratio	0.46	0.56		0.57	1.00		0.13	0.27		0.87	0.55	
Uniform Delay, d1	51.5	52.3		52.4	56.0		3.1	3.6		8.9	5.0	
Progression Factor	1.00	1.00		1.00	1.00		0.40	0.40		1.00	1.00	
Incremental Delay, d2	5.7	1.5		7.3	40.8		2.8	0.2		23.4	0.5	
Delay (s)	57.2	53.8		59.7	96.8		4.1	1.6		32.3	5.5	
Level of Service	E	D		E	F		A	A		C	A	
Approach Delay (s)		54.1			92.9			1.6			8.8	
Approach LOS		D			F			A			A	
Intersection Summary												
HCM 2000 Control Delay	20.7			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.89											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	76.3%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2040 Background PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	179	245	518	214	66	20	1098	875	58	535
v/c Ratio	0.28	0.24	0.86	0.21	0.07	0.12	1.04	0.55	0.82	0.51
Control Delay	13.8	12.7	36.5	12.5	4.9	29.2	75.5	1.4	103.5	32.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	12.7	36.5	12.5	4.9	29.2	75.5	1.4	103.5	32.3
Queue Length 50th (m)	19.2	25.5	90.2	22.1	1.8	3.1	~135.3	0.0	11.6	49.5
Queue Length 95th (m)	33.1	39.8	#163.1	35.3	8.0	9.6	#177.1	0.0	#37.0	66.5
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	650	1041	603	1023	895	171	1056	1583	71	1045
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.24	0.86	0.21	0.07	0.12	1.04	0.55	0.82	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2040 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	230	5	497	205	63	19	1054	840	56	479	35
Future Volume (vph)	172	230	5	497	205	63	19	1054	840	56	479	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3485	
Flt Permitted	0.62	1.00		0.61	1.00	1.00	0.36	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	1173	1876		1088	1845	1578	575	3539	1583	241	3485	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	179	240	5	518	214	66	20	1098	875	58	499	36
RTOR Reduction (vph)	0	1	0	0	0	21	0	0	0	0	5	0
Lane Group Flow (vph)	179	244	0	518	214	45	20	1098	875	58	530	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	58.5	58.5		58.5	58.5	58.5	31.5	31.5	105.5	31.5	31.5	
Effective Green, g (s)	58.5	58.5		58.5	58.5	58.5	31.5	31.5	105.5	31.5	31.5	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.30	0.30	1.00	0.30	0.30	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	650	1040		603	1023	875	171	1056	1583	71	1040	
v/s Ratio Prot		0.13			0.12			c0.31			0.15	
v/s Ratio Perm	0.15			c0.48		0.03	0.03		0.55	0.24		
v/c Ratio	0.28	0.23		0.86	0.21	0.05	0.12	1.04	0.55	0.82	0.51	
Uniform Delay, d1	12.4	12.0		20.0	11.8	10.8	26.9	37.0	0.0	34.3	30.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.5		14.8	0.5	0.1	0.3	38.6	1.4	49.3	0.4	
Delay (s)	13.4	12.6		34.8	12.3	10.9	27.2	75.6	1.4	83.6	31.0	
Level of Service	B	B		C	B	B	C	E	A	F	C	
Approach Delay (s)		12.9			26.8			42.5			36.1	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			34.9									
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			105.5									
Intersection Capacity Utilization			116.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2040 Background PM Peak Hour

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓			
Traffic Volume (veh/h)	1039	65	39	765	25	31			
Future Volume (Veh/h)	1039	65	39	765	25	31			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91			
Hourly flow rate (vph)	1142	71	43	841	27	34			
Pedestrians						5			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			1218			1654	576		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1218			1654	576		
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			68	93		
cM capacity (veh/h)			577			84	464		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	571	571	71	43	420	420	27	34	
Volume Left	0	0	0	43	0	0	27	0	
Volume Right	0	0	71	0	0	0	0	34	
cSH	1700	1700	1700	577	1700	1700	84	464	
Volume to Capacity	0.34	0.34	0.04	0.07	0.25	0.25	0.32	0.07	
Queue Length 95th (m)	0.0	0.0	0.0	1.9	0.0	0.0	9.7	1.9	
Control Delay (s)	0.0	0.0	0.0	11.7	0.0	0.0	67.1	13.4	
Lane LOS				B			F	B	
Approach Delay (s)	0.0			0.6			37.2		
Approach LOS							E		
Intersection Summary									
Average Delay			1.3						
Intersection Capacity Utilization			42.4%		ICU Level of Service		A		
Analysis Period (min)			15						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2040 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1055	33	226	779	26	187
v/c Ratio	0.37	0.03	0.57	0.28	0.16	0.70
Control Delay	4.4	1.8	19.7	4.0	59.2	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	1.8	19.7	4.0	59.2	33.7
Queue Length 50th (m)	33.2	0.5	27.0	21.5	7.3	15.1
Queue Length 95th (m)	57.6	3.2	64.4	31.3	16.4	40.0
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2852	1271	394	2771	412	468
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.03	0.57	0.28	0.06	0.40
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2040 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (vph)	1034	32	221	763	25	183
Future Volume (vph)	1034	32	221	763	25	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1572	1785	3438	1805	1599
Flt Permitted	1.00	1.00	0.26	1.00	0.95	1.00
Satd. Flow (perm)	3539	1572	489	3438	1805	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1055	33	226	779	26	187
RTOR Reduction (vph)	0	4	0	0	0	122
Lane Group Flow (vph)	1055	29	226	779	26	65
Confl. Peds. (#/hr)		3	3		1	
Heavy Vehicles (%)	2%	0%	1%	5%	0%	1%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	112.9	112.9	112.9	112.9	12.6	12.6
Effective Green, g (s)	112.9	112.9	112.9	112.9	12.6	12.6
Actuated g/C Ratio	0.81	0.81	0.81	0.81	0.09	0.09
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2853	1267	394	2772	162	143
v/s Ratio Prot	0.30			0.23	0.01	
v/s Ratio Perm		0.02	c0.46			c0.04
v/c Ratio	0.37	0.02	0.57	0.28	0.16	0.45
Uniform Delay, d1	3.7	2.7	4.9	3.4	58.8	60.4
Progression Factor	1.00	1.00	2.11	1.02	1.00	1.00
Incremental Delay, d2	0.4	0.0	5.8	0.2	0.5	2.3
Delay (s)	4.1	2.7	16.1	3.7	59.3	62.7
Level of Service	A	A	B	A	E	E
Approach Delay (s)	4.1			6.5	62.3	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			10.5		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			81.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2040 Background PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1158	102	22	973	57	40
Future Volume (Veh/h)	1158	102	22	973	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1232	109	23	1035	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.92		0.95	0.92
vC, conflicting volume			1341		1850	670
vC1, stage 1 conf vol					1286	
vC2, stage 2 conf vol					564	
vCu, unblocked vol			1194		1511	464
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		73	91
cM capacity (veh/h)			498		226	505
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	821	520	23	518	518	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	498	1700	1700	293
Volume to Capacity	0.48	0.31	0.05	0.30	0.30	0.36
Queue Length 95th (m)	0.0	0.0	1.2	0.0	0.0	12.4
Control Delay (s)	0.0	0.0	12.6	0.0	0.0	23.9
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			23.9
Approach LOS						C
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			47.5%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1015	158	240	803	169	269
v/c Ratio	0.43	0.15	0.53	0.30	0.72	0.72
Control Delay	11.3	3.0	22.9	1.9	74.3	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	3.0	22.9	1.9	74.3	28.1
Queue Length 50th (m)	56.8	3.1	26.4	9.6	47.9	20.8
Queue Length 95th (m)	78.4	10.3	m30.5	m13.3	69.9	51.1
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2341	1061	451	2651	421	519
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.15	0.53	0.30	0.40	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2040 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	985	153	233	779	164	261
Future Volume (vph)	985	153	233	779	164	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1543	1804	3471	1787	1583
Flt Permitted	1.00	1.00	0.23	1.00	0.95	1.00
Satd. Flow (perm)	3539	1543	445	3471	1787	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1015	158	240	803	169	269
RTOR Reduction (vph)	0	40	0	0	0	166
Lane Group Flow (vph)	1015	118	240	803	169	103
Confl. Peds. (#/hr)		6	6			
Heavy Vehicles (%)	2%	1%	0%	4%	1%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	92.6	92.6	106.9	106.9	18.6	18.6
Effective Green, g (s)	92.6	92.6	106.9	106.9	18.6	18.6
Actuated g/C Ratio	0.66	0.66	0.76	0.76	0.13	0.13
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2340	1020	439	2650	237	210
v/s Ratio Prot	0.29		c0.04	0.23	c0.09	
v/s Ratio Perm		0.08	c0.38			0.06
v/c Ratio	0.43	0.12	0.55	0.30	0.71	0.49
Uniform Delay, d1	11.3	8.7	6.3	5.1	58.1	56.3
Progression Factor	0.88	0.81	5.00	0.32	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.7	0.2	9.7	1.8
Delay (s)	10.4	7.3	32.1	1.8	67.9	58.1
Level of Service	B	A	C	A	E	E
Approach Delay (s)	10.0			8.8	61.9	
Approach LOS	B			A	E	
Intersection Summary						
HCM 2000 Control Delay			18.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			64.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Background PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	341	955	73	469	879	592	64	1331	522	427	891	160
v/c Ratio	1.00	1.05	0.15	1.38	0.99	0.86	0.26	1.35	0.82	0.83	0.66	0.24
Control Delay	102.8	88.1	2.5	223.3	78.3	43.0	23.9	205.6	33.3	77.3	40.6	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	88.1	2.5	223.3	78.3	43.0	23.9	205.6	33.3	77.3	40.6	18.5
Queue Length 50th (m)	86.8	~153.8	0.1	~164.1	134.9	128.7	9.9	~271.7	70.7	65.2	104.7	13.0
Queue Length 95th (m)	#153.2	#206.7	3.3	#235.3	#180.3	#188.2	18.8	#316.6	#134.5	83.2	131.5	m28.8
Internal Link Dist (m)	262.9				265.2				202.7		420.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	342	910	491	339	892	704	278	983	633	544	1360	665
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	1.05	0.15	1.38	0.99	0.84	0.23	1.35	0.82	0.78	0.66	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	945	72	464	870	586	63	1318	517	423	882	158
Future Volume (vph)	338	945	72	464	870	586	63	1318	517	423	882	158
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1804	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.25	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	209	3471	1562	467	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	341	955	73	469	879	592	64	1331	522	427	891	160
RTOR Reduction (vph)	0	0	54	0	0	37	0	0	208	0	0	58
Lane Group Flow (vph)	341	955	19	469	879	555	64	1331	314	427	891	102
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	58.0	36.0	36.0	58.0	36.0	56.9	45.1	38.1	38.1	20.9	53.0	53.0
Effective Green, g (s)	58.0	36.0	36.0	58.0	36.0	56.9	45.1	38.1	38.1	20.9	53.0	53.0
Actuated g/C Ratio	0.41	0.26	0.26	0.41	0.26	0.41	0.32	0.27	0.27	0.15	0.38	0.38
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	337	910	393	334	892	634	217	982	425	517	1339	598
v/s Ratio Prot	0.16	0.27		c0.22	0.25	c0.13	0.01	c0.37		0.12	0.25	
v/s Ratio Perm	0.26		0.01	c0.36		0.22	0.08		0.20			0.06
v/c Ratio	1.01	1.05	0.05	1.40	0.99	0.88	0.29	1.36	0.74	0.83	0.67	0.17
Uniform Delay, d1	43.4	52.0	39.1	43.7	51.7	38.3	33.7	51.0	46.4	57.8	36.1	28.9
Progression Factor	1.48	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.12	1.05	1.34
Incremental Delay, d2	50.1	42.5	0.1	199.0	26.5	12.9	0.8	166.6	10.9	9.3	2.3	0.5
Delay (s)	114.5	89.8	39.2	242.7	78.3	51.2	34.4	217.6	57.4	74.0	40.2	39.2
Level of Service	F	F	D	F	E	D	C	F	E	E	D	D
Approach Delay (s)		93.3			109.7			167.8			49.9	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			109.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.29									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			119.7%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2040 Background PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	225	282	12	2041	211	222	1187
v/c Ratio	0.04	0.87	0.70	0.07	0.97	0.25	0.96	0.47
Control Delay	28.3	86.5	35.5	8.4	18.6	4.9	98.1	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	86.5	35.5	8.4	18.6	4.9	98.1	7.9
Queue Length 50th (m)	1.0	63.0	38.0	1.0	308.4	9.6	~58.4	53.5
Queue Length 95th (m)	7.0	#104.6	71.4	m0.8	m88.8	m6.1	m#110.2	m60.2
Internal Link Dist (m)	94.9	97.1			420.1			262.4
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	332	284	432	167	2095	835	231	2526
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.79	0.65	0.07	0.97	0.25	0.96	0.47

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

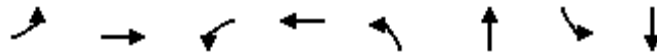
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2040 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	8	218	0	274	12	1980	205	215	1148	3
Future Volume (vph)	2	2	8	218	0	274	12	1980	205	215	1148	3
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1698			1800	1599	1142	3574	1381	1770	3532	
Flt Permitted		0.95			0.75	1.00	0.24	1.00	1.00	0.05	1.00	
Satd. Flow (perm)		1630			1420	1599	286	3574	1381	87	3532	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	2	8	225	0	282	12	2041	211	222	1184	3
RTOR Reduction (vph)	0	7	0	0	0	115	0	0	26	0	0	0
Lane Group Flow (vph)	0	5	0	0	225	167	12	2041	185	222	1187	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		25.4			25.4	25.4	82.1	82.1	82.1	100.1	100.1	
Effective Green, g (s)		25.4			25.4	25.4	82.1	82.1	82.1	100.1	100.1	
Actuated g/C Ratio		0.18			0.18	0.18	0.59	0.59	0.59	0.71	0.71	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		295			257	290	167	2095	809	230	2525	
v/s Ratio Prot								0.57		c0.10	0.34	
v/s Ratio Perm		0.00			c0.16	0.10	0.04		0.13	c0.60		
v/c Ratio		0.02			0.88	0.57	0.07	0.97	0.23	0.97	0.47	
Uniform Delay, d1		47.1			55.8	52.4	12.5	27.9	13.8	51.0	8.6	
Progression Factor		1.00			1.00	1.00	0.64	0.54	0.50	1.36	0.81	
Incremental Delay, d2		0.0			26.5	2.7	0.1	2.4	0.1	47.1	0.6	
Delay (s)		47.1			82.2	55.1	8.0	17.6	6.9	116.6	7.5	
Level of Service		D			F	E	A	B	A	F	A	
Approach Delay (s)		47.1			67.1			16.6			24.7	
Approach LOS		D			E			B			C	
Intersection Summary												
HCM 2000 Control Delay		25.5			HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio		0.96										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)				18.5			
Intersection Capacity Utilization		120.4%			ICU Level of Service				H			
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	349	84	554	17	2492	200	1466
v/c Ratio	1.42	0.68	1.02	1.11	0.07	0.62	3.28	0.37
Control Delay	309.7	63.4	163.8	124.4	5.3	6.7	1080.3	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	309.7	63.4	163.8	124.4	5.3	6.7	1080.3	4.6
Queue Length 50th (m)	~29.3	50.9	~25.9	~94.4	1.2	83.6	~85.1	39.1
Queue Length 95th (m)	#63.8	68.8	#62.2	#133.5	m1.5	m88.4	#137.8	44.6
Internal Link Dist (m)		175.3		134.9		101.4		140.7
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	53	517	82	501	229	3996	61	4000
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.42	0.68	1.02	1.11	0.07	0.62	3.28	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2040 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	306	15	77	302	208	16	2213	80	184	1309	40
Future Volume (vph)	69	306	15	77	302	208	16	2213	80	184	1309	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3515		1770	3323		1770	5059		1770	5063	
Flt Permitted	0.20	1.00		0.30	1.00		0.16	1.00		0.04	1.00	
Satd. Flow (perm)	363	3515		563	3323		290	5059		79	5063	
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)	75	333	16	84	328	226	17	2405	87	200	1423	43
RTOR Reduction (vph)	0	3	0	0	15	0	0	3	0	0	2	0
Lane Group Flow (vph)	75	346	0	84	539	0	17	2489	0	200	1464	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	20.5	20.5		20.5	20.5		110.5	110.5		110.5	110.5	
Effective Green, g (s)	20.5	20.5		20.5	20.5		110.5	110.5		110.5	110.5	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.79	0.79		0.79	0.79	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	53	514		82	486		228	3992		62	3996	
v/s Ratio Prot		0.10			0.16			0.49			0.29	
v/s Ratio Perm	c0.21			0.15			0.06			c2.54		
v/c Ratio	1.42	0.67		1.02	1.11		0.07	0.62		3.23	0.37	
Uniform Delay, d1	59.8	56.6		59.8	59.8		3.3	6.1		14.8	4.4	
Progression Factor	1.00	1.00		1.00	1.00		1.43	1.03		1.00	1.00	
Incremental Delay, d2	267.6	3.5		106.2	74.4		0.3	0.4		1042.1	0.3	
Delay (s)	327.4	60.1		166.0	134.1		5.0	6.7		1056.8	4.6	
Level of Service	F	E		F	F		A	A		F	A	
Approach Delay (s)		107.3			138.3			6.7			130.9	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			70.4			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			2.93									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			88.9%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Background AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	136	739	230	26	5	527	601	65	965
v/c Ratio	0.10	0.12	1.02	0.20	0.03	0.09	0.62	0.41	0.42	1.14
Control Delay	9.2	8.7	62.5	9.9	1.0	35.2	39.0	0.8	43.6	112.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	8.7	62.5	9.9	1.0	35.2	39.0	0.8	43.6	112.2
Queue Length 50th (m)	6.3	10.9	~170.6	20.7	0.0	0.8	53.4	0.0	11.9	~127.9
Queue Length 95th (m)	12.6	19.3	#243.3	32.5	1.7	4.2	71.8	0.0	26.3	#169.8
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	708	1132	721	1141	925	57	855	1482	153	850
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.12	1.02	0.20	0.03	0.09	0.62	0.41	0.42	1.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Background AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	73	123	10	724	225	25	5	516	589	64	861	84	
Future Volume (vph)	73	123	10	724	225	25	5	516	589	64	861	84	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1805	1862		1687	1881	1495	1444	3471	1482	1770	3422		
Flt Permitted	0.62	1.00		0.67	1.00	1.00	0.15	1.00	1.00	0.33	1.00		
Satd. Flow (perm)	1169	1862		1190	1881	1495	234	3471	1482	622	3422		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	74	126	10	739	230	26	5	527	601	65	879	86	
RTOR Reduction (vph)	0	3	0	0	0	10	0	0	0	0	7	0	
Lane Group Flow (vph)	74	133	0	739	230	16	5	527	601	65	958	0	
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA		
Protected Phases		6			2			8			4		
Permitted Phases	6			2		2	8		Free	4			
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	26.0	26.0	105.5	26.0	26.0		
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	26.0	26.0	105.5	26.0	26.0		
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.25	0.25	1.00	0.25	0.25		
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5		
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	709	1129		721	1141	906	57	855	1482	153	843		
v/s Ratio Prot		0.07			0.12			0.15			c0.28		
v/s Ratio Perm	0.06			c0.62		0.01	0.02		0.41	0.10			
v/c Ratio	0.10	0.12		1.02	0.20	0.02	0.09	0.62	0.41	0.42	1.14		
Uniform Delay, d1	8.7	8.8		20.8	9.3	8.2	30.6	35.3	0.0	33.5	39.8		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.3	0.2		40.0	0.4	0.0	0.7	1.3	0.8	1.9	75.9		
Delay (s)	9.0	9.0		60.8	9.7	8.3	31.3	36.6	0.8	35.4	115.6		
Level of Service	A	A		E	A	A	C	D	A	D	F		
Approach Delay (s)		9.0			47.6			17.6			110.6		
Approach LOS		A			D			B			F		
Intersection Summary													
HCM 2000 Control Delay			54.4									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.06										
Actuated Cycle Length (s)			105.5									Sum of lost time (s)	15.5
Intersection Capacity Utilization			126.6%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2045 Background AM Peak Hour

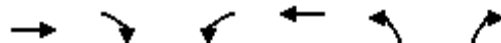
									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑			
Traffic Volume (veh/h)	725	44	18	847	64	46			
Future Volume (Veh/h)	725	44	18	847	64	46			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93			
Hourly flow rate (vph)	780	47	19	911	69	49			
Pedestrians						2			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			829		1276		392		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			829		1276		392		
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		56		92		
cM capacity (veh/h)			810		157		612		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	390	390	47	19	456	456	69	49	
Volume Left	0	0	0	19	0	0	69	0	
Volume Right	0	0	47	0	0	0	0	49	
cSH	1700	1700	1700	810	1700	1700	157	612	
Volume to Capacity	0.23	0.23	0.03	0.02	0.27	0.27	0.44	0.08	
Queue Length 95th (m)	0.0	0.0	0.0	0.6	0.0	0.0	15.9	2.1	
Control Delay (s)	0.0	0.0	0.0	9.6	0.0	0.0	44.7	11.4	
Lane LOS				A			E	B	
Approach Delay (s)	0.0			0.2			30.9		
Approach LOS							D		
Intersection Summary									
Average Delay	2.0								
Intersection Capacity Utilization	33.6%			ICU Level of Service				A	
Analysis Period (min)	15								

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2045 Background AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	824	26	127	831	37	248
v/c Ratio	0.31	0.02	0.26	0.32	0.21	0.74
Control Delay	4.4	1.8	8.4	6.9	54.9	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	1.8	8.4	6.9	54.9	27.1
Queue Length 50th (m)	23.6	0.2	11.5	39.7	9.6	12.8
Queue Length 95th (m)	45.1	2.7	18.4	46.2	19.6	40.2
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2664	1241	494	2615	444	535
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.02	0.26	0.32	0.08	0.46
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2045 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	766	24	118	773	34	231
Future Volume (vph)	766	24	118	773	34	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3374	1567	1764	3312	1805	1568
Flt Permitted	1.00	1.00	0.34	1.00	0.95	1.00
Satd. Flow (perm)	3374	1567	626	3312	1805	1568
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	824	26	127	831	37	248
RTOR Reduction (vph)	0	5	0	0	0	179
Lane Group Flow (vph)	824	21	127	831	37	69
Confl. Peds. (#/hr)		5	5			
Heavy Vehicles (%)	7%	0%	2%	9%	0%	3%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	102.7	102.7	102.7	102.7	12.8	12.8
Effective Green, g (s)	102.7	102.7	102.7	102.7	12.8	12.8
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.10	0.10
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2665	1237	494	2616	177	154
v/s Ratio Prot	0.24			c0.25	0.02	
v/s Ratio Perm		0.01	0.20			c0.04
v/c Ratio	0.31	0.02	0.26	0.32	0.21	0.45
Uniform Delay, d1	3.8	2.9	3.6	3.8	53.9	55.3
Progression Factor	1.00	1.00	1.63	1.57	1.00	1.00
Incremental Delay, d2	0.3	0.0	1.2	0.3	0.6	2.0
Delay (s)	4.1	2.9	7.1	6.3	54.5	57.3
Level of Service	A	A	A	A	D	E
Approach Delay (s)	4.1			6.4	56.9	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			12.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.33			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			80.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Background AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Volume (veh/h)	981	81	22	912	13	5
Future Volume (Veh/h)	981	81	22	912	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1055	87	24	981	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.95		0.97	0.95
vC, conflicting volume			1142		1637	571
vC1, stage 1 conf vol					1098	
vC2, stage 2 conf vol					538	
vCu, unblocked vol			1039		1349	436
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		95	99
cM capacity (veh/h)			613		284	411
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	703	439	24	490	490	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	613	1700	1700	309
Volume to Capacity	0.41	0.26	0.04	0.29	0.29	0.06
Queue Length 95th (m)	0.0	0.0	1.0	0.0	0.0	1.6
Control Delay (s)	0.0	0.0	11.1	0.0	0.0	17.4
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			17.4
Approach LOS						C
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			39.7%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	863	109	338	914	70	105
v/c Ratio	0.38	0.10	0.60	0.35	0.45	0.45
Control Delay	9.2	1.6	19.2	2.5	65.0	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	1.6	19.2	2.5	65.0	16.1
Queue Length 50th (m)	44.4	0.3	35.2	11.7	18.4	0.0
Queue Length 95th (m)	60.3	5.9	m56.3	29.6	33.6	17.8
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2274	1095	563	2628	416	446
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.10	0.60	0.35	0.17	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2045 Background AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (vph)	794	100	311	841	64	97
Future Volume (vph)	794	100	311	841	64	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3343	1563	1787	3282	1805	1583
Flt Permitted	1.00	1.00	0.29	1.00	0.95	1.00
Satd. Flow (perm)	3343	1563	547	3282	1805	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	863	109	338	914	70	105
RTOR Reduction (vph)	0	32	0	0	0	96
Lane Group Flow (vph)	863	77	338	914	70	9
Confl. Peds. (#/hr)		1	1			
Heavy Vehicles (%)	8%	1%	1%	10%	0%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	88.4	88.4	104.1	104.1	11.4	11.4
Effective Green, g (s)	88.4	88.4	104.1	104.1	11.4	11.4
Actuated g/C Ratio	0.68	0.68	0.80	0.80	0.09	0.09
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2273	1062	549	2628	158	138
v/s Ratio Prot	0.26		c0.06	0.28	c0.04	
v/s Ratio Perm		0.05	c0.44			0.01
v/c Ratio	0.38	0.07	0.62	0.35	0.44	0.07
Uniform Delay, d1	9.0	7.0	4.1	3.6	56.3	54.4
Progression Factor	0.92	0.75	6.05	0.60	1.00	1.00
Incremental Delay, d2	0.5	0.1	1.7	0.3	2.0	0.2
Delay (s)	8.7	5.4	26.7	2.4	58.3	54.6
Level of Service	A	A	C	A	E	D
Approach Delay (s)	8.4			9.0	56.1	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			12.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			66.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Background AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	130	743	76	444	792	281	48	645	346	958	1100	166
v/c Ratio	0.64	0.82	0.16	1.95	0.87	0.37	0.23	0.67	0.61	1.48	0.72	0.23
Control Delay	41.1	50.3	3.8	462.8	56.2	13.1	19.9	45.3	21.7	260.2	24.3	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	50.3	3.8	462.8	56.2	13.1	19.9	45.3	21.7	260.2	24.3	3.9
Queue Length 50th (m)	12.0	88.7	2.3	~161.4	106.5	26.2	6.2	81.1	34.0	~187.9	135.5	4.8
Queue Length 95th (m)	30.8	131.5	4.1	#229.1	132.6	46.4	12.8	103.1	68.0	#230.8	142.2	m8.1
Internal Link Dist (m)		262.9			265.2			202.7			420.1	
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	213	943	492	228	934	758	263	960	570	646	1537	734
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.79	0.15	1.95	0.85	0.37	0.18	0.67	0.61	1.48	0.72	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	721	74	431	768	273	47	626	336	929	1067	161
Future Volume (vph)	126	721	74	431	768	273	47	626	336	929	1067	161
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1481	1687	3374	1511	3433	3505	1544
Flt Permitted	0.14	1.00	1.00	0.16	1.00	1.00	0.20	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	247	3406	1406	285	3374	1481	351	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	130	743	76	444	792	281	48	645	346	958	1100	166
RTOR Reduction (vph)	0	0	56	0	0	57	0	0	141	0	0	57
Lane Group Flow (vph)	130	743	20	444	792	224	48	645	205	958	1100	109
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	44.8	34.5	34.5	46.2	35.2	59.7	43.3	37.0	37.0	24.5	56.2	56.2
Effective Green, g (s)	44.8	34.5	34.5	46.2	35.2	59.7	43.3	37.0	37.0	24.5	56.2	56.2
Actuated g/C Ratio	0.34	0.27	0.27	0.36	0.27	0.46	0.33	0.28	0.28	0.19	0.43	0.43
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	199	903	373	222	913	680	181	960	430	646	1515	667
v/s Ratio Prot	0.05	0.22		c0.17	0.23	0.06	0.01	0.19		c0.28	c0.31	
v/s Ratio Perm	0.17		0.01	c0.54		0.09	0.08		0.14			0.07
v/c Ratio	0.65	0.82	0.05	2.00	0.87	0.33	0.27	0.67	0.48	1.48	0.73	0.16
Uniform Delay, d1	32.4	44.9	35.6	35.7	45.2	22.4	30.1	41.1	38.5	52.8	30.5	22.5
Progression Factor	1.10	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	0.71	0.32
Incremental Delay, d2	7.1	6.5	0.1	465.7	9.5	0.3	0.8	3.7	3.8	223.3	2.2	0.4
Delay (s)	42.6	48.8	35.7	501.4	54.7	22.7	30.9	44.9	42.2	276.5	23.8	7.6
Level of Service	D	D	D	F	D	C	C	D	D	F	C	A
Approach Delay (s)		46.9			179.5			43.4			131.4	
Approach LOS		D			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			114.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.47									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			120.6%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2045 Background AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	224	154	3	894	165	284	1838
v/c Ratio	0.01	0.85	0.36	0.03	0.44	0.17	0.64	0.75
Control Delay	0.0	77.4	8.6	24.7	31.5	17.3	14.5	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	77.4	8.6	24.7	31.5	17.3	14.5	11.4
Queue Length 50th (m)	0.0	57.9	0.0	0.6	117.6	21.5	17.0	68.9
Queue Length 95th (m)	0.0	#92.4	18.0	m1.1	138.7	m36.0	26.8	205.6
Internal Link Dist (m)	94.9	97.1			420.1			262.4
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	411	308	479	94	2029	984	443	2464
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.73	0.32	0.03	0.44	0.17	0.64	0.75

Intersection Summary

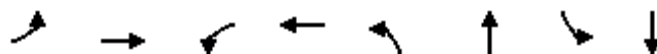
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan
 7: Yonge Street & Church Driveway/Existing Commerical Driveway 2045 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	2	222	0	152	3	885	163	281	1818	2
Future Volume (vph)	1	0	2	222	0	152	3	885	163	281	1818	2
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1701			1736	1615	1805	3406	1579	1787	3537	
Flt Permitted		0.92			0.76	1.00	0.08	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		1598			1381	1615	157	3406	1579	488	3537	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	1	0	2	224	0	154	3	894	165	284	1836	2
RTOR Reduction (vph)	0	2	0	0	0	125	0	0	44	0	0	0
Lane Group Flow (vph)	0	1	0	0	224	29	3	894	121	284	1838	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		24.9			24.9	24.9	77.5	77.5	77.5	90.6	90.6	
Effective Green, g (s)		24.9			24.9	24.9	77.5	77.5	77.5	90.6	90.6	
Actuated g/C Ratio		0.19			0.19	0.19	0.60	0.60	0.60	0.70	0.70	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		306			264	309	93	2030	941	431	2465	
v/s Ratio Prot								0.26		0.05	c0.52	
v/s Ratio Perm		0.00			c0.16	0.02	0.02		0.08	0.41		
v/c Ratio		0.00			0.85	0.10	0.03	0.44	0.13	0.66	0.75	
Uniform Delay, d1		42.5			50.7	43.3	10.8	14.4	11.5	8.8	12.4	
Progression Factor		1.00			1.00	1.00	1.89	2.05	3.52	1.21	0.71	
Incremental Delay, d2		0.0			21.6	0.1	0.5	0.6	0.2	3.0	1.7	
Delay (s)		42.5			72.3	43.4	20.9	30.1	40.7	13.6	10.6	
Level of Service		D			E	D	C	C	D	B	B	
Approach Delay (s)		42.5			60.5			31.7			11.0	
Approach LOS		D			E			C			B	
Intersection Summary												
HCM 2000 Control Delay		22.5										
HCM 2000 Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		129.3%										
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	283	63	519	13	1137	322	2320
v/c Ratio	0.49	0.58	0.62	1.02	0.16	0.28	0.95	0.58
Control Delay	81.4	56.9	79.2	94.4	5.5	1.6	53.4	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.4	56.9	79.2	94.4	5.5	1.6	53.4	5.8
Queue Length 50th (m)	7.1	37.5	16.2	~71.4	0.3	10.2	61.2	73.0
Queue Length 95th (m)	#21.5	53.2	#37.9	#108.8	m0.7	9.9	#52.4	81.7
Internal Link Dist (m)		175.3		134.9		101.4		140.7
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	57	489	102	509	80	4008	338	4018
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.58	0.62	1.02	0.16	0.28	0.95	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Background AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	246	15	58	325	153	12	1002	44	296	2095	40
Future Volume (vph)	26	246	15	58	325	153	12	1002	44	296	2095	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	0.95		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3509		1770	3369		1770	5053		1770	5071	
Flt Permitted	0.22	1.00		0.40	1.00		0.05	1.00		0.23	1.00	
Satd. Flow (perm)	414	3509		742	3369		101	5053		427	5071	
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)	28	267	16	63	353	166	13	1089	48	322	2277	43
RTOR Reduction (vph)	0	3	0	0	43	0	0	4	0	0	1	0
Lane Group Flow (vph)	28	280	0	63	476	0	13	1133	0	322	2319	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	18.0	18.0		18.0	18.0		103.0	103.0		103.0	103.0	
Effective Green, g (s)	18.0	18.0		18.0	18.0		103.0	103.0		103.0	103.0	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.79	0.79		0.79	0.79	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	57	485		102	466		80	4003		338	4017	
v/s Ratio Prot		0.08			c0.14			0.22			0.46	
v/s Ratio Perm	0.07			0.08			0.13			c0.75		
v/c Ratio	0.49	0.58		0.62	1.02		0.16	0.28		0.95	0.58	
Uniform Delay, d1	51.8	52.4		52.8	56.0		3.2	3.6		11.4	5.2	
Progression Factor	1.00	1.00		1.00	1.00		0.37	0.39		1.00	1.00	
Incremental Delay, d2	6.5	1.7		10.6	47.2		4.1	0.2		38.3	0.6	
Delay (s)	58.3	54.1		63.4	103.2		5.2	1.6		49.7	5.8	
Level of Service	E	D		E	F		A	A		D	A	
Approach Delay (s)		54.5			98.9			1.6			11.1	
Approach LOS		D			F			A			B	
Intersection Summary												
HCM 2000 Control Delay		22.6			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.96										
Actuated Cycle Length (s)		130.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		78.6%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Background PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	188	255	540	224	70	21	1148	914	61	556
v/c Ratio	0.30	0.26	0.95	0.23	0.08	0.11	1.01	0.58	0.85	0.49
Control Delay	15.6	14.2	51.9	14.0	5.7	27.4	64.7	1.5	108.2	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	14.2	51.9	14.0	5.7	27.4	64.7	1.5	108.2	30.2
Queue Length 50th (m)	21.7	28.4	105.1	24.7	2.3	3.2	~131.5	0.0	12.2	50.0
Queue Length 95th (m)	37.0	44.1	#181.4	39.0	9.0	9.6	#179.7	0.0	#38.8	67.0
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	617	996	570	979	859	183	1140	1583	72	1128
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.26	0.95	0.23	0.08	0.11	1.01	0.58	0.85	0.49

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	240	5	518	215	67	20	1102	877	59	499	35
Future Volume (vph)	180	240	5	518	215	67	20	1102	877	59	499	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3487	
Flt Permitted	0.62	1.00		0.60	1.00	1.00	0.36	1.00	1.00	0.12	1.00	
Satd. Flow (perm)	1163	1876		1074	1845	1578	571	3539	1583	224	3487	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	188	250	5	540	224	70	21	1148	914	61	520	36
RTOR Reduction (vph)	0	0	0	0	0	22	0	0	0	0	5	0
Lane Group Flow (vph)	188	255	0	540	224	48	21	1148	914	61	551	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	56.0	56.0		56.0	56.0	56.0	34.0	34.0	105.5	34.0	34.0	
Effective Green, g (s)	56.0	56.0		56.0	56.0	56.0	34.0	34.0	105.5	34.0	34.0	
Actuated g/C Ratio	0.53	0.53		0.53	0.53	0.53	0.32	0.32	1.00	0.32	0.32	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	617	995		570	979	837	184	1140	1583	72	1123	
v/s Ratio Prot		0.14			0.12			0.32			0.16	
v/s Ratio Perm	0.16			0.50		0.03	0.04		0.58	0.27		
v/c Ratio	0.30	0.26		0.95	0.23	0.06	0.11	1.01	0.58	0.85	0.49	
Uniform Delay, d1	13.9	13.4		23.4	13.2	12.0	25.2	35.8	0.0	33.3	28.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	0.6		26.7	0.5	0.1	0.3	28.4	1.5	56.6	0.3	
Delay (s)	15.1	14.1		50.1	13.8	12.1	25.4	64.1	1.5	89.9	29.1	
Level of Service	B	B		D	B	B	C	E	A	F	C	
Approach Delay (s)		14.5			37.1			36.3			35.1	
Approach LOS		B			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			33.9									
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			105.5									
Intersection Capacity Utilization			119.2%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue & Green Lane

2045 Background PM Peak Hour

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗			
Traffic Volume (veh/h)	1085	65	39	799	25	31			
Future Volume (Veh/h)	1085	65	39	799	25	31			
Sign Control	Free			Free	Stop				
Grade	0%			0%	0%				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91			
Hourly flow rate (vph)	1192	71	43	878	27	34			
Pedestrians						5			
Lane Width (m)						3.6			
Walking Speed (m/s)						1.2			
Percent Blockage						0			
Right turn flare (veh)									
Median type	None		None						
Median storage veh									
Upstream signal (m)									
pX, platoon unblocked									
vC, conflicting volume			1268			1722	601		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1268			1722	601		
tC, single (s)			4.1			6.8	6.9		
tC, 2 stage (s)									
tF (s)			2.2			3.5	3.3		
p0 queue free %			92			64	92		
cM capacity (veh/h)			553			75	447		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	
Volume Total	596	596	71	43	439	439	27	34	
Volume Left	0	0	0	43	0	0	27	0	
Volume Right	0	0	71	0	0	0	0	34	
cSH	1700	1700	1700	553	1700	1700	75	447	
Volume to Capacity	0.35	0.35	0.04	0.08	0.26	0.26	0.36	0.08	
Queue Length 95th (m)	0.0	0.0	0.0	2.0	0.0	0.0	10.9	2.0	
Control Delay (s)	0.0	0.0	0.0	12.1	0.0	0.0	77.5	13.7	
Lane LOS				B			F	B	
Approach Delay (s)	0.0				0.6	41.9			
Approach LOS							E		
Intersection Summary									
Average Delay				1.4					
Intersection Capacity Utilization				42.4%		ICU Level of Service		A	
Analysis Period (min)				15					

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2045 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1102	33	226	812	26	187
v/c Ratio	0.39	0.03	0.61	0.29	0.15	0.72
Control Delay	4.7	2.0	23.6	4.3	58.2	37.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	2.0	23.6	4.3	58.2	37.6
Queue Length 50th (m)	37.4	0.6	29.7	23.8	7.2	18.5
Queue Length 95th (m)	63.5	3.4	66.7	34.7	16.3	43.5
Internal Link Dist (m)	547.5			221.2	226.0	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2837	1264	370	2756	412	459
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.03	0.61	0.29	0.06	0.41
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue & Green Lane

2045 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1080	32	221	796	25	183
Future Volume (vph)	1080	32	221	796	25	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1572	1785	3438	1805	1599
Flt Permitted	1.00	1.00	0.25	1.00	0.95	1.00
Satd. Flow (perm)	3539	1572	462	3438	1805	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1102	33	226	812	26	187
RTOR Reduction (vph)	0	4	0	0	0	110
Lane Group Flow (vph)	1102	29	226	812	26	77
Confl. Peds. (#/hr)		3	3		1	
Heavy Vehicles (%)	2%	0%	1%	5%	0%	1%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	6			2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	112.2	112.2	112.2	112.2	13.3	13.3
Effective Green, g (s)	112.2	112.2	112.2	112.2	13.3	13.3
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.10	0.10
Clearance Time (s)	7.5	7.5	7.5	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	2836	1259	370	2755	171	151
v/s Ratio Prot	0.31			0.24	0.01	
v/s Ratio Perm		0.02	c0.49			c0.05
v/c Ratio	0.39	0.02	0.61	0.29	0.15	0.51
Uniform Delay, d1	4.0	2.8	5.4	3.6	58.2	60.2
Progression Factor	1.00	1.00	2.16	1.04	1.00	1.00
Incremental Delay, d2	0.4	0.0	7.1	0.3	0.4	2.7
Delay (s)	4.4	2.8	18.8	4.0	58.6	62.9
Level of Service	A	A	B	A	E	E
Approach Delay (s)	4.4			7.2	62.4	
Approach LOS	A			A	E	
Intersection Summary						
HCM 2000 Control Delay			10.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	14.5
Intersection Capacity Utilization			83.2%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Background PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	1209	102	22	1017	57	40
Future Volume (Veh/h)	1209	102	22	1017	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1286	109	23	1082	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (m)	245		258			
pX, platoon unblocked			0.91		0.94	0.91
vC, conflicting volume			1395		1928	698
vC1, stage 1 conf vol					1340	
vC2, stage 2 conf vol					587	
vCu, unblocked vol			1234		1555	467
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		71	91
cM capacity (veh/h)			475		213	498
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	857	538	23	541	541	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	475	1700	1700	279
Volume to Capacity	0.50	0.32	0.05	0.32	0.32	0.37
Queue Length 95th (m)	0.0	0.0	1.2	0.0	0.0	13.2
Control Delay (s)	0.0	0.0	13.0	0.0	0.0	25.3
Lane LOS			B			D
Approach Delay (s)	0.0		0.3			25.3
Approach LOS						D
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			48.9%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1060	158	240	838	169	269
v/c Ratio	0.45	0.15	0.56	0.32	0.72	0.73
Control Delay	11.4	3.2	25.2	2.0	74.3	30.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	3.2	25.2	2.0	74.3	30.9
Queue Length 50th (m)	58.8	3.6	27.8	10.4	47.9	24.0
Queue Length 95th (m)	82.0	10.8	m30.5	m13.8	69.9	54.4
Internal Link Dist (m)	233.8			262.9	110.6	
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	2339	1058	432	2651	421	512
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.15	0.56	0.32	0.40	0.53

