TOWN OF CALEDON
PLANNING
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WILDFIELD VILLAGE SECONDARY PLAN

Transportation Study
Update



Prepared For: Wildfield Village Landowners Group Inc.

May 2025

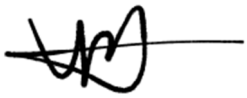
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1.0 INTRODUCTION

1.1 Retainer

BA Group is retained by the Wildfield Village Landowners Group Inc. to provide transportation consulting services in support of an Official Plan Amendment application to implement the Wildfield Village Secondary Plan (the "site"), a new greenfield community in Caledon, Ontario. The Wildfield Village Secondary Plan is located in the Town of Caledon (the "Town") in the Region of Peel (the "Region"), bounded by Centreville Creek Road to the west, Mayfield Road to the south, the Planned Highway 413 Transportation Corridor to the north, and the Green belt and the West Humber River to the east. The site location is illustrated in **Figure 1**.

1.2 Development Proposal

The development proposes approximately 6,840 residential units, with a mix of unit types and densities, as well as supporting institutional, recreational and non-residential uses. As a complete community, the supporting land uses will generally act to internalize trip-making rather than act as external generators of activity. The development proposal is summarized in **Table 1**.

Table 1 Development Proposal

Use			Development Proposal
	**Residential Units**	Single-Detached	3,600 units
		Townhouses	1,914 units
		Stacked Townhouses	507 units
		Apartments	819 units
		Total	**6,840 units**
	**Retail GFA**		Approximately 68,700 m^2
	**School**		4 elementary schools

1.3 Background and Past Submissions

The initial Official Plan Amendment ("OPA") application was submitted to the Town of Caledon, the Region of Peel and the Ministry of Transportation in November 2024. As part of this application, BA Group prepared a transportation report titled "*Wildfield Community Transportation Study*" dated November 2024 (the "November 2024 BA Report").

Following the submission of the November 2024 BA Report, comments on the application and the supporting documents were received from the reviewing agencies via a memorandum dated February 13, 2025.

1.4 This Report

A revised OPA application submission is now being made that reflects a development concept that has been refined through the ongoing design development process and in response to staff comments received to date.

The proposed community will be developed over a long period of time with a series of studies providing additional details as the plan evolves and through the development approval process. The purpose of this report is to provide an end-state (full build-out) review of the community to help confirm the basic structure of the community as a prelude to further discussions with stakeholders and respond to comments received from reviewing agencies regarding the previous application.

Terms of Reference that outlines the scope of this study was submitted to the Town in addition to the two transportation-related pre-submission meetings that were held with Staff. The Terms of Reference and the Town Staff response are provided in **Appendix A**.



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FIGURE 1 SITE LOCATION

2.0 PLANNING AND POLICY CONTEXT

2.1 Region of Peel Official Plan

The Region of Peel Official Plan (RPOP) was adopted on April 28, 2022. On November 4, 2022, the Ministry of Municipal Affairs and Housing issued a decision with 44 modifications. The RPOP provides a comprehensive land use policy framework to guide development in the Region to 2051. It includes policies that address housing and growth management, long-term planning for employment and infrastructure, protection of water resources, natural heritage, rural/agricultural systems, and a plan for climate change. On July 1, 2024, under the Planning Act, Peel Region was designated as an "upper-tier municipality without planning responsibilities" under Bill 185. Therefore, the Town of Caledon is the land use planning authority responsible for local and regional official plans and development applications. The Ministry of Municipal Affairs and Housing is the approval authority for certain official plan reviews and amendments.

The RPOP includes policies and mapping for the "2051 New Urban Area" and identifies locations for the "Settlement Area Boundary Expansion" (SABE) to accommodate residential employment growth. The site is located in the "SABE Community Area", as illustrated in **Exhibit 1**.

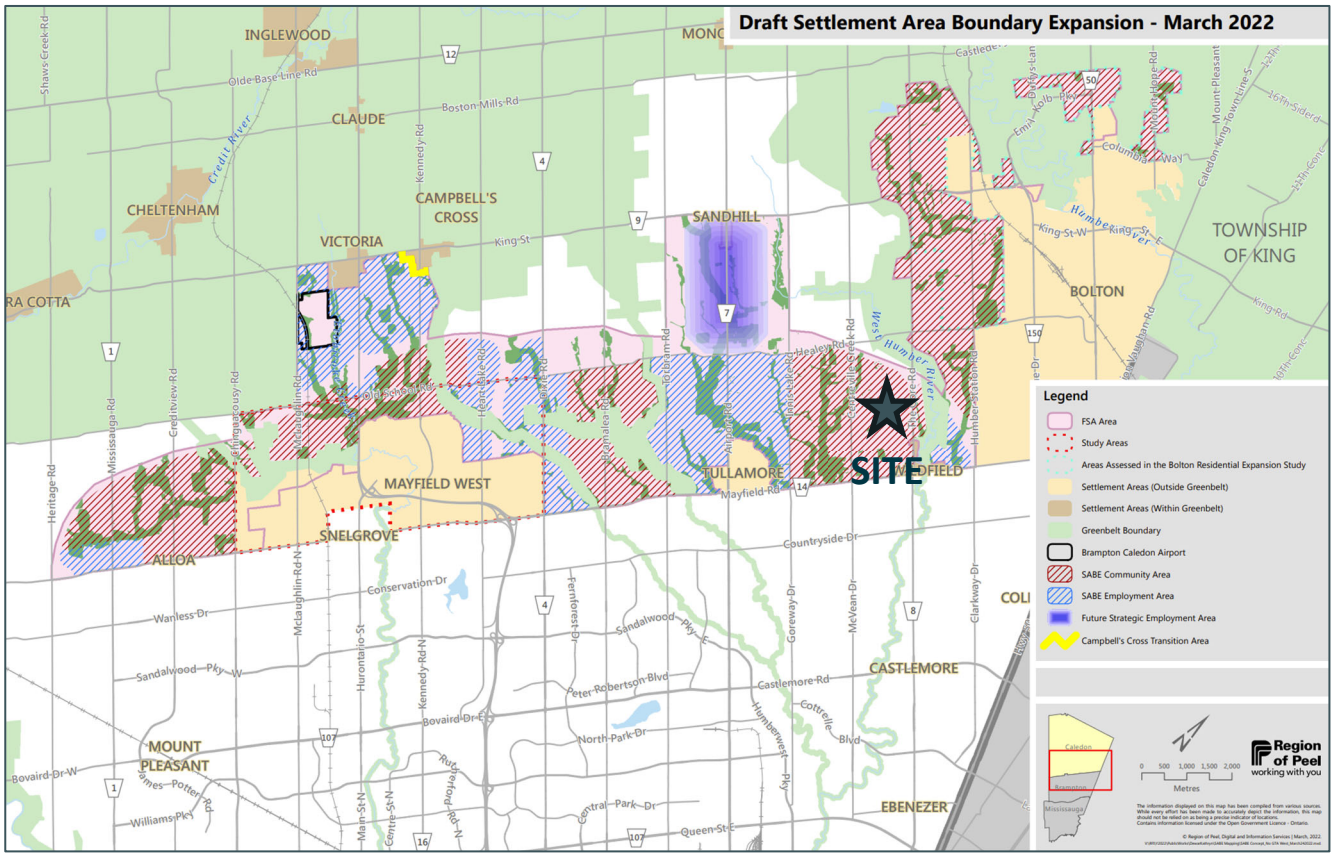


Exhibit 1: Settlement Area Boundary Expansion (SABE) Area

2.2 Town of Caledon *Future Caledon* Official Plan

The Town of Caledon's new Official Plan (OP), *Future Caledon,* was adopted on March 6, 2024. It is still subject to approval by the Ministry of Municipal Affairs and Housing and therefore is not yet in force and effect. Although not yet in force, the Town's OP represents the direction and vision of Council for growth in the Town. It replaces a majority of the in-force Town

of Caledon Official Plan, which was first implemented in 1978. Future phases of the Official Plan Review process will continue to update the new OP until all aspects of the previous official plan are replaced.

Future Caledon implements Provincial and Regional directions and outlines the Town's vision and guiding principles. Of note are the following land development and transportation-related principles:

- Create Healthy and Complete Communities
  - *Plan for healthy and complete communities that offer a mix of housing and employment opportunities for all, a range of parks, open spaces and amenities, and the choice to conveniently access shopping and services without a car.*
- Create High Quality Transportation Options
  - *Create a mobility system that prioritizes people and transit through a network that supports all modes of transportation with an emphasis on creating great walking, cycling and transit infrastructure.*

2.3 Town of Caledon Multi-Modal Transportation Master Plan

The Town of Caledon's *Multi-Modal Transportation Master Plan* (MMTMP) was developed in conjunction with the *Future Caledon* OP and provides direction on transportation improvements within Caledon to 2051. This plan is presently being updated, with the key change being the introduction of a new mid-block collector road, of which the planned urban corridor will be one link, between Highway 410 in the west to Bolton in the east.

The MMTMP's supporting objectives include:

- Develop a future-ready transportation plan for the Town and expand the multi-modality of the transportation system, including driving, transit, walking, cycling, and other emerging mobility options;
- Provide infrastructure to support and manage future land use growth and address the needs and priorities for both rural and urban communities;
- Deliver sustainable strategies that protect natural heritage assets while reducing transportation's effects on climate change;
- Build a safe and inclusive transportation system that supports age-friendly communities and promotes healthy living; and
- Develop complementary transportation solutions that support Provincial, Regional, and Local policies and the Town's Official Plan (OP) update.

The MMTMP also includes a series of planned improvements related to road widenings, a public transit strategy, and an active transportation plan.

2.3.1 Road Network Improvements

The MMTMP recommends a series of road widenings to the collector road network concentrated in the southern half of Caledon. In the proximity of the site, the following roads are being widened:

- Centreville Creek Road from Mayfield Road to Healey Road, widened from 2 to 4 lanes;
- Healey Road from Winston Churchill Boulevard to Airport Road, widened from 2 to 4 lanes; and
- Mayfield Road from Dixie Road to east of The Gore Road, widened from 2 to 6 lanes.

Figure 2 illustrates the road widenings planned in the proximity of the site and **Figure 3** illustrates the conceptual collector road layout. The conceptual road network plan proposed as part of this transportation study and development plan is

discussed in **Section 3.0.** It is noted that the MMTMP does not currently show any planned road widenings along The Gore Road, but it is assumed that the road will be widened to a four-lane cross section from Healey Road to Mayfield Road, to accommodate the expected traffic volumes from the planned Highway 413 interchange on The Gore Road. The potential widening of The Gore Road to four lanes is also recommended in Peel Region's Long Range Transportation Plan (2019) in the 2032-2041 Horizon years.

2.3.2 Public Transit Strategy

The MMTMP recommends leveraging Brampton Transit within the short term, by 2035. Beyond 2035, the MMTMP recommends that the Town develop a transit service plan over a longer-term horizon in collaboration with developers as part of the Secondary Plan approval processes so that it can be informed by the needs at the Secondary Plan level.

The MMTMP itself proposes fixed-route transit corridors on collector roads across the Town, with most of them located in the southern half of Caledon. These fixed-route transit corridors are discussed further in **Section 4.0**.

2.3.3 Active Transportation Plan

The MMTMP includes active transportation recommendations that are within the MMTMP and were developed as part of the Caledon Active Transportation Master Plan process, as well as new road cross-sections which accommodate different types of cycling infrastructure.

The active transportation network proposed in the MMTMP is further discussed in **Section 5.0**.

2.4 Town of Caledon Active Transportation Master Plan

The Town of Caledon's Active Transportation Master Plan (ATMP), dated June 2024, was developed to provide a framework to develop and manage a community that includes more active transportation in a cost-effective manner that will connect, integrate, enhance, and expand on our existing facilities.

The goals and objectives of the ATMP include:

- Examine and evaluate the existing condition of the cycling and trails network and identify the gaps and opportunities;
- By filling up the gaps, expand the network of existing and planned cycling and trails network;
- Adopt a balanced strategy that considers the environment, financial considerations, and the need and desire for increased infrastructure and services;
- Develop a complete active transportation network that connects all villages and urban centres across the Town;
- Increase the network's capacity by building more high-quality cycling and trail facilities that link to destinations across Caledon;
- Provide an accessible network that enables residents of all ages and abilities to use the Town's cycling, multi-use trail, and pedestrian trail facilities; and
- Address specific issues that hinder active transportation or are uncomfortable for hikers and cyclists.

Specific recommendations from the ATMP relevant to this development are discussed in the following sections.

2.4.1 Active Transportation Network

The active transportation network improvements identified in the ATMP are generally consistent with the MMTMP. In proximity to the site, the following active transportation infrastructures are recommended:

- Multi-use path along Centreville Creek Road between Mayfield Road and Healey Road;
- Multi-use path along Healey Road along its entire span between Torbram Road and the SABE limit;
- Multi-use path along a midblock new east-west corridor (i.e. the SABE east-west corridor) between Torbram Road and The Gore Road; and
- Multi-use trail along the West Humber River south of Healey Road.

The proposed active transportation network in the MMTMP and ATMP is illustrated in **Figure 7**.

2.4.2 Pedestrian Facilities

Additionally, the ATMP recommends that pedestrian facilities (sidewalks or multi-use paths) be provided on:

- Both sides of urban arterial roads;
- Both sides of urban collector roads; and
- At least one side of local roads.
    - Both sides of local roads for streets that serve a transit route or are located within 800 metres of a school, 400 metres of a community facility or 500 metres of parks.

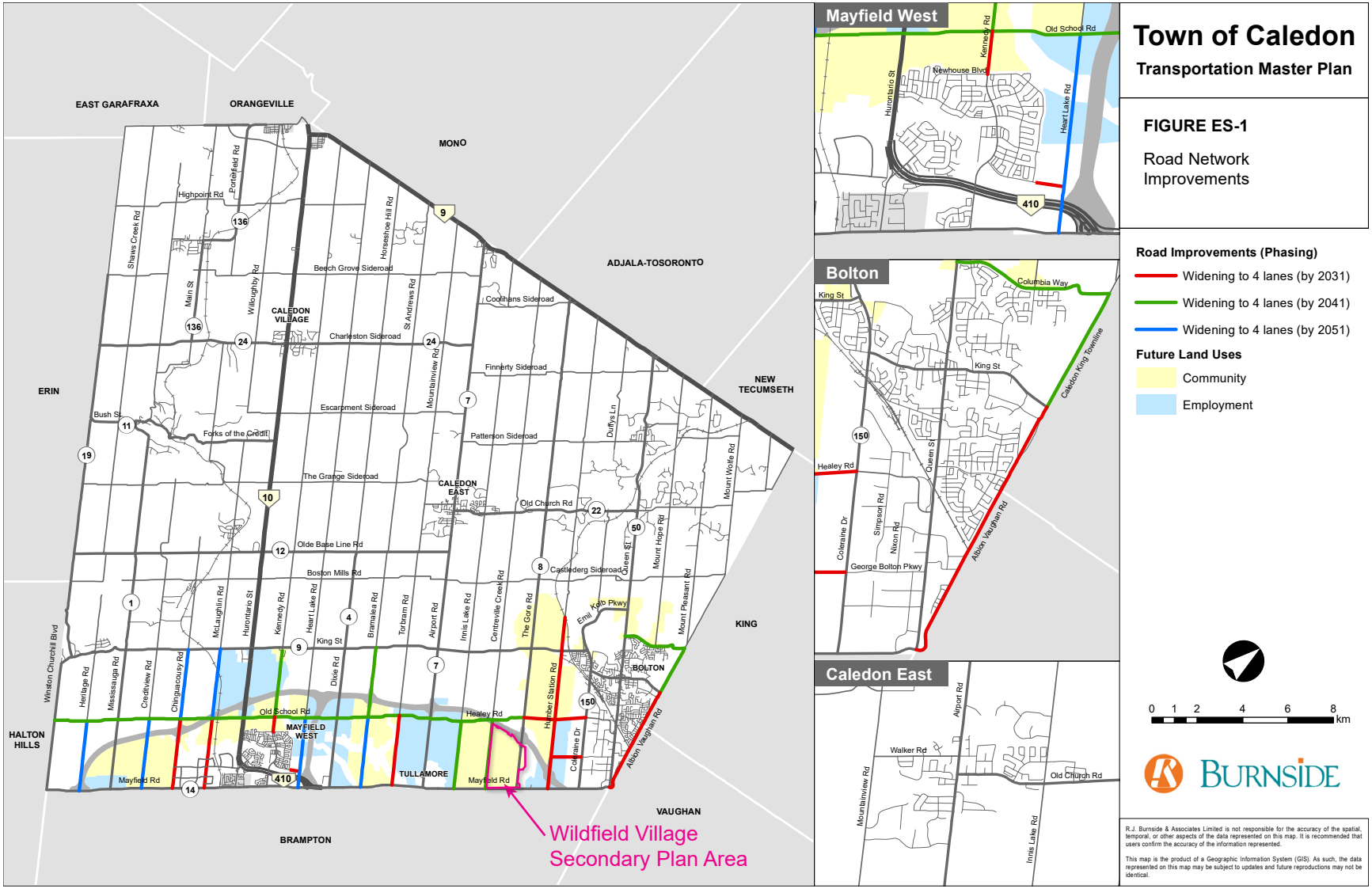
2.4.3 Policy Recommendations

The ATMP provides recommendations on policies and best practices to target the Town's approaches to support active transportation. Key policy recommendations include:

- Sidewalks should be a minimum of 1.8 metres to 2 metres wide;
- All new and reconstructed urban arterial and collector roads should include protected intersections, linear cycling, and pedestrian facilities on both sides of the roadway and consider crossings that will service the multi-use trails system;
- A "protected intersection" type design shall be the preferred intersection and driveway treatment for pedestrians and cyclists in urban areas; and
- Adopt updated standard cross-sections outlined in MMTMP, subject to the context, for new development.

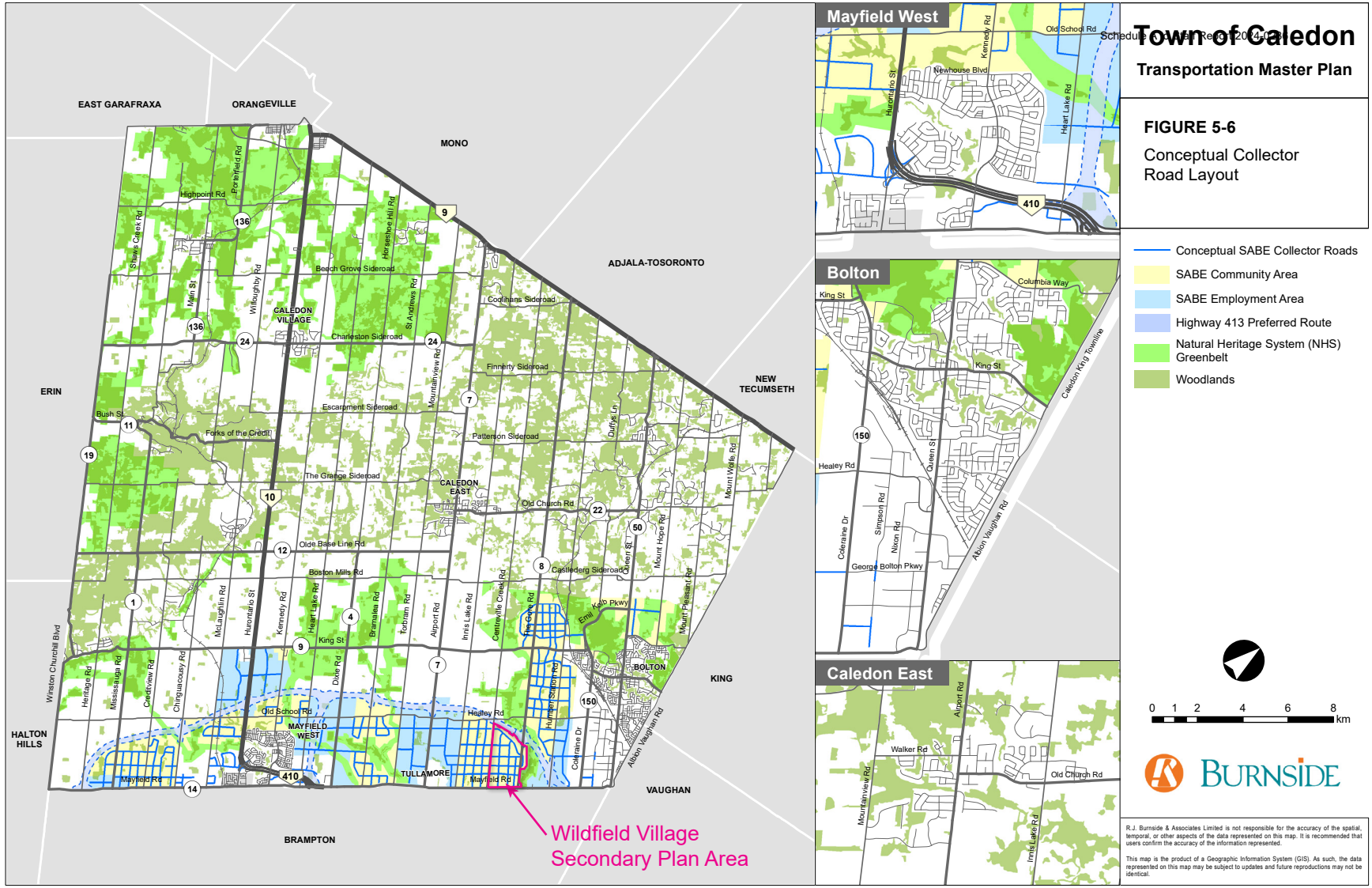
2.5 Highway 413

Highway 413 is proposed to run through York, Peel, and Halton Region. There is an interchange proposed at The Gore Road within the site boundaries. The Highway is currently the subject of a Provincial Environmental Assessment and a Federal Impact Assessment. It is noted that no funding has currently been allocated to Highway 413, and the commencement and completion of the project are dependent on the findings of the above studies. In the case that Highway 413 is not approved, any potential considerations for the community will be studied at that time, through the course of the development process.



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FIGURE 2 ROAD NETWORK IMPROVEMENTS - MMTMP



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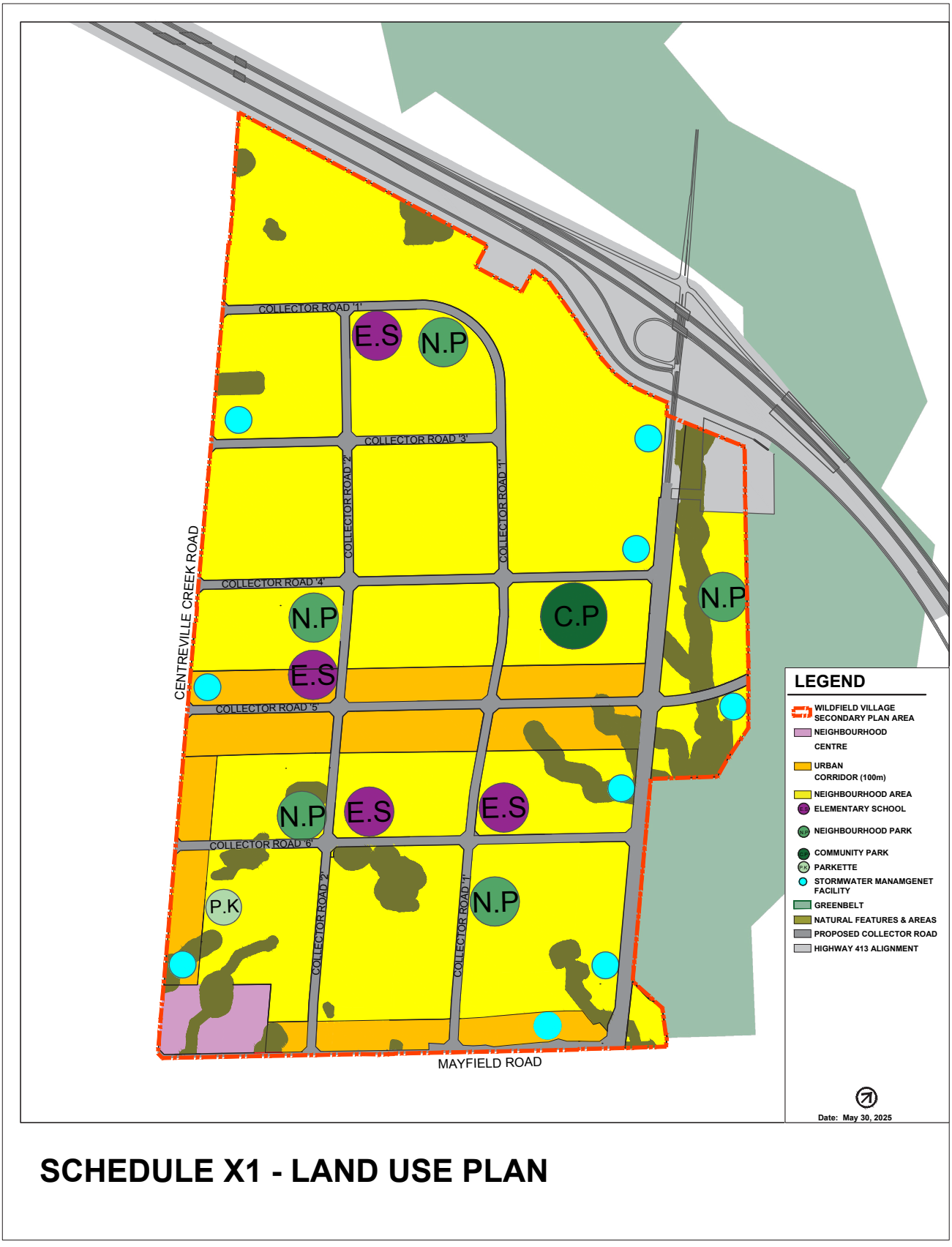
FIGURE 3 CONCEPTUAL COLLECTOR ROAD NETWORK LAYOUT

3.0 THE STRUCTURE PLAN

The transportation system planned for the community is based on the following principles:

- Use of the existing arterial road network bordering the community for transit and automobile access to and from the community. Notably, access to the area expressway system will be via The Gore Road (to Highway 413) and Mayfield Road (to Highway 410). The roads will generally be urbanized to 4-6 lane roads with supporting active transportation facilities.
- Development of a strong grid of new east-west and north-south collector roads linking the external arterial road network with the community. This grid, which is generally similar to the one illustrated in the Multi-Modal Transportation Master Plan, will provide for a high degree of access, permeability, and connectivity through the community.
- Rationalization of intersections along The Gore Road and Mayfield Road. Along the Gore Road, three new signalized collector road intersections are planned. These are located to meet spacing guidelines, taking into account signals at both Mayfield Road and the planned Highway 413 eastbound off-ramp traffic signal north of the community. Along Mayfield Road, the collector roads are located opposite existing intersections at John Carroll Drive and Martin Byrne Drive.
- Removal of the northerly collector road shown in the Multi-Modal Transportation Master Plan that followed the southern edge of Highway 413. As a boundary road, this road would not provide the internal active transportation connectivity of the other collector roads, and the proposed location of the intersection on The Gore Road would make signalization impossible.
- Development of a complete community that allows for internalization of trips and active transportation connections to non-residential uses within the community.
- Construction of a new collector road network that will provide the primary vehicular access points to the boundary roads, provide supplemental public transit access to the community, and act as the primary internal cycling spine for the community. This collector road network is described in greater detail below.
- Development of a network of local roads that will provide the primary access to the structure of the planned community. These streets should be designed to be accessible, low-speed, and safe for all road users.
- Creation of a cycling network based around the planned collector roads linking the residential uses with schools, non-residential uses, and community parks.

The proposed land use concepts are illustrated in **Figure 4**.



SCHEDULE X1 - LAND USE PLAN

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FIGURE 4 LAND USE CONCEPT PLAN

4.0 PUBLIC TRANSIT

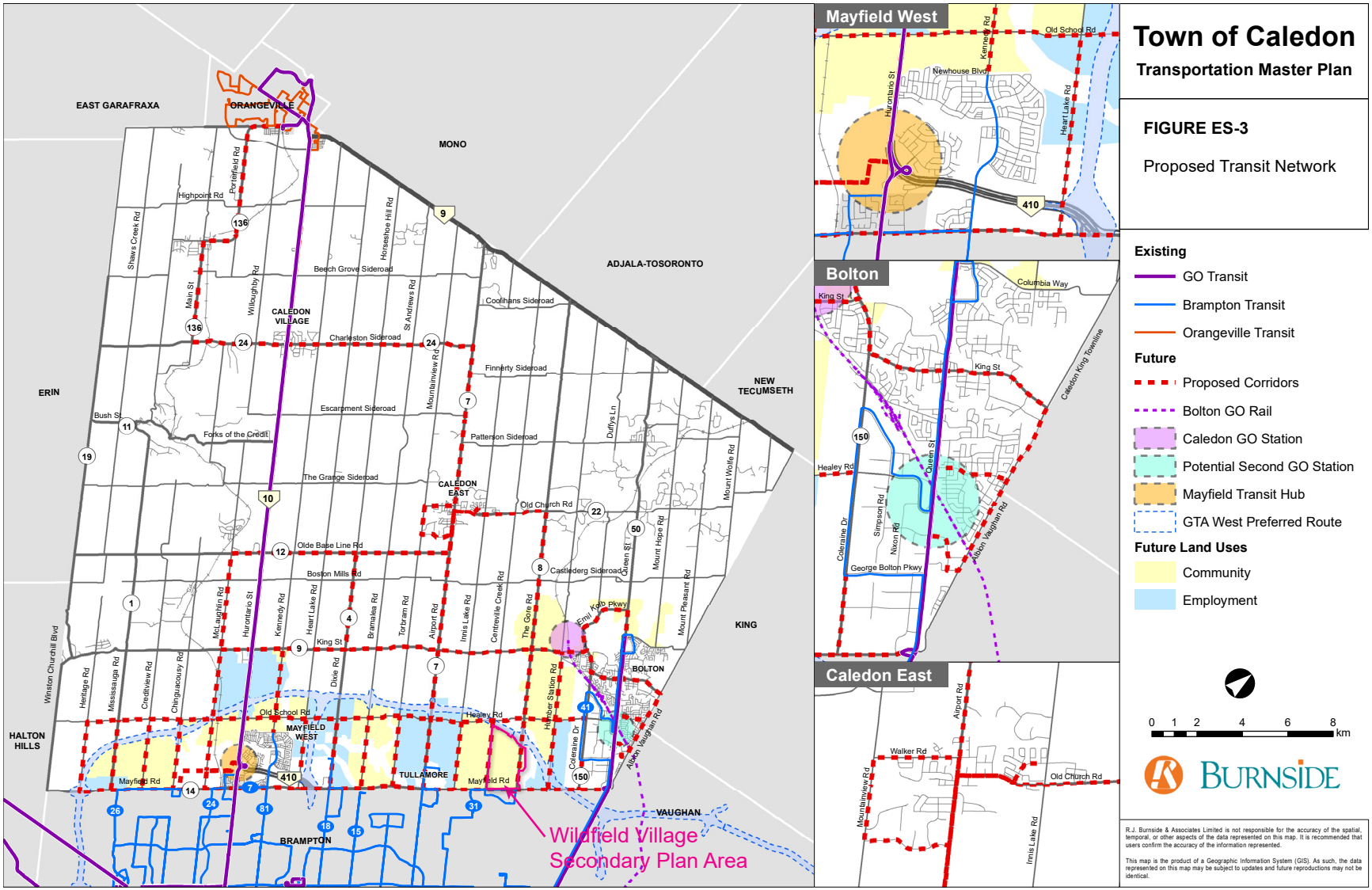
4.1 Town of Caledon Multi-Modal Transportation Master Plan

The location of the proposed fixed-route corridors from the MMTMP is illustrated in **Figure 5**.

4.2 Recommended Approach

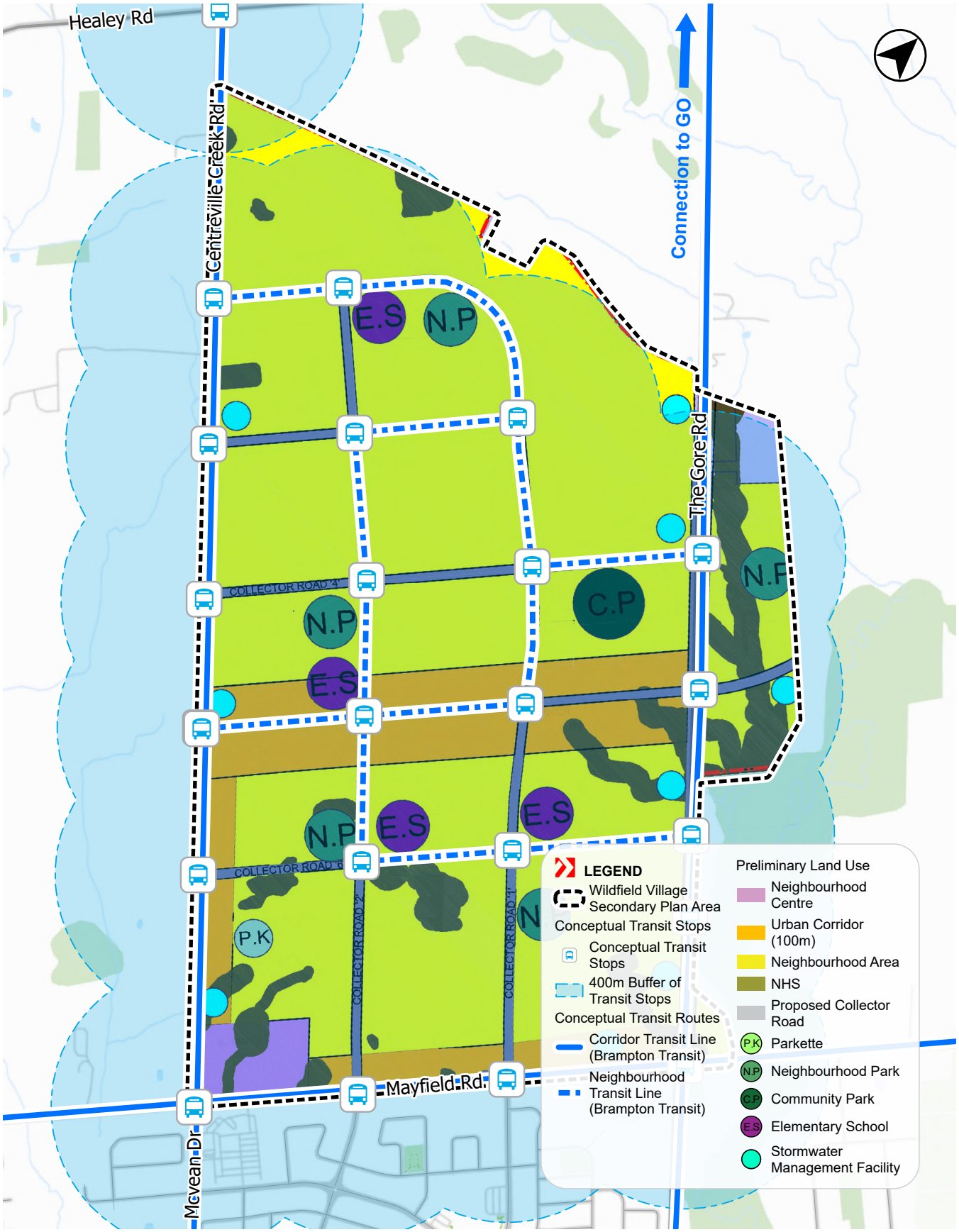
It is recommended to leverage the grid-style network as proposed by the MMTMP. The site is bounded by Centreville Creek Road, The Gore Road, Mayfield Road, and Healey Road, all of which are proposed transit corridors. It is also bisected by the Highway 413 route, which will have a transitway running parallel to the vehicular travel lanes. Use of these corridors alone could provide a high level of transit connectivity to the community on efficient linear routes. Additional supplemental routes could be introduced on the planned new collector roads as required to provide additional connectivity to transit. The collector road network should be designed to accommodate transit access.

The transit network plan, which identifies conceptual new transit routes and transit stops within and surrounding the site, is illustrated in **Figure 6**. The transit network is subject to further review and refinement by Brampton Transit.



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FIGURE 5 MMTMP TRANSIT PLAN



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FIGURE 6 TRANSIT NETWORK PLAN

5.0 ACTIVE TRANSPORTATION

5.1 Proposed Cross-Sections

Proposed cross-sections for the new local and collector roads are provided in **Appendix B**. All the local road cross-sections are within an 18m ROW. They vary in terms of the pavement width and whether one or two sidewalks are provided. Narrower pavements are recommended for consideration as an effective and simple traffic calming measure. Single-sided sidewalks have been identified by the Town of Caledon for application in areas of lower priority for pedestrians.

Collector road rights-of-way range from 22m to 26m. This range is within the 20-30m guidelines in the MMTMP and provides flexibility based on the need for parking and long-term flexibility.

Local Roads

- **XS-1A** shows an 8m pavement (parking on one side) with sidewalks on both sides.
- **XS-1B** shows an 8.5m pavement (parking on one side) with sidewalks on both sides.
- **XS-2A** shows an 8m pavement (parking on one side) with sidewalks on one side.
- **XS-2B** shows an 8.5m pavement (parking on one side) with sidewalks on one side.

Collector Roads

- **XS-3** shows a 22m ROW with an 8.5m pavement (parking on one side) with multi-use paths on both sides. This would apply to collector roads where the provision of on-street parking is less of a priority.
- **XS-4** shows a 23.5m ROW with an 11m pavement (parking on both sides) with multi-use paths on both sides. This would apply to collector roads where the provision of on-street parking is a priority.
- **XS-5** shows a 26m ROW with an 11m pavement (parking on both sides) with separate sidewalks and cycle tracks on both sides. This would apply to the east-west urban arterial road.

These cross-sections are intended to be the basis for future design to be undertaken through the functional design of the local and collector road networks.

5.2 Cycling Network

Within proximity of the site, the MMTMP has proposed the following improvements:

Physically Separated

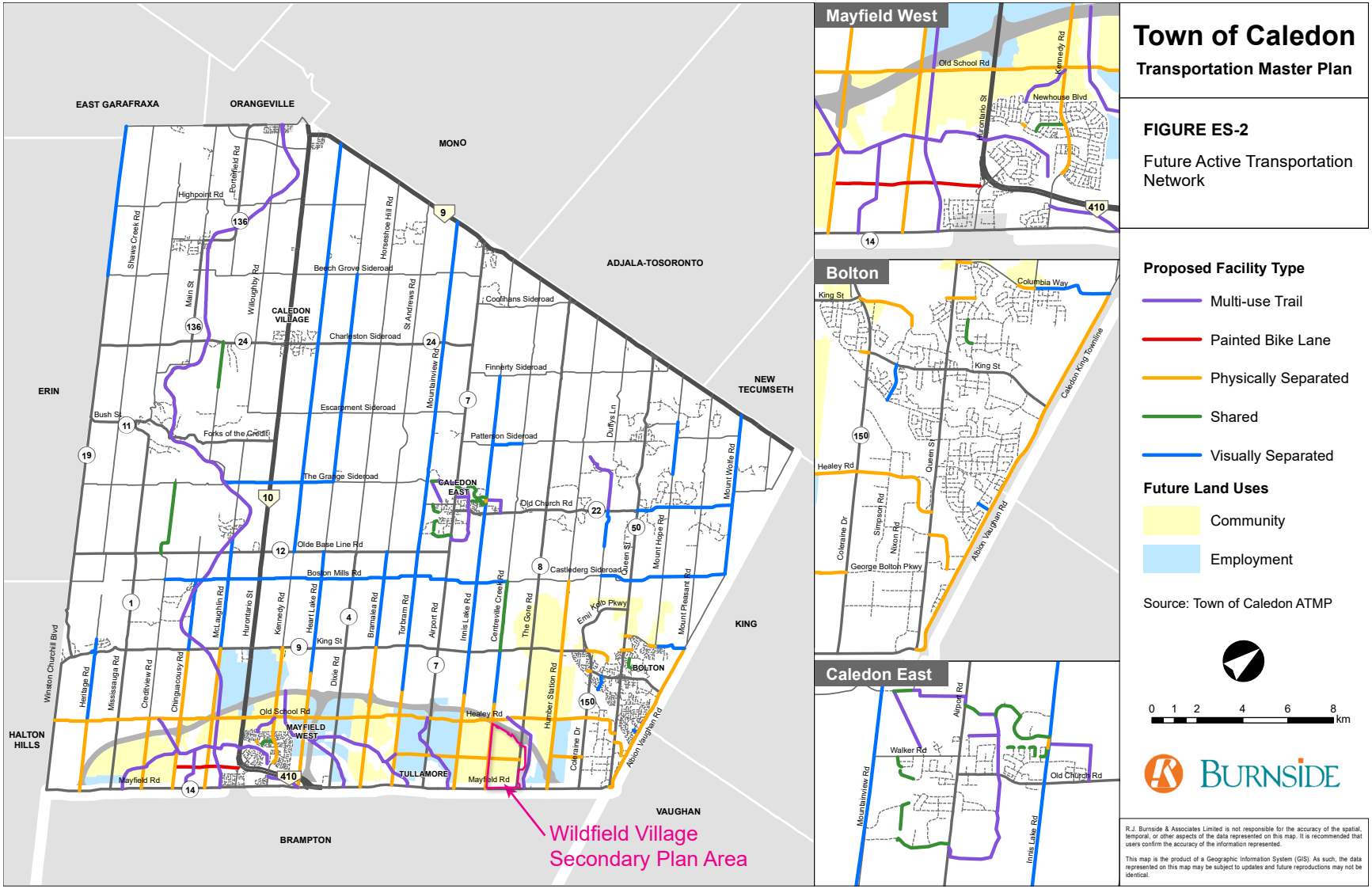
- Centreville Creek Road, from Mayfield Road to north of Highway 413
- On the proposed “Urban Corridor” on the site, from Centreville Creek Road to The Gore Road
- Healey Road, from Winston Churchill Boulevard to Queen Street

Multi-use Trail

- Running parallel to The Gore Road east of the site, connecting to physically separated bike lanes on Healey Road north of Highway 413

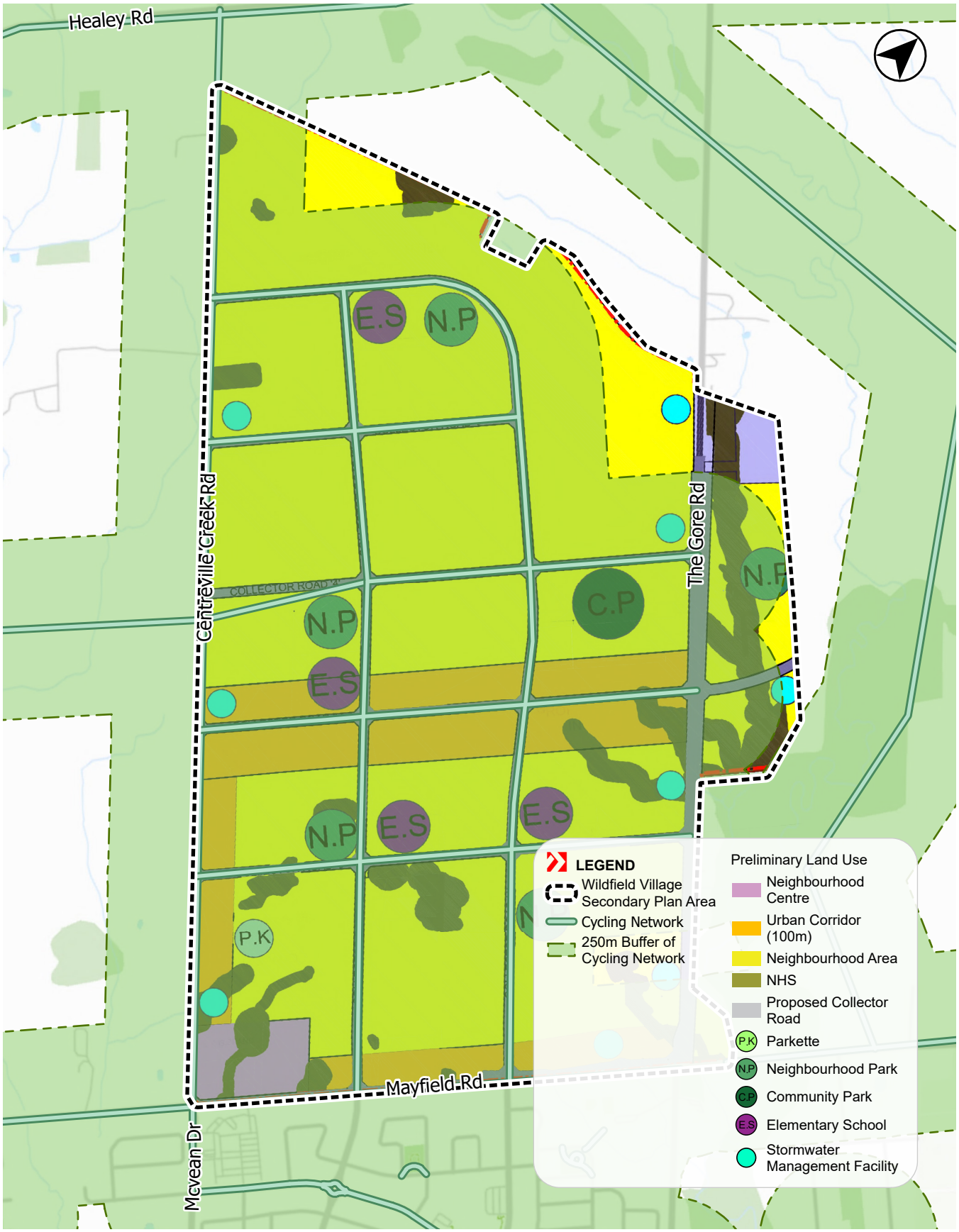
The 2051 cycling network will afford residents and visitors of the study area access to the entire study area via active modes. All schools and parks are located along the collector road network, which is proposed to have cycle tracks.

The proposed active transportation network in the MMTMP is illustrated in **Figure 7**. The proposed cycling network in relation to the location of schools and parks in the planned development area is illustrated in **Figure 8**.



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FIGURE 7 MMTMP FUTURE ACTIVE TRANSPORTATION NETWORK



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FIGURE 8 CYCLING NETWORK AND AMENITIES

6.0 TRAFFIC VOLUMES FORECAST

6.1 Town of Caledon 2051 Volumes

As a part of the work completed for the Town of Caledon's *Future Caledon* Official Plan and *Multi-Modal Transportation Master Plan*, adopted in March of 2024, the Region of Peel and the Town of Caledon undertook traffic volume projections for arterial and collector roads.

Traffic volumes at study area intersections (i.e. intersections along the boundary roads of the structure plan) were established based on a review of the peak-period link volumes from the Town of Caledon's TMP (which were outputted from the Town's EMME model). The 2051 TMP volumes were reviewed and utilized. The 2051 TMP volumes were established under the assumption that Highway 413 and the planned interchange at The Gore Road are operational. An excerpt of the provided TMP volumes is provided in **Appendix C**.

It should be noted that the 2051 volumes outputted from the Town's EMME model are 3-hour peak-period volumes rather than peak-hour volumes. The TMP volumes provided by the Town were divided by 2.5 to estimate the projected peak-hour volumes at the 2051 horizon. Furthermore, the 2051 volumes outputted from the Town's EMME model are link volumes rather than movement volumes. Turning movement (i.e. left, through and right) volumes were estimated based on the difference of link volumes on adjacent links.

Additionally, the TMP modelling was only completed for the morning peak hour. For the purposes of this study, afternoon peak hour volumes were approximated by assuming that the volumes assigned to the peak travel direction in the morning peak hour would travel in the opposite direction in the afternoon peak hour, and vice versa. Considering that afternoon peak hours typically have higher overall volumes than morning peak hours, a 10% factor has been added to the off-peak direction volumes. Assumed morning and afternoon peak hour TMP volumes for the 2051 horizon year are illustrated in **Figure 9**.

It should be noted that the modelling undertaken for the TMP accounted for development on the subject lands. The road plan proposed for the site has changed from the road plan proposed in the OP. The assignment of 2051 TMP horizon volumes may be refined throughout the development process.

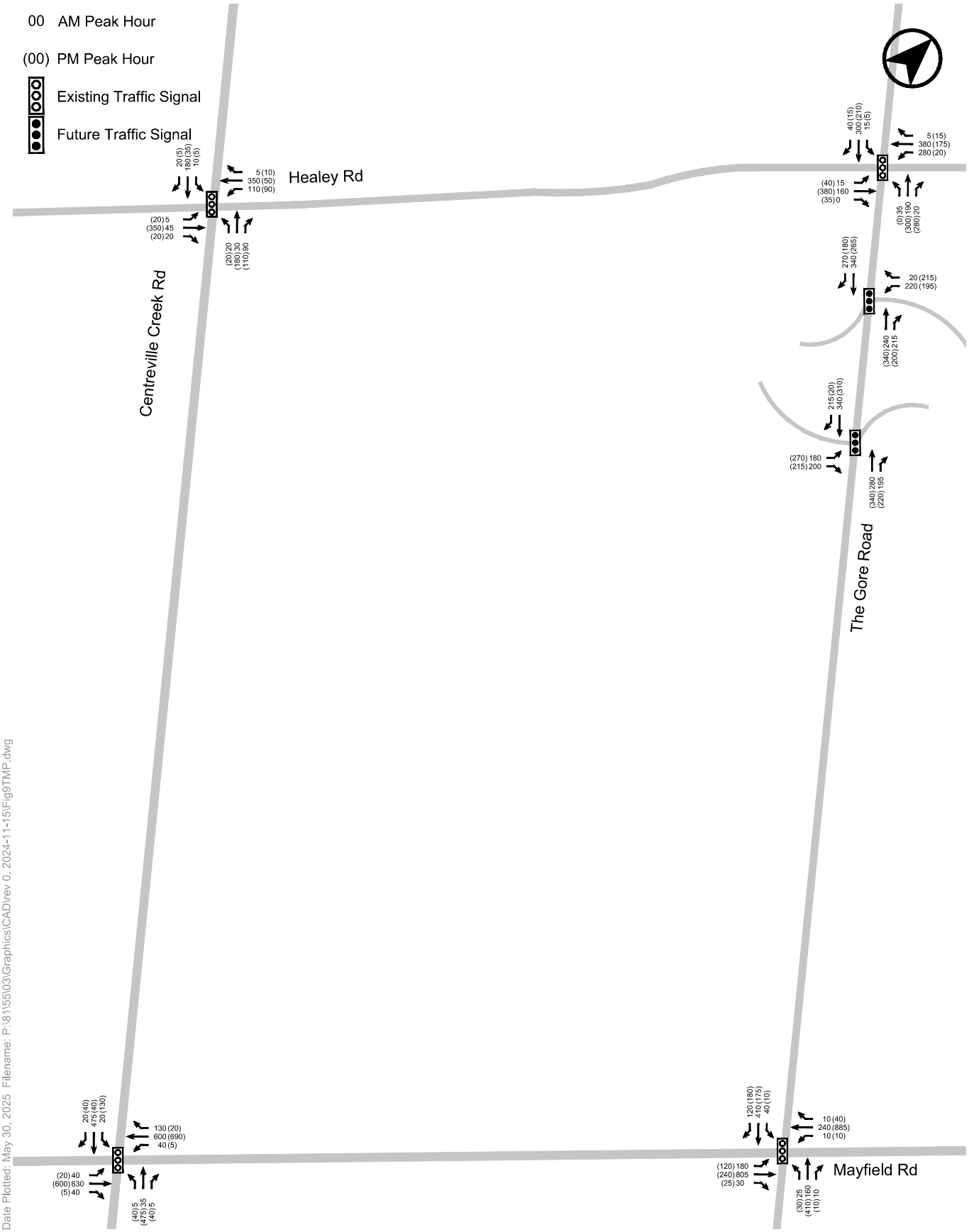


FIGURE 9 ASSIGNED TMP VOLUMES

6.2 Site Generated Traffic

6.2.1 Residential Trip Generation

To develop an understanding of expected traffic generation and trip distribution across the internal collector road network, the structure plan has been divided into zones that are generally bounded by the proposed collector road network. **Exhibit 2** illustrates the assumed zones, lettered A to K.

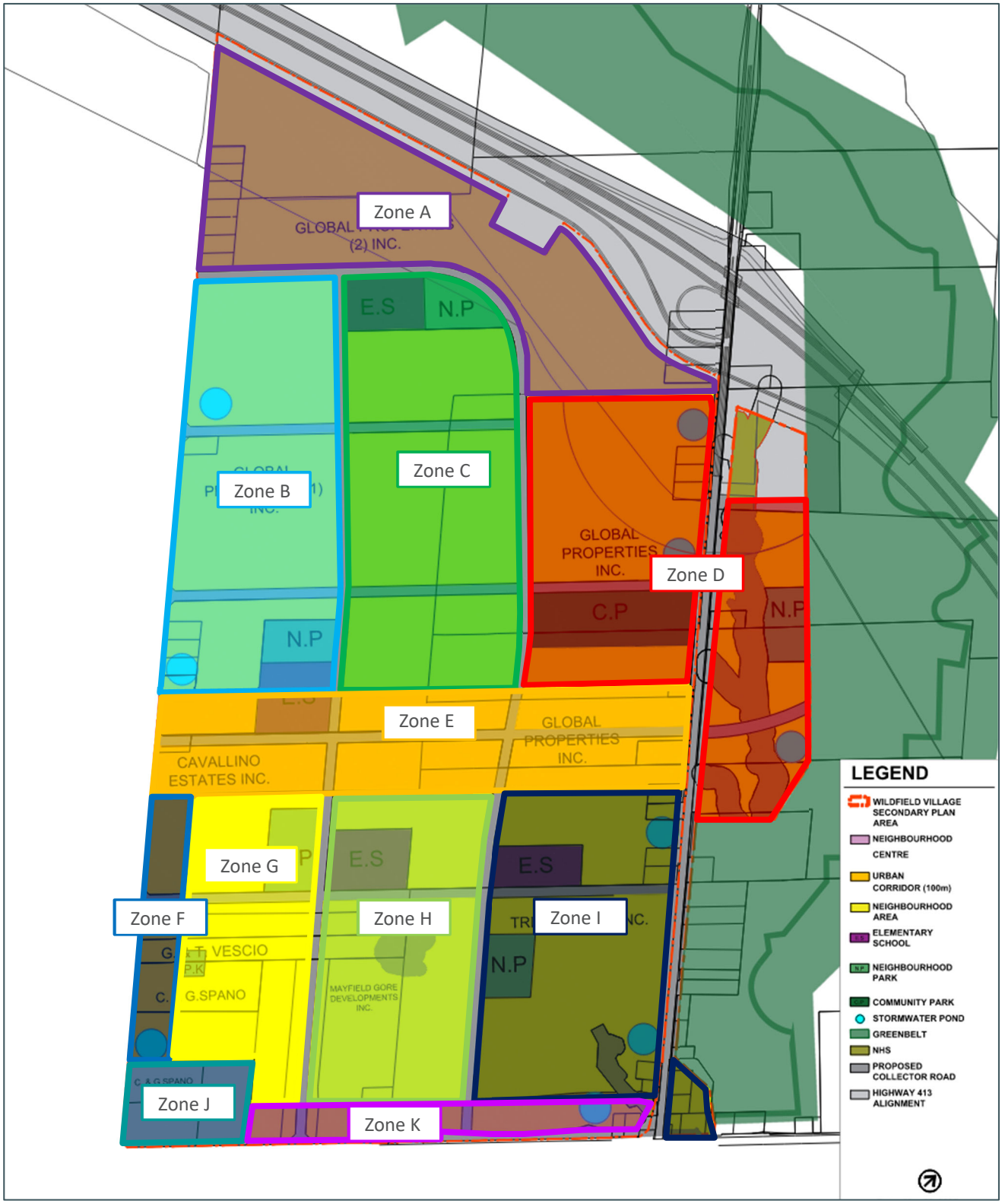


Exhibit 2: Trip Generation Zones

The land analysis prepared for the plan provides the number of units contained within specific ownership parcels of the plan. The ownership parcels have been amalgamated into the traffic zones shown in **Exhibit 2**. **Table 2** provides a summary of the area designation of the traffic zone, and the type and number of units contained within each letter zone.

Table 2 Neighbourhood Area - Unit Distribution by Zone

Letter Zone	Area Designation	Neighbourhood Area		Urban Corridor			Neighbourhood Centre	Total
		Singles	Townhouses	Townhouses	Stacked Townhouses	Apartments	Apartments	
A	NBA	310	270	0	0	0	0	580
B	NBA	604	89	0	0	0	0	693
C	NBA	758	123	0	0	0	0	881
D	NBA	795	133	0	0	0	0	928
E	UC	0	0	541	268	88	0	897
F	UC	0	0	292	146	49	0	487
G	NBA	226	54	0	0	0	0	280
H	NBA	534	136	0	0	0	0	670
I	NBA	373	95	0	0	0	0	468
J	NC	0	0	0	0	0	650	650
K	UC	0	0	181	93	32	0	306
Total		**3600**	**900**	**1014**	**507**	**169**	**650**	**6840**
Total by Designation		**4500**		**1690**			**650**	**6840**

Notes:
1. It is assumed that 40% of the single housing units are semi-detached.
2. NBA: Neighbourhood Area; UC: Urban Corridor; NC: Neighbourhood Centre

Based on the above, vehicle trips were generated per zone based on trip rates provided in the 11th Edition of the ITE Trip Generation Manual for each type of housing unit. **Table 3** provides a summary of vehicle trip rates for each housing type.

Table 3 ITE Residential Vehicle Trip Rates by Housing Type

Plan Designation	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		In	Out	2Way	In	Out	2Way
Single-Detached	210: Detached Single Family Housing	0.18	0.52	0.70	0.59	0.35	0.94
Semi-Detached/Townhouses	215: Attached Single Family Housing	0.12	0.36	0.48	0.34	0.23	0.57
Stacked Townhouse	220: Multi-Family Housing (Low Rise)	0.10	0.30	0.40	0.32	0.19	0.51
Apartments	221: Multi-Family Housing (Mid Rise)	0.09	0.28	0.37	0.24	0.15	0.39

Based on the above trip rates, **Table 4** summarizes the number of trips expected to be generated by the site, structured by zone, during the morning and afternoon peak hours.

Table 4 Site Residential Trip Generation

Letter Zone	Unit Type	Units	AM Peak Hour			PM Peak Hour		
			In	Out	2-Way	In	Out	2-Way
A	Single	186	35	95	130	110	65	175
	Semis & Townhouse	394	45	140	185	135	90	225
	Zone A Total	**580**	**80**	**235**	**315**	**245**	**155**	**400**
B	Single	362	65	190	255	215	125	340
	Semis & Townhouse	331	40	120	160	110	75	185
	Zone B Total	**693**	**105**	**310**	**415**	**325**	**200**	**525**
C	Single	455	80	235	315	270	160	430
	Semis & Townhouse	426	50	155	205	145	100	245
	Zone C Total	**881**	**130**	**390**	**520**	**415**	**260**	**675**
D	Single	477	85	250	330	280	165	450
	Semis & Townhouse	451	55	160	220	150	105	260
	Zone D Total	**928**	**140**	**410**	**550**	**430**	**270**	**710**
E	Townhouse	541	65	195	260	180	125	310
	Stacked Townhouse	268	25	80	105	85	50	130
	Apartments	88	5	25	35	20	15	30
	Zone E Total	**897**	**95**	**300**	**400**	**285**	**190**	**470**
F	Townhouse	292	35	105	140	100	70	170
	Stacked Townhouse	146	15	45	60	45	30	75
	Apartments	49	5	15	20	10	5	15
	Zone F Total	**487**	**55**	**165**	**220**	**155**	**105**	**260**
G	Semis & Townhouse	136	25	70	95	80	45	125
	Townhouse	144	15	50	65	50	35	85
	Zone G Total	**280**	**40**	**120**	**160**	**130**	**80**	**210**
H	Semis & Townhouse	320	55	165	220	190	110	300
	Townhouse	350	40	125	165	120	80	200
	Zone H Total	**670**	**95**	**290**	**385**	**310**	**190**	**500**

Table continued on the next page

Letter Zone	Unit Type	Units	AM Peak Hour			PM Peak Hour		
			In	Out	2-Way	In	Out	2-Way
I	Single	224	40	115	155	135	80	215
	Semis & Townhouse	244	30	90	120	80	55	135
	Zone I Total	**468**	**70**	**205**	**275**	**215**	**135**	**350**
J	Apartments	650	55	185	240	155	100	255
	Zone J Total	**650**	**55**	**185**	**240**	**155**	**100**	**255**
K	Townhouse	181	20	65	85	60	40	100
	Stacked Townhouse	93	10	30	40	30	20	50
	Apartments	32	5	10	15	10	5	15
	Zone K Total	**306**	**35**	**105**	**140**	**100**	**65**	**165**
Site Total		**6840**	**900**	**2715**	**3620**	**2765**	**1750**	**4520**
Blended Trip Rate (6840 units)			**0.13**	**0.40**	**0.53**	**0.40**	**0.26**	**0.66**

The proposed residential uses are expected to generate approximately **3,620 and 4,520 two-way vehicle trips** during the weekday morning and afternoon peak hours, respectively.

6.2.2 Retail Trip Generation

The structure plan currently proposes approximately 68,700 m^2 of retail GFA, to be distributed across the Urban Corridors and Neighbourhood Centre on the site. The proposed retail uses on the site are ancillary retail rather than destination retail uses. Considering that the planned population of the community will total over 20,000 people, it is expected that the retail uses on site will primarily be oriented towards fulfilling the needs of the community, and the retail uses on site will not generate a significant number of external trips. For the purpose of this analysis, it was assumed that the site would generate approximately **100 and 200 two-way external retail vehicle trips** during the weekday morning and afternoon peak hours, respectively.

Table 5 Site Retail Trip Generation

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Site External Retail Trips	**50**	**50**	**100**	**100**	**100**	**200**

6.2.3 Institutional Trip Generation

The structure plan currently proposes 4 elementary schools with an estimated total of 3,000 students. Three of the four elementary schools are located in the Neighbourhood Area, and the other one is located in the Urban Corridor area. Trip generation for elementary schools on the site was established based on a review of the trip rates for elementary schools in the ITE Trip Generation Manual (11th Edition). It was assumed that each elementary school on the site would host 750 students. Additionally, considering elementary schools generally have a relatively small catchment area, it was assumed

that 90% of the projected elementary school trips would be internal to the site, and the remainder 10% would be external. Trip generation for the elementary schools proposed on the site is summarized in **Table 6**.

Table 6 Site School Trip Generation

Letter Zone	Students	AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
520 – Elementary School		**0.40**	**0.34**	**0.74**	**0.07**	**0.09**	**0.16**
Zone C	750	300	255	555	55	65	120
Zone E	750	300	255	555	55	65	120
Zone H	750	300	255	555	55	65	120
Zone I	750	300	255	555	55	65	120
Site Total	**3000**	**1200**	**1020**	**2220**	**220**	**260**	**480**
Internal	90%	1080	920	2000	200	235	435
External	10%	120	100	220	20	25	45

The proposed school uses are expected to generate approximately **220 and 45 two-way external vehicle trips** during the weekday morning and afternoon peak hours, respectively.

6.2.4 Site Total Trip Generation

Total site trip generation is summarized in **Table 7**.

Table 7 Site Total Trip Generation

	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Residential Trips	900	2715	3620	2765	1750	4520
Retail Trips	50	50	100	100	100	200
Institutional Trips	120	100	220	20	25	45
Total Site Trips	**1070**	**2865**	**3935**	**2885**	**1875**	**4760**

The proposed development is expected to generate approximately **3,935 and 4,760 two-way vehicle trips** during the weekday morning and afternoon peak hours, respectively.

6.2.5 Trip Distribution

Residential site traffic has been assigned to the area road network based on a review of travel information provided by the 2016 Transportation Tomorrow Survey (TTS) and expected road network traffic patterns and connectivity at the time of the buildout of the site. Non-residential (i.e. retail and school) site traffic has been assigned to the area road network based on a review of the location of existing and future residential neighbourhoods in the surrounding area.

Site traffic distribution is summarized in **Table 8**. Detailed TTS output data and distribution assumptions are provided in **Appendix D**.

Table 8 Site Traffic Distribution

Direction	Residential[1]		Non-Residential	
	Outbound	Inbound	Outbound	Inbound
To/From the East on Highway 413	16%	11%	0%	0%
To/From the West on Highway 413	20%	29%	0%	0%
To/From the North on The Gore Road	1%	2%	20%	20%
To/From the South on The Gore Road	13%	15%	15%	15%
To/From the East on Mayfield Road	9%	3%	15%	15%
To/From the West on Mayfield Road	31%	21%	15%	15%
To/From the North on Centreville Creek Road	1%	6%	0%	0%
To/From the South on Centreville Creek Road	8%	10%	15%	15%
To/From the East on Healey Road	0%	0%	10%	10%
To/From the West on Healey Road	1%	3%	10%	10%
Total	**100%**	**100%**	**100%**	**100%**

Notes:
1. Based on trips to and from TTS Traffic Analysis Zones 3443,3442 and 3469

6.3 Site Traffic Volumes

New site traffic generated by the community has been assigned to the proposed structure plan road network and the existing road network based upon the directional distribution summarized above. New site traffic volumes for the weekday morning and afternoon peak hours are illustrated in **Figure 10**.

6.4 Future Total Traffic Volumes

Future total traffic volumes, which reflect the addition of TMP volumes and new site traffic volumes, are illustrated in **Figure 11**.

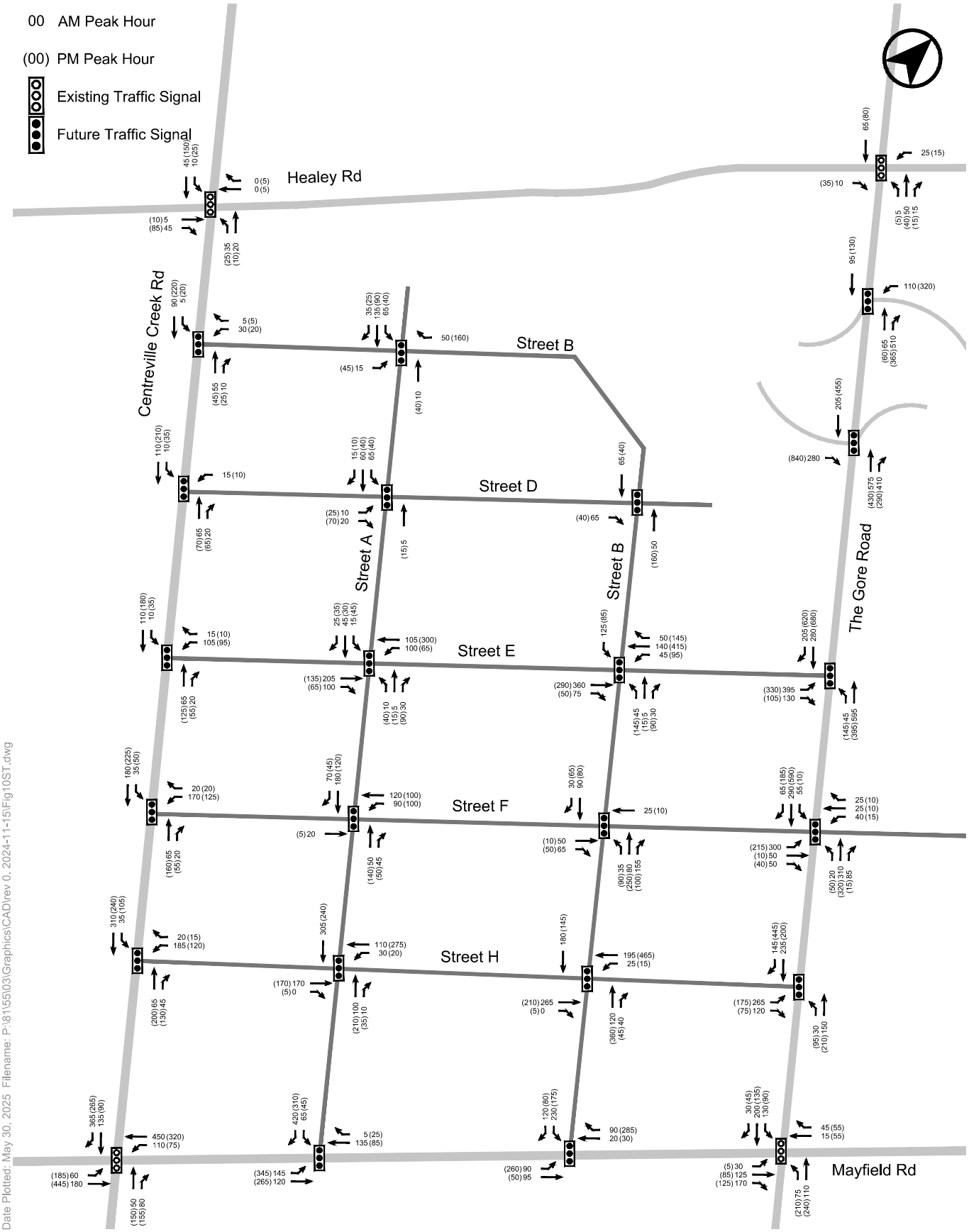


FIGURE 10 SITE TRAFFIC VOLUMES

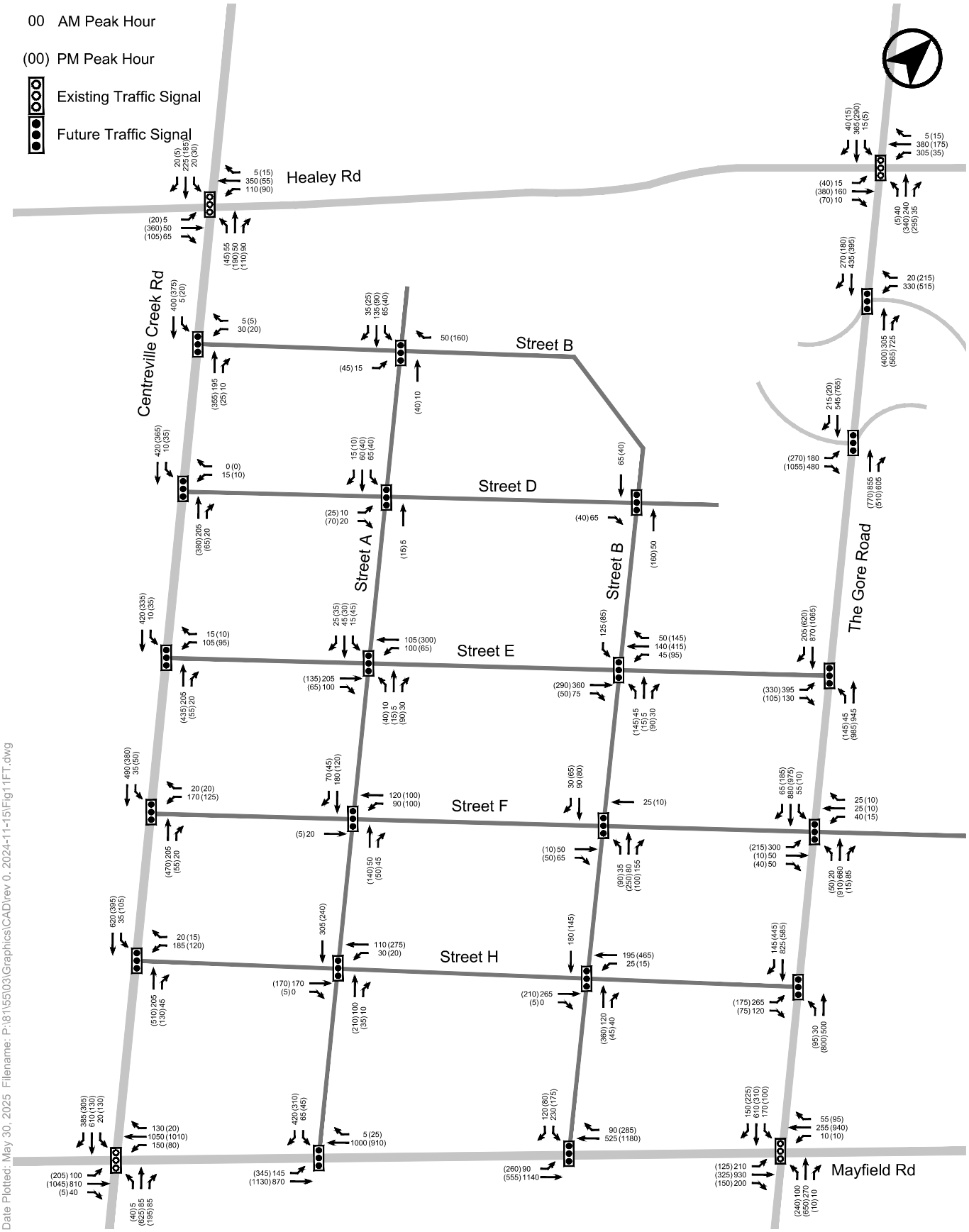


FIGURE 11 2051 FUTURE TOTAL TRAFFIC VOLUMES

7.0 TRAFFIC OPERATIONS ANALYSIS

7.1 Analysis Methodology

Traffic operation analyses have been undertaken at the area intersections using standard capacity analysis procedures as follows:

Signalized Intersections

Analyses undertaken at intersections operating under traffic signal control have been undertaken using the methodologies and procedures outlined in the Highway Capacity Manual (2000) and in accordance with the guidelines described in the Region of Peel's Guidelines for Using Synchro Version 7.73 Rev 8 (dated December 2010). Version 11.0 of Synchro has been used in this analysis. The product of the signalized intersection evaluation is an intersection performance index (volume to capacity ratio, "v/c"), where a v/c index of 1.00 indicates 'at or near capacity' conditions.

HCM level of service (LOS) criteria for signalized intersections are as follows:

- LOS A: Control Delay ≤ 10s
- LOS B: 10s < Control Delay ≤ 20s
- LOS C: 20s < Control Delay ≤ 35s
- LOS D: 35s < Control Delay ≤ 55s
- LOS E: 55s < Control Delay ≤ 80s
- LOS F: Control Delay > 80s

Unsignalized Intersections

Unsignalized intersection analyses have been carried out using standard capacity procedures for intersections operating under "Two-way" and "All-Way" STOP control and in accordance with the methodologies outlined in the Highway Capacity Manual 2000 (HCM 2000).

The product of these analyses is a level of service (LOS) designation, ranging from LOS A to F; which provides a relative indication of the level of delay experienced by motorists completing a turning manoeuvre at an intersection. LOS A represents conditions under which motorists would experience little delay, and LOS F reflects conditions where more extended delays can be expected.

HCM level of service (LOS) criteria for unsignalized intersections are as follows:

- LOS A: Control Delay ≤ 10s
- LOS B: 10s < Control Delay ≤ 15s
- LOS C: 15s < Control Delay ≤ 25s
- LOS D: 25s < Control Delay ≤ 35s
- LOS E: 35s < Control Delay ≤ 50s
- LOS F: Control Delay > 50s

7.2 Intersection Operations Analysis

Detailed Synchro output reports are provided in **Appendix E**.

7.2.1 Mayfield Road Intersections

The intersections pertaining to the site that intersect with Mayfield Road are as follows:

- Mayfield Road & Centreville Creek Road
- Mayfield Road & Street "A"
- Mayfield Road & Street "B"
- Mayfield Road & The Gore Road

Capacity and queue analyses for intersections along Mayfield Road are summarized in **Table 9**.

Intersections along Mayfield Road have been assigned a cycle length of 100 seconds during the morning peak hour and 120 seconds during the afternoon peak hour. Some intersection improvements are required to accommodate the planned TMP volumes and site traffic volumes, as discussed below. It is recommended that these improvements be studied and implemented in conjunction with planned road widenings along Centreville Creek Road and any potential widening of The Gore Road to accommodate highway volumes. The planned widening of Mayfield Road to three lanes in each direction has been assumed for these intersections.

The following improvements are recommended:

Mayfield Road & Centreville Creek Road

- Implement dedicated northbound and southbound left lanes along Centreville Creek Road.
- These improvements should be further studied in conjunction with the widening of Centreville Creek Road.

Mayfield Road & Street "A"

- Align Street "A" with the existing John Carroll Drive on Mayfield Road to form a four-way intersection.
- Implement a dedicated eastbound left lane along Mayfield Road.

Mayfield Road & Street "B"

- Align Street "B" with the existing Martin Byrne Drive on Mayfield Road to form a four-way intersection.
- Implement a dedicated eastbound left lane along Mayfield Road.

Mayfield Road & The Gore Road

- Implement dedicated northbound and southbound left turn lanes along The Gore Road.
- These improvements should be studied with the widening of The Gore Road.