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway & Green Lane

2045 Background PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1028	153	233	813	164	261
Future Volume (vph)	1028	153	233	813	164	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.96	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1543	1804	3471	1787	1583
Flt Permitted	1.00	1.00	0.22	1.00	0.95	1.00
Satd. Flow (perm)	3539	1543	418	3471	1787	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1060	158	240	838	169	269
RTOR Reduction (vph)	0	38	0	0	0	158
Lane Group Flow (vph)	1060	120	240	838	169	111
Confl. Peds. (#/hr)		6	6			
Heavy Vehicles (%)	2%	1%	0%	4%	1%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	92.5	92.5	106.9	106.9	18.6	18.6
Effective Green, g (s)	92.5	92.5	106.9	106.9	18.6	18.6
Actuated g/C Ratio	0.66	0.66	0.76	0.76	0.13	0.13
Clearance Time (s)	7.5	7.5	4.0	7.5	7.0	7.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	3.0	3.0
Lane Grp Cap (vph)	2338	1019	422	2650	237	210
v/s Ratio Prot	0.30		c0.04	0.24	c0.09	
v/s Ratio Perm		0.08	c0.39			0.07
v/c Ratio	0.45	0.12	0.57	0.32	0.71	0.53
Uniform Delay, d1	11.5	8.7	6.6	5.2	58.1	56.6
Progression Factor	0.87	0.81	5.56	0.33	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.8	0.1	9.7	2.4
Delay (s)	10.6	7.3	37.8	1.9	67.9	59.0
Level of Service	B	A	D	A	E	E
Approach Delay (s)	10.2			9.9	62.4	
Approach LOS	B			A	E	
Intersection Summary						
HCM 2000 Control Delay			18.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			65.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	360	996	77	485	918	622	67	1389	538	449	928	168
v/c Ratio	1.05	1.09	0.16	1.43	1.03	0.89	0.29	1.43	0.86	0.86	0.68	0.25
Control Delay	115.4	102.7	3.0	242.7	88.2	47.4	24.5	235.7	37.2	78.5	42.3	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.4	102.7	3.0	242.7	88.2	47.4	24.5	235.7	37.2	78.5	42.3	19.9
Queue Length 50th (m)	~98.8	~167.4	0.0	~173.9	~150.1	140.1	10.4	~290.2	78.2	68.6	112.9	14.9
Queue Length 95th (m)	#164.4	#217.3	3.9	#245.7	#193.4	#222.4	19.5	#335.1	#145.7	#91.2	139.5	m31.6
Internal Link Dist (m)	262.9				265.2		202.7				420.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	342	910	491	339	892	704	265	974	628	544	1357	664
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.09	0.16	1.43	1.03	0.88	0.25	1.43	0.86	0.83	0.68	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	986	76	480	909	616	66	1375	533	445	919	166
Future Volume (vph)	356	986	76	480	909	616	66	1375	533	445	919	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	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1804	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.22	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	209	3471	1562	425	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	360	996	77	485	918	622	67	1389	538	449	928	168
RTOR Reduction (vph)	0	0	57	0	0	37	0	0	207	0	0	58
Lane Group Flow (vph)	360	996	20	485	918	585	67	1389	331	449	928	110
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	58.0	36.0	36.0	58.0	36.0	57.2	44.9	37.8	37.8	21.2	52.9	52.9
Effective Green, g (s)	58.0	36.0	36.0	58.0	36.0	57.2	44.9	37.8	37.8	21.2	52.9	52.9
Actuated g/C Ratio	0.41	0.26	0.26	0.41	0.26	0.41	0.32	0.27	0.27	0.15	0.38	0.38
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	337	910	393	334	892	638	206	974	421	525	1337	597
v/s Ratio Prot	0.17	0.28		c0.23	0.26	c0.14	0.02	c0.38		0.13	0.26	
v/s Ratio Perm	0.27		0.01	c0.37		0.24	0.09		0.21			0.07
v/c Ratio	1.07	1.09	0.05	1.45	1.03	0.92	0.33	1.43	0.79	0.86	0.69	0.18
Uniform Delay, d1	43.6	52.0	39.1	43.7	52.0	39.2	34.0	51.1	47.4	57.9	36.7	29.1
Progression Factor	1.47	0.92	11.69	1.00	1.00	1.00	1.00	1.00	1.00	1.11	1.07	1.36
Incremental Delay, d2	66.3	57.9	0.1	219.5	37.8	18.1	0.9	197.7	13.8	11.4	2.6	0.6
Delay (s)	130.2	106.0	457.5	263.2	89.8	57.2	34.9	248.8	61.2	75.7	41.9	40.3
Level of Service	F	F	F	F	F	E	C	F	E	E	D	D
Approach Delay (s)		130.9			121.3			191.0			51.5	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			127.8			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.35									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			123.8%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2045 Background PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	225	282	12	2145	211	222	1246
v/c Ratio	0.04	0.87	0.70	0.08	1.02	0.25	0.96	0.49
Control Delay	28.3	86.5	36.0	8.4	30.7	4.8	98.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	86.5	36.0	8.4	30.7	4.8	98.3	8.1
Queue Length 50th (m)	1.0	63.0	38.6	1.0	~351.2	9.0	~58.3	56.0
Queue Length 95th (m)	7.0	#104.6	72.1	m0.8	m91.4	m5.6	m#109.6	m62.7
Internal Link Dist (m)	94.9	97.1			420.1			262.4
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	332	284	431	157	2095	835	231	2526
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.79	0.65	0.08	1.02	0.25	0.96	0.49

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

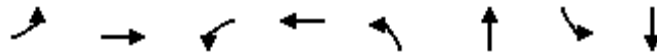
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Church Driveway/Existing Commerical Driveway

2045 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	2	8	218	0	274	12	2081	205	215	1206	3
Future Volume (vph)	2	2	8	218	0	274	12	2081	205	215	1206	3
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1698			1800	1599	1142	3574	1381	1770	3533	
Flt Permitted		0.95			0.75	1.00	0.22	1.00	1.00	0.05	1.00	
Satd. Flow (perm)		1630			1420	1599	270	3574	1381	87	3533	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	2	8	225	0	282	12	2145	211	222	1243	3
RTOR Reduction (vph)	0	7	0	0	0	114	0	0	26	0	0	0
Lane Group Flow (vph)	0	5	0	0	225	168	12	2145	185	222	1246	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		25.4			25.4	25.4	82.1	82.1	82.1	100.1	100.1	
Effective Green, g (s)		25.4			25.4	25.4	82.1	82.1	82.1	100.1	100.1	
Actuated g/C Ratio		0.18			0.18	0.18	0.59	0.59	0.59	0.71	0.71	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		295			257	290	158	2095	809	230	2526	
v/s Ratio Prot								c0.60		c0.10	0.35	
v/s Ratio Perm		0.00			c0.16	0.11	0.04		0.13	0.60		
v/c Ratio		0.02			0.88	0.58	0.08	1.02	0.23	0.97	0.49	
Uniform Delay, d1		47.1			55.8	52.4	12.5	29.0	13.8	51.0	8.8	
Progression Factor		1.00			1.00	1.00	0.63	0.55	0.49	1.38	0.81	
Incremental Delay, d2		0.0			26.5	2.9	0.1	13.4	0.1	47.0	0.6	
Delay (s)		47.1			82.2	55.4	8.0	29.3	6.8	117.2	7.7	
Level of Service		D			F	E	A	C	A	F	A	
Approach Delay (s)		47.1			67.3			27.2			24.3	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			30.9		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				18.5			
Intersection Capacity Utilization			120.4%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	357	88	573	17	2615	205	1536
v/c Ratio	1.47	0.69	1.11	1.15	0.08	0.65	3.94	0.38
Control Delay	330.3	64.0	188.6	139.3	5.4	7.3	1381.2	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	330.3	64.0	188.6	139.3	5.4	7.3	1381.2	4.7
Queue Length 50th (m)	~31.1	52.2	~29.2	~101.4	1.3	93.1	~93.5	41.7
Queue Length 95th (m)	#66.8	70.4	#66.1	#141.2	m1.6	m88.5	#146.8	47.5
Internal Link Dist (m)		175.3		134.9		101.4		140.7
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	53	517	79	498	209	3996	52	4000
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.47	0.69	1.11	1.15	0.08	0.65	3.94	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Background PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	314	15	81	311	216	16	2322	84	189	1371	42
Future Volume (vph)	72	314	15	81	311	216	16	2322	84	189	1371	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.99		1.00	0.94		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3515		1770	3321		1770	5059		1770	5062	
Flt Permitted	0.20	1.00		0.29	1.00		0.14	1.00		0.04	1.00	
Satd. Flow (perm)	363	3515		542	3321		267	5059		67	5062	
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)	78	341	16	88	338	235	17	2524	91	205	1490	46
RTOR Reduction (vph)	0	3	0	0	12	0	0	3	0	0	2	0
Lane Group Flow (vph)	78	354	0	88	561	0	17	2612	0	205	1534	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	20.5	20.5		20.5	20.5		110.5	110.5		110.5	110.5	
Effective Green, g (s)	20.5	20.5		20.5	20.5		110.5	110.5		110.5	110.5	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.79	0.79		0.79	0.79	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	53	514		79	486		210	3992		52	3995	
v/s Ratio Prot		0.10			0.17			0.52			0.30	
v/s Ratio Perm	c0.21			0.16			0.06			c3.04		
v/c Ratio	1.47	0.69		1.11	1.15		0.08	0.65		3.94	0.38	
Uniform Delay, d1	59.8	56.7		59.8	59.8		3.3	6.4		14.8	4.5	
Progression Factor	1.00	1.00		1.00	1.00		1.45	1.07		1.00	1.00	
Incremental Delay, d2	289.9	3.8		135.5	90.7		0.3	0.3		1368.9	0.3	
Delay (s)	349.6	60.6		195.3	150.5		5.1	7.2		1383.6	4.7	
Level of Service	F	E		F	F		A	A		F	A	
Approach Delay (s)		112.4			156.4			7.2			167.1	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay	84.5			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	3.50											
Actuated Cycle Length (s)	140.0			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	91.9%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

Appendix I

Future Total Traffic Operations Reports



Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2030 Total AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	124	796	230	35	5	258	591	72	639
v/c Ratio	0.03	0.11	1.06	0.20	0.04	0.07	0.33	0.40	0.29	0.82
Control Delay	8.4	8.2	72.8	9.3	1.8	33.2	34.3	0.8	36.1	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	8.2	72.8	9.3	1.8	33.2	34.3	0.8	36.1	46.9
Queue Length 50th (m)	1.6	9.6	~191.1	20.1	0.0	0.8	23.8	0.0	12.6	66.5
Queue Length 95th (m)	4.8	17.8	#269.0	32.6	2.9	4.0	35.6	0.0	25.9	87.7
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	728	1163	749	1172	949	84	883	1482	280	879
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.11	1.06	0.20	0.04	0.06	0.29	0.40	0.26	0.73

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan
 1: Bathurst Street & Miller's Sideroad/Green Lane 2030 Total AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	20	113	9	780	225	34	5	253	579	71	584	42	
Future Volume (vph)	20	113	9	780	225	34	5	253	579	71	584	42	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1805	1862		1687	1881	1495	1444	3471	1482	1770	3434		
Flt Permitted	0.62	1.00		0.68	1.00	1.00	0.22	1.00	1.00	0.59	1.00		
Satd. Flow (perm)	1169	1862		1203	1881	1495	332	3471	1482	1103	3434		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	20	115	9	796	230	35	5	258	591	72	596	43	
RTOR Reduction (vph)	0	3	0	0	0	13	0	0	0	0	5	0	
Lane Group Flow (vph)	20	121	0	796	230	22	5	258	591	72	634	0	
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA		
Protected Phases		6			2			8			4		
Permitted Phases	6			2		2	8		Free	4			
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	23.1	23.1	102.6	23.1	23.1		
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	23.1	23.1	102.6	23.1	23.1		
Actuated g/C Ratio	0.62	0.62		0.62	0.62	0.62	0.23	0.23	1.00	0.23	0.23		
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5		
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	729	1161		750	1173	932	74	781	1482	248	773		
v/s Ratio Prot		0.07			0.12			0.07			c0.18		
v/s Ratio Perm	0.02			c0.66		0.01	0.02		0.40	0.07			
v/c Ratio	0.03	0.10		1.06	0.20	0.02	0.07	0.33	0.40	0.29	0.82		
Uniform Delay, d1	7.4	7.8		19.3	8.3	7.4	31.3	33.3	0.0	33.0	37.8		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	0.2		50.4	0.4	0.0	0.4	0.2	0.8	0.7	6.8		
Delay (s)	7.5	7.9		69.7	8.6	7.4	31.7	33.5	0.8	33.6	44.6		
Level of Service	A	A		E	A	A	C	C	A	C	D		
Approach Delay (s)		7.9			54.4			10.9			43.5		
Approach LOS		A			D			B			D		
Intersection Summary													
HCM 2000 Control Delay			35.7									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.00										
Actuated Cycle Length (s)			102.6									Sum of lost time (s)	15.5
Intersection Capacity Utilization			120.7%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2030 Total AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	773	47	19	1000	69	49
v/c Ratio	0.34	0.05	0.04	0.43	0.20	0.08
Control Delay	8.7	1.9	4.9	6.8	41.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	1.9	4.9	6.8	41.1	0.3
Queue Length 50th (m)	40.5	0.0	1.3	37.8	14.9	0.0
Queue Length 95th (m)	50.7	3.8	m2.6	39.3	28.6	0.0
Internal Link Dist (m)	780.4			547.5		168.8
Turn Bay Length (m)		30.0	25.0		35.0	
Base Capacity (vph)	2301	1044	429	2344	348	581
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.05	0.04	0.43	0.20	0.08

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2030 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	719	44	18	930	0	64	0	46	0	0	0
Future Volume (vph)	0	719	44	18	930	0	64	0	46	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.97	1.00	1.00		1.00	1.00				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3343	1496	1801	3406		1805	1615				
Flt Permitted		1.00	1.00	0.33	1.00		0.76	1.00				
Satd. Flow (perm)		3343	1496	625	3406		1439	1615				
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	0	773	47	19	1000	0	69	0	49	0	0	0
RTOR Reduction (vph)	0	0	15	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	0	773	32	19	1000	0	69	12	0	0	0	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	8%	5%	0%	6%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)		89.5	89.5	89.5	89.5		31.5	31.5				
Effective Green, g (s)		89.5	89.5	89.5	89.5		31.5	31.5				
Actuated g/C Ratio		0.69	0.69	0.69	0.69		0.24	0.24				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		2301	1029	430	2344		348	391				
v/s Ratio Prot		0.23			c0.29			0.01				
v/s Ratio Perm			0.02	0.03			c0.05					
v/c Ratio		0.34	0.03	0.04	0.43		0.20	0.03				
Uniform Delay, d1		8.2	6.4	6.5	8.9		39.2	37.6				
Progression Factor		1.00	1.00	0.71	0.69		1.00	1.00				
Incremental Delay, d2		0.4	0.1	0.2	0.5		1.3	0.1				
Delay (s)		8.6	6.5	4.8	6.7		40.5	37.7				
Level of Service		A	A	A	A		D	D				
Approach Delay (s)		8.5			6.7		39.3				0.0	
Approach LOS		A			A		D				A	
Intersection Summary												
HCM 2000 Control Delay			9.4			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			37.4%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2030 Total AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	773	26	127	839	37	248	67	117
v/c Ratio	0.13	0.41	0.03	0.38	0.45	0.09	0.40	0.22	0.19
Control Delay	14.8	15.9	2.3	26.7	24.3	31.9	12.4	35.0	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	15.9	2.3	26.7	24.3	31.9	12.4	35.0	2.0
Queue Length 50th (m)	4.7	52.2	0.0	17.6	91.2	7.0	13.6	13.2	0.0
Queue Length 95th (m)	10.8	61.6	2.9	45.6	92.9	15.8	36.7	26.2	4.9
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	301	1907	902	330	1869	413	621	301	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.41	0.03	0.38	0.45	0.09	0.40	0.22	0.19
Intersection Summary									

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 3: Woodspring Avenue/Minor Collector & Green Lane

2030 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	719	24	118	759	21	34	0	231	62	0	108
Future Volume (vph)	36	719	24	118	759	21	34	0	231	62	0	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3374	1567	1764	3304		1805	1568		1770	1583	
Flt Permitted	0.29	1.00	1.00	0.31	1.00		0.68	1.00		0.51	1.00	
Satd. Flow (perm)	534	3374	1567	585	3304		1295	1568		947	1583	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	39	773	26	127	816	23	37	0	248	67	0	117
RTOR Reduction (vph)	0	0	11	0	1	0	0	120	0	0	80	0
Lane Group Flow (vph)	39	773	15	127	838	0	37	128	0	67	37	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	7%	0%	2%	9%	2%	0%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Effective Green, g (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	301	1907	885	330	1868		413	500		302	505	
v/s Ratio Prot		0.23			c0.25			c0.08			0.02	
v/s Ratio Perm	0.07		0.01	0.22			0.03			0.07		
v/c Ratio	0.13	0.41	0.02	0.38	0.45		0.09	0.26		0.22	0.07	
Uniform Delay, d1	13.2	15.9	12.4	15.7	16.4		31.0	32.8		32.4	30.9	
Progression Factor	1.00	0.95	1.02	1.42	1.42		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.6	0.0	3.2	0.7		0.4	1.2		1.7	0.3	
Delay (s)	14.2	15.8	12.7	25.4	24.1		31.4	34.0		34.1	31.1	
Level of Service	B	B	B	C	C		C	C		C	C	
Approach Delay (s)		15.6			24.3			33.7			32.2	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			123.6%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2030 Total AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	965	81	22	899	13	5
Future Volume (Veh/h)	965	81	22	899	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1038	87	24	967	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.88		0.94	0.88
vC, conflicting volume			1125		1613	562
vC1, stage 1 conf vol					1082	
vC2, stage 2 conf vol					532	
vCu, unblocked vol			866		944	225
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		96	99
cM capacity (veh/h)			663		338	550
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	692	433	24	484	484	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	663	1700	1700	376
Volume to Capacity	0.41	0.25	0.04	0.28	0.28	0.05
Queue Length 95th (m)	0.0	0.0	0.9	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	10.6	0.0	0.0	15.1
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			15.1
Approach LOS						C
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			39.3%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	874	109	338	911	70	105
v/c Ratio	0.52	0.13	0.72	0.42	0.21	0.16
Control Delay	23.1	10.1	35.6	9.3	42.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	10.1	35.6	9.3	42.5	0.5
Queue Length 50th (m)	78.6	7.4	55.2	35.9	15.4	0.0
Queue Length 95th (m)	98.2	17.8	m82.2	61.9	29.4	0.0
Internal Link Dist (m)	233.8			262.9		110.6
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	1667	817	565	2145	331	666
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.13	0.60	0.42	0.21	0.16

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2030 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	804	100	311	838	0	64	0	97	0	0	0
Future Volume (vph)	0	804	100	311	838	0	64	0	97	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5	4.0	7.5		7.5	7.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.98	1.00	1.00		1.00	1.00				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3343	1563	1787	3282		1805	1583				
Flt Permitted		1.00	1.00	0.24	1.00		0.76	1.00				
Satd. Flow (perm)		3343	1563	443	3282		1439	1583				
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	874	109	338	911	0	70	0	105	0	0	0
RTOR Reduction (vph)	0	0	38	0	0	0	0	81	0	0	0	0
Lane Group Flow (vph)	0	874	71	338	911	0	70	24	0	0	0	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	8%	1%	1%	10%	2%	0%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)		64.8	64.8	85.0	85.0		30.0	30.0				
Effective Green, g (s)		64.8	64.8	85.0	85.0		30.0	30.0				
Actuated g/C Ratio		0.50	0.50	0.65	0.65		0.23	0.23				
Clearance Time (s)		7.5	7.5	4.0	7.5		7.5	7.5				
Vehicle Extension (s)		0.2	0.2	3.0	0.2		0.2	0.2				
Lane Grp Cap (vph)		1666	779	457	2145		332	365				
v/s Ratio Prot		0.26		c0.09	0.28			0.02				
v/s Ratio Perm			0.05	c0.39			c0.05					
v/c Ratio		0.52	0.09	0.74	0.42		0.21	0.07				
Uniform Delay, d1		22.1	17.1	12.7	10.8		40.4	39.1				
Progression Factor		0.95	1.34	3.13	0.81		1.00	1.00				
Incremental Delay, d2		1.1	0.2	5.4	0.5		1.4	0.4				
Delay (s)		22.2	23.3	45.1	9.2		41.9	39.4				
Level of Service		C	C	D	A		D	D				
Approach Delay (s)		22.3			18.9			40.4			0.0	
Approach LOS		C			B			D			A	
Intersection Summary												
HCM 2000 Control Delay			21.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			93.8%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2030 Total AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	696	111	297	742	331	63	390	210	1069	776	178
v/c Ratio	0.62	0.79	0.24	1.24	0.83	0.41	0.21	0.41	0.37	1.61	0.50	0.24
Control Delay	49.1	40.5	4.9	166.7	54.0	8.8	18.6	39.2	7.4	312.5	21.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	40.5	4.9	166.7	54.0	8.8	18.6	39.2	7.4	312.5	21.7	5.1
Queue Length 50th (m)	14.6	76.3	3.5	~69.3	97.9	18.4	8.2	44.8	1.8	~223.1	84.6	13.3
Queue Length 95th (m)	41.8	53.4	8.6	#129.1	122.5	39.7	15.9	60.4	21.1	#263.6	100.0	18.6
Internal Link Dist (m)	262.9			265.2			202.7			246.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	224	943	492	240	934	807	351	960	573	664	1542	751
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.74	0.23	1.24	0.79	0.41	0.18	0.41	0.37	1.61	0.50	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2030 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	675	108	288	720	321	61	378	204	1037	753	173
Future Volume (vph)	131	675	108	288	720	321	61	378	204	1037	753	173
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1481	1686	3374	1511	3433	3505	1544
Flt Permitted	0.16	1.00	1.00	0.18	1.00	1.00	0.36	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	290	3406	1406	330	3374	1481	635	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	135	696	111	297	742	331	63	390	210	1069	776	178
RTOR Reduction (vph)	0	0	82	0	0	109	0	0	144	0	0	72
Lane Group Flow (vph)	135	696	29	297	742	222	63	390	66	1069	776	106
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	44.2	33.8	33.8	45.4	34.4	59.6	43.7	37.0	37.0	25.2	56.5	56.5
Effective Green, g (s)	44.2	33.8	33.8	45.4	34.4	59.6	43.7	37.0	37.0	25.2	56.5	56.5
Actuated g/C Ratio	0.34	0.26	0.26	0.35	0.26	0.46	0.34	0.28	0.28	0.19	0.43	0.43
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	210	885	365	232	892	678	267	960	430	665	1523	671
v/s Ratio Prot	0.05	0.20		c0.11	0.22	0.06	0.01	0.12		c0.31	c0.22	
v/s Ratio Perm	0.17		0.02	c0.34		0.09	0.07		0.04			0.07
v/c Ratio	0.64	0.79	0.08	1.28	0.83	0.33	0.24	0.41	0.15	1.61	0.51	0.16
Uniform Delay, d1	32.5	44.7	36.3	36.9	45.1	22.4	29.8	37.6	34.8	52.4	26.7	22.3
Progression Factor	1.49	0.77	1.55	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.75	0.55
Incremental Delay, d2	5.9	4.8	0.2	154.9	7.4	0.3	0.5	1.3	0.8	279.2	1.0	0.4
Delay (s)	54.2	39.2	56.6	191.9	52.5	22.7	30.2	38.9	35.6	326.3	20.9	12.6
Level of Service	D	D	E	F	D	C	C	D	D	F	C	B
Approach Delay (s)		43.4			75.5			37.0			181.6	
Approach LOS		D			E			D			F	
Intersection Summary												
HCM 2000 Control Delay			107.3									F
HCM 2000 Volume to Capacity ratio			1.11									
Actuated Cycle Length (s)			130.0							23.0		
Intersection Capacity Utilization			114.7%								H	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2030 Total AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	44	62	85	14	831	18	225	1798
v/c Ratio	0.21	0.50	0.37	0.09	0.35	0.02	0.41	0.64
Control Delay	6.4	68.8	15.2	16.5	17.1	2.9	4.3	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	68.8	15.2	16.5	17.1	2.9	4.3	7.7
Queue Length 50th (m)	0.0	16.3	0.0	2.0	68.5	0.2	12.8	124.2
Queue Length 95th (m)	4.9	30.6	15.9	m4.9	95.6	m1.5	19.6	173.0
Internal Link Dist (m)	94.9	97.1			149.9			455.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	398	296	426	151	2363	1116	556	2802
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.21	0.20	0.09	0.35	0.02	0.40	0.64

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2030 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	33	61	0	84	14	823	18	223	1774	6
Future Volume (vph)	11	0	33	61	0	84	14	823	18	223	1774	6
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1687			1736	1615	1804	3406	1579	1787	3532	
Flt Permitted		0.90			0.73	1.00	0.11	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1537			1331	1615	218	3406	1579	575	3532	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	11	0	33	62	0	85	14	831	18	225	1792	6
RTOR Reduction (vph)	0	40	0	0	0	77	0	0	6	0	0	0
Lane Group Flow (vph)	0	4	0	0	62	8	14	831	12	225	1798	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		12.3			12.3	12.3	90.2	90.2	90.2	103.2	103.2	
Effective Green, g (s)		12.3			12.3	12.3	90.2	90.2	90.2	103.2	103.2	
Actuated g/C Ratio		0.09			0.09	0.09	0.69	0.69	0.69	0.79	0.79	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		145			125	152	151	2363	1095	540	2803	
v/s Ratio Prot								0.24		0.03	c0.51	
v/s Ratio Perm		0.00			c0.05	0.00	0.06		0.01	0.30		
v/c Ratio		0.03			0.50	0.05	0.09	0.35	0.01	0.42	0.64	
Uniform Delay, d1		53.4			55.9	53.5	6.5	8.1	6.1	3.7	5.6	
Progression Factor		1.00			1.00	1.00	1.82	1.95	1.00	1.00	1.14	
Incremental Delay, d2		0.1			3.1	0.1	1.1	0.4	0.0	0.4	0.8	
Delay (s)		53.5			59.0	53.7	13.0	16.1	6.2	4.1	7.3	
Level of Service		D			E	D	B	B	A	A	A	
Approach Delay (s)		53.5			55.9			15.8			6.9	
Approach LOS		D			E			B			A	
Intersection Summary												
HCM 2000 Control Delay		12.4										
HCM 2000 Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		119.3%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2030 Total AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (veh/h)	0	0	0	830	1871	0
Future Volume (Veh/h)	0	0	0	830	1871	0
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)	0	0	0	902	2034	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)				270	174	
pX, platoon unblocked	0.79	0.75	0.75			
vC, conflicting volume	2485	1017	2034			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1912	354	1711			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	47	481	275			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	451	451	1356	678	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.27	0.27	0.80	0.40	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			55.1%	ICU Level of Service		B
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2030 Total AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	11	34	12	996	2177
v/c Ratio	0.10	0.34	0.10	0.31	0.67
Control Delay	57.8	65.2	9.5	6.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	65.2	9.5	6.0	3.7
Queue Length 50th (m)	2.9	8.7	0.8	48.9	73.7
Queue Length 95th (m)	9.2	19.7	m6.2	114.8	113.1
Internal Link Dist (m)	233.8			455.0	223.9
Turn Bay Length (m)			15.0		
Base Capacity (vph)	842	754	118	3235	3235
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.05	0.10	0.31	0.67

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2030 Total AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	31	11	916	1999	4
Future Volume (vph)	10	31	11	916	1999	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3538	
Flt Permitted	0.95	1.00	0.07	1.00	1.00	
Satd. Flow (perm)	1770	1583	131	3539	3538	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	34	12	996	2173	4
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	11	33	12	996	2177	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4	6			
Actuated Green, G (s)	5.8	5.8	115.2	115.2	115.2	
Effective Green, g (s)	5.8	5.8	115.2	115.2	115.2	
Actuated g/C Ratio	0.04	0.04	0.89	0.89	0.89	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	78	70	116	3136	3135	
v/s Ratio Prot	0.01			0.28	c0.62	
v/s Ratio Perm		c0.02	0.09			
v/c Ratio	0.14	0.47	0.10	0.32	0.69	
Uniform Delay, d1	59.7	60.6	0.9	1.2	2.2	
Progression Factor	1.00	1.00	4.49	4.42	1.00	
Incremental Delay, d2	0.8	5.0	1.7	0.3	1.3	
Delay (s)	60.5	65.6	5.9	5.4	3.5	
Level of Service	E	E	A	A	A	
Approach Delay (s)	64.3			5.4	3.5	
Approach LOS	E			A	A	
Intersection Summary						
HCM 2000 Control Delay			4.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			67.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2030 Total PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	88	269	641	253	88	18	715	1044	74	340
v/c Ratio	0.14	0.25	1.05	0.24	0.09	0.08	0.78	0.66	0.72	0.37
Control Delay	11.3	11.6	72.0	11.6	4.6	26.5	38.8	2.2	68.8	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	11.6	72.0	11.6	4.6	26.5	38.8	2.2	68.8	29.3
Queue Length 50th (m)	7.3	23.9	~135.2	22.4	1.9	2.6	67.1	0.0	12.9	27.9
Queue Length 95th (m)	17.8	45.9	#228.0	43.4	9.8	8.1	87.4	0.0	#34.3	40.0
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	651	1081	613	1062	936	321	1327	1583	149	1320
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.25	1.05	0.24	0.09	0.06	0.54	0.66	0.50	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) of NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2030 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	253	5	615	243	84	17	686	1002	71	316	11
Future Volume (vph)	84	253	5	615	243	84	17	686	1002	71	316	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3513	
Flt Permitted	0.60	1.00		0.59	1.00	1.00	0.54	1.00	1.00	0.21	1.00	
Satd. Flow (perm)	1132	1876		1064	1845	1578	858	3539	1583	399	3513	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	88	264	5	641	253	88	18	715	1044	74	329	11
RTOR Reduction (vph)	0	0	0	0	0	27	0	0	0	0	2	0
Lane Group Flow (vph)	88	269	0	641	253	61	18	715	1044	74	338	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	54.7	54.7		54.7	54.7	54.7	24.7	24.7	94.9	24.7	24.7	
Effective Green, g (s)	54.7	54.7		54.7	54.7	54.7	24.7	24.7	94.9	24.7	24.7	
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.26	0.26	1.00	0.26	0.26	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	652	1081		613	1063	909	223	921	1583	103	914	
v/s Ratio Prot		0.14			0.14			0.20			0.10	
v/s Ratio Perm	0.08			0.60		0.04	0.02		0.66	0.19		
v/c Ratio	0.13	0.25		1.05	0.24	0.07	0.08	0.78	0.66	0.72	0.37	
Uniform Delay, d1	9.2	9.9		20.1	9.9	8.9	26.5	32.5	0.0	31.9	28.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5		48.8	0.5	0.1	0.2	4.2	2.2	21.2	0.3	
Delay (s)	9.7	10.5		68.9	10.4	9.0	26.7	36.7	2.2	53.1	29.0	
Level of Service	A	B		E	B	A	C	D	A	D	C	
Approach Delay (s)		10.3			48.5			16.3			33.3	
Approach LOS		B			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			26.6									
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			94.9									
Intersection Capacity Utilization			113.0%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2030 Total PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	1373	71	43	1034	27	34
v/c Ratio	0.51	0.06	0.18	0.39	0.11	0.10
Control Delay	6.9	1.6	3.2	2.2	51.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	1.6	3.2	2.2	51.0	0.5
Queue Length 50th (m)	69.7	1.1	1.1	15.8	6.8	0.0
Queue Length 95th (m)	81.8	4.6	2.2	15.4	16.2	0.0
Internal Link Dist (m)	780.4			547.5		168.8
Turn Bay Length (m)		30.0	25.0		35.0	
Base Capacity (vph)	2717	1203	240	2639	241	354
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.06	0.18	0.39	0.11	0.10
Intersection Summary						

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2030 Total PM Peak Hour

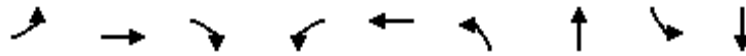
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1249	65	39	941	0	25	0	31	0	0	0
Future Volume (vph)	0	1249	65	39	941	0	25	0	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.96	1.00	1.00		1.00	1.00				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1552	1802	3438		1805	1615				
Flt Permitted		1.00	1.00	0.17	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1552	314	3438		1439	1615				
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	0	1373	71	43	1034	0	27	0	34	0	0	0
RTOR Reduction (vph)	0	0	12	0	0	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	1373	59	43	1034	0	27	6	0	0	0	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	2%	0%	0%	5%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)		107.5	107.5	107.5	107.5		23.5	23.5				
Effective Green, g (s)		107.5	107.5	107.5	107.5		23.5	23.5				
Actuated g/C Ratio		0.77	0.77	0.77	0.77		0.17	0.17				
Clearance Time (s)		4.5	4.5	4.5	4.5		4.5	4.5				
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0				
Lane Grp Cap (vph)		2717	1191	241	2639		241	271				
v/s Ratio Prot		c0.39			0.30			0.00				
v/s Ratio Perm			0.04	0.14			c0.02					
v/c Ratio		0.51	0.05	0.18	0.39		0.11	0.02				
Uniform Delay, d1		6.2	3.9	4.4	5.4		49.4	48.6				
Progression Factor		1.00	1.00	0.34	0.32		1.00	1.00				
Incremental Delay, d2		0.7	0.1	1.5	0.4		0.9	0.1				
Delay (s)		6.8	4.0	3.0	2.1		50.3	48.8				
Level of Service		A	A	A	A		D	D				
Approach Delay (s)		6.7			2.2			49.5			0.0	
Approach LOS		A			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			5.8			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			46.2%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2030 Total PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	137	1141	33	226	961	26	187	47	82
v/c Ratio	0.40	0.47	0.03	0.84	0.41	0.09	0.43	0.23	0.17
Control Delay	13.2	10.7	2.1	44.4	5.1	45.7	21.6	49.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	10.7	2.1	44.4	5.1	45.7	21.6	49.4	0.7
Queue Length 50th (m)	16.2	71.0	0.0	65.7	26.9	6.2	16.7	11.5	0.0
Queue Length 95th (m)	25.1	79.7	m2.7	#111.7	30.9	15.1	40.9	24.2	0.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	339	2414	1083	269	2327	281	430	206	492
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.47	0.03	0.84	0.41	0.09	0.43	0.23	0.17

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan 3: Woodspring Avenue/Minor Collector & Green Lane

2030 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	1118	32	221	864	73	25	0	183	43	0	75
Future Volume (vph)	126	1118	32	221	864	73	25	0	183	43	0	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1572	1785	3404		1803	1599		1770	1583	
Flt Permitted	0.27	1.00	1.00	0.21	1.00		0.70	1.00		0.52	1.00	
Satd. Flow (perm)	497	3539	1572	396	3404		1336	1599		977	1583	
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	137	1141	33	226	882	79	26	0	187	47	0	82
RTOR Reduction (vph)	0	0	10	0	5	0	0	93	0	0	65	0
Lane Group Flow (vph)	137	1141	23	226	956	0	26	94	0	47	17	0
Confl. Peds. (#/hr)			3	3			1					
Heavy Vehicles (%)	2%	2%	0%	1%	5%	2%	0%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	95.5	95.5	95.5	95.5	95.5		29.5	29.5		29.5	29.5	
Effective Green, g (s)	95.5	95.5	95.5	95.5	95.5		29.5	29.5		29.5	29.5	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68		0.21	0.21		0.21	0.21	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	339	2414	1072	270	2322		281	336		205	333	
v/s Ratio Prot		0.32			0.28			c0.06			0.01	
v/s Ratio Perm	0.28		0.01	c0.57			0.02			0.05		
v/c Ratio	0.40	0.47	0.02	0.84	0.41		0.09	0.28		0.23	0.05	
Uniform Delay, d1	9.8	10.4	7.2	16.5	9.8		44.5	46.3		45.8	44.1	
Progression Factor	0.96	0.96	1.01	1.00	0.47		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.6	0.0	24.1	0.5		0.7	2.1		2.6	0.3	
Delay (s)	12.5	10.6	7.3	40.5	5.1		45.1	48.4		48.4	44.4	
Level of Service	B	B	A	D	A		D	D		D	D	
Approach Delay (s)		10.7			11.9			48.0			45.9	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			140.0			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 Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 4: Costco Driveway & Green Lane

2030 Total PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↱	
Traffic Volume (veh/h)	1273	102	22	1127	57	40
Future Volume (Veh/h)	1273	102	22	1127	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1354	109	23	1199	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (m)	245		258			
pX, platoon unblocked			0.84		0.91	0.84
vC, conflicting volume			1463		2054	732
vC1, stage 1 conf vol					1408	
vC2, stage 2 conf vol					646	
vCu, unblocked vol			1176		1286	308
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		72	93
cM capacity (veh/h)			465		219	585
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	903	560	23	600	600	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	465	1700	1700	296
Volume to Capacity	0.53	0.33	0.05	0.35	0.35	0.35
Queue Length 95th (m)	0.0	0.0	1.2	0.0	0.0	12.2
Control Delay (s)	0.0	0.0	13.1	0.0	0.0	23.6
Lane LOS			B		C	
Approach Delay (s)	0.0		0.2			23.6
Approach LOS					C	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			50.7%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	1151	158	240	980	169	269
v/c Ratio	0.63	0.19	0.70	0.44	0.48	0.43
Control Delay	28.8	14.0	11.4	8.8	50.6	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	14.0	11.4	8.8	50.6	4.0
Queue Length 50th (m)	121.4	15.9	11.7	123.5	42.4	0.0
Queue Length 95th (m)	142.5	28.7	m11.6	m98.8	66.7	11.4
Internal Link Dist (m)	233.8			262.9		110.6
Turn Bay Length (m)		45.0	40.0			
Base Capacity (vph)	1818	832	437	2243	350	627
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.19	0.55	0.44	0.48	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2030 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1116	153	233	951	0	164	0	261	0	0	0
Future Volume (vph)	0	1116	153	233	951	0	164	0	261	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5	4.0	7.5		7.5	7.5				
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00				
Frpb, ped/bikes		1.00	0.96	1.00	1.00		1.00	1.00				
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00				
Frt		1.00	0.85	1.00	1.00		1.00	0.85				
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				
Satd. Flow (prot)		3539	1543	1805	3471		1787	1583				
Flt Permitted		1.00	1.00	0.15	1.00		0.76	1.00				
Satd. Flow (perm)		3539	1543	277	3471		1424	1583				
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.92	0.97	0.92	0.97	0.92	0.92	0.92
Adj. Flow (vph)	0	1151	158	240	980	0	169	0	269	0	0	0
RTOR Reduction (vph)	0	0	39	0	0	0	0	203	0	0	0	0
Lane Group Flow (vph)	0	1151	119	240	980	0	169	66	0	0	0	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	2%	1%	0%	4%	2%	1%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)		71.9	71.9	90.5	90.5		34.5	34.5				
Effective Green, g (s)		71.9	71.9	90.5	90.5		34.5	34.5				
Actuated g/C Ratio		0.51	0.51	0.65	0.65		0.25	0.25				
Clearance Time (s)		7.5	7.5	4.0	7.5		7.5	7.5				
Vehicle Extension (s)		0.2	0.2	3.0	0.2		0.2	0.2				
Lane Grp Cap (vph)		1817	792	338	2243		350	390				
v/s Ratio Prot		0.33		c0.07	0.28			0.04				
v/s Ratio Perm			0.08	c0.38			c0.12					
v/c Ratio		0.63	0.15	0.71	0.44		0.48	0.17				
Uniform Delay, d1		24.5	17.9	17.2	12.2		45.1	41.5				
Progression Factor		1.07	1.39	0.56	0.69		1.00	1.00				
Incremental Delay, d2		1.6	0.4	3.1	0.3		4.7	0.9				
Delay (s)		27.7	25.3	12.6	8.7		49.8	42.4				
Level of Service		C	C	B	A		D	D				
Approach Delay (s)		27.4			9.5			45.3			0.0	
Approach LOS		C			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			22.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			95.0%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	372	993	101	377	958	719	108	1020	411	526	627	181
v/c Ratio	1.09	1.09	0.21	1.11	1.07	1.02	0.31	1.07	0.65	0.97	0.49	0.27
Control Delay	101.3	109.5	16.5	120.8	100.7	72.9	24.0	97.9	18.2	94.8	35.0	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.3	109.5	16.5	120.8	100.7	72.9	24.0	97.9	18.2	94.8	35.0	9.7
Queue Length 50th (m)	~117.3	~175.2	7.8	~107.7	~162.8	~191.4	17.1	~172.7	28.9	81.0	60.3	3.9
Queue Length 95th (m)	#170.2	#219.6	m26.2	#173.9	#206.1	#213.2	29.0	#216.4	67.9	#116.2	88.4	26.4
Internal Link Dist (m)	262.9				265.2				202.7		246.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	342	910	491	339	892	704	365	954	629	544	1274	661
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	1.09	0.21	1.11	1.07	1.02	0.30	1.07	0.65	0.97	0.49	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2030 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	983	100	373	948	712	107	1010	407	521	621	179
Future Volume (vph)	368	983	100	373	948	712	107	1010	407	521	621	179
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1802	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.41	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	209	3471	1562	786	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	372	993	101	377	958	719	108	1020	411	526	627	181
RTOR Reduction (vph)	0	0	75	0	0	36	0	0	216	0	0	92
Lane Group Flow (vph)	372	993	26	377	958	683	108	1020	195	526	627	89
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	58.0	36.0	36.0	58.0	36.0	58.0	46.6	37.0	37.0	22.0	50.4	50.4
Effective Green, g (s)	58.0	36.0	36.0	58.0	36.0	58.0	46.6	37.0	37.0	22.0	50.4	50.4
Actuated g/C Ratio	0.41	0.26	0.26	0.41	0.26	0.41	0.33	0.26	0.26	0.16	0.36	0.36
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	337	910	393	334	892	647	331	954	412	544	1274	569
v/s Ratio Prot	0.17	0.28		c0.18	0.28	c0.17	0.02	c0.28		0.15	0.18	
v/s Ratio Perm	0.28		0.02	c0.29		0.27	0.09		0.12			0.06
v/c Ratio	1.10	1.09	0.07	1.13	1.07	1.06	0.33	1.07	0.47	0.97	0.49	0.16
Uniform Delay, d1	43.7	52.0	39.3	43.7	52.0	41.0	33.1	51.5	43.3	58.6	34.8	30.4
Progression Factor	0.77	1.14	5.90	1.00	1.00	1.00	1.00	1.00	1.00	1.12	0.96	1.07
Incremental Delay, d2	75.6	55.5	0.1	88.8	52.0	50.8	0.6	49.5	3.9	28.9	1.3	0.5
Delay (s)	109.2	114.8	231.9	132.5	104.0	91.8	33.7	101.0	47.1	94.5	34.6	33.1
Level of Service	F	F	F	F	F	F	C	F	D	F	C	C
Approach Delay (s)		121.4			105.0			81.9			58.0	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			93.4			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			112.0%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2030 Total PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	42	90	231	51	2009	55	163	1180
v/c Ratio	0.21	0.60	0.76	0.27	0.84	0.06	0.76	0.43
Control Delay	25.6	75.0	37.6	10.2	14.7	0.9	53.3	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	75.0	37.6	10.2	14.7	0.9	53.3	6.1
Queue Length 50th (m)	3.0	25.6	23.5	4.5	127.2	0.0	29.4	59.1
Queue Length 95th (m)	14.1	42.2	51.4	m5.0	m176.7	m0.0	#60.3	92.2
Internal Link Dist (m)	94.9	97.1			149.9			455.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	302	246	407	191	2389	943	230	2760
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.37	0.57	0.27	0.84	0.06	0.71	0.43

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2030 Total PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	9	2	30	87	0	224	49	1949	53	158	1130	15	
Future Volume (vph)	9	2	30	87	0	224	49	1949	53	158	1130	15	
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	7.5	7.5	7.5	4.0	7.5		
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00		
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt		0.90			1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1674			1800	1599	1142	3574	1381	1770	3504		
Flt Permitted		0.92			0.73	1.00	0.24	1.00	1.00	0.04	1.00		
Satd. Flow (perm)		1554			1382	1599	288	3574	1381	76	3504		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	9	2	31	90	0	231	51	2009	55	163	1165	15	
RTOR Reduction (vph)	0	28	0	0	0	132	0	0	18	0	0	0	
Lane Group Flow (vph)	0	14	0	0	90	99	51	2009	37	163	1180	0	
Confl. Peds. (#/hr)			2	2					2	2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA		
Protected Phases		4			8			6		5	2		
Permitted Phases	4			8		8	6		6	2			
Actuated Green, G (s)		15.2			15.2	15.2	93.6	93.6	93.6	110.3	110.3		
Effective Green, g (s)		15.2			15.2	15.2	93.6	93.6	93.6	110.3	110.3		
Actuated g/C Ratio		0.11			0.11	0.11	0.67	0.67	0.67	0.79	0.79		
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5		
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2		
Lane Grp Cap (vph)		168			150	173	192	2389	923	213	2760		
v/s Ratio Prot								c0.56		c0.07	0.34		
v/s Ratio Perm		0.01			c0.07	0.06	0.18		0.03	0.53			
v/c Ratio		0.09			0.60	0.57	0.27	0.84	0.04	0.77	0.43		
Uniform Delay, d1		56.1			59.5	59.3	9.3	17.6	7.9	44.9	4.7		
Progression Factor		1.00			1.00	1.00	0.73	0.69	0.38	0.96	1.09		
Incremental Delay, d2		0.2			6.3	4.5	0.9	1.0	0.0	14.0	0.4		
Delay (s)		56.4			65.8	63.8	7.7	13.1	3.0	57.2	5.6		
Level of Service		E			E	E	A	B	A	E	A		
Approach Delay (s)		56.4			64.4			12.7			11.9		
Approach LOS		E			E			B			B		
Intersection Summary													
HCM 2000 Control Delay			17.2		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.80										
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					18.5			
Intersection Capacity Utilization			113.2%		ICU Level of Service					H			
Analysis Period (min)			15										
c Critical Lane Group													

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2030 Total PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	2090	1254	0
Future Volume (Veh/h)	0	0	0	2090	1254	0
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)	0	0	0	2272	1363	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)				270	174	
pX, platoon unblocked	0.80	0.89	0.89			
vC, conflicting volume	2499	682	1363			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1749	392	1159			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	62	539	532			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	1136	1136	909	454	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.67	0.67	0.53	0.27	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			61.1%	ICU Level of Service		B
Analysis Period (min)			15			



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	8	24	40	2362	1424
v/c Ratio	0.10	0.26	0.13	0.72	0.43
Control Delay	65.3	39.6	2.5	11.8	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	39.6	2.5	11.8	1.5
Queue Length 50th (m)	2.3	2.0	1.6	281.4	25.3
Queue Length 95th (m)	8.2	12.0	m2.8	356.0	39.0
Internal Link Dist (m)	233.8			455.0	223.9
Turn Bay Length (m)			15.0		
Base Capacity (vph)	834	755	311	3290	3287
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.03	0.13	0.72	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2030 Total PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	22	37	2173	1298	12
Future Volume (vph)	7	22	37	2173	1298	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3534	
Flt Permitted	0.95	1.00	0.18	1.00	1.00	
Satd. Flow (perm)	1770	1583	335	3539	3534	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	24	40	2362	1411	13
RTOR Reduction (vph)	0	16	0	0	0	0
Lane Group Flow (vph)	8	8	40	2362	1424	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4	6			
Actuated Green, G (s)	4.4	4.4	126.6	126.6	126.6	
Effective Green, g (s)	4.4	4.4	126.6	126.6	126.6	
Actuated g/C Ratio	0.03	0.03	0.90	0.90	0.90	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	49	302	3200	3195	
v/s Ratio Prot	0.00			0.67	0.40	
v/s Ratio Perm		0.00	0.12			
v/c Ratio	0.15	0.15	0.13	0.74	0.45	
Uniform Delay, d1	66.0	66.0	0.7	1.9	1.1	
Progression Factor	1.00	1.00	1.76	4.93	1.00	
Incremental Delay, d2	1.2	1.5	0.6	1.0	0.5	
Delay (s)	67.2	67.5	1.9	10.5	1.5	
Level of Service	E	E	A	B	A	
Approach Delay (s)	67.4			10.3	1.5	
Approach LOS	E			B	A	
Intersection Summary						
HCM 2000 Control Delay			7.6		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			71.7%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Total AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	53	111	883	217	42	5	506	570	65	1096
v/c Ratio	0.07	0.10	1.20	0.19	0.05	0.09	0.59	0.38	0.40	1.28
Control Delay	9.0	8.7	125.7	9.8	2.4	35.2	38.3	0.8	41.9	171.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	8.7	125.7	9.8	2.4	35.2	38.3	0.8	41.9	171.3
Queue Length 50th (m)	4.4	9.0	~232.3	19.4	0.0	0.8	50.8	0.0	11.8	~159.3
Queue Length 95th (m)	9.7	16.4	#308.6	30.9	3.9	4.2	68.6	0.0	25.9	#202.1
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	715	1128	736	1139	924	57	858	1482	163	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.10	1.20	0.19	0.05	0.09	0.59	0.38	0.40	1.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) of NW of Yonge St and Green Ln Secondary Plan 1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Total AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	52	100	9	865	213	41	5	496	559	64	989	85	
Future Volume (vph)	52	100	9	865	213	41	5	496	559	64	989	85	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5		
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1805	1860		1687	1881	1495	1444	3471	1482	1770	3427		
Flt Permitted	0.62	1.00		0.69	1.00	1.00	0.15	1.00	1.00	0.35	1.00		
Satd. Flow (perm)	1183	1860		1217	1881	1495	233	3471	1482	659	3427		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	53	102	9	883	217	42	5	506	570	65	1009	87	
RTOR Reduction (vph)	0	2	0	0	0	17	0	0	0	0	6	0	
Lane Group Flow (vph)	53	109	0	883	217	25	5	506	570	65	1090	0	
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA		
Protected Phases		6			2			8			4		
Permitted Phases	6			2		2	8		Free	4			
Actuated Green, G (s)	63.9	63.9		63.9	63.9	63.9	26.1	26.1	105.5	26.1	26.1		
Effective Green, g (s)	63.9	63.9		63.9	63.9	63.9	26.1	26.1	105.5	26.1	26.1		
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.25	0.25	1.00	0.25	0.25		
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5		
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	716	1126		737	1139	905	57	858	1482	163	847		
v/s Ratio Prot		0.06			0.12			0.15			c0.32		
v/s Ratio Perm	0.04			c0.73		0.02	0.02		0.38	0.10			
v/c Ratio	0.07	0.10		1.20	0.19	0.03	0.09	0.59	0.38	0.40	1.29		
Uniform Delay, d1	8.6	8.7		20.8	9.3	8.3	30.5	35.0	0.0	33.1	39.7		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.2	0.2		102.0	0.4	0.1	0.7	1.0	0.8	1.6	138.0		
Delay (s)	8.8	8.9		122.8	9.6	8.4	31.2	36.0	0.8	34.8	177.7		
Level of Service	A	A		F	A	A	C	D	A	C	F		
Approach Delay (s)		8.9			97.1			17.4			169.7		
Approach LOS		A			F			B			F		
Intersection Summary													
HCM 2000 Control Delay			92.5									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.22										
Actuated Cycle Length (s)			105.5									Sum of lost time (s)	15.5
Intersection Capacity Utilization			112.1%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2035 Total AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	50	678	47	19	931	69	49	149
v/c Ratio	0.14	0.29	0.05	0.04	0.40	0.26	0.08	0.28
Control Delay	8.3	8.3	1.9	4.9	7.0	43.2	0.2	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	8.3	1.9	4.9	7.0	43.2	0.2	3.7
Queue Length 50th (m)	4.3	34.3	0.0	1.3	36.5	15.2	0.0	0.0
Queue Length 95th (m)	9.6	43.4	3.8	m2.9	38.5	29.6	0.0	9.5
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	15.0		30.0	25.0		35.0		
Base Capacity (vph)	346	2301	1044	482	2344	262	619	523
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.29	0.05	0.04	0.40	0.26	0.08	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

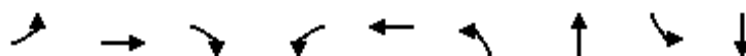
HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2035 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	631	44	18	866	0	64	0	46	0	0	137
Future Volume (vph)	46	631	44	18	866	0	64	0	46	0	0	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3343	1496	1801	3406		1805	1615			1583	
Flt Permitted	0.27	1.00	1.00	0.37	1.00		0.57	1.00			1.00	
Satd. Flow (perm)	504	3343	1496	701	3406		1083	1615			1583	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	50	678	47	19	931	0	69	0	49	0	0	149
RTOR Reduction (vph)	0	0	15	0	0	0	0	37	0	0	113	0
Lane Group Flow (vph)	50	678	32	19	931	0	69	12	0	0	36	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	8%	5%	0%	6%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Effective Green, g (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24			0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	346	2301	1029	482	2344		262	391			383	
v/s Ratio Prot		0.20			c0.27			0.01			0.02	
v/s Ratio Perm	0.10		0.02	0.03			c0.06					
v/c Ratio	0.14	0.29	0.03	0.04	0.40		0.26	0.03			0.09	
Uniform Delay, d1	7.0	7.9	6.4	6.5	8.7		39.9	37.6			38.2	
Progression Factor	1.00	1.00	1.00	0.72	0.74		1.00	1.00			1.00	
Incremental Delay, d2	0.9	0.3	0.1	0.1	0.5		2.4	0.1			0.5	
Delay (s)	7.9	8.2	6.5	4.8	6.9		42.3	37.7			38.7	
Level of Service	A	A	A	A	A		D	D			D	
Approach Delay (s)		8.1			6.9			40.4			38.7	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			11.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			55.8%			ICU Level of Service				B		
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	50	670	26	127	785	37	248	128	149
v/c Ratio	0.15	0.35	0.03	0.33	0.42	0.09	0.38	0.43	0.23
Control Delay	15.0	15.4	2.3	24.6	23.2	32.0	7.2	40.2	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	15.4	2.3	24.6	23.2	32.0	7.2	40.2	1.7
Queue Length 50th (m)	6.2	45.1	0.0	17.1	79.7	7.0	3.9	27.2	0.0
Queue Length 95th (m)	13.0	54.5	2.9	44.1	79.6	15.9	24.1	47.4	3.7
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	326	1907	902	381	1862	396	655	301	648
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.35	0.03	0.33	0.42	0.09	0.38	0.43	0.23
Intersection Summary									

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 3: Woodspring Avenue/Minor Collector & Green Lane

2035 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	623	24	118	663	66	34	0	231	118	0	137
Future Volume (vph)	46	623	24	118	663	66	34	0	231	118	0	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3374	1567	1763	3286		1805	1568		1770	1583	
Flt Permitted	0.31	1.00	1.00	0.36	1.00		0.65	1.00		0.51	1.00	
Satd. Flow (perm)	577	3374	1567	674	3286		1243	1568		947	1583	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	50	670	26	127	713	72	37	0	248	128	0	149
RTOR Reduction (vph)	0	0	11	0	6	0	0	155	0	0	101	0
Lane Group Flow (vph)	50	670	15	127	779	0	37	93	0	128	48	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	7%	0%	2%	9%	2%	0%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Effective Green, g (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	326	1907	885	381	1857		396	500		302	505	
v/s Ratio Prot		0.20			c0.24			0.06			0.03	
v/s Ratio Perm	0.09		0.01	0.19			0.03			c0.14		
v/c Ratio	0.15	0.35	0.02	0.33	0.42		0.09	0.19		0.42	0.09	
Uniform Delay, d1	13.4	15.3	12.4	15.1	16.1		31.1	32.0		34.8	31.1	
Progression Factor	1.00	0.97	1.05	1.41	1.41		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.5	0.0	2.2	0.7		0.5	0.8		4.3	0.4	
Delay (s)	14.4	15.3	13.1	23.6	23.4		31.5	32.9		39.2	31.4	
Level of Service	B	B	B	C	C		C	C		D	C	
Approach Delay (s)		15.2			23.4			32.7			35.0	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			23.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			131.7%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2035 Total AM Peak Hour

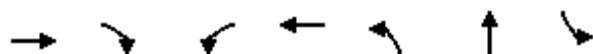
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	935	81	22	855	13	5
Future Volume (Veh/h)	935	81	22	855	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1005	87	24	919	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh)	2		2			
Upstream signal (m)	245		258			
pX, platoon unblocked			0.90		0.94	0.90
vC, conflicting volume			1092		1556	546
vC1, stage 1 conf vol					1048	
vC2, stage 2 conf vol					508	
vCu, unblocked vol			887		996	282
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		96	99
cM capacity (veh/h)			669		336	513
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	670	422	24	460	460	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	669	1700	1700	370
Volume to Capacity	0.39	0.25	0.04	0.27	0.27	0.05
Queue Length 95th (m)	0.0	0.0	0.9	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	10.6	0.0	0.0	15.3
Lane LOS			B		C	
Approach Delay (s)	0.0		0.3			15.3
Approach LOS					C	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			38.4%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2035 Total AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL
Lane Group Flow (vph)	833	109	338	874	70	105	128
v/c Ratio	0.50	0.13	0.70	0.41	0.21	0.16	0.43
Control Delay	21.8	8.6	33.0	8.5	42.5	0.5	48.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	8.6	33.0	8.5	42.5	0.5	48.1
Queue Length 50th (m)	75.4	6.4	52.1	30.4	15.4	0.0	29.7
Queue Length 95th (m)	95.6	13.6	81.1	53.6	29.4	0.0	50.4
Internal Link Dist (m)	233.8			262.9		110.6	
Turn Bay Length (m)		45.0	40.0				15.0
Base Capacity (vph)	1677	824	581	2145	331	672	296
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.13	0.58	0.41	0.21	0.16	0.43
Intersection Summary							

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2035 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	766	100	311	791	13	64	0	97	118	0	0
Future Volume (vph)	0	766	100	311	791	13	64	0	97	118	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5	4.0	7.5		7.5	7.5		7.5		
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00		
Frpb, ped/bikes		1.00	0.98	1.00	1.00		1.00	1.00		1.00		
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Frt		1.00	0.85	1.00	1.00		1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95		
Satd. Flow (prot)		3343	1563	1787	3278		1805	1583		1770		
Flt Permitted		1.00	1.00	0.25	1.00		0.76	1.00		0.69		
Satd. Flow (perm)		3343	1563	476	3278		1439	1583		1284		
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	833	109	338	860	14	70	0	105	128	0	0
RTOR Reduction (vph)	0	0	40	0	1	0	0	81	0	0	0	0
Lane Group Flow (vph)	0	833	69	338	873	0	70	24	0	128	0	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	8%	1%	1%	10%	2%	0%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)		65.2	65.2	85.0	85.0		30.0	30.0		30.0		
Effective Green, g (s)		65.2	65.2	85.0	85.0		30.0	30.0		30.0		
Actuated g/C Ratio		0.50	0.50	0.65	0.65		0.23	0.23		0.23		
Clearance Time (s)		7.5	7.5	4.0	7.5		7.5	7.5		7.5		
Vehicle Extension (s)		0.2	0.2	3.0	0.2		0.2	0.2		0.2		
Lane Grp Cap (vph)		1676	783	470	2143		332	365		296		
v/s Ratio Prot		0.25		c0.09	0.27			0.02				
v/s Ratio Perm			0.04	c0.38			0.05			c0.10		
v/c Ratio		0.50	0.09	0.72	0.41		0.21	0.07		0.43		
Uniform Delay, d1		21.5	16.9	12.1	10.6		40.4	39.1		42.7		
Progression Factor		0.93	1.27	3.10	0.75		1.00	1.00		1.00		
Incremental Delay, d2		1.0	0.2	4.6	0.5		1.4	0.4		4.6		
Delay (s)		21.0	21.7	42.0	8.4		41.9	39.4		47.3		
Level of Service		C	C	D	A		D	D		D		
Approach Delay (s)		21.1			17.8			40.4			47.3	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			22.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			93.8%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Total AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	118	680	231	346	706	282	99	535	209	948	1102	151
v/c Ratio	0.52	0.77	0.49	1.42	0.79	0.36	0.46	0.56	0.36	1.41	0.76	0.22
Control Delay	36.1	41.8	14.6	237.9	51.5	9.6	24.5	42.2	7.1	229.8	26.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	41.8	14.6	237.9	51.5	9.6	24.5	42.2	7.1	229.8	26.4	3.5
Queue Length 50th (m)	14.9	81.6	9.6	~96.0	92.2	18.2	13.0	64.7	1.2	~183.2	142.5	5.6
Queue Length 95th (m)	31.5	56.4	21.8	#158.0	115.4	37.4	23.1	83.8	20.3	#228.7	153.0	m8.3
Internal Link Dist (m)	262.9			265.2			202.7			246.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	237	943	492	244	934	784	250	960	575	671	1457	700
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.72	0.47	1.42	0.76	0.36	0.40	0.56	0.36	1.41	0.76	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	660	224	336	685	274	96	519	203	920	1069	146
Future Volume (vph)	114	660	224	336	685	274	96	519	203	920	1069	146
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1481	1687	3374	1511	3433	3505	1544
Flt Permitted	0.19	1.00	1.00	0.19	1.00	1.00	0.17	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	337	3406	1406	344	3374	1481	309	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	118	680	231	346	706	282	99	535	209	948	1102	151
RTOR Reduction (vph)	0	0	106	0	0	83	0	0	145	0	0	59
Lane Group Flow (vph)	118	680	125	346	706	199	99	535	64	948	1102	92
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	43.7	33.6	33.6	45.5	34.5	59.9	46.4	37.0	37.0	25.4	54.0	54.0
Effective Green, g (s)	43.7	33.6	33.6	45.5	34.5	59.9	46.4	37.0	37.0	25.4	54.0	54.0
Actuated g/C Ratio	0.34	0.26	0.26	0.35	0.27	0.46	0.36	0.28	0.28	0.20	0.42	0.42
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	218	880	363	236	895	682	209	960	430	670	1455	641
v/s Ratio Prot	0.04	0.20		c0.12	0.21	0.06	0.03	0.16		c0.28	c0.31	
v/s Ratio Perm	0.14		0.09	c0.39		0.08	0.13		0.04			0.06
v/c Ratio	0.54	0.77	0.34	1.47	0.79	0.29	0.47	0.56	0.15	1.41	0.76	0.14
Uniform Delay, d1	32.1	44.7	39.2	37.1	44.4	21.8	29.3	39.5	34.7	52.3	32.4	23.6
Progression Factor	1.13	0.80	0.74	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.70	0.30
Incremental Delay, d2	2.5	4.5	1.1	231.5	5.4	0.2	1.7	2.3	0.7	193.4	2.8	0.4
Delay (s)	38.8	40.4	30.1	268.6	49.8	22.1	31.0	41.9	35.5	243.2	25.5	7.5
Level of Service	D	D	C	F	D	C	C	D	D	F	C	A
Approach Delay (s)		37.9			100.7			39.0			118.0	
Approach LOS		D			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			86.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			113.6%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2035 Total AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	173	151	125	57	836	47	238	1801
v/c Ratio	0.61	0.88	0.32	0.52	0.40	0.05	0.49	0.72
Control Delay	37.2	94.1	9.2	54.1	28.2	11.2	7.8	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	94.1	9.2	54.1	28.2	11.2	7.8	15.2
Queue Length 50th (m)	25.2	39.7	0.0	14.0	97.5	2.8	19.3	184.6
Queue Length 95th (m)	48.3	#68.2	16.6	m#31.2	121.8	m8.4	25.0	242.5
Internal Link Dist (m)	94.9	97.1			149.9			342.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	339	218	457	109	2088	994	484	2504
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.69	0.27	0.52	0.40	0.05	0.49	0.72

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2035 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	0	120	149	0	124	56	828	47	236	1764	19
Future Volume (vph)	51	0	120	149	0	124	56	828	47	236	1764	19
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1695			1736	1615	1805	3406	1579	1787	3515	
Flt Permitted		0.74			0.54	1.00	0.09	1.00	1.00	0.29	1.00	
Satd. Flow (perm)		1274			980	1615	178	3406	1579	537	3515	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	52	0	121	151	0	125	57	836	47	238	1782	19
RTOR Reduction (vph)	0	58	0	0	0	103	0	0	18	0	1	0
Lane Group Flow (vph)	0	115	0	0	151	22	57	836	29	238	1800	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		22.9			22.9	22.9	79.7	79.7	79.7	92.6	92.6	
Effective Green, g (s)		22.9			22.9	22.9	79.7	79.7	79.7	92.6	92.6	
Actuated g/C Ratio		0.18			0.18	0.18	0.61	0.61	0.61	0.71	0.71	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		224			172	284	109	2088	968	468	2503	
v/s Ratio Prot								0.25		0.03	c0.51	
v/s Ratio Perm		0.09			c0.15	0.01	0.32		0.02	0.33		
v/c Ratio		0.51			0.88	0.08	0.52	0.40	0.03	0.51	0.72	
Uniform Delay, d1		48.5			52.2	44.7	14.3	12.9	9.9	7.2	11.0	
Progression Factor		1.00			1.00	1.00	1.86	2.01	8.37	0.79	1.11	
Incremental Delay, d2		2.0			36.0	0.1	15.2	0.5	0.1	0.7	1.6	
Delay (s)		50.4			88.2	44.8	41.9	26.4	83.0	6.5	13.8	
Level of Service		D			F	D	D	C	F	A	B	
Approach Delay (s)		50.4			68.6			30.2			13.0	
Approach LOS		D			E			C			B	
Intersection Summary												
HCM 2000 Control Delay			24.0		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				18.5			
Intersection Capacity Utilization			126.2%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

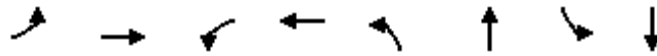
c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2035 Total AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (veh/h)	0	0	0	906	2038	0
Future Volume (Veh/h)	0	0	0	906	2038	0
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)	0	0	0	985	2215	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)				270	174	
pX, platoon unblocked	0.72	0.66	0.66			
vC, conflicting volume	2708	1108	2215			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1835	147	1817			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	49	579	221			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	492	492	1477	738	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.29	0.29	0.87	0.43	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			59.7%	ICU Level of Service		B
Analysis Period (min)			15			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	79	480	58	466	40	1063	249	2096
v/c Ratio	0.91	0.75	0.72	0.68	0.43	0.28	0.74	0.56
Control Delay	125.6	56.7	91.1	47.8	48.1	18.8	27.5	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.6	56.7	91.1	47.8	48.1	18.8	27.5	8.6
Queue Length 50th (m)	21.1	64.7	14.8	55.1	9.7	87.3	33.7	80.0
Queue Length 95th (m)	#47.2	79.1	#33.4	69.4	m24.6	101.2	#106.7	112.9
Internal Link Dist (m)		192.3		102.0		83.9		117.4
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	219	1610	205	1644	92	3747	337	3754
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.30	0.28	0.28	0.43	0.28	0.74	0.56

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2035 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	310	132	53	311	118	37	938	40	229	1875	53
Future Volume (vph)	73	310	132	53	311	118	37	938	40	229	1875	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3381		1770	3393		1770	5054		1770	5064	
Flt Permitted	0.25	1.00		0.23	1.00		0.07	1.00		0.24	1.00	
Satd. Flow (perm)	460	3381		433	3393		125	5054		455	5064	
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)	79	337	143	58	338	128	40	1020	43	249	2038	58
RTOR Reduction (vph)	0	2	0	0	44	0	0	2	0	0	1	0
Lane Group Flow (vph)	79	478	0	58	422	0	40	1061	0	249	2095	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	24.7	24.7		24.7	24.7		96.3	96.3		96.3	96.3	
Effective Green, g (s)	24.7	24.7		24.7	24.7		96.3	96.3		96.3	96.3	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.74	0.74		0.74	0.74	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	87	642		82	644		92	3743		337	3751	
v/s Ratio Prot		0.14			0.12			0.21			0.41	
v/s Ratio Perm	c0.17			0.13			0.32			c0.55		
v/c Ratio	0.91	0.75		0.71	0.66		0.43	0.28		0.74	0.56	
Uniform Delay, d1	51.5	49.7		49.3	48.7		6.4	5.5		9.6	7.5	
Progression Factor	1.00	1.00		1.00	1.00		2.88	3.16		1.00	1.00	
Incremental Delay, d2	66.1	4.7		24.2	2.4		13.6	0.2		13.6	0.6	
Delay (s)	117.6	54.4		73.5	51.1		32.2	17.7		23.2	8.1	
Level of Service	F	D		E	D		C	B		C	A	
Approach Delay (s)		63.3			53.6			18.2			9.7	
Approach LOS		E			D			B			A	
Intersection Summary												
HCM 2000 Control Delay	23.4			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.77											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	73.5%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Total PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	172	244	634	210	75	19	1336	1115	76	658
v/c Ratio	0.28	0.25	1.13	0.22	0.09	0.12	1.12	0.70	1.06	0.56
Control Delay	16.0	15.0	105.0	14.7	6.3	26.8	100.4	2.7	160.9	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	15.0	105.0	14.7	6.3	26.8	100.4	2.7	160.9	30.5
Queue Length 50th (m)	20.2	27.9	~159.3	23.7	2.9	2.8	~175.8	0.0	~18.0	59.9
Queue Length 95th (m)	34.8	43.7	#228.8	37.9	10.1	8.9	#219.1	0.0	#48.7	78.7
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	608	969	562	953	837	158	1190	1583	72	1179
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.25	1.13	0.22	0.09	0.12	1.12	0.70	1.06	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2035 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	229	5	609	202	72	18	1283	1070	73	592	39
Future Volume (vph)	165	229	5	609	202	72	18	1283	1070	73	592	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3489	
Flt Permitted	0.63	1.00		0.61	1.00	1.00	0.30	1.00	1.00	0.11	1.00	
Satd. Flow (perm)	1178	1876		1089	1845	1578	472	3539	1583	214	3489	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	172	239	5	634	210	75	19	1336	1115	76	617	41
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	5	0
Lane Group Flow (vph)	172	244	0	634	210	52	19	1336	1115	76	653	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	54.5	54.5		54.5	54.5	54.5	35.5	35.5	105.5	35.5	35.5	
Effective Green, g (s)	54.5	54.5		54.5	54.5	54.5	35.5	35.5	105.5	35.5	35.5	
Actuated g/C Ratio	0.52	0.52		0.52	0.52	0.52	0.34	0.34	1.00	0.34	0.34	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	608	969		562	953	815	158	1190	1583	72	1174	
v/s Ratio Prot		0.13			0.11			0.38			0.19	
v/s Ratio Perm	0.15			0.58		0.03	0.04		0.70	0.35		
v/c Ratio	0.28	0.25		1.13	0.22	0.06	0.12	1.12	0.70	1.06	0.56	
Uniform Delay, d1	14.4	14.2		25.5	13.9	12.7	24.2	35.0	0.0	35.0	28.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.6		78.4	0.5	0.2	0.3	66.7	2.7	122.2	0.6	
Delay (s)	15.6	14.8		103.9	14.4	12.9	24.5	101.7	2.7	157.2	29.1	
Level of Service	B	B		F	B	B	C	F	A	F	C	
Approach Delay (s)		15.1			76.0			56.4			42.4	
Approach LOS		B			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			54.3		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			1.12									
Actuated Cycle Length (s)			105.5		Sum of lost time (s)					15.5		
Intersection Capacity Utilization			129.2%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2035 Total PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	160	1256	71	43	873	27	34	96
v/c Ratio	0.37	0.46	0.06	0.15	0.33	0.13	0.09	0.20
Control Delay	8.0	6.5	1.4	3.0	2.3	51.7	0.5	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	6.5	1.4	3.0	2.3	51.7	0.5	1.0
Queue Length 50th (m)	13.1	60.3	0.8	1.4	14.2	6.8	0.0	0.0
Queue Length 95th (m)	24.4	71.6	4.3	2.7	16.7	16.3	0.0	0.0
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	15.0		30.0	25.0		35.0		
Base Capacity (vph)	436	2717	1204	279	2639	202	373	472
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.46	0.06	0.15	0.33	0.13	0.09	0.20
Intersection Summary								

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2035 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1143	65	39	794	0	25	0	31	0	0	88
Future Volume (vph)	147	1143	65	39	794	0	25	0	31	0	0	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3539	1552	1801	3438		1805	1615			1583	
Flt Permitted	0.30	1.00	1.00	0.19	1.00		0.63	1.00			1.00	
Satd. Flow (perm)	568	3539	1552	364	3438		1204	1615			1583	
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	160	1256	71	43	873	0	27	0	34	0	0	96
RTOR Reduction (vph)	0	0	13	0	0	0	0	28	0	0	80	0
Lane Group Flow (vph)	160	1256	58	43	873	0	27	6	0	0	16	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	2%	0%	0%	5%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Effective Green, g (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.17	0.17			0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	436	2717	1191	279	2639		202	271			265	
v/s Ratio Prot		c0.35			0.25			0.00			0.01	
v/s Ratio Perm	0.28		0.04	0.12			c0.02					
v/c Ratio	0.37	0.46	0.05	0.15	0.33		0.13	0.02			0.06	
Uniform Delay, d1	5.3	5.8	3.9	4.3	5.1		49.6	48.6			49.0	
Progression Factor	1.00	1.00	1.00	0.42	0.39		1.00	1.00			1.00	
Incremental Delay, d2	2.4	0.6	0.1	1.1	0.3		1.4	0.1			0.4	
Delay (s)	7.6	6.4	4.0	2.9	2.3		51.0	48.8			49.4	
Level of Service	A	A	A	A	A		D	D			D	
Approach Delay (s)		6.4			2.3			49.7			49.4	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			7.6				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			55.1%				ICU Level of Service			B		
Analysis Period (min)			15									

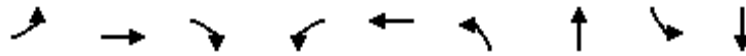
c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2035 Total PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	160	1011	33	226	947	26	187	83	96
v/c Ratio	0.47	0.42	0.03	0.72	0.42	0.09	0.40	0.39	0.17
Control Delay	15.4	10.7	2.2	26.8	5.1	44.9	14.2	53.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	10.7	2.2	26.8	5.1	44.9	14.2	53.0	0.7
Queue Length 50th (m)	19.3	64.1	0.0	62.3	24.9	6.1	8.7	20.9	0.0
Queue Length 95th (m)	28.9	72.7	m3.3	#96.7	29.5	15.0	31.1	38.5	0.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	339	2388	1072	315	2274	287	465	215	558
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.42	0.03	0.72	0.42	0.09	0.40	0.39	0.17

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan 3: Woodspring Avenue/Minor Collector & Green Lane

2035 Total PM Peak Hour

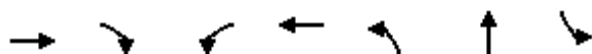
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	991	32	221	704	211	25	0	183	76	0	88
Future Volume (vph)	147	991	32	221	704	211	25	0	183	76	0	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1572	1785	3336		1803	1599		1770	1583	
Flt Permitted	0.27	1.00	1.00	0.25	1.00		0.69	1.00		0.53	1.00	
Satd. Flow (perm)	504	3539	1572	467	3336		1319	1599		989	1583	
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	160	1011	33	226	718	229	26	0	187	83	0	96
RTOR Reduction (vph)	0	0	11	0	22	0	0	117	0	0	75	0
Lane Group Flow (vph)	160	1011	22	226	925	0	26	70	0	83	21	0
Confl. Peds. (#/hr)			3	3			1					
Heavy Vehicles (%)	2%	2%	0%	1%	5%	2%	0%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Effective Green, g (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	340	2388	1061	315	2251		287	348		215	344	
v/s Ratio Prot		0.29			0.28			0.04			0.01	
v/s Ratio Perm	0.32		0.01	c0.48			0.02			c0.08		
v/c Ratio	0.47	0.42	0.02	0.72	0.41		0.09	0.20		0.39	0.06	
Uniform Delay, d1	10.8	10.4	7.5	14.3	10.2		43.7	44.8		46.8	43.4	
Progression Factor	0.94	0.98	1.02	0.86	0.48		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.5	0.0	12.3	0.5		0.6	1.3		5.2	0.3	
Delay (s)	14.4	10.6	7.7	24.6	5.4		44.3	46.1		51.9	43.7	
Level of Service	B	B	A	C	A		D	D		D	D	
Approach Delay (s)		11.0			9.1			45.9			47.5	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			132.4%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2035 Total PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1184	102	22	1116	57	40
Future Volume (Veh/h)	1184	102	22	1116	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1260	109	23	1187	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.87		0.93	0.87
vC, conflicting volume			1369		1954	684
vC1, stage 1 conf vol					1314	
vC2, stage 2 conf vol					640	
vCu, unblocked vol			1120		1233	331
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		75	93
cM capacity (veh/h)			504		241	582
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	840	529	23	594	594	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	504	1700	1700	318
Volume to Capacity	0.49	0.31	0.05	0.35	0.35	0.33
Queue Length 95th (m)	0.0	0.0	1.1	0.0	0.0	11.1
Control Delay (s)	0.0	0.0	12.5	0.0	0.0	21.8
Lane LOS			B			C
Approach Delay (s)	0.0		0.2			21.8
Approach LOS						C
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			48.2%		ICU Level of Service	A
Analysis Period (min)			15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL
Lane Group Flow (vph)	1052	158	240	1006	169	269	83
v/c Ratio	0.57	0.19	0.65	0.45	0.48	0.42	0.45
Control Delay	26.3	12.3	9.3	7.8	50.6	3.7	53.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	12.3	9.3	7.8	50.6	3.7	53.8
Queue Length 50th (m)	109.1	14.2	10.0	82.6	42.4	0.0	20.6
Queue Length 95th (m)	129.8	26.4	m9.9	m82.8	66.7	9.3	39.0
Internal Link Dist (m)	233.8			262.9		110.6	
Turn Bay Length (m)		45.0	40.0				15.0
Base Capacity (vph)	1853	850	469	2232	350	634	185
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.19	0.51	0.45	0.48	0.42	0.45

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2035 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1020	153	233	931	42	164	0	261	76	0	0
Future Volume (vph)	0	1020	153	233	931	42	164	0	261	76	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5	4.0	7.5		7.5	7.5		7.5		
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00		
Frpb, ped/bikes		1.00	0.96	1.00	1.00		1.00	1.00		1.00		
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Frt		1.00	0.85	1.00	0.99		1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95		
Satd. Flow (prot)		3539	1543	1805	3450		1787	1583		1770		
Flt Permitted		1.00	1.00	0.18	1.00		0.76	1.00		0.40		
Satd. Flow (perm)		3539	1543	342	3450		1424	1583		752		
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.92	0.97	0.92	0.97	0.92	0.92	0.92
Adj. Flow (vph)	0	1052	158	240	960	46	169	0	269	83	0	0
RTOR Reduction (vph)	0	0	42	0	2	0	0	203	0	0	0	0
Lane Group Flow (vph)	0	1052	116	240	1004	0	169	66	0	83	0	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	2%	1%	0%	4%	2%	1%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm		
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)		73.3	73.3	90.5	90.5		34.5	34.5		34.5		
Effective Green, g (s)		73.3	73.3	90.5	90.5		34.5	34.5		34.5		
Actuated g/C Ratio		0.52	0.52	0.65	0.65		0.25	0.25		0.25		
Clearance Time (s)		7.5	7.5	4.0	7.5		7.5	7.5		7.5		
Vehicle Extension (s)		0.2	0.2	3.0	0.2		0.2	0.2		0.2		
Lane Grp Cap (vph)		1852	807	359	2230		350	390		185		
v/s Ratio Prot		0.30		c0.06	0.29			0.04				
v/s Ratio Perm			0.07	c0.37			c0.12			0.11		
v/c Ratio		0.57	0.14	0.67	0.45		0.48	0.17		0.45		
Uniform Delay, d1		22.6	17.2	14.6	12.3		45.1	41.5		44.7		
Progression Factor		1.07	1.41	0.62	0.60		1.00	1.00		1.00		
Incremental Delay, d2		1.2	0.4	2.0	0.3		4.7	0.9		7.7		
Delay (s)		25.5	24.6	11.1	7.7		49.8	42.4		52.4		
Level of Service		C	C	B	A		D	D		D		
Approach Delay (s)		25.4			8.4			45.3			52.4	
Approach LOS		C			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			21.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			127.1%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Total PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	325	966	172	382	900	648	231	1395	455	458	886	153
v/c Ratio	0.96	1.06	0.35	1.13	1.00	0.92	0.91	1.44	0.77	0.86	0.72	0.25
Control Delay	66.2	99.6	25.4	126.6	82.4	51.8	64.6	242.6	31.8	81.5	47.1	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	99.6	25.4	126.6	82.4	51.8	64.6	242.6	31.8	81.5	47.1	21.3
Queue Length 50th (m)	86.3	~166.4	25.1	~111.1	~140.8	150.9	39.5	~292.1	61.6	70.1	107.5	11.6
Queue Length 95th (m)	#140.4	#210.9	46.7	#178.0	#187.3	#245.3	#82.5	#337.0	107.7	#94.5	149.3	m35.1
Internal Link Dist (m)	262.9				265.2		202.7				246.1	
Turn Bay Length (m)	30.0			30.0	170.0	170.0		90.0			90.0	45.0
Base Capacity (vph)	342	910	491	338	896	706	254	967	592	544	1238	614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.06	0.35	1.13	1.00	0.92	0.91	1.44	0.77	0.84	0.72	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2035 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	956	170	378	891	642	229	1381	450	453	877	151
Future Volume (vph)	322	956	170	378	891	642	229	1381	450	453	877	151
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1804	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.21	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	208	3471	1562	393	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	325	966	172	382	900	648	231	1395	455	458	886	153
RTOR Reduction (vph)	0	0	98	0	0	36	0	0	174	0	0	61
Lane Group Flow (vph)	325	966	74	382	900	612	231	1395	281	458	886	92
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	57.8	36.0	36.0	58.2	36.2	57.7	48.5	37.5	37.5	21.5	49.0	49.0
Effective Green, g (s)	57.8	36.0	36.0	58.2	36.2	57.7	48.5	37.5	37.5	21.5	49.0	49.0
Actuated g/C Ratio	0.41	0.26	0.26	0.42	0.26	0.41	0.35	0.27	0.27	0.15	0.35	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	335	910	393	334	897	643	247	966	418	532	1238	553
v/s Ratio Prot	0.15	0.27		c0.18	0.26	c0.15	0.07	c0.39		0.13	0.25	
v/s Ratio Perm	0.25		0.05	c0.30		0.25	0.25		0.18			0.06
v/c Ratio	0.97	1.06	0.19	1.14	1.00	0.95	0.94	1.44	0.67	0.86	0.72	0.17
Uniform Delay, d1	42.7	52.0	40.6	43.7	51.9	39.8	38.3	51.2	45.8	57.8	39.5	31.4
Progression Factor	0.74	1.11	2.01	1.00	1.00	1.00	1.00	1.00	1.00	1.15	1.10	1.56
Incremental Delay, d2	37.9	45.7	0.4	94.1	30.9	24.0	39.6	205.7	8.3	12.0	3.2	0.6
Delay (s)	69.4	103.3	81.8	137.9	82.8	63.8	77.9	257.0	54.1	78.7	46.7	49.6
Level of Service	E	F	F	F	F	E	E	F	D	E	D	D
Approach Delay (s)		93.2			87.3			192.7			56.8	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			113.5		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					23.0		
Intersection Capacity Utilization			117.8%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2035 Total PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	125	152	259	187	2030	158	208	1263
v/c Ratio	0.50	0.86	0.69	1.16	0.93	0.18	0.89	0.50
Control Delay	30.5	96.7	33.5	100.2	15.7	3.3	77.9	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	96.7	33.5	100.2	15.7	3.3	77.9	5.4
Queue Length 50th (m)	13.5	42.9	30.3	~65.5	302.5	4.6	32.8	106.7
Queue Length 95th (m)	34.6	#78.0	61.9	m#53.3	m90.5	m3.0	#101.3	22.5
Internal Link Dist (m)	94.9	97.1			149.9			342.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	278	202	406	161	2182	867	235	2530
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.75	0.64	1.16	0.93	0.18	0.89	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2035 Total PM Peak Hour

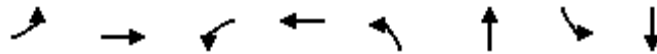
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	2	84	147	0	251	181	1969	153	202	1168	57
Future Volume (vph)	35	2	84	147	0	251	181	1969	153	202	1168	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1679			1801	1599	1142	3574	1381	1770	3413	
Flt Permitted		0.72			0.60	1.00	0.22	1.00	1.00	0.04	1.00	
Satd. Flow (perm)		1230			1132	1599	265	3574	1381	83	3413	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	36	2	87	152	0	259	187	2030	158	208	1204	59
RTOR Reduction (vph)	0	61	0	0	0	124	0	0	24	0	2	0
Lane Group Flow (vph)	0	64	0	0	152	135	187	2030	134	208	1261	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		21.8			21.8	21.8	85.5	85.5	85.5	103.7	103.7	
Effective Green, g (s)		21.8			21.8	21.8	85.5	85.5	85.5	103.7	103.7	
Actuated g/C Ratio		0.16			0.16	0.16	0.61	0.61	0.61	0.74	0.74	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		191			176	248	161	2182	843	232	2528	
v/s Ratio Prot								0.57		0.09	0.37	
v/s Ratio Perm		0.05			0.13	0.08	0.71		0.10	0.57		
v/c Ratio		0.34			0.86	0.54	1.16	0.93	0.16	0.90	0.50	
Uniform Delay, d1		52.7			57.7	54.5	27.2	24.6	11.7	49.4	7.5	
Progression Factor		1.00			1.00	1.00	0.58	0.56	0.44	1.20	0.60	
Incremental Delay, d2		1.0			32.8	2.4	79.3	1.0	0.0	30.7	0.6	
Delay (s)		53.7			90.4	56.9	95.2	14.8	5.3	89.8	5.1	
Level of Service		D			F	E	F	B	A	F	A	
Approach Delay (s)		53.7			69.3			20.5			17.1	
Approach LOS		D			E			C			B	
Intersection Summary												
HCM 2000 Control Delay		24.9										
HCM 2000 Volume to Capacity ratio		1.07										
Actuated Cycle Length (s)		140.0										
Intersection Capacity Utilization		116.5%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2035 Total PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (veh/h)	0	0	0	2345	1410	0
Future Volume (Veh/h)	0	0	0	2345	1410	0
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)	0	0	0	2549	1533	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)				270	174	
pX, platoon unblocked	0.82	0.85	0.85			
vC, conflicting volume	2808	766	1533			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1927	366	1270			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	48	535	460			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	1274	1274	1022	511	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.75	0.75	0.60	0.30	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			68.2%	ICU Level of Service		C
Analysis Period (min)			15			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	532	79	665	108	2385	180	1502
v/c Ratio	1.26	0.58	0.59	0.75	0.64	0.70	3.46	0.44
Control Delay	222.8	45.3	62.1	52.5	42.5	30.0	1162.5	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	222.8	45.3	62.1	52.5	42.5	30.0	1162.5	11.9
Queue Length 50th (m)	~39.8	70.2	20.6	95.6	27.8	231.3	~77.9	65.9
Queue Length 95th (m)	#69.9	76.8	35.4	101.7	m35.4	252.9	#133.9	103.9
Internal Link Dist (m)		192.3		102.0		83.9		117.4
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	154	1631	240	1595	169	3414	52	3399
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.33	0.33	0.42	0.64	0.70	3.46	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2035 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	399	90	73	434	178	99	2118	76	166	1290	92
Future Volume (vph)	98	399	90	73	434	178	99	2118	76	166	1290	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3441		1770	3385		1770	5059		1770	5035	
Flt Permitted	0.18	1.00		0.27	1.00		0.14	1.00		0.04	1.00	
Satd. Flow (perm)	328	3441		510	3385		252	5059		79	5035	
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)	107	434	98	79	472	193	108	2302	83	180	1402	100
RTOR Reduction (vph)	0	13	0	0	1	0	0	2	0	0	4	0
Lane Group Flow (vph)	107	519	0	79	664	0	108	2383	0	180	1498	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	36.6	36.6		36.6	36.6		94.4	94.4		94.4	94.4	
Effective Green, g (s)	36.6	36.6		36.6	36.6		94.4	94.4		94.4	94.4	
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.67	0.67		0.67	0.67	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	85	899		133	884		169	3411		53	3395	
v/s Ratio Prot		0.15			0.20			0.47			0.30	
v/s Ratio Perm	c0.33			0.15			0.43			c2.28		
v/c Ratio	1.26	0.58		0.59	0.75		0.64	0.70		3.40	0.44	
Uniform Delay, d1	51.7	45.0		45.2	47.5		13.0	14.0		22.8	10.6	
Progression Factor	1.00	1.00		1.00	1.00		1.78	1.90		1.00	1.00	
Incremental Delay, d2	182.3	0.9		6.9	3.6		9.4	0.6		1124.5	0.4	
Delay (s)	234.0	45.9		52.1	51.2		32.6	27.3		1147.3	11.0	
Level of Service	F	D		D	D		C	C		F	B	
Approach Delay (s)		77.4			51.3			27.5			132.6	
Approach LOS		E			D			C			F	
Intersection Summary												
HCM 2000 Control Delay		68.2			HCM 2000 Level of Service			E				
HCM 2000 Volume to Capacity ratio		2.78										
Actuated Cycle Length (s)		140.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		89.9%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2040 Total AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	137	1060	246	51	5	668	754	76	1291
v/c Ratio	0.10	0.12	1.47	0.22	0.06	0.09	0.78	0.51	0.76	1.51
Control Delay	9.3	9.1	243.6	10.0	3.0	35.2	44.3	1.3	81.7	267.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	9.1	243.6	10.0	3.0	35.2	44.3	1.3	81.7	267.7
Queue Length 50th (m)	6.1	11.6	~316.0	22.4	0.3	0.8	71.0	0.0	15.3	~206.5
Queue Length 95th (m)	12.5	20.0	#395.5	34.9	5.0	4.2	92.8	0.0	#42.3	#250.3
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	697	1128	719	1139	924	57	858	1482	100	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.12	1.47	0.22	0.06	0.09	0.78	0.51	0.76	1.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan
 1: Bathurst Street & Miller's Sideroad/Green Lane 2040 Total AM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	71	124	10	1039	241	50	5	655	739	74	1160	105		
Future Volume (vph)	71	124	10	1039	241	50	5	655	739	74	1160	105		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5			
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95			
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1805	1862		1687	1881	1495	1444	3471	1482	1770	3425			
Flt Permitted	0.61	1.00		0.67	1.00	1.00	0.15	1.00	1.00	0.22	1.00			
Satd. Flow (perm)	1152	1862		1189	1881	1495	233	3471	1482	407	3425			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	72	127	10	1060	246	51	5	668	754	76	1184	107		
RTOR Reduction (vph)	0	0	0	0	0	19	0	0	0	0	6	0		
Lane Group Flow (vph)	72	137	0	1060	246	32	5	668	754	76	1285	0		
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%		
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA			
Protected Phases		6			2			8			4			
Permitted Phases	6			2		2	8		Free	4				
Actuated Green, G (s)	63.9	63.9		63.9	63.9	63.9	26.1	26.1	105.5	26.1	26.1			
Effective Green, g (s)	63.9	63.9		63.9	63.9	63.9	26.1	26.1	105.5	26.1	26.1			
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.25	0.25	1.00	0.25	0.25			
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5			
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	697	1127		720	1139	905	57	858	1482	100	847			
v/s Ratio Prot		0.07			0.13			0.19			c0.38			
v/s Ratio Perm	0.06			c0.89		0.02	0.02		0.51	0.19				
v/c Ratio	0.10	0.12		1.47	0.22	0.04	0.09	0.78	0.51	0.76	1.52			
Uniform Delay, d1	8.7	8.9		20.8	9.4	8.4	30.5	37.0	0.0	36.8	39.7			
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.3	0.2		220.0	0.4	0.1	0.7	4.5	1.3	28.2	238.8			
Delay (s)	9.0	9.1		240.8	9.9	8.5	31.2	41.5	1.3	65.0	278.5			
Level of Service	A	A		F	A	A	C	D	A	E	F			
Approach Delay (s)		9.1			190.2			20.2			266.6			
Approach LOS		A			F			C			F			
Intersection Summary														
HCM 2000 Control Delay			149.8									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.48											
Actuated Cycle Length (s)			105.5								15.5			
Intersection Capacity Utilization			153.0%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2040 Total AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	92	863	47	19	1095	69	49	208
v/c Ratio	0.33	0.38	0.05	0.05	0.47	0.33	0.09	0.43
Control Delay	12.0	9.1	2.1	4.6	6.9	45.7	0.3	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	9.1	2.1	4.6	6.9	45.7	0.3	18.2
Queue Length 50th (m)	9.1	46.8	0.3	1.3	43.1	15.4	0.0	16.0
Queue Length 95th (m)	19.9	58.1	4.1	m2.3	50.4	30.6	0.0	39.9
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	15.0		30.0	25.0		35.0		
Base Capacity (vph)	279	2301	1043	385	2344	212	550	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.38	0.05	0.05	0.47	0.33	0.09	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