Table 9 Mayfield Road Intersections Analysis Results

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
Mayfield Road & Centreville Creek Road				
EBL	0.31 (0.60)	B (B)	6 (24)	15 (42)
EBT	0.33 (0.44)	B (C)	32 (64)	51 (81)
EBR	0.03 (0.00)	B (B)	0 (0)	0 (0)
WBL	0.35 (0.30)	A (B)	10 (3)	8 (7)
WBT	0.40 (0.48)	B (B)	36 (70)	55 (85)
WBR	0.08 (0.01)	B (C)	0 (0)	8 (0)
NBL	0.04 (0.14)	C (D)	0 (8)	4 (17)
NBT	0.13 **(0.79)**	C (D)	7 (77)	14 (94)
NBR	0.05 (0.15)	C (D)	0 (2)	4 (21)
SBL	0.07 (0.57)	C (C)	3 (22)	8 (33)
SBT	**0.64** (0.10)	C (C)	60 (11)	72 (17)
SBR	0.43 (0.37)	C (C)	18 (38)	46 (33)
Overall	**0.51 (0.66)**	**B (C)**	**-- (--)**	**-- (--)**
Mayfield Road & Street "A"				
EBL	0.32 **(0.62)**	A (A)	0 (1)	2 (2)
EBTR	0.23 (0.27)	A (A)	2 (2)	4 (3)
WBTR	0.30 (0.27)	A (A)	20 (2)	38 (10)
SBL	0.33 (0.36)	D (D)	12 (10)	21 (22)
SBTR	**0.62** (0.20)	D (D)	17 (0)	47 (0)
Overall	**0.38 (0.64)**	**B (A)**	**-- (--)**	**-- (--)**
Mayfield Road & Street "B"				
EBL	0.17 (0.69)	A (D)	2 (41)	7 (67)
EBTR	0.33 (0.15)	A (A)	10 (8)	20 (11)
WBTR	0.18 (0.49)	A (A)	21 (79)	32 (129)
SBL	**0.74 (0.74)**	D (E)	43 (41)	63 (62)
SBTR	0.08 (0.05)	C (D)	0 (0)	0 (0)
Overall	**0.43 (0.71)**	**A (B)**	**-- (--)**	**-- (--)**

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
Mayfield Road & The Gore Road				
EBL	0.34 (0.36)	A (A)	12 (2)	22 (26)
EBT	0.34 (0.11)	A (A)	26 (2)	37 (20)
EBR	0.13 (0.09)	A (A)	0 (0)	1 (10)
WBL	0.05 (0.02)	C (B)	1 (1)	6 (5)
WBT	0.14 (0.39)	C (C)	12 (53)	25 (79)
WBR	0.03 (0.06)	C (B)	0 (0)	1 (10)
NBL	0.37 (0.61)	C (C)	12 (44)	18 (58)
NBT	0.21 **(0.79)**	C (D)	19 (80)	22 (95)
NBR	0.01 (0.01)	C (D)	0 (0)	0 (0)
SBL	0.64 (0.46)	D (D)	31 (16)	49 (26)
SBT	**0.71** (0.52)	D (D)	60 (37)	71 (49)
SBR	0.09 (0.14)	C (D)	0 (0)	13 (20)
Overall	**0.48 (0.52)**	**B (C)**	**-- (--)**	**-- (--)**

Notes:
1. XX (XX): AM (PM)
2. The maximum v/c ratios of the intersection are identified in **red**.

7.2.2 Healey Road Intersections

The intersections pertaining to the site that intersect with Healey Road are as follows:

- Healey Road & Centreville Creek Road
- Healey Road & The Gore Road

Capacity and queue analyses for intersections along Mayfield Road are summarized in **Table 10**.

Intersections along Healey Road have been assigned a cycle length of 80 seconds during the morning and afternoon peak hours. Some intersection improvements are required to accommodate the planned TMP volumes and site traffic volumes, as discussed below. It is recommended that these improvements be studied and implemented in conjunction with planned road widenings along Healey Road and any potential widening of The Gore Road to accommodate highway volumes. The planned widening of Healey Road to two lanes in each direction has been assumed for this analysis.

The following improvements are recommended:

Healey Road & The Gore Road

- Implement dedicated northbound and southbound left turn lanes along The Gore Road.
- These improvements should be studied with the widening of The Gore Road

Table 10 Healey Road Intersections Analysis Results

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
Healey Road & Centreville Creek Road				
EBTLR	0.05 (0.22)	A (A)	1 (12)	4 (24)
WBTLR	0.23 (0.10)	A (A)	5 (2)	8 (2)
NBL	0.36 (0.20)	C (B)	7 (5)	10 (8)
NBTR	0.20 **(0.70)**	B (C)	3 (28)	11 (38)
SBL	0.08 (0.23)	C (C)	2 (4)	7 (10)
SBTR	**0.66** (0.47)	C (C)	35 (26)	53 (40)
Overall	**0.34 (0.35)**	**B (B)**	**-- (--)**	**-- (--)**
Healey Road & The Gore Road				
EBTLR	0.10 (0.24)	A (A)	5 (8)	7 (20)
WBTLR	0.46 (0.12)	B (A)	33 (5)	56 (13)
NBL	0.17 (0.03)	A (B)	3 (0)	5 (m1)
NBTR	0.25 **(0.50)**	A (B)	9 (1)	11 (6)
SBL	0.08 (0.05)	C (C)	2 (0)	6 (3)
SBTR	**0.64** (0.49)	C (C)	30 (22)	42 (34)
Overall	**0.51 (0.36)**	**B (B)**	**-- (--)**	**-- (--)**

Notes:
1. XX (XX): AM (PM)
2. The maximum v/c ratios of the intersection are identified in **red**.

7.2.3 Centreville Creek Road Intersections

The intersections pertaining to the site that intersect with Centreville Creek Road are as follows:

- Centreville Creek Road & Street "B"
- Centreville Creek Road & Street "D"
- Centreville Creek Road & Street "E"
- Centreville Creek Road & Street "F"
- Centreville Creek Road & Street "H"

Capacity and queue analyses for intersections along Mayfield Road are summarized in **Table 11**.

Intersections along Centreville Creek Road, apart from Mayfield Road & Centreville Creek Road, have been assigned a cycle length of 80 seconds during both the morning and afternoon peak hours. It is assumed that the planned widening of Centreville Creek Road to two lanes in each direction has been completed for this analysis.

Table 11 Centreville Creek Road Intersections Analysis Results

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
Centreville Creek Road and Street "B"				
WBL	**0.34 (0.23)**	D (D)	4 (2)	12 (9)
WBR	0.00 (0.00)	C (D)	0 (0)	3 (3)
NBTR	0.07 (0.13)	A (A)	0 (0)	1 (4)
SBTL	0.15 (0.15)	A (A)	0 (0)	3 (4)
Overall	**0.16 (0.15)**	**A (A)**	**-- (--)**	**-- (--)**
Centreville Creek Road and Street "D"				
WBL	**0.34 (0.23)**	D (D)	2 (1)	6 (4)
NBTR	0.07 (0.15)	A (A)	0 (0)	5 (1)
SBTL	0.15 (0.15)	A (A)	0 (0)	4 (5)
Overall	**0.16 (0.15)**	**A (A)**	**-- (--)**	**-- (--)**
Centreville Creek Road and Street "E"				
WBL	**0.54 (0.51)**	B (B)	5 (3)	10 (13)
WBR	0.01 (0.01)	A (A)	0 (0)	0 (0)
NBTR	0.08 (0.18)	A (A)	0 (8)	2 (15)
SBTL	0.17 (0.15)	A (A)	3 (3)	8 (7)
Overall	**0.21 (0.22)**	**A (A)**	**-- (--)**	**-- (--)**
Centreville Creek Road and Street "F"				
WBL	**0.57 (0.58)**	B (C)	11 (11)	18 (26)
WBR	0.01 (0.01)	A (C)	0 (0)	1 (0)
NBTR	0.09 (0.20)	A (A)	1 (10)	2 (18)
SBTL	0.23 (0.19)	A (A)	8 (7)	10 (14)
Overall	**0.29 (0.25)**	**A (A)**	**-- (--)**	**-- (--)**
Centreville Creek Road and Street "H"				
WBL	**0.60 (0.57)**	B (B)	12 (6)	18 (4)
WBR	0.01 (0.01)	A (A)	0 (0)	1 (0)
NBTR	0.10 (0.24)	A (A)	4 (12)	10 (22)
SBTL	0.29 (0.26)	A (A)	7 (11)	21 (19)
Overall	**0.35 (0.30)**	**A (A)**	**-- (--)**	**-- (--)**

Notes: XX (XX): AM (PM)

7.2.4 Highway 413 Ramp Terminals

The intersections pertaining to the site that intersect with Highway 413 ramp terminals are as follows:

- The Gore Road & Highway 413 Eastbound On/Off-Ramp
- The Gore Road & Highway 413 Westbound On/Off-Ramp

Capacity and queue analyses for intersections along Mayfield Road are summarized in **Table 12**.

Intersections at Highway 413 ramp terminals have been assigned a cycle length of 80 seconds during both the morning and afternoon peak hours. It is assumed that The Gore Road has been widened to two lanes in each direction for this analysis, and that the Highway 413 interchange is a typical Parclo-4 interchange.

The following improvements are recommended:

- Introduce dual eastbound right turn lanes at the Highway 413 ramp terminals on The Gore Road.

Table 12 Highway 413 Ramp Terminal Analysis Results

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
The Gore Road & Highway 413 Westbound On/Off Ramps				
WBL	**0.71 (0.81)**	C (C)	47 (72)	66 (94)
WBR	0.01 (0.14)	C (B)	0 (0)	3 (11)
NBT	0.14 (0.22)	A (B)	4 (27)	7 (45)
NBR	0.46 (0.36)	A (A)	23 (0)	59 (11)
SBT	0.20 (0.22)	B (A)	14 (8)	48 (18)
SBR	0.17 (0.11)	A (A)	0 (0)	0 (0)
Overall	**0.57 (0.57)**	**A (B)**	**-- (--)**	**-- (--)**
The Gore Road & Highway 413 Eastbound On/Off Ramps				
EBL	**0.60** (0.35)	C (B)	27 (26)	43 (38)
EBR	0.17 **(0.81)**	C (C)	0 (71)	12 (86)
NBT	0.34 (0.50)	A (A)	27 (24)	24 (34)
NBR	0.38 (0.32)	A (A)	0 (0)	0 (0)
SBT	0.22 (0.50)	A (B)	1 (43)	2 (64)
SBR	0.14 (0.01)	A (A)	0 (0)	0 (0)
Overall	**0.45 (0.66)**	**A (B)**	**-- (--)**	**-- (--)**

Notes:
1. XX (XX): AM (PM)
2. The maximum v/c ratios of the intersection are identified in **red**.

7.2.5 The Gore Road Intersections

The intersections pertaining to the site that intersect with The Gore Road are as follows:

- The Gore Road and Street "E"
- The Gore Road and Street "F"
- The Gore Road and Street "H"

Capacity and queue analyses for intersections along Mayfield Road are summarized in **Table 13**.

Intersections along The Gore Road have been assigned a cycle length of 80 seconds during both the morning and afternoon peak hours.

The following improvements are recommended:

The Gore Road & Street "E"

- Implement dedicated northbound left lanes along The Gore Road.
- Implement dedicated southbound left lanes along The Gore Road.

The Gore Road & Street "H"

- Implement dedicated northbound left lanes along The Gore Road.

Table 13 The Gore Road Intersections Analysis Results

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
The Gore Road and Street "E"				
EBL	**0.77 (0.77)**	C (C)	26 (30)	68 (44)
EBR	0.14 (0.07)	B (A)	0 (0)	0 (4)
NBL	0.15 (0.43)	A (A)	4 (11)	11 (13)
NBT	0.46 (0.44)	B (A)	56 (64)	80 (70)
SBT	0.42 (0.60)	A (B)	29 (52)	55 (81)
SBR	0.13 (0.39)	A (C)	1 (11)	4 (28)
Overall	**0.56 (0.64)**	**B (B)**	**-- (--)**	**-- (--)**
The Gore Road and Street "F"				
EBL	0.62 (0.56)	C (C)	36 (17)	57 (30)
EBTR	0.12 (0.05)	B (A)	6 (0)	16 (4)
WBL	0.36 (0.16)	D (D)	6 (2)	15 (7)
WBTR	0.18 (0.11)	C (D)	3 (1)	13 (7)
NBTLR	0.46 (0.56)	A (A)	36 (34)	48 (36)
SBTLR	**0.63 (0.59)**	A (A)	67 (4)	26 (4)

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
Overall	**0.66 (0.62)**	**B (A)**	**-- (--)**	**-- (--)**
The Gore Road and Street "H"				
EBL	**0.69 (0.58)**	C (D)	16 (30)	17 (18)
EBR	0.08 (0.05)	A (E)	0 (0)	0 (0)
NBL	0.09 (0.29)	A (A)	1 (4)	5 (14)
NBT	0.21 (0.32)	A (A)	14 (20)	26 (36)
SBTR	0.42 (0.39)	A (A)	3 (0)	4 (15)
Overall	**0.49 (0.43)**	**A (A)**	**-- (--)**	**-- (--)**

Notes:
1. XX (XX): AM (PM)
2. The maximum v/c ratios of the intersection are identified in **red**.

7.2.6 Internal Intersections

The intersections internal to the site are as follows:

- Street "A" & Street "B"
- Street "A" & Street "D"
- Street "B" & Street "D"
- Street "A" & Street "E"
- Street "B" & Street "E"
- Street "A" & Street "F"
- Street "B" & Street "F"
- Street "A" & Street "H"
- Street "B" & Street "H"

Capacity and queue analyses for intersections along Mayfield Road are summarized in **Table 14**.

All internal intersections have been assigned a cycle length of 80 seconds during both the morning and afternoon peak hours.

Table 14 Internal Intersections Analysis Results

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
Street "A" & Street "B"				
EBTLR	0.09 **(0.22)**	D (C)	1 (2)	4 (6)
WBTLR	0.02 (0.05)	D (C)	0 (0)	0 (0)

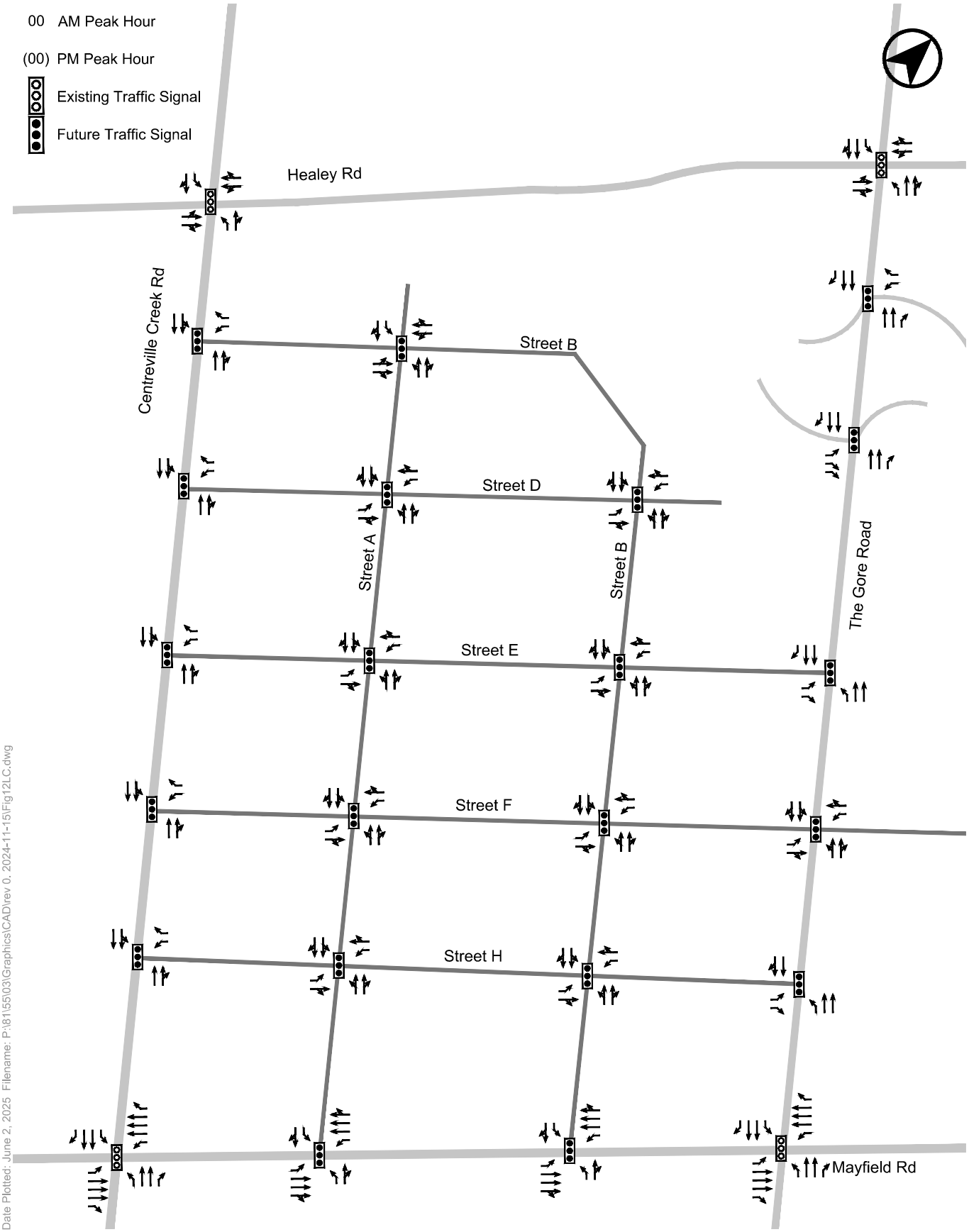
Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
NBTLR	0.00 (0.01)	A (A)	0 (0)	0 (0)
SBL	0.06 (0.04)	A (A)	1 (1)	3 (3)
SBTR	**0.11** (0.08)	A (A)	3 (2)	7 (5)
Overall	**0.11 (0.09)**	**A (B)**	**-- (--)**	**-- (--)**
Street "A" & Street "D"				
EBL	**0.15 (0.24)**	C (D)	1 (4)	6 (12)
EBTR	0.01 (0.04)	D (C)	0 (0)	0 (0)
NBTLR	0.00 (0.01)	A (A)	0 (0)	1 (0)
SBTLR	0.06 (0.04)	A (A)	0 (1)	3 (2)
Overall	**0.06 (0.05)**	**A (B)**	**-- (--)**	**-- (--)**
Street "B" & Street "D"				
EBTR	**0.04** (0.03)	D (D)	0 (0)	0 (0)
NBTLR	0.02 **(0.05)**	A (A)	0 (0)	0 (0)
SBTLR	0.02 (0.01)	A (A)	1 (0)	3 (0)
Overall	**0.02 (0.05)**	**B (A)**	**-- (--)**	**-- (--)**
Street "A" & Street "E"				
EBTR	0.67 (0.39)	C (C)	36 (19)	54 (34)
WBL	**0.74** (0.27)	D (B)	15 (9)	32 (m14)
WBTR	0.25 **(0.68)**	B (C)	14 (48)	21 (65)
NBTLR	0.02 (0.06)	A (A)	0 (0)	0 (0)
SBTLR	0.04 (0.05)	A (A)	1 (1)	2 (2)
Overall	**0.22 (0.23)**	**C (B)**	**-- (--)**	**-- (--)**
Street "B" & Street "E"				
EBTR	**0.73** (0.46)	C (B)	36 (29)	58 (39)
WBL	0.30 (0.29)	B (B)	3 (8)	9 (8)
WBTR	0.29 **(0.76)**	B (B)	11 (56)	22 (52)
NBTLR	0.04 (0.17)	A (A)	0 (0)	6 (0)
SBTLR	0.09 (0.08)	A (A)	3 (2)	10 (8)
Overall	**0.32 (0.44)**	**B (B)**	**-- (--)**	**-- (--)**

Lane Group	2051 Future Total			
	V/C	LOS	50th %ile Queue	95th %ile Queue
Street "A" & Street "F"				
EBTR	0.08 (0.00)	D (A)	2 (0)	9 (1)
WBL	**0.48** (0.09)	C (A)	13 (1)	26 (3)
WBTR	**0.48** (0.07)	C (A)	18 (1)	32 (3)
NBTLR	0.03 **(0.39)**	A (C)	0 (11)	0 (21)
SBTLR	0.09 (0.34)	A (B)	0 (9)	4 (16)
Overall	**0.15 (0.13)**	**B (B)**	**-- (--)**	**-- (--)**
Street "B" & Street "F"				
EBTR	**0.37** (0.04)	C (B)	3 (6)	18 (16)
WBTR	0.15 (0.01)	C (A)	3 (1)	6 (1)
NBTLR	0.10 **(0.66)**	A (C)	3 (28)	1 (40)
SBTLR	0.04 (0.14)	A (A)	0 (0)	0 (2)
Overall	**0.13 (0.18)**	**A (B)**	**-- (--)**	**-- (--)**
Street "A" & Street "H"				
EBTR	**0.57** (0.42)	C (C)	22 (23)	37 (37)
WBL	0.18 (0.08)	B (A)	5 (2)	13 (m3)
WBTR	0.37 **(0.67)**	B (B)	19 (48)	36 (69)
NBTLR	0.04 (0.10)	A (A)	2 (5)	5 (12)
SBTLR	0.12 (0.10)	A (A)	10 (2)	20 (6)
Overall	**0.20 (0.25)**	**B (B)**	**-- (--)**	**-- (--)**
Street "B" & Street "H"				
EBTR	**0.66** (0.34)	B (A)	13 (5)	18 (6)
WBL	0.16 (0.04)	C (A)	1 (1)	6 (1)
WBTR	0.49 **(0.74)**	C (B)	13 (74)	32 (11)
NBTLR	0.07 (0.21)	A (A)	3 (15)	8 (30)
SBTLR	0.08 (0.08)	A (B)	4 (5)	14 (11)
Overall	**0.22 (0.42)**	**B (B)**	**-- (--)**	**-- (--)**

Notes:
1. XX (XX): AM (PM)
2. The maximum v/c ratios of the intersection are identified in **red**.

7.3 Overall Traffic Operations Summary

Based on the analysis conducted by BA Group, site traffic generated by the proposed development can be appropriately accommodated at all intersections in the study area. With improvements planned in the MMTMP and ATMP and proposed as part of the development of the site, all intersections in the study area are expected to operate acceptably under future total conditions. The future road lane configuration and traffic control, including all planned and proposed improvements, are illustrated in **Figure 12**.



Date Plotted: June 2, 2025 Filename: P:\81\55\03\Graphics\CAD\rev 0. 2024-11-15\Fig12LC.dwg

FIGURE 12 FUTURE ROAD LANE CONFIGURATION AND TRAFFIC CONTROL

8.0 SUMMARY AND CONCLUSIONS

BA Group is retained by the Wildfield Village Landowners Group Inc. to provide transportation consulting services in support of an Official Plan Amendment application to implement the Wildfield Village Secondary Plan (the "site"), a new greenfield community in Caledon, Ontario. The Wildfield Village Secondary Plan is located in the Town of Caledon (the "Town") in the Region of Peel (the "Region"), bounded by Centreville Creek Road to the west, Mayfield Road to the south, the Planned Highway 413 Transportation Corridor to the north, and the Greenbelt and West Humber River to the east.

Proposed Development

1. The proposed community will consist of approximately 6,840 residential units, with a mix of unit types and densities, as well as supporting commercial, recreational and institutional uses. The supporting land uses will help to create a complete community and help to internalize resident trips, rather than act as external trip generators.

Policy Context

2. The Town of Caledon adopted its new Official Plan (OP) titled *Future Caledon* on March 6th, 2024, and is still subject to approval from the Ministry of Municipal Affairs and Housing. The plan guides land development through two of its principles: (1) create healthy and complete communities, and (2) create high-quality transportation options.

3. The Town of Caledon also developed its Multi-Modal Transportation Master Plan (MMTMP) in conjunction with the *Future Caledon* OP and provides direction on transportation improvements within Caledon to 2051. Among other objectives, the MMTMP describes a series of improvements related to road widenings, a public transit strategy, and an active transportation plan.

4. The Town of Caledon also developed its Active Transportation Master Plan (ATMP) and provides direction on active transportation improvements within Caledon to 2051. Among other objectives, the ATMP describes improvements related to active transportation networks and pedestrian facilities and establishes policy recommendations.

The Structure Plan

5. The proposed road network for the community aims to leverage the existing arterial road network that borders the community. The development proposal features new collector roads internal to the site that will provide access to the boundary roads and serve as public transit and active transit spines for the community.

6. Development of a strong grid of new east-west and north-south collector roads linking the external arterial road network with the community. This grid, which is generally similar to the one illustrated in the Multi-Modal Transportation Master Plan, will provide for a high degree of access, permeability, and connectivity through the community.

Proposed Public Transit

7. The MMTMP proposes Centreville Creek Road, The Gore Road, Mayfield Road, and Healey Road as fixed-route transit corridors. Use of these corridors alone will provide a high level of transit connectivity to the community on efficient linear routes, and there are additional opportunities for supplemental routes that operate on the internal collector road network to provide additional transit connectivity to residents.

Proposed Active Transit Infrastructure

8. All of the collector roads in the collector road network for the community will include multi-use paths on both sides of the roadway. The MMTMP has proposed several cycling infrastructure improvements within the vicinity of the site, which will help to provide external connectivity to the broader cycling network for community residents.

Traffic Analysis – Traffic Volumes

9. Traffic volumes at study area intersections (i.e. intersections along the boundary roads of the structure plan) were established based on a review of the peak-period link volumes from the Town of Caledon's TMP (which were outputted from the Town's EMME model). The 2051 TMP volumes were reviewed and utilized. The 2051 TMP volumes were established under the assumption that Highway 413 and the planned interchange at The Gore Road are operational.

10. The proposed development is expected to generate approximately 3,935 and 4,760 two-way vehicle trips during the weekday morning and afternoon peak hours, respectively.

Traffic Analysis – Analysis

11. Based on the analysis conducted by BA Group, site traffic generated by the proposed development can be appropriately accommodated at all intersections in the study area. With improvements planned in the MMTMP and ATMP and proposed as part of the development of the site, all intersections in the study area are expected to operate acceptably under future total conditions.

12. Any recommended intersection improvements should be further studied in conjunction with any studies that are undertaken for the widening of the boundary roads.

9.0 RESPONSE TO COMMENTS

9.1 Town of Caledon Comments

9.1.1 Draft Wildfield Village Secondary Plan

Comment 60:

Section 12.5.3 Sidewalks in the Secondary Plan Area – Revise point a) to remain consistent with cross sections in Appendix B. As per the MMTMP, ATMP, and proposed cross sections in Appendix b, Collector roads will have either multi-use paths on both sides of the road, or a combination of sidewalk and cycle track.

Response:

Noted. Collectror roads will include cycling infrastrcutre.

Comment 61:

Consideration should be given for policy language supporting an internal multi-use trail system outside of collector road right of way (ROW).

Response:

There is no multi-use trail system outside of the collector roads.

9.1.2 Land Use Plan

Comment 63:

Please be aware that the Town is undertaking an update to the MMTMP (Multi-Modal Transportation Master Plan), or equivalent EA study, to assess the need for east-west collector roadways. Town staff recommend awaiting the findings of this study. Should the applicant wish to proceed they do so at their own risk.

Response:

Noted.

Comment 64:

Lands to the east of the Gore Road lack a collector road network. Revise to include a collector road(s) in the proposal as required.

Response:

Noted. An east-west collector road has been added to the lands to the east of The Gore Road. The exact location of the east-west collector road, however, will be reviewed as part of the MMTMP update that is being undertaken by the Town of Caledon.

9.1.3 Typical Cross-Sections/Community Design Guidelines

Comment 65:

Please be advised that proposed cross sections are subject to a multidisciplinary review, therefore comments from other departments and divisions should be collected.

Response:

Noted.

Comment 66:

Include a road classification map with the location of each type of ROW cross section for collector and arterial roads.

Response:

Noted. This comment will be addressed at the Draft Plan of Subdivision stage as rights-of-way are finalized.

Comment 67:

In consideration for Operations and Maintenance capacity, local roads only require sidewalks on one side of the road, with the exception of areas in close proximity to main generators of pedestrian traffic. Please see section 4.2.10 of the Active Transportation Master Plan (ATMP) for details.

Response:

Appendix B includes local road cross-sections with sidewalks on one and both sides. The final decisions about which section shall be applied will be made as part of the Draft Plan of Subdivision applications based on the prioritization set out in the ATMP.

Comment 68:

18 m Local Road - 6.0 m is the minimum clear width required for Emergency vehicles, while only 5.5m is proposed. Furthermore, minimum widths for curbside and through lanes should be considered. Revise to meet standards, this could require increasing the proposed ROW.

Response:

The revised cross-sections in this report include both 8.0 and 8.5m pavements. This can accommodate a 6.0m clear width with 2.0m of space for on-street parking.

Comment 69:

22.0 m Collector - The MMTMP proposes two side parking on collector roads while this proposed cross section proposes only 1 side parking, justify this is sufficient or revise so these minimum standards are met, this could require increasing the proposed ROW. Development Standards Parking requirements should be considered in the review of on street parking spaces.

Response:

The revised cross-sections included in this report include both 22m and 23.5m cross-sections for typical collector roads. These can accommodate parking on one of the two sides, respectively. The decision about which to apply should be based, in part, on the need for on-street parking in the immediate area.

Comment 70:

Joint Utility Corridors are proposed under Multi use paths and sidewalks. For Safety reasons the associated infrastructure (access points, transformers, etc.) must be designed in a manner to facilitate safe travel.

Response:

Noted.

9.1.4 Transportation Study

Comment 71a):

Provide a high-level trail plan within the secondary plan area. This could be included in the missing high-level map of existing and proposed internal and external active transportation facilities. This map should ensure connectivity to boundary roads.

Response:

There are no trails in the Secondary Plan area. Cycling will be accommodated on local streets and within cycling / multi-use paths on collector roads. Additional details will be provided in the subsequent community design plan and draft plans of subdivision.

Comment 71b):

A scenario without the GTA West corridor to assess the network requirements must be completed.

Response:

The volumes used as a basis for the analysis in this report are based on modelling of SABE lands conducted as part of the MMTMP. This included Hwy. 413 as part of the model. A scenario without Highway 413 is a broader modelling question that would be best dealt with through the ongoing MMTMP update.

Through the development of the community, additional traffic studies conducted in support of the Draft Plans of Subdivision should include a review of scenarios without Highway 413.

Comment 71c):

Traffic controls for the internal collector to collector roadways were not proposed. Propose Traffic Controls for all internal collector-to-collector road intersections. Complete analysis as required. Consider where roundabouts are recommended.

Response:

All internal collector-to-collector road intersections are proposed to be signalized in the long term, with all-way STOP control implemented in the short term.

Roundabouts were considered for these intersections, and conventional traffic signals were chosen for the following reasons:

- Reduced land impacts.
- Reduced pedestrian walking distances.
- The Town of Caledon has directed in the ATMP that these intersections be 'protected', meaning that cyclists will be protected by enhanced design measures and curb work.
- As internal intersections, these roundabout cannot act as 'gateways' to warn motorists of a change in driving conditions. This takes away one of their principal functions in suburban areas.

Comment 71d):

Infrastructure improvements and missing links have not been identified. Provide a diagram illustrating the proposed lane layouts and storage lengths for all arterial-to-arterial, collector-to-arterial, and collector-to-collector intersections within the study area. This diagram must clearly differentiate between previously planned improvements and those recommended as part of this proposal.

Response:

Proposed lane configuration and traffic controls are illustrated in **Figure 12**.

Comment 71e):

A phasing plan with interim improvements for the broader road network should be established until the ultimate secondary plan network improvements are constructed. The Transportation Impact Study (TIS) should provide approximate buildout numbers for each phase and identify when improvements will be required to support full buildout. The report is missing the impacts of the proposed development from a multi-modal perspective. Revise to include.

Response:

At this juncture, the order of development has not been firmly established. It is recommended that, as part of individual plans of subdivisions, traffic analysis be undertaken that takes into account the planned development, adjacent development (including portions of the road network) under construction, confirmed road improvements on boundary arterial roads, and whether Highway 413 is expected to be complete.

Comment 71f):

Transportation Demand Management (TDM) Plan is missing. The study should highlight TDM policies.

Response:

The Transportation Demand Management (TDM) plan will be provided during the Site Plan application stage for individual sites that trigger a Site Plan Application.

Comment 72b):

Town Transportation Impact Study guidelines require the study to include the seal of the author.

Response:

Noted.

Comment 72c):

Consider the impacts of diverted of east-west traffic from Healey Road / Mayfield Road through the collector road network.

Response:

The impact of diverted east-west traffic will be reviewed as part of the MMTMP update that is being undertaken by the Town of Caledon.

Comment 72d):

Conduct a high-level review of on-street parking to ensure the development meets future residents' needs and adheres to the Town's DSM manual.

Response:

Noted. On-street parking will be reviewed at the Draft Plan of Subdivision stage.

Comment 72e):

Provide a map of recommended traffic calming locations and features.

Response:

Noted. A traffic calming plan will be provided at the Draft Plan of Subdivision stage.

Comment 73a):

Section 1.4.3 - Active Transportation Plan should also reference the ATMP in addition to the MMTMP.

Response:

Noted. A review of the ATMP is provided in **Section 2.3.3** of this report.

Comment 73b):

Section 1.6 and Section 5.2 – The unit counts differ between the Transportation Study and the planning justification report. Revise for consistency as materially impacts the conclusions of the report.

Response:

The revised development program is summarized in **Table 1**.

Comment 73c):

Section 1.7 - The Terms of Reference in Appendix A lacks Staff responses. Revise to include.

Response:

Noted. The terms of reference and response from Town staff are attached in **Appendix A**.

Comment 73d):

Section 4.1 and Appendix B - See above for comments.

Response:

Noted.

Comment 73e):

Section 5.1 and Figure 9 – Revise for clarity, additionally ensure all supporting documentation is referenced or included. Items requiring further information are as follows:

i. *Some midblock volumes differ (are less) than the A.M. peak hour volumes in Appendix C. Review and revise for consistency as required.*

ii. *Include the methodology utilized to transform midblock volumes into turning movements in the report or appendix.*

iii. *Report states volumes were projected into the 2051 horizon year using TMP volumes. Which volumes were projected to the 2051 horizon year? Clarify by providing additional information in the report or appendix.*

Response:

The 2051 volumes outputted from the Town's EMME model are 3-hour peak-period volumes rather than peak-hour volumes. The TMP volumes provided by the Town were divided by 2.5 to estimate the projected peak-hour volumes at the 2051 horizon.

The 2051 volumes outputted from the Town's EMME model are link volumes rather than movement volumes. Turning movement (i.e. left, through and right) volumes were estimated based on the difference of link volumes on adjacent links.

Traffic volumes at study area intersections (i.e. intersections along the boundary roads of the structure plan) were established based on a review of the peak-period link volumes from the Town of Caledon's TMP (which were outputted from the Town's EMME model). The 2051 TMP volumes were reviewed and utilized.

Comment 73f):

Section 5.1 and Table 3 – Items for revision are as follows:

i. *TTS Zones in Brampton were used rather than the zone in Caledon in which the proposed development is located. This assumption should be clearly stated in the report, ideally accompanied by justification.*

ii. *Considering the surrounding SABE area, are east-west trips within Caledon anticipated?*

iii. *In this specific context the impacts of rounding to the nearest 5% are not conservative, thusly staff prefer rounding to 1%. Between the Appendix and Table 3 the trip distributions were rounded to the nearest 5%. This causes*

westbound trips on Healey Road to round from 1% down to 0%. Considering the high trip generation of the site (4500 two-way trips), this means 450 two-way trips are rounded down to 0.

Response:

Home-based trips to and from Traffic Analysis Zones 3443, 3442 and 3469 were queried from the Transportation Tomorrow Survey data to establish the trip distribution of the proposed development. The land where the site is situated is largely undeveloped and actively farmed on a temporary basis. Consequently, TTS does not contain sufficient data for trips to and from this area (or any other adjacent zones in Caledon). The selected Traffic Analysis Zones, located just south of Mayfield Road, are geographically the closest established neighbourhood to the site. Therefore, trips to and from these zones provide the best estimates of the travel characteristics of the site once it is developed.

East-west trips within Caledon along Highway 413, Healey Road and Mayfield Road were considered in the analysis. Trips along the new east-west urban corridor were not captured in this analysis. These trips will be reviewed as part of the MMTMP update that is being undertaken by the Town of Caledon.

Noted. Trip distribution has been revised to be rounded to the nearest 1%, as summarized in **Table 8**. Notwithstanding the above, it is noted that rounding from 1% to 0% means 45, not 450, two-way trips were rounded down to zero.

Comment 73g):

Section 4, Figure 6 - Propose Specific Transit Routes along the collector road network. Additionally, transit-supportive policies should be summarized in this section.

Response:

Noted. **Figure 6** has been revised to show transit routes along the collector road network. The transit network is subject to further review and refinement by Brampton Transit.

Comment 73h):

Section 5.1 - Consider the impact of the proposed schools. Ensure the impacts of the schools are included in the site-generated trips and associated trip assignments.

Response:

Noted. Trip generation of proposed schools is discussed in **Section 6.2.3**. Trip distribution and assignment of proposed schools are discussed in Section **6.2.5**.

Comment 73i):

Section 5.2.2 – Revise as follows:

i. *Provide a reference for the commercial floor area.*

ii. *Trips from the proposed commercial area were assumed to be internal to the Secondary Plan area therefore trips were not generated nor internal trip capture assumed. However, the proposed commercial use area is located near the edge of the secondary plan therefore trips from G1/Brampton are likely to occur. Consideration for the likely trip interactions between adjacent secondary plan areas be included.*

iii. *Furthermore, internal trips are likely to impact traffic along internal collector roadways. As is feasible, ensure the impacts of the commercial area within the Wildfield Village Secondary Plan are included in the trip generation and distribution.*

Response:

The commercial floor area is referenced in **Section 1.2** of this report.

Noted. The proposed retail uses on the site are ancillary retail rather than destination retail uses. Considering that the planned population of the community will total over 20,000 people, it is expected that the retail uses on site will primarily be oriented towards fulfilling the needs of the community, and the retail uses on site will not generate a significant number of external trips.

For the purpose of this analysis, it was assumed that the site would generate approximately 100 and 200 two-way external retail vehicle trips during the weekday morning and afternoon peak hours, respectively.

Comment 73j):

Section 6 - revise as follows:

i. *Include reports of queue lengths. Highlight where queuing is forecasted to exceed the storage capacity. Utilize SimTraffic where required to eliminate errors with synchro modelling of queues.*

ii. *For signalized intersections the critical movements (maximum v/c) should be reported.*

iii. *Signals are proposed at Arterial to collector intersections, were roundabouts considered? If so, please elaborate on feasibility / capacity.*

Response:

Queue results are provided in **Section 7.2** of this report.

Critical movements (i.e. movements with the maximum) v/c ratio have been identified in **Section 7.2**.

Roundabouts were considered for these intersections, and conventional traffic signals were chosen for the following reasons:

- Reduced land impacts.
- Reduced pedestrian walking distances.
- The Town of Caledon has directed in the ATMP that these intersections be 'protected', meaning that cyclists will be protected by enhanced design measures and curb work.
- As internal intersections, these roundabouts cannot act as 'gateways' to warn motorists of a change in driving conditions. This takes away one of their principal functions in suburban areas.

Comment 73k):

Appendix E synchro Report:

i. *15.11.1. Lost time Adjustment factors were applied without adequate studies to establish the validity and necessity. Revise, preferably remove.*

Response:

Noted. The Lost Time Adjustment factors have been revised to 0 seconds for all intersections. Revised traffic operations analysis results are provided in **Section 7.0**.

9.2 Region of Peel Comments

9.2.1 Transportation Development

Comment 106:

The Transportation Study is under review by Peel Transportation Development staff. Additional time is required to provide detailed comments, and they will be forwarded under separate cover.

Response:

Noted.

Comment 107:

The subject land in the Secondary Plan Area contains the Regional roads Mayfield Road and The Gore Road, which are identified in the Region's Strategic Goods Movement Network (SGMN) as Primary Truck Routes. These regional roads in the SGMN may support better connectivity for trucks in the future.

Response:

Noted.

Comment 108:

Most of the Secondary Plan Area, beginning almost 1 km north of Mayfield Road, between Centreline Creek Road and east of The Gore Road, is in the Hwy 413 Route Planning Study Area (RPSA). MTO has reduced interest in this area. Applications can proceed through municipal development processes. MTO will continue to review all development applications in the study area (RPSA), but it is anticipated that applications in the green areas will not be impacted by the GTA West transportation corridor.

Response:

Noted.

Comment 109:

A smaller portion in the north of the Secondary Plan Area, along the railroad between Centreline Creek Road and The Gore Road, is within the Hwy 413 Focused Analysis Area (FAA), which surrounds the preferred route. Overlapping properties located within the FAA, which could be directly impacted by the Highway 413 Corridor, ancillary uses, or if refinements are made to the preferred route.

Response:

Noted.

Comment 110:

A Goods Movement section is recommended to be included within the Transportation Study, to show relevance of modern trends in increased deliveries, suggest policies related to community delivery hubs, space for safe delivery truck loading including off-peak deliveries, curbside management, encouraging the use of smaller delivery vehicles (such as cargo bikes), neighbourhood loading zones, parcel delivery lockers, and consolidated grocery pick-up and drop locations near transit.

Response:

Curbside parking will be permitted on most local roads to accommodate loading and pick-up/drop-off activities. For larger buildings proposed, on-site loading spaces are expected to be provided and will be reviewed further as part of the Site Plan Applications for each individual parcel.

9.3 Ministry of Transportation Comments

Comment 116:

The subject lands are partially within the Focused Analysis Area (FAA 2020 and Draft FAA 2024) land protection boundary for the Highway 413 project. The Highway 413 project team is currently unable to endorse the advancement of new developments within the FAA limits at this time. Lands within the FAA are being protected as they may be directly impacted by the Highway 413 transportation corridor, ancillary uses, or if refinements are made to the route during the preliminary design stage. The Highway 413 project is currently in the planning, preliminary design and assessment of environmental impacts phase. Property requirements and release of FAA lands for the project will be determined at the completion of the preliminary design phase.

Response:

Noted.

Comment 117:

The project team has no comments or concerns regarding lands within the proposal outside the FAA limits. We would encourage the applicant to review MTO's Highway Corridor Management Manual and ideally incorporate desirable spacing between new connections to the Gore Rd and any Hwy 413 interchange ramp terminals.

Response:

Noted.

Appendix A:
Terms of Reference

MEMORANDUM

TO:

Kavleen Younan, P.Eng
Town of Caledon
Kavleen.younan@caledon.ca

FROM:	PROJECT:	DATE:
Steve Krossey, P.Eng	8155-03	July 26, 2024
Clara Filipetti	Wildfield VIllage	

RE: WILDFIELD VILLAGE – TERMS OF REFERENCE

BA Group has been retained by Wildfield Village Landowners Group Inc. to provide transportation advisory services in support of a proposed subdivision development located on the lands bordered by Centreville Creek Road, The Gore Road, Healey Road, and Mayfield Road, as seen in **Figure 1**.

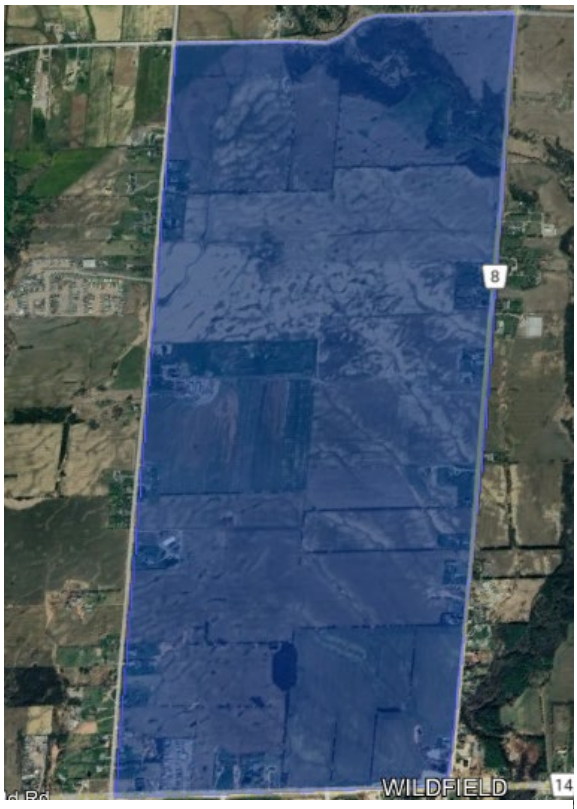


Figure 1: Subject Lands

The current preliminary concept plan proposes a mix of low, mid, and high rise residential uses, retail, school, and office uses. Vehicular access to the site is currently proposed via a new street network that is proposed to connect to the greater collector street network.

Please see below for our proposed Terms of Reference for the Traffic Impact Study (TIS). Should you have any questions or comments, please not hesitate to contact us.

Analysis Study Area

The TIS Study Area is proposed to comprise of the following intersections for the development site:

- Centreville Creek Road & Healey Road
- The Gore Road & Healey Road
- Centreville Creek Road & Mayfield Road
- The Gore Road & Mayfield Road
- The Gore Road & Highway 413 On/Off Ramps
- Major Internal Site Intersections (to be determined)

Traffic Analysis Scenarios

The following scenarios will be reviewed:

- Existing (2024)
- Future Background 2051 Conditions (with Highway 413)
- Future Total 2051 Conditions (with Highway 413)

Traffic Analysis Periods

Traffic analysis will be undertaken for weekday AM and PM peak hours.

Background Development Traffic

The Town of Caledon's EMME models will be reviewed to determine appropriate levels of general background traffic growth for the 2051 Scenario. Additionally, the Town of Caledon's and The City of Brampton's development application websites will be reviewed to evaluate the inclusion of specific background developments.

Site Trip Generation

Site trip generation will be completed for the on-site uses based on the 11th Edition of the ITE Trip Generation Manual and proxy data for similar land uses. The Transportation Tomorrow Survey (TTS) will be reviewed for mode splits.

Vehicle Trip Distribution

Vehicle trip distribution will be determined based on a review of travel patterns identified in the existing traffic counts and distribution information from the TTS.

Traffic Analysis

Traffic analysis will be undertaken using Synchro 11, with analysis parameters in accordance with those outlined by the Region of Peel's Traffic Impact Study guidelines.

Ethan F. Sun

From: Clara Filipetti
Sent: May 29, 2025 6:56 PM
To: Ethan F. Sun
Subject: FW: Wildfield Terms of reference

From: Kavleen Younan <Kavleen.Younan@caledon.ca>
Sent: September 10, 2024 2:31 PM
To: Steve Krossey <Krossey@bagroup.com>; Clara Filipetti <Clara.Filipetti@bagroup.com>
Cc: Emma Howlett <Emma.Howlett@caledon.ca>
Subject: RE: Wildfield Terms of reference

Hi Steve,

Apologies for the delayed response for these. Our comments are below.

- Due to the location of the proposed development, please circulate the Terms of Reference and subsequent Transportation Study to the City of Brampton and the Region of Peel for review. Consider the impacts of the City of Brampton Secondary Plan Area, adjacent ROPA 2051 lands, and other nearby developments. Ensure proposed roadway intersections align with those in other secondary plan areas. Town Transportation Staff defer to the Region of Peel regarding roadways and intersections under their jurisdiction.
- The report should assess the proposed development's impact on the existing transportation system across all modes of transportation. It should identify additional infrastructure improvements and missing links beyond what is identified in the Regional and Town Master Plans. Provide a functional design for the external and internal road networks, including connections, upgrades, and traffic controls.
- Propose a well-defined external and internal transportation network that accommodates all travel modes, including roads, active transportation, and transit. Ensure the network aligns with Regional and Town Official Plans, Transportation Master Plans, and Active Transportation Master Plans, as well as other applicable guidelines.
- Identify phased development plans based on the scheduling of proposed transportation infrastructure improvements. Include interim horizon years to assess the phasing impacts of this and surrounding developments. Ensure the feasibility and impact of surrounding land development are considered.
- Proposed collector roads crossing natural heritage features will be subject to multidisciplinary review.
- Confirm that traffic data is collected under typical conditions, avoiding periods of major winter storms, road closures, and school holidays. Please contact us if clarification is needed before collecting traffic data.
- Town Staff defer to the MTO to confirm assumptions related to the GTA West Corridor.
- The Town of Caledon relies upon the Region of Peel for Emme modelling capabilities. Applicants should work with the Region of Peel on Emme modelling, review traffic data, and consider ROPA 2051 lands. If applicable, justify growth rates for town roads.
- The Transportation Study should consider the impacts of surrounding Secondary Plan Lands in its recommendations.
- If proxy sites are being used, ensure they are comparable to the subject site in terms of size, location, transit availability, surrounding land uses, etc.
- Consider alternative methods for assigning elementary school and high school related trips (i.e. anticipated school catchment area) as is feasible. Consider if further modelling tools are required for Trip Distribution.

- In addition to information on the Town's website regarding developments, please reach out to planning to obtain any available transportation studies on POPA 2024-0001.
- While adherence to Peel's Traffic Impact Study Guidelines is generally acceptable, ensure the study also reflects Town TIS guidelines and current best practices. Key sections include:
    - 1.3 Timing of Submission
    - 2.3 Study Updates
    - 3.2.2 Cycling and Pedestrian Based
    - 3.6.1 Background Traffic Growth
    - 3.10 Traffic Signal Justification/Roundabouts
    - 3.13 Turn Lane Requirements
- SimTrafic queuing analysis should be completed as required.
- Ensure a high level of connectivity within the internal network and multiple route options for all travel modes. Recommend improvements as needed, considering:
    - Network hierarchy and street typologies based on the Town's MMTMP and ATMP.
    - Proposed active transportation level of service.
    - A high-level map of existing and proposed internal and external active transportation facilities, ensuring connectivity to boundary roads.
- The Transit Plan should include routes, stops, and connections to existing services. Additionally, a Transportation Demand Management (TDM) Plan should support the Town's non-auto modal split targets, including parking and traffic calming policies that align with OP, MMTMP, and ATMP goals. The TIS should include high-level maps of proposed active transportation facilities and highlight TDM policies.
- Conduct a high-level review of on-street parking to ensure the development meets future residents' needs and adheres to the Town's DSM manual.
- Complete mitigation measure warrants for all-way stop control, left-turn lanes, and signal warrants as required. The Transportation Impact Study should highlight proposed Transportation Demand Management Policies and include a high-level map of proposed active transportation facilities.
- In addition to studies available on the Town's website, reach out to Transportation Engineering Staff for studies related to DART applications along Dixie Road for inclusion.
- Ensure that all assumptions and background information are appended to the report for ease of review.

Please let me know if you have any questions or require any additional information.

Regards,

Kavleen S. Younan, P.Eng.
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
Town of Caledon | www.caledon.ca | www.visitcaledon.ca | Follow us @TownofCaledon

STRATEGIC PLAN 2023-2035

The best of rural and urban life for everyone

From: Steve Krossey <Krossey@bagroup.com>
Sent: Tuesday, August 13, 2024 2:36 PM
To: Emma Howlett <Emma.Howlett@caledon.ca>; Kavleen Younan <Kavleen.Younan@caledon.ca>
Cc: Clara Filipetti <Clara.Filipetti@bagroup.com>
Subject: Wildfield Terms of reference

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

Hi Emma / Kavleen, attached is a terms of reference for Wildfield. The basics are the same Tullamore.

Happy to chat,

Steve.

416-669-2636

"This message (and any associated files) is intended only for the use of the individual or entity to which it is addressed. The content of the message is the property of the Corporation of the Town of Caledon. The message may contain information that is privileged, confidential, subject to copyright and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are notified that any dissemination, distribution, copying, or modification of this message is strictly prohibited. If you have received this message in error, please notify the sender immediately, advising of the error and delete this message without making a copy. (Information related to this email is automatically monitored and recorded and the content may be required to be disclosed by the Town to a third party in certain circumstances). Thank you."

Appendix B:
Proposed Cross Sections



Caledon Local and Collector Road Cross-Sections

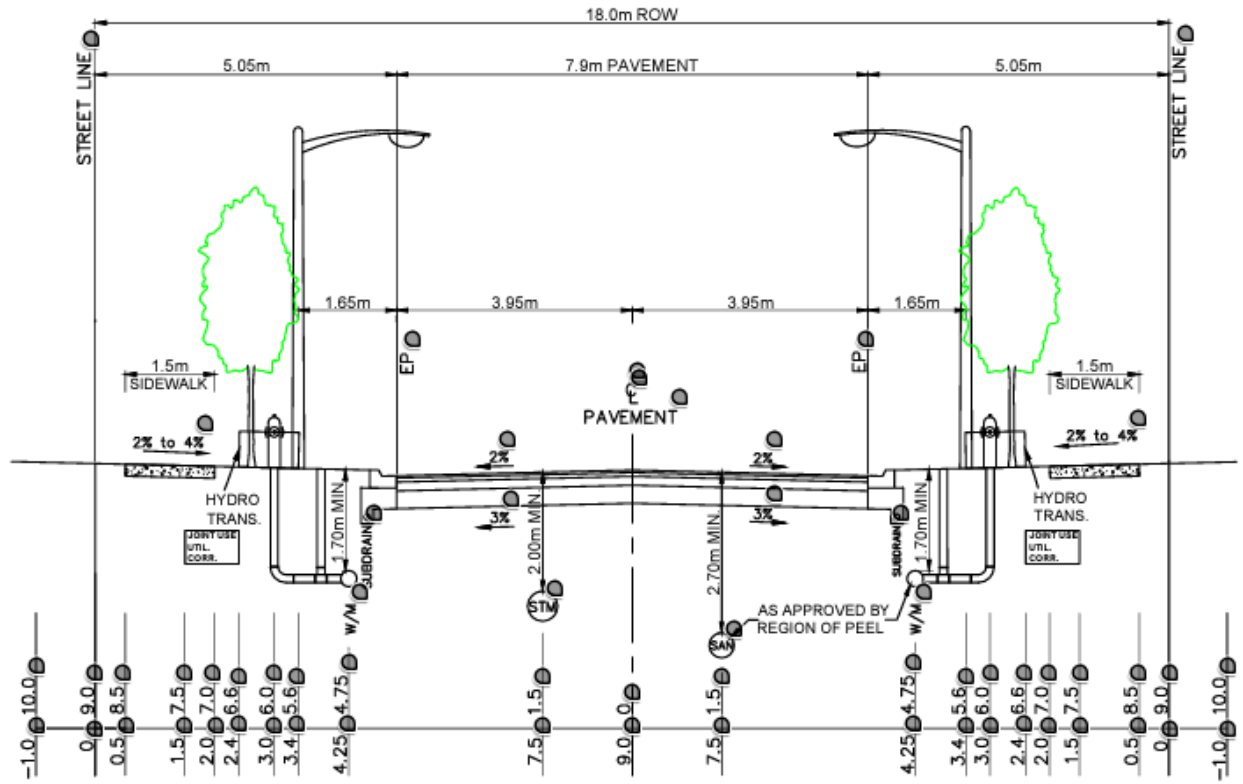
May 2025

BA Group

8155-03

Local Roads - Goals

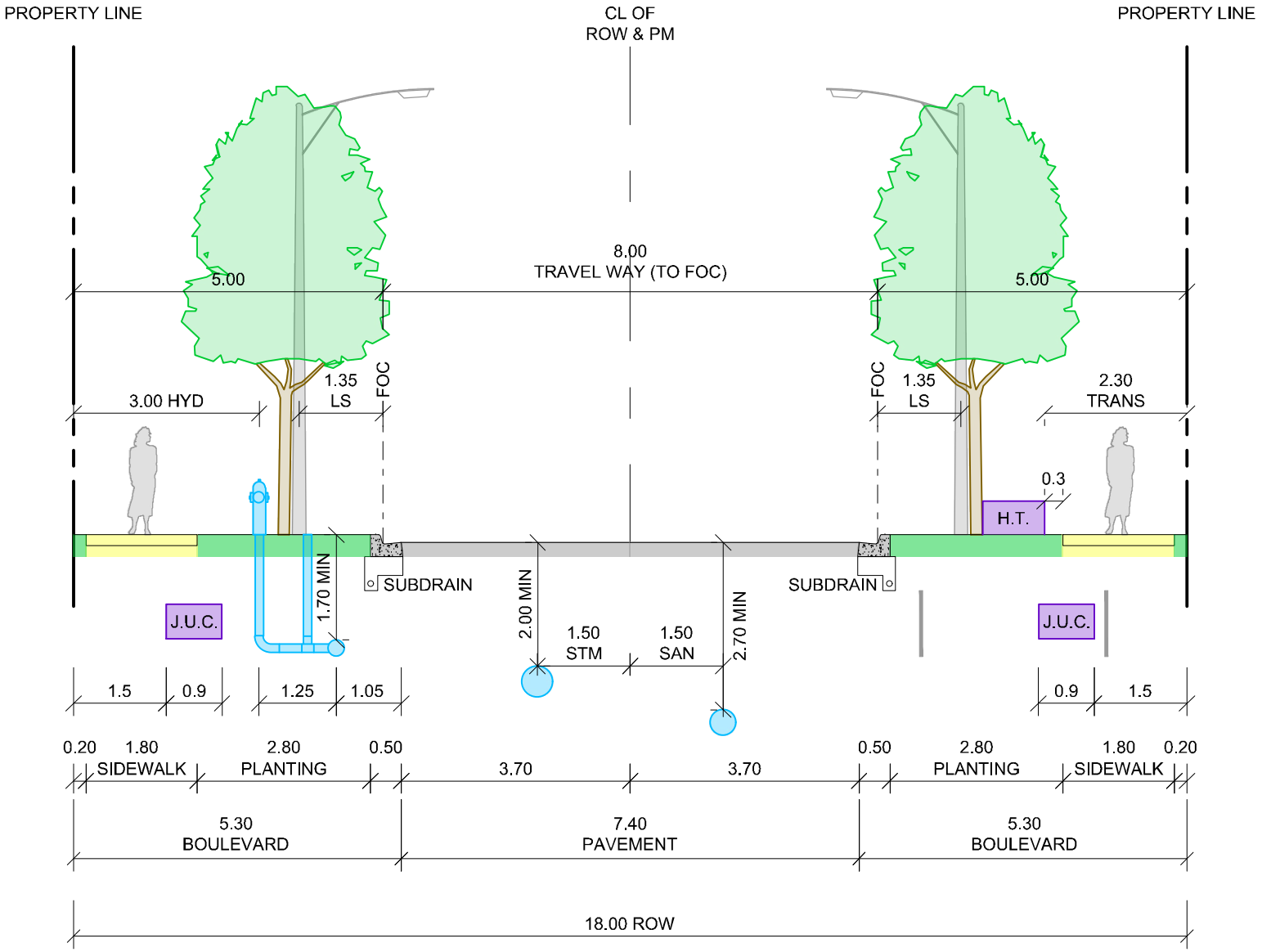
- Prepare cross-sections for the purposes of development of new subdivisions in Tullamore and Wildfield
- These would modify the current Town standard.
- The right-of-way dimension of 18m is maintained.
- There are two variables:
  - Width of pavement (8.0 or 8.5m)
    - Narrower pavement is preferred from a traffic calming and urban design standpoint. It is very difficult to control speeds on wide local roads.
    - Narrower pavement is preferred from a cost and maintenance standpoint, it is cheaper to maintain grass than pavement.
    - Wider roads provide more flexibility for winter maintenance and improved large-vehicle access.
  - Sidewalks on one or both sides.
    - The Town has requested that sidewalks be provided on both sides of local roads in high priority pedestrian areas, generally within 800m of a school.



NOTES

1. WATERMAIN TO HAVE MINIMUM COVER OF 1.7m.
2. UTILITY CORRIDOR TO HAVE A MINIMUM COVER OF 0.9m.
3. TREES TO BE PLACED IN LOCATIONS PER APPROVED LANDSCAPE PLAN.
4. STREETLIGHT FIXTURE PER APPROVED TOWN STANDARD.
5. THE FOLLOWING IS A MINIMUM ROAD BASE AND WILL REQUIRE A SOILS REPORT VERIFICATION
   - 40 mm HL3
   - 65 mm HL8
   - 150 mm GRANULAR "A"
   - 300 mm GRANULAR "B"
6. THE BOULEVARDS REQUIRE A MINIMUM OF 300mm OF TOPSOIL AND NURSERY SOD.
7. ON A CRESCENT THE WATERMAIN SHALL BE PLACED ON THE OUTSIDE.
8. FULL LENGTH MINIMUM 100 MM DIA.SUB-DRAINS C/W FILTERCLOTH SHALL BE INSTALLED, AS PER APPROVED TOWN OF CALEDON STANDARD NO. 219.
9. SUB-GRADE SHALL BE COMPACTED TO A MINIMUM 95% OF S.P.D. AT OPTIMUM MOISTURE CONTENT.
10. WHERE POSSIBLE MANHOLE LIDS TO BE LOCATED OUT OF TIRE LANE OF TRAFFIC.
11. LONG DIMENSION OF TRANSFORMER TO BE PARALLEL TO STREETLINE.

TOWN OF CALEDON						
18.0m LOCAL ROAD 8.5m ROADWAY (7.9m PAVEMENT)	4	TEXT AND SLOPE REVISIONS		MAY 19	APR'D: C.C.	DATE: JUNE 08
	3	DIMENSION AND TEXT REVISION		JAN. 09		
	2	DIMENSION AND LAYOUT REVISION		JULY 08	DRAWN:	SCALE: N.T.S.
	1	DIMENSION EDIT		JUNE 08		
	NO.	REVISION	APR'D	DATE	STANDARD No. 202	



J.U.C. - JOINT USE UTILITY CORRIDOR
H.T. - HYDRO TRANSFORMER

BA Group

CALEDON CROSS-SECTION

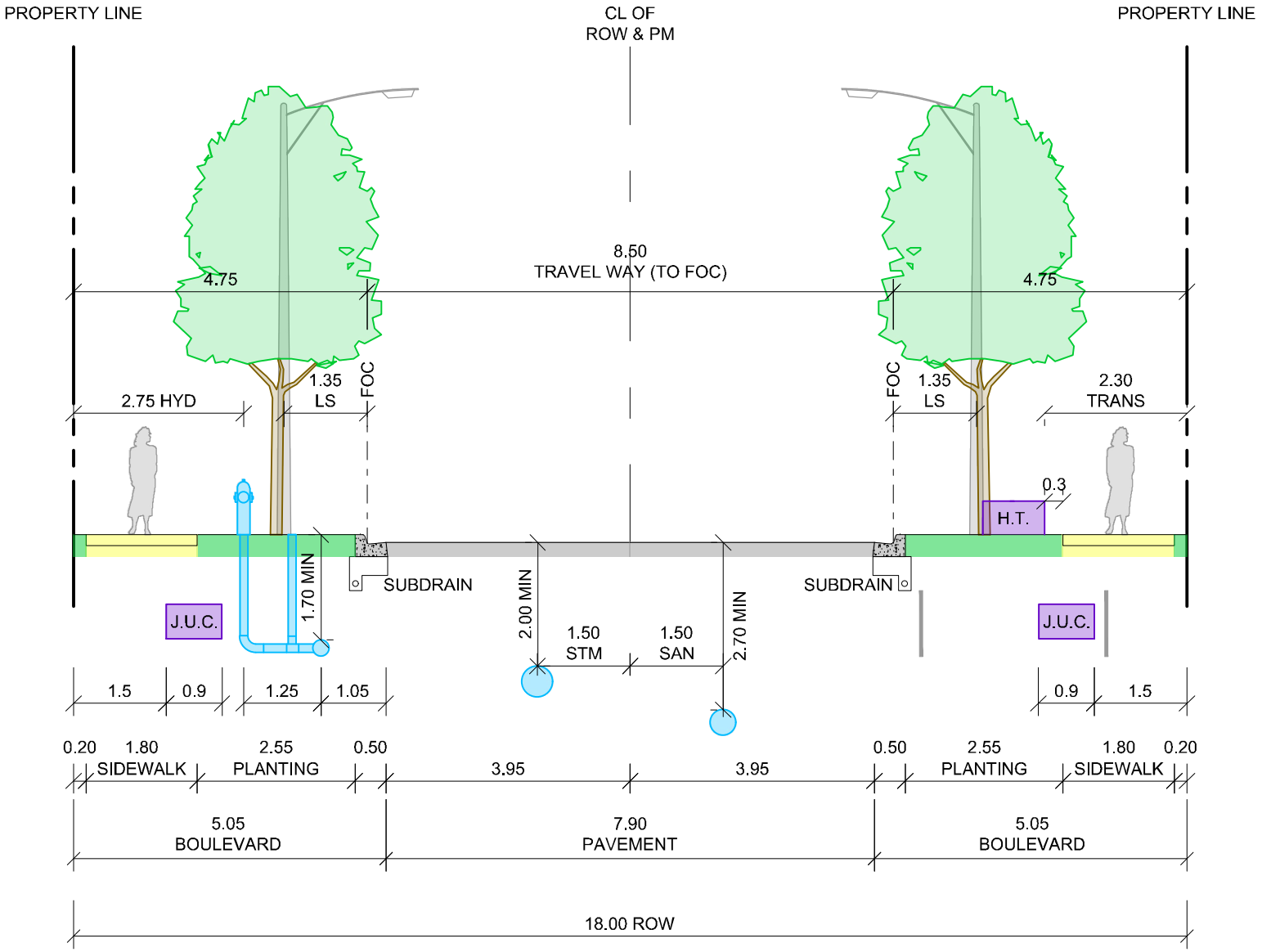
18.0m R.O.W.

Local Road (8.0m Roadway) - Sidewalk on Both Sides

Modified Town of Caledon Standard No. 202

Project:	Caledon
Project No.	8155-03
Date:	March 20, 2024
Revised:	April 15, 2025
Drawing No.	XS-1A

Date Plotted: May 28, 2025 Filename: J:\8155-03\BA\Cross-Sections\2025-05-28\BA-Generic Caledon-XSEC-R07-815503_SCS Based Utilities.dwg



J.U.C. - JOINT USE UTILITY CORRIDOR
H.T. - HYDRO TRANSFORMER

BA Group

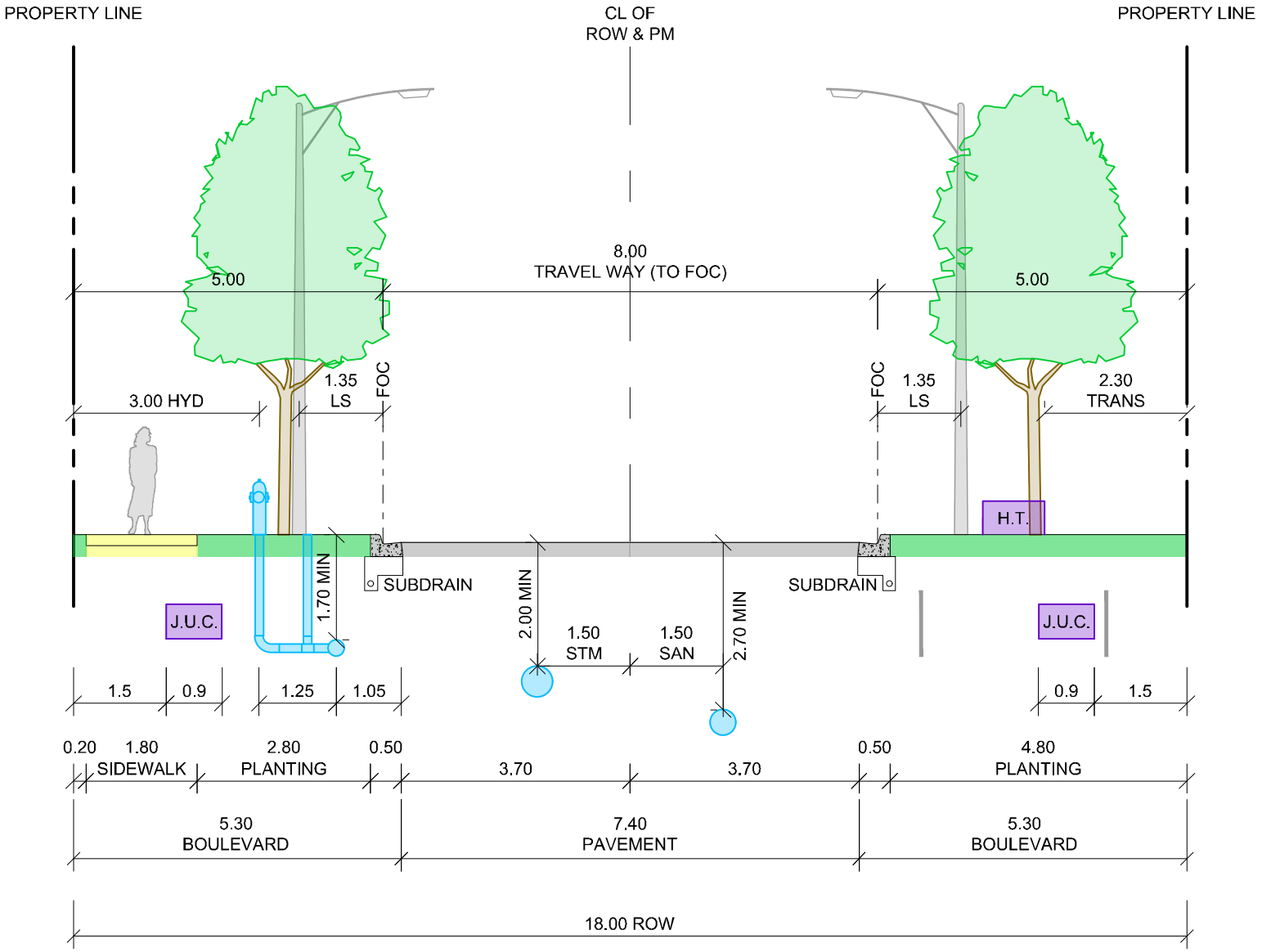
CALEDON CROSS-SECTION

18.0m R.O.W.

Local Road (8.5m Roadway) - Sidewalk on Both Sides

Modified Town of Caledon Standard No. 202

Project:	Caledon
Project No.	8155-03
Date:	March 20, 2024
Revised:	April 15, 2025
Drawing No.	XS-1B



J.U.C. - JOINT USE UTILITY CORRIDOR
H.T. - HYDRO TRANSFORMER

BA Group

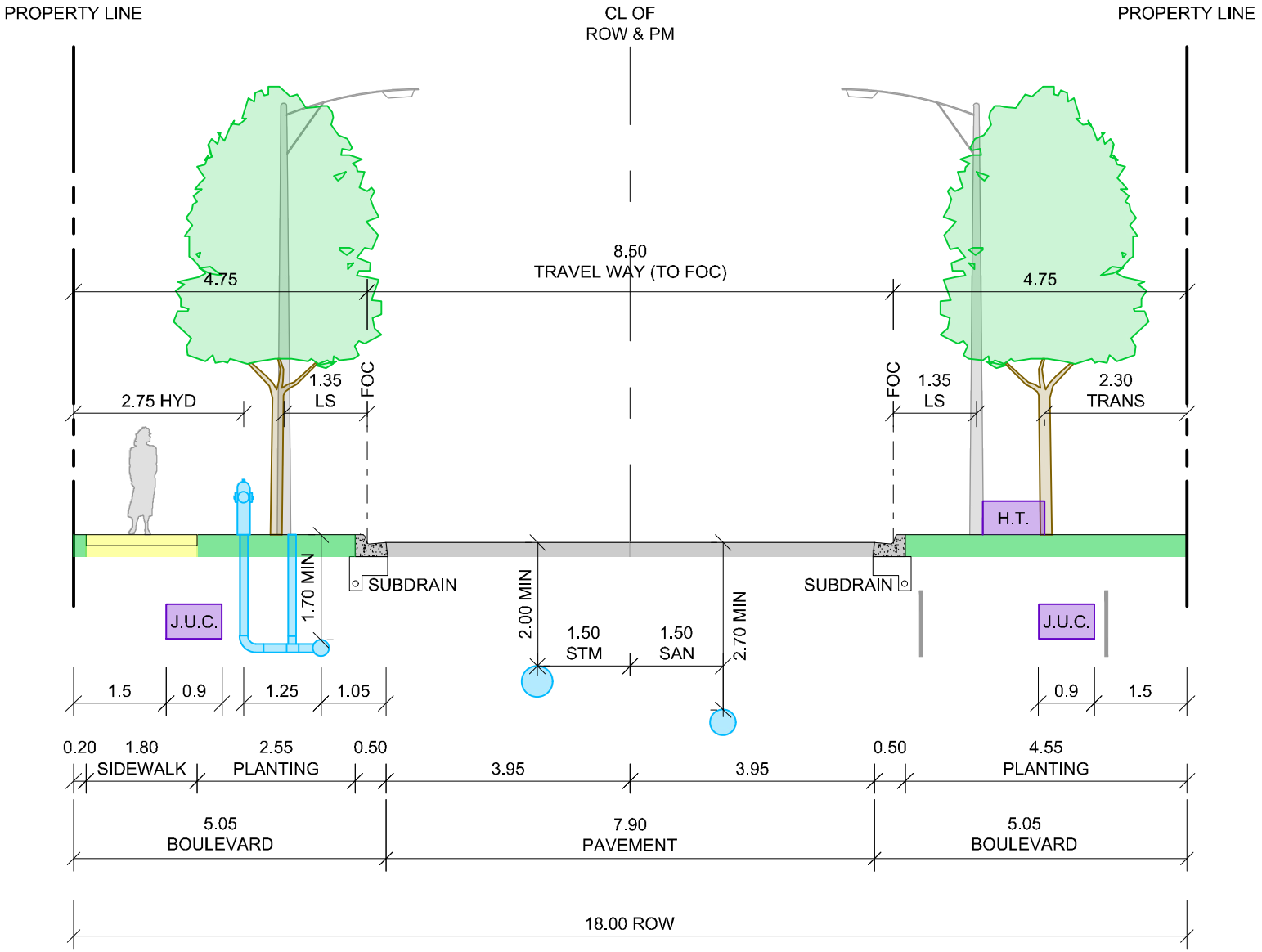
CALEDON CROSS-SECTION

18.0m R.O.W.

Local Road (8.0m Roadway) - Sidewalk on One Side

Modified Town of Caledon Standard No. 202

Project:	Caledon
Project No.	8155-03
Date:	April 15, 2025
Revised:	--
Drawing No.	XS-2A



J.U.C. - JOINT USE UTILITY CORRIDOR
H.T. - HYDRO TRANSFORMER

BA Group

CALEDON CROSS-SECTION

18.0m R.O.W.

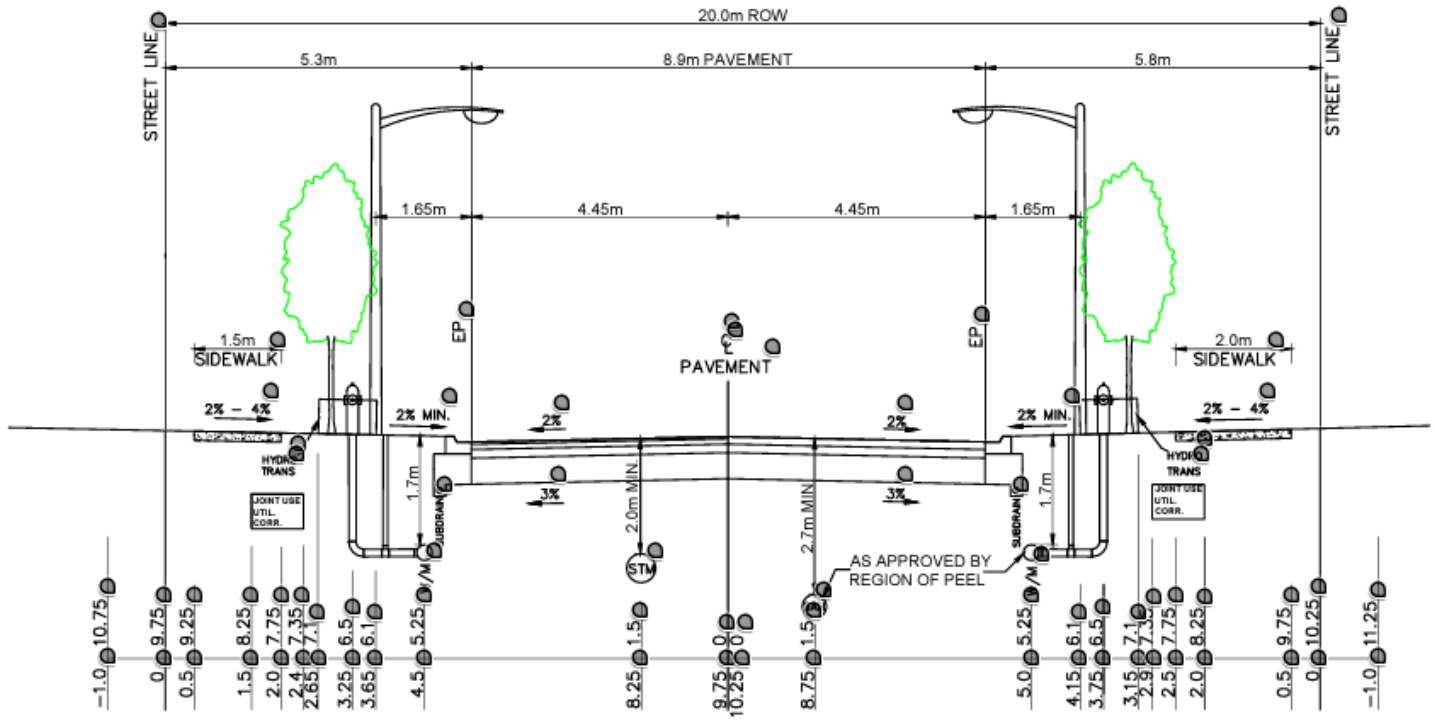
Local Road (8.5m Roadway) - Sidewalk on One Side

Modified Town of Caledon Standard No. 202

Project:	Caledon
Project No.	8155-03
Date:	April 15, 2025
Revised:	--
Drawing No.	XS-2B

Collector Roads - Goals

- Prepare cross-sections for the purposes of development of new subdivisions in Tullamore and Wildfield
- These would modify the current Town standards.
- These are with the 20-30m range provided in the MMTMP.
- Three rights-way are included.
  - 22m ROW with 8.5m pavement and multi-use paths – this allows for parking on one side of the road and would be applied in areas where there is no need for additional on-street parking. At major intersections the ROW may need to increase to accommodate a left turn lane.
  - 23.5m ROW with 11m pavement and multi-use paths – this allows for parking on both sides of the road and would be used to address identified parking shortfalls in communities. At major intersections the ROW and pavement width stay the same with the road is striped to provide a left turn lane.
  - 26m ROW with 11m pavement and separate cycle tracks – this would be used for the primary east-west collector connecting through the SABE lands.