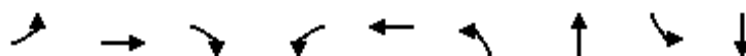
HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2040 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	803	44	18	1018	0	64	0	46	0	0	191
Future Volume (vph)	85	803	44	18	1018	0	64	0	46	0	0	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3343	1496	1802	3406		1805	1615			1583	
Flt Permitted	0.22	1.00	1.00	0.29	1.00		0.46	1.00			1.00	
Satd. Flow (perm)	407	3343	1496	559	3406		876	1615			1583	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	92	863	47	19	1095	0	69	0	49	0	0	208
RTOR Reduction (vph)	0	0	14	0	0	0	0	37	0	0	102	0
Lane Group Flow (vph)	92	863	33	19	1095	0	69	12	0	0	106	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	8%	5%	0%	6%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Effective Green, g (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24			0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	280	2301	1029	384	2344		212	391			383	
v/s Ratio Prot		0.26			c0.32			0.01			0.07	
v/s Ratio Perm	0.23		0.02	0.03			c0.08					
v/c Ratio	0.33	0.38	0.03	0.05	0.47		0.33	0.03			0.28	
Uniform Delay, d1	8.2	8.5	6.5	6.5	9.3		40.5	37.6			40.0	
Progression Factor	1.00	1.00	1.00	0.65	0.66		1.00	1.00			1.00	
Incremental Delay, d2	3.1	0.5	0.1	0.2	0.6		4.0	0.1			1.8	
Delay (s)	11.3	9.0	6.5	4.5	6.8		44.6	37.7			41.8	
Level of Service	B	A	A	A	A		D	D			D	
Approach Delay (s)		9.1			6.8			41.7			41.8	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			12.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			63.8%			ICU Level of Service				B		
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	814	26	127	949	37	248	178	208
v/c Ratio	0.36	0.43	0.03	0.41	0.51	0.11	0.41	0.59	0.34
Control Delay	19.3	16.1	2.3	25.7	23.3	32.4	14.3	46.7	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	16.1	2.3	25.7	23.3	32.4	14.3	46.7	10.0
Queue Length 50th (m)	11.8	55.0	0.0	15.6	103.5	7.0	16.9	40.2	8.3
Queue Length 95th (m)	20.3	64.6	2.6	46.7	111.4	16.1	40.7	67.2	28.1
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	256	1907	902	312	1859	343	610	301	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.43	0.03	0.41	0.51	0.11	0.41	0.59	0.34
Intersection Summary									

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2040 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	757	24	118	758	123	34	0	231	164	0	191
Future Volume (vph)	85	757	24	118	758	123	34	0	231	164	0	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3374	1567	1765	3271		1805	1568		1770	1583	
Flt Permitted	0.24	1.00	1.00	0.30	1.00		0.57	1.00		0.51	1.00	
Satd. Flow (perm)	453	3374	1567	552	3271		1076	1568		947	1583	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	92	814	26	127	815	134	37	0	248	178	0	208
RTOR Reduction (vph)	0	0	11	0	10	0	0	110	0	0	112	0
Lane Group Flow (vph)	92	814	15	127	939	0	37	138	0	178	96	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	7%	0%	2%	9%	2%	0%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Effective Green, g (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	256	1907	885	312	1849		343	500		302	505	
v/s Ratio Prot		0.24			c0.29			0.09			0.06	
v/s Ratio Perm	0.20		0.01	0.23			0.03			c0.19		
v/c Ratio	0.36	0.43	0.02	0.41	0.51		0.11	0.28		0.59	0.19	
Uniform Delay, d1	15.4	16.2	12.4	15.9	17.2		31.2	33.0		37.1	32.1	
Progression Factor	0.94	0.95	1.02	1.30	1.32		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.7	0.0	3.5	0.9		0.6	1.4		8.2	0.8	
Delay (s)	18.2	16.0	12.7	24.3	23.6		31.8	34.4		45.3	32.9	
Level of Service	B	B	B	C	C		C	C		D	C	
Approach Delay (s)		16.1			23.7			34.1			38.6	
Approach LOS		B			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			24.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			131.7%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2040 Total AM Peak Hour

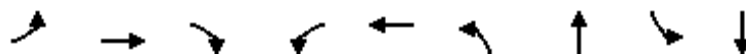
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱		↱	↑↑	↱↱	
Traffic Volume (veh/h)	1126	81	22	1012	13	5
Future Volume (Veh/h)	1126	81	22	1012	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1211	87	24	1088	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.87		0.92	0.87
vC, conflicting volume			1298		1846	649
vC1, stage 1 conf vol					1254	
vC2, stage 2 conf vol					592	
vCu, unblocked vol			1040		1094	293
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		95	99
cM capacity (veh/h)			562		273	484
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	807	491	24	544	544	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	562	1700	1700	308
Volume to Capacity	0.47	0.29	0.04	0.32	0.32	0.06
Queue Length 95th (m)	0.0	0.0	1.1	0.0	0.0	1.6
Control Delay (s)	0.0	0.0	11.7	0.0	0.0	17.4
Lane LOS			B		C	
Approach Delay (s)	0.0		0.3			17.4
Approach LOS					C	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			43.7%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2040 Total AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	1007	109	338	1049	70	105	186	14
v/c Ratio	0.10	0.62	0.14	0.78	0.49	0.21	0.16	0.63	0.03
Control Delay	19.2	24.1	9.6	42.3	11.1	42.6	0.5	55.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	24.1	9.6	42.3	11.1	42.6	0.5	55.7	0.2
Queue Length 50th (m)	3.1	96.9	6.7	61.1	49.0	15.4	0.0	45.5	0.0
Queue Length 95th (m)	m9.0	119.2	16.5	m84.3	74.4	29.4	0.0	72.8	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	15.0		45.0	40.0				15.0	
Base Capacity (vph)	246	1621	794	515	2142	327	653	296	474
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.62	0.14	0.66	0.49	0.21	0.16	0.63	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2040 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	22	926	100	311	932	33	64	0	97	171	0	13
Future Volume (vph)	22	926	100	311	932	33	64	0	97	171	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3343	1563	1787	3273		1805	1583		1770	1583	
Flt Permitted	0.27	1.00	1.00	0.18	1.00		0.75	1.00		0.69	1.00	
Satd. Flow (perm)	508	3343	1563	341	3273		1422	1583		1284	1583	
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)	24	1007	109	338	1013	36	70	0	105	186	0	14
RTOR Reduction (vph)	0	0	37	0	2	0	0	81	0	0	11	0
Lane Group Flow (vph)	24	1007	72	338	1047	0	70	24	0	186	3	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	8%	1%	1%	10%	2%	0%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	63.1	63.1	63.1	85.0	85.0		30.0	30.0		30.0	30.0	
Effective Green, g (s)	63.1	63.1	63.1	85.0	85.0		30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.49	0.49	0.49	0.65	0.65		0.23	0.23		0.23	0.23	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	246	1622	758	422	2140		328	365		296	365	
v/s Ratio Prot		0.30		c0.11	0.32			0.02			0.00	
v/s Ratio Perm	0.05		0.05	c0.41			0.05			c0.14		
v/c Ratio	0.10	0.62	0.10	0.80	0.49		0.21	0.07		0.63	0.01	
Uniform Delay, d1	18.1	24.6	18.1	15.8	11.5		40.5	39.1		45.0	38.5	
Progression Factor	0.87	0.87	1.09	2.47	0.91		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.7	0.2	8.4	0.6		1.5	0.4		9.7	0.0	
Delay (s)	16.4	23.0	19.9	47.5	11.0		41.9	39.4		54.7	38.6	
Level of Service	B	C	B	D	B		D	D		D	D	
Approach Delay (s)		22.6			19.9			40.4			53.6	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			24.5			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			95.6%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Total AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	829	303	432	814	320	155	730	337	1024	1287	158
v/c Ratio	0.61	0.89	0.62	2.08	0.86	0.42	0.77	0.76	0.59	1.66	0.95	0.24
Control Delay	46.6	49.6	22.8	523.3	54.9	15.2	52.2	48.5	21.4	335.7	38.1	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	49.6	22.8	523.3	54.9	15.2	52.2	48.5	21.4	335.7	38.1	5.2
Queue Length 50th (m)	16.3	92.4	20.8	~167.7	110.4	35.2	23.5	94.8	32.8	~208.0	166.2	4.2
Queue Length 95th (m)	m41.6	#125.3	46.1	#235.5	#143.8	58.2	#55.7	118.9	66.0	m#245.0	m#220.5	m8.0
Internal Link Dist (m)	262.9			265.2			202.7			246.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0		90.0			45.0
Base Capacity (vph)	215	943	492	208	946	754	214	960	567	617	1356	659
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.88	0.62	2.08	0.86	0.42	0.72	0.76	0.59	1.66	0.95	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	804	294	419	790	310	150	708	327	993	1248	153
Future Volume (vph)	120	804	294	419	790	310	150	708	327	993	1248	153
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1480	1687	3374	1511	3433	3505	1544
Flt Permitted	0.14	1.00	1.00	0.12	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	246	3406	1406	209	3374	1480	192	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	829	303	432	814	320	155	730	337	1024	1287	158
RTOR Reduction (vph)	0	0	104	0	0	52	0	0	137	0	0	62
Lane Group Flow (vph)	124	829	199	432	814	268	155	730	200	1024	1287	96
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	45.7	35.6	35.6	47.5	36.5	59.9	48.1	37.0	37.0	23.4	50.3	50.3
Effective Green, g (s)	45.7	35.6	35.6	47.5	36.5	59.9	48.1	37.0	37.0	23.4	50.3	50.3
Actuated g/C Ratio	0.35	0.27	0.27	0.37	0.28	0.46	0.37	0.28	0.28	0.18	0.39	0.39
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	198	932	385	204	947	681	198	960	430	617	1356	597
v/s Ratio Prot	0.05	0.24		c0.18	0.24	0.07	0.07	0.22		c0.30	c0.37	
v/s Ratio Perm	0.17		0.14	c0.60		0.11	0.22		0.13			0.06
v/c Ratio	0.63	0.89	0.52	2.12	0.86	0.39	0.78	0.76	0.46	1.66	0.95	0.16
Uniform Delay, d1	31.7	45.3	39.9	33.3	44.3	23.1	32.1	42.5	38.3	53.3	38.6	26.1
Progression Factor	1.46	0.86	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.06	0.70	0.43
Incremental Delay, d2	5.0	9.3	1.9	519.1	8.6	0.4	18.0	5.7	3.6	301.0	9.8	0.3
Delay (s)	51.4	48.3	35.4	552.4	52.9	23.5	50.2	48.1	41.9	357.2	37.0	11.6
Level of Service	D	D	D	F	D	C	D	D	D	F	D	B
Approach Delay (s)		45.5			184.7			46.7			168.2	
Approach LOS		D			F			D			F	
Intersection Summary												
HCM 2000 Control Delay	125.7			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.65											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			23.0					
Intersection Capacity Utilization	123.8%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2040 Total AM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	245	224	154	111	900	165	284	1955
v/c Ratio	0.85	1.13	0.32	1.88	0.46	0.17	0.70	0.84
Control Delay	61.1	147.4	8.1	471.2	31.8	16.6	15.1	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	147.4	8.1	471.2	31.8	16.6	15.1	17.7
Queue Length 50th (m)	46.8	~69.6	0.0	~46.9	111.4	21.1	16.6	244.7
Queue Length 95th (m)	#95.5	#122.8	18.0	m#73.1	133.0	m33.8	21.6	289.0
Internal Link Dist (m)	94.9	97.1			149.9			342.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	287	199	479	59	1951	950	407	2326
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	1.13	0.32	1.88	0.46	0.17	0.70	0.84

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2040 Total AM Peak Hour

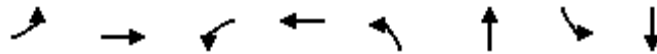
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	166	222	0	152	110	891	163	281	1898	38
Future Volume (vph)	76	0	166	222	0	152	110	891	163	281	1898	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1697			1736	1615	1805	3406	1579	1787	3495	
Flt Permitted		0.61			0.49	1.00	0.05	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1044			895	1615	102	3406	1579	472	3495	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	77	0	168	224	0	154	111	900	165	284	1917	38
RTOR Reduction (vph)	0	55	0	0	0	120	0	0	46	0	1	0
Lane Group Flow (vph)	0	190	0	0	224	34	111	900	119	284	1954	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		29.0			29.0	29.0	74.5	74.5	74.5	86.5	86.5	
Effective Green, g (s)		29.0			29.0	29.0	74.5	74.5	74.5	86.5	86.5	
Actuated g/C Ratio		0.22			0.22	0.22	0.57	0.57	0.57	0.67	0.67	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		232			199	360	58	1951	904	394	2325	
v/s Ratio Prot								0.26		0.04	c0.56	
v/s Ratio Perm		0.18			c0.25	0.02	c1.09		0.08	0.43		
v/c Ratio		0.82			1.13	0.10	1.91	0.46	0.13	0.72	0.84	
Uniform Delay, d1		48.0			50.5	40.1	27.8	16.1	12.8	10.9	16.5	
Progression Factor		1.00			1.00	1.00	1.79	1.91	3.29	0.94	0.87	
Incremental Delay, d2		19.6			101.6	0.1	457.3	0.6	0.2	4.8	2.9	
Delay (s)		67.6			152.1	40.2	507.0	31.4	42.4	15.1	17.3	
Level of Service		E			F	D	F	C	D	B	B	
Approach Delay (s)		67.6			106.5			77.9			17.0	
Approach LOS		E			F			E			B	
Intersection Summary												
HCM 2000 Control Delay		46.2										
HCM 2000 Volume to Capacity ratio		1.63										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		146.0%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2040 Total AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	0	1138	2288	4
Future Volume (Veh/h)	0	5	0	1138	2288	4
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)	0	5	0	1237	2487	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				270	174	
pX, platoon unblocked	0.61	0.52	0.52			
vC, conflicting volume	3108	1246	2491			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1779	0	2016			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	45	561	144			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	5	618	618	1658	833	
Volume Left	0	0	0	0	0	
Volume Right	5	0	0	0	4	
cSH	561	1700	1700	1700	1700	
Volume to Capacity	0.01	0.36	0.36	0.98	0.49	
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	
Control Delay (s)	11.5	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	11.5	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			73.4%	ICU Level of Service		D
Analysis Period (min)			15			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	695	62	616	65	1168	310	2291
v/c Ratio	0.99	0.77	0.77	0.66	1.14	0.35	1.22	0.68
Control Delay	130.7	49.5	93.0	42.5	205.6	27.3	152.7	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.7	49.5	93.0	42.5	205.6	27.3	152.7	15.6
Queue Length 50th (m)	29.0	91.6	15.5	73.6	~20.5	99.4	~101.9	126.5
Queue Length 95th (m)	#60.1	102.3	#36.1	84.1	m#54.3	115.3	#109.5	181.2
Internal Link Dist (m)		192.3		102.0		83.9		117.4
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	194	1615	146	1639	57	3360	255	3363
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.43	0.42	0.38	1.14	0.35	1.22	0.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2040 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	460	179	57	418	149	60	1031	43	285	2035	73
Future Volume (vph)	98	460	179	57	418	149	60	1031	43	285	2035	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3390		1770	3400		1770	5055		1770	5059	
Flt Permitted	0.22	1.00		0.17	1.00		0.05	1.00		0.21	1.00	
Satd. Flow (perm)	409	3390		308	3400		86	5055		384	5059	
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)	107	500	195	62	454	162	65	1121	47	310	2212	79
RTOR Reduction (vph)	0	1	0	0	29	0	0	2	0	0	2	0
Lane Group Flow (vph)	107	694	0	62	587	0	65	1166	0	310	2289	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	34.6	34.6		34.6	34.6		86.4	86.4		86.4	86.4	
Effective Green, g (s)	34.6	34.6		34.6	34.6		86.4	86.4		86.4	86.4	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.66	0.66		0.66	0.66	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	902		81	904		57	3359		255	3362	
v/s Ratio Prot		0.20			0.17			0.23			0.45	
v/s Ratio Perm	c0.26			0.20			0.75			c0.81		
v/c Ratio	0.99	0.77		0.77	0.65		1.14	0.35		1.22	0.68	
Uniform Delay, d1	47.5	44.0		44.0	42.3		21.8	9.5		21.8	13.4	
Progression Factor	1.00	1.00		1.00	1.00		2.33	2.66		1.00	1.00	
Incremental Delay, d2	83.5	4.0		34.2	1.6		157.6	0.3		127.4	1.1	
Delay (s)	131.0	48.0		78.1	43.9		208.4	25.5		149.2	14.5	
Level of Service	F	D		E	D		F	C		F	B	
Approach Delay (s)		59.1			47.1			35.1			30.5	
Approach LOS		E			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			38.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			82.7%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2040 Total PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	179	256	754	234	84	20	1450	1258	86	759
v/c Ratio	0.30	0.26	1.37	0.25	0.10	0.16	1.22	0.79	1.19	0.64
Control Delay	16.3	15.1	202.5	15.0	7.0	28.7	138.5	4.2	203.0	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	15.1	202.5	15.0	7.0	28.7	138.5	4.2	203.0	32.4
Queue Length 50th (m)	21.2	29.6	~215.8	26.8	3.8	3.0	~203.0	0.0	~22.5	71.7
Queue Length 95th (m)	36.5	45.9	#288.9	42.1	11.6	9.6	#246.7	0.0	#55.0	93.0
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	595	969	551	953	837	125	1190	1583	72	1177
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.26	1.37	0.25	0.10	0.16	1.22	0.79	1.19	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) of NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2040 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	241	5	724	225	81	19	1392	1208	83	680	49
Future Volume (vph)	172	241	5	724	225	81	19	1392	1208	83	680	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3485	
Flt Permitted	0.61	1.00		0.60	1.00	1.00	0.24	1.00	1.00	0.11	1.00	
Satd. Flow (perm)	1152	1876		1068	1845	1578	374	3539	1583	214	3485	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	179	251	5	754	234	84	20	1450	1258	86	708	51
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	5	0
Lane Group Flow (vph)	179	256	0	754	234	61	20	1450	1258	86	754	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	54.5	54.5		54.5	54.5	54.5	35.5	35.5	105.5	35.5	35.5	
Effective Green, g (s)	54.5	54.5		54.5	54.5	54.5	35.5	35.5	105.5	35.5	35.5	
Actuated g/C Ratio	0.52	0.52		0.52	0.52	0.52	0.34	0.34	1.00	0.34	0.34	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	595	969		551	953	815	125	1190	1583	72	1172	
v/s Ratio Prot		0.14			0.13			c0.41			0.22	
v/s Ratio Perm	0.16			c0.71		0.04	0.05		0.79	0.40		
v/c Ratio	0.30	0.26		1.37	0.25	0.08	0.16	1.22	0.79	1.19	0.64	
Uniform Delay, d1	14.6	14.3		25.5	14.1	12.8	24.5	35.0	0.0	35.0	29.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	0.7		177.1	0.6	0.2	0.6	106.1	4.2	167.7	1.2	
Delay (s)	15.9	14.9		202.6	14.7	13.0	25.1	141.1	4.2	202.7	30.9	
Level of Service	B	B		F	B	B	C	F	A	F	C	
Approach Delay (s)		15.3			146.8			77.1			48.3	
Approach LOS		B			F			E			D	
Intersection Summary												
HCM 2000 Control Delay			81.8		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.31									
Actuated Cycle Length (s)			105.5		Sum of lost time (s)					15.5		
Intersection Capacity Utilization			138.6%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2040 Total PM Peak Hour

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	197	1390	71	43	1007	27	34	125
v/c Ratio	0.53	0.51	0.06	0.18	0.38	0.15	0.10	0.29
Control Delay	12.4	7.0	1.6	3.7	2.6	52.4	0.5	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	7.0	1.6	3.7	2.6	52.4	0.5	1.9
Queue Length 50th (m)	19.6	71.1	1.2	1.3	17.9	6.8	0.0	0.0
Queue Length 95th (m)	40.0	83.7	4.7	3.0	21.6	16.5	0.0	0.0
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	15.0		30.0	25.0		35.0		
Base Capacity (vph)	373	2717	1203	235	2639	177	351	428
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.51	0.06	0.18	0.38	0.15	0.10	0.29
Intersection Summary								

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2040 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	1265	65	39	916	0	25	0	31	0	0	115
Future Volume (vph)	181	1265	65	39	916	0	25	0	31	0	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3539	1552	1802	3438		1805	1615			1583	
Flt Permitted	0.26	1.00	1.00	0.16	1.00		0.56	1.00			1.00	
Satd. Flow (perm)	485	3539	1552	307	3438		1056	1615			1583	
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	197	1390	71	43	1007	0	27	0	34	0	0	125
RTOR Reduction (vph)	0	0	12	0	0	0	0	28	0	0	104	0
Lane Group Flow (vph)	197	1390	59	43	1007	0	27	6	0	0	21	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	2%	0%	0%	5%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Effective Green, g (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.17	0.17			0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	372	2717	1191	235	2639		177	271			265	
v/s Ratio Prot		0.39			0.29			0.00			0.01	
v/s Ratio Perm	c0.41		0.04	0.14			c0.03					
v/c Ratio	0.53	0.51	0.05	0.18	0.38		0.15	0.02			0.08	
Uniform Delay, d1	6.4	6.2	3.9	4.4	5.3		49.7	48.6			49.1	
Progression Factor	1.00	1.00	1.00	0.43	0.40		1.00	1.00			1.00	
Incremental Delay, d2	5.3	0.7	0.1	1.6	0.4		1.8	0.1			0.6	
Delay (s)	11.7	6.9	4.0	3.5	2.5		51.6	48.8			49.7	
Level of Service	B	A	A	A	A		D	D			D	
Approach Delay (s)		7.3			2.6			50.0			49.7	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.3			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			58.4%			ICU Level of Service				B		
Analysis Period (min)			15									

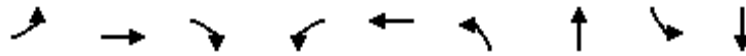
c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2040 Total PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	197	1101	33	226	1097	26	187	109	125
v/c Ratio	0.64	0.43	0.03	0.73	0.45	0.12	0.47	0.69	0.26
Control Delay	20.3	8.4	1.7	26.0	4.1	50.5	18.5	77.2	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	8.4	1.7	26.0	4.1	50.5	18.5	77.2	1.3
Queue Length 50th (m)	21.1	61.9	0.0	61.4	25.0	6.5	11.0	30.2	0.0
Queue Length 95th (m)	31.1	69.8	m2.3	#98.9	29.1	15.9	35.2	#58.5	0.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	308	2540	1138	310	2414	214	397	158	482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.43	0.03	0.73	0.45	0.12	0.47	0.69	0.26

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2040 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	1079	32	221	798	260	25	0	183	100	0	115
Future Volume (vph)	181	1079	32	221	798	260	25	0	183	100	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1572	1785	3330		1803	1599		1770	1583	
Flt Permitted	0.23	1.00	1.00	0.23	1.00		0.65	1.00		0.49	1.00	
Satd. Flow (perm)	431	3539	1572	432	3330		1226	1599		905	1583	
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	197	1101	33	226	814	283	26	0	187	109	0	125
RTOR Reduction (vph)	0	0	9	0	25	0	0	118	0	0	103	0
Lane Group Flow (vph)	197	1101	24	226	1072	0	26	69	0	109	22	0
Confl. Peds. (#/hr)			3	3			1					
Heavy Vehicles (%)	2%	2%	0%	1%	5%	2%	0%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	100.5	100.5	100.5	100.5	100.5		24.5	24.5		24.5	24.5	
Effective Green, g (s)	100.5	100.5	100.5	100.5	100.5		24.5	24.5		24.5	24.5	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72		0.18	0.18		0.18	0.18	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	309	2540	1128	310	2390		214	279		158	277	
v/s Ratio Prot		0.31			0.32			0.04			0.01	
v/s Ratio Perm	0.46		0.02	c0.52			0.02			c0.12		
v/c Ratio	0.64	0.43	0.02	0.73	0.45		0.12	0.25		0.69	0.08	
Uniform Delay, d1	10.3	8.1	5.7	11.7	8.2		48.7	49.8		54.2	48.3	
Progression Factor	0.96	0.97	1.01	0.91	0.47		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.5	0.5	0.0	12.9	0.6		1.2	2.1		21.9	0.6	
Delay (s)	18.4	8.3	5.8	23.5	4.4		49.8	51.9		76.1	48.9	
Level of Service	B	A	A	C	A		D	D		E	D	
Approach Delay (s)		9.7			7.7			51.7			61.5	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			15.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			135.4%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2040 Total PM Peak Hour

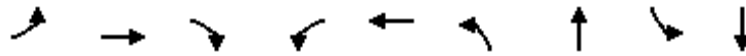
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1302	102	22	1268	57	40
Future Volume (Veh/h)	1302	102	22	1268	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1385	109	23	1349	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.87		0.90	0.87
vC, conflicting volume			1494		2160	747
vC1, stage 1 conf vol					1440	
vC2, stage 2 conf vol					720	
vCu, unblocked vol			1265		1407	405
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		70	92
cM capacity (veh/h)			441		201	522
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	923	571	23	674	674	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	441	1700	1700	269
Volume to Capacity	0.54	0.34	0.05	0.40	0.40	0.39
Queue Length 95th (m)	0.0	0.0	1.3	0.0	0.0	13.9
Control Delay (s)	0.0	0.0	13.6	0.0	0.0	26.5
Lane LOS			B			D
Approach Delay (s)	0.0		0.2			26.5
Approach LOS						D
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			51.5%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2040 Total PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	1099	158	240	1149	169	269	147	60
v/c Ratio	0.29	0.60	0.19	0.67	0.52	0.51	0.43	0.79	0.12
Control Delay	25.6	26.9	12.6	7.2	8.1	51.8	3.8	79.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	26.9	12.6	7.2	8.1	51.8	3.8	79.3	0.5
Queue Length 50th (m)	11.6	114.8	14.5	9.6	139.7	42.7	0.0	40.4	0.0
Queue Length 95th (m)	m24.8	142.5	m28.1	m6.8	m61.1	67.5	10.3	#78.8	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	15.0		45.0	40.0				15.0	
Base Capacity (vph)	238	1838	842	454	2223	332	631	185	486
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.60	0.19	0.53	0.52	0.51	0.43	0.79	0.12

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2040 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1066	153	233	1019	90	164	0	261	135	0	55
Future Volume (vph)	63	1066	153	233	1019	90	164	0	261	135	0	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1543	1805	3432		1787	1583		1770	1583	
Flt Permitted	0.25	1.00	1.00	0.16	1.00		0.72	1.00		0.40	1.00	
Satd. Flow (perm)	460	3539	1543	311	3432		1350	1583		752	1583	
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.92	0.97	0.92	0.97	0.92	0.92	0.92
Adj. Flow (vph)	68	1099	158	240	1051	98	169	0	269	147	0	60
RTOR Reduction (vph)	0	0	41	0	5	0	0	203	0	0	45	0
Lane Group Flow (vph)	68	1099	117	240	1144	0	169	66	0	147	15	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	2%	1%	0%	4%	2%	1%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	72.7	72.7	72.7	90.5	90.5		34.5	34.5		34.5	34.5	
Effective Green, g (s)	72.7	72.7	72.7	90.5	90.5		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.52	0.52	0.52	0.65	0.65		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	238	1837	801	348	2218		332	390		185	390	
v/s Ratio Prot		0.31		c0.07	0.33			0.04			0.01	
v/s Ratio Perm	0.15		0.08	c0.38			0.13			c0.20		
v/c Ratio	0.29	0.60	0.15	0.69	0.52		0.51	0.17		0.79	0.04	
Uniform Delay, d1	19.0	23.5	17.5	15.7	13.1		45.5	41.5		49.4	40.1	
Progression Factor	1.05	1.05	1.34	0.63	0.62		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	1.3	0.4	0.5	0.1		5.5	0.9		28.7	0.2	
Delay (s)	22.8	26.0	23.8	10.3	8.2		50.9	42.4		78.1	40.3	
Level of Service	C	C	C	B	A		D	D		E	D	
Approach Delay (s)		25.6			8.5			45.7			67.2	
Approach LOS		C			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			23.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			131.0%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Total PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	341	1026	219	469	987	700	289	1557	522	494	1036	160
v/c Ratio	1.00	1.13	0.45	1.38	1.11	0.99	1.39	1.63	0.88	0.91	0.84	0.26
Control Delay	73.9	119.3	29.0	223.3	111.2	66.2	231.1	322.8	43.1	82.1	53.5	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.9	119.3	29.0	223.3	111.2	66.2	231.1	322.8	43.1	82.1	53.5	21.7
Queue Length 50th (m)	87.4	~185.2	35.5	~164.1	~172.1	173.9	~91.7	~343.6	84.8	76.3	143.0	14.4
Queue Length 95th (m)	m#150.9	#229.0	m57.9	#235.3	#215.6	#200.9	#152.5	#388.2	#153.3	m#92.7	m165.8	m32.4
Internal Link Dist (m)	262.9				265.2				202.7		246.1	
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	342	910	491	339	892	704	208	954	593	544	1238	614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	1.13	0.45	1.38	1.11	0.99	1.39	1.63	0.88	0.91	0.84	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2040 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	1016	217	464	977	693	286	1541	517	489	1026	158
Future Volume (vph)	338	1016	217	464	977	693	286	1541	517	489	1026	158
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1805	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.12	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	209	3471	1562	234	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	341	1026	219	469	987	700	289	1557	522	494	1036	160
RTOR Reduction (vph)	0	0	98	0	0	36	0	0	180	0	0	61
Lane Group Flow (vph)	341	1026	121	469	987	664	289	1557	342	494	1036	99
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	58.0	36.0	36.0	58.0	36.0	58.0	48.0	37.0	37.0	22.0	49.0	49.0
Effective Green, g (s)	58.0	36.0	36.0	58.0	36.0	58.0	48.0	37.0	37.0	22.0	49.0	49.0
Actuated g/C Ratio	0.41	0.26	0.26	0.41	0.26	0.41	0.34	0.26	0.26	0.16	0.35	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	337	910	393	334	892	647	203	954	412	544	1238	553
v/s Ratio Prot	0.16	0.29		c0.22	0.28	c0.16	c0.11	c0.43		0.14	0.29	
v/s Ratio Perm	0.26		0.08	c0.36		0.26	0.38		0.22			0.06
v/c Ratio	1.01	1.13	0.31	1.40	1.11	1.03	1.42	1.63	0.83	0.91	0.84	0.18
Uniform Delay, d1	43.7	52.0	41.9	43.7	52.0	41.0	37.8	51.5	48.5	58.0	41.8	31.5
Progression Factor	0.71	1.08	1.53	1.00	1.00	1.00	1.00	1.00	1.00	1.13	1.14	1.52
Incremental Delay, d2	47.8	69.4	0.8	199.0	63.7	42.1	216.8	289.2	17.3	15.0	5.2	0.5
Delay (s)	78.7	125.5	65.2	242.7	115.7	83.1	254.6	340.7	65.9	80.3	53.0	48.5
Level of Service	E	F	E	F	F	F	F	F	E	F	D	D
Approach Delay (s)		107.1			132.7			269.6			60.5	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			153.4									F
HCM 2000 Volume to Capacity ratio			1.43									
Actuated Cycle Length (s)			140.0							23.0		
Intersection Capacity Utilization			129.6%									H
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2040 Total PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	208	225	282	269	2125	211	222	1376
v/c Ratio	1.11	1.29	0.70	1.96	0.99	0.25	1.06	0.57
Control Delay	139.0	212.5	35.8	455.1	19.8	4.1	127.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.0	212.5	35.8	455.1	19.8	4.1	127.8	6.2
Queue Length 50th (m)	~57.1	~83.3	37.9	~122.8	325.2	7.6	~51.8	24.4
Queue Length 95th (m)	#110.5	#137.7	72.2	m#92.4	m83.5	m4.9	#111.1	23.4
Internal Link Dist (m)	94.9	97.1			149.9			342.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	187	174	404	137	2152	856	209	2408
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	1.29	0.70	1.96	0.99	0.25	1.06	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2040 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	2	121	218	0	274	261	2061	205	215	1241	94
Future Volume (vph)	79	2	121	218	0	274	261	2061	205	215	1241	94
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.92			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1697			1802	1599	1142	3574	1381	1770	3351	
Flt Permitted		0.48			0.52	1.00	0.19	1.00	1.00	0.05	1.00	
Satd. Flow (perm)		836			977	1599	228	3574	1381	84	3351	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	81	2	125	225	0	282	269	2125	211	222	1279	97
RTOR Reduction (vph)	0	39	0	0	0	119	0	0	25	0	4	0
Lane Group Flow (vph)	0	169	0	0	225	163	269	2125	186	222	1372	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		25.0			25.0	25.0	84.3	84.3	84.3	100.5	100.5	
Effective Green, g (s)		25.0			25.0	25.0	84.3	84.3	84.3	100.5	100.5	
Actuated g/C Ratio		0.18			0.18	0.18	0.60	0.60	0.60	0.72	0.72	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		149			174	285	137	2152	831	207	2405	
v/s Ratio Prot								0.59		c0.09	0.41	
v/s Ratio Perm		0.20			c0.23	0.10	c1.18		0.13	0.67		
v/c Ratio		1.14			1.29	0.57	1.96	0.99	0.22	1.07	0.57	
Uniform Delay, d1		57.5			57.5	52.6	27.9	27.3	12.8	51.6	9.4	
Progression Factor		1.00			1.00	1.00	0.57	0.56	0.45	1.46	0.57	
Incremental Delay, d2		115.2			167.8	2.8	436.0	3.6	0.1	78.8	0.9	
Delay (s)		172.7			225.3	55.4	451.9	18.8	5.8	154.3	6.2	
Level of Service		F			F	E	F	B	A	F	A	
Approach Delay (s)		172.7			130.8			62.5			26.8	
Approach LOS		F			F			E			C	
Intersection Summary												
HCM 2000 Control Delay			62.6		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			1.73									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				18.5			
Intersection Capacity Utilization			128.1%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

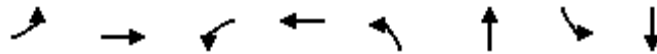
c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2040 Total PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	12	0	2573	1589	8
Future Volume (Veh/h)	0	12	0	2573	1589	8
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)	0	13	0	2797	1727	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				270	174	
pX, platoon unblocked	0.84	0.81	0.81			
vC, conflicting volume	3130	868	1736			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2116	354	1431			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	100			
cM capacity (veh/h)	37	517	379			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	13	1398	1398	1151	585	
Volume Left	0	0	0	0	0	
Volume Right	13	0	0	0	9	
cSH	517	1700	1700	1700	1700	
Volume to Capacity	0.03	0.82	0.82	0.68	0.34	
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0	
Control Delay (s)	12.1	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	12.1	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			74.5%	ICU Level of Service		D
Analysis Period (min)			15			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	130	604	87	784	130	2550	200	1634
v/c Ratio	1.17	0.52	0.49	0.69	1.14	0.84	3.77	0.54
Control Delay	178.8	37.2	43.7	42.6	139.7	40.2	1306.3	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	178.8	37.2	43.7	42.6	139.7	40.2	1306.3	19.1
Queue Length 50th (m)	~45.6	73.7	20.4	105.0	~35.6	255.3	~89.8	95.5
Queue Length 95th (m)	#75.9	73.0	31.8	101.1	m#59.1	m#306.4	#150.2	150.8
Internal Link Dist (m)		192.3		102.0		83.9		117.4
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	156	1623	249	1597	114	3042	53	3026
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.37	0.35	0.49	1.14	0.84	3.77	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2040 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	442	114	80	513	208	120	2264	82	184	1390	113
Future Volume (vph)	120	442	114	80	513	208	120	2264	82	184	1390	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3430		1770	3386		1770	5059		1770	5028	
Flt Permitted	0.18	1.00		0.28	1.00		0.10	1.00		0.05	1.00	
Satd. Flow (perm)	334	3430		529	3386		189	5059		89	5028	
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)	130	480	124	87	558	226	130	2461	89	200	1511	123
RTOR Reduction (vph)	0	9	0	0	1	0	0	2	0	0	5	0
Lane Group Flow (vph)	130	595	0	87	783	0	130	2548	0	200	1629	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	46.9	46.9		46.9	46.9		84.1	84.1		84.1	84.1	
Effective Green, g (s)	46.9	46.9		46.9	46.9		84.1	84.1		84.1	84.1	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.60	0.60		0.60	0.60	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	111	1149		177	1134		113	3039		53	3020	
v/s Ratio Prot		0.17			0.23			0.50			0.32	
v/s Ratio Perm	c0.39			0.16			0.69			c2.26		
v/c Ratio	1.17	0.52		0.49	0.69		1.15	0.84		3.77	0.54	
Uniform Delay, d1	46.5	37.5		37.1	40.3		28.0	22.5		28.0	16.5	
Progression Factor	1.00	1.00		1.00	1.00		1.59	1.64		1.00	1.00	
Incremental Delay, d2	138.7	0.4		2.1	1.8		102.5	1.3		1292.7	0.7	
Delay (s)	185.2	37.9		39.2	42.1		146.9	38.2		1320.7	17.2	
Level of Service	F	D		D	D		F	D		F	B	
Approach Delay (s)		64.0			41.8			43.5			159.4	
Approach LOS		E			D			D			F	
Intersection Summary												
HCM 2000 Control Delay	80.4			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	2.82											
Actuated Cycle Length (s)	140.0			Sum of lost time (s)			9.0					
Intersection Capacity Utilization	98.2%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	141	1089	255	52	5	689	779	79	1328
v/c Ratio	0.11	0.12	1.52	0.22	0.06	0.09	0.80	0.53	0.85	1.56
Control Delay	9.3	9.2	263.1	10.1	3.1	35.2	45.6	1.3	100.3	286.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	9.2	263.1	10.1	3.1	35.2	45.6	1.3	100.3	286.3
Queue Length 50th (m)	6.3	12.0	~329.7	23.4	0.4	0.8	73.7	0.0	16.3	~215.4
Queue Length 95th (m)	12.7	20.7	#409.1	36.1	5.1	4.2	96.2	0.0	#45.7	#259.5
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	691	1128	717	1139	924	57	858	1482	93	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.13	1.52	0.22	0.06	0.09	0.80	0.53	0.85	1.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	73	128	10	1067	250	51	5	675	763	77	1195	107		
Future Volume (vph)	73	128	10	1067	250	51	5	675	763	77	1195	107		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5			
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95			
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1805	1862		1687	1881	1495	1444	3471	1482	1770	3426			
Flt Permitted	0.60	1.00		0.67	1.00	1.00	0.15	1.00	1.00	0.20	1.00			
Satd. Flow (perm)	1142	1862		1184	1881	1495	233	3471	1482	377	3426			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	74	131	10	1089	255	52	5	689	779	79	1219	109		
RTOR Reduction (vph)	0	0	0	0	0	19	0	0	0	0	6	0		
Lane Group Flow (vph)	74	141	0	1089	255	33	5	689	779	79	1322	0		
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%		
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA			
Protected Phases		6			2			8			4			
Permitted Phases	6			2		2	8		Free	4				
Actuated Green, G (s)	63.9	63.9		63.9	63.9	63.9	26.1	26.1	105.5	26.1	26.1			
Effective Green, g (s)	63.9	63.9		63.9	63.9	63.9	26.1	26.1	105.5	26.1	26.1			
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.25	0.25	1.00	0.25	0.25			
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5			
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	691	1127		717	1139	905	57	858	1482	93	847			
v/s Ratio Prot		0.08			0.14			0.20			c0.39			
v/s Ratio Perm	0.06			c0.92		0.02	0.02		0.53	0.21				
v/c Ratio	0.11	0.12		1.52	0.22	0.04	0.09	0.80	0.53	0.85	1.56			
Uniform Delay, d1	8.8	8.9		20.8	9.5	8.4	30.5	37.3	0.0	37.8	39.7			
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.3	0.2		240.6	0.5	0.1	0.7	5.5	1.3	47.7	258.1			
Delay (s)	9.1	9.1		261.4	9.9	8.5	31.2	42.8	1.3	85.5	297.8			
Level of Service	A	A		F	A	A	C	D	A	F	F			
Approach Delay (s)		9.1			206.0			20.8			285.9			
Approach LOS		A			F			C			F			
Intersection Summary														
HCM 2000 Control Delay			160.9									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.53											
Actuated Cycle Length (s)			105.5								15.5			
Intersection Capacity Utilization			155.6%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	92	895	47	19	1129	69	49	208
v/c Ratio	0.35	0.39	0.05	0.05	0.48	0.33	0.09	0.44
Control Delay	12.6	9.2	2.3	4.6	6.8	45.7	0.3	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	9.2	2.3	4.6	6.8	45.7	0.3	19.8
Queue Length 50th (m)	9.3	49.3	0.4	1.3	44.4	15.4	0.0	18.0
Queue Length 95th (m)	20.5	60.8	4.2	m2.3	52.3	30.6	0.0	42.3
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	15.0		30.0	25.0		35.0		
Base Capacity (vph)	266	2301	1043	369	2344	212	540	478
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.39	0.05	0.05	0.48	0.33	0.09	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) of NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	832	44	18	1050	0	64	0	46	0	0	191
Future Volume (vph)	85	832	44	18	1050	0	64	0	46	0	0	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3343	1496	1802	3406		1805	1615			1583	
Flt Permitted	0.21	1.00	1.00	0.28	1.00		0.46	1.00			1.00	
Satd. Flow (perm)	388	3343	1496	537	3406		876	1615			1583	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	92	895	47	19	1129	0	69	0	49	0	0	208
RTOR Reduction (vph)	0	0	13	0	0	0	0	37	0	0	95	0
Lane Group Flow (vph)	92	895	34	19	1129	0	69	12	0	0	113	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	8%	5%	0%	6%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Effective Green, g (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24			0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	267	2301	1029	369	2344		212	391			383	
v/s Ratio Prot		0.27			c0.33			0.01			0.07	
v/s Ratio Perm	0.24		0.02	0.04			c0.08					
v/c Ratio	0.34	0.39	0.03	0.05	0.48		0.33	0.03			0.30	
Uniform Delay, d1	8.3	8.6	6.5	6.5	9.4		40.5	37.6			40.2	
Progression Factor	1.00	1.00	1.00	0.65	0.64		1.00	1.00			1.00	
Incremental Delay, d2	3.5	0.5	0.1	0.2	0.6		4.0	0.1			2.0	
Delay (s)	11.8	9.1	6.5	4.5	6.7		44.6	37.7			42.2	
Level of Service	B	A	A	A	A		D	D			D	
Approach Delay (s)		9.2			6.7			41.7			42.2	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			12.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			64.7%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	847	26	127	979	37	248	178	208
v/c Ratio	0.38	0.44	0.03	0.43	0.53	0.11	0.41	0.59	0.34
Control Delay	20.0	16.3	2.2	26.4	23.6	32.4	15.9	46.7	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	16.3	2.2	26.4	23.6	32.4	15.9	46.7	11.5
Queue Length 50th (m)	11.8	57.1	0.0	16.4	108.1	7.0	19.6	40.2	10.5
Queue Length 95th (m)	20.4	67.0	2.7	46.9	121.5	16.1	44.1	67.2	30.8
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	244	1907	902	297	1858	343	601	301	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.44	0.03	0.43	0.53	0.11	0.41	0.59	0.34
Intersection Summary									