NOTES
1. UTILITY CORRIDOR TO HAVE A MINIMUM COVER OF 0.9 m.
2. WATERMAIN TO HAVE A MINIMUM COVER OF 1.7 m.
3. THE FOLLOWING IS A MINIMUM ROAD BASE AND WILL REQUIRE A SOILS REPORT VERIFICATION
   - 40 mm HL3
   - 90 mm HL8
   - 150 mm GRANULAR "A"
   - 450 mm GRANULAR "B"
4. THE BOULEVARDS REQUIRE A MINIMUM OF 300mm OF TOPSOIL AND NURSERY SOD.
5. TREES TO BE PLACED IN LOCATIONS PER APPROVED LANDSCAPE PLANS.
6. STREETLIGHT FIXTURE PER APPROVED TOWN STANDARD.
7. FULL LENGTH MINIMUM 100 MM DIA.SUB-DRAINS C/W FILTERCLOTH SHALL BE INSTALLED, AS PER APPROVED TOWN OF CALEDON STANDARD NO. 218.
8. SUB-GRADE SHALL BE COMPACTED TO A MINIMUM 95% OF S.P.D. AT OPTIMUM MOISTURE CONTENT.
9. WHERE POSSIBLE MANHOLE LIDS TO BELOCATED OUT OF TIRE LANE OF TRAFFIC.
10. LONG DIMENSION OF TRANSFORMER TO BE PARALLEL TO STREETLINE.
11. 1.0 m SPLASH PAD TO BE PATTERNED CONCRETE AS PER APPROVED TOWN OF CALEDON STANDARD NO. 903.

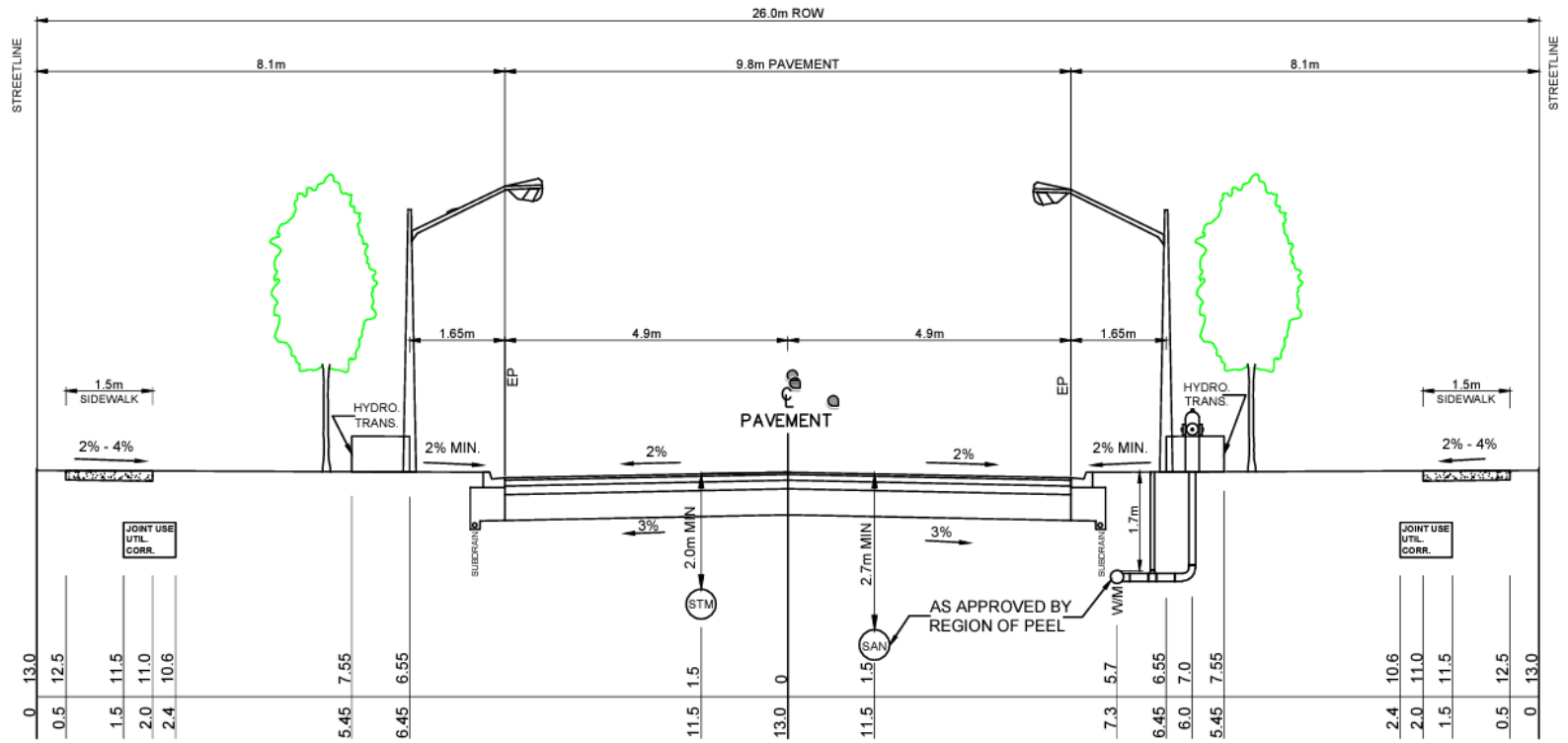
TOWN OF CALEDON

20.0m NEIGHBOURHOOD COLLECTOR
9.5m ROADWAY (8.9m PAVEMENT)

NO.	REVISION	APR'D	DATE
4	TEXT AND SLOPE REVISION		JULY 19
3	DIMENSION AND TEXT REVISION		JAN. 09
2	DIMENSION AND LAYOUT REVISION		JULY 08
1	DIMENSION EDIT, STD No. 206 NOW 204		JUNE 08

APR'D: C.C. DATE: JUNE 08
DRAWN: SCALE: N.T.S.

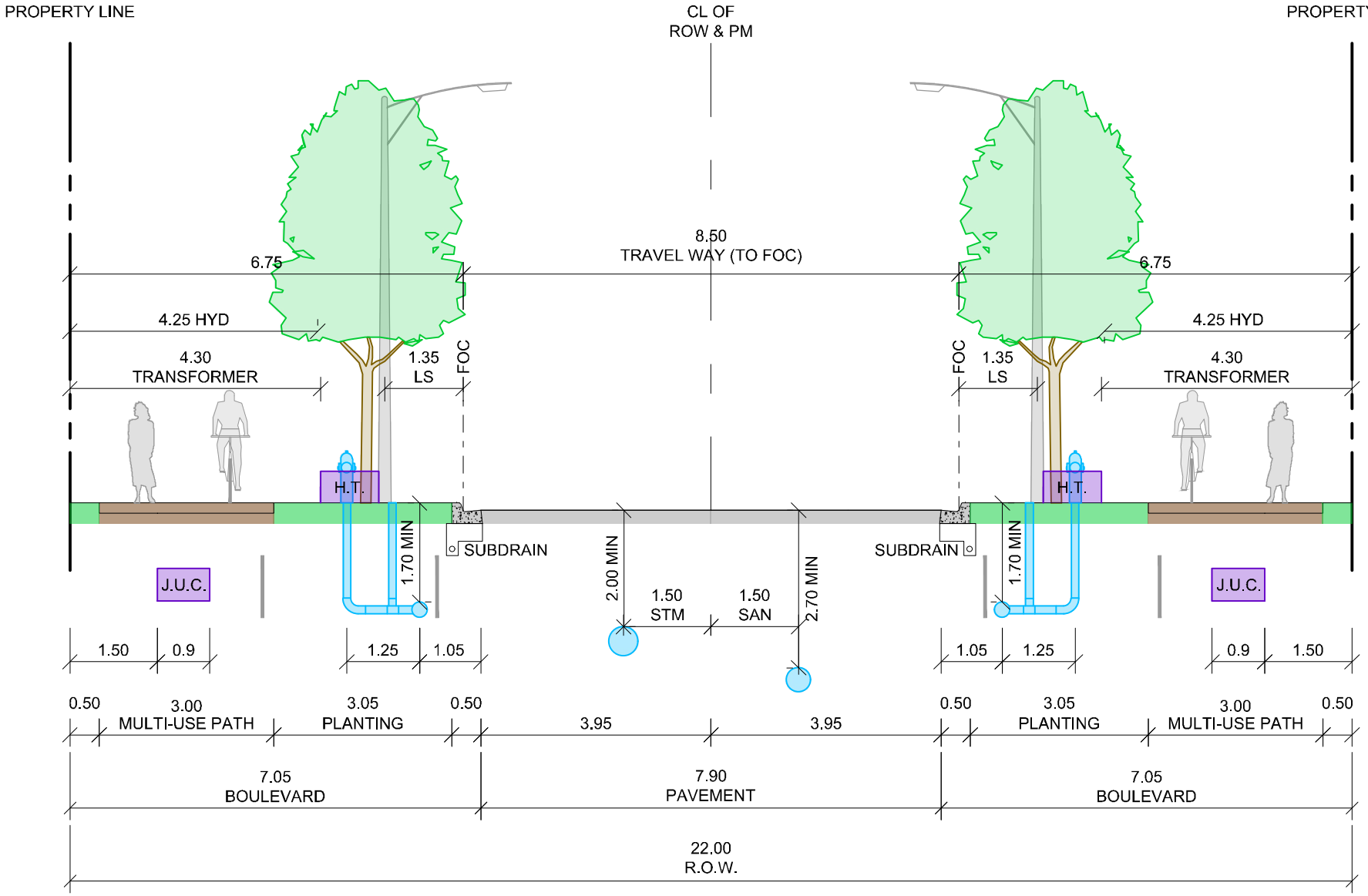
STANDARD No. 204



NOTES:

1. UTILITY CORRIDOR TO HAVE A MINIMUM COVER OF 0.9m.
2. WATERMAIN TO HAVE A MINIMUM COVER OF 1.7m.
3. THE FOLLOWING IS A MINIMUM ROAD BASE AND WILL REQUIRE A SOILS REPORT VERIFICATION.
   - 40mm HL3 HS
   - 90mm HDBC
   - 150mm GRANULAR 'A'
   - 450 GRANULAR 'B'
4. THE BOULEVARDS REQUIRE A MINIMUM OF 300mm OF TOPSOIL AND SURSERY SOD.
5. TREES TO BE PLACED IN LOCATIONS PER APPROVED LANDSCAPE PLAN.
6. STREETLIGHT FIXTURE PER APPROVED TOWN STANDARD.
7. ON A CRESCENT, THE WATERMAIN SHALL BE PLACED ON THE OUTSIDE.
8. FULL LENGTH MINIMUM 100mm DIA. SUB-DRAINS C/W FILTERCLOTH SHALL BE INSTALLED AS PER TOWN OF CALEDON APPROVED STANDARDS NO. 218.
9. SUB-GRADE SHALL BE COMPACTED TO A MINIMUM 95% S.P.D. AT OPTIMUM MOISTURE CONTENT.
10. WHERE POSSIBLE, MANHOLE LIDS TO BE LOCATED OUT OF THE TIRE LANE OF TRAFFIC.

TOWN OF CALEDON						
	5				APR'D: C.C.	DATE: 19/01/00
26.0m URBAN - COLLECTOR FULL/PART SERVICES 10.4m ROADWAY (9.8m PAVEMENT)	4	TEXT AND SLOPE REVISION		APR 19	DRAWN: BJM	SCALE: N.T.S.
	3	DIMENSION AND TEXT REVISION		JAN. 09		
	2	DIMENSION AND LAYOUT REVISION		JULY 08		
	1	DIMENSION EDIT		JUNE 08	STANDARD No. 210	
	NO.	REVISION	APR'D	DATE		



J.U.C. - JOINT USE UTILITY CORRIDOR
H.T. - HYDRO TRANSFORMER

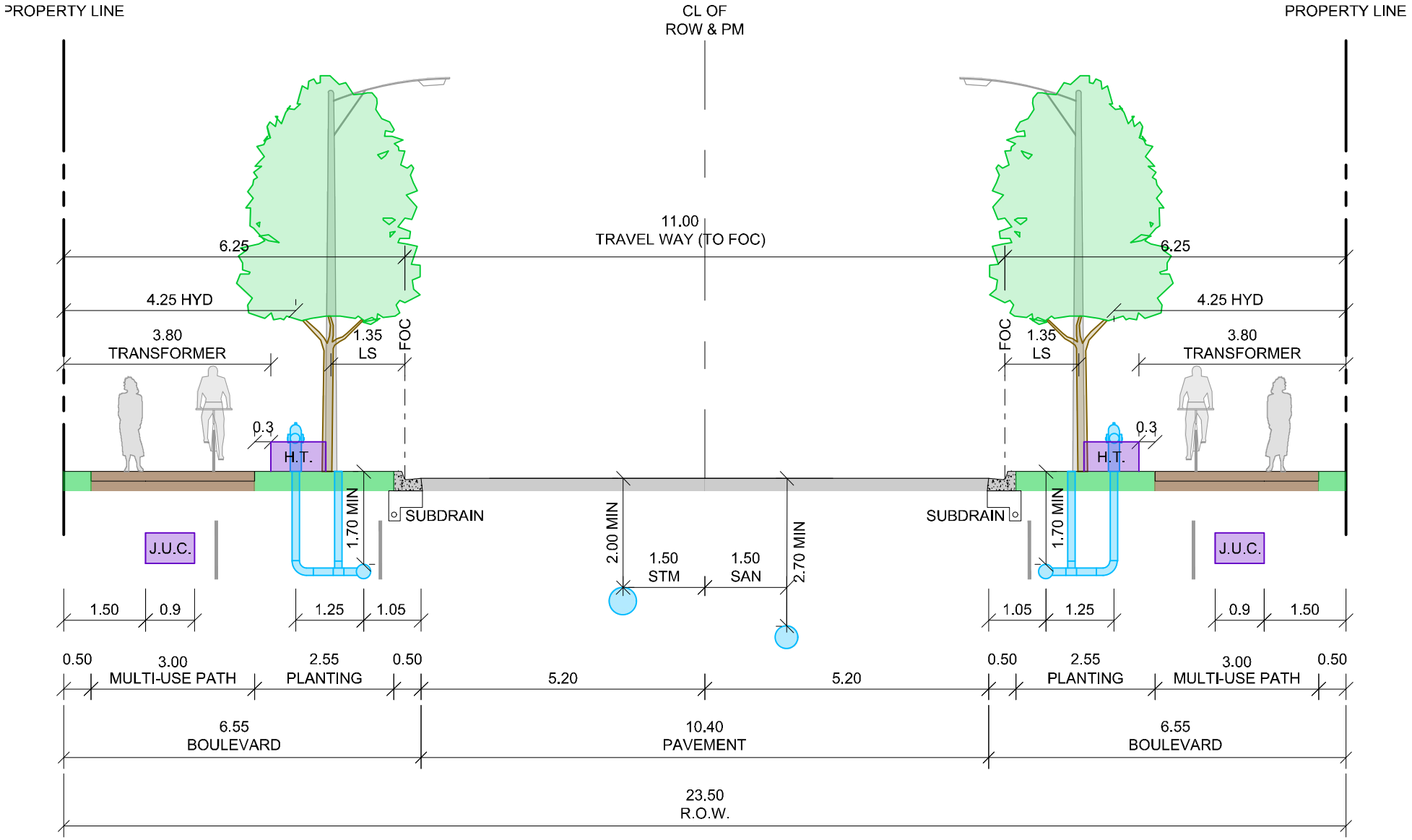
BA Group

CALEDON CROSS-SECTION

22.0m R.O.W.

Residential Collector with Multi-Use Path

Project:	Caledon
Project No.	8155-03
Date:	March 20, 2024
Revised:	May 28, 2025
Drawing No.	XS-3



J.U.C. - JOINT USE UTILITY CORRIDOR
H.T. - HYDRO TRANSFORMER

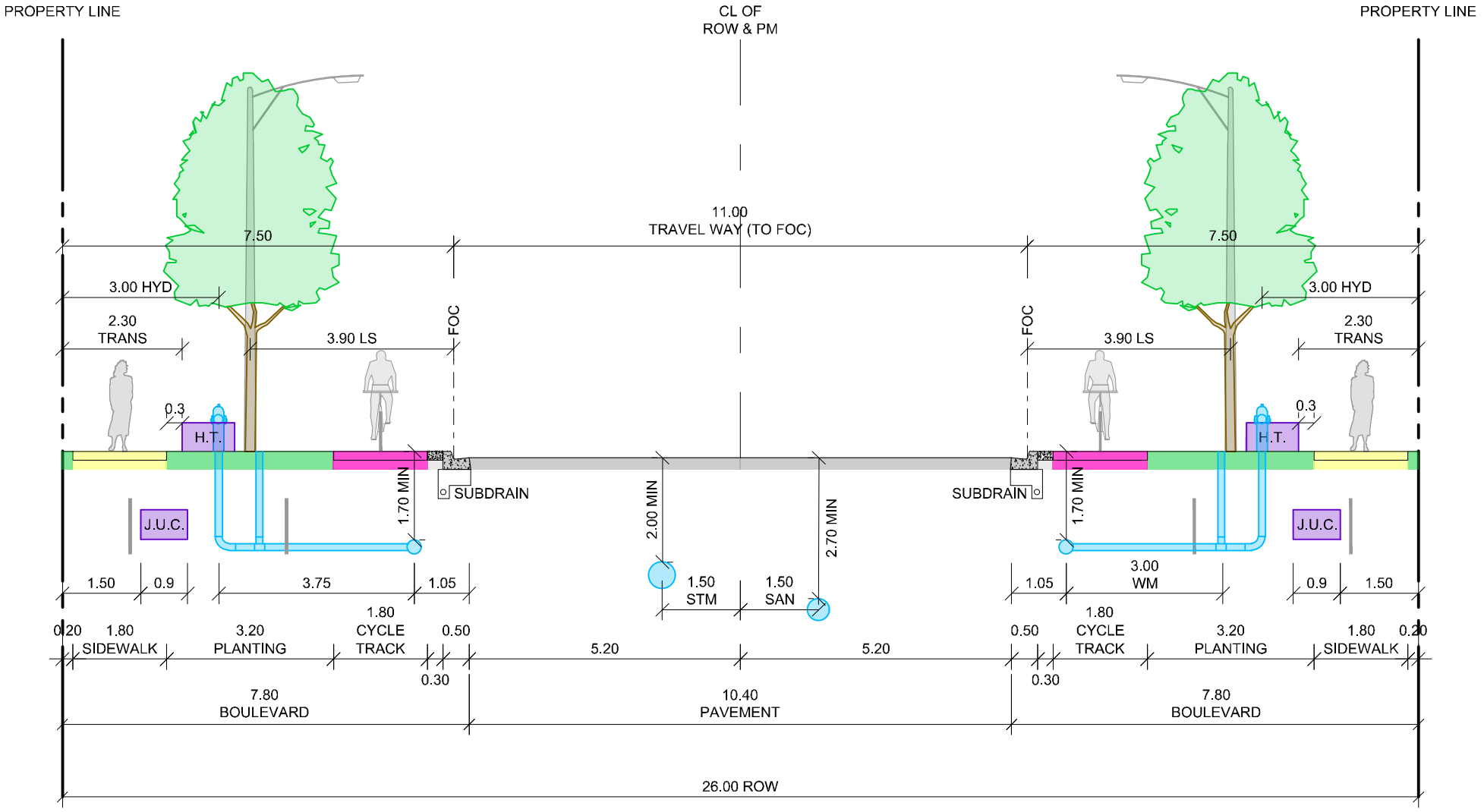
BA Group

CALEDON CROSS-SECTION

23.5m R.O.W.

Residential Collector with Multi-Use Path

Project:	Caledon
Project No.	8155-03
Date:	March 20, 2024
Revised:	May 28, 2025
Drawing No.	XS-4



J.U.C. - JOINT USE UTILITY CORRIDOR
H.T. - HYDRO TRANSFORMER

BA Group

CALEDON CROSS-SECTION

26.0m R.O.W.

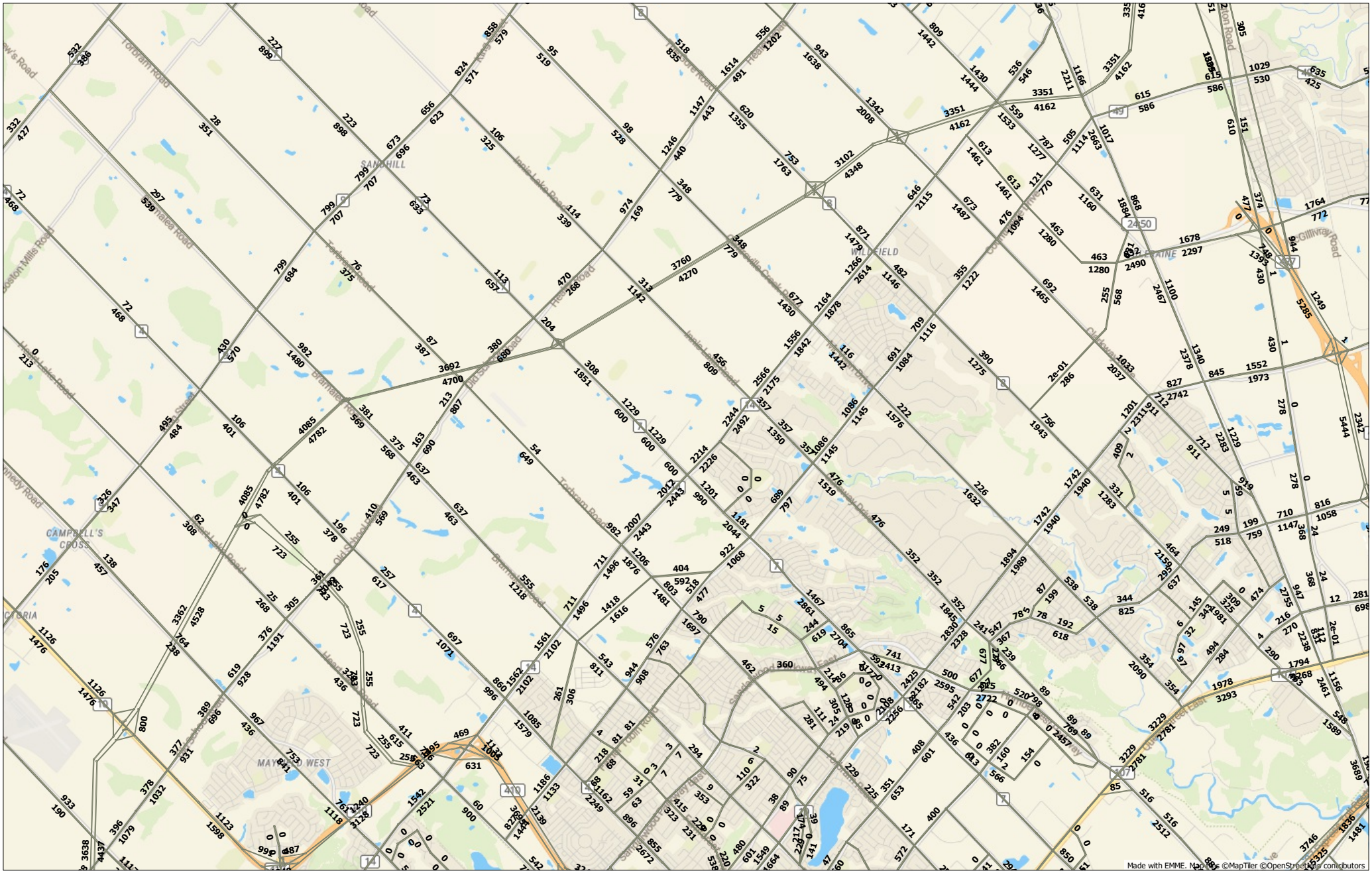
Urban Corridor (Mid-Section)

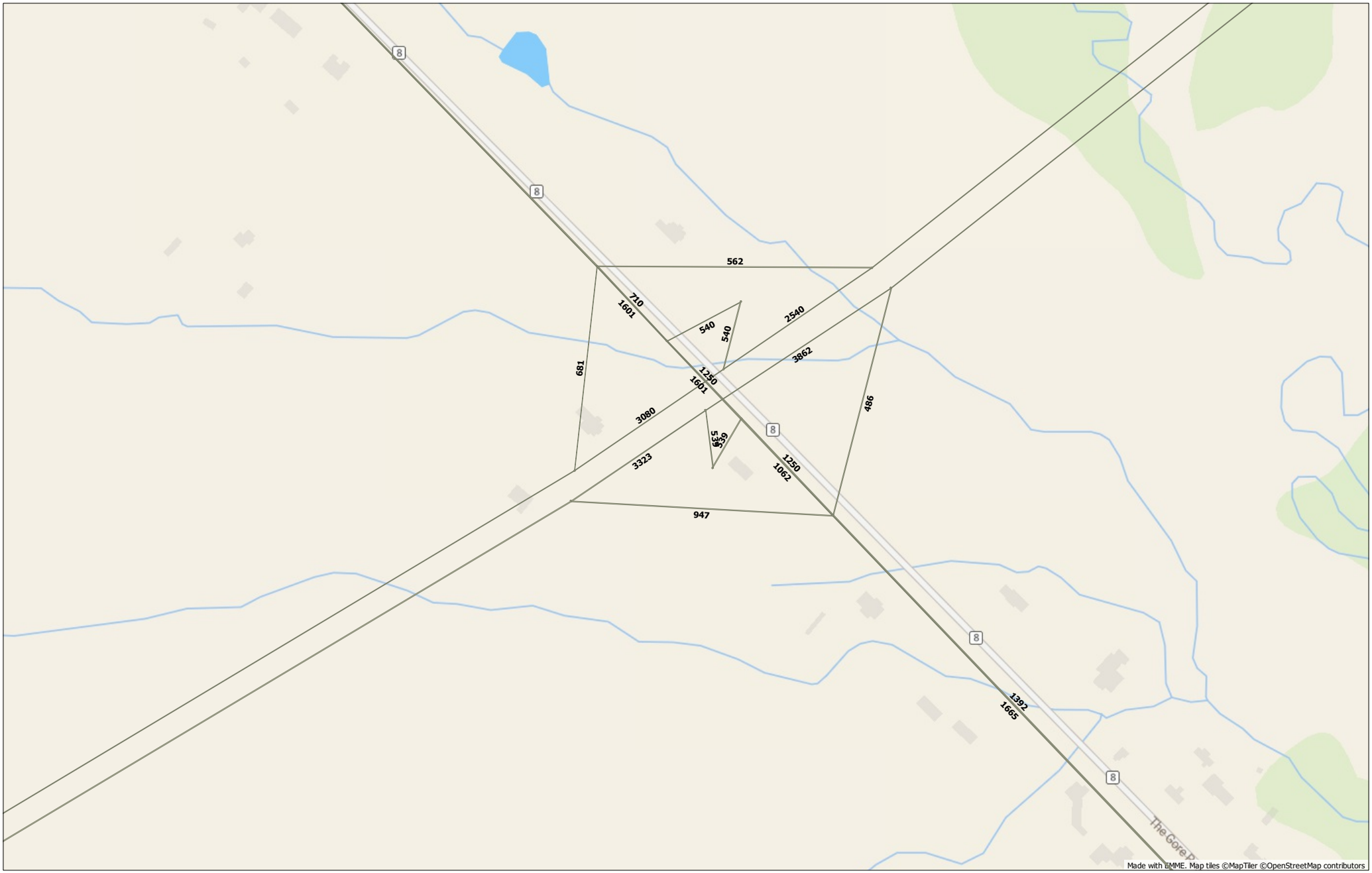
Project:	Caledon
Project No.	8155-03
Date:	March 20, 2024
Revised:	May 28, 2025
Drawing No.	XS-5

BA Group

MOVEMENT IN URBAN ENVIRONMENTS

Appendix C:
TMP Traffic Volumes


SANDHILL
WILDFIELD
CAMPBELL'S CROSS
MAYFIELD WEST
Torbram Road
Dixie Road
Airport Road
Bramalea Road
Hurontario Street
Mississauga Road
Creditview Road
Heritage Road
Chinguacousy Road
Kennedy Road
Main Street
Gillingham Drive
Gillingham Road
Made with EMME. MapTiler ©MapTiler ©OpenStreetMap contributors


562
710
1601
540
540
2540
3862
681
1250
1601
3080
486
5359
3323
1250
1062
947
1392
1665
Made with EMME. Map tiles ©MapTiler ©OpenStreetMap contributors

Appendix D:
Transportation Tomorrow Survey Data

Tue Jul 16 2024 10:08:37 GMT-0400 (Eastern Daylight Time) - Run Time: 2802ms

Cross Tabulation Query Form - Trip - 2016

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

Filters:
Start time of trip - start_time In 600-859
and
Trip purpose of origin - purp_orig In H,
and
Primary travel mode of trip - mode_prime In d, m, p, t, U, P,
and
2006 GTA zone of origin - gta06_orig In 3443, 3442, 3469

Trip 2016
Table:

	3442	3443	3469	sum
PD 1 of Toronto	27	0	0	27
PD 3 of Toronto	35	0	17	52
PD 4 of Toronto	0	0	9	9
PD 7 of Toronto	24	0	0	24
PD 8 of Toronto	54	0	0	54
PD 9 of Toronto	0	18	162	180
PD 10 of Toronto	32	56	58	146
PD 13 of Toronto	0	0	21	21
Richmond Hill	38	60	0	98
Markham	38	6	0	44
Vaughan	168	80	260	508
Caledon	14	75	11	100
Brampton	824	450	469	1743
Mississauga	427	88	252	767
Oakville	0	0	19	19
Burlington	0	0	19	19
Cambridge	0	55	0	55
Shelburne	24	0	0	24

Wildfield

8155-03

Residential Vehicular Site Traffic Distribution (AM Peak Hour)

Outbound (NO 413)

BA Group - COF

2025-05-30

To the

			Traffic Volume Allocation										
Zone	Trips	%	NORTH The Gore Rd	SOUTH The Gore Rd	EAST Mayfield Rd	WEST Mayfield Rd	NORTH Centreville Creek Rd	SOUTH Centreville Creek Rd	EAST Highway 413	WEST Highway 413	EAST Healey Rd	WEST Healey Rd	TOTAL
PD 1 of Toronto	27	1%		40%				10%	50%				100%
PD 3 of Toronto	52	1%		50%					50%				100%
PD 4 of Toronto	9	0%		50%					50%				100%
PD 7 of Toronto	24	1%		50%		10%			40%				100%
PD 8 of Toronto	54	1%		40%				20%	40%				100%
PD 9 of Toronto	180	5%		40%				40%	20%				100%
PD 10 of Toronto	146	4%		80%					20%				100%
PD 13 of Toronto	21	1%		40%		10%			50%				100%
Richmond Hill	98	3%	20%	40%					40%				100%
Markham	44	1%		80%					20%				100%
Vaughan	508	13%		20%					80%				100%
Caledon	100	3%	30%				40%					30%	100%
Brampton	1743	45%			20%	60%		10%		10%			100%
Mississauga	767	20%		5%		20%		5%		70%			100%
Oakville	19	0%		25%					25%	50%			100%
Burlington	19	0%		15%					25%	60%			100%
Cambridge	55	1%				20%	20%			60%			100%
Shelburne	24	1%	50%				50%						100%
TOTAL TRIPS	3890	100%											

	Route Split Totals										
	NORTH The Gore Rd	SOUTH The Gore Rd	EAST Mayfield Rd	WEST Mayfield Rd	NORTH Centreville Creek Rd	SOUTH Centreville Creek Rd	EAST Highway 413	WEST Highway 413	EAST Healey Rd	WEST Healey Rd	TOTAL
	0.00%	0.28%	0.00%	0.00%	0.00%	0.07%	0.35%	0.00%	0.00%	0.00%	0.7%
	0.00%	0.67%	0.00%	0.00%	0.00%	0.00%	0.67%	0.00%	0.00%	0.00%	1.3%
	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.12%	0.00%	0.00%	0.00%	0.2%
	0.00%	0.31%	0.00%	0.06%	0.00%	0.00%	0.25%	0.00%	0.00%	0.00%	0.6%
	0.00%	0.56%	0.00%	0.00%	0.00%	0.28%	0.56%	0.00%	0.00%	0.00%	1.4%
	0.00%	1.85%	0.00%	0.00%	0.00%	1.85%	0.93%	0.00%	0.00%	0.00%	4.6%
	0.00%	3.00%	0.00%	0.00%	0.00%	0.00%	0.75%	0.00%	0.00%	0.00%	3.8%
	0.00%	0.22%	0.00%	0.05%	0.00%	0.00%	0.27%	0.00%	0.00%	0.00%	0.5%
	0.50%	1.01%	0.00%	0.00%	0.00%	0.00%	1.01%	0.00%	0.00%	0.00%	2.5%
	0.00%	0.90%	0.00%	0.00%	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%	1.1%
	0.00%	2.61%	0.00%	0.00%	0.00%	0.00%	10.45%	0.00%	0.00%	0.00%	13.1%
	0.77%	0.00%	0.00%	0.00%	1.03%	0.00%	0.00%	0.00%	0.00%	0.77%	2.6%
	0.00%	0.00%	8.96%	26.88%	0.00%	4.48%	0.00%	4.48%	0.00%	0.00%	44.8%
	0.00%	0.99%	0.00%	3.94%	0.00%	0.99%	0.00%	13.80%	0.00%	0.00%	19.7%
	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.12%	0.24%	0.00%	0.00%	0.5%
	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.12%	0.29%	0.00%	0.00%	0.5%
	0.00%	0.00%	0.00%	0.28%	0.28%	0.00%	0.00%	0.85%	0.00%	0.00%	1.4%
	0.31%	0.00%	0.00%	0.00%	0.31%	0.00%	0.00%	0.00%	0.00%	0.00%	0.6%
	1.6%	**12.7%**	**9.0%**	**31.2%**	**1.6%**	**7.7%**	**15.8%**	**19.7%**	**0.0%**	**0.8%**	100.0%
Assumed Split	**1%**	**13%**	**9%**	**31%**	**1%**	**8%**	**16%**	**20%**	**0%**	**1%**	**100%**

Mon Jul 22 2024 09:26:16 GMT-0400 (Eastern Daylight Time) - Run Time: 2549ms

Cross Tabulation Query Form - Trip - 2016

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of household - gta06_hhld

Filters:
Start time of trip - start_time In 1500-1759
and
Trip purpose of destination - purp_dest In H,
and
Primary travel mode of trip - mode_prime In D, M, P, T, U,
and
2006 GTA zone of destination - gta06_dest In 3443, 3442, 3469

Trip 2016
Table:

	3442	3443	3469	sum
PD 1 of Toronto	62	0	17	79
PD 4 of Toronto	0	0	11	11
PD 5 of Toronto	0	32	0	32
PD 7 of Toronto	24	0	0	24
PD 8 of Toronto	72	0	24	96
PD 9 of Toronto	0	77	42	119
PD 10 of Toronto	12	0	92	104
PD 11 of Toronto	0	16	0	16
PD 13 of Toronto	0	0	21	21
Richmond Hill	38	60	0	98
Markham	57	0	33	90
Vaughan	155	80	215	450
Caledon	14	107	11	132
Brampton	584	323	685	1592
Mississauga	281	32	325	638
Oakville	0	11	0	11
Hamilton	0	0	38	38
Cambridge	0	55	0	55

Wildfield

8155-03

Residential Vehicular Site Traffic Distribution (AM Peak Hour)

Inbound (NO 413)

BA Group - COF

2025-05-30

from

			Traffic Volume Allocation										
Zone	Trips	%	NORTH The Gore Rd	SOUTH The Gore Rd	EAST Mayfield Rd	WEST Mayfield Rd	NORTH Centreville Creek Rd	SOUTH Centreville Creek Rd	EAST Highway 413	WEST Highway 413	EAST Healey Rd	WEST Healey Rd	TOTAL
PD 1 of Toronto	79	2%		30%		10%			60%				100%
PD 3 of Toronto	11	0%		20%					80%				100%
PD 4 of Toronto	32	1%		30%		10%			60%				100%
PD 7 of Toronto	24	1%		40%					60%				100%
PD 8 of Toronto	96	3%		40%					60%				100%
PD 9 of Toronto	119	3%		50%					50%				100%
PD 10 of Toronto	104	3%		70%					30%				100%
PD 13 of Toronto	16	0%		30%					70%				100%
Richmond Hill	21	1%		40%					60%				100%
Markham	98	3%		80%					20%				100%
Vaughan	90	2%		30%					70%				100%
Caledon	450	12%	10%		25%		40%					25%	100%
Brampton	132	4%				60%		40%					100%
Mississauga	1592	44%		10%		30%		20%		40%			100%
Oakville	638	18%		5%		30%			5%	60%			100%
Burlington	11	0%		5%		30%			5%	60%			100%
Cambridge	38	1%				10%				80%		10%	100%
Shelburne	55	2%	70%				30%						100%
TOTAL TRIPS	3606	100%											

	Route Split Totals										
NORTH The Gore Rd	SOUTH The Gore Rd	EAST Mayfield Rd	WEST Mayfield Rd	NORTH Centreville Creek Rd	SOUTH Centreville Creek Rd	EAST Highway 413	WEST Highway 413	EAST Healey Rd	WEST Healey Rd	TOTAL
0.00%	0.66%	0.00%	0.22%	0.00%	0.00%	1.31%	0.00%	0.00%	0.00%	2.2%
0.00%	0.06%	0.00%	0.00%	0.00%	0.00%	0.24%	0.00%	0.00%	0.00%	0.3%
0.00%	0.27%	0.00%	0.09%	0.00%	0.00%	0.53%	0.00%	0.00%	0.00%	0.9%
0.00%	0.27%	0.00%	0.00%	0.00%	0.00%	0.40%	0.00%	0.00%	0.00%	0.7%
0.00%	1.06%	0.00%	0.00%	0.00%	0.00%	1.60%	0.00%	0.00%	0.00%	2.7%
0.00%	1.65%	0.00%	0.00%	0.00%	0.00%	1.65%	0.00%	0.00%	0.00%	3.3%
0.00%	2.02%	0.00%	0.00%	0.00%	0.00%	0.87%	0.00%	0.00%	0.00%	2.9%
0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	0.31%	0.00%	0.00%	0.00%	0.4%
0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.35%	0.00%	0.00%	0.00%	0.6%
0.00%	2.17%	0.00%	0.00%	0.00%	0.00%	0.54%	0.00%	0.00%	0.00%	2.7%
0.00%	0.75%	0.00%	0.00%	0.00%	0.00%	1.75%	0.00%	0.00%	0.00%	2.5%
1.25%	0.00%	3.12%	0.00%	4.99%	0.00%	0.00%	0.00%	0.00%	3.12%	12.5%
0.00%	0.00%	0.00%	2.20%	0.00%	1.46%	0.00%	0.00%	0.00%	0.00%	3.7%
0.00%	4.41%	0.00%	13.24%	0.00%	8.83%	0.00%	17.66%	0.00%	0.00%	44.1%
0.00%	0.88%	0.00%	5.31%	0.00%	0.00%	0.88%	10.62%	0.00%	0.00%	17.7%
0.00%	0.02%	0.00%	0.09%	0.00%	0.00%	0.02%	0.18%	0.00%	0.00%	0.3%
0.00%	0.00%	0.00%	0.11%	0.00%	0.00%	0.00%	0.84%	0.00%	0.11%	1.1%
1.07%	0.00%	0.00%	0.00%	0.46%	0.00%	0.00%	0.00%	0.00%	0.00%	1.5%
2.3%	**14.6%**	**3.1%**	**21.3%**	**5.4%**	**10.3%**	**10.5%**	**29.3%**	**0.0%**	**3.2%**	100%
Assumed Split										
2%	**15%**	**3%**	**21%**	**6%**	**10%**	**11%**	**29%**	**0%**	**3%**	**100%**

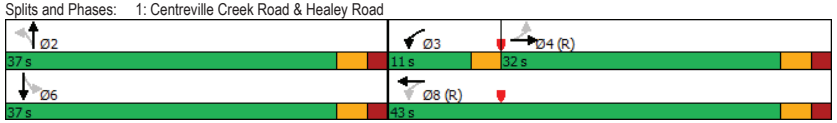
Appendix E:
Synchro Analysis Worksheets

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	50	110	350	55	50	20	225
Future Volume (vph)	5	50	110	350	55	50	20	225
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	32.0	32.0	11.0	43.0	37.0	37.0	37.0	37.0
Total Split (%)	40.0%	40.0%	13.8%	53.8%	46.3%	46.3%	46.3%	46.3%
Maximum Green (s)	27.0	27.0	8.0	38.0	32.0	32.0	32.0	32.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 29 (36%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: Centreville Creek Road & Healey Road



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	120	465	55	140	20	245
v/c Ratio	0.06	0.23	0.36	0.35	0.08	0.66
Control Delay	3.0	2.9	27.3	8.6	24.4	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	2.9	27.3	8.6	24.4	36.9
Queue Length 50th (m)	1.3	5.0	7.8	3.2	2.6	35.4
Queue Length 95th (m)	4.8	8.6	10.6	11.0	7.6	53.7
Internal Link Dist (m)	179.0	1406.7		292.7		380.1
Turn Bay Length (m)						
Base Capacity (vph)	2094	2022	306	727	485	740
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	0.06	0.23	0.18	0.19	0.04	0.33

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	50	65	110	350	5	55	50	90	20	225	20
Future Volume (vph)	5	50	65	110	350	5	55	50	90	20	225	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.92			1.00		1.00	0.90		1.00	0.99	
Flt Protected		1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3245			3492		1770	1683		1770	1840	
Flt Permitted		0.94			0.85		0.41	1.00		0.65	1.00	
Satd. Flow (perm)		3064			2990		768	1683		1212	1840	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	50	65	110	350	5	55	50	90	20	225	20
RTOR Reduction (vph)	0	21	0	0	1	0	0	72	0	0	6	0
Lane Group Flow (vph)	0	99	0	0	464	0	55	68	0	20	239	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		54.1			54.1		15.9	15.9		15.9	15.9	
Effective Green, g (s)		54.1			54.1		15.9	15.9		15.9	15.9	
Actuated g/C Ratio		0.68			0.68		0.20	0.20		0.20	0.20	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2072			2021		152	334		240	365	
v/s Ratio Prot								0.04			c0.13	
v/s Ratio Perm		0.03			c0.16		0.07			0.02		
v/c Ratio		0.05			0.23		0.36	0.20		0.08	0.66	
Uniform Delay, d1		4.3			5.0		27.7	26.8		26.1	29.5	
Progression Factor		1.00			0.47		0.79	0.59		1.00	1.00	
Incremental Delay, d2		0.0			0.1		1.5	0.3		0.1	4.2	
Delay (s)		4.4			2.4		23.2	16.2		26.3	33.7	
Level of Service		A			A		C	B		C	C	
Approach Delay (s)		4.4			2.4			18.2			33.2	
Approach LOS		A			A			B			C	

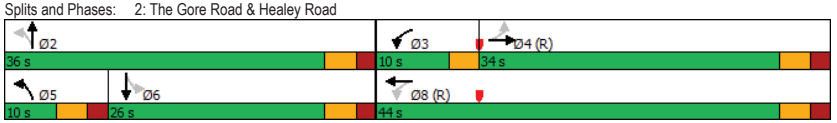
Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	160	305	380	40	240	15	365
Future Volume (vph)	15	160	305	380	40	240	15	365
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases		4	3	8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	10.0	23.0	10.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	10.0	44.0	10.0	36.0	26.0	26.0
Total Split (%)	42.5%	42.5%	12.5%	55.0%	12.5%	45.0%	32.5%	32.5%
Maximum Green (s)	29.0	29.0	7.0	39.0	5.0	31.0	21.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None
Walk Time (s)	7.0	7.0		7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0		0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 75 (94%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: The Gore Road & Healey Road



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	185	690	40	275	15	405
v/c Ratio	0.10	0.44	0.16	0.28	0.08	0.64
Control Delay	6.3	11.9	8.6	9.5	26.7	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	11.9	8.6	9.5	26.7	34.0
Queue Length 50th (m)	5.2	33.1	3.0	9.5	2.0	30.8
Queue Length 95th (m)	7.7	56.5	5.6	11.1	6.8	42.8
Internal Link Dist (m)	1406.7	121.4		629.5		329.7
Turn Bay Length (m)			50.0		50.0	
Base Capacity (vph)	1893	1578	255	1371	285	925
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	0.10	0.44	0.16	0.20	0.05	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	160	10	305	380	5	40	240	35	15	365	40
Future Volume (vph)	15	160	10	305	380	5	40	240	35	15	365	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	
Frt		0.99			1.00		1.00	0.98		1.00	0.99	
Flt Protected		1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3496			3459		1770	3472		1770	3487	
Flt Permitted		0.90			0.74		0.28	1.00		0.58	1.00	
Satd. Flow (perm)		3157			2619		517	3472		1085	3487	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	160	10	305	380	5	40	240	35	15	365	40
RTOR Reduction (vph)	0	3	0	0	0	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	182	0	0	690	0	40	259	0	15	393	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		45.9			45.9		24.1	24.1		14.2	14.2	
Effective Green, g (s)		45.9			45.9		24.1	24.1		14.2	14.2	
Actuated g/C Ratio		0.57			0.57		0.30	0.30		0.18	0.18	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1811			1502		232	1045		192	618	
v/s Ratio Prot							0.01	c0.07			c0.11	
v/s Ratio Perm		0.06			c0.26		0.04			0.01		
v/c Ratio		0.10			0.46		0.17	0.25		0.08	0.64	
Uniform Delay, d1		7.7			9.9		20.5	21.1		27.4	30.5	
Progression Factor		0.71			1.00		0.42	0.47		1.00	1.00	
Incremental Delay, d2		0.1			0.2		0.4	0.1		0.2	2.2	
Delay (s)		5.6			10.1		8.9	10.0		27.6	32.7	
Level of Service		A			B		A	A		C	C	
Approach Delay (s)		5.6			10.1			9.8			32.5	
Approach LOS		A			B			A			C	

Intersection Summary					
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.51				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		18.0	
Intersection Capacity Utilization	61.2%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	30	5	195	5	400
Future Volume (vph)	30	5	195	5	400
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	30.0	30.0	50.0	50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%	62.5%	62.5%
Maximum Green (s)	25.0	25.0	45.0	45.0	45.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 42 (53%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 3: Centreville Creek Road & Street B



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	30	5	205	405
v/c Ratio	0.14	0.02	0.06	0.13
Control Delay	31.6	19.2	0.8	1.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.6	19.2	0.8	1.2
Queue Length 50th (m)	4.3	0.1	0.0	0.0
Queue Length 95th (m)	12.1	3.2	1.1	3.1
Internal Link Dist (m)	440.8		585.7	292.7
Turn Bay Length (m)				
Base Capacity (vph)	553	498	3164	3035
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.06	0.13

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	5	195	10	5	400
Future Volume (vph)	30	5	195	10	5	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1583	3513			3537
Flt Permitted	0.95	1.00	1.00			0.95
Satd. Flow (perm)	1770	1583	3513			3372
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	5	195	10	5	400
RTOR Reduction (vph)	0	5	2	0	0	0
Lane Group Flow (vph)	30	0	203	0	0	405
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	4.0	4.0	66.0			66.0
Effective Green, g (s)	4.0	4.0	66.0			66.0
Actuated g/C Ratio	0.05	0.05	0.82			0.82
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	88	79	2898			2781
v/s Ratio Prot	c0.02		0.06			
v/s Ratio Perm		0.00				c0.12
v/c Ratio	0.34	0.00	0.07			0.15
Uniform Delay, d1	36.7	36.1	1.3			1.4
Progression Factor	0.96	0.95	0.51			0.69
Incremental Delay, d2	2.3	0.0	0.0			0.1
Delay (s)	37.6	34.5	0.7			1.1
Level of Service	D	C	A			A
Approach Delay (s)	37.1		0.7			1.1
Approach LOS	D		A			A

Intersection Summary				
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.16			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	31.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	0	0	10	65	135
Future Volume (vph)	15	0	0	10	65	135
Turn Type	Perm	NA	NA	NA	Perm	NA
Protected Phases		4	8	2		6
Permitted Phases	4				6	
Detector Phase	4	4	8	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	28.0	28.0	28.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	35.0%	65.0%	65.0%	65.0%
Maximum Green (s)	23.0	23.0	23.0	47.0	47.0	47.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 68 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: Street A & Street B



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	15	50	10	65	170
v/c Ratio	0.06	0.04	0.00	0.05	0.11
Control Delay	33.9	0.1	1.2	1.7	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	0.1	1.2	1.7	1.5
Queue Length 50th (m)	1.2	0.0	0.1	1.5	3.4
Queue Length 95th (m)	4.4	0.3	0.6	3.8	7.2
Internal Link Dist (m)	440.8	191.2	568.7		46.2
Turn Bay Length (m)				30.0	
Base Capacity (vph)	1017	1625	3104	1227	1586
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	0.00	0.05	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	0	0	0	50	0	10	0	65	135	35
Future Volume (vph)	15	0	0	0	0	50	0	10	0	65	135	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			0.95		1.00	1.00	
Frt		1.00			0.85			1.00		1.00	0.97	
Flt Protected		0.95			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3362			3008			3539		1770	1805	
Flt Permitted		1.00			1.00			1.00		0.75	1.00	
Satd. Flow (perm)		3539			3008			3539		1398	1805	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	0	0	0	0	50	0	10	0	65	135	35
RTOR Reduction (vph)	0	0	0	0	48	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	15	0	0	2	0	0	10	0	65	165	0
Turn Type	Perm	NA			NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.8			3.8			66.2		66.2	66.2	
Effective Green, g (s)		3.8			3.8			66.2		66.2	66.2	
Actuated g/C Ratio		0.05			0.05			0.83		0.83	0.83	
Clearance Time (s)		5.0			5.0			5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		168			142			2928		1156	1493	
v/s Ratio Prot					0.00			0.00			c0.09	
v/s Ratio Perm		c0.00								0.05		
v/c Ratio		0.09			0.02			0.00		0.06	0.11	
Uniform Delay, d1		36.4			36.3			1.2		1.2	1.3	
Progression Factor		0.98			1.00			0.68		1.00	1.00	
Incremental Delay, d2		0.2			0.0			0.0		0.1	0.1	
Delay (s)		36.1			36.4			0.8		1.3	1.5	
Level of Service		D			D			A		A	A	
Approach Delay (s)		36.1			36.4			0.8			1.4	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.11			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	26.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	15	205	10	420
Future Volume (vph)	15	205	10	420
Turn Type	Prot	NA	Perm	NA
Protected Phases	8	2		6
Permitted Phases			6	
Detector Phase	8	2	6	6
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0
Total Split (s)	26.0	54.0	54.0	54.0
Total Split (%)	32.5%	67.5%	67.5%	67.5%
Maximum Green (s)	21.0	49.0	49.0	49.0
Yellow Time (s)	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 5: Centreville Creek Road & Street D



Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	15	225	430
v/c Ratio	0.07	0.07	0.13
Control Delay	29.5	0.7	0.4
Queue Delay	0.0	0.0	0.0
Total Delay	29.5	0.7	0.4
Queue Length 50th (m)	2.2	0.0	0.0
Queue Length 95th (m)	6.3	5.0	4.8
Internal Link Dist (m)	463.8	330.1	585.7
Turn Bay Length (m)	50.0		
Base Capacity (vph)	464	3319	3191
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.03	0.07	0.13

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	0	205	20	10	420
Future Volume (vph)	15	0	205	20	10	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0			5.0
Lane Util. Factor	1.00		0.95			0.95
Frt	1.00		0.99			1.00
Flt Protected	0.95		1.00			1.00
Satd. Flow (prot)	1770		3492			3535
Flt Permitted	0.95		1.00			0.95
Satd. Flow (perm)	1770		3492			3359
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	0	205	20	10	420
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	15	0	222	0	0	430
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	2.0		68.0			68.0
Effective Green, g (s)	2.0		68.0			68.0
Actuated g/C Ratio	0.02		0.85			0.85
Clearance Time (s)	5.0		5.0			5.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	44		2968			2855
v/s Ratio Prot	c0.01		0.06			
v/s Ratio Perm						c0.13
v/c Ratio	0.34		0.07			0.15
Uniform Delay, d1	38.4		1.0			1.0
Progression Factor	0.92		0.83			0.34
Incremental Delay, d2	4.6		0.0			0.1
Delay (s)	40.0		0.9			0.5
Level of Service	D		A			A
Approach Delay (s)	40.0		0.9			0.5
Approach LOS	D		A			A

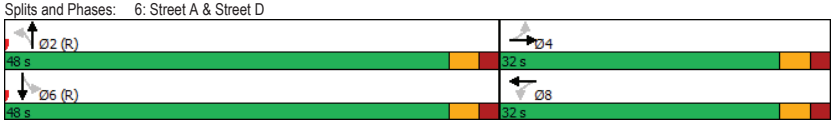
Intersection Summary			
HCM 2000 Control Delay	1.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	NBT	SBL	SBT	Ø8
Lane Configurations						
Traffic Volume (vph)	10	0	5	65	60	
Future Volume (vph)	10	0	5	65	60	
Turn Type	Perm	NA	NA	Perm	NA	
Protected Phases		4	2		6	8
Permitted Phases	4			6		
Detector Phase	4	4	2	6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	32.0	32.0	48.0	48.0	48.0	32.0
Total Split (%)	40.0%	40.0%	60.0%	60.0%	60.0%	40%
Maximum Green (s)	27.0	27.0	43.0	43.0	43.0	27.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 20 (25%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 6: Street A & Street D



Lane Group	EBL	EBT	NBT	SBT
Lane Group Flow (vph)	10	20	5	140
v/c Ratio	0.07	0.02	0.00	0.05
Control Delay	30.4	0.1	4.4	1.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.4	0.1	4.4	1.0
Queue Length 50th (m)	1.5	0.0	0.0	0.0
Queue Length 95th (m)	6.4	0.0	1.2	3.3
Internal Link Dist (m)		463.8	321.4	568.7
Turn Bay Length (m)	50.0			
Base Capacity (vph)	628	1161	3237	2709
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.00	0.05

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	20	0	0	0	0	5	0	65	60	15
Future Volume (vph)	10	0	20	0	0	0	0	5	0	65	60	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0						5.0			5.0	
Lane Util. Factor	1.00	1.00						0.95			0.95	
Frt	1.00	0.85						1.00			0.98	
Flt Protected	0.95	1.00						1.00			0.98	
Satd. Flow (prot)	1770	1583						3539			3403	
Flt Permitted	1.00	1.00						1.00			0.85	
Satd. Flow (perm)	1863	1583						3539			2958	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	0	20	0	0	0	0	5	0	65	60	15
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	10	1	0	0	0	0	0	5	0	0	138	0
Turn Type	Perm	NA		Perm				NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	2.8	2.8						67.2			67.2	
Effective Green, g (s)	2.8	2.8						67.2			67.2	
Actuated g/C Ratio	0.03	0.03						0.84			0.84	
Clearance Time (s)	5.0	5.0						5.0			5.0	
Vehicle Extension (s)	3.0	3.0						3.0			3.0	
Lane Grp Cap (vph)	65	55						2972			2484	
v/s Ratio Prot		0.00						0.00				
v/s Ratio Perm	c0.01										c0.05	
v/c Ratio	0.15	0.01						0.00			0.06	
Uniform Delay, d1	37.5	37.3						1.0			1.1	
Progression Factor	0.87	1.00						2.73			0.89	
Incremental Delay, d2	1.1	0.1						0.0			0.0	
Delay (s)	33.8	37.4						2.8			1.0	
Level of Service	C	D						A			A	
Approach Delay (s)		36.2			0.0			2.8			1.0	
Approach LOS		D			A			A			A	

Intersection Summary					
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.06				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	22.8%	ICU Level of Service		A	
Analysis Period (min)	15				

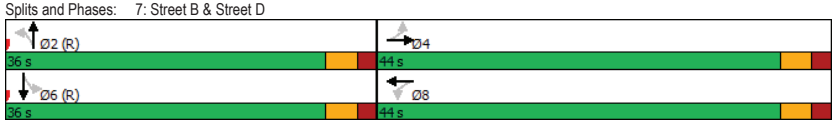
c Critical Lane Group

Lane Group	EBT	NBT	SBT	Ø8
Lane Configurations				
Traffic Volume (vph)	0	50	65	
Future Volume (vph)	0	50	65	
Turn Type	NA	NA	NA	
Protected Phases	4	2	6	8
Permitted Phases				
Detector Phase	4	2	6	
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0
Total Split (s)	44.0	36.0	36.0	44.0
Total Split (%)	55.0%	45.0%	45.0%	55%
Maximum Green (s)	39.0	31.0	31.0	39.0
Yellow Time (s)	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 64 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 7: Street B & Street D



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	65	50	65
v/c Ratio	0.07	0.02	0.02
Control Delay	0.1	0.6	2.2
Queue Delay	0.0	0.0	0.0
Total Delay	0.1	0.6	2.2
Queue Length 50th (m)	0.0	0.2	1.5
Queue Length 95th (m)	0.3	0.6	3.1
Internal Link Dist (m)	439.5	323.8	279.3
Turn Bay Length (m)			
Base Capacity (vph)	1223	2990	2990
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.05	0.02	0.02

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	65	0	0	0	0	50	0	0	65	0
Future Volume (vph)	0	0	65	0	0	0	0	50	0	0	65	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0						5.0			5.0	
Lane Util. Factor		1.00						0.95			0.95	
Frt		0.85						1.00			1.00	
Flt Protected		1.00						1.00			1.00	
Satd. Flow (prot)		1583						3539			3539	
Flt Permitted		1.00						1.00			1.00	
Satd. Flow (perm)		1583						3539			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	65	0	0	0	0	50	0	0	65	0
RTOR Reduction (vph)	0	61	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	0	0	0	50	0	0	65	0
Turn Type	Perm	NA		Perm				NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		4.4						65.6			65.6	
Effective Green, g (s)		4.4						65.6			65.6	
Actuated g/C Ratio		0.06						0.82			0.82	
Clearance Time (s)		5.0						5.0			5.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		87						2901			2901	
v/s Ratio Prot		c0.00						0.01			c0.02	
v/s Ratio Perm												
v/c Ratio		0.04						0.02			0.02	
Uniform Delay, d1		35.8						1.3			1.3	
Progression Factor		1.00						0.35			1.45	
Incremental Delay, d2		0.2						0.0			0.0	
Delay (s)		36.0						0.5			1.9	
Level of Service		D						A			A	
Approach Delay (s)		36.0			0.0			0.5			1.9	
Approach LOS		D			A			A			A	

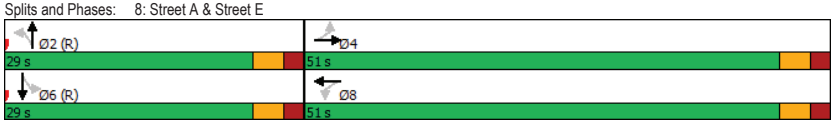
Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.02		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	205	100	105	10	5	15	45
Future Volume (vph)	205	100	105	10	5	15	45
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6
Permitted Phases		8		2		6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	51.0	51.0	51.0	29.0	29.0	29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	36.3%	36.3%	36.3%	36.3%
Maximum Green (s)	46.0	46.0	46.0	24.0	24.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0		5.0
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 8: Street A & Street E



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	305	100	105	45	85
v/c Ratio	0.70	0.74	0.25	0.02	0.04
Control Delay	31.6	53.2	19.1	1.4	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	53.2	19.1	1.4	2.7
Queue Length 50th (m)	36.4	15.7	14.4	0.0	1.0
Queue Length 95th (m)	54.1	32.3	21.3	0.2	2.1
Internal Link Dist (m)	479.1		439.9	378.9	321.4
Turn Bay Length (m)		50.0			
Base Capacity (vph)	1040	349	1071	1927	2051
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	0.29	0.29	0.10	0.02	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	205	100	100	105	0	10	5	30	15	45	25
Future Volume (vph)	0	205	100	100	105	0	10	5	30	15	45	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.95		1.00	1.00			0.90			0.96	
Flt Protected		1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		1771		1770	1863			3150			3353	
Flt Permitted		1.00		0.33	1.00			0.92			0.93	
Satd. Flow (perm)		1771		608	1863			2935			3130	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	205	100	100	105	0	10	5	30	15	45	25
RTOR Reduction (vph)	0	40	0	0	0	0	0	10	0	0	9	0
Lane Group Flow (vph)	0	265	0	100	105	0	0	35	0	0	76	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.8		17.8	17.8			52.2			52.2	
Effective Green, g (s)		17.8		17.8	17.8			52.2			52.2	
Actuated g/C Ratio		0.22		0.22	0.22			0.65			0.65	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		394		135	414			1915			2042	
v/s Ratio Prot		0.15			0.06							
v/s Ratio Perm				c0.16				0.01			c0.02	
v/c Ratio		0.67		0.74	0.25			0.02			0.04	
Uniform Delay, d1		28.4		29.0	25.6			4.9			5.0	
Progression Factor		0.99		0.81	0.74			0.36			0.53	
Incremental Delay, d2		4.5		19.4	0.3			0.0			0.0	
Delay (s)		32.7		42.8	19.3			1.8			2.7	
Level of Service		C		D	B			A			A	
Approach Delay (s)		32.7			30.8			1.8			2.7	
Approach LOS		C			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.22				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	42.4%	ICU Level of Service		A	
Analysis Period (min)	15				

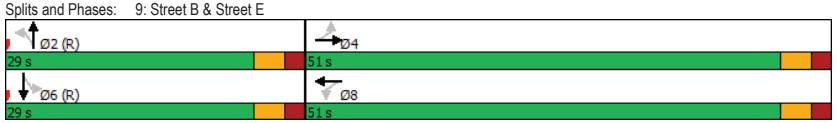
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	360	45	140	45	5	125	0
Future Volume (vph)	360	45	140	45	5	125	0
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6
Permitted Phases		8		2		6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	51.0	51.0	51.0	29.0	29.0	29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	36.3%	36.3%	36.3%	36.3%
Maximum Green (s)	46.0	46.0	46.0	24.0	24.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0		5.0
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 75 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 9: Street B & Street E



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	435	45	190	80	125
v/c Ratio	0.74	0.30	0.32	0.05	0.09
Control Delay	22.0	21.6	14.2	4.5	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	21.6	14.2	4.5	7.1
Queue Length 50th (m)	36.2	3.7	11.3	0.6	3.5
Queue Length 95th (m)	58.1	9.6	22.8	6.4	10.8
Internal Link Dist (m)	439.9		374.1	368.3	323.8
Turn Bay Length (m)		50.0			
Base Capacity (vph)	1052	277	1045	1522	1387
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	0.41	0.16	0.18	0.05	0.09

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	360	75	45	140	50	45	5	30	125	0	0
Future Volume (vph)	0	360	75	45	140	50	45	5	30	125	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.97		1.00	0.96			0.94			1.00	
Flt Protected		1.00		0.95	1.00			0.97			0.95	
Satd. Flow (prot)		1815		1770	1789			3249			3362	
Flt Permitted		1.00		0.26	1.00			0.81			0.70	
Satd. Flow (perm)		1815		483	1789			2703			2486	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	360	75	45	140	50	45	5	30	125	0	0
RTOR Reduction (vph)	0	15	0	0	26	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	420	0	45	164	0	0	67	0	0	125	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		25.3		25.3	25.3			44.7			44.7	
Effective Green, g (s)		25.3		25.3	25.3			44.7			44.7	
Actuated g/C Ratio		0.32		0.32	0.32			0.56			0.56	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		573		152	565			1510			1389	
v/s Ratio Prot		c0.23			0.09							
v/s Ratio Perm				0.09				0.02			c0.05	
v/c Ratio		0.73		0.30	0.29			0.04			0.09	
Uniform Delay, d1		24.3		20.6	20.6			8.0			8.2	
Progression Factor		0.63		0.91	0.86			0.60			0.69	
Incremental Delay, d2		4.8		1.1	0.3			0.1			0.1	
Delay (s)		20.2		19.8	18.0			4.8			5.8	
Level of Service		C		B	B			A			A	
Approach Delay (s)		20.2			18.3			4.8			5.8	
Approach LOS		C			B			A			A	

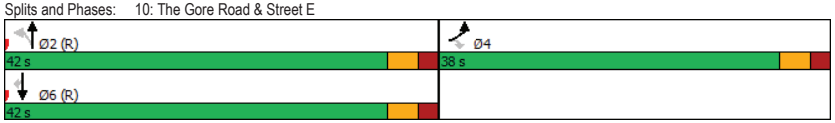
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	395	130	45	945	870	205
Future Volume (vph)	395	130	45	945	870	205
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	38.0	38.0	42.0	42.0	42.0	42.0
Total Split (%)	47.5%	47.5%	52.5%	52.5%	52.5%	52.5%
Maximum Green (s)	33.0	33.0	37.0	37.0	37.0	37.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 6 (8%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 10: The Gore Road & Street E



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	395	130	45	945	870	205
v/c Ratio	0.77	0.25	0.15	0.46	0.42	0.20
Control Delay	28.2	4.7	12.8	13.3	8.5	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	4.7	12.8	13.3	8.5	1.8
Queue Length 50th (m)	26.5	0.2	4.6	56.6	29.6	1.6
Queue Length 95th (m)	68.4	0.0	m11.3	80.1	55.2	4.2
Internal Link Dist (m)	374.1			350.7	420.4	
Turn Bay Length (m)	50.0		50.0			50.0
Base Capacity (vph)	730	705	306	2064	2064	1008
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	0.54	0.18	0.15	0.46	0.42	0.20

Intersection Summary

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	395	130	45	945	870	205
Future Volume (vph)	395	130	45	945	870	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.28	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	525	3539	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	395	130	45	945	870	205
RTOR Reduction (vph)	0	64	0	0	0	85
Lane Group Flow (vph)	395	66	45	945	870	120
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	23.3	23.3	46.7	46.7	46.7	46.7
Effective Green, g (s)	23.3	23.3	46.7	46.7	46.7	46.7
Actuated g/C Ratio	0.29	0.29	0.58	0.58	0.58	0.58
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	515	461	306	2065	2065	924
v/s Ratio Prot	c0.22			c0.27	0.25	
v/s Ratio Perm		0.04	0.09			0.08
v/c Ratio	0.77	0.14	0.15	0.46	0.42	0.13
Uniform Delay, d1	25.9	21.0	7.6	9.5	9.2	7.5
Progression Factor	0.73	0.50	1.15	1.18	0.76	0.79
Incremental Delay, d2	6.5	0.1	0.9	0.7	0.6	0.3
Delay (s)	25.3	10.7	9.6	11.9	7.6	6.2
Level of Service	C	B	A	B	A	A
Approach Delay (s)	21.7			11.8	7.3	
Approach LOS	C			B	A	

Intersection Summary				
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	62.6%	ICU Level of Service	B	
Analysis Period (min)	15			

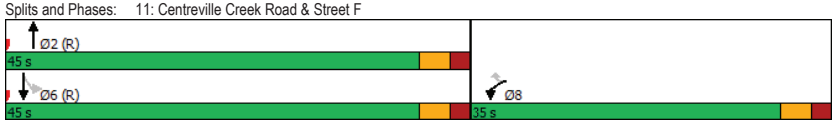
c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	170	20	205	35	490
Future Volume (vph)	170	20	205	35	490
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	35.0	35.0	45.0	45.0	45.0
Total Split (%)	43.8%	43.8%	56.3%	56.3%	56.3%
Maximum Green (s)	30.0	30.0	40.0	40.0	40.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 44 (55%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 11: Centreville Creek Road & Street F



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	170	20	225	525
v/c Ratio	0.57	0.07	0.09	0.23
Control Delay	18.3	2.5	1.9	3.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.3	2.5	1.9	3.2
Queue Length 50th (m)	11.8	0.3	1.6	8.5
Queue Length 95th (m)	18.9	1.6	2.7	10.9
Internal Link Dist (m)	497.7		560.7	398.0
Turn Bay Length (m)	50.0			
Base Capacity (vph)	663	606	2474	2310
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.03	0.09	0.23

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	170	20	205	20	35	490
Future Volume (vph)	170	20	205	20	35	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1583	3492			3527
Flt Permitted	0.95	1.00	1.00			0.92
Satd. Flow (perm)	1770	1583	3492			3270
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	20	205	20	35	490
RTOR Reduction (vph)	0	17	5	0	0	0
Lane Group Flow (vph)	170	3	220	0	0	525
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	13.5	13.5	56.5			56.5
Effective Green, g (s)	13.5	13.5	56.5			56.5
Actuated g/C Ratio	0.17	0.17	0.71			0.71
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	298	267	2466			2309
v/s Ratio Prot	c0.10		0.06			
v/s Ratio Perm		0.00				c0.16
v/c Ratio	0.57	0.01	0.09			0.23
Uniform Delay, d1	30.6	27.7	3.7			4.1
Progression Factor	0.35	0.18	0.48			0.65
Incremental Delay, d2	2.6	0.0	0.1			0.2
Delay (s)	13.3	4.9	1.9			2.9
Level of Service	B	A	A			A
Approach Delay (s)	12.5		1.9			2.9
Approach LOS	B		A			A

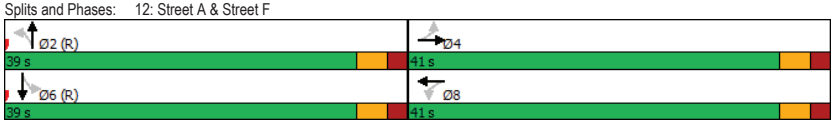
Intersection Summary				
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	20	90	120	50	180
Future Volume (vph)	20	90	120	50	180
Turn Type	NA	Perm	NA	NA	NA
Protected Phases	4		8	2	6
Permitted Phases		8			
Detector Phase	4	8	8	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	41.0	41.0	41.0	39.0	39.0
Total Split (%)	51.3%	51.3%	51.3%	48.8%	48.8%
Maximum Green (s)	36.0	36.0	36.0	34.0	34.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 18 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 12: Street A & Street F



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	20	90	120	95	250
v/c Ratio	0.08	0.48	0.48	0.04	0.10
Control Delay	34.8	37.4	35.0	0.0	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	37.4	35.0	0.0	1.3
Queue Length 50th (m)	2.0	13.8	18.6	0.0	0.0
Queue Length 95th (m)	9.0	26.7	32.5	0.0	4.8
Internal Link Dist (m)	497.7		422.8	571.7	378.9
Turn Bay Length (m)		50.0			
Base Capacity (vph)	838	623	838	2445	2528
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	0.02	0.14	0.14	0.04	0.10

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	20	0	90	120	0	0	50	45	0	180	70
Future Volume (vph)	0	20	0	90	120	0	0	50	45	0	180	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		1.00		1.00	1.00			0.93			0.96	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1863		1770	1863			3288			3391	
Flt Permitted		1.00		0.74	1.00			1.00			1.00	
Satd. Flow (perm)		1863		1386	1863			3288			3391	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	20	0	90	120	0	0	50	45	0	180	70
RTOR Reduction (vph)	0	0	0	0	0	0	0	12	0	0	18	0
Lane Group Flow (vph)	0	20	0	90	120	0	0	83	0	0	232	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.8		10.8	10.8			59.2			59.2	
Effective Green, g (s)		10.8		10.8	10.8			59.2			59.2	
Actuated g/C Ratio		0.14		0.14	0.14			0.74			0.74	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		251		187	251			2433			2509	
v/s Ratio Prot		0.01			0.06			0.03			c0.07	
v/s Ratio Perm				c0.06								
v/c Ratio		0.08		0.48	0.48			0.03			0.09	
Uniform Delay, d1		30.3		32.0	32.0			2.8			2.9	
Progression Factor		1.21		0.92	0.92			0.01			0.50	
Incremental Delay, d2		0.1		1.9	1.4			0.0			0.1	
Delay (s)		36.6		31.4	30.8			0.0			1.5	
Level of Service		D		C	C			A			A	
Approach Delay (s)		36.6			31.1			0.0			1.5	
Approach LOS		D			C			A			A	

Intersection Summary					
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.15				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	27.2%	ICU Level of Service		A	
Analysis Period (min)	15				

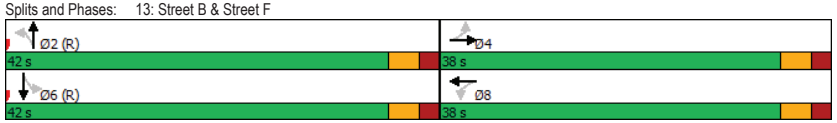
c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	50	25	35	80	90
Future Volume (vph)	50	25	35	80	90
Turn Type	NA	NA	Perm	NA	NA
Protected Phases	4	8		2	6
Permitted Phases			2		
Detector Phase	4	8	2	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	38.0	38.0	42.0	42.0	42.0
Total Split (%)	47.5%	47.5%	52.5%	52.5%	52.5%
Maximum Green (s)	33.0	33.0	37.0	37.0	37.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 61 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 13: Street B & Street F



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	115	25	270	120
v/c Ratio	0.49	0.13	0.11	0.04
Control Delay	19.1	21.0	1.3	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.1	21.0	1.3	0.1
Queue Length 50th (m)	3.6	3.9	3.4	0.0
Queue Length 95th (m)	18.7	m6.5	1.9	0.0
Internal Link Dist (m)	422.8	378.2	574.6	368.3
Turn Bay Length (m)				
Base Capacity (vph)	741	768	2422	2765
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.03	0.11	0.04

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	50	65	0	25	0	35	80	155	0	90	30
Future Volume (vph)	0	50	65	0	25	0	35	80	155	0	90	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.92			1.00			0.91			0.96	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		1705			1863			3214			3406	
Flt Permitted		1.00			1.00			0.91			1.00	
Satd. Flow (perm)		1705			1863			2954			3406	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	50	65	0	25	0	35	80	155	0	90	30
RTOR Reduction (vph)	0	59	0	0	0	0	0	33	0	0	6	0
Lane Group Flow (vph)	0	56	0	0	25	0	0	237	0	0	114	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.2			7.2			62.8			62.8	
Effective Green, g (s)		7.2			7.2			62.8			62.8	
Actuated g/C Ratio		0.09			0.09			0.78			0.78	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		153			167			2318			2673	
v/s Ratio Prot		c0.03			0.01						0.03	
v/s Ratio Perm								c0.08				
v/c Ratio		0.37			0.15			0.10			0.04	
Uniform Delay, d1		34.2			33.6			2.0			1.9	
Progression Factor		0.72			0.63			1.03			0.05	
Incremental Delay, d2		1.5			0.4			0.1			0.0	
Delay (s)		26.3			21.7			2.2			0.1	
Level of Service		C			C			A			A	
Approach Delay (s)		26.3			21.7			2.2			0.1	
Approach LOS		C			C			A			A	

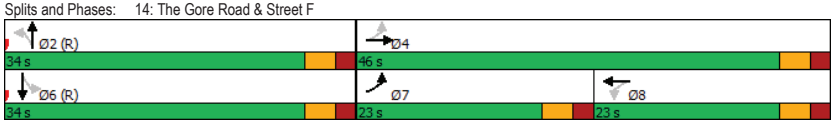
Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	300	50	40	25	20	660	55	880
Future Volume (vph)	300	50	40	25	20	660	55	880
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	7	4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	23.0	46.0	23.0	23.0	34.0	34.0	34.0	34.0
Total Split (%)	28.8%	57.5%	28.8%	28.8%	42.5%	42.5%	42.5%	42.5%
Maximum Green (s)	18.0	41.0	18.0	18.0	29.0	29.0	29.0	29.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0		5.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 14: The Gore Road & Street F