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	788	24	118	786	123	34	0	231	164	0	191
Future Volume (vph)	85	788	24	118	786	123	34	0	231	164	0	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3374	1567	1765	3273		1805	1568		1770	1583	
Flt Permitted	0.23	1.00	1.00	0.28	1.00		0.57	1.00		0.51	1.00	
Satd. Flow (perm)	433	3374	1567	526	3273		1076	1568		947	1583	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	92	847	26	127	845	134	37	0	248	178	0	208
RTOR Reduction (vph)	0	0	11	0	10	0	0	101	0	0	104	0
Lane Group Flow (vph)	92	847	15	127	969	0	37	147	0	178	104	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	7%	0%	2%	9%	2%	0%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Effective Green, g (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	244	1907	885	297	1850		343	500		302	505	
v/s Ratio Prot		0.25			c0.30			0.09			0.07	
v/s Ratio Perm	0.21		0.01	0.24			0.03			c0.19		
v/c Ratio	0.38	0.44	0.02	0.43	0.52		0.11	0.29		0.59	0.21	
Uniform Delay, d1	15.6	16.4	12.4	16.2	17.4		31.2	33.2		37.1	32.2	
Progression Factor	0.94	0.94	1.01	1.29	1.31		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.7	0.0	4.0	1.0		0.6	1.5		8.2	0.9	
Delay (s)	18.8	16.1	12.5	24.9	23.9		31.8	34.7		45.3	33.2	
Level of Service	B	B	B	C	C		C	C		D	C	
Approach Delay (s)		16.3			24.0			34.4			38.8	
Approach LOS		B			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			24.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			131.7%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 4: Costco Driveway & Green Lane

2045 Total AM Peak Hour

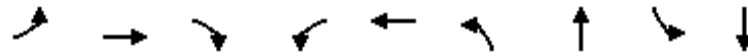
								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	1167	81	22	1047	13	5		
Future Volume (Veh/h)	1167	81	22	1047	13	5		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	1255	87	24	1126	14	5		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	TWLTL		TWLTL					
Median storage veh)	2		2					
Upstream signal (m)	245		258					
pX, platoon unblocked			0.86		0.91	0.86		
vC, conflicting volume			1342		1910	671		
vC1, stage 1 conf vol					1298			
vC2, stage 2 conf vol					611			
vCu, unblocked vol			1072		1112	292		
tC, single (s)			4.2		6.8	8.1		
tC, 2 stage (s)					5.8			
tF (s)			2.2		3.5	3.9		
p0 queue free %			96		95	99		
cM capacity (veh/h)			541		260	480		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1		
Volume Total	837	505	24	563	563	19		
Volume Left	0	0	24	0	0	14		
Volume Right	0	87	0	0	0	5		
cSH	1700	1700	541	1700	1700	296		
Volume to Capacity	0.49	0.30	0.04	0.33	0.33	0.06		
Queue Length 95th (m)	0.0	0.0	1.1	0.0	0.0	1.6		
Control Delay (s)	0.0	0.0	12.0	0.0	0.0	18.0		
Lane LOS			B		C			
Approach Delay (s)	0.0		0.2			18.0		
Approach LOS					C			
Intersection Summary								
Average Delay			0.3					
Intersection Capacity Utilization			44.8%	ICU Level of Service		A		
Analysis Period (min)			15					

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	1041	109	338	1084	70	105	186	14
v/c Ratio	0.10	0.65	0.14	0.80	0.51	0.21	0.16	0.63	0.03
Control Delay	19.5	25.0	9.7	44.2	11.7	42.6	0.5	55.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	25.0	9.7	44.2	11.7	42.6	0.5	55.7	0.2
Queue Length 50th (m)	3.3	101.4	6.7	63.1	53.9	15.4	0.0	45.5	0.0
Queue Length 95th (m)	m8.5	123.3	16.5	m84.2	m77.0	29.4	0.0	72.8	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	15.0		45.0	40.0				15.0	
Base Capacity (vph)	236	1605	787	502	2141	327	650	296	466
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.65	0.14	0.67	0.51	0.21	0.16	0.63	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	958	100	311	964	33	64	0	97	171	0	13
Future Volume (vph)	22	958	100	311	964	33	64	0	97	171	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3343	1563	1787	3273		1805	1583		1770	1583	
Flt Permitted	0.26	1.00	1.00	0.17	1.00		0.75	1.00		0.69	1.00	
Satd. Flow (perm)	491	3343	1563	314	3273		1422	1583		1284	1583	
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)	24	1041	109	338	1048	36	70	0	105	186	0	14
RTOR Reduction (vph)	0	0	37	0	2	0	0	81	0	0	11	0
Lane Group Flow (vph)	24	1041	72	338	1082	0	70	24	0	186	3	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	8%	1%	1%	10%	2%	0%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	62.4	62.4	62.4	85.0	85.0		30.0	30.0		30.0	30.0	
Effective Green, g (s)	62.4	62.4	62.4	85.0	85.0		30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.48	0.48	0.48	0.65	0.65		0.23	0.23		0.23	0.23	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	235	1604	750	416	2140		328	365		296	365	
v/s Ratio Prot		0.31		c0.12	0.33			0.02			0.00	
v/s Ratio Perm	0.05		0.05	c0.41			0.05			c0.14		
v/c Ratio	0.10	0.65	0.10	0.81	0.51		0.21	0.07		0.63	0.01	
Uniform Delay, d1	18.5	25.5	18.4	19.0	11.6		40.5	39.1		45.0	38.5	
Progression Factor	0.86	0.86	1.09	2.21	0.94		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	1.9	0.2	9.1	0.7		1.5	0.4		9.7	0.0	
Delay (s)	16.7	23.9	20.2	51.2	11.6		41.9	39.4		54.7	38.6	
Level of Service	B	C	C	D	B		D	D		D	D	
Approach Delay (s)		23.4			21.0			40.4			53.6	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			25.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			96.4%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	130	859	306	444	843	333	157	754	346	1070	1330	166
v/c Ratio	0.66	0.91	0.62	2.17	0.88	0.45	0.77	0.79	0.61	1.76	0.99	0.25
Control Delay	53.6	52.2	23.7	560.8	56.8	16.5	53.2	49.7	22.7	379.9	45.4	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	52.2	23.7	560.8	56.8	16.5	53.2	49.7	22.7	379.9	45.4	6.3
Queue Length 50th (m)	20.6	90.0	20.8	~176.5	115.6	39.5	24.0	98.8	35.9	~221.5	~178.9	4.3
Queue Length 95th (m)	m44.5	#151.4	47.4	#244.2	#152.6	63.6	#56.9	123.6	70.0	m#259.1	m#233.7	m9.0
Internal Link Dist (m)	262.9				265.2				202.7		246.1	
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	208	943	492	205	953	748	214	960	565	607	1344	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.91	0.62	2.17	0.88	0.45	0.73	0.79	0.61	1.76	0.99	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	833	297	431	818	323	152	731	336	1038	1290	161
Future Volume (vph)	126	833	297	431	818	323	152	731	336	1038	1290	161
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	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1687	3406	1406	1719	3374	1480	1687	3374	1511	3433	3505	1544
Flt Permitted	0.12	1.00	1.00	0.11	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	218	3406	1406	197	3374	1480	192	3374	1511	3433	3505	1544
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	130	859	306	444	843	333	157	754	346	1070	1330	166
RTOR Reduction (vph)	0	0	103	0	0	47	0	0	136	0	0	62
Lane Group Flow (vph)	130	859	203	444	843	286	157	754	210	1070	1330	104
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	46.3	36.0	36.0	47.7	36.7	59.7	48.1	37.0	37.0	23.0	49.9	49.9
Effective Green, g (s)	46.3	36.0	36.0	47.7	36.7	59.7	48.1	37.0	37.0	23.0	49.9	49.9
Actuated g/C Ratio	0.36	0.28	0.28	0.37	0.28	0.46	0.37	0.28	0.28	0.18	0.38	0.38
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	194	943	389	201	952	679	198	960	430	607	1345	592
v/s Ratio Prot	0.05	0.25		c0.19	0.25	0.07	0.07	0.22		c0.31	c0.38	
v/s Ratio Perm	0.19		0.14	c0.62		0.12	0.22		0.14			0.07
v/c Ratio	0.67	0.91	0.52	2.21	0.89	0.42	0.79	0.79	0.49	1.76	0.99	0.18
Uniform Delay, d1	31.8	45.4	39.7	33.6	44.6	23.6	32.7	42.8	38.6	53.5	39.8	26.5
Progression Factor	1.62	0.87	0.88	1.00	1.00	1.00	1.00	1.00	1.00	1.07	0.72	0.51
Incremental Delay, d2	7.0	11.1	1.9	559.9	10.6	0.4	19.2	6.4	3.9	346.8	15.4	0.3
Delay (s)	58.4	50.8	36.9	593.5	55.3	24.0	51.9	49.3	42.6	404.0	44.1	13.9
Level of Service	E	D	D	F	E	C	D	D	D	F	D	B
Approach Delay (s)		48.3			196.4			47.8			192.2	
Approach LOS		D			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			138.6		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.73									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					23.0		
Intersection Capacity Utilization			126.4%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	245	224	154	111	943	165	284	2044
v/c Ratio	0.85	1.13	0.32	1.88	0.48	0.17	0.73	0.88
Control Delay	61.1	147.4	8.1	469.8	31.9	16.4	17.6	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	147.4	8.1	469.8	31.9	16.4	17.6	19.0
Queue Length 50th (m)	46.8	~69.6	0.0	~46.4	119.4	21.2	15.2	268.2
Queue Length 95th (m)	#95.5	#122.8	18.0	m#71.6	140.0	m32.8	26.0	317.2
Internal Link Dist (m)	94.9	97.1			149.9			342.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	287	199	479	59	1951	948	388	2327
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	1.13	0.32	1.88	0.48	0.17	0.73	0.88

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	166	222	0	152	110	934	163	281	1986	38
Future Volume (vph)	76	0	166	222	0	152	110	934	163	281	1986	38
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.91			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1697			1736	1615	1805	3406	1579	1787	3497	
Flt Permitted		0.61			0.49	1.00	0.05	1.00	1.00	0.24	1.00	
Satd. Flow (perm)		1044			895	1615	102	3406	1579	442	3497	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	77	0	168	224	0	154	111	943	165	284	2006	38
RTOR Reduction (vph)	0	55	0	0	0	120	0	0	44	0	1	0
Lane Group Flow (vph)	0	190	0	0	224	34	111	943	121	284	2043	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		29.0			29.0	29.0	74.5	74.5	74.5	86.5	86.5	
Effective Green, g (s)		29.0			29.0	29.0	74.5	74.5	74.5	86.5	86.5	
Actuated g/C Ratio		0.22			0.22	0.22	0.57	0.57	0.57	0.67	0.67	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		232			199	360	58	1951	904	376	2326	
v/s Ratio Prot								0.28		0.05	c0.58	
v/s Ratio Perm		0.18			c0.25	0.02	c1.09		0.08	0.45		
v/c Ratio		0.82			1.13	0.10	1.91	0.48	0.13	0.76	0.88	
Uniform Delay, d1		48.0			50.5	40.1	27.8	16.4	12.8	11.4	17.5	
Progression Factor		1.00			1.00	1.00	1.77	1.89	3.07	1.05	0.84	
Incremental Delay, d2		19.6			101.6	0.1	456.0	0.7	0.2	6.1	3.7	
Delay (s)		67.6			152.1	40.2	505.0	31.6	39.6	18.0	18.4	
Level of Service		E			F	D	F	C	D	B	B	
Approach Delay (s)		67.6			106.5			75.8			18.4	
Approach LOS		E			F			E			B	
Intersection Summary												
HCM 2000 Control Delay			46.0		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			1.64									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					18.5		
Intersection Capacity Utilization			148.4%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

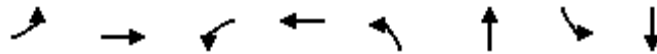
c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	0	1180	2378	4
Future Volume (Veh/h)	0	5	0	1180	2378	4
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)	0	5	0	1283	2585	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				270	174	
pX, platoon unblocked	0.46	0.36	0.36			
vC, conflicting volume	3228	1294	2589			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1548	0	1857			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	48	390	116			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	5	642	642	1723	866	
Volume Left	0	0	0	0	0	
Volume Right	5	0	0	0	4	
cSH	390	1700	1700	1700	1700	
Volume to Capacity	0.01	0.38	0.38	1.01	0.51	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	0.0	
Control Delay (s)	14.4	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	14.4	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			75.9%	ICU Level of Service		D
Analysis Period (min)			15			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	702	65	628	66	1219	322	2402
v/c Ratio	1.01	0.77	0.79	0.67	1.14	0.36	1.36	0.72
Control Delay	135.1	49.1	97.4	42.9	201.9	27.8	209.3	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	135.1	49.1	97.4	42.9	201.9	27.8	209.3	16.8
Queue Length 50th (m)	~30.2	92.5	16.4	76.0	~21.2	104.9	~113.3	139.3
Queue Length 95th (m)	#60.5	102.2	#38.3	85.6	m#54.7	121.5	#126.5	201.5
Internal Link Dist (m)		192.3		102.0		83.9		117.4
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	190	1615	146	1635	58	3343	237	3346
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.43	0.45	0.38	1.14	0.36	1.36	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	466	179	60	425	153	61	1076	45	296	2134	75
Future Volume (vph)	99	466	179	60	425	153	61	1076	45	296	2134	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3392		1770	3399		1770	5055		1770	5059	
Flt Permitted	0.22	1.00		0.17	1.00		0.05	1.00		0.19	1.00	
Satd. Flow (perm)	401	3392		308	3399		87	5055		359	5059	
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)	108	507	195	65	462	166	66	1170	49	322	2320	82
RTOR Reduction (vph)	0	1	0	0	25	0	0	2	0	0	2	0
Lane Group Flow (vph)	108	701	0	65	603	0	66	1217	0	322	2400	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	35.1	35.1		35.1	35.1		85.9	85.9		85.9	85.9	
Effective Green, g (s)	35.1	35.1		35.1	35.1		85.9	85.9		85.9	85.9	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.66	0.66		0.66	0.66	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	915		83	917		57	3340		237	3342	
v/s Ratio Prot		0.21			0.18			0.24			0.47	
v/s Ratio Perm	c0.27			0.21			0.76			c0.90		
v/c Ratio	1.00	0.77		0.78	0.66		1.16	0.36		1.36	0.72	
Uniform Delay, d1	47.5	43.7		43.9	42.1		22.0	9.9		22.0	14.2	
Progression Factor	1.00	1.00		1.00	1.00		2.29	2.61		1.00	1.00	
Incremental Delay, d2	86.6	3.9		37.0	1.7		163.1	0.3		186.3	1.4	
Delay (s)	134.1	47.6		80.9	43.8		213.5	26.0		208.4	15.6	
Level of Service	F	D		F	D		F	C		F	B	
Approach Delay (s)		59.1			47.3			35.6			38.4	
Approach LOS		E			D			D			D	
Intersection Summary												
HCM 2000 Control Delay			41.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			84.8%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	188	266	776	245	89	21	1500	1297	90	780
v/c Ratio	0.32	0.27	1.43	0.26	0.11	0.18	1.26	0.82	1.25	0.66
Control Delay	16.7	15.3	229.8	15.1	7.2	29.4	156.0	4.9	221.7	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	15.3	229.8	15.1	7.2	29.4	156.0	4.9	221.7	32.9
Queue Length 50th (m)	22.5	30.8	~227.8	28.3	4.3	3.2	~214.8	0.0	~24.3	74.4
Queue Length 95th (m)	38.6	47.7	#301.9	44.1	12.4	10.1	#258.8	0.0	#57.2	96.0
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		140.0		75.0		
Base Capacity (vph)	588	969	542	953	837	119	1190	1583	72	1177
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.27	1.43	0.26	0.11	0.18	1.26	0.82	1.25	0.66

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	251	5	745	235	85	20	1440	1245	86	700	49
Future Volume (vph)	180	251	5	745	235	85	20	1440	1245	86	700	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5	4.0	7.5	7.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1786	1876		1703	1845	1578	1504	3539	1583	1805	3487	
Flt Permitted	0.61	1.00		0.59	1.00	1.00	0.22	1.00	1.00	0.11	1.00	
Satd. Flow (perm)	1140	1876		1050	1845	1578	355	3539	1583	214	3487	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	188	261	5	776	245	89	21	1500	1297	90	729	51
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	5	0
Lane Group Flow (vph)	188	266	0	776	245	66	21	1500	1297	90	775	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Free	Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6			2		2	8		Free	4		
Actuated Green, G (s)	54.5	54.5		54.5	54.5	54.5	35.5	35.5	105.5	35.5	35.5	
Effective Green, g (s)	54.5	54.5		54.5	54.5	54.5	35.5	35.5	105.5	35.5	35.5	
Actuated g/C Ratio	0.52	0.52		0.52	0.52	0.52	0.34	0.34	1.00	0.34	0.34	
Clearance Time (s)	8.0	8.0		8.0	8.0	8.0	7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	588	969		542	953	815	119	1190	1583	72	1173	
v/s Ratio Prot		0.14			0.13			c0.42			0.22	
v/s Ratio Perm	0.16			c0.74		0.04	0.06		0.82	0.42		
v/c Ratio	0.32	0.27		1.43	0.26	0.08	0.18	1.26	0.82	1.25	0.66	
Uniform Delay, d1	14.8	14.4		25.5	14.2	12.9	24.7	35.0	0.0	35.0	29.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	0.7		204.7	0.7	0.2	0.7	124.1	4.9	187.5	1.4	
Delay (s)	16.2	15.1		230.2	14.9	13.1	25.4	159.1	4.9	222.5	31.3	
Level of Service	B	B		F	B	B	C	F	A	F	C	
Approach Delay (s)		15.5			165.3			87.1			51.1	
Approach LOS		B			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			91.5		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.36									
Actuated Cycle Length (s)			105.5		Sum of lost time (s)					15.5		
Intersection Capacity Utilization			141.1%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	197	1441	71	43	1043	27	34	125
v/c Ratio	0.55	0.53	0.06	0.20	0.40	0.15	0.10	0.30
Control Delay	13.5	7.2	1.7	3.9	2.6	52.4	0.6	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	7.2	1.7	3.9	2.6	52.4	0.6	2.9
Queue Length 50th (m)	20.1	75.4	1.3	1.3	18.1	6.8	0.0	0.0
Queue Length 95th (m)	42.6	88.7	4.8	3.1	22.6	16.5	0.0	3.0
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	15.0		30.0	25.0		35.0		
Base Capacity (vph)	357	2717	1203	220	2639	177	344	418
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.53	0.06	0.20	0.40	0.15	0.10	0.30
Intersection Summary								

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour

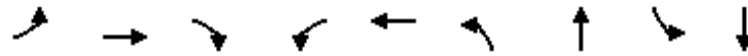
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	1311	65	39	949	0	25	0	31	0	0	115
Future Volume (vph)	181	1311	65	39	949	0	25	0	31	0	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	3539	1552	1805	3438		1805	1615			1583	
Flt Permitted	0.25	1.00	1.00	0.15	1.00		0.56	1.00			1.00	
Satd. Flow (perm)	465	3539	1552	287	3438		1056	1615			1583	
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	197	1441	71	43	1043	0	27	0	34	0	0	125
RTOR Reduction (vph)	0	0	11	0	0	0	0	28	0	0	104	0
Lane Group Flow (vph)	197	1441	60	43	1043	0	27	6	0	0	21	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	2%	0%	0%	5%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Effective Green, g (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.17	0.17			0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	357	2717	1191	220	2639		177	271			265	
v/s Ratio Prot		0.41			0.30			0.00			0.01	
v/s Ratio Perm	c0.42		0.04	0.15			c0.03					
v/c Ratio	0.55	0.53	0.05	0.20	0.40		0.15	0.02			0.08	
Uniform Delay, d1	6.5	6.4	3.9	4.4	5.4		49.7	48.6			49.1	
Progression Factor	1.00	1.00	1.00	0.43	0.39		1.00	1.00			1.00	
Incremental Delay, d2	6.0	0.7	0.1	1.9	0.4		1.8	0.1			0.6	
Delay (s)	12.6	7.1	4.0	3.8	2.5		51.6	48.8			49.7	
Level of Service	B	A	A	A	A		D	D			D	
Approach Delay (s)		7.6			2.6			50.0			49.7	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.4			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			59.7%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	197	1148	33	226	1131	26	187	109	125
v/c Ratio	0.63	0.44	0.03	0.74	0.46	0.14	0.52	0.84	0.28
Control Delay	18.8	7.4	1.4	27.1	4.0	53.6	21.3	103.8	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	7.4	1.4	27.1	4.0	53.6	21.3	103.8	1.5
Queue Length 50th (m)	19.9	60.5	0.0	62.5	25.1	6.7	12.4	31.3	0.0
Queue Length 95th (m)	29.7	68.0	m2.0	#100.6	28.8	16.4	37.5	#67.2	0.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	15.0		30.0	30.0		30.0		15.0	
Base Capacity (vph)	311	2616	1171	306	2485	185	363	129	450
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.44	0.03	0.74	0.46	0.14	0.52	0.84	0.28

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	1125	32	221	831	260	25	0	183	100	0	115
Future Volume (vph)	181	1125	32	221	831	260	25	0	183	100	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1572	1785	3333		1803	1599		1770	1583	
Flt Permitted	0.23	1.00	1.00	0.22	1.00		0.63	1.00		0.45	1.00	
Satd. Flow (perm)	421	3539	1572	416	3333		1204	1599		846	1583	
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	197	1148	33	226	848	283	26	0	187	109	0	125
RTOR Reduction (vph)	0	0	9	0	23	0	0	118	0	0	106	0
Lane Group Flow (vph)	197	1148	24	226	1108	0	26	69	0	109	19	0
Confl. Peds. (#/hr)			3	3			1					
Heavy Vehicles (%)	2%	2%	0%	1%	5%	2%	0%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	103.5	103.5	103.5	103.5	103.5		21.5	21.5		21.5	21.5	
Effective Green, g (s)	103.5	103.5	103.5	103.5	103.5		21.5	21.5		21.5	21.5	
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74		0.15	0.15		0.15	0.15	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	311	2616	1162	307	2464		184	245		129	243	
v/s Ratio Prot		0.32			0.33			0.04			0.01	
v/s Ratio Perm	0.47		0.02	c0.54			0.02			c0.13		
v/c Ratio	0.63	0.44	0.02	0.74	0.45		0.14	0.28		0.84	0.08	
Uniform Delay, d1	8.9	7.0	4.8	10.4	7.1		51.3	52.4		57.6	50.8	
Progression Factor	0.99	0.97	1.01	1.03	0.52		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	0.5	0.0	13.3	0.5		1.6	2.9		45.9	0.6	
Delay (s)	17.1	7.3	4.9	24.1	4.3		52.9	55.3		103.5	51.4	
Level of Service	B	A	A	C	A		D	E		F	D	
Approach Delay (s)		8.6			7.6			55.0			75.7	
Approach LOS		A			A			E			E	
Intersection Summary												
HCM 2000 Control Delay			16.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			136.3%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan 4: Costco Driveway & Green Lane

2045 Total PM Peak Hour

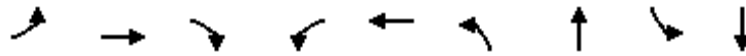
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (veh/h)	1354	102	22	1312	57	40
Future Volume (Veh/h)	1354	102	22	1312	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1440	109	23	1396	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLT			TWLT		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.87		0.89	0.87
vC, conflicting volume			1549		2238	774
vC1, stage 1 conf vol					1494	
vC2, stage 2 conf vol					744	
vCu, unblocked vol			1331		1483	440
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			94		67	91
cM capacity (veh/h)			416		186	496
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	960	589	23	698	698	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	416	1700	1700	250
Volume to Capacity	0.56	0.35	0.06	0.41	0.41	0.42
Queue Length 95th (m)	0.0	0.0	1.4	0.0	0.0	15.4
Control Delay (s)	0.0	0.0	14.2	0.0	0.0	29.2
Lane LOS			B			D
Approach Delay (s)	0.0		0.2			29.2
Approach LOS						D
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			52.9%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	1143	158	240	1184	169	269	147	60
v/c Ratio	0.30	0.63	0.19	0.69	0.53	0.51	0.43	0.79	0.13
Control Delay	26.9	28.2	13.1	7.9	8.4	51.8	4.0	79.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	28.2	13.1	7.9	8.4	51.8	4.0	79.3	0.5
Queue Length 50th (m)	11.8	122.6	15.0	9.1	143.4	42.7	0.0	40.4	0.0
Queue Length 95th (m)	m25.4	153.3	m29.2	m6.4	m58.6	67.5	11.2	#78.8	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	15.0		45.0	40.0				15.0	
Base Capacity (vph)	227	1822	834	440	2225	332	628	185	479
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.63	0.19	0.55	0.53	0.51	0.43	0.79	0.13

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1109	153	233	1053	90	164	0	261	135	0	55
Future Volume (vph)	63	1109	153	233	1053	90	164	0	261	135	0	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1543	1805	3434		1787	1583		1770	1583	
Flt Permitted	0.24	1.00	1.00	0.15	1.00		0.72	1.00		0.40	1.00	
Satd. Flow (perm)	442	3539	1543	282	3434		1350	1583		752	1583	
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.92	0.97	0.92	0.97	0.92	0.92	0.92
Adj. Flow (vph)	68	1143	158	240	1086	98	169	0	269	147	0	60
RTOR Reduction (vph)	0	0	40	0	5	0	0	203	0	0	45	0
Lane Group Flow (vph)	68	1143	118	240	1179	0	169	66	0	147	15	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	2%	1%	0%	4%	2%	1%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	72.1	72.1	72.1	90.5	90.5		34.5	34.5		34.5	34.5	
Effective Green, g (s)	72.1	72.1	72.1	90.5	90.5		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.51	0.51	0.51	0.65	0.65		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	227	1822	794	338	2219		332	390		185	390	
v/s Ratio Prot		0.32		c0.07	0.34			0.04			0.01	
v/s Ratio Perm	0.15		0.08	c0.38			0.13			c0.20		
v/c Ratio	0.30	0.63	0.15	0.71	0.53		0.51	0.17		0.79	0.04	
Uniform Delay, d1	19.5	24.3	17.8	16.9	13.3		45.5	41.5		49.4	40.1	
Progression Factor	1.06	1.05	1.32	0.61	0.62		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	1.5	0.4	0.6	0.1		5.5	0.9		28.7	0.2	
Delay (s)	23.6	27.1	23.8	10.9	8.4		50.9	42.4		78.1	40.3	
Level of Service	C	C	C	B	A		D	D		E	D	
Approach Delay (s)		26.6			8.8			45.7			67.2	
Approach LOS		C			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			24.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			132.0%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	360	1068	223	485	1026	730	292	1614	538	516	1074	168
v/c Ratio	1.05	1.17	0.45	1.43	1.15	1.04	1.46	1.69	0.91	0.95	0.87	0.27
Control Delay	88.1	135.9	29.0	242.7	126.6	77.2	262.0	348.4	47.5	86.4	55.8	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.1	135.9	29.0	242.7	126.6	77.2	262.0	348.4	47.5	86.4	55.8	22.8
Queue Length 50th (m)	~98.3	~198.6	36.7	~173.9	~184.5	~203.3	~98.6	~361.8	91.8	79.8	154.3	18.1
Queue Length 95th (m)	m#164.2	#243.3	m59.5	#245.7	#228.4	#219.9	#159.9	#406.4	#163.5	m#100.4	m175.6	m34.9
Internal Link Dist (m)	262.9			265.2			202.7			246.1		
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	342	910	491	339	892	704	200	954	592	544	1238	614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.17	0.45	1.43	1.15	1.04	1.46	1.69	0.91	0.95	0.87	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1057	221	480	1016	723	289	1598	533	511	1063	166
Future Volume (vph)	356	1057	221	480	1016	723	289	1598	533	511	1063	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	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1805	3539	1531	1787	3471	1562	1805	3610	1562	3467	3539	1581
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	3539	1531	209	3471	1562	205	3610	1562	3467	3539	1581
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	360	1068	223	485	1026	730	292	1614	538	516	1074	168
RTOR Reduction (vph)	0	0	98	0	0	36	0	0	180	0	0	61
Lane Group Flow (vph)	360	1068	125	485	1026	694	292	1614	358	516	1074	107
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	58.0	36.0	36.0	58.0	36.0	58.0	48.0	37.0	37.0	22.0	49.0	49.0
Effective Green, g (s)	58.0	36.0	36.0	58.0	36.0	58.0	48.0	37.0	37.0	22.0	49.0	49.0
Actuated g/C Ratio	0.41	0.26	0.26	0.41	0.26	0.41	0.34	0.26	0.26	0.16	0.35	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	337	910	393	334	892	647	196	954	412	544	1238	553
v/s Ratio Prot	0.17	0.30		c0.23	0.30	c0.17	c0.12	c0.45		0.15	0.30	
v/s Ratio Perm	0.27		0.08	c0.37		0.28	0.39		0.23			0.07
v/c Ratio	1.07	1.17	0.32	1.45	1.15	1.07	1.49	1.69	0.87	0.95	0.87	0.19
Uniform Delay, d1	43.7	52.0	42.1	43.7	52.0	41.0	37.3	51.5	49.2	58.4	42.5	31.7
Progression Factor	0.69	1.07	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.16	1.51
Incremental Delay, d2	63.9	87.9	0.8	219.5	80.6	56.3	245.5	315.9	21.4	21.1	6.3	0.6
Delay (s)	94.0	143.7	63.8	263.2	132.6	97.3	282.8	367.4	70.6	85.6	55.5	48.6
Level of Service	F	F	E	F	F	F	F	F	E	F	E	D
Approach Delay (s)		122.1			149.3			291.9			63.6	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			168.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.48									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			133.7%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total PM Peak Hour



Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	208	225	282	269	2229	211	222	1437
v/c Ratio	1.11	1.29	0.70	2.15	1.04	0.25	1.06	0.60
Control Delay	139.0	212.5	36.1	539.1	35.4	4.1	128.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.0	212.5	36.1	539.1	35.4	4.1	128.2	6.3
Queue Length 50th (m)	~57.1	~83.3	38.3	~126.8	~370.3	7.5	~55.3	24.8
Queue Length 95th (m)	#110.5	#137.7	72.5	m#90.9	m85.2	m4.6	#111.7	23.8
Internal Link Dist (m)	94.9	97.1			149.9			342.0
Turn Bay Length (m)				30.0		30.0	45.0	
Base Capacity (vph)	187	174	403	125	2152	856	209	2414
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	1.29	0.70	2.15	1.04	0.25	1.06	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	2	121	218	0	274	261	2162	205	215	1300	94
Future Volume (vph)	79	2	121	218	0	274	261	2162	205	215	1300	94
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	7.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.92			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1697			1802	1599	1142	3574	1381	1770	3359	
Flt Permitted		0.48			0.52	1.00	0.17	1.00	1.00	0.05	1.00	
Satd. Flow (perm)		836			977	1599	209	3574	1381	84	3359	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	81	2	125	225	0	282	269	2229	211	222	1340	97
RTOR Reduction (vph)	0	39	0	0	0	118	0	0	25	0	4	0
Lane Group Flow (vph)	0	169	0	0	225	164	269	2229	186	222	1433	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			6		5	2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)		25.0			25.0	25.0	84.3	84.3	84.3	100.5	100.5	
Effective Green, g (s)		25.0			25.0	25.0	84.3	84.3	84.3	100.5	100.5	
Actuated g/C Ratio		0.18			0.18	0.18	0.60	0.60	0.60	0.72	0.72	
Clearance Time (s)		7.0			7.0	7.0	7.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		149			174	285	125	2152	831	207	2411	
v/s Ratio Prot								0.62		c0.09	0.43	
v/s Ratio Perm		0.20			c0.23	0.10	c1.29		0.13	0.67		
v/c Ratio		1.14			1.29	0.57	2.15	1.04	0.22	1.07	0.59	
Uniform Delay, d1		57.5			57.5	52.6	27.9	27.9	12.8	51.6	9.7	
Progression Factor		1.00			1.00	1.00	0.57	0.57	0.45	1.50	0.55	
Incremental Delay, d2		115.2			167.8	2.8	520.8	18.0	0.1	78.0	0.9	
Delay (s)		172.7			225.3	55.4	536.7	33.8	5.8	155.5	6.3	
Level of Service		F			F	E	F	C	A	F	A	
Approach Delay (s)		172.7			130.8			81.6			26.3	
Approach LOS		F			F			F			C	
Intersection Summary												
HCM 2000 Control Delay			72.2		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			1.86									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				18.5			
Intersection Capacity Utilization			128.1%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

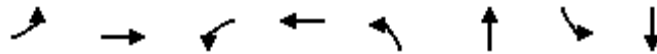
c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (veh/h)	0	12	0	2677	1652	8
Future Volume (Veh/h)	0	12	0	2677	1652	8
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)	0	13	0	2910	1796	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				270	174	
pX, platoon unblocked	0.85	0.79	0.79			
vC, conflicting volume	3256	902	1805			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2186	343	1486			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	100			
cM capacity (veh/h)	33	515	354			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	13	1455	1455	1197	608	
Volume Left	0	0	0	0	0	
Volume Right	13	0	0	0	9	
cSH	515	1700	1700	1700	1700	
Volume to Capacity	0.03	0.86	0.86	0.70	0.36	
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0	
Control Delay (s)	12.2	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	12.2	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			77.3%	ICU Level of Service		D
Analysis Period (min)			15			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	134	614	91	802	130	2672	205	1704
v/c Ratio	1.17	0.51	0.50	0.69	1.33	0.90	3.94	0.57
Control Delay	174.0	36.2	42.6	41.5	209.1	42.7	1382.0	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	174.0	36.2	42.6	41.5	209.1	42.7	1382.0	20.7
Queue Length 50th (m)	~46.0	73.5	20.9	105.3	~42.9	269.4	~93.9	106.9
Queue Length 95th (m)	#78.0	73.8	32.8	102.6	m#59.5	m#315.1	#154.2	162.2
Internal Link Dist (m)		192.3		102.0		83.9		117.4
Turn Bay Length (m)	15.0		15.0		15.0		15.0	
Base Capacity (vph)	157	1621	250	1594	98	2985	52	2969
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.38	0.36	0.50	1.33	0.90	3.94	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	450	115	84	522	216	120	2373	86	189	1453	115
Future Volume (vph)	123	450	115	84	522	216	120	2373	86	189	1453	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3431		1770	3384		1770	5059		1770	5029	
Flt Permitted	0.18	1.00		0.29	1.00		0.09	1.00		0.05	1.00	
Satd. Flow (perm)	334	3431		531	3384		166	5059		90	5029	
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	489	125	91	567	235	130	2579	93	205	1579	125
RTOR Reduction (vph)	0	7	0	0	0	0	0	2	0	0	5	0
Lane Group Flow (vph)	134	607	0	91	802	0	130	2670	0	205	1699	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		82.5	82.5		82.5	82.5	
Effective Green, g (s)	48.5	48.5		48.5	48.5		82.5	82.5		82.5	82.5	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.59	0.59		0.59	0.59	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	1188		183	1172		97	2981		53	2963	
v/s Ratio Prot		0.18			0.24			0.53			0.34	
v/s Ratio Perm	c0.40			0.17			0.78			c2.27		
v/c Ratio	1.17	0.51		0.50	0.68		1.34	0.90		3.87	0.57	
Uniform Delay, d1	45.8	36.3		36.1	39.2		28.8	25.0		28.8	17.8	
Progression Factor	1.00	1.00		1.00	1.00		1.58	1.61		1.00	1.00	
Incremental Delay, d2	135.1	0.4		2.1	1.7		176.4	1.8		1334.9	0.8	
Delay (s)	180.8	36.7		38.2	40.9		221.7	42.1		1363.6	18.6	
Level of Service	F	D		D	D		F	D		F	B	
Approach Delay (s)		62.5			40.6			50.5			163.1	
Approach LOS		E			D			D			F	
Intersection Summary												
HCM 2000 Control Delay			84.3	HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio			2.86									
Actuated Cycle Length (s)			140.0	Sum of lost time (s)			9.0					
Intersection Capacity Utilization			101.4%	ICU Level of Service			G					
Analysis Period (min)			15									
c Critical Lane Group												

Appendix J

Future Total Traffic Operations Reports with Mitigation Measures



Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour - Mitigation



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	141	1089	255	52	5	689	779	79	1328
v/c Ratio	0.76	0.87	0.88	0.27	0.07	0.10	0.47	0.50	0.33	0.91
Control Delay	99.9	99.5	47.3	21.6	5.4	29.0	28.9	1.1	30.6	46.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.9	99.5	47.3	21.6	5.4	29.0	28.9	1.1	30.6	46.1
Queue Length 50th (m)	20.3	~43.9	139.7	41.6	0.0	0.8	69.0	0.0	14.1	169.6
Queue Length 95th (m)	#64.2	#106.7	160.6	61.3	7.5	4.1	86.4	0.0	28.4	202.3
Internal Link Dist (m)		2019.9		780.4			992.7			201.9
Turn Bay Length (m)	100.0		200.0			140.0		300.0	75.0	
Base Capacity (vph)	98	163	1407	942	776	54	1579	1560	255	1564
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.87	0.77	0.27	0.07	0.09	0.44	0.50	0.31	0.85

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour - Mitigation

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	73	128	10	1067	250	51	5	675	763	77	1195	107	
Future Volume (vph)	73	128	10	1067	250	51	5	675	763	77	1195	107	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5	4.0	7.5	7.5		
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1900	1961		3445	1980	1574	1520	3654	1560	1863	3606		
Flt Permitted	0.60	1.00		0.95	1.00	1.00	0.08	1.00	1.00	0.30	1.00		
Satd. Flow (perm)	1203	1961		3445	1980	1574	126	3654	1560	589	3606		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	74	131	10	1089	255	52	5	689	779	79	1219	109	
RTOR Reduction (vph)	0	2	0	0	0	27	0	0	0	0	5	0	
Lane Group Flow (vph)	74	139	0	1089	255	25	5	689	779	79	1323	0	
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%	
Turn Type	Perm	NA		Prot	NA	Perm	Perm	NA	Free	Perm	NA		
Protected Phases		6		5	2			8			4		
Permitted Phases	6					2	8		Free		4		
Actuated Green, G (s)	10.4	10.4		45.2	60.1	60.1	50.6	50.6	126.2	50.6	50.6		
Effective Green, g (s)	10.4	10.4		45.2	60.1	60.1	50.6	50.6	126.2	50.6	50.6		
Actuated g/C Ratio	0.08	0.08		0.36	0.48	0.48	0.40	0.40	1.00	0.40	0.40		
Clearance Time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5		7.5	7.5		
Vehicle Extension (s)	0.2	0.2		3.0	0.2	0.2	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	99	161		1233	942	749	50	1465	1560	236	1445		
v/s Ratio Prot		0.07		c0.32	0.13			0.19			c0.37		
v/s Ratio Perm	0.06					0.02	0.04		c0.50	0.13			
v/c Ratio	0.75	0.86		0.88	0.27	0.03	0.10	0.47	0.50	0.33	0.92		
Uniform Delay, d1	56.6	57.2		38.0	19.9	17.6	23.6	27.9	0.0	26.2	35.8		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	39.8	42.1		7.8	0.7	0.1	0.9	0.2	1.1	0.8	9.3		
Delay (s)	96.5	99.4		45.8	20.6	17.7	24.5	28.1	1.1	27.0	45.0		
Level of Service	F	F		D	C	B	C	C	A	C	D		
Approach Delay (s)		98.4			40.1			13.9			44.0		
Approach LOS		F			D			B			D		
Intersection Summary													
HCM 2000 Control Delay			35.5									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			126.2									Sum of lost time (s)	20.0
Intersection Capacity Utilization			120.6%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	92	895	47	19	1129	69	49	208
v/c Ratio	0.33	0.37	0.04	0.05	0.46	0.31	0.09	0.42
Control Delay	12.0	9.0	2.3	10.5	15.1	45.0	0.3	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	9.0	2.3	10.5	15.1	45.0	0.3	19.4
Queue Length 50th (m)	9.1	48.5	0.4	2.4	80.2	15.3	0.0	18.0
Queue Length 95th (m)	19.8	59.4	4.2	4.7	87.3	30.3	0.0	41.9
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	40.0		30.0	25.0		35.0		
Base Capacity (vph)	280	2422	1097	388	2468	223	561	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.37	0.04	0.05	0.46	0.31	0.09	0.42

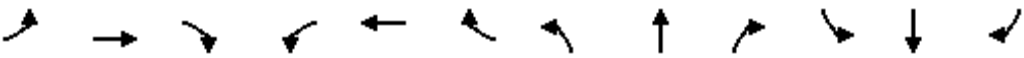
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	832	44	18	1050	0	64	0	46	0	0	191
Future Volume (vph)	85	832	44	18	1050	0	64	0	46	0	0	191
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1863	3519	1575	1897	3585		1900	1700			1667	
Flt Permitted	0.21	1.00	1.00	0.28	1.00		0.46	1.00			1.00	
Satd. Flow (perm)	409	3519	1575	565	3585		922	1700			1667	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	92	895	47	19	1129	0	69	0	49	0	0	208
RTOR Reduction (vph)	0	0	13	0	0	0	0	37	0	0	95	0
Lane Group Flow (vph)	92	895	34	19	1129	0	69	12	0	0	113	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	8%	5%	0%	6%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Effective Green, g (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24			0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	281	2422	1084	388	2468		223	411			403	
v/s Ratio Prot		0.25			c0.31			0.01			0.07	
v/s Ratio Perm	0.23		0.02	0.03			c0.07					
v/c Ratio	0.33	0.37	0.03	0.05	0.46		0.31	0.03			0.28	
Uniform Delay, d1	8.1	8.5	6.4	6.5	9.2		40.3	37.6			40.0	
Progression Factor	1.00	1.00	1.00	1.53	1.56		1.00	1.00			1.00	
Incremental Delay, d2	3.1	0.4	0.1	0.2	0.6		3.6	0.1			1.7	
Delay (s)	11.2	8.9	6.5	10.2	15.0		43.9	37.7			41.8	
Level of Service	B	A	A	B	B		D	D			D	
Approach Delay (s)		9.0			14.9			41.3			41.8	
Approach LOS		A			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			62.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	847	26	127	979	37	248	178	208
v/c Ratio	0.36	0.42	0.03	0.41	0.50	0.10	0.40	0.56	0.33
Control Delay	19.3	16.0	2.2	17.2	13.3	32.3	15.5	44.8	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	16.0	2.2	17.2	13.3	32.3	15.5	44.8	11.3
Queue Length 50th (m)	11.8	57.1	0.0	9.5	36.6	7.0	19.5	39.7	10.5
Queue Length 95th (m)	20.4	66.9	2.7	32.2	52.6	16.0	43.4	65.9	30.4
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	40.0		30.0	30.0		30.0		70.0	
Base Capacity (vph)	257	2007	948	312	1956	361	627	317	636
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.42	0.03	0.41	0.50	0.10	0.40	0.56	0.33
Intersection Summary									

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	85	788	24	118	786	123	34	0	231	164	0	191
Future Volume (vph)	85	788	24	118	786	123	34	0	231	164	0	191
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3551	1649	1858	3445		1900	1650		1863	1667	
Flt Permitted	0.23	1.00	1.00	0.28	1.00		0.57	1.00		0.51	1.00	
Satd. Flow (perm)	455	3551	1649	554	3445		1132	1650		997	1667	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	92	847	26	127	845	134	37	0	248	178	0	208
RTOR Reduction (vph)	0	0	11	0	10	0	0	101	0	0	104	0
Lane Group Flow (vph)	92	847	15	127	969	0	37	147	0	178	104	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	7%	0%	2%	9%	2%	0%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Effective Green, g (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	257	2007	932	313	1947		361	526		318	532	
v/s Ratio Prot		0.24			c0.28			0.09			0.06	
v/s Ratio Perm	0.20		0.01	0.23			0.03			c0.18		
v/c Ratio	0.36	0.42	0.02	0.41	0.50		0.10	0.28		0.56	0.20	
Uniform Delay, d1	15.4	16.1	12.4	15.9	17.1		31.1	33.1		36.7	32.1	
Progression Factor	0.94	0.95	1.01	0.80	0.74		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.6	0.0	3.5	0.8		0.6	1.3		7.0	0.8	
Delay (s)	18.2	15.9	12.6	16.3	13.5		31.7	34.4		43.6	32.9	
Level of Service	B	B	B	B	B		C	C		D	C	
Approach Delay (s)		16.0			13.8			34.1			37.9	
Approach LOS		B			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			20.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			131.7%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Total AM Peak Hour - Mitigation

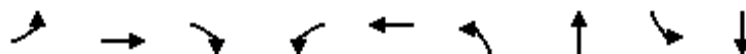
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱		↱	↑↑	↘	
Traffic Volume (veh/h)	1167	81	22	1047	13	5
Future Volume (Veh/h)	1167	81	22	1047	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1255	87	24	1126	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (m)	245		258			
pX, platoon unblocked			0.86		0.91	0.86
vC, conflicting volume			1342		1910	671
vC1, stage 1 conf vol					1298	
vC2, stage 2 conf vol					611	
vCu, unblocked vol			1082		1142	306
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		95	99
cM capacity (veh/h)			539		258	471
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	837	505	24	563	563	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	539	1700	1700	293
Volume to Capacity	0.49	0.30	0.04	0.33	0.33	0.06
Queue Length 95th (m)	0.0	0.0	1.1	0.0	0.0	1.7
Control Delay (s)	0.0	0.0	12.0	0.0	0.0	18.1
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			18.1
Approach LOS						C
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			43.1%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	1041	109	338	1084	70	105	186	14
v/c Ratio	0.10	0.61	0.13	0.77	0.48	0.20	0.16	0.60	0.03
Control Delay	19.0	23.7	9.6	44.2	6.8	42.3	0.5	53.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	23.7	9.6	44.2	6.8	42.3	0.5	53.8	0.1
Queue Length 50th (m)	3.1	100.0	6.7	53.6	32.7	15.4	0.0	45.1	0.0
Queue Length 95th (m)	m9.1	122.3	16.5	m77.9	42.2	29.2	0.0	71.8	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	25.0		45.0	40.0				80.0	
Base Capacity (vph)	252	1714	838	532	2254	345	670	311	486
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.61	0.13	0.64	0.48	0.20	0.16	0.60	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	958	100	311	964	33	64	0	97	171	0	13
Future Volume (vph)	22	958	100	311	964	33	64	0	97	171	0	13
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3519	1646	1881	3446		1900	1667		1863	1667	
Flt Permitted	0.26	1.00	1.00	0.17	1.00		0.75	1.00		0.69	1.00	
Satd. Flow (perm)	517	3519	1646	337	3446		1497	1667		1351	1667	
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)	24	1041	109	338	1048	36	70	0	105	186	0	14
RTOR Reduction (vph)	0	0	36	0	2	0	0	81	0	0	11	0
Lane Group Flow (vph)	24	1041	73	338	1082	0	70	24	0	186	3	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	8%	1%	1%	10%	2%	0%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	63.3	63.3	63.3	85.0	85.0		30.0	30.0		30.0	30.0	
Effective Green, g (s)	63.3	63.3	63.3	85.0	85.0		30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.49	0.49	0.49	0.65	0.65		0.23	0.23		0.23	0.23	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	251	1713	801	430	2253		345	384		311	384	
v/s Ratio Prot		0.30		c0.11	0.31			0.01			0.00	
v/s Ratio Perm	0.05		0.04	c0.41			0.05			c0.14		
v/c Ratio	0.10	0.61	0.09	0.79	0.48		0.20	0.06		0.60	0.01	
Uniform Delay, d1	17.9	24.3	17.9	16.3	11.4		40.4	39.0		44.6	38.5	
Progression Factor	0.86	0.87	1.10	2.67	0.55		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.5	0.2	7.4	0.6		1.3	0.3		8.2	0.0	
Delay (s)	16.2	22.7	19.9	50.9	6.8		41.7	39.3		52.9	38.6	
Level of Service	B	C	B	D	A		D	D		D	D	
Approach Delay (s)		22.3			17.3			40.3			51.9	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			22.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			95.1%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total AM Peak Hour - Mitigation

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	130	859	306	444	843	333	157	754	346	1070	1330	166
v/c Ratio	0.70	1.15	0.69	1.41	0.85	0.35	0.71	1.15	0.75	1.01	0.62	0.23
Control Delay	55.5	127.8	34.4	233.9	54.1	10.3	44.5	131.6	30.5	67.0	23.6	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	127.8	34.4	233.9	54.1	10.3	44.5	131.6	30.5	67.0	23.6	4.0
Queue Length 50th (m)	23.6	~137.4	25.6	~143.1	113.7	31.2	20.7	~125.6	35.7	~140.6	89.7	3.0
Queue Length 95th (m)	#55.2	#181.1	66.2	#210.8	#140.7	48.7	42.6	#166.6	73.4	#197.4	117.2	m13.4
Internal Link Dist (m)	262.9				265.2		202.7				246.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	189	744	446	314	987	942	239	655	463	1056	2135	734
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	1.15	0.69	1.41	0.85	0.35	0.66	1.15	0.75	1.01	0.62	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total AM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	833	297	431	818	323	152	731	336	1038	1290	161
Future Volume (vph)	126	833	297	431	818	323	152	731	336	1038	1290	161
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1775	3585	1480	1809	3551	1562	1776	3551	1591	3614	5301	1625
Flt Permitted	0.16	1.00	1.00	0.13	1.00	1.00	0.19	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	290	3585	1480	246	3551	1562	363	3551	1591	3614	5301	1625
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	130	859	306	444	843	333	157	754	346	1070	1330	166
RTOR Reduction (vph)	0	0	139	0	0	29	0	0	170	0	0	80
Lane Group Flow (vph)	130	859	167	444	843	304	157	754	176	1070	1330	86
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	35.8	27.0	27.0	49.0	36.2	74.2	34.6	24.0	24.0	38.0	52.4	52.4
Effective Green, g (s)	35.8	27.0	27.0	49.0	36.2	74.2	34.6	24.0	24.0	38.0	52.4	52.4
Actuated g/C Ratio	0.28	0.21	0.21	0.38	0.28	0.57	0.27	0.18	0.18	0.29	0.40	0.40
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	180	744	307	309	988	891	211	655	293	1056	2136	655
v/s Ratio Prot	0.05	0.24		c0.20	0.24	0.10	0.06	c0.21		c0.30	0.25	
v/s Ratio Perm	0.15		0.11	c0.34		0.10	0.14		0.11			0.05
v/c Ratio	0.72	1.15	0.54	1.44	0.85	0.34	0.74	1.15	0.60	1.01	0.62	0.13
Uniform Delay, d1	37.8	51.5	46.0	38.5	44.4	14.9	38.4	53.0	48.6	46.0	30.9	24.5
Progression Factor	1.42	1.00	1.36	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.72	0.51
Incremental Delay, d2	11.2	82.2	2.8	214.2	7.9	0.2	13.3	84.8	8.9	28.4	1.1	0.3
Delay (s)	65.1	133.9	65.3	252.7	52.3	15.1	51.7	137.8	57.5	66.8	23.3	12.9
Level of Service	E	F	E	F	D	B	D	F	E	E	C	B
Approach Delay (s)		110.8			99.6			104.9			40.7	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			80.3			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.26									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			23.0			
Intersection Capacity Utilization			122.8%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total AM Peak Hour - Mitigation



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	77	168	224	154	111	943	165	284	2044
v/c Ratio	0.45	0.40	0.83	0.33	0.62	0.32	0.17	0.58	0.65
Control Delay	53.1	18.7	74.5	7.9	49.3	9.5	2.9	18.0	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	18.7	74.5	7.9	49.3	9.5	2.9	18.0	12.3
Queue Length 50th (m)	18.3	13.2	58.0	0.0	13.3	40.0	2.3	18.6	47.9
Queue Length 95th (m)	33.6	32.6	85.2	17.4	m16.8	m70.9	m18.4	m49.6	83.0
Internal Link Dist (m)	94.9		97.1			149.9			449.9
Turn Bay Length (m)		40.0			30.0		30.0	45.0	
Base Capacity (vph)	212	500	334	534	178	2906	990	540	3164
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.34	0.67	0.29	0.62	0.32	0.17	0.53	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total AM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	166	222	0	152	110	934	163	281	1986	38
Future Volume (vph)	76	0	166	222	0	152	110	934	163	281	1986	38
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1900	1700		1827	1700	1900	5151	1662	1881	5289	
Flt Permitted		0.43	1.00		0.71	1.00	0.06	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		863	1700		1359	1700	118	5151	1662	502	5289	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	77	0	168	224	0	154	111	943	165	284	2006	38
RTOR Reduction (vph)	0	0	87	0	0	123	0	0	53	0	1	0
Lane Group Flow (vph)	0	77	81	0	224	31	111	943	112	284	2043	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6		6	2		
Actuated Green, G (s)		25.8	25.8		25.8	25.8	80.8	73.3	73.3	89.7	77.7	
Effective Green, g (s)		25.8	25.8		25.8	25.8	80.8	73.3	73.3	89.7	77.7	
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.62	0.56	0.56	0.69	0.60	
Clearance Time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		171	337		269	337	176	2904	937	477	3161	
v/s Ratio Prot							0.04	0.18		c0.06	c0.39	
v/s Ratio Perm		0.09	0.05		c0.16	0.02	0.35		0.07	0.35		
v/c Ratio		0.45	0.24		0.83	0.09	0.63	0.32	0.12	0.60	0.65	
Uniform Delay, d1		45.9	43.8		50.0	42.5	16.3	15.1	13.3	8.1	17.1	
Progression Factor		1.00	1.00		1.00	1.00	2.17	0.57	0.50	2.12	0.64	
Incremental Delay, d2		1.9	0.4		19.3	0.1	3.8	0.2	0.1	1.3	0.7	
Delay (s)		47.7	44.2		69.3	42.6	39.1	8.8	6.8	18.5	11.7	
Level of Service		D	D		E	D	D	A	A	B	B	
Approach Delay (s)		45.3			58.5			11.3			12.5	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.3								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			130.0								Sum of lost time (s)	19.0
Intersection Capacity Utilization			90.2%								ICU Level of Service	E
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total AM Peak Hour - Mitigation

							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				  	  		
Traffic Volume (veh/h)	0	5	0	1180	2378	4	
Future Volume (Veh/h)	0	5	0	1180	2378	4	
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)	0	5	0	1283	2585	4	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				270	174		
pX, platoon unblocked	0.79	0.74	0.74				
vC, conflicting volume	3015	864	2589				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1676	0	1910				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	99	100				
cM capacity (veh/h)	68	800	226				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	428	428	428	1034	1034	521
Volume Left	0	0	0	0	0	0	0
Volume Right	5	0	0	0	0	0	4
cSH	800	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.25	0.25	0.25	0.61	0.61	0.31
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.5	0.0			0.0		
Approach LOS	A						
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			53.7%		ICU Level of Service		A
Analysis Period (min)			15				

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total AM Peak Hour - Mitigation

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	507	195	65	462	166	66	1219	322	2402
v/c Ratio	0.52	0.70	0.43	0.34	0.75	0.40	0.42	0.48	0.79	0.77
Control Delay	44.6	54.6	14.8	39.1	59.3	9.4	33.9	17.9	31.7	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	54.6	14.8	39.1	59.3	9.4	33.9	17.9	31.7	24.0
Queue Length 50th (m)	22.2	68.8	9.4	13.1	62.8	0.0	8.3	44.0	41.7	182.2
Queue Length 95th (m)	36.5	85.9	31.2	24.2	79.3	19.3	24.5	76.5	77.6	219.4
Internal Link Dist (m)		192.3			102.0			449.9		228.0
Turn Bay Length (m)	55.0		40.0	40.0		60.0	45.0		120.0	
Base Capacity (vph)	213	793	476	200	742	465	169	2553	492	3116
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.64	0.41	0.33	0.62	0.36	0.39	0.48	0.65	0.77
Intersection Summary										

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total AM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	466	179	60	425	153	61	1076	45	296	2134	75
Future Volume (vph)	99	466	179	60	425	153	61	1076	45	296	2134	75
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
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)	1863	3725	1667	1863	3725	1667	1863	5321		1863	5326	
Flt Permitted	0.20	1.00	1.00	0.24	1.00	1.00	0.07	1.00		0.14	1.00	
Satd. Flow (perm)	383	3725	1667	474	3725	1667	128	5321		280	5326	
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)	108	507	195	65	462	166	66	1170	49	322	2320	82
RTOR Reduction (vph)	0	0	124	0	0	137	0	3	0	0	3	0
Lane Group Flow (vph)	108	507	71	65	462	29	66	1216	0	322	2399	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		
Actuated Green, G (s)	35.0	25.4	25.4	29.2	22.5	22.5	67.1	61.3		84.4	74.1	
Effective Green, g (s)	35.0	25.4	25.4	29.2	22.5	22.5	67.1	61.3		84.4	74.1	
Actuated g/C Ratio	0.27	0.20	0.20	0.22	0.17	0.17	0.52	0.47		0.65	0.57	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	727	325	178	644	288	143	2509		408	3035	
v/s Ratio Prot	c0.04	c0.14		0.02	0.12		0.02	0.23		c0.11	c0.45	
v/s Ratio Perm	0.10		0.04	0.06		0.02	0.22			0.40		
v/c Ratio	0.51	0.70	0.22	0.37	0.72	0.10	0.46	0.48		0.79	0.79	
Uniform Delay, d1	37.8	48.7	44.0	41.0	50.7	45.2	22.2	23.5		20.5	21.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.50	0.71		1.00	1.00	
Incremental Delay, d2	1.9	2.9	0.3	1.3	3.8	0.2	2.3	0.7		9.8	2.2	
Delay (s)	39.8	51.6	44.3	42.2	54.6	45.4	35.5	17.3		30.2	24.1	
Level of Service	D	D	D	D	D	D	D	B		C	C	
Approach Delay (s)		48.3			51.2			18.3			24.8	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			30.0									
HCM 2000 Level of Service											C	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			130.0									
Sum of lost time (s)										18.0		
Intersection Capacity Utilization			76.3%									
ICU Level of Service										D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour - Mitigation



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	188	266	776	245	89	21	1500	1297	90	780
v/c Ratio	1.00	0.86	0.99	0.30	0.12	0.10	1.00	0.78	0.67	0.45
Control Delay	123.9	82.2	84.1	28.8	5.1	27.6	64.2	3.7	44.3	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.9	82.2	84.1	28.8	5.1	27.6	64.2	3.7	44.3	25.3
Queue Length 50th (m)	55.5	76.2	117.3	47.4	0.0	3.8	227.6	0.0	13.6	77.4
Queue Length 95th (m)	#107.4	#125.0	#160.7	69.1	10.9	10.1	#283.0	0.0	#32.5	95.0
Internal Link Dist (m)	2019.9		780.4		992.7		201.9			
Turn Bay Length (m)	100.0	200.0		140.0		300.0	75.0			
Base Capacity (vph)	188	311	782	804	740	221	1503	1667	134	1746
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.86	0.99	0.30	0.12	0.10	1.00	0.78	0.67	0.45

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	251	5	745	235	85	20	1440	1245	86	700	49
Future Volume (vph)	180	251	5	745	235	85	20	1440	1245	86	700	49
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5	4.0	4.5	7.5	
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1879	1975		3477	1942	1661	1583	3725	1667	1900	3670	
Flt Permitted	0.61	1.00		0.95	1.00	1.00	0.33	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1200	1975		3477	1942	1661	550	3725	1667	131	3670	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	188	261	5	776	245	89	21	1500	1297	90	729	51
RTOR Reduction (vph)	0	1	0	0	0	52	0	0	0	0	4	0
Lane Group Flow (vph)	188	265	0	776	245	37	21	1500	1297	90	776	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Prot	NA	Perm	Perm	NA	Free	pm+pt	NA	
Protected Phases		6		5	2			8		7	4	
Permitted Phases	6					2	8		Free	4		
Actuated Green, G (s)	22.0	22.0		31.5	58.0	58.0	56.5	56.5	140.0	66.5	66.5	
Effective Green, g (s)	22.0	22.0		31.5	58.0	58.0	56.5	56.5	140.0	66.5	66.5	
Actuated g/C Ratio	0.16	0.16		0.22	0.41	0.41	0.40	0.40	1.00	0.48	0.48	
Clearance Time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5		4.5	7.5	
Vehicle Extension (s)	0.2	0.2		3.0	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	188	310		782	804	688	221	1503	1667	131	1743	
v/s Ratio Prot		0.13		c0.22	0.13			c0.40		0.03	0.21	
v/s Ratio Perm	0.16					0.02	0.04		c0.78	0.30		
v/c Ratio	1.00	0.86		0.99	0.30	0.05	0.10	1.00	0.78	0.69	0.45	
Uniform Delay, d1	59.0	57.5		54.1	27.5	24.6	25.9	41.7	0.0	32.4	24.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	65.6	24.8		30.1	1.0	0.1	0.2	22.6	3.7	13.9	0.2	
Delay (s)	124.6	82.3		84.3	28.5	24.7	26.1	64.3	3.7	46.3	24.7	
Level of Service	F	F		F	C	C	C	E	A	D	C	
Approach Delay (s)		99.8			67.2			36.1			26.9	
Approach LOS		F			E			D			C	
Intersection Summary												
HCM 2000 Control Delay			46.6		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					24.5		
Intersection Capacity Utilization			117.3%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	197	1441	71	43	1043	27	34	125
v/c Ratio	0.52	0.50	0.06	0.19	0.38	0.15	0.09	0.29
Control Delay	12.2	6.9	1.7	3.8	2.7	52.1	0.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	6.9	1.7	3.8	2.7	52.1	0.5	2.8
Queue Length 50th (m)	19.4	72.8	1.3	1.4	19.2	6.8	0.0	0.0
Queue Length 95th (m)	39.5	85.2	4.8	3.0	21.3	16.4	0.0	3.0
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	40.0		30.0	25.0		35.0		
Base Capacity (vph)	376	2860	1266	231	2778	186	358	432
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.50	0.06	0.19	0.38	0.15	0.09	0.29
Intersection Summary								

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation

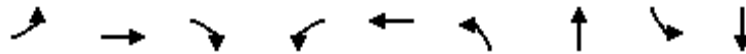
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	1311	65	39	949	0	25	0	31	0	0	115
Future Volume (vph)	181	1311	65	39	949	0	25	0	31	0	0	115
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1863	3725	1634	1900	3619		1900	1700			1667	
Flt Permitted	0.25	1.00	1.00	0.15	1.00		0.56	1.00			1.00	
Satd. Flow (perm)	490	3725	1634	303	3619		1112	1700			1667	
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	197	1441	71	43	1043	0	27	0	34	0	0	125
RTOR Reduction (vph)	0	0	11	0	0	0	0	28	0	0	104	0
Lane Group Flow (vph)	197	1441	60	43	1043	0	27	6	0	0	21	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	2%	0%	0%	5%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Effective Green, g (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.17	0.17			0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	376	2860	1254	232	2778		186	285			279	
v/s Ratio Prot		0.39			0.29			0.00			0.01	
v/s Ratio Perm	c0.40		0.04	0.14			c0.02					
v/c Ratio	0.52	0.50	0.05	0.19	0.38		0.15	0.02			0.08	
Uniform Delay, d1	6.3	6.2	3.9	4.4	5.3		49.7	48.6			49.1	
Progression Factor	1.00	1.00	1.00	0.44	0.43		1.00	1.00			1.00	
Incremental Delay, d2	5.1	0.6	0.1	1.6	0.4		1.6	0.1			0.5	
Delay (s)	11.5	6.8	4.0	3.6	2.6		51.3	48.8			49.6	
Level of Service	B	A	A	A	A		D	D			D	
Approach Delay (s)		7.2			2.7			49.9			49.6	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.2			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			57.8%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	197	1148	33	226	1131	26	187	109	125
v/c Ratio	0.70	0.46	0.03	0.82	0.47	0.09	0.41	0.48	0.24
Control Delay	28.2	10.9	2.2	37.8	4.9	44.9	21.6	56.1	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	10.9	2.2	37.8	4.9	44.9	21.6	56.1	1.1
Queue Length 50th (m)	23.9	72.7	0.0	62.7	28.8	6.1	17.6	28.0	0.0
Queue Length 95th (m)	#39.7	81.7	m2.9	#109.3	33.6	15.0	41.2	48.7	0.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	40.0		30.0	30.0		30.0		70.0	
Base Capacity (vph)	280	2514	1128	276	2390	288	455	226	528
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.46	0.03	0.82	0.47	0.09	0.41	0.48	0.24

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	1125	32	221	831	260	25	0	183	100	0	115
Future Volume (vph)	181	1125	32	221	831	260	25	0	183	100	0	115
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3725	1655	1879	3508		1898	1683		1863	1667	
Flt Permitted	0.21	1.00	1.00	0.21	1.00		0.66	1.00		0.53	1.00	
Satd. Flow (perm)	415	3725	1655	409	3508		1322	1683		1041	1667	
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	197	1148	33	226	848	283	26	0	187	109	0	125
RTOR Reduction (vph)	0	0	11	0	23	0	0	89	0	0	98	0
Lane Group Flow (vph)	197	1148	22	226	1108	0	26	98	0	109	27	0
Confl. Peds. (#/hr)			3	3			1					
Heavy Vehicles (%)	2%	2%	0%	1%	5%	2%	0%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Effective Green, g (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	280	2514	1117	276	2367		288	366		226	363	
v/s Ratio Prot		0.31			0.32			0.06			0.02	
v/s Ratio Perm	0.47		0.01	c0.55			0.02			c0.10		
v/c Ratio	0.70	0.46	0.02	0.82	0.47		0.09	0.27		0.48	0.08	
Uniform Delay, d1	14.1	10.7	7.5	16.5	10.8		43.7	45.5		47.9	43.5	
Progression Factor	0.95	0.96	1.01	0.80	0.43		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.3	0.5	0.0	21.4	0.6		0.6	1.8		7.2	0.4	
Delay (s)	25.7	10.8	7.6	34.7	5.2		44.3	47.3		55.0	43.9	
Level of Service	C	B	A	C	A		D	D		E	D	
Approach Delay (s)		12.9			10.1			46.9			49.1	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			16.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			134.7%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Total PM Peak Hour - Mitigation

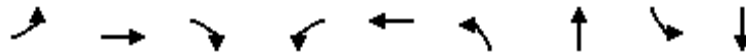
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1354	102	22	1312	57	40
Future Volume (Veh/h)	1354	102	22	1312	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1440	109	23	1396	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.84		0.91	0.84
vC, conflicting volume			1549		2238	774
vC1, stage 1 conf vol					1494	
vC2, stage 2 conf vol					744	
vCu, unblocked vol			1281		1392	363
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		68	92
cM capacity (veh/h)			423		193	540
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	960	589	23	698	698	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	423	1700	1700	263
Volume to Capacity	0.56	0.35	0.05	0.41	0.41	0.40
Queue Length 95th (m)	0.0	0.0	1.4	0.0	0.0	14.4
Control Delay (s)	0.0	0.0	14.0	0.0	0.0	27.4
Lane LOS			B			D
Approach Delay (s)	0.0		0.2			27.4
Approach LOS						D
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			50.6%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	1143	158	240	1184	169	269	147	60
v/c Ratio	0.28	0.59	0.18	0.67	0.51	0.48	0.42	0.75	0.12
Control Delay	25.2	26.2	12.5	11.6	7.0	50.6	3.8	73.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	26.2	12.5	11.6	7.0	50.6	3.8	73.4	0.5
Queue Length 50th (m)	11.0	120.1	14.4	13.1	48.1	42.4	0.0	39.9	0.0
Queue Length 95th (m)	24.8	142.0	26.7	m5.3	m59.6	66.7	11.2	#75.8	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	25.0		45.0	40.0				80.0	
Base Capacity (vph)	239	1940	885	465	2342	350	648	195	499
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.59	0.18	0.52	0.51	0.48	0.42	0.75	0.12

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan
 5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total PM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1109	153	233	1053	90	164	0	261	135	0	55
Future Volume (vph)	63	1109	153	233	1053	90	164	0	261	135	0	55
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3725	1624	1900	3614		1881	1667		1863	1667	
Flt Permitted	0.23	1.00	1.00	0.15	1.00		0.72	1.00		0.40	1.00	
Satd. Flow (perm)	461	3725	1624	302	3614		1422	1667		792	1667	
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.92	0.97	0.92	0.97	0.92	0.92	0.92
Adj. Flow (vph)	68	1143	158	240	1086	98	169	0	269	147	0	60
RTOR Reduction (vph)	0	0	39	0	5	0	0	203	0	0	45	0
Lane Group Flow (vph)	68	1143	119	240	1179	0	169	66	0	147	15	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	2%	1%	0%	4%	2%	1%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	72.9	72.9	72.9	90.5	90.5		34.5	34.5		34.5	34.5	
Effective Green, g (s)	72.9	72.9	72.9	90.5	90.5		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.52	0.52	0.52	0.65	0.65		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	240	1939	845	350	2336		350	410		195	410	
v/s Ratio Prot		0.31		c0.07	0.33			0.04			0.01	
v/s Ratio Perm	0.15		0.07	c0.38			0.12			c0.19		
v/c Ratio	0.28	0.59	0.14	0.69	0.50		0.48	0.16		0.75	0.04	
Uniform Delay, d1	18.9	23.2	17.3	16.3	13.0		45.1	41.4		48.8	40.1	
Progression Factor	1.04	1.04	1.31	0.78	0.52		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	1.2	0.3	2.0	0.3		4.7	0.8		23.3	0.2	
Delay (s)	22.4	25.3	23.0	14.7	7.0		49.8	42.2		72.2	40.3	
Level of Service	C	C	C	B	A		D	D		E	D	
Approach Delay (s)		24.9			8.3			45.2			62.9	
Approach LOS		C			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			22.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			130.4%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour - Mitigation

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	360	1068	223	485	1026	730	292	1614	538	516	1074	168
v/c Ratio	1.29	1.15	0.33	1.68	1.09	1.09	0.83	1.21	0.72	1.24	0.58	0.26
Control Delay	182.5	128.0	38.4	348.0	106.0	95.8	43.0	142.8	25.8	180.9	40.4	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.5	128.0	38.4	348.0	106.0	95.8	43.0	142.8	25.8	180.9	40.4	17.4
Queue Length 50th (m)	~117.2	~196.0	46.2	~188.3	~177.0	~227.8	46.8	~302.0	72.4	~98.4	81.6	11.6
Queue Length 95th (m)	#182.9	#239.9	m72.1	#260.1	#220.9	#247.6	#86.9	#346.5	118.9	#137.1	70.9	m21.9
Internal Link Dist (m)	262.9				265.2				202.7		246.1	
Turn Bay Length (m)	30.0		30.0	170.0		170.0	90.0			90.0		45.0
Base Capacity (vph)	279	931	700	289	939	671	378	1330	745	417	1853	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	1.15	0.32	1.68	1.09	1.09	0.77	1.21	0.72	1.24	0.58	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1057	221	480	1016	723	289	1598	533	511	1063	166
Future Volume (vph)	356	1057	221	480	1016	723	289	1598	533	511	1063	166
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1900	3725	1619	1881	3654	1642	1900	3800	1644	3650	5353	1664
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.16	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	229	3725	1619	220	3654	1642	310	3800	1644	3650	5353	1664
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	360	1068	223	485	1026	730	292	1614	538	516	1074	168
RTOR Reduction (vph)	0	0	39	0	0	39	0	0	170	0	0	71
Lane Group Flow (vph)	360	1068	184	485	1026	691	292	1614	368	516	1074	97
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	1	3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	51.0	35.0	52.5	53.0	36.0	52.0	66.5	49.0	49.0	16.0	48.5	48.5
Effective Green, g (s)	51.0	35.0	52.5	53.0	36.0	52.0	66.5	49.0	49.0	16.0	48.5	48.5
Actuated g/C Ratio	0.36	0.25	0.38	0.38	0.26	0.37	0.48	0.35	0.35	0.11	0.35	0.35
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	274	931	607	284	939	609	346	1330	575	417	1854	576
v/s Ratio Prot	0.15	0.29	0.04	c0.21	0.28	0.13	0.11	c0.42		c0.14	0.20	
v/s Ratio Perm	0.33		0.08	c0.44		0.29	0.30		0.22			0.06
v/c Ratio	1.31	1.15	0.30	1.71	1.09	1.13	0.84	1.21	0.64	1.24	0.58	0.17
Uniform Delay, d1	41.3	52.5	30.9	42.0	52.0	44.0	25.9	45.5	38.1	62.0	37.4	31.7
Progression Factor	0.90	1.11	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.21	1.04	1.31
Incremental Delay, d2	161.6	77.2	0.2	333.1	58.0	79.6	16.9	103.2	5.4	123.0	1.1	0.5
Delay (s)	198.7	135.5	61.9	375.2	110.0	123.6	42.7	148.7	43.5	197.9	39.8	42.1
Level of Service	F	F	E	F	F	F	D	F	D	F	D	D
Approach Delay (s)		139.3			171.8			112.9			86.5	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			128.9		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.45									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					23.0		
Intersection Capacity Utilization			128.1%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total PM Peak Hour - Mitigation



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	83	125	225	282	269	2229	211	222	1437
v/c Ratio	0.62	0.31	0.88	0.54	0.81	0.72	0.24	0.84	0.61
Control Delay	73.1	9.6	87.9	11.7	28.2	34.5	20.0	57.5	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	9.6	87.9	11.7	28.2	34.5	20.0	57.5	33.2
Queue Length 50th (m)	22.0	0.0	63.2	5.5	57.4	203.9	30.5	55.0	73.8
Queue Length 95th (m)	41.8	17.5	#105.7	32.5	m44.9	m171.6	m25.6	83.2	124.9
Internal Link Dist (m)	94.9		97.1			149.9			449.9
Turn Bay Length (m)		40.0			30.0		30.0	45.0	
Base Capacity (vph)	146	435	280	543	413	3107	863	338	2352
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.29	0.80	0.52	0.65	0.72	0.24	0.66	0.61

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total PM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	2	121	218	0	274	261	2162	205	215	1300	94
Future Volume (vph)	79	2	121	218	0	274	261	2162	205	215	1300	94
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frpb, ped/bikes		1.00	0.99		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1907	1675		1895	1683	1203	5406	1454	1863	5080	
Flt Permitted		0.37	1.00		0.70	1.00	0.10	1.00	1.00	0.06	1.00	
Satd. Flow (perm)		734	1675		1402	1683	130	5406	1454	121	5080	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	81	2	125	225	0	282	269	2229	211	222	1340	97
RTOR Reduction (vph)	0	0	102	0	0	212	0	0	28	0	5	0
Lane Group Flow (vph)	0	83	23	0	225	70	269	2229	183	222	1432	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6		6	2		
Actuated Green, G (s)		25.5	25.5		25.5	25.5	100.0	80.5	80.5	80.2	64.7	
Effective Green, g (s)		25.5	25.5		25.5	25.5	100.0	80.5	80.5	80.2	64.7	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.71	0.58	0.58	0.57	0.46	
Clearance Time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		133	305		255	306	328	3108	836	262	2347	
v/s Ratio Prot							c0.18	0.41		0.09	0.28	
v/s Ratio Perm		0.11	0.01		c0.16	0.04	c0.40		0.13	0.39		
v/c Ratio		0.62	0.07		0.88	0.23	0.82	0.72	0.22	0.85	0.61	
Uniform Delay, d1		52.8	47.5		55.8	48.9	34.0	21.5	14.5	39.2	28.2	
Progression Factor		1.00	1.00		1.00	1.00	0.89	1.49	1.76	0.89	1.07	
Incremental Delay, d2		8.8	0.1		28.0	0.4	1.6	0.1	0.1	18.6	1.0	
Delay (s)		61.6	47.6		83.8	49.2	31.9	32.3	25.5	53.5	31.2	
Level of Service		E	D		F	D	C	C	C	D	C	
Approach Delay (s)		53.2			64.6			31.7			34.2	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			36.7		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)					19.0		
Intersection Capacity Utilization			89.4%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total PM Peak Hour - Mitigation

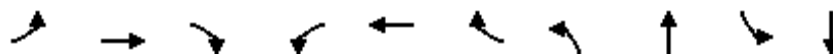
							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				  	  		
Traffic Volume (veh/h)	0	12	0	2677	1652	8	
Future Volume (Veh/h)	0	12	0	2677	1652	8	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	13	0	2910	1796	9	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				270	174		
pX, platoon unblocked	0.80	0.80	0.80				
vC, conflicting volume	2770	603	1805				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	634	0	1112				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	98	100				
cM capacity (veh/h)	331	863	496				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	13	970	970	970	718	718	368
Volume Left	0	0	0	0	0	0	0
Volume Right	13	0	0	0	0	0	9
cSH	863	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.57	0.57	0.57	0.42	0.42	0.22
Queue Length 95th (m)	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.2	0.0			0.0		
Approach LOS	A						
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			52.5%		ICU Level of Service		A
Analysis Period (min)			15				

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total PM Peak Hour - Mitigation



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	134	489	125	91	567	235	130	2672	205	1704
v/c Ratio	0.76	0.70	0.31	0.44	0.79	0.57	0.58	0.95	0.93	0.60
Control Delay	64.8	59.0	11.3	42.8	62.3	30.1	40.3	24.0	83.0	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	59.0	11.3	42.8	62.3	30.1	40.3	24.0	83.0	23.9
Queue Length 50th (m)	29.9	71.2	1.9	19.8	83.4	30.7	18.5	71.0	42.9	119.5
Queue Length 95th (m)	#49.9	88.0	19.2	33.0	101.0	57.4	m37.2	95.9	#117.6	155.6
Internal Link Dist (m)		192.3			102.0			449.9		228.0
Turn Bay Length (m)	55.0		40.0	40.0		60.0	45.0		120.0	
Base Capacity (vph)	177	795	448	225	848	470	283	2799	220	2853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.62	0.28	0.40	0.67	0.50	0.46	0.95	0.93	0.60

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total PM Peak Hour - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Traffic Volume (vph)	123	450	115	84	522	216	120	2373	86	189	1453	115
Future Volume (vph)	123	450	115	84	522	216	120	2373	86	189	1453	115
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
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)	1863	3725	1667	1863	3725	1667	1863	5325		1863	5294	
Flt Permitted	0.15	1.00	1.00	0.21	1.00	1.00	0.08	1.00		0.05	1.00	
Satd. Flow (perm)	299	3725	1667	404	3725	1667	158	5325		104	5294	
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	489	125	91	567	235	130	2579	93	205	1579	125
RTOR Reduction (vph)	0	0	95	0	0	95	0	3	0	0	6	0
Lane Group Flow (vph)	134	489	30	91	567	140	130	2669	0	205	1698	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		
Actuated Green, G (s)	35.3	26.2	26.2	36.7	26.9	26.9	84.2	73.5		87.8	75.3	
Effective Green, g (s)	35.3	26.2	26.2	36.7	26.9	26.9	84.2	73.5		87.8	75.3	
Actuated g/C Ratio	0.25	0.19	0.19	0.26	0.19	0.19	0.60	0.52		0.63	0.54	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	697	311	208	715	320	225	2795		222	2847	
v/s Ratio Prot	c0.05	0.13		0.03	c0.15		0.04	c0.50		c0.08	0.32	
v/s Ratio Perm	0.14		0.02	0.08		0.08	0.30			0.50		
v/c Ratio	0.76	0.70	0.10	0.44	0.79	0.44	0.58	0.95		0.92	0.60	
Uniform Delay, d1	43.4	53.2	47.1	41.0	53.9	49.9	17.7	31.7		46.8	22.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	2.23	0.50		1.00	1.00	
Incremental Delay, d2	16.8	3.2	0.1	1.5	6.0	1.0	2.7	7.6		39.6	0.9	
Delay (s)	60.2	56.4	47.2	42.5	59.9	50.9	42.1	23.5		86.4	22.9	
Level of Service	E	E	D	D	E	D	D	C		F	C	
Approach Delay (s)		55.6			55.8			24.4			29.8	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			34.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			90.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Appendix K

Sensitivity Analysis Operations Reports



Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	139	1059	251	51	5	670	759	78	1294
v/c Ratio	0.65	0.76	0.87	0.26	0.07	0.10	0.46	0.49	0.33	0.90
Control Delay	84.0	81.9	46.7	21.2	5.4	28.8	29.0	1.1	30.3	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.0	81.9	46.7	21.2	5.4	28.8	29.0	1.1	30.3	45.0
Queue Length 50th (m)	19.2	37.0	134.5	40.0	0.0	0.8	66.7	0.0	13.8	162.8
Queue Length 95th (m)	#63.0	#104.9	154.3	60.2	7.5	4.1	83.9	0.0	27.9	194.8
Internal Link Dist (m)		2019.9		780.4			992.7			201.9
Turn Bay Length (m)	100.0		200.0			140.0		300.0	75.0	
Base Capacity (vph)	111	182	1419	950	782	56	1593	1560	264	1578
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.76	0.75	0.26	0.07	0.09	0.42	0.49	0.30	0.82

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	71	126	10	1038	246	50	5	657	744	76	1165	103		
Future Volume (vph)	71	126	10	1038	246	50	5	657	744	76	1165	103		
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000		
Total Lost time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5	4.0	7.5	7.5			
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95			
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)	1900	1960		3445	1980	1574	1520	3654	1560	1863	3607			
Flt Permitted	0.60	1.00		0.95	1.00	1.00	0.08	1.00	1.00	0.31	1.00			
Satd. Flow (perm)	1207	1960		3445	1980	1574	129	3654	1560	607	3607			
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	72	129	10	1059	251	51	5	670	759	78	1189	105		
RTOR Reduction (vph)	0	2	0	0	0	26	0	0	0	0	5	0		
Lane Group Flow (vph)	72	137	0	1059	251	25	5	670	759	78	1289	0		
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%		
Turn Type	Perm	NA		Prot	NA	Perm	Perm	NA	Free	Perm	NA			
Protected Phases		6		5	2			8			4			
Permitted Phases	6					2	8		Free	4				
Actuated Green, G (s)	11.6	11.6		44.1	60.2	60.2	49.6	49.6	125.3	49.6	49.6			
Effective Green, g (s)	11.6	11.6		44.1	60.2	60.2	49.6	49.6	125.3	49.6	49.6			
Actuated g/C Ratio	0.09	0.09		0.35	0.48	0.48	0.40	0.40	1.00	0.40	0.40			
Clearance Time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5		7.5	7.5			
Vehicle Extension (s)	0.2	0.2		3.0	0.2	0.2	3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)	111	181		1212	951	756	51	1446	1560	240	1427			
v/s Ratio Prot		0.07		c0.31	0.13			0.18			c0.36			
v/s Ratio Perm	0.06					0.02	0.04		c0.49	0.13				
v/c Ratio	0.65	0.76		0.87	0.26	0.03	0.10	0.46	0.49	0.33	0.90			
Uniform Delay, d1	54.9	55.5		38.0	19.4	17.2	23.8	28.0	0.0	26.2	35.6			
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	25.7	25.3		7.2	0.7	0.1	0.8	0.2	1.1	0.8	8.3			
Delay (s)	80.6	80.8		45.2	20.0	17.3	24.6	28.2	1.1	27.0	43.9			
Level of Service	F	F		D	C	B	C	C	A	C	D			
Approach Delay (s)		80.7			39.5			13.9			42.9			
Approach LOS		F			D			B			D			
Intersection Summary														
HCM 2000 Control Delay			34.2									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.88											
Actuated Cycle Length (s)			125.3								20.0			
Intersection Capacity Utilization			119.5%										ICU Level of Service	H
Analysis Period (min)			15											
c Critical Lane Group														

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	87	877	47	19	1104	69	49	196
v/c Ratio	0.30	0.36	0.04	0.05	0.45	0.29	0.09	0.39
Control Delay	11.2	8.9	2.2	10.6	15.1	44.4	0.3	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	8.9	2.2	10.6	15.1	44.4	0.3	16.9
Queue Length 50th (m)	8.4	47.1	0.3	2.4	78.0	15.3	0.0	13.9
Queue Length 95th (m)	18.0	58.0	4.1	m4.8	84.2	30.1	0.0	36.1
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	40.0		30.0	25.0		35.0		
Base Capacity (vph)	291	2422	1097	398	2468	234	566	503
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.36	0.04	0.05	0.45	0.29	0.09	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	816	44	18	1027	0	64	0	46	0	0	180
Future Volume (vph)	80	816	44	18	1027	0	64	0	46	0	0	180
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1863	3519	1575	1897	3585		1900	1700			1667	
Flt Permitted	0.22	1.00	1.00	0.29	1.00		0.48	1.00			1.00	
Satd. Flow (perm)	423	3519	1575	578	3585		965	1700			1667	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	87	877	47	19	1104	0	69	0	49	0	0	196
RTOR Reduction (vph)	0	0	13	0	0	0	0	37	0	0	99	0
Lane Group Flow (vph)	87	877	34	19	1104	0	69	12	0	0	97	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	8%	5%	0%	6%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Effective Green, g (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24			0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	291	2422	1084	397	2468		233	411			403	
v/s Ratio Prot		0.25			c0.31			0.01			0.06	
v/s Ratio Perm	0.21		0.02	0.03			c0.07					
v/c Ratio	0.30	0.36	0.03	0.05	0.45		0.30	0.03			0.24	
Uniform Delay, d1	7.9	8.4	6.4	6.5	9.1		40.2	37.6			39.6	
Progression Factor	1.00	1.00	1.00	1.55	1.58		1.00	1.00			1.00	
Incremental Delay, d2	2.6	0.4	0.1	0.2	0.5		3.2	0.1			1.4	
Delay (s)	10.6	8.8	6.5	10.3	15.0		43.4	37.7			41.0	
Level of Service	B	A	A	B	B		D	D			D	
Approach Delay (s)		8.9			14.9			41.0			41.0	
Approach LOS		A			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			60.9%			ICU Level of Service			B			
Analysis Period (min)			15									

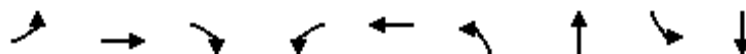
c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	837	26	127	956	37	248	168	196
v/c Ratio	0.33	0.42	0.03	0.40	0.49	0.10	0.39	0.53	0.31
Control Delay	18.4	16.0	2.2	16.8	13.0	32.2	15.1	43.6	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	16.0	2.2	16.8	13.0	32.2	15.1	43.6	9.4
Queue Length 50th (m)	11.0	56.4	0.0	9.3	35.0	7.0	18.7	37.1	7.1
Queue Length 95th (m)	19.6	66.2	2.9	31.9	50.6	16.0	42.4	61.9	25.6
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	40.0		30.0	30.0		30.0		70.0	
Base Capacity (vph)	267	2007	948	317	1959	372	630	317	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.42	0.03	0.40	0.49	0.10	0.39	0.53	0.31
Intersection Summary									

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	778	24	118	774	114	34	0	231	155	0	180
Future Volume (vph)	80	778	24	118	774	114	34	0	231	155	0	180
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3551	1649	1858	3447		1900	1650		1863	1667	
Flt Permitted	0.24	1.00	1.00	0.29	1.00		0.58	1.00		0.51	1.00	
Satd. Flow (perm)	472	3551	1649	562	3447		1168	1650		997	1667	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	87	837	26	127	832	124	37	0	248	168	0	196
RTOR Reduction (vph)	0	0	11	0	9	0	0	103	0	0	108	0
Lane Group Flow (vph)	87	837	15	127	947	0	37	145	0	168	88	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	7%	0%	2%	9%	2%	0%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Effective Green, g (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	266	2007	932	317	1948		372	526		318	532	
v/s Ratio Prot		0.24			c0.27			0.09			0.05	
v/s Ratio Perm	0.18		0.01	0.23			0.03			c0.17		
v/c Ratio	0.33	0.42	0.02	0.40	0.49		0.10	0.27		0.53	0.17	
Uniform Delay, d1	15.1	16.1	12.4	15.9	16.9		31.1	33.0		36.2	31.8	
Progression Factor	0.95	0.95	1.02	0.79	0.73		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.6	0.0	3.4	0.8		0.5	1.3		6.2	0.7	
Delay (s)	17.4	15.8	12.6	16.0	13.1		31.6	34.3		42.4	32.5	
Level of Service	B	B	B	B	B		C	C		D	C	
Approach Delay (s)		15.9			13.5			34.0			37.1	
Approach LOS		B			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			19.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			131.7%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↘		↙	↑↑	↖↗	
Traffic Volume (veh/h)	1148	81	22	1027	13	5
Future Volume (Veh/h)	1148	81	22	1027	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1234	87	24	1104	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (m)	245		258			
pX, platoon unblocked			0.87		0.92	0.87
vC, conflicting volume			1321		1878	660
vC1, stage 1 conf vol					1278	
vC2, stage 2 conf vol					600	
vCu, unblocked vol			1063		1128	301
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		95	99
cM capacity (veh/h)			549		265	476
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	823	498	24	552	552	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	549	1700	1700	300
Volume to Capacity	0.48	0.29	0.04	0.32	0.32	0.06
Queue Length 95th (m)	0.0	0.0	1.1	0.0	0.0	1.6
Control Delay (s)	0.0	0.0	11.9	0.0	0.0	17.8
Lane LOS	B			C		
Approach Delay (s)	0.0		0.3			17.8
Approach LOS				C		
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			42.6%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total AM Peak Hour - Mitigation (Sen 10%)

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	1022	109	338	1060	70	105	175	14
v/c Ratio	0.09	0.59	0.13	0.76	0.47	0.20	0.16	0.56	0.03
Control Delay	18.9	23.5	9.6	42.7	6.7	42.3	0.5	52.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	23.5	9.6	42.7	6.7	42.3	0.5	52.3	0.1
Queue Length 50th (m)	2.9	97.2	6.8	52.2	32.2	15.4	0.0	42.0	0.0
Queue Length 95th (m)	m9.0	119.7	16.5	m77.5	40.9	29.2	0.0	67.6	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	25.0		45.0	40.0				80.0	
Base Capacity (vph)	258	1722	841	539	2254	345	671	311	490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.59	0.13	0.63	0.47	0.20	0.16	0.56	0.03
Intersection Summary									
m Volume for 95th percentile queue is metered by upstream signal.									