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	300	100	40	50	765	1000
v/c Ratio	0.64	0.16	0.31	0.26	0.45	0.62
Control Delay	27.1	11.1	38.9	22.8	10.2	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	11.1	38.9	22.8	10.2	10.1
Queue Length 50th (m)	36.8	6.5	6.1	3.7	36.3	67.4
Queue Length 95th (m)	57.2	16.4	15.0	13.3	48.3	26.1
Internal Link Dist (m)		378.2		136.4	579.4	350.7
Turn Bay Length (m)						
Base Capacity (vph)	502	903	290	407	1703	1616
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	0.60	0.11	0.14	0.12	0.45	0.62

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	50	50	40	25	25	20	660	85	55	880	65
Future Volume (vph)	300	50	50	40	25	25	20	660	85	55	880	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frt	1.00	0.93		1.00	0.93			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1723		1770	1723			3476			3495	
Flt Permitted	0.42	1.00		0.69	1.00			0.92			0.86	
Satd. Flow (perm)	782	1723		1290	1723			3187			3031	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	300	50	50	40	25	25	20	660	85	55	880	65
RTOR Reduction (vph)	0	27	0	0	23	0	0	9	0	0	5	0
Lane Group Flow (vph)	300	73	0	40	27	0	0	756	0	0	995	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	28.4	28.4		6.9	6.9			41.6			41.6	
Effective Green, g (s)	28.4	28.4		6.9	6.9			41.6			41.6	
Actuated g/C Ratio	0.35	0.35		0.09	0.09			0.52			0.52	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	481	611		111	148			1657			1576	
v/s Ratio Prot	c0.13	0.04			0.02							
v/s Ratio Perm	c0.09			0.03				0.24			c0.33	
v/c Ratio	0.62	0.12		0.36	0.18			0.46			0.63	
Uniform Delay, d1	20.2	17.4		34.5	33.9			12.1			13.7	
Progression Factor	1.06	1.11		1.00	1.00			0.72			0.56	
Incremental Delay, d2	2.5	0.1		2.0	0.6			0.9			1.8	
Delay (s)	24.0	19.3		36.5	34.5			9.6			9.5	
Level of Service	C	B		D	C			A			A	
Approach Delay (s)		22.8			35.4			9.6			9.5	
Approach LOS		C			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			

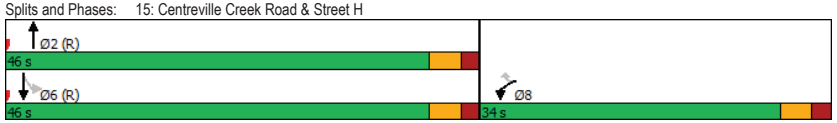
c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	185	20	205	35	620
Future Volume (vph)	185	20	205	35	620
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%	57.5%
Maximum Green (s)	29.0	29.0	41.0	41.0	41.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 77 (96%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 15: Centreville Creek Road & Street H



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	185	20	250	655
v/c Ratio	0.60	0.07	0.10	0.29
Control Delay	21.4	1.9	3.7	2.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.4	1.9	3.7	2.8
Queue Length 50th (m)	12.1	0.0	4.5	7.6
Queue Length 95th (m)	18.6	1.1	10.0	21.3
Internal Link Dist (m)	472.5		756.3	560.7
Turn Bay Length (m)	50.0			
Base Capacity (vph)	641	586	2423	2298
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.29	0.03	0.10	0.29

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	185	20	205	45	35	620
Future Volume (vph)	185	20	205	45	35	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1583	3444			3530
Flt Permitted	0.95	1.00	1.00			0.93
Satd. Flow (perm)	1770	1583	3444			3284
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	185	20	205	45	35	620
RTOR Reduction (vph)	0	17	14	0	0	0
Lane Group Flow (vph)	185	4	237	0	0	655
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	14.0	14.0	56.0			56.0
Effective Green, g (s)	14.0	14.0	56.0			56.0
Actuated g/C Ratio	0.18	0.18	0.70			0.70
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	309	277	2410			2298
v/s Ratio Prot	c0.10		0.07			
v/s Ratio Perm		0.00				c0.20
v/c Ratio	0.60	0.01	0.10			0.29
Uniform Delay, d1	30.4	27.3	3.9			4.5
Progression Factor	0.44	0.12	1.00			0.50
Incremental Delay, d2	3.1	0.0	0.1			0.3
Delay (s)	16.6	3.4	3.9			2.6
Level of Service	B	A	A			A
Approach Delay (s)	15.3		3.9			2.6
Approach LOS	B		A			A

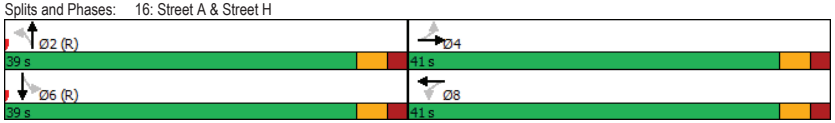
Intersection Summary				
HCM 2000 Control Delay	5.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	170	30	110	100	305
Future Volume (vph)	170	30	110	100	305
Turn Type	NA	Perm	NA	NA	NA
Protected Phases	4		8	2	6
Permitted Phases		8			
Detector Phase	4	8	8	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	41.0	41.0	41.0	39.0	39.0
Total Split (%)	51.3%	51.3%	51.3%	48.8%	48.8%
Maximum Green (s)	36.0	36.0	36.0	34.0	34.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 52 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 16: Street A & Street H



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	170	30	110	110	305
v/c Ratio	0.57	0.19	0.37	0.04	0.12
Control Delay	38.1	17.9	20.3	3.7	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	17.9	20.3	3.7	5.5
Queue Length 50th (m)	22.0	5.3	19.6	2.0	10.2
Queue Length 95th (m)	37.6	13.3	36.1	5.2	20.1
Internal Link Dist (m)	472.5		410.4	732.3	571.7
Turn Bay Length (m)		50.0			
Base Capacity (vph)	838	459	838	2500	2532
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	0.20	0.07	0.13	0.04	0.12

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	170	0	30	110	0	0	100	10	0	305	0
Future Volume (vph)	0	170	0	30	110	0	0	100	10	0	305	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		1.00		1.00	1.00			0.99			1.00	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1863		1770	1863			3491			3539	
Flt Permitted		1.00		0.55	1.00			1.00			1.00	
Satd. Flow (perm)		1863		1020	1863			3491			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	170	0	30	110	0	0	100	10	0	305	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	170	0	30	110	0	0	107	0	0	305	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.8		12.8	12.8			57.2			57.2	
Effective Green, g (s)		12.8		12.8	12.8			57.2			57.2	
Actuated g/C Ratio		0.16		0.16	0.16			0.72			0.72	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		298		163	298			2496			2530	
v/s Ratio Prot		c0.09			0.06			0.03			c0.09	
v/s Ratio Perm				0.03								
v/c Ratio		0.57		0.18	0.37			0.04			0.12	
Uniform Delay, d1		31.1		29.1	30.0			3.4			3.6	
Progression Factor		1.00		0.56	0.58			1.00			1.33	
Incremental Delay, d2		2.6		0.5	0.8			0.0			0.1	
Delay (s)		33.7		16.8	18.2			3.4			4.8	
Level of Service		C		B	B			A			A	
Approach Delay (s)		33.7			17.9			3.4			4.8	
Approach LOS		C			B			A			A	

Intersection Summary				
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.20			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	34.0%	ICU Level of Service	A	
Analysis Period (min)	15			

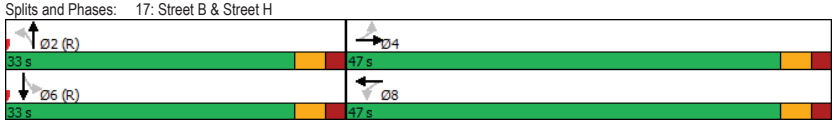
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	265	25	195	120	180
Future Volume (vph)	265	25	195	120	180
Turn Type	NA	Perm	NA	NA	NA
Protected Phases	4		8	2	6
Permitted Phases		8			
Detector Phase	4	8	8	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	47.0	47.0	47.0	33.0	33.0
Total Split (%)	58.8%	58.8%	58.8%	41.3%	41.3%
Maximum Green (s)	42.0	42.0	42.0	28.0	28.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 17: Street B & Street H



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	265	25	195	160	180
v/c Ratio	0.66	0.16	0.49	0.07	0.08
Control Delay	18.3	23.6	25.5	4.5	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	23.6	25.5	4.5	7.5
Queue Length 50th (m)	13.0	1.7	13.2	3.1	4.6
Queue Length 95th (m)	18.4	m6.5	32.6	8.0	14.8
Internal Link Dist (m)	410.4		410.7	715.2	574.6
Turn Bay Length (m)		50.0			
Base Capacity (vph)	978	384	978	2261	2336
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	0.27	0.07	0.20	0.07	0.08

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	265	0	25	195	0	0	120	40	0	180	0
Future Volume (vph)	0	265	0	25	195	0	0	120	40	0	180	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		1.00		1.00	1.00			0.96			1.00	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1863		1770	1863			3406			3539	
Flt Permitted		1.00		0.39	1.00			1.00			1.00	
Satd. Flow (perm)		1863		733	1863			3406			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	265	0	25	195	0	0	120	40	0	180	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	265	0	25	195	0	0	146	0	0	180	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.2		17.2	17.2			52.8			52.8	
Effective Green, g (s)		17.2		17.2	17.2			52.8			52.8	
Actuated g/C Ratio		0.21		0.21	0.21			0.66			0.66	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		400		157	400			2247			2335	
v/s Ratio Prot		c0.14			0.10			0.04			c0.05	
v/s Ratio Perm				0.03								
v/c Ratio		0.66		0.16	0.49			0.07			0.08	
Uniform Delay, d1		28.7		25.5	27.5			4.8			4.9	
Progression Factor		0.35		0.92	0.81			1.00			1.28	
Incremental Delay, d2		4.1		0.5	0.9			0.1			0.1	
Delay (s)		14.3		23.9	23.2			4.9			6.3	
Level of Service		B		C	C			A			A	
Approach Delay (s)		14.3			23.3			4.9			6.3	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	265	120	30	500	825
Future Volume (vph)	265	120	30	500	825
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	4			2	6
Permitted Phases		4	2		
Detector Phase	4	4	2	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	33.0	33.0	47.0	47.0	47.0
Total Split (%)	41.3%	41.3%	58.8%	58.8%	58.8%
Maximum Green (s)	28.0	28.0	42.0	42.0	42.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 14 (18%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 18: The Gore Road & Street H



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	265	120	30	500	970
v/c Ratio	0.69	0.28	0.09	0.21	0.42
Control Delay	29.2	2.2	7.4	6.3	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	2.2	7.4	6.3	4.8
Queue Length 50th (m)	16.1	0.0	1.5	14.4	3.8
Queue Length 95th (m)	17.2	0.0	5.9	26.6	4.5
Internal Link Dist (m)	410.7			679.8	579.4
Turn Bay Length (m)	50.0		50.0		
Base Capacity (vph)	619	632	322	2332	2293
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	0.43	0.19	0.09	0.21	0.42

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	265	120	30	500	825	145
Future Volume (vph)	265	120	30	500	825	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3460	
Flt Permitted	0.95	1.00	0.26	1.00	1.00	
Satd. Flow (perm)	1770	1583	489	3539	3460	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	265	120	30	500	825	145
RTOR Reduction (vph)	0	94	0	0	13	0
Lane Group Flow (vph)	265	26	30	500	957	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	17.3	17.3	52.7	52.7	52.7	
Effective Green, g (s)	17.3	17.3	52.7	52.7	52.7	
Actuated g/C Ratio	0.22	0.22	0.66	0.66	0.66	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	382	342	322	2331	2279	
v/s Ratio Prot	c0.15			0.14	c0.28	
v/s Ratio Perm		0.02	0.06			
v/c Ratio	0.69	0.08	0.09	0.21	0.42	
Uniform Delay, d1	28.9	25.0	5.0	5.4	6.4	
Progression Factor	0.69	0.14	1.00	1.00	0.62	
Incremental Delay, d2	5.3	0.1	0.6	0.2	0.5	
Delay (s)	25.2	3.6	5.5	5.6	4.5	
Level of Service	C	A	A	A	A	
Approach Delay (s)	18.4			5.6	4.5	
Approach LOS	B			A	A	

Intersection Summary				
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

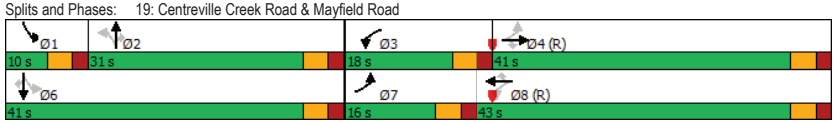
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	810	40	150	1050	130	5	85	85	20	610	385
Future Volume (vph)	100	810	40	150	1050	130	5	85	85	20	610	385
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0	10.0	23.0	23.0
Total Split (s)	16.0	41.0	41.0	18.0	43.0	43.0	31.0	31.0	31.0	10.0	41.0	41.0
Total Split (%)	16.0%	41.0%	41.0%	18.0%	43.0%	43.0%	31.0%	31.0%	31.0%	10.0%	41.0%	41.0%
Maximum Green (s)	11.0	36.0	36.0	13.0	38.0	38.0	26.0	26.0	26.0	5.0	36.0	36.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	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 Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0		0	0

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 39 (39%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 19: Centreville Creek Road & Mayfield Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	100	810	40	150	1050	130	5	85	85	20	610	385
v/c Ratio	0.28	0.31	0.05	0.34	0.37	0.14	0.04	0.13	0.21	0.07	0.72	0.65
Control Delay	9.6	15.2	0.1	6.6	11.0	3.1	35.2	34.4	3.2	27.0	39.3	14.9
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	9.6	15.2	0.1	6.6	11.0	3.1	35.2	34.4	3.2	27.0	39.3	14.9
Queue Length 50th (m)	6.7	32.9	0.0	10.5	36.2	0.1	0.8	7.1	0.0	3.1	60.0	18.3
Queue Length 95th (m)	15.5	51.4	0.0	8.7	55.5	8.3	4.2	14.6	4.6	8.4	72.5	46.1
Internal Link Dist (m)		279.6			433.4			176.0			756.3	
Turn Bay Length (m)	125.0		85.0	125.0		85.0				100.0		100.0
Base Capacity (vph)	417	2643	885	508	2816	935	172	920	508	296	1274	745
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	0.24	0.31	0.05	0.30	0.37	0.14	0.03	0.09	0.17	0.07	0.48	0.52

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	810	40	150	1050	130	5	85	85	20	610	385
Future Volume (vph)	100	810	40	150	1050	130	5	85	85	20	610	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.23	1.00	1.00	0.29	1.00	1.00	0.36	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	428	5085	1583	532	5085	1583	665	3539	1583	1033	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	810	40	150	1050	130	5	85	85	20	610	385
RTOR Reduction (vph)	0	0	20	0	0	63	0	0	69	0	0	200
Lane Group Flow (vph)	100	810	20	150	1050	67	5	85	16	20	610	185
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	55.5	49.0	49.0	60.3	51.4	51.4	19.2	19.2	19.2	27.1	27.1	27.1
Effective Green, g (s)	55.5	49.0	49.0	60.3	51.4	51.4	19.2	19.2	19.2	27.1	27.1	27.1
Actuated g/C Ratio	0.56	0.49	0.49	0.60	0.51	0.51	0.19	0.19	0.19	0.27	0.27	0.27
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	324	2491	775	430	2613	813	127	679	303	301	959	428
v/s Ratio Prot	0.02	0.16		c0.03	c0.21			0.02		0.00	c0.17	
v/s Ratio Perm	0.15		0.01	0.18		0.04	0.01		0.01	0.02		0.12
v/c Ratio	0.31	0.33	0.03	0.35	0.40	0.08	0.04	0.13	0.05	0.07	0.64	0.43
Uniform Delay, d1	10.7	15.5	13.2	9.0	14.9	12.3	32.9	33.4	33.0	27.0	32.1	30.1
Progression Factor	1.00	1.00	1.00	0.62	0.75	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	0.1	0.5	0.4	0.2	0.1	0.1	0.1	0.1	1.4	0.7
Delay (s)	11.3	15.8	13.2	6.0	11.5	11.9	33.0	33.5	33.1	27.1	33.5	30.8
Level of Service	B	B	B	A	B	B	C	C	C	C	C	C
Approach Delay (s)		15.2			10.9			33.3			32.3	
Approach LOS		B			B			C			C	

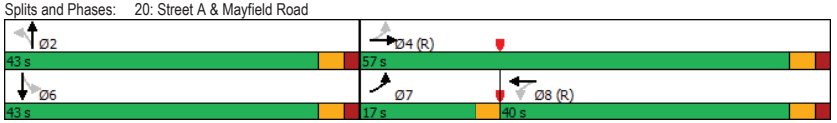
Intersection Summary				
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	60.8%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	SBT	Ø2
Lane Configurations						
Traffic Volume (vph)	145	870	1000	65	0	
Future Volume (vph)	145	870	1000	65	0	
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	2
Permitted Phases	4			6		
Detector Phase	7	4	8	6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	17.0	57.0	40.0	43.0	43.0	43.0
Total Split (%)	17.0%	57.0%	40.0%	43.0%	43.0%	43%
Maximum Green (s)	14.0	52.0	35.0	38.0	38.0	38.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 20: Street A & Mayfield Road



Lane Group	EBL	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	145	870	1005	65	420
v/c Ratio	0.32	0.23	0.30	0.33	0.83
Control Delay	2.8	2.0	7.2	39.6	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	2.0	7.2	39.6	23.9
Queue Length 50th (m)	0.9	2.3	20.5	12.3	17.7
Queue Length 95th (m)	2.8	4.9	38.3	21.7	47.2
Internal Link Dist (m)		433.4	392.0		732.3
Turn Bay Length (m)	50.0				
Base Capacity (vph)	538	3854	3303	535	804
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	0.27	0.23	0.30	0.12	0.52

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	870	0	0	1000	5	0	0	0	65	0	420
Future Volume (vph)	145	870	0	0	1000	5	0	0	0	65	0	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0			5.0					5.0	5.0	
Lane Util. Factor	1.00	0.91			0.91					1.00	1.00	
Frt	1.00	1.00			1.00					1.00	0.85	
Flt Protected	0.95	1.00			1.00					0.95	1.00	
Satd. Flow (prot)	1770	5085			5081					1770	1583	
Flt Permitted	0.24	1.00			1.00					0.76	1.00	
Satd. Flow (perm)	456	5085			5081					1410	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	145	870	0	0	1000	5	0	0	0	65	0	420
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	281	0
Lane Group Flow (vph)	145	870	0	0	1005	0	0	0	0	65	139	0
Turn Type	pm+pt	NA		Perm	NA		Perm			Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	75.8	75.8			65.0					14.2	14.2	
Effective Green, g (s)	75.8	75.8			65.0					14.2	14.2	
Actuated g/C Ratio	0.76	0.76			0.65					0.14	0.14	
Clearance Time (s)	3.0	5.0			5.0					5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)	448	3854			3302					200	224	
v/s Ratio Prot	c0.03	0.17			0.20						c0.09	
v/s Ratio Perm	c0.22									0.05		
v/c Ratio	0.32	0.23			0.30					0.33	0.62	
Uniform Delay, d1	3.5	3.5			7.6					38.6	40.4	
Progression Factor	0.27	0.42			0.77					1.00	1.00	
Incremental Delay, d2	0.4	0.1			0.2					1.0	5.0	
Delay (s)	1.4	1.6			6.1					39.5	45.4	
Level of Service	A	A			A					D	D	
Approach Delay (s)		1.6			6.1			0.0			44.6	
Approach LOS		A			A			A			D	

Intersection Summary				
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	65.1%	ICU Level of Service	C	
Analysis Period (min)	15			

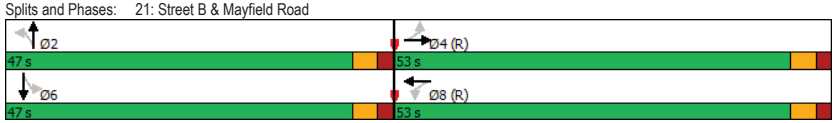
c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	SBT	Ø2
Lane Configurations						
Traffic Volume (vph)	90	1140	525	230	0	
Future Volume (vph)	90	1140	525	230	0	
Turn Type	Perm	NA	NA	Perm	NA	
Protected Phases		4	8		6	2
Permitted Phases	4			6		
Detector Phase	4	4	8	6	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	53.0	53.0	53.0	47.0	47.0	47.0
Total Split (%)	53.0%	53.0%	53.0%	47.0%	47.0%	47%
Maximum Green (s)	48.0	48.0	48.0	42.0	42.0	42.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 4 (4%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 21: Street B & Mayfield Road



Lane Group	EBL	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	90	1140	615	230	120
v/c Ratio	0.17	0.33	0.18	0.74	0.22
Control Delay	3.9	3.1	5.7	50.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	3.9	3.1	5.7	50.0	0.9
Queue Length 50th (m)	2.3	10.5	21.2	43.9	0.0
Queue Length 95th (m)	7.1	20.9	32.6	63.5	0.0
Internal Link Dist (m)		392.0	460.3		715.2
Turn Bay Length (m)	50.0				
Base Capacity (vph)	516	3454	3393	592	817
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	0.17	0.33	0.18	0.39	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1140	0	0	525	90	0	0	0	230	0	120
Future Volume (vph)	90	1140	0	0	525	90	0	0	0	230	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0					5.0	5.0	
Lane Util. Factor	1.00	0.91			0.91					1.00	1.00	
Frt	1.00	1.00			0.98					1.00	0.85	
Flt Protected	0.95	1.00			1.00					0.95	1.00	
Satd. Flow (prot)	1770	5085			4974					1770	1583	
Flt Permitted	0.41	1.00			1.00					0.76	1.00	
Satd. Flow (perm)	760	5085			4974					1410	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	1140	0	0	525	90	0	0	0	230	0	120
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	0	0	93	0
Lane Group Flow (vph)	90	1140	0	0	600	0	0	0	0	230	27	0
Turn Type	Perm	NA		Perm	NA		Perm			Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	67.9	67.9			67.9					22.1	22.1	
Effective Green, g (s)	67.9	67.9			67.9					22.1	22.1	
Actuated g/C Ratio	0.68	0.68			0.68					0.22	0.22	
Clearance Time (s)	5.0	5.0			5.0					5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)	516	3452			3377					311	349	
v/s Ratio Prot		c0.22			0.12						0.02	
v/s Ratio Perm	0.12									c0.16		
v/c Ratio	0.17	0.33			0.18					0.74	0.08	
Uniform Delay, d1	5.8	6.6			5.9					36.3	30.9	
Progression Factor	0.41	0.38			0.92					1.00	1.00	
Incremental Delay, d2	0.7	0.3			0.1					8.9	0.1	
Delay (s)	3.1	2.8			5.5					45.2	31.0	
Level of Service	A	A			A					D	C	
Approach Delay (s)		2.8			5.5			0.0			40.3	
Approach LOS		A			A			A			D	

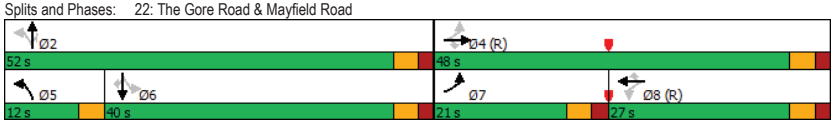
Intersection Summary				
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	55.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	930	200	10	255	55	100	270	10	170	610	150
Future Volume (vph)	210	930	200	10	255	55	100	270	10	170	610	150
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	8	8	8	5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	21.0	48.0	48.0	27.0	27.0	27.0	12.0	52.0	52.0	40.0	40.0	40.0
Total Split (%)	21.0%	48.0%	48.0%	27.0%	27.0%	27.0%	12.0%	52.0%	52.0%	40.0%	40.0%	40.0%
Maximum Green (s)	16.0	43.0	43.0	22.0	22.0	22.0	9.0	47.0	47.0	35.0	35.0	35.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	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 Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0		0	0	0	0	0

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 33 (33%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 22: The Gore Road & Mayfield Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	210	930	200	10	255	55	100	270	10	170	610	150
v/c Ratio	0.34	0.34	0.21	0.05	0.14	0.08	0.35	0.21	0.02	0.64	0.71	0.30
Control Delay	11.1	9.9	0.7	31.8	25.9	0.6	20.6	20.7	0.0	44.6	38.9	6.1
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	11.1	9.9	0.7	31.8	25.9	0.6	20.6	20.7	0.0	44.6	38.9	6.1
Queue Length 50th (m)	12.9	26.3	0.2	1.3	12.8	0.0	12.8	19.2	0.0	31.2	60.1	0.0
Queue Length 95th (m)	22.4	37.9	1.1	6.9	25.3	1.1	18.6	22.5	0.0	49.2	71.2	13.8
Internal Link Dist (m)		460.3			187.9			250.0			679.8	
Turn Bay Length (m)	75.0		60.0	60.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	652	2773	954	207	1917	665	296	1684	793	381	1238	651
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	0.32	0.34	0.21	0.05	0.13	0.08	0.34	0.16	0.01	0.45	0.49	0.23

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	930	200	10	255	55	100	270	10	170	610	150
Future Volume (vph)	210	930	200	10	255	55	100	270	10	170	610	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.52	1.00	1.00	0.30	1.00	1.00	0.20	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	961	5085	1583	550	5085	1583	370	3539	1583	1091	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	210	930	200	10	255	55	100	270	10	170	610	150
RTOR Reduction (vph)	0	0	93	0	0	35	0	0	6	0	0	114
Lane Group Flow (vph)	210	930	107	10	255	20	100	270	4	170	610	36
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	53.3	53.3	53.3	35.9	35.9	35.9	36.7	36.7	36.7	24.3	24.3	24.3
Effective Green, g (s)	53.3	53.3	53.3	35.9	35.9	35.9	36.7	36.7	36.7	24.3	24.3	24.3
Actuated g/C Ratio	0.53	0.53	0.53	0.36	0.36	0.36	0.37	0.37	0.37	0.24	0.24	0.24
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	612	2710	843	197	1825	568	267	1298	580	265	859	384
v/s Ratio Prot	0.04	c0.18			0.05		c0.04	0.08			c0.17	
v/s Ratio Perm	0.14		0.07	0.02		0.01	0.10		0.00	0.16		0.02
v/c Ratio	0.34	0.34	0.13	0.05	0.14	0.03	0.37	0.21	0.01	0.64	0.71	0.09
Uniform Delay, d1	12.5	13.3	11.7	20.9	21.6	20.8	22.4	21.7	20.1	33.9	34.6	29.3
Progression Factor	0.64	0.64	0.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.3	0.5	0.2	0.1	0.9	0.1	0.0	5.2	2.8	0.1
Delay (s)	8.3	8.8	1.0	21.4	21.8	20.9	23.3	21.8	20.1	39.2	37.4	29.4
Level of Service	A	A	A	C	C	C	C	C	C	D	D	C
Approach Delay (s)		7.6			21.6			22.1			36.4	
Approach LOS		A			C			C			D	

Intersection Summary				
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	60.4%	ICU Level of Service	B	
Analysis Period (min)	15			

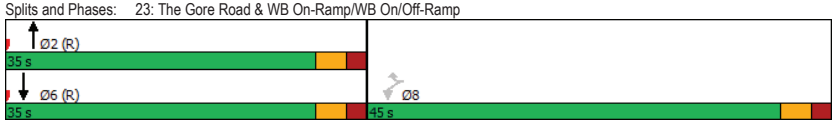
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	330	20	305	725	435	270
Future Volume (vph)	330	20	305	725	435	270
Turn Type	Perm	Perm	NA	Free	NA	Free
Protected Phases			2		6	
Permitted Phases	8	8		Free		Free
Detector Phase	8	8	2		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	23.0	23.0	23.0		23.0	
Total Split (s)	45.0	45.0	35.0		35.0	
Total Split (%)	56.3%	56.3%	43.8%		43.8%	
Maximum Green (s)	40.0	40.0	30.0		30.0	
Yellow Time (s)	3.0	3.0	3.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Minimum Gap (s)	3.0	3.0	3.0		3.0	
Time Before Reduce (s)	0.0	0.0	0.0		0.0	
Time To Reduce (s)	0.0	0.0	0.0		0.0	
Recall Mode	None	None	C-Min		C-Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 69 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 23: The Gore Road & WB On-Ramp/WB On/Off-Ramp



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	330	20	305	725	435	270
v/c Ratio	0.71	0.05	0.14	0.46	0.20	0.17
Control Delay	35.1	6.2	3.3	3.3	12.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	6.2	3.3	3.3	12.1	0.2
Queue Length 50th (m)	47.9	0.0	4.5	23.8	14.3	0.0
Queue Length 95th (m)	66.0	3.6	7.2	59.2	48.1	0.0
Internal Link Dist (m)			349.0		629.5	
Turn Bay Length (m)				50.0		100.0
Base Capacity (vph)	885	805	2172	1583	2172	1583
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	0.02	0.14	0.46	0.20	0.17

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	330	0	20	0	305	725	0	435	270
Future Volume (vph)	0	0	0	330	0	20	0	305	725	0	435	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0		5.0		5.0	4.0		5.0	4.0
Lane Util. Factor				1.00		1.00		0.95	1.00		0.95	1.00
Frt				1.00		0.85		1.00	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1770		1583		3539	1583		3539	1583
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1770		1583		3539	1583		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	330	0	20	0	305	725	0	435	270
RTOR Reduction (vph)	0	0	0	0	0	15	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	330	0	5	0	305	725	0	435	270
Turn Type				Perm		Perm		NA	Free		NA	Free
Protected Phases								2			6	
Permitted Phases				8		8			Free			Free
Actuated Green, G (s)				20.9		20.9		49.1	80.0		49.1	80.0
Effective Green, g (s)				20.9		20.9		49.1	80.0		49.1	80.0
Actuated g/C Ratio				0.26		0.26		0.61	1.00		0.61	1.00
Clearance Time (s)				5.0		5.0		5.0			5.0	
Vehicle Extension (s)				3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)				462		413		2172	1583		2172	1583
v/s Ratio Prot								0.09			0.12	
v/s Ratio Perm				c0.19		0.00			c0.46			0.17
v/c Ratio				0.71		0.01		0.14	0.46		0.20	0.17
Uniform Delay, d1				26.8		21.9		6.5	0.0		6.8	0.0
Progression Factor				1.00		1.00		0.42	1.00		1.52	1.00
Incremental Delay, d2				5.2		0.0		0.1	0.9		0.2	0.2
Delay (s)				32.0		21.9		2.9	0.9		10.5	0.2
Level of Service				C		C		A	A		B	A
Approach Delay (s)		0.0			31.4			1.5			6.6	
Approach LOS		A			C			A			A	

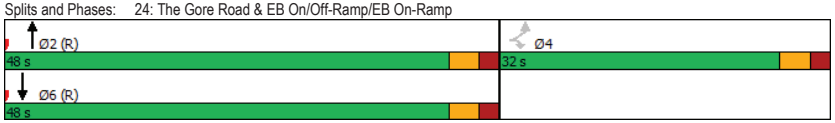
Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	180	480	855	605	545	215
Future Volume (vph)	180	480	855	605	545	215
Turn Type	Perm	Perm	NA	Free	NA	Free
Protected Phases			2		6	
Permitted Phases	4	4		Free		Free
Detector Phase	4	4	2		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	23.0	23.0	23.0		23.0	
Total Split (s)	32.0	32.0	48.0		48.0	
Total Split (%)	40.0%	40.0%	60.0%		60.0%	
Maximum Green (s)	27.0	27.0	43.0		43.0	
Yellow Time (s)	3.0	3.0	3.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Minimum Gap (s)	3.0	3.0	3.0		3.0	
Time Before Reduce (s)	0.0	0.0	0.0		0.0	
Time To Reduce (s)	0.0	0.0	0.0		0.0	
Recall Mode	None	None	C-Min		C-Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 59 (74%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 24: The Gore Road & EB On/Off-Ramp/EB On-Ramp



Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	180	480	855	605	545	215
v/c Ratio	0.60	0.55	0.34	0.38	0.22	0.14
Control Delay	38.3	5.3	5.7	0.7	1.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	5.3	5.7	0.7	1.2	0.2
Queue Length 50th (m)	27.0	0.0	27.0	0.0	1.3	0.0
Queue Length 95th (m)	43.0	12.5	24.4	0.0	2.6	0.0
Internal Link Dist (m)			420.4		349.0	
Turn Bay Length (m)				100.0		50.0
Base Capacity (vph)	597	1258	2494	1583	2494	1583
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	0.38	0.34	0.38	0.22	0.14

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	0	480	0	0	0	0	855	605	0	545	215
Future Volume (vph)	180	0	480	0	0	0	0	855	605	0	545	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0					5.0	4.0		5.0	4.0
Lane Util. Factor	1.00		0.88					0.95	1.00		0.95	1.00
Frt	1.00		0.85					1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770		2787					3539	1583		3539	1583
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770		2787					3539	1583		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	0	480	0	0	0	0	855	605	0	545	215
RTOR Reduction (vph)	0	0	398	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	180	0	82	0	0	0	0	855	605	0	545	215
Turn Type	Perm		Perm					NA	Free		NA	Free
Protected Phases								2			6	
Permitted Phases	4		4						Free			Free
Actuated Green, G (s)	13.6		13.6					56.4	80.0		56.4	80.0
Effective Green, g (s)	13.6		13.6					56.4	80.0		56.4	80.0
Actuated g/C Ratio	0.17		0.17					0.70	1.00		0.70	1.00
Clearance Time (s)	5.0		5.0					5.0			5.0	
Vehicle Extension (s)	3.0		3.0					3.0			3.0	
Lane Grp Cap (vph)	300		473					2494	1583		2494	1583
v/s Ratio Prot								0.24			0.15	
v/s Ratio Perm	c0.10		0.03						c0.38			0.14
v/c Ratio	0.60		0.17					0.34	0.38		0.22	0.14
Uniform Delay, d1	30.7		28.4					4.6	0.0		4.1	0.0
Progression Factor	1.00		1.00					1.04	1.00		0.22	1.00
Incremental Delay, d2	3.2		0.2					0.3	0.6		0.2	0.2
Delay (s)	33.9		28.6					5.1	0.6		1.1	0.2
Level of Service	C		C					A	A		A	A
Approach Delay (s)		30.0			0.0			3.3			0.9	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

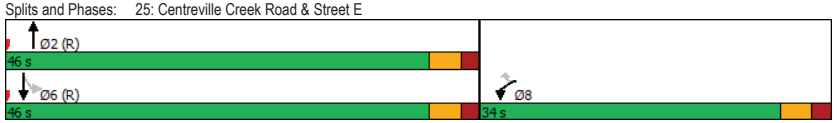
c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	105	15	205	10	420
Future Volume (vph)	105	15	205	10	420
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%	57.5%
Maximum Green (s)	29.0	29.0	41.0	41.0	41.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 78 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 25: Centreville Creek Road & Street E



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	105	15	225	430
v/c Ratio	0.47	0.07	0.08	0.16
Control Delay	21.9	3.3	0.6	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.9	3.3	0.6	1.7
Queue Length 50th (m)	5.8	0.2	0.8	3.5
Queue Length 95th (m)	10.2	0.2	2.2	8.7
Internal Link Dist (m)	479.1		398.0	330.1
Turn Bay Length (m)	50.0			
Base Capacity (vph)	641	583	2760	2650
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.03	0.08	0.16

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	15	205	20	10	420
Future Volume (vph)	105	15	205	20	10	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1583	3492			3535
Flt Permitted	0.95	1.00	1.00			0.95
Satd. Flow (perm)	1770	1583	3492			3358
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	105	15	205	20	10	420
RTOR Reduction (vph)	0	13	4	0	0	0
Lane Group Flow (vph)	105	2	221	0	0	430
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	8.9	8.9	61.1			61.1
Effective Green, g (s)	8.9	8.9	61.1			61.1
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	196	176	2667			2564
v/s Ratio Prot	c0.06		0.06			
v/s Ratio Perm		0.00				c0.13
v/c Ratio	0.54	0.01	0.08			0.17
Uniform Delay, d1	33.6	31.6	2.4			2.6
Progression Factor	0.47	0.18	0.18			0.53
Incremental Delay, d2	2.8	0.0	0.1			0.1
Delay (s)	18.7	5.8	0.5			1.5
Level of Service	B	A	A			A
Approach Delay (s)	17.1		0.5			1.5
Approach LOS	B		A			A

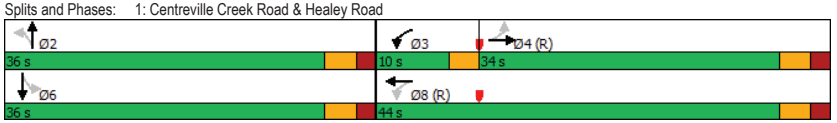
Intersection Summary				
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	360	90	55	45	190	30	185
Future Volume (vph)	20	360	90	55	45	190	30	185
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	10.0	44.0	36.0	36.0	36.0	36.0
Total Split (%)	42.5%	42.5%	12.5%	55.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	29.0	29.0	7.0	39.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 16 (20%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 1: Centreville Creek Road & Healey Road



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	485	160	45	300	30	190
v/c Ratio	0.23	0.10	0.20	0.72	0.23	0.47
Control Delay	6.0	3.0	19.4	27.7	27.7	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	3.0	19.4	27.7	27.7	29.6
Queue Length 50th (m)	12.6	2.2	5.1	28.4	4.0	26.3
Queue Length 95th (m)	24.8	2.0	8.7	38.3	10.3	40.4
Internal Link Dist (m)	179.0	1406.7		292.7		380.1
Turn Bay Length (m)						
Base Capacity (vph)	2139	1538	397	708	236	720
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	0.23	0.10	0.11	0.42	0.13	0.26

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	360	105	90	55	15	45	190	110	30	185	5
Future Volume (vph)	20	360	105	90	55	15	45	190	110	30	185	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.97			0.99		1.00	0.94		1.00	1.00	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3417			3394		1770	1760		1770	1855	
Flt Permitted		0.94			0.67		0.55	1.00		0.33	1.00	
Satd. Flow (perm)		3226			2331		1025	1760		610	1855	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	360	105	90	55	15	45	190	110	30	185	5
RTOR Reduction (vph)	0	17	0	0	5	0	0	34	0	0	2	0
Lane Group Flow (vph)	0	468	0	0	155	0	45	266	0	30	188	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		52.6			52.6		17.4	17.4		17.4	17.4	
Effective Green, g (s)		52.6			52.6		17.4	17.4		17.4	17.4	
Actuated g/C Ratio		0.66			0.66		0.22	0.22		0.22	0.22	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		2121			1532		222	382		132	403	
v/s Ratio Prot								c0.15			0.10	
v/s Ratio Perm		c0.15			0.07		0.04			0.05		
v/c Ratio		0.22			0.10		0.20	0.70		0.23	0.47	
Uniform Delay, d1		5.5			5.0		25.6	28.9		25.8	27.3	
Progression Factor		1.00			0.51		0.74	0.73		1.00	1.00	
Incremental Delay, d2		0.2			0.0		0.5	5.5		0.9	0.9	
Delay (s)		5.7			2.6		19.4	26.5		26.6	28.1	
Level of Service		A			A		B	C		C	C	
Approach Delay (s)		5.7			2.6			25.6			27.9	
Approach LOS		A			A			C			C	