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan
5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total AM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	940	100	311	944	31	64	0	97	161	0	13
Future Volume (vph)	21	940	100	311	944	31	64	0	97	161	0	13
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3519	1646	1881	3446		1900	1667		1863	1667	
Flt Permitted	0.27	1.00	1.00	0.18	1.00		0.75	1.00		0.69	1.00	
Satd. Flow (perm)	529	3519	1646	352	3446		1497	1667		1351	1667	
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	1022	109	338	1026	34	70	0	105	175	0	14
RTOR Reduction (vph)	0	0	36	0	2	0	0	81	0	0	11	0
Lane Group Flow (vph)	23	1022	73	338	1058	0	70	24	0	175	3	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	8%	1%	1%	10%	2%	0%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	63.6	63.6	63.6	85.0	85.0		30.0	30.0		30.0	30.0	
Effective Green, g (s)	63.6	63.6	63.6	85.0	85.0		30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.49	0.49	0.49	0.65	0.65		0.23	0.23		0.23	0.23	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	258	1721	805	434	2253		345	384		311	384	
v/s Ratio Prot		0.29		c0.10	0.31			0.01			0.00	
v/s Ratio Perm	0.04		0.04	c0.40			0.05			c0.13		
v/c Ratio	0.09	0.59	0.09	0.78	0.47		0.20	0.06		0.56	0.01	
Uniform Delay, d1	17.7	23.9	17.7	15.5	11.2		40.4	39.0		44.2	38.5	
Progression Factor	0.87	0.88	1.11	2.76	0.54		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.4	0.2	7.1	0.6		1.3	0.3		7.2	0.0	
Delay (s)	16.1	22.4	19.9	49.9	6.7		41.7	39.3		51.4	38.6	
Level of Service	B	C	B	D	A		D	D		D	D	
Approach Delay (s)		22.1			17.1			40.3			50.4	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			22.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			94.5%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	130	842	294	430	828	330	151	734	333	1064	1303	166
v/c Ratio	0.68	1.13	0.66	1.37	0.84	0.35	0.68	1.12	0.72	1.01	0.61	0.23
Control Delay	53.1	119.2	32.2	215.6	53.0	10.3	41.4	121.1	28.0	65.2	23.1	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	119.2	32.2	215.6	53.0	10.3	41.4	121.1	28.0	65.2	23.1	4.0
Queue Length 50th (m)	22.1	~132.1	22.0	~135.1	111.1	30.7	19.8	~119.7	31.6	~136.3	89.7	2.9
Queue Length 95th (m)	#53.8	#175.2	63.2	#202.8	137.2	47.9	39.5	#160.4	68.1	#194.8	112.7	13.5
Internal Link Dist (m)	262.9				265.2		202.7				246.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	194	744	446	314	988	942	241	655	463	1056	2140	736
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	1.13	0.66	1.37	0.84	0.35	0.63	1.12	0.72	1.01	0.61	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	817	285	417	803	320	146	712	323	1032	1264	161
Future Volume (vph)	126	817	285	417	803	320	146	712	323	1032	1264	161
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1775	3585	1480	1809	3551	1562	1776	3551	1591	3614	5301	1625
Flt Permitted	0.17	1.00	1.00	0.13	1.00	1.00	0.20	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	311	3585	1480	246	3551	1562	373	3551	1591	3614	5301	1625
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	130	842	294	430	828	330	151	734	333	1064	1303	166
RTOR Reduction (vph)	0	0	139	0	0	29	0	0	170	0	0	80
Lane Group Flow (vph)	130	842	155	430	828	301	151	734	163	1064	1303	86
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	35.8	27.0	27.0	49.0	36.2	74.2	34.5	24.0	24.0	38.0	52.5	52.5
Effective Green, g (s)	35.8	27.0	27.0	49.0	36.2	74.2	34.5	24.0	24.0	38.0	52.5	52.5
Actuated g/C Ratio	0.28	0.21	0.21	0.38	0.28	0.57	0.27	0.18	0.18	0.29	0.40	0.40
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	184	744	307	309	988	891	212	655	293	1056	2140	656
v/s Ratio Prot	0.05	0.23		c0.19	0.23	0.10	0.06	c0.21		c0.29	0.25	
v/s Ratio Perm	0.15		0.10	c0.33		0.09	0.13		0.10			0.05
v/c Ratio	0.71	1.13	0.50	1.39	0.84	0.34	0.71	1.12	0.56	1.01	0.61	0.13
Uniform Delay, d1	37.7	51.5	45.6	38.5	44.1	14.8	38.3	53.0	48.2	46.0	30.6	24.4
Progression Factor	1.38	0.99	1.37	1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.71	0.51
Incremental Delay, d2	9.9	73.4	2.3	194.9	7.0	0.2	10.8	73.2	7.5	27.1	1.1	0.3
Delay (s)	62.0	124.2	64.8	233.5	51.2	15.1	49.1	126.2	55.6	64.8	22.9	12.9
Level of Service	E	F	E	F	D	B	D	F	E	E	C	B
Approach Delay (s)		104.0			93.0			97.4			39.8	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			75.5		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			1.23									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				23.0			
Intersection Capacity Utilization			121.5%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total AM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	73	159	210	147	104	940	153	279	2032
v/c Ratio	0.43	0.39	0.81	0.33	0.57	0.32	0.15	0.57	0.63
Control Delay	52.5	17.6	73.1	8.2	44.4	8.8	2.5	16.7	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	17.6	73.1	8.2	44.4	8.8	2.5	16.7	11.7
Queue Length 50th (m)	17.4	11.3	54.5	0.0	11.7	29.6	0.2	15.2	46.9
Queue Length 95th (m)	31.7	29.7	79.3	17.2	m15.1	m71.5	m16.9	m49.1	81.3
Internal Link Dist (m)	94.9		97.1			149.9			449.9
Turn Bay Length (m)		40.0			30.0		30.0	45.0	
Base Capacity (vph)	222	500	335	529	183	2959	1002	547	3206
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.32	0.63	0.28	0.57	0.32	0.15	0.51	0.63

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 7: Yonge Street & Minor Collector/Existing Commerical Driveway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	0	157	208	0	146	103	931	151	276	1976	36
Future Volume (vph)	72	0	157	208	0	146	103	931	151	276	1976	36
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1900	1700		1827	1700	1900	5151	1662	1881	5292	
Flt Permitted		0.45	1.00		0.71	1.00	0.06	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		903	1700		1364	1700	123	5151	1662	508	5292	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	73	0	159	210	0	147	104	940	153	279	1996	36
RTOR Reduction (vph)	0	0	88	0	0	119	0	0	48	0	1	0
Lane Group Flow (vph)	0	73	71	0	210	28	104	940	105	279	2031	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6		6	2		
Actuated Green, G (s)		24.7	24.7		24.7	24.7	82.2	74.7	74.7	90.8	78.8	
Effective Green, g (s)		24.7	24.7		24.7	24.7	82.2	74.7	74.7	90.8	78.8	
Actuated g/C Ratio		0.19	0.19		0.19	0.19	0.63	0.57	0.57	0.70	0.61	
Clearance Time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		171	323		259	323	180	2959	955	482	3207	
v/s Ratio Prot							0.03	0.18		c0.05	c0.38	
v/s Ratio Perm		0.08	0.04		c0.15	0.02	0.33		0.06	0.35		
v/c Ratio		0.43	0.22		0.81	0.09	0.58	0.32	0.11	0.58	0.63	
Uniform Delay, d1		46.4	44.5		50.4	43.4	14.6	14.4	12.6	7.6	16.4	
Progression Factor		1.00	1.00		1.00	1.00	2.23	0.55	0.45	2.05	0.64	
Incremental Delay, d2		1.7	0.3		17.2	0.1	2.5	0.2	0.1	1.1	0.7	
Delay (s)		48.1	44.8		67.7	43.5	35.1	8.1	5.8	16.8	11.1	
Level of Service		D	D		E	D	D	A	A	B	B	
Approach Delay (s)		45.9			57.7			10.1			11.8	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			17.2	HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)					19.0			
Intersection Capacity Utilization			89.2%	ICU Level of Service					E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total AM Peak Hour - Mitigation (Sen 10%)

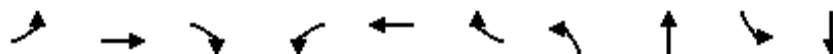
							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				  	  		
Traffic Volume (veh/h)	0	5	0	1158	2345	4	
Future Volume (Veh/h)	0	5	0	1158	2345	4	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	5	0	1259	2549	4	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				270	174		
pX, platoon unblocked	0.80	0.75	0.75				
vC, conflicting volume	2971	852	2553				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1649	0	1889				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	99	100				
cM capacity (veh/h)	72	809	233				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	5	420	420	420	1020	1020	514
Volume Left	0	0	0	0	0	0	0
Volume Right	5	0	0	0	0	0	4
cSH	809	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.25	0.25	0.25	0.60	0.60	0.30
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.5	0.0			0.0		
Approach LOS	A						
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			53.1%		ICU Level of Service		A
Analysis Period (min)			15				

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total AM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	483	185	65	441	160	63	1208	316	2389
v/c Ratio	0.50	0.69	0.42	0.34	0.74	0.40	0.40	0.46	0.77	0.76
Control Delay	44.0	54.8	13.8	39.5	59.6	9.6	32.8	17.3	29.1	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	54.8	13.8	39.5	59.6	9.6	32.8	17.3	29.1	23.1
Queue Length 50th (m)	21.5	66.0	7.4	13.3	60.4	0.0	7.0	42.8	37.0	174.8
Queue Length 95th (m)	35.2	81.6	28.3	24.2	75.8	18.8	23.5	74.5	74.1	217.3
Internal Link Dist (m)		192.3			102.0			449.9		228.0
Turn Bay Length (m)	55.0		40.0	40.0		60.0	45.0		120.0	
Base Capacity (vph)	215	789	474	202	742	460	169	2605	498	3150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.61	0.39	0.32	0.59	0.35	0.37	0.46	0.63	0.76
Intersection Summary										

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total AM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	444	170	60	406	147	58	1066	45	291	2126	72
Future Volume (vph)	95	444	170	60	406	147	58	1066	45	291	2126	72
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
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)	1863	3725	1667	1863	3725	1667	1863	5320		1863	5327	
Flt Permitted	0.21	1.00	1.00	0.26	1.00	1.00	0.06	1.00		0.15	1.00	
Satd. Flow (perm)	407	3725	1667	504	3725	1667	125	5320		291	5327	
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)	103	483	185	65	441	160	63	1159	49	316	2311	78
RTOR Reduction (vph)	0	0	124	0	0	133	0	3	0	0	3	0
Lane Group Flow (vph)	103	483	61	65	441	27	63	1205	0	316	2386	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		
Actuated Green, G (s)	34.1	24.6	24.6	28.5	21.8	21.8	68.3	62.6		85.2	75.0	
Effective Green, g (s)	34.1	24.6	24.6	28.5	21.8	21.8	68.3	62.6		85.2	75.0	
Actuated g/C Ratio	0.26	0.19	0.19	0.22	0.17	0.17	0.53	0.48		0.66	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	704	315	180	624	279	141	2561		409	3073	
v/s Ratio Prot	c0.04	c0.13		0.02	0.12		0.02	0.23		c0.11	c0.45	
v/s Ratio Perm	0.09		0.04	0.06		0.02	0.21			0.40		
v/c Ratio	0.48	0.69	0.19	0.36	0.71	0.10	0.45	0.47		0.77	0.78	
Uniform Delay, d1	38.3	49.1	44.4	41.5	51.1	45.8	21.2	22.6		18.1	21.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.51	0.71		1.00	1.00	
Incremental Delay, d2	1.7	2.8	0.3	1.2	3.7	0.2	2.2	0.6		8.8	2.0	
Delay (s)	40.1	51.9	44.7	42.7	54.7	45.9	34.3	16.7		26.9	23.1	
Level of Service	D	D	D	D	D	D	C	B		C	C	
Approach Delay (s)		48.6			51.4			17.6			23.5	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			29.1									
HCM 2000 Level of Service											C	
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			130.0								18.0	
Intersection Capacity Utilization			75.5%									
ICU Level of Service											D	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	185	263	754	241	88	21	1473	1265	89	759
v/c Ratio	0.98	0.85	0.96	0.30	0.12	0.09	0.98	0.76	0.66	0.43
Control Delay	118.4	81.0	78.0	28.7	5.2	27.4	60.1	3.3	43.5	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	118.4	81.0	78.0	28.7	5.2	27.4	60.1	3.3	43.5	25.0
Queue Length 50th (m)	54.4	75.2	113.0	46.5	0.0	3.8	220.9	0.0	13.4	74.7
Queue Length 95th (m)	#104.8	#122.5	#153.9	67.9	10.7	10.1	#274.4	0.0	#31.9	92.0
Internal Link Dist (m)		2019.9		780.4			992.7			201.9
Turn Bay Length (m)	100.0		200.0			140.0		300.0	75.0	
Base Capacity (vph)	189	311	782	804	739	229	1503	1667	134	1746
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.85	0.96	0.30	0.12	0.09	0.98	0.76	0.66	0.43

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	248	5	724	231	84	20	1414	1214	85	682	47
Future Volume (vph)	178	248	5	724	231	84	20	1414	1214	85	682	47
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5	4.0	4.5	7.5	
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1879	1975		3477	1942	1661	1583	3725	1667	1900	3671	
Flt Permitted	0.61	1.00		0.95	1.00	1.00	0.34	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1205	1975		3477	1942	1661	569	3725	1667	131	3671	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	185	258	5	754	241	88	21	1473	1265	89	710	49
RTOR Reduction (vph)	0	1	0	0	0	52	0	0	0	0	4	0
Lane Group Flow (vph)	185	262	0	754	241	36	21	1473	1265	89	755	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Prot	NA	Perm	Perm	NA	Free	pm+pt	NA	
Protected Phases		6		5	2			8		7	4	
Permitted Phases	6					2	8		Free	4		
Actuated Green, G (s)	22.0	22.0		31.5	58.0	58.0	56.5	56.5	140.0	66.5	66.5	
Effective Green, g (s)	22.0	22.0		31.5	58.0	58.0	56.5	56.5	140.0	66.5	66.5	
Actuated g/C Ratio	0.16	0.16		0.22	0.41	0.41	0.40	0.40	1.00	0.48	0.48	
Clearance Time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5		4.5	7.5	
Vehicle Extension (s)	0.2	0.2		3.0	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	189	310		782	804	688	229	1503	1667	131	1743	
v/s Ratio Prot		0.13		c0.22	0.12			c0.40		0.03	0.21	
v/s Ratio Perm	0.15					0.02	0.04		c0.76	0.29		
v/c Ratio	0.98	0.85		0.96	0.30	0.05	0.09	0.98	0.76	0.68	0.43	
Uniform Delay, d1	58.8	57.3		53.7	27.4	24.6	25.9	41.2	0.0	32.4	24.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	60.2	23.7		23.6	1.0	0.1	0.2	18.6	3.3	13.1	0.2	
Delay (s)	118.9	81.1		77.3	28.4	24.7	26.0	59.8	3.3	45.5	24.5	
Level of Service	F	F		E	C	C	C	E	A	D	C	
Approach Delay (s)		96.7			62.1			33.6			26.7	
Approach LOS		F			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			44.0									
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			140.0									
Intersection Capacity Utilization			116.6%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	186	1413	71	43	1023	27	34	118
v/c Ratio	0.48	0.49	0.06	0.18	0.37	0.14	0.09	0.27
Control Delay	10.9	6.8	1.6	3.7	2.7	51.9	0.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	6.8	1.6	3.7	2.7	51.9	0.5	1.5
Queue Length 50th (m)	17.4	70.6	1.3	1.5	19.4	6.8	0.0	0.0
Queue Length 95th (m)	34.5	82.7	4.8	3.0	20.8	16.4	0.0	0.0
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	40.0		30.0	25.0		35.0		
Base Capacity (vph)	385	2860	1266	241	2778	193	362	437
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.49	0.06	0.18	0.37	0.14	0.09	0.27
Intersection Summary								

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)

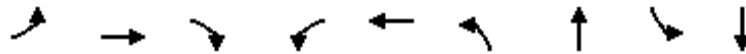
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	1286	65	39	931	0	25	0	31	0	0	109
Future Volume (vph)	171	1286	65	39	931	0	25	0	31	0	0	109
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1863	3725	1634	1900	3619		1900	1700			1667	
Flt Permitted	0.26	1.00	1.00	0.16	1.00		0.57	1.00			1.00	
Satd. Flow (perm)	501	3725	1634	314	3619		1149	1700			1667	
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	186	1413	71	43	1023	0	27	0	34	0	0	118
RTOR Reduction (vph)	0	0	12	0	0	0	0	28	0	0	98	0
Lane Group Flow (vph)	186	1413	59	43	1023	0	27	6	0	0	20	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	2%	0%	0%	5%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Effective Green, g (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.17	0.17			0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	384	2860	1254	241	2778		192	285			279	
v/s Ratio Prot		c0.38			0.28			0.00			0.01	
v/s Ratio Perm	0.37		0.04	0.14			c0.02					
v/c Ratio	0.48	0.49	0.05	0.18	0.37		0.14	0.02			0.07	
Uniform Delay, d1	6.0	6.1	3.9	4.4	5.3		49.6	48.6			49.1	
Progression Factor	1.00	1.00	1.00	0.45	0.44		1.00	1.00			1.00	
Incremental Delay, d2	4.3	0.6	0.1	1.5	0.4		1.5	0.1			0.5	
Delay (s)	10.3	6.7	4.0	3.5	2.6		51.2	48.8			49.5	
Level of Service	B	A	A	A	A		D	D			D	
Approach Delay (s)		7.0			2.7			49.8			49.5	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.0			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			57.2%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	1132	33	226	1103	26	187	102	118
v/c Ratio	0.64	0.45	0.03	0.80	0.46	0.09	0.41	0.45	0.22
Control Delay	23.2	10.9	2.2	35.9	5.0	44.8	20.7	55.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	10.9	2.2	35.9	5.0	44.8	20.7	55.0	1.0
Queue Length 50th (m)	22.4	71.7	0.0	62.7	27.9	6.1	16.6	26.0	0.0
Queue Length 95th (m)	32.7	80.6	m2.9	#107.7	33.6	15.0	40.1	45.8	0.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	40.0		30.0	30.0		30.0		70.0	
Base Capacity (vph)	290	2514	1128	281	2393	294	458	226	532
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.45	0.03	0.80	0.46	0.09	0.41	0.45	0.22

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	1109	32	221	819	246	25	0	183	94	0	109
Future Volume (vph)	171	1109	32	221	819	246	25	0	183	94	0	109
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3725	1655	1879	3512		1898	1683		1863	1667	
Flt Permitted	0.22	1.00	1.00	0.21	1.00		0.68	1.00		0.53	1.00	
Satd. Flow (perm)	431	3725	1655	418	3512		1353	1683		1041	1667	
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	186	1132	33	226	836	267	26	0	187	102	0	118
RTOR Reduction (vph)	0	0	11	0	22	0	0	92	0	0	92	0
Lane Group Flow (vph)	186	1132	22	226	1081	0	26	95	0	102	26	0
Confl. Peds. (#/hr)			3	3			1					
Heavy Vehicles (%)	2%	2%	0%	1%	5%	2%	0%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Effective Green, g (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	290	2514	1117	282	2370		294	366		226	363	
v/s Ratio Prot		0.30			0.31			0.06			0.02	
v/s Ratio Perm	0.43		0.01	c0.54			0.02			c0.10		
v/c Ratio	0.64	0.45	0.02	0.80	0.46		0.09	0.26		0.45	0.07	
Uniform Delay, d1	13.0	10.6	7.5	16.1	10.7		43.7	45.4		47.5	43.5	
Progression Factor	0.92	0.97	1.01	0.81	0.43		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.3	0.5	0.0	19.5	0.6		0.6	1.7		6.4	0.4	
Delay (s)	21.3	10.8	7.6	32.5	5.2		44.3	47.1		53.9	43.9	
Level of Service	C	B	A	C	A		D	D		D	D	
Approach Delay (s)		12.2			9.9			46.7			48.5	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			16.1			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			134.1%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1333	102	22	1286	57	40
Future Volume (Veh/h)	1333	102	22	1286	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1418	109	23	1368	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh	2			2		
Upstream signal (m)	245			258		
pX, platoon unblocked			0.85		0.91	0.85
vC, conflicting volume			1527		2202	764
vC1, stage 1 conf vol					1472	
vC2, stage 2 conf vol					730	
vCu, unblocked vol			1262		1378	361
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		69	92
cM capacity (veh/h)			432		198	544
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	945	582	23	684	684	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	432	1700	1700	269
Volume to Capacity	0.56	0.34	0.05	0.40	0.40	0.39
Queue Length 95th (m)	0.0	0.0	1.3	0.0	0.0	14.0
Control Delay (s)	0.0	0.0	13.8	0.0	0.0	26.6
Lane LOS			B			D
Approach Delay (s)	0.0		0.2			26.6
Approach LOS						D
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			50.1%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total PM Peak Hour - Mitigation (Sen 10%)

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	1127	158	240	1155	169	269	138	55
v/c Ratio	0.25	0.58	0.18	0.66	0.49	0.48	0.41	0.71	0.11
Control Delay	24.1	26.1	12.5	11.5	6.9	50.5	3.8	69.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	26.1	12.5	11.5	6.9	50.5	3.8	69.0	0.4
Queue Length 50th (m)	10.3	118.1	14.4	12.8	43.1	42.4	0.0	36.9	0.0
Queue Length 95th (m)	22.9	139.5	26.7	m5.8	m57.8	66.7	10.9	#69.2	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	25.0		45.0	40.0				80.0	
Base Capacity (vph)	249	1945	887	470	2342	351	649	195	504
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.58	0.18	0.51	0.49	0.48	0.41	0.71	0.11

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan
5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total PM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1093	153	233	1031	85	164	0	261	127	0	51
Future Volume (vph)	58	1093	153	233	1031	85	164	0	261	127	0	51
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3725	1624	1900	3616		1881	1667		1863	1667	
Flt Permitted	0.24	1.00	1.00	0.16	1.00		0.72	1.00		0.40	1.00	
Satd. Flow (perm)	479	3725	1624	313	3616		1428	1667		792	1667	
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.92	0.97	0.92	0.97	0.92	0.92	0.92
Adj. Flow (vph)	63	1127	158	240	1063	92	169	0	269	138	0	55
RTOR Reduction (vph)	0	0	40	0	5	0	0	203	0	0	41	0
Lane Group Flow (vph)	63	1127	118	240	1150	0	169	66	0	138	14	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	2%	1%	0%	4%	2%	1%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.1	73.1	73.1	90.5	90.5		34.5	34.5		34.5	34.5	
Effective Green, g (s)	73.1	73.1	73.1	90.5	90.5		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.52	0.52	0.52	0.65	0.65		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	250	1944	847	354	2337		351	410		195	410	
v/s Ratio Prot		0.30		c0.06	0.32			0.04			0.01	
v/s Ratio Perm	0.13		0.07	c0.37			0.12			c0.17		
v/c Ratio	0.25	0.58	0.14	0.68	0.49		0.48	0.16		0.71	0.03	
Uniform Delay, d1	18.4	22.9	17.2	15.9	12.8		45.1	41.4		48.1	40.1	
Progression Factor	1.05	1.05	1.33	0.78	0.52		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	1.2	0.3	2.0	0.3		4.7	0.8		19.5	0.2	
Delay (s)	21.5	25.2	23.2	14.4	6.9		49.8	42.2		67.6	40.2	
Level of Service	C	C	C	B	A		D	D		E	D	
Approach Delay (s)		24.8			8.2			45.1			59.8	
Approach LOS		C			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			22.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			129.6%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	360	1053	214	471	1012	724	279	1586	523	512	1052	168
v/c Ratio	1.29	1.13	0.32	1.63	1.08	1.08	0.79	1.19	0.70	1.23	0.56	0.26
Control Delay	183.0	122.7	38.2	327.3	101.2	92.9	38.2	134.4	24.3	177.5	39.8	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	183.0	122.7	38.2	327.3	101.2	92.9	38.2	134.4	24.3	177.5	39.8	17.0
Queue Length 50th (m)	~117.5	~191.1	44.4	~179.7	~172.5	~224.1	44.4	~293.1	66.9	~97.0	85.4	12.3
Queue Length 95th (m)	#183.6	#235.2	69.6	#250.9	#216.1	#243.3	71.4	#337.6	112.2	#135.2	68.4	m21.3
Internal Link Dist (m)	262.9				265.2				202.7		246.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	279	931	700	289	939	671	386	1330	746	417	1881	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	1.13	0.31	1.63	1.08	1.08	0.72	1.19	0.70	1.23	0.56	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1042	212	466	1002	717	276	1570	518	507	1041	166
Future Volume (vph)	356	1042	212	466	1002	717	276	1570	518	507	1041	166
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1900	3725	1619	1881	3654	1642	1900	3800	1644	3650	5353	1664
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.17	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	229	3725	1619	220	3654	1642	334	3800	1644	3650	5353	1664
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	360	1053	214	471	1012	724	279	1586	523	512	1052	168
RTOR Reduction (vph)	0	0	39	0	0	39	0	0	171	0	0	72
Lane Group Flow (vph)	360	1053	175	471	1012	685	279	1586	352	512	1052	96
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	1	3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	51.0	35.0	51.8	53.0	36.0	52.0	65.8	49.0	49.0	16.0	49.2	49.2
Effective Green, g (s)	51.0	35.0	51.8	53.0	36.0	52.0	65.8	49.0	49.0	16.0	49.2	49.2
Actuated g/C Ratio	0.36	0.25	0.37	0.38	0.26	0.37	0.47	0.35	0.35	0.11	0.35	0.35
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	274	931	599	284	939	609	344	1330	575	417	1881	584
v/s Ratio Prot	0.15	0.28	0.04	c0.20	0.28	0.13	0.10	c0.42		c0.14	0.20	
v/s Ratio Perm	0.33		0.07	c0.42		0.29	0.28		0.21			0.06
v/c Ratio	1.31	1.13	0.29	1.66	1.08	1.12	0.81	1.19	0.61	1.23	0.56	0.16
Uniform Delay, d1	41.3	52.5	31.1	42.0	52.0	44.0	25.4	45.5	37.6	62.0	36.6	31.3
Progression Factor	0.91	1.12	2.01	1.00	1.00	1.00	1.00	1.00	1.00	1.20	1.04	1.33
Incremental Delay, d2	161.8	70.9	0.2	311.5	52.6	75.9	13.5	94.3	4.8	119.5	1.0	0.5
Delay (s)	199.4	129.6	62.9	353.5	104.6	119.9	38.9	139.8	42.5	193.9	39.1	42.0
Level of Service	F	F	E	F	F	F	D	F	D	F	D	D
Approach Delay (s)		136.3			162.8			106.7			85.2	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			123.6		HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio			1.42									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				23.0			
Intersection Capacity Utilization			126.1%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total PM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	119	210	277	256	2224	195	215	1425
v/c Ratio	0.58	0.30	0.85	0.55	0.78	0.70	0.22	0.83	0.58
Control Delay	69.3	9.8	84.9	11.3	25.0	33.3	19.2	57.3	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	9.8	84.9	11.3	25.0	33.3	19.2	57.3	31.1
Queue Length 50th (m)	21.0	0.0	59.0	4.4	50.6	198.3	28.1	52.7	67.6
Queue Length 95th (m)	39.5	17.2	#95.1	30.4	m40.4	m173.8	m24.0	80.4	123.1
Internal Link Dist (m)	94.9		97.1			149.9			449.9
Turn Bay Length (m)		40.0			30.0		30.0	45.0	
Base Capacity (vph)	156	430	281	543	418	3164	876	338	2437
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.28	0.75	0.51	0.61	0.70	0.22	0.64	0.58

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 7: Yonge Street & Minor Collector/Existing Commercial Driveway

2045 Total PM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	2	115	204	0	269	248	2157	189	209	1294	88
Future Volume (vph)	75	2	115	204	0	269	248	2157	189	209	1294	88
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frpb, ped/bikes		1.00	0.99		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1907	1675		1895	1683	1203	5406	1454	1863	5094	
Flt Permitted		0.39	1.00		0.71	1.00	0.11	1.00	1.00	0.06	1.00	
Satd. Flow (perm)		781	1675		1407	1683	139	5406	1454	117	5094	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	77	2	119	210	0	277	256	2224	195	215	1334	91
RTOR Reduction (vph)	0	0	98	0	0	214	0	0	26	0	5	0
Lane Group Flow (vph)	0	79	21	0	210	63	256	2224	169	215	1420	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6		6	2		
Actuated Green, G (s)		24.5	24.5		24.5	24.5	101.0	82.0	82.0	81.9	66.9	
Effective Green, g (s)		24.5	24.5		24.5	24.5	101.0	82.0	82.0	81.9	66.9	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.72	0.59	0.59	0.59	0.48	
Clearance Time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		136	293		246	294	325	3166	851	255	2434	
v/s Ratio Prot							c0.17	0.41		0.09	0.28	
v/s Ratio Perm		0.10	0.01		c0.15	0.04	0.40		0.12	c0.40		
v/c Ratio		0.58	0.07		0.85	0.22	0.79	0.70	0.20	0.84	0.58	
Uniform Delay, d1		53.0	48.2		56.0	49.5	31.6	20.4	13.6	38.9	26.5	
Progression Factor		1.00	1.00		1.00	1.00	0.88	1.50	1.77	0.89	1.06	
Incremental Delay, d2		6.2	0.1		23.8	0.4	1.2	0.1	0.0	18.8	0.9	
Delay (s)		59.2	48.3		79.8	49.9	29.1	30.8	24.1	53.3	28.8	
Level of Service		E	D		E	D	C	C	C	D	C	
Approach Delay (s)		52.7			62.8			30.1			32.0	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			34.8									
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			140.0									
Intersection Capacity Utilization			88.0%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total PM Peak Hour - Mitigation (Sen 10%)

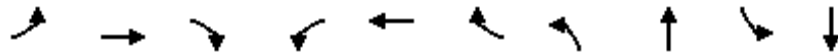
							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				  	  		
Traffic Volume (veh/h)	0	11	0	2642	1627	7	
Future Volume (Veh/h)	0	11	0	2642	1627	7	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	12	0	2872	1768	8	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				270	174		
pX, platoon unblocked	0.80	0.80	0.80				
vC, conflicting volume	2729	593	1776				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	635	0	1113				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	99	100				
cM capacity (veh/h)	329	872	501				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	12	957	957	957	707	707	362
Volume Left	0	0	0	0	0	0	0
Volume Right	12	0	0	0	0	0	8
cSH	872	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.56	0.56	0.56	0.42	0.42	0.21
Queue Length 95th (m)	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.2	0.0			0.0		
Approach LOS	A						
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			51.8%		ICU Level of Service		A
Analysis Period (min)			15				

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total PM Peak Hour - Mitigation (Sen 10%)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	129	468	118	90	547	229	125	2664	199	1687
v/c Ratio	0.72	0.69	0.30	0.43	0.78	0.56	0.55	0.95	0.87	0.58
Control Delay	61.6	58.9	9.9	42.8	62.1	29.2	36.5	24.3	71.2	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.6	58.9	9.9	42.8	62.1	29.2	36.5	24.3	71.2	23.2
Queue Length 50th (m)	28.9	68.1	0.3	19.7	80.5	28.9	14.8	70.1	40.7	115.3
Queue Length 95th (m)	#48.8	84.1	17.2	32.5	97.2	54.8	m34.9	94.5	#113.9	153.5
Internal Link Dist (m)		192.3			102.0			449.9		228.0
Turn Bay Length (m)	55.0		40.0	40.0		60.0	45.0		120.0	
Base Capacity (vph)	179	795	448	228	848	470	288	2799	228	2887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.59	0.26	0.39	0.65	0.49	0.43	0.95	0.87	0.58

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total PM Peak Hour - Mitigation (Sen 10%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	431	109	83	503	211	115	2365	86	183	1442	110
Future Volume (vph)	119	431	109	83	503	211	115	2365	86	183	1442	110
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
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)	1863	3725	1667	1863	3725	1667	1863	5325		1863	5296	
Flt Permitted	0.16	1.00	1.00	0.22	1.00	1.00	0.09	1.00		0.05	1.00	
Satd. Flow (perm)	318	3725	1667	430	3725	1667	168	5325		103	5296	
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)	129	468	118	90	547	229	125	2571	93	199	1567	120
RTOR Reduction (vph)	0	0	96	0	0	96	0	3	0	0	5	0
Lane Group Flow (vph)	129	468	22	90	547	133	125	2661	0	199	1682	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		
Actuated Green, G (s)	34.6	25.6	25.6	36.2	26.4	26.4	83.9	73.5		89.3	76.2	
Effective Green, g (s)	34.6	25.6	25.6	36.2	26.4	26.4	83.9	73.5		89.3	76.2	
Actuated g/C Ratio	0.25	0.18	0.18	0.26	0.19	0.19	0.60	0.52		0.64	0.54	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	681	304	211	702	314	226	2795		230	2882	
v/s Ratio Prot	c0.05	0.13		0.03	c0.15		0.04	c0.50		c0.08	0.32	
v/s Ratio Perm	0.13		0.01	0.08		0.08	0.29			0.47		
v/c Ratio	0.73	0.69	0.07	0.43	0.78	0.42	0.55	0.95		0.87	0.58	
Uniform Delay, d1	43.7	53.5	47.4	41.3	54.0	50.1	16.7	31.6		45.9	21.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	2.28	0.52		1.00	1.00	
Incremental Delay, d2	13.9	2.9	0.1	1.4	5.5	0.9	2.3	7.4		27.0	0.9	
Delay (s)	57.7	56.3	47.5	42.6	59.5	51.0	40.4	23.8		72.9	22.2	
Level of Service	E	E	D	D	E	D	D	C		E	C	
Approach Delay (s)		55.1			55.5			24.5			27.5	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			33.2									
HCM 2000 Level of Service											C	
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			140.0								18.0	
Intersection Capacity Utilization			89.3%								E	
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	68	133	996	243	48	5	632	718	76	1227
v/c Ratio	0.48	0.58	0.86	0.25	0.06	0.10	0.45	0.46	0.31	0.88
Control Delay	67.6	64.3	46.2	20.3	5.5	28.6	29.0	1.0	29.8	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	64.3	46.2	20.3	5.5	28.6	29.0	1.0	29.8	43.2
Queue Length 50th (m)	16.7	32.5	122.1	35.7	0.0	0.8	62.1	0.0	13.3	150.1
Queue Length 95th (m)	#59.3	#100.5	142.0	58.4	7.2	4.1	78.6	0.0	26.7	179.8
Internal Link Dist (m)		2019.9		780.4			992.7			201.9
Turn Bay Length (m)	100.0		200.0			140.0		300.0	75.0	
Base Capacity (vph)	141	229	1446	968	794	60	1623	1560	285	1607
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.58	0.69	0.25	0.06	0.08	0.39	0.46	0.27	0.76

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	67	121	10	976	238	47	5	619	704	74	1106	96	
Future Volume (vph)	67	121	10	976	238	47	5	619	704	74	1106	96	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5	4.0	7.5	7.5		
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1900	1959		3445	1980	1574	1520	3654	1560	1863	3607		
Flt Permitted	0.61	1.00		0.95	1.00	1.00	0.08	1.00	1.00	0.33	1.00		
Satd. Flow (perm)	1216	1959		3445	1980	1574	135	3654	1560	643	3607		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	68	123	10	996	243	48	5	632	718	76	1129	98	
RTOR Reduction (vph)	0	2	0	0	0	25	0	0	0	0	6	0	
Lane Group Flow (vph)	68	131	0	996	243	23	5	632	718	76	1221	0	
Heavy Vehicles (%)	0%	1%	0%	7%	1%	8%	25%	4%	9%	2%	4%	5%	
Turn Type	Perm	NA		Prot	NA	Perm	Perm	NA	Free	Perm	NA		
Protected Phases		6		5	2			8			4		
Permitted Phases	6					2	8		Free		4		
Actuated Green, G (s)	14.3	14.3		41.4	60.2	60.2	47.3	47.3	123.0	47.3	47.3		
Effective Green, g (s)	14.3	14.3		41.4	60.2	60.2	47.3	47.3	123.0	47.3	47.3		
Actuated g/C Ratio	0.12	0.12		0.34	0.49	0.49	0.38	0.38	1.00	0.38	0.38		
Clearance Time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5		7.5	7.5		
Vehicle Extension (s)	0.2	0.2		3.0	0.2	0.2	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	141	227		1159	969	770	51	1405	1560	247	1387		
v/s Ratio Prot		0.07		c0.29	0.12			0.17			c0.34		
v/s Ratio Perm	0.06					0.01	0.04		c0.46	0.12			
v/c Ratio	0.48	0.58		0.86	0.25	0.03	0.10	0.45	0.46	0.31	0.88		
Uniform Delay, d1	50.9	51.5		38.1	18.3	16.3	24.2	28.2	0.0	26.4	35.2		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	11.3	10.3		6.5	0.6	0.1	0.8	0.2	1.0	0.7	6.9		
Delay (s)	62.2	61.8		44.6	18.9	16.3	25.0	28.4	1.0	27.1	42.1		
Level of Service	E	E		D	B	B	C	C	A	C	D		
Approach Delay (s)		61.9			38.7			13.9			41.2		
Approach LOS		E			D			B			D		
Intersection Summary													
HCM 2000 Control Delay			32.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.85										
Actuated Cycle Length (s)			123.0								20.0		
Intersection Capacity Utilization			117.8%										H
Analysis Period (min)			15										
c Critical Lane Group													

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	74	839	47	19	1051	69	49	172
v/c Ratio	0.24	0.35	0.04	0.05	0.43	0.27	0.08	0.33
Control Delay	9.9	8.8	2.0	10.7	15.1	43.4	0.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	8.8	2.0	10.7	15.1	43.4	0.3	11.0
Queue Length 50th (m)	6.8	44.4	0.2	2.4	73.8	15.2	0.0	5.5
Queue Length 95th (m)	14.4	54.8	4.0	m5.1	77.8	29.7	0.0	24.7
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	40.0		30.0	25.0		35.0		
Base Capacity (vph)	311	2422	1098	417	2468	255	578	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.35	0.04	0.05	0.43	0.27	0.08	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan 2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	780	44	18	977	0	64	0	46	0	0	158
Future Volume (vph)	68	780	44	18	977	0	64	0	46	0	0	158
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1863	3519	1575	1897	3585		1900	1700			1667	
Flt Permitted	0.23	1.00	1.00	0.30	1.00		0.53	1.00			1.00	
Satd. Flow (perm)	454	3519	1575	606	3585		1054	1700			1667	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	74	839	47	19	1051	0	69	0	49	0	0	172
RTOR Reduction (vph)	0	0	14	0	0	0	0	37	0	0	111	0
Lane Group Flow (vph)	74	839	33	19	1051	0	69	12	0	0	61	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	8%	5%	0%	6%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Effective Green, g (s)	89.5	89.5	89.5	89.5	89.5		31.5	31.5			31.5	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24			0.24	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	312	2422	1084	417	2468		255	411			403	
v/s Ratio Prot		0.24			c0.29			0.01			0.04	
v/s Ratio Perm	0.16		0.02	0.03			c0.07					
v/c Ratio	0.24	0.35	0.03	0.05	0.43		0.27	0.03			0.15	
Uniform Delay, d1	7.5	8.3	6.4	6.5	8.9		39.9	37.6			38.7	
Progression Factor	1.00	1.00	1.00	1.57	1.62		1.00	1.00			1.00	
Incremental Delay, d2	1.8	0.4	0.1	0.2	0.5		2.6	0.1			0.8	
Delay (s)	9.3	8.7	6.5	10.4	15.0		42.5	37.7			39.5	
Level of Service	A	A	A	B	B		D	D			D	
Approach Delay (s)		8.6			14.9			40.5			39.5	
Approach LOS		A			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			58.3%			ICU Level of Service				B		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	74	811	26	127	909	37	248	148	172
v/c Ratio	0.26	0.40	0.03	0.39	0.46	0.09	0.39	0.47	0.27
Control Delay	16.8	15.9	2.2	15.9	12.3	32.0	13.9	41.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	15.9	2.2	15.9	12.3	32.0	13.9	41.3	5.9
Queue Length 50th (m)	9.4	54.7	0.0	8.7	31.6	7.0	16.6	31.9	0.6
Queue Length 95th (m)	16.9	64.4	2.9	31.7	48.7	15.9	39.9	54.2	17.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	40.0		30.0	30.0		30.0		70.0	
Base Capacity (vph)	286	2007	948	329	1958	395	637	317	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.40	0.03	0.39	0.46	0.09	0.39	0.47	0.27
Intersection Summary									

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	754	24	118	746	98	34	0	231	136	0	158
Future Volume (vph)	68	754	24	118	746	98	34	0	231	136	0	158
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3551	1649	1858	3451		1900	1650		1863	1667	
Flt Permitted	0.26	1.00	1.00	0.30	1.00		0.62	1.00		0.51	1.00	
Satd. Flow (perm)	507	3551	1649	583	3451		1239	1650		997	1667	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	74	811	26	127	802	107	37	0	248	148	0	172
RTOR Reduction (vph)	0	0	11	0	8	0	0	110	0	0	115	0
Lane Group Flow (vph)	74	811	15	127	901	0	37	138	0	148	57	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	7%	0%	2%	9%	2%	0%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Effective Green, g (s)	73.5	73.5	73.5	73.5	73.5		41.5	41.5		41.5	41.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	286	2007	932	329	1951		395	526		318	532	
v/s Ratio Prot		0.23			c0.26			0.08			0.03	
v/s Ratio Perm	0.15		0.01	0.22			0.03			c0.15		
v/c Ratio	0.26	0.40	0.02	0.39	0.46		0.09	0.26		0.47	0.11	
Uniform Delay, d1	14.4	15.9	12.4	15.7	16.6		31.1	32.9		35.4	31.2	
Progression Factor	0.97	0.95	1.03	0.77	0.70		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.6	0.0	3.2	0.7		0.5	1.2		4.8	0.4	
Delay (s)	16.0	15.7	12.7	15.2	12.4		31.5	34.1		40.2	31.6	
Level of Service	B	B	B	B	B		C	C		D	C	
Approach Delay (s)		15.7			12.8			33.7			35.6	
Approach LOS		B			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			19.0			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			131.7%			ICU Level of Service				H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↘		↙	↑↑	↘↙	
Traffic Volume (veh/h)	1104	81	22	983	13	5
Future Volume (Veh/h)	1104	81	22	983	13	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1187	87	24	1057	14	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (m)	245		258			
pX, platoon unblocked			0.87		0.93	0.87
vC, conflicting volume			1274		1807	637
vC1, stage 1 conf vol					1230	
vC2, stage 2 conf vol					576	
vCu, unblocked vol			1023		1099	293
tC, single (s)			4.2		6.8	8.1
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.9
p0 queue free %			96		95	99
cM capacity (veh/h)			573		279	486
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	791	483	24	528	528	19
Volume Left	0	0	24	0	0	14
Volume Right	0	87	0	0	0	5
cSH	1700	1700	573	1700	1700	314
Volume to Capacity	0.47	0.28	0.04	0.31	0.31	0.06
Queue Length 95th (m)	0.0	0.0	1.0	0.0	0.0	1.5
Control Delay (s)	0.0	0.0	11.6	0.0	0.0	17.2
Lane LOS			B			C
Approach Delay (s)	0.0		0.3			17.2
Approach LOS						C
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			41.4%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total AM Peak Hour - Mitigation (Sen 20%)

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	978	109	338	1009	70	105	152	12
v/c Ratio	0.07	0.56	0.13	0.74	0.45	0.20	0.16	0.49	0.02
Control Delay	18.4	22.9	9.6	39.4	6.6	42.3	0.5	49.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	22.9	9.6	39.4	6.6	42.3	0.5	49.6	0.1
Queue Length 50th (m)	2.6	91.0	6.8	48.9	30.8	15.3	0.0	35.8	0.0
Queue Length 95th (m)	m8.0	113.8	16.8	m76.1	38.1	29.2	0.0	58.9	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	25.0		45.0	40.0				80.0	
Base Capacity (vph)	275	1739	849	556	2256	346	675	311	501
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.56	0.13	0.61	0.45	0.20	0.16	0.49	0.02

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total AM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	900	100	311	902	27	64	0	97	140	0	11
Future Volume (vph)	18	900	100	311	902	27	64	0	97	140	0	11
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3519	1646	1881	3447		1900	1667		1863	1667	
Flt Permitted	0.28	1.00	1.00	0.19	1.00		0.75	1.00		0.69	1.00	
Satd. Flow (perm)	557	3519	1646	386	3447		1499	1667		1351	1667	
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)	20	978	109	338	980	29	70	0	105	152	0	12
RTOR Reduction (vph)	0	0	36	0	2	0	0	81	0	0	9	0
Lane Group Flow (vph)	20	978	73	338	1007	0	70	24	0	152	3	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	8%	1%	1%	10%	2%	0%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	64.2	64.2	64.2	85.0	85.0		30.0	30.0		30.0	30.0	
Effective Green, g (s)	64.2	64.2	64.2	85.0	85.0		30.0	30.0		30.0	30.0	
Actuated g/C Ratio	0.49	0.49	0.49	0.65	0.65		0.23	0.23		0.23	0.23	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	275	1737	812	445	2253		345	384		311	384	
v/s Ratio Prot		0.28		c0.10	0.29			0.01			0.00	
v/s Ratio Perm	0.04		0.04	c0.40			0.05			c0.11		
v/c Ratio	0.07	0.56	0.09	0.76	0.45		0.20	0.06		0.49	0.01	
Uniform Delay, d1	17.3	23.1	17.4	14.3	11.0		40.4	39.0		43.4	38.5	
Progression Factor	0.89	0.90	1.13	2.99	0.54		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	1.2	0.2	6.2	0.5		1.3	0.3		5.4	0.0	
Delay (s)	15.8	22.0	20.0	49.0	6.5		41.7	39.3		48.8	38.6	
Level of Service	B	C	B	D	A		D	D		D	D	
Approach Delay (s)		21.6			17.2			40.3			48.0	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			22.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			93.8%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	130	807	266	402	794	323	136	696	309	1051	1247	166
v/c Ratio	0.64	1.08	0.60	1.28	0.80	0.34	0.62	1.06	0.67	1.00	0.58	0.22
Control Delay	48.1	102.3	27.1	179.7	50.9	9.9	35.6	103.1	23.8	61.9	22.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	102.3	27.1	179.7	50.9	9.9	35.6	103.1	23.8	61.9	22.0	4.0
Queue Length 50th (m)	18.7	~121.5	11.2	~119.2	105.2	28.9	17.7	~108.5	24.1	128.5	84.1	2.7
Queue Length 95th (m)	#48.7	#165.0	55.6	#185.2	130.4	45.7	32.8	#148.6	58.2	#191.6	103.4	13.1
Internal Link Dist (m)	262.9				265.2		202.7				246.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	206	744	446	314	989	945	246	655	464	1056	2155	740
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	1.08	0.60	1.28	0.80	0.34	0.55	1.06	0.67	1.00	0.58	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total AM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	783	258	390	770	313	132	675	300	1019	1210	161
Future Volume (vph)	126	783	258	390	770	313	132	675	300	1019	1210	161
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	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)	1775	3585	1480	1809	3551	1562	1776	3551	1591	3614	5301	1625
Flt Permitted	0.19	1.00	1.00	0.13	1.00	1.00	0.21	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	361	3585	1480	246	3551	1562	396	3551	1591	3614	5301	1625
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	130	807	266	402	794	323	136	696	309	1051	1247	166
RTOR Reduction (vph)	0	0	139	0	0	31	0	0	170	0	0	79
Lane Group Flow (vph)	130	807	127	402	794	292	136	696	139	1051	1247	87
Confl. Peds. (#/hr)	4		4	4		4	3		5	5		3
Heavy Vehicles (%)	7%	6%	13%	5%	7%	8%	7%	7%	5%	2%	3%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	35.8	27.0	27.0	49.0	36.2	74.2	34.1	24.0	24.0	38.0	52.9	52.9
Effective Green, g (s)	35.8	27.0	27.0	49.0	36.2	74.2	34.1	24.0	24.0	38.0	52.9	52.9
Actuated g/C Ratio	0.28	0.21	0.21	0.38	0.28	0.57	0.26	0.18	0.18	0.29	0.41	0.41
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	195	744	307	309	988	891	211	655	293	1056	2157	661
v/s Ratio Prot	0.05	0.23		c0.18	0.22	0.10	0.05	c0.20		c0.29	0.24	
v/s Ratio Perm	0.14		0.09	c0.31		0.09	0.12		0.09			0.05
v/c Ratio	0.67	1.08	0.41	1.30	0.80	0.33	0.64	1.06	0.47	1.00	0.58	0.13
Uniform Delay, d1	37.5	51.5	44.6	38.5	43.6	14.7	38.3	53.0	47.4	45.9	29.9	24.1
Progression Factor	1.28	0.95	1.36	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.69	0.51
Incremental Delay, d2	7.3	56.3	1.6	157.1	5.5	0.2	6.6	53.0	5.4	24.3	1.0	0.3
Delay (s)	55.4	105.4	62.1	195.7	49.1	14.9	44.9	106.0	52.7	61.1	21.7	12.6
Level of Service	E	F	E	F	D	B	D	F	D	E	C	B
Approach Delay (s)		90.4			80.6			84.3			37.9	
Approach LOS		F			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			66.5	HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			1.17									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)					23.0			
Intersection Capacity Utilization			118.9%	ICU Level of Service					H			
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total AM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	63	139	183	135	90	934	128	269	2008
v/c Ratio	0.37	0.36	0.77	0.33	0.48	0.30	0.12	0.54	0.61
Control Delay	51.6	14.9	71.2	8.8	35.2	7.3	1.7	14.1	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	14.9	71.2	8.8	35.2	7.3	1.7	14.1	10.4
Queue Length 50th (m)	15.2	6.9	47.6	0.0	7.9	11.6	0.1	12.9	44.4
Queue Length 95th (m)	28.0	24.0	69.6	16.7	m12.5	m72.5	m11.4	m45.7	76.9
Internal Link Dist (m)	94.9		97.1			149.9			449.9
Turn Bay Length (m)		40.0			30.0		30.0	45.0	
Base Capacity (vph)	243	500	338	520	190	3073	1033	564	3317
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.28	0.54	0.26	0.47	0.30	0.12	0.48	0.61

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan 7: Yonge Street & Minor Collector/Existing Commercial Driveway

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↑↑↑	↗	↖	↑↑↑	
Traffic Volume (vph)	62	0	138	181	0	134	89	925	127	266	1957	31
Future Volume (vph)	62	0	138	181	0	134	89	925	127	266	1957	31
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1900	1700		1827	1700	1900	5151	1662	1881	5300	
Flt Permitted		0.49	1.00		0.72	1.00	0.07	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		989	1700		1377	1700	134	5151	1662	521	5300	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	63	0	139	183	0	135	90	934	128	269	1977	31
RTOR Reduction (vph)	0	0	90	0	0	112	0	0	42	0	1	0
Lane Group Flow (vph)	0	63	49	0	183	23	90	934	86	269	2007	0
Confl. Peds. (#/hr)							2		1	1		2
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	0%	6%	0%	1%	2%	50%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6		6	2		
Actuated Green, G (s)		22.5	22.5		22.5	22.5	84.8	77.6	77.6	92.7	81.3	
Effective Green, g (s)		22.5	22.5		22.5	22.5	84.8	77.6	77.6	92.7	81.3	
Actuated g/C Ratio		0.17	0.17		0.17	0.17	0.65	0.60	0.60	0.71	0.63	
Clearance Time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		171	294		238	294	185	3074	992	490	3314	
v/s Ratio Prot							0.03	0.18		c0.05	c0.38	
v/s Ratio Perm		0.06	0.03		c0.13	0.01	0.29		0.05	0.34		
v/c Ratio		0.37	0.17		0.77	0.08	0.49	0.30	0.09	0.55	0.61	
Uniform Delay, d1		47.5	45.8		51.3	45.1	12.0	12.9	11.1	6.8	14.7	
Progression Factor		1.00	1.00		1.00	1.00	2.47	0.50	0.37	1.92	0.62	
Incremental Delay, d2		1.3	0.3		13.9	0.1	1.2	0.2	0.1	0.9	0.6	
Delay (s)		48.8	46.0		65.1	45.2	30.8	6.7	4.2	13.9	9.7	
Level of Service		D	D		E	D	C	A	A	B	A	
Approach Delay (s)		46.9			56.7			8.3			10.2	
Approach LOS		D			E			A			B	
Intersection Summary												
HCM 2000 Control Delay		15.3										
HCM 2000 Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		130.0										
Intersection Capacity Utilization		87.3%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total AM Peak Hour - Mitigation (Sen 20%)

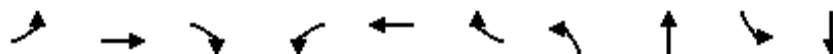
							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				  	  		
Traffic Volume (veh/h)	0	4	0	1114	2280	3	
Future Volume (Veh/h)	0	4	0	1114	2280	3	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	4	0	1211	2478	3	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				270	174		
pX, platoon unblocked	0.82	0.76	0.76				
vC, conflicting volume	2883	828	2481				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1602	0	1854				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	100	100				
cM capacity (veh/h)	79	827	246				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	4	404	404	404	991	991	499
Volume Left	0	0	0	0	0	0	0
Volume Right	4	0	0	0	0	0	3
cSH	827	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.24	0.24	0.24	0.58	0.58	0.29
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.4	0.0			0.0		
Approach LOS	A						
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			51.9%		ICU Level of Service		A
Analysis Period (min)			15				

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total AM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	433	164	64	399	147	55	1185	305	2370
v/c Ratio	0.44	0.66	0.39	0.32	0.72	0.39	0.35	0.44	0.73	0.74
Control Delay	43.4	55.2	11.3	40.2	60.0	10.2	28.9	15.3	23.8	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	55.2	11.3	40.2	60.0	10.2	28.9	15.3	23.8	21.7
Queue Length 50th (m)	19.6	59.1	2.8	13.3	54.7	0.0	4.6	41.0	29.8	166.7
Queue Length 95th (m)	32.6	74.1	22.2	24.2	69.4	18.6	20.5	64.3	64.7	212.9
Internal Link Dist (m)		192.3			102.0			449.9		228.0
Turn Bay Length (m)	55.0		40.0	40.0		60.0	45.0		120.0	
Base Capacity (vph)	218	787	472	207	742	449	171	2701	515	3214
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.55	0.35	0.31	0.54	0.33	0.32	0.44	0.59	0.74
Intersection Summary										

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total AM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Traffic Volume (vph)	86	398	151	59	367	135	51	1045	45	281	2112	68
Future Volume (vph)	86	398	151	59	367	135	51	1045	45	281	2112	68
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
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)	1863	3725	1667	1863	3725	1667	1863	5320		1863	5328	
Flt Permitted	0.23	1.00	1.00	0.29	1.00	1.00	0.06	1.00		0.16	1.00	
Satd. Flow (perm)	459	3725	1667	576	3725	1667	121	5320		312	5328	
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)	93	433	164	64	399	147	55	1136	49	305	2296	74
RTOR Reduction (vph)	0	0	125	0	0	124	0	3	0	0	2	0
Lane Group Flow (vph)	93	433	39	64	399	23	55	1182	0	305	2368	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		
Actuated Green, G (s)	32.3	23.0	23.0	27.1	20.4	20.4	70.7	65.0		86.8	76.6	
Effective Green, g (s)	32.3	23.0	23.0	27.1	20.4	20.4	70.7	65.0		86.8	76.6	
Actuated g/C Ratio	0.25	0.18	0.18	0.21	0.16	0.16	0.54	0.50		0.67	0.59	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	659	294	186	584	261	142	2660		414	3139	
v/s Ratio Prot	c0.03	c0.12		0.02	0.11		0.02	0.22		c0.10	c0.44	
v/s Ratio Perm	0.08		0.02	0.05		0.01	0.19			0.39		
v/c Ratio	0.43	0.66	0.13	0.34	0.68	0.09	0.39	0.44		0.74	0.75	
Uniform Delay, d1	39.3	49.8	45.1	42.5	51.7	46.9	19.5	20.9		13.8	19.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.53	0.67		1.00	1.00	
Incremental Delay, d2	1.4	2.4	0.2	1.1	3.3	0.1	1.7	0.5		6.7	1.7	
Delay (s)	40.7	52.2	45.3	43.6	55.0	47.0	31.6	14.6		20.5	21.5	
Level of Service	D	D	D	D	E	D	C	B		C	C	
Approach Delay (s)		49.0			51.9			15.3			21.4	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			27.2									
HCM 2000 Level of Service											C	
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			130.0									
Sum of lost time (s)										18.0		
Intersection Capacity Utilization			74.0%									
ICU Level of Service										D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	181	258	711	234	84	21	1418	1203	85	719
v/c Ratio	0.91	0.79	0.93	0.29	0.11	0.09	0.95	0.72	0.63	0.41
Control Delay	101.0	74.1	72.2	28.3	5.3	27.2	55.4	2.7	40.1	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.0	74.1	72.2	28.3	5.3	27.2	55.4	2.7	40.1	24.8
Queue Length 50th (m)	53.0	73.6	104.9	45.0	0.0	3.8	207.7	0.0	12.8	70.0
Queue Length 95th (m)	#102.0	#119.5	#139.8	66.2	10.5	10.0	#256.9	0.0	#28.2	86.5
Internal Link Dist (m)		2019.9		780.4			992.7			201.9
Turn Bay Length (m)	100.0		200.0			140.0		300.0	75.0	
Base Capacity (vph)	199	326	788	810	742	246	1515	1667	135	1762
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.79	0.90	0.29	0.11	0.09	0.94	0.72	0.63	0.41

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2008) NW of Yonge St and Green Ln Secondary Plan

1: Bathurst Street & Miller's Sideroad/Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	243	5	683	225	81	20	1361	1155	82	648	42
Future Volume (vph)	174	243	5	683	225	81	20	1361	1155	82	648	42
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5	4.0	4.5	7.5	
Lane Util. Factor	1.00	1.00		0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1879	1975		3477	1942	1661	1583	3725	1667	1900	3674	
Flt Permitted	0.61	1.00		0.95	1.00	1.00	0.36	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1212	1975		3477	1942	1661	607	3725	1667	134	3674	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	181	253	5	711	234	84	21	1418	1203	85	675	44
RTOR Reduction (vph)	0	1	0	0	0	49	0	0	0	0	3	0
Lane Group Flow (vph)	181	257	0	711	234	35	21	1418	1203	85	716	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	1%	1%	0%	6%	3%	1%	20%	2%	2%	0%	2%	10%
Turn Type	Perm	NA		Prot	NA	Perm	Perm	NA	Free	pm+pt	NA	
Protected Phases		6		5	2			8		7	4	
Permitted Phases	6					2	8		Free	4		
Actuated Green, G (s)	22.9	22.9		30.6	58.0	58.0	55.4	55.4	138.9	65.4	65.4	
Effective Green, g (s)	22.9	22.9		30.6	58.0	58.0	55.4	55.4	138.9	65.4	65.4	
Actuated g/C Ratio	0.16	0.16		0.22	0.42	0.42	0.40	0.40	1.00	0.47	0.47	
Clearance Time (s)	8.0	8.0		4.5	8.0	8.0	7.5	7.5		4.5	7.5	
Vehicle Extension (s)	0.2	0.2		3.0	0.2	0.2	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	199	325		765	810	693	242	1485	1667	133	1729	
v/s Ratio Prot		0.13		c0.20	0.12			c0.38		0.03	0.19	
v/s Ratio Perm	0.15					0.02	0.03		c0.72	0.28		
v/c Ratio	0.91	0.79		0.93	0.29	0.05	0.09	0.95	0.72	0.64	0.41	
Uniform Delay, d1	57.0	55.7		53.1	26.8	24.1	26.0	40.5	0.0	32.1	24.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	43.8	17.7		17.4	0.9	0.1	0.2	14.0	2.7	9.7	0.2	
Delay (s)	100.8	73.4		70.5	27.7	24.2	26.2	54.5	2.7	41.8	24.3	
Level of Service	F	E		E	C	C	C	D	A	D	C	
Approach Delay (s)		84.7			57.0			30.7			26.2	
Approach LOS		F			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			40.3		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			138.9		Sum of lost time (s)					24.5		
Intersection Capacity Utilization			115.1%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	165	1360	71	43	980	27	34	105
v/c Ratio	0.41	0.48	0.06	0.17	0.35	0.13	0.09	0.23
Control Delay	9.0	6.6	1.6	3.5	2.7	51.6	0.5	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	6.6	1.6	3.5	2.7	51.6	0.5	1.2
Queue Length 50th (m)	14.2	66.4	1.1	1.6	20.3	6.8	0.0	0.0
Queue Length 95th (m)	27.0	78.0	4.6	2.9	19.6	16.3	0.0	0.0
Internal Link Dist (m)		780.4			547.5		168.8	71.0
Turn Bay Length (m)	40.0		30.0	25.0		35.0		
Base Capacity (vph)	404	2860	1266	257	2778	204	370	450
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.48	0.06	0.17	0.35	0.13	0.09	0.23
Intersection Summary								

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan

2: Lady Gwillim Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)

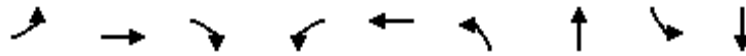
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	1238	65	39	892	0	25	0	31	0	0	97
Future Volume (vph)	152	1238	65	39	892	0	25	0	31	0	0	97
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1863	3725	1634	1897	3619		1900	1700			1667	
Flt Permitted	0.27	1.00	1.00	0.17	1.00		0.61	1.00			1.00	
Satd. Flow (perm)	528	3725	1634	336	3619		1219	1700			1667	
Peak-hour factor, PHF	0.92	0.91	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	165	1360	71	43	980	0	27	0	34	0	0	105
RTOR Reduction (vph)	0	0	12	0	0	0	0	28	0	0	87	0
Lane Group Flow (vph)	165	1360	59	43	980	0	27	6	0	0	18	0
Confl. Peds. (#/hr)			5	5								
Heavy Vehicles (%)	2%	2%	0%	0%	5%	2%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Effective Green, g (s)	107.5	107.5	107.5	107.5	107.5		23.5	23.5			23.5	
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.17	0.17			0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	405	2860	1254	258	2778		204	285			279	
v/s Ratio Prot		c0.37			0.27			0.00			0.01	
v/s Ratio Perm	0.31		0.04	0.13			c0.02					
v/c Ratio	0.41	0.48	0.05	0.17	0.35		0.13	0.02			0.06	
Uniform Delay, d1	5.5	5.9	3.9	4.3	5.2		49.6	48.6			49.0	
Progression Factor	1.00	1.00	1.00	0.47	0.45		1.00	1.00			1.00	
Incremental Delay, d2	3.0	0.6	0.1	1.3	0.3		1.3	0.1			0.4	
Delay (s)	8.5	6.5	4.0	3.3	2.7		50.9	48.8			49.4	
Level of Service	A	A	A	A	A		D	D			D	
Approach Delay (s)		6.6			2.7			49.7			49.4	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			7.7			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				9.0		
Intersection Capacity Utilization			55.9%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	1103	33	226	1046	26	187	90	105
v/c Ratio	0.53	0.44	0.03	0.77	0.44	0.09	0.40	0.40	0.19
Control Delay	17.5	10.8	2.2	32.0	5.0	44.8	19.2	53.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	10.8	2.2	32.0	5.0	44.8	19.2	53.1	0.8
Queue Length 50th (m)	19.9	69.9	0.0	62.6	27.3	6.1	14.8	22.7	0.0
Queue Length 95th (m)	29.7	78.7	m3.1	#102.9	33.2	14.9	38.1	41.0	0.0
Internal Link Dist (m)		547.5			221.2		226.0		86.0
Turn Bay Length (m)	40.0		30.0	30.0		30.0		70.0	
Base Capacity (vph)	313	2514	1128	293	2394	299	464	226	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.44	0.03	0.77	0.44	0.09	0.40	0.40	0.19

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

3: Woodspring Avenue/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	1081	32	221	793	218	25	0	183	83	0	97
Future Volume (vph)	152	1081	32	221	793	218	25	0	183	83	0	97
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3725	1655	1879	3519		1898	1683		1863	1667	
Flt Permitted	0.24	1.00	1.00	0.22	1.00		0.69	1.00		0.53	1.00	
Satd. Flow (perm)	466	3725	1655	435	3519		1377	1683		1041	1667	
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	165	1103	33	226	809	237	26	0	187	90	0	105
RTOR Reduction (vph)	0	0	11	0	20	0	0	98	0	0	82	0
Lane Group Flow (vph)	165	1103	22	226	1027	0	26	89	0	90	23	0
Confl. Peds. (#/hr)			3	3			1					
Heavy Vehicles (%)	2%	2%	0%	1%	5%	2%	0%	2%	1%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Effective Green, g (s)	94.5	94.5	94.5	94.5	94.5		30.5	30.5		30.5	30.5	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	314	2514	1117	293	2375		299	366		226	363	
v/s Ratio Prot		0.30			0.29			0.05			0.01	
v/s Ratio Perm	0.35		0.01	c0.52			0.02			c0.09		
v/c Ratio	0.53	0.44	0.02	0.77	0.43		0.09	0.24		0.40	0.06	
Uniform Delay, d1	11.5	10.5	7.5	15.4	10.4		43.6	45.2		46.9	43.4	
Progression Factor	0.93	0.97	1.01	0.82	0.45		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	0.5	0.0	16.6	0.5		0.6	1.6		5.2	0.3	
Delay (s)	16.2	10.7	7.6	29.3	5.2		44.2	46.8		52.1	43.8	
Level of Service	B	B	A	C	A		D	D		D	D	
Approach Delay (s)		11.3			9.5			46.5			47.6	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			15.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			133.4%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis of Yonge St and Green Ln Secondary Plan

4: Costco Driveway & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)

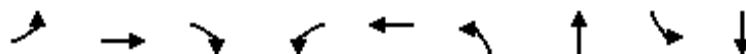
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱		↱	↑↑	↱	
Traffic Volume (veh/h)	1294	102	22	1232	57	40
Future Volume (Veh/h)	1294	102	22	1232	57	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1377	109	23	1311	61	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (m)	245		258			
pX, platoon unblocked			0.85		0.92	0.85
vC, conflicting volume			1486		2133	743
vC1, stage 1 conf vol					1432	
vC2, stage 2 conf vol					702	
vCu, unblocked vol			1226		1349	356
tC, single (s)			4.3		6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)			2.3		3.5	3.3
p0 queue free %			95		71	92
cM capacity (veh/h)			450		208	552
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	918	568	23	656	656	104
Volume Left	0	0	23	0	0	61
Volume Right	0	109	0	0	0	43
cSH	1700	1700	450	1700	1700	280
Volume to Capacity	0.54	0.33	0.05	0.39	0.39	0.37
Queue Length 95th (m)	0.0	0.0	1.3	0.0	0.0	13.2
Control Delay (s)	0.0	0.0	13.4	0.0	0.0	25.2
Lane LOS			B			D
Approach Delay (s)	0.0		0.2			25.2
Approach LOS						D
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			49.1%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

5: Existing Commercial Driveway/Minor Collector & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	1095	158	240	1099	169	269	122	46
v/c Ratio	0.20	0.56	0.18	0.65	0.47	0.48	0.41	0.63	0.09
Control Delay	22.7	25.7	12.3	11.3	6.6	50.4	3.7	62.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	25.7	12.3	11.3	6.6	50.4	3.7	62.9	0.3
Queue Length 50th (m)	8.6	114.1	14.3	12.1	38.4	42.3	0.0	31.9	0.0
Queue Length 95th (m)	19.3	134.6	26.8	m6.9	m47.8	66.6	10.2	56.4	0.0
Internal Link Dist (m)		233.8			262.9		110.6		93.5
Turn Bay Length (m)	25.0		45.0	40.0				80.0	
Base Capacity (vph)	267	1955	893	481	2343	354	651	195	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.56	0.18	0.50	0.47	0.48	0.41	0.63	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan
5: Existing Commercial Driveway/Minor Collector & Green Lane 2045 Total PM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	1062	153	233	986	76	164	0	261	112	0	42
Future Volume (vph)	49	1062	153	233	986	76	164	0	261	112	0	42
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1863	3725	1624	1900	3618		1881	1667		1863	1667	
Flt Permitted	0.26	1.00	1.00	0.17	1.00		0.73	1.00		0.40	1.00	
Satd. Flow (perm)	509	3725	1624	334	3618		1440	1667		792	1667	
Peak-hour factor, PHF	0.92	0.97	0.97	0.97	0.97	0.92	0.97	0.92	0.97	0.92	0.92	0.92
Adj. Flow (vph)	53	1095	158	240	1016	83	169	0	269	122	0	46
RTOR Reduction (vph)	0	0	41	0	4	0	0	203	0	0	35	0
Lane Group Flow (vph)	53	1095	117	240	1095	0	169	66	0	122	11	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	2%	1%	0%	4%	2%	1%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		6		5	2			8			4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	73.5	73.5	73.5	90.5	90.5		34.5	34.5		34.5	34.5	
Effective Green, g (s)	73.5	73.5	73.5	90.5	90.5		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.52	0.52	0.52	0.65	0.65		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.5	7.5	7.5	4.0	7.5		7.5	7.5		7.5	7.5	
Vehicle Extension (s)	0.2	0.2	0.2	3.0	0.2		0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	267	1955	852	361	2338		354	410		195	410	
v/s Ratio Prot		0.29		c0.06	0.30			0.04			0.01	
v/s Ratio Perm	0.10		0.07	c0.37			0.12			c0.15		
v/c Ratio	0.20	0.56	0.14	0.66	0.47		0.48	0.16		0.63	0.03	
Uniform Delay, d1	17.6	22.4	17.0	15.1	12.5		45.1	41.4		47.0	40.0	
Progression Factor	1.07	1.07	1.38	0.81	0.50		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	1.1	0.3	2.1	0.3		4.6	0.8		14.2	0.1	
Delay (s)	20.4	25.0	23.8	14.3	6.6		49.6	42.2		61.2	40.1	
Level of Service	C	C	C	B	A		D	D		E	D	
Approach Delay (s)		24.6			8.0			45.1			55.5	
Approach LOS		C			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			22.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			128.2%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	360	1024	196	441	983	712	254	1528	491	505	1004	168
v/c Ratio	1.29	1.10	0.30	1.53	1.05	1.06	0.72	1.15	0.66	1.21	0.52	0.25
Control Delay	183.8	112.9	37.6	283.6	92.1	87.2	30.9	117.4	21.7	172.0	37.3	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	183.8	112.9	37.6	283.6	92.1	87.2	30.9	117.4	21.7	172.0	37.3	15.2
Queue Length 50th (m)	~116.6	~181.6	40.0	~161.3	~163.3	~210.0	39.8	~274.6	56.4	~94.7	93.9	12.3
Queue Length 95th (m)	#183.2	#225.3	64.2	#230.7	#207.2	#236.6	57.8	#319.5	97.9	#133.0	61.7	19.8
Internal Link Dist (m)	262.9				265.2				202.7		246.1	
Turn Bay Length (m)	30.0			30.0	170.0			170.0	90.0			90.0
Base Capacity (vph)	279	931	700	289	939	671	405	1330	746	417	1926	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	1.10	0.28	1.53	1.05	1.06	0.63	1.15	0.66	1.21	0.52	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

6: Yonge Street & Green Lane

2045 Total PM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1014	194	437	973	705	251	1513	486	500	994	166
Future Volume (vph)	356	1014	194	437	973	705	251	1513	486	500	994	166
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	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	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	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)	1900	3725	1618	1881	3654	1642	1899	3800	1644	3650	5353	1664
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.19	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	229	3725	1618	220	3654	1642	383	3800	1644	3650	5353	1664
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	360	1024	196	441	983	712	254	1528	491	505	1004	168
RTOR Reduction (vph)	0	0	40	0	0	39	0	0	171	0	0	75
Lane Group Flow (vph)	360	1024	156	441	983	673	254	1528	320	505	1004	93
Confl. Peds. (#/hr)	8		2	2		8	8		10	10		8
Heavy Vehicles (%)	0%	2%	4%	1%	4%	2%	0%	0%	1%	1%	2%	0%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	1	3	8	5	1	6		5	2	
Permitted Phases	4		4	8		8	6		6			2
Actuated Green, G (s)	51.0	35.0	50.6	53.0	36.0	52.0	64.6	49.0	49.0	16.0	50.4	50.4
Effective Green, g (s)	51.0	35.0	50.6	53.0	36.0	52.0	64.6	49.0	49.0	16.0	50.4	50.4
Actuated g/C Ratio	0.36	0.25	0.36	0.38	0.26	0.37	0.46	0.35	0.35	0.11	0.36	0.36
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0	5.0	4.0	7.0	7.0	5.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	0.2	0.2	3.0	0.2	0.2
Lane Grp Cap (vph)	274	931	584	284	939	609	345	1330	575	417	1927	599
v/s Ratio Prot	0.15	0.27	0.03	c0.19	0.27	0.13	0.08	c0.40		c0.14	0.19	
v/s Ratio Perm	0.33		0.07	c0.40		0.28	0.26		0.19			0.06
v/c Ratio	1.31	1.10	0.27	1.55	1.05	1.11	0.74	1.15	0.56	1.21	0.52	0.16
Uniform Delay, d1	41.3	52.5	31.6	42.0	52.0	44.0	24.9	45.5	36.7	62.0	35.3	30.4
Progression Factor	0.93	1.13	2.04	1.00	1.00	1.00	1.00	1.00	1.00	1.19	1.01	1.30
Incremental Delay, d2	162.2	59.1	0.2	265.5	42.4	68.7	7.9	76.2	3.9	113.4	0.9	0.5
Delay (s)	200.6	118.6	64.7	307.5	94.4	112.7	32.8	121.7	40.6	187.3	36.6	39.9
Level of Service	F	F	E	F	F	F	C	F	D	F	D	D
Approach Delay (s)		130.6			144.5			94.2			82.3	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			113.1									F
HCM 2000 Volume to Capacity ratio			1.35									
Actuated Cycle Length (s)			140.0									
Intersection Capacity Utilization			122.2%									H
Analysis Period (min)			15									
c Critical Lane Group												

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total PM Peak Hour - Mitigation (Sen 20%)



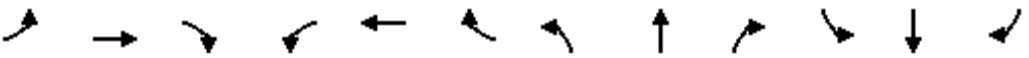
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	108	180	266	229	2212	162	203	1404
v/c Ratio	0.51	0.30	0.80	0.55	0.73	0.67	0.18	0.83	0.53
Control Delay	65.7	10.5	81.1	10.5	19.5	30.6	16.7	58.1	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	10.5	81.1	10.5	19.5	30.6	16.7	58.1	25.7
Queue Length 50th (m)	19.3	0.0	50.9	1.5	37.5	186.0	19.7	47.5	61.8
Queue Length 95th (m)	35.6	16.7	76.1	26.2	m35.1	m178.6	m18.8	77.0	113.6
Internal Link Dist (m)	94.9		97.1			149.9			449.9
Turn Bay Length (m)		40.0			30.0		30.0	45.0	
Base Capacity (vph)	176	421	283	544	429	3288	908	337	2652
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.26	0.64	0.49	0.53	0.67	0.18	0.60	0.53

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2008) - NW of Yonge St and Green Ln Secondary Plan 7: Yonge Street & Minor Collector/Existing Commerical Driveway

2045 Total PM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶	↷		↶	↷	↶	↶↶↶	↷	↶	↶↶↶	
Traffic Volume (vph)	68	2	105	175	0	258	222	2146	157	197	1282	80
Future Volume (vph)	68	2	105	175	0	258	222	2146	157	197	1282	80
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	0.91	
Frpb, ped/bikes		1.00	0.99		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1907	1675		1895	1683	1203	5406	1454	1863	5116	
Flt Permitted		0.44	1.00		0.71	1.00	0.12	1.00	1.00	0.06	1.00	
Satd. Flow (perm)		884	1675		1416	1683	156	5406	1454	108	5116	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	70	2	108	180	0	266	229	2212	162	203	1322	82
RTOR Reduction (vph)	0	0	91	0	0	219	0	0	24	0	4	0
Lane Group Flow (vph)	0	72	17	0	180	47	229	2212	138	203	1400	0
Confl. Peds. (#/hr)			2	2					2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	58%	1%	14%	2%	2%	67%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8		8	6		6	2		
Actuated Green, G (s)		22.3	22.3		22.3	22.3	103.2	85.1	85.1	86.6	72.5	
Effective Green, g (s)		22.3	22.3		22.3	22.3	103.2	85.1	85.1	86.6	72.5	
Actuated g/C Ratio		0.16	0.16		0.16	0.16	0.74	0.61	0.61	0.62	0.52	
Clearance Time (s)		7.0	7.0		7.0	7.0	4.5	7.5	7.5	4.0	7.5	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)		140	266		225	268	310	3286	883	243	2649	
v/s Ratio Prot							c0.14	0.41		c0.08	0.27	
v/s Ratio Perm		0.08	0.01		c0.13	0.03	0.40		0.09	c0.43		
v/c Ratio		0.51	0.06		0.80	0.18	0.74	0.67	0.16	0.84	0.53	
Uniform Delay, d1		53.9	50.0		56.7	50.9	25.6	18.2	11.9	38.6	22.4	
Progression Factor		1.00	1.00		1.00	1.00	0.87	1.53	1.83	0.90	1.02	
Incremental Delay, d2		3.2	0.1		18.1	0.3	0.9	0.1	0.0	18.8	0.7	
Delay (s)		57.1	50.1		74.8	51.2	23.2	27.9	21.8	53.4	23.5	
Level of Service		E	D		E	D	C	C	C	D	C	
Approach Delay (s)		52.9			60.7			27.1			27.3	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			31.2									
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			140.0									
Intersection Capacity Utilization			85.1%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis (2000) - NW of Yonge St and Green Ln Secondary Plan

8: Yonge Street & Driveway

2045 Total PM Peak Hour - Mitigation (Sen 20%)

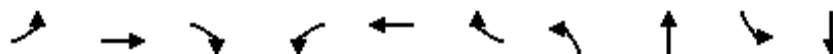
							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations				  	  		
Traffic Volume (veh/h)	0	7	0	2573	1576	6	
Future Volume (Veh/h)	0	7	0	2573	1576	6	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	8	0	2797	1713	7	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)				270	174		
pX, platoon unblocked	0.79	0.82	0.82				
vC, conflicting volume	2649	574	1720				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	653	0	1126				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	100	99	100				
cM capacity (veh/h)	316	894	508				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	8	932	932	932	685	685	350
Volume Left	0	0	0	0	0	0	0
Volume Right	8	0	0	0	0	0	7
cSH	894	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.55	0.55	0.55	0.40	0.40	0.21
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.1	0.0			0.0		
Approach LOS	A						
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			50.6%		ICU Level of Service		A
Analysis Period (min)			15				

Queues

(200089) - NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total PM Peak Hour - Mitigation (Sen 20%)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	123	432	108	90	502	217	113	2643	186	1654
v/c Ratio	0.68	0.68	0.28	0.42	0.76	0.55	0.50	0.94	0.74	0.55
Control Delay	58.3	60.0	8.5	43.9	62.6	27.2	27.1	24.9	53.1	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	60.0	8.5	43.9	62.6	27.2	27.1	24.9	53.1	21.2
Queue Length 50th (m)	27.9	63.2	0.0	20.1	74.0	24.6	6.6	283.6	35.7	106.8
Queue Length 95th (m)	43.0	78.4	14.3	32.9	89.5	49.7	m29.2	91.2	#100.6	144.7
Internal Link Dist (m)		192.3			102.0			449.9		228.0
Turn Bay Length (m)	55.0		40.0	40.0		60.0	45.0		120.0	
Base Capacity (vph)	183	795	448	228	848	474	300	2799	250	2984
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.54	0.24	0.39	0.59	0.46	0.38	0.94	0.74	0.55

Intersection Summary

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis (2000) NW of Yonge St and Green Ln Secondary Plan

9: Yonge Street & E-W Major Collector

2045 Total PM Peak Hour - Mitigation (Sen 20%)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	397	99	83	462	200	104	2347	85	171	1420	102
Future Volume (vph)	113	397	99	83	462	200	104	2347	85	171	1420	102
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
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)	1863	3725	1667	1863	3725	1667	1863	5325		1863	5299	
Flt Permitted	0.19	1.00	1.00	0.23	1.00	1.00	0.10	1.00		0.05	1.00	
Satd. Flow (perm)	364	3725	1667	460	3725	1667	191	5325		101	5299	
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)	123	432	108	90	502	217	113	2551	92	186	1543	111
RTOR Reduction (vph)	0	0	90	0	0	100	0	3	0	0	5	0
Lane Group Flow (vph)	123	432	18	90	502	117	113	2640	0	186	1649	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6			2		
Actuated Green, G (s)	32.9	23.9	23.9	34.7	24.8	24.8	82.9	73.4		92.7	78.7	
Effective Green, g (s)	32.9	23.9	23.9	34.7	24.8	24.8	82.9	73.4		92.7	78.7	
Actuated g/C Ratio	0.23	0.17	0.17	0.25	0.18	0.18	0.59	0.52		0.66	0.56	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	181	635	284	213	659	295	226	2791		253	2978	
v/s Ratio Prot	c0.04	0.12		0.03	c0.13		0.03	c0.50		c0.08	0.31	
v/s Ratio Perm	0.12		0.01	0.07		0.07	0.26			0.41		
v/c Ratio	0.68	0.68	0.06	0.42	0.76	0.40	0.50	0.95		0.74	0.55	
Uniform Delay, d1	44.7	54.5	48.7	42.3	54.8	51.0	15.2	31.4		43.9	19.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	2.09	0.56		1.00	1.00	
Incremental Delay, d2	9.7	3.0	0.1	1.4	5.2	0.9	1.4	7.0		10.6	0.7	
Delay (s)	54.4	57.5	48.8	43.6	60.0	51.8	33.2	24.6		54.4	20.2	
Level of Service	D	E	D	D	E	D	C	C		D	C	
Approach Delay (s)		55.5			56.0			25.0			23.7	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			32.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			87.0%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												