Intersection Summary				
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio	0.35			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		13.0
Intersection Capacity Utilization	63.9%	ICU Level of Service		B
Analysis Period (min)	15			

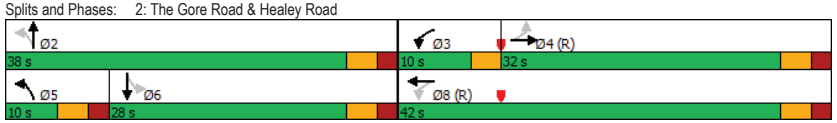
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	40	380	35	175	5	340	5	290
Future Volume (vph)	40	380	35	175	5	340	5	290
Turn Type	Perm	NA	pm+pt	NA	pm+pt	NA	Perm	NA
Protected Phases		4	3	8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	10.0	23.0	10.0	23.0	23.0	23.0
Total Split (s)	32.0	32.0	10.0	42.0	10.0	38.0	28.0	28.0
Total Split (%)	40.0%	40.0%	12.5%	52.5%	12.5%	47.5%	35.0%	35.0%
Maximum Green (s)	27.0	27.0	7.0	37.0	5.0	33.0	23.0	23.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead		Lead		Lag	Lag
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None
Walk Time (s)	7.0	7.0		7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0		0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: The Gore Road & Healey Road



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	490	225	5	635	5	305
v/c Ratio	0.23	0.11	0.02	0.70	0.05	0.49
Control Delay	4.4	5.7	13.0	10.9	27.0	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	5.7	13.0	10.9	27.0	31.6
Queue Length 50th (m)	8.3	5.0	0.2	1.6	0.7	22.7
Queue Length 95th (m)	20.2	13.8	m1.1	6.0	3.7	34.5
Internal Link Dist (m)	1406.7	121.4		629.5		329.7
Turn Bay Length (m)			50.0		50.0	
Base Capacity (vph)	2138	2009	218	1530	183	1014
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	0.23	0.11	0.02	0.42	0.03	0.30

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	380	70	35	175	15	5	340	295	5	290	15
Future Volume (vph)	40	380	70	35	175	15	5	340	295	5	290	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	
Frt		0.98			0.99		1.00	0.93		1.00	0.99	
Flt Protected		1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3449			3477		1770	3293		1770	3513	
Flt Permitted		0.91			0.85		0.37	1.00		0.34	1.00	
Satd. Flow (perm)		3168			2987		696	3293		639	3513	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	380	70	35	175	15	5	340	295	5	290	15
RTOR Reduction (vph)	0	9	0	0	5	0	0	220	0	0	5	0
Lane Group Flow (vph)	0	481	0	0	220	0	5	415	0	5	300	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		49.7			49.7		20.3	20.3		14.0	14.0	
Effective Green, g (s)		49.7			49.7		20.3	20.3		14.0	14.0	
Actuated g/C Ratio		0.62			0.62		0.25	0.25		0.18	0.18	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1968			1855		194	835		111	614	
v/s Ratio Prot							0.00	c0.13			0.09	
v/s Ratio Perm		c0.15			0.07		0.01			0.01		
v/c Ratio		0.24			0.12		0.03	0.50		0.05	0.49	
Uniform Delay, d1		6.8			6.2		22.6	25.5		27.4	29.8	
Progression Factor		0.71			1.00		0.61	0.44		1.00	1.00	
Incremental Delay, d2		0.3			0.0		0.1	0.5		0.2	0.6	
Delay (s)		5.1			6.2		13.8	11.6		27.6	30.4	
Level of Service		A			A		B	B		C	C	
Approach Delay (s)		5.1			6.2			11.6			30.3	
Approach LOS		A			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	20	5	355	20	375
Future Volume (vph)	20	5	355	20	375
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	27.0	27.0	53.0	53.0	53.0
Total Split (%)	33.8%	33.8%	66.3%	66.3%	66.3%
Maximum Green (s)	22.0	22.0	48.0	48.0	48.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 62 (78%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 3: Centreville Creek Road & Street B



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	20	5	380	395
v/c Ratio	0.09	0.02	0.12	0.13
Control Delay	31.1	20.0	0.6	1.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.1	20.0	0.6	1.3
Queue Length 50th (m)	2.9	0.1	0.0	0.0
Queue Length 95th (m)	9.2	3.2	3.8	4.0
Internal Link Dist (m)	440.8		585.7	292.7
Turn Bay Length (m)				
Base Capacity (vph)	486	438	3155	2962
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.01	0.12	0.13

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	5	355	25	20	375
Future Volume (vph)	20	5	355	25	20	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1583	3504			3530
Flt Permitted	0.95	1.00	1.00			0.93
Satd. Flow (perm)	1770	1583	3504			3291
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	5	355	25	20	375
RTOR Reduction (vph)	0	5	3	0	0	0
Lane Group Flow (vph)	20	0	377	0	0	395
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	4.0	4.0	66.0			66.0
Effective Green, g (s)	4.0	4.0	66.0			66.0
Actuated g/C Ratio	0.05	0.05	0.82			0.82
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	88	79	2890			2715
v/s Ratio Prot	c0.01		0.11			
v/s Ratio Perm		0.00				c0.12
v/c Ratio	0.23	0.00	0.13			0.15
Uniform Delay, d1	36.5	36.1	1.4			1.4
Progression Factor	0.97	0.99	0.35			0.76
Incremental Delay, d2	1.3	0.0	0.1			0.1
Delay (s)	36.6	35.9	0.6			1.2
Level of Service	D	D	A			A
Approach Delay (s)	36.5		0.6			1.2
Approach LOS	D		A			A

Intersection Summary				
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	0	0	40	40	90
Future Volume (vph)	45	0	0	40	40	90
Turn Type	Perm	NA	NA	NA	Perm	NA
Protected Phases		4	8	2		6
Permitted Phases	4				6	
Detector Phase	4	4	8	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	33.0	33.0	33.0	47.0	47.0	47.0
Total Split (%)	41.3%	41.3%	41.3%	58.8%	58.8%	58.8%
Maximum Green (s)	28.0	28.0	28.0	42.0	42.0	42.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 4: Street A & Street B



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	45	160	40	40	115
v/c Ratio	0.22	0.14	0.01	0.04	0.08
Control Delay	29.8	0.2	0.2	2.2	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	0.2	0.2	2.2	1.8
Queue Length 50th (m)	2.5	0.0	0.1	1.0	2.3
Queue Length 95th (m)	6.8	0.0	0.2	3.1	5.9
Internal Link Dist (m)	440.8	191.2	568.7		46.2
Turn Bay Length (m)				30.0	
Base Capacity (vph)	806	1696	2783	1069	1421
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	0.06	0.09	0.01	0.04	0.08

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	0	0	0	0	160	0	40	0	40	90	25
Future Volume (vph)	45	0	0	0	0	160	0	40	0	40	90	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0		5.0	5.0	
Lane Util. Factor		0.95			0.95			0.95		1.00	1.00	
Frt		1.00			0.85			1.00		1.00	0.97	
Flt Protected		0.95			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3362			3008			3539		1770	1802	
Flt Permitted		0.65			1.00			1.00		0.73	1.00	
Satd. Flow (perm)		2303			3008			3539		1359	1802	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	0	0	0	0	160	0	40	0	40	90	25
RTOR Reduction (vph)	0	0	0	0	146	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	45	0	0	14	0	0	40	0	40	110	0
Turn Type	Perm	NA			NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.1			7.1			62.9		62.9	62.9	
Effective Green, g (s)		7.1			7.1			62.9		62.9	62.9	
Actuated g/C Ratio		0.09			0.09			0.79		0.79	0.79	
Clearance Time (s)		5.0			5.0			5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		204			266			2782		1068	1416	
v/s Ratio Prot					0.00			0.01			c0.06	
v/s Ratio Perm		c0.02								0.03		
v/c Ratio		0.22			0.05			0.01		0.04	0.08	
Uniform Delay, d1		33.9			33.4			1.8		1.9	1.9	
Progression Factor		0.81			1.00			0.11		1.00	1.00	
Incremental Delay, d2		0.5			0.1			0.0		0.1	0.1	
Delay (s)		28.1			33.5			0.2		1.9	2.1	
Level of Service		C			C			A		A	A	
Approach Delay (s)		28.1			33.5			0.2			2.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	10	380	35	365
Future Volume (vph)	10	380	35	365
Turn Type	Prot	NA	Perm	NA
Protected Phases	8	2		6
Permitted Phases			6	
Detector Phase	8	2	6	6
Switch Phase				
Minimum Initial (s)	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0
Total Split (s)	25.0	55.0	55.0	55.0
Total Split (%)	31.3%	68.8%	68.8%	68.8%
Maximum Green (s)	20.0	50.0	50.0	50.0
Yellow Time (s)	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 66 (83%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 5: Centreville Creek Road & Street D



Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	10	445	400
v/c Ratio	0.05	0.14	0.13
Control Delay	32.1	0.2	0.5
Queue Delay	0.0	0.0	0.0
Total Delay	32.1	0.2	0.5
Queue Length 50th (m)	1.5	0.0	0.0
Queue Length 95th (m)	4.8	1.1	5.0
Internal Link Dist (m)	463.8	330.1	585.7
Turn Bay Length (m)	50.0		
Base Capacity (vph)	442	3290	3010
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.14	0.13

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	0	380	65	35	365
Future Volume (vph)	10	0	380	65	35	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0			5.0
Lane Util. Factor	1.00		0.95			0.95
Frt	1.00		0.98			1.00
Flt Protected	0.95		1.00			1.00
Satd. Flow (prot)	1770		3462			3524
Flt Permitted	0.95		1.00			0.89
Satd. Flow (perm)	1770		3462			3167
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	0	380	65	35	365
RTOR Reduction (vph)	0	0	7	0	0	0
Lane Group Flow (vph)	10	0	438	0	0	400
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	2.0		68.0			68.0
Effective Green, g (s)	2.0		68.0			68.0
Actuated g/C Ratio	0.02		0.85			0.85
Clearance Time (s)	5.0		5.0			5.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	44		2942			2691
v/s Ratio Prot	c0.01		c0.13			
v/s Ratio Perm						0.13
v/c Ratio	0.23		0.15			0.15
Uniform Delay, d1	38.2		1.0			1.0
Progression Factor	1.02		0.10			0.45
Incremental Delay, d2	2.6		0.1			0.1
Delay (s)	41.6		0.2			0.6
Level of Service	D		A			A
Approach Delay (s)	41.6		0.2			0.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	0.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

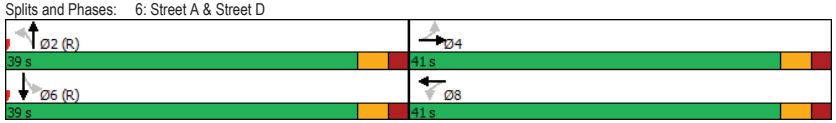
c Critical Lane Group

Lane Group	EBL	EBT	NBT	SBL	SBT	Ø8
Lane Configurations						
Traffic Volume (vph)	25	0	15	40	40	
Future Volume (vph)	25	0	15	40	40	
Turn Type	Perm	NA	NA	Perm	NA	
Protected Phases		4	2		6	8
Permitted Phases	4			6		
Detector Phase	4	4	2	6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	41.0	41.0	39.0	39.0	39.0	41.0
Total Split (%)	51.3%	51.3%	48.8%	48.8%	48.8%	51%
Maximum Green (s)	36.0	36.0	34.0	34.0	34.0	36.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 17 (21%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 6: Street A & Street D



Lane Group	EBL	EBT	NBT	SBT
Lane Group Flow (vph)	25	70	15	90
v/c Ratio	0.20	0.07	0.01	0.04
Control Delay	37.2	0.1	0.4	1.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.2	0.1	0.4	1.9
Queue Length 50th (m)	4.1	0.0	0.0	1.0
Queue Length 95th (m)	12.2	0.0	0.2	2.7
Internal Link Dist (m)		463.8	321.4	568.7
Turn Bay Length (m)	50.0			
Base Capacity (vph)	634	1244	2923	2496
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.06	0.01	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	0	70	0	0	0	0	15	0	40	40	10
Future Volume (vph)	25	0	70	0	0	0	0	15	0	40	40	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0						5.0			5.0	
Lane Util. Factor	1.00	1.00						0.95			0.95	
Frt	1.00	0.85						1.00			0.98	
Flt Protected	0.95	1.00						1.00			0.98	
Satd. Flow (prot)	1770	1583						3539			3405	
Flt Permitted	0.76	1.00						1.00			0.87	
Satd. Flow (perm)	1410	1583						3539			3022	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	0	70	0	0	0	0	15	0	40	40	10
RTOR Reduction (vph)	0	65	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	25	5	0	0	0	0	0	15	0	0	88	0
Turn Type	Perm	NA		Perm				NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.9	5.9						64.1			64.1	
Effective Green, g (s)	5.9	5.9						64.1			64.1	
Actuated g/C Ratio	0.07	0.07						0.80			0.80	
Clearance Time (s)	5.0	5.0						5.0			5.0	
Vehicle Extension (s)	3.0	3.0						3.0			3.0	
Lane Grp Cap (vph)	103	116						2835			2421	
v/s Ratio Prot		0.00						0.00				
v/s Ratio Perm	c0.02										c0.03	
v/c Ratio	0.24	0.04						0.01			0.04	
Uniform Delay, d1	34.9	34.4						1.6			1.6	
Progression Factor	1.00	1.00						0.18			1.02	
Incremental Delay, d2	1.2	0.2						0.0			0.0	
Delay (s)	36.3	34.6						0.3			1.7	
Level of Service	D	C						A			A	
Approach Delay (s)		35.0			0.0			0.3			1.7	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.05			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	21.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBT	NBT	SBT	Ø8
Lane Configurations				
Traffic Volume (vph)	0	160	40	
Future Volume (vph)	0	160	40	
Turn Type	NA	NA	NA	
Protected Phases	4	2	6	8
Permitted Phases				
Detector Phase	4	2	6	
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0
Total Split (s)	30.0	50.0	50.0	30.0
Total Split (%)	37.5%	62.5%	62.5%	38%
Maximum Green (s)	25.0	45.0	45.0	25.0
Yellow Time (s)	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None
Walk Time (s)	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 61 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 7: Street B & Street D



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	40	160	40
v/c Ratio	0.04	0.05	0.01
Control Delay	0.1	0.2	0.7
Queue Delay	0.0	0.0	0.0
Total Delay	0.1	0.2	0.7
Queue Length 50th (m)	0.0	0.2	0.2
Queue Length 95th (m)	0.0	0.8	0.5
Internal Link Dist (m)	439.5	323.8	279.3
Turn Bay Length (m)			
Base Capacity (vph)	1180	3127	3127
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.03	0.05	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	40	0	0	0	0	160	0	0	40	0
Future Volume (vph)	0	0	40	0	0	0	0	160	0	0	40	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0						5.0			5.0	
Lane Util. Factor		1.00						0.95			0.95	
Frt		0.85						1.00			1.00	
Flt Protected		1.00						1.00			1.00	
Satd. Flow (prot)		1583						3539			3539	
Flt Permitted		1.00						1.00			1.00	
Satd. Flow (perm)		1583						3539			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	40	0	0	0	0	160	0	0	40	0
RTOR Reduction (vph)	0	38	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	0	0	0	160	0	0	40	0
Turn Type	Perm	NA		Perm				NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.3						66.7			66.7	
Effective Green, g (s)		3.3						66.7			66.7	
Actuated g/C Ratio		0.04						0.83			0.83	
Clearance Time (s)		5.0						5.0			5.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		65						2950			2950	
v/s Ratio Prot		c0.00						c0.05			0.01	
v/s Ratio Perm												
v/c Ratio		0.03						0.05			0.01	
Uniform Delay, d1		36.8						1.2			1.1	
Progression Factor		1.00						0.16			0.51	
Incremental Delay, d2		0.2						0.0			0.0	
Delay (s)		37.0						0.2			0.6	
Level of Service		D						A			A	
Approach Delay (s)		37.0			0.0			0.2			0.6	
Approach LOS		D			A			A			A	

Intersection Summary					
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.05				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	16.9%	ICU Level of Service		A	
Analysis Period (min)	15				

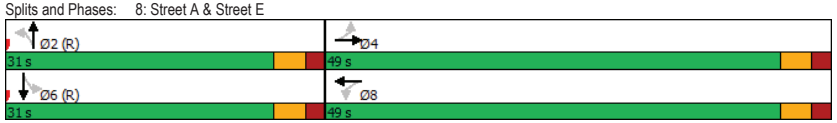
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	135	65	300	40	15	45	30
Future Volume (vph)	135	65	300	40	15	45	30
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6
Permitted Phases		8		2		6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	49.0	49.0	49.0	31.0	31.0	31.0	31.0
Total Split (%)	61.3%	61.3%	61.3%	38.8%	38.8%	38.8%	38.8%
Maximum Green (s)	44.0	44.0	44.0	26.0	26.0	26.0	26.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0		5.0
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 40 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 8: Street A & Street E



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	200	65	300	145	110
v/c Ratio	0.44	0.27	0.68	0.08	0.06
Control Delay	21.5	17.7	26.8	0.2	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	17.7	26.8	0.2	2.1
Queue Length 50th (m)	19.4	9.0	48.0	0.0	1.0
Queue Length 95th (m)	34.3	m14.0	65.0	0.0	2.3
Internal Link Dist (m)	479.1		439.9	378.9	321.4
Turn Bay Length (m)		50.0			
Base Capacity (vph)	995	557	1024	1822	1803
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	0.20	0.12	0.29	0.08	0.06

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	135	65	65	300	0	40	15	90	45	30	35
Future Volume (vph)	0	135	65	65	300	0	40	15	90	45	30	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.95		1.00	1.00			0.91			0.95	
Flt Protected		1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)		1772		1770	1863			3166			3303	
Flt Permitted		1.00		0.54	1.00			0.87			0.83	
Satd. Flow (perm)		1772		1013	1863			2803			2805	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	135	65	65	300	0	40	15	90	45	30	35
RTOR Reduction (vph)	0	37	0	0	0	0	0	33	0	0	13	0
Lane Group Flow (vph)	0	163	0	65	300	0	0	112	0	0	97	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.9		18.9	18.9			51.1			51.1	
Effective Green, g (s)		18.9		18.9	18.9			51.1			51.1	
Actuated g/C Ratio		0.24		0.24	0.24			0.64			0.64	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		418		239	440			1790			1791	
v/s Ratio Prot		0.09			c0.16							
v/s Ratio Perm				0.06				c0.04			0.03	
v/c Ratio		0.39		0.27	0.68			0.06			0.05	
Uniform Delay, d1		25.7		24.9	27.8			5.4			5.4	
Progression Factor		1.00		0.66	0.71			0.02			0.41	
Incremental Delay, d2		0.6		0.6	3.9			0.1			0.1	
Delay (s)		26.4		16.9	23.7			0.2			2.3	
Level of Service		C		B	C			A			A	
Approach Delay (s)		26.4			22.5			0.2			2.3	
Approach LOS		C			C			A			A	

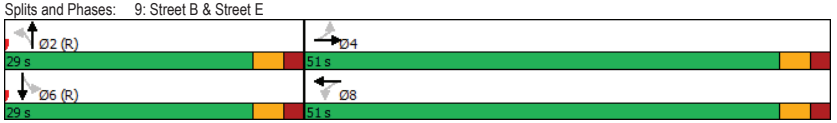
Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	290	95	415	145	15	85	0
Future Volume (vph)	290	95	415	145	15	85	0
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6
Permitted Phases		8		2		6	
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	51.0	51.0	51.0	29.0	29.0	29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	36.3%	36.3%	36.3%	36.3%
Maximum Green (s)	46.0	46.0	46.0	24.0	24.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0		5.0
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 66 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 9: Street B & Street E



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	340	95	560	250	85
v/c Ratio	0.46	0.29	0.77	0.20	0.08
Control Delay	12.4	10.8	18.4	0.6	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	10.8	18.4	0.6	11.9
Queue Length 50th (m)	29.3	8.8	56.0	0.2	2.7
Queue Length 95th (m)	39.1	m7.7	52.2	0.0	8.3
Internal Link Dist (m)	439.9		374.1	368.3	323.8
Turn Bay Length (m)		50.0			
Base Capacity (vph)	1055	478	1044	1252	1012
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	0.32	0.20	0.54	0.20	0.08

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	290	50	95	415	145	145	15	90	85	0	0
Future Volume (vph)	0	290	50	95	415	145	145	15	90	85	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		0.98		1.00	0.96			0.95			1.00	
Flt Protected		1.00		0.95	1.00			0.97			0.95	
Satd. Flow (prot)		1822		1770	1790			3254			3362	
Flt Permitted		1.00		0.45	1.00			0.75			0.60	
Satd. Flow (perm)		1822		832	1790			2518			2112	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	290	50	95	415	145	145	15	90	85	0	0
RTOR Reduction (vph)	0	11	0	0	22	0	0	47	0	0	0	0
Lane Group Flow (vph)	0	329	0	95	538	0	0	203	0	0	85	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		31.7		31.7	31.7			38.3			38.3	
Effective Green, g (s)		31.7		31.7	31.7			38.3			38.3	
Actuated g/C Ratio		0.40		0.40	0.40			0.48			0.48	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		721		329	709			1205			1011	
v/s Ratio Prot		0.18			c0.30							
v/s Ratio Perm				0.11				c0.08			0.04	
v/c Ratio		0.46		0.29	0.76			0.17			0.08	
Uniform Delay, d1		17.8		16.5	20.8			11.8			11.3	
Progression Factor		0.66		0.62	0.65			0.02			0.81	
Incremental Delay, d2		0.5		0.4	4.0			0.3			0.2	
Delay (s)		12.2		10.7	17.5			0.6			9.3	
Level of Service		B		B	B			A			A	
Approach Delay (s)		12.2			16.5			0.6			9.3	
Approach LOS		B			B			A			A	

Intersection Summary					
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.44				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	62.0%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	330	105	145	985	1065	620
Future Volume (vph)	330	105	145	985	1065	620
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	10.0	23.0	23.0	23.0
Total Split (s)	29.0	29.0	11.0	51.0	40.0	40.0
Total Split (%)	36.3%	36.3%	13.8%	63.8%	50.0%	50.0%
Maximum Green (s)	24.0	24.0	8.0	46.0	35.0	35.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	0.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	3.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 64 (80%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 10: The Gore Road & Street E



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	330	105	145	985	1065	620
v/c Ratio	0.77	0.23	0.42	0.44	0.60	0.56
Control Delay	33.2	3.1	8.4	9.6	16.4	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	3.1	8.4	9.6	16.4	4.8
Queue Length 50th (m)	30.5	0.5	11.3	64.2	52.6	11.7
Queue Length 95th (m)	44.4	4.2	m13.1	70.7	81.4	28.2
Internal Link Dist (m)	374.1			350.7	420.4	
Turn Bay Length (m)	50.0		50.0			50.0
Base Capacity (vph)	531	548	355	2237	1768	1101
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	0.62	0.19	0.41	0.44	0.60	0.56

Intersection Summary

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	330	105	145	985	1065	620
Future Volume (vph)	330	105	145	985	1065	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	3.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.17	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	313	3539	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	330	105	145	985	1065	620
RTOR Reduction (vph)	0	80	0	0	0	310
Lane Group Flow (vph)	330	25	145	985	1065	310
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	19.4	19.4	50.6	50.6	40.0	40.0
Effective Green, g (s)	19.4	19.4	50.6	50.6	40.0	40.0
Actuated g/C Ratio	0.24	0.24	0.63	0.63	0.50	0.50
Clearance Time (s)	5.0	5.0	3.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	429	383	336	2238	1769	791
v/s Ratio Prot	c0.19		0.04	c0.28	c0.30	
v/s Ratio Perm		0.02	0.23			0.20
v/c Ratio	0.77	0.07	0.43	0.44	0.60	0.39
Uniform Delay, d1	28.2	23.3	8.2	7.5	14.3	12.4
Progression Factor	0.76	0.40	0.85	1.10	0.97	2.08
Incremental Delay, d2	7.9	0.1	0.8	0.5	1.2	1.1
Delay (s)	29.4	9.4	7.7	8.8	15.1	27.0
Level of Service	C	A	A	A	B	C
Approach Delay (s)	24.5			8.6	19.5	
Approach LOS	C			A	B	

Intersection Summary				
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	125	20	470	50	380
Future Volume (vph)	125	20	470	50	380
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	33.0	33.0	47.0	47.0	47.0
Total Split (%)	41.3%	41.3%	58.8%	58.8%	58.8%
Maximum Green (s)	28.0	28.0	42.0	42.0	42.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 7 (9%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 11: Centreville Creek Road & Street F



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	125	20	525	430
v/c Ratio	0.48	0.08	0.19	0.18
Control Delay	31.2	11.0	3.3	2.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.2	11.0	3.3	2.7
Queue Length 50th (m)	11.8	0.1	9.9	7.1
Queue Length 95th (m)	26.1	0.2	18.3	14.7
Internal Link Dist (m)	497.7		560.7	398.0
Turn Bay Length (m)	50.0			
Base Capacity (vph)	619	567	2712	2346
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.04	0.19	0.18

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	125	20	470	55	50	380
Future Volume (vph)	125	20	470	55	50	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.98			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1770	1583	3484			3519
Flt Permitted	0.95	1.00	1.00			0.85
Satd. Flow (perm)	1770	1583	3484			3018
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	125	20	470	55	50	380
RTOR Reduction (vph)	0	18	6	0	0	0
Lane Group Flow (vph)	125	2	519	0	0	430
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	9.8	9.8	60.2			60.2
Effective Green, g (s)	9.8	9.8	60.2			60.2
Actuated g/C Ratio	0.12	0.12	0.75			0.75
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	216	193	2621			2271
v/s Ratio Prot	c0.07		c0.15			
v/s Ratio Perm		0.00				0.14
v/c Ratio	0.58	0.01	0.20			0.19
Uniform Delay, d1	33.2	30.8	2.9			2.9
Progression Factor	0.81	0.83	0.97			0.75
Incremental Delay, d2	3.7	0.0	0.2			0.2
Delay (s)	30.5	25.7	3.0			2.3
Level of Service	C	C	A			A
Approach Delay (s)	29.9		3.0			2.3
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

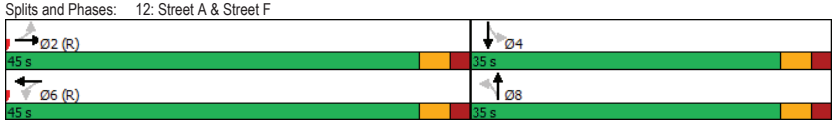
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	5	100	100	140	120
Future Volume (vph)	5	100	100	140	120
Turn Type	NA	Perm	NA	NA	NA
Protected Phases	2		6	8	4
Permitted Phases		6			
Detector Phase	2	6	6	8	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	45.0	45.0	45.0	35.0	35.0
Total Split (%)	56.3%	56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0	40.0	40.0	30.0	30.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	C-Min	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 77 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 12: Street A & Street F



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	5	100	100	190	165
v/c Ratio	0.00	0.09	0.07	0.46	0.40
Control Delay	4.2	1.5	1.4	24.5	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	1.5	1.4	24.5	12.3
Queue Length 50th (m)	0.2	1.6	1.6	11.7	9.6
Queue Length 95th (m)	m1.4	3.1	3.0	21.8	16.8
Internal Link Dist (m)	497.7		422.8	571.7	378.9
Turn Bay Length (m)		50.0			
Base Capacity (vph)	1427	1076	1427	1306	1300
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	0.00	0.09	0.07	0.15	0.13

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	0	100	100	0	0	140	50	0	120	45
Future Volume (vph)	0	5	0	100	100	0	0	140	50	0	120	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		1.00		1.00	1.00			0.96			0.96	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1863		1770	1863			3400			3394	
Flt Permitted		1.00		0.75	1.00			1.00			1.00	
Satd. Flow (perm)		1863		1405	1863			3400			3394	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	5	0	100	100	0	0	140	50	0	120	45
RTOR Reduction (vph)	0	0	0	0	0	0	0	45	0	0	40	0
Lane Group Flow (vph)	0	5	0	100	100	0	0	145	0	0	125	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		61.3		61.3	61.3			8.7			8.7	
Effective Green, g (s)		61.3		61.3	61.3			8.7			8.7	
Actuated g/C Ratio		0.77		0.77	0.77			0.11			0.11	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		1427		1076	1427			369			369	
v/s Ratio Prot		0.00			0.05			c0.04			0.04	
v/s Ratio Perm				c0.07								
v/c Ratio		0.00		0.09	0.07			0.39			0.34	
Uniform Delay, d1		2.2		2.4	2.3			33.2			33.0	
Progression Factor		1.55		0.49	0.50			0.87			0.40	
Incremental Delay, d2		0.0		0.2	0.1			0.7			0.5	
Delay (s)		3.4		1.3	1.2			29.5			13.8	
Level of Service		A		A	A			C			B	
Approach Delay (s)		3.4			1.3			29.5			13.8	
Approach LOS		A			A			C			B	

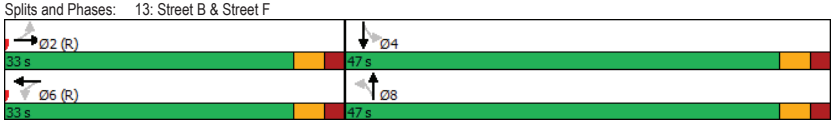
Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	10	10	90	250	80
Future Volume (vph)	10	10	90	250	80
Turn Type	NA	NA	Perm	NA	NA
Protected Phases	2	6		8	4
Permitted Phases			8		
Detector Phase	2	6	8	8	4
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	33.0	33.0	47.0	47.0	47.0
Total Split (%)	41.3%	41.3%	58.8%	58.8%	58.8%
Maximum Green (s)	28.0	28.0	42.0	42.0	42.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 20 (25%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 13: Street B & Street F



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	60	10	440	145
v/c Ratio	0.05	0.01	0.69	0.20
Control Delay	7.8	5.6	21.3	4.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.8	5.6	21.3	4.3
Queue Length 50th (m)	6.3	1.0	28.8	0.6
Queue Length 95th (m)	16.3	m1.2	40.5	2.7
Internal Link Dist (m)	422.8	378.2	574.6	368.3
Turn Bay Length (m)				
Base Capacity (vph)	1115	1256	1558	1764
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.28	0.08

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	50	0	10	0	90	250	100	0	80	65
Future Volume (vph)	0	10	50	0	10	0	90	250	100	0	80	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.88			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		1630			1863			3384			3301	
Flt Permitted		1.00			1.00			0.85			1.00	
Satd. Flow (perm)		1630			1863			2902			3301	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	10	50	0	10	0	90	250	100	0	80	65
RTOR Reduction (vph)	0	16	0	0	0	0	0	58	0	0	52	0
Lane Group Flow (vph)	0	44	0	0	10	0	0	382	0	0	93	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		54.0			54.0			16.0			16.0	
Effective Green, g (s)		54.0			54.0			16.0			16.0	
Actuated g/C Ratio		0.68			0.68			0.20			0.20	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1100			1257			580			660	
v/s Ratio Prot		c0.03			0.01						0.03	
v/s Ratio Perm								c0.13				
v/c Ratio		0.04			0.01			0.66			0.14	
Uniform Delay, d1		4.3			4.2			29.5			26.3	
Progression Factor		3.25			1.01			0.64			0.25	
Incremental Delay, d2		0.1			0.0			2.7			0.1	
Delay (s)		14.2			4.3			21.6			6.8	
Level of Service		B			A			C			A	
Approach Delay (s)		14.2			4.3			21.6			6.8	
Approach LOS		B			A			C			A	

Intersection Summary				
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.18			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	33.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	215	10	15	10	50	910	10	975
Future Volume (vph)	215	10	15	10	50	910	10	975
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	7	4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	10.0	33.0	23.0	23.0	47.0	47.0	47.0	47.0
Total Split (%)	12.5%	41.3%	28.8%	28.8%	58.8%	58.8%	58.8%	58.8%
Maximum Green (s)	5.0	28.0	18.0	18.0	42.0	42.0	42.0	42.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0		5.0		5.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)		7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 22 (28%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 14: The Gore Road & Street F



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	215	50	15	20	975	1170
v/c Ratio	0.59	0.11	0.11	0.13	0.54	0.57
Control Delay	27.6	4.2	35.1	25.6	9.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	4.2	35.1	25.6	9.2	3.4
Queue Length 50th (m)	17.4	0.2	2.3	1.5	34.3	4.7
Queue Length 95th (m)	30.4	4.1	7.9	7.8	46.0	4.8
Internal Link Dist (m)		378.2		136.4	579.4	350.7
Turn Bay Length (m)						
Base Capacity (vph)	365	599	389	395	1810	2036
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	0.59	0.08	0.04	0.05	0.54	0.57

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	10	40	15	10	10	50	910	15	10	975	185
Future Volume (vph)	215	10	40	15	10	10	50	910	15	10	975	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frt	1.00	0.88		1.00	0.93			1.00			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1770	1639		1770	1723			3522			3454	
Flt Permitted	0.43	1.00		0.93	1.00			0.83			0.95	
Satd. Flow (perm)	801	1639		1733	1723			2925			3268	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	215	10	40	15	10	10	50	910	15	10	975	185
RTOR Reduction (vph)	0	29	0	0	9	0	0	1	0	0	17	0
Lane Group Flow (vph)	215	21	0	15	11	0	0	974	0	0	1153	0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.5	22.5		4.3	4.3			47.5			47.5	
Effective Green, g (s)	22.5	22.5		4.3	4.3			47.5			47.5	
Actuated g/C Ratio	0.28	0.28		0.05	0.05			0.59			0.59	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	385	460		93	92			1736			1940	
v/s Ratio Prot	c0.09	0.01			0.01							
v/s Ratio Perm	c0.06			0.01				0.33			c0.35	
v/c Ratio	0.56	0.05		0.16	0.11			0.56			0.59	
Uniform Delay, d1	23.7	20.9		36.1	36.0			9.9			10.2	
Progression Factor	0.88	0.45		1.00	1.00			0.78			0.23	
Incremental Delay, d2	1.8	0.0		0.8	0.6			1.3			1.1	
Delay (s)	22.6	9.5		36.9	36.6			9.0			3.5	
Level of Service	C	A		D	D			A			A	
Approach Delay (s)		20.1			36.7			9.0			3.5	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	120	15	510	105	395
Future Volume (vph)	120	15	510	105	395
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	31.0	31.0	49.0	49.0	49.0
Total Split (%)	38.8%	38.8%	61.3%	61.3%	61.3%
Maximum Green (s)	26.0	26.0	44.0	44.0	44.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 15: Centreville Creek Road & Street H



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	120	15	640	500
v/c Ratio	0.47	0.06	0.24	0.25
Control Delay	17.1	2.4	3.3	3.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.1	2.4	3.3	3.2
Queue Length 50th (m)	5.6	0.0	11.8	10.8
Queue Length 95th (m)	3.6	0.0	21.8	18.7
Internal Link Dist (m)	472.5		756.3	560.7
Turn Bay Length (m)	50.0			
Base Capacity (vph)	575	524	2690	2002
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.03	0.24	0.25

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	120	15	510	130	105	395
Future Volume (vph)	120	15	510	130	105	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1770	1583	3431			3502
Flt Permitted	0.95	1.00	1.00			0.73
Satd. Flow (perm)	1770	1583	3431			2569
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	15	510	130	105	395
RTOR Reduction (vph)	0	13	15	0	0	0
Lane Group Flow (vph)	120	2	625	0	0	500
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	9.6	9.6	60.4			60.4
Effective Green, g (s)	9.6	9.6	60.4			60.4
Actuated g/C Ratio	0.12	0.12	0.75			0.75
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	212	189	2590			1939
v/s Ratio Prot	c0.07		0.18			
v/s Ratio Perm		0.00				c0.19
v/c Ratio	0.57	0.01	0.24			0.26
Uniform Delay, d1	33.2	31.0	2.9			3.0
Progression Factor	0.36	0.14	1.00			0.82
Incremental Delay, d2	3.3	0.0	0.2			0.3
Delay (s)	15.4	4.3	3.2			2.8
Level of Service	B	A	A			A
Approach Delay (s)	14.2		3.2			2.8
Approach LOS	B		A			A

Intersection Summary				
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

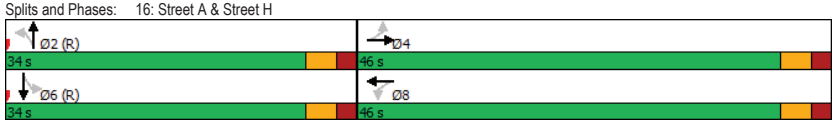
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	170	20	275	210	240
Future Volume (vph)	170	20	275	210	240
Turn Type	NA	Perm	NA	NA	NA
Protected Phases	4		8	2	6
Permitted Phases		8			
Detector Phase	4	8	8	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	46.0	46.0	46.0	34.0	34.0
Total Split (%)	57.5%	57.5%	57.5%	42.5%	42.5%
Maximum Green (s)	41.0	41.0	41.0	29.0	29.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 50 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 16: Street A & Street H



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	175	20	275	245	240
v/c Ratio	0.43	0.08	0.67	0.11	0.10
Control Delay	26.0	8.0	21.3	5.5	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	8.0	21.3	5.5	3.1
Queue Length 50th (m)	19.1	2.5	48.6	5.8	2.7
Queue Length 95th (m)	29.4	m3.3	69.8	12.8	6.1
Internal Link Dist (m)	472.5		410.4	732.3	571.7
Turn Bay Length (m)		50.0			
Base Capacity (vph)	952	557	954	2276	2316
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	0.18	0.04	0.29	0.11	0.10

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	170	5	20	275	0	0	210	35	0	240	0
Future Volume (vph)	0	170	5	20	275	0	0	210	35	0	240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		1.00		1.00	1.00			0.98			1.00	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1855		1770	1863			3463			3539	
Flt Permitted		1.00		0.58	1.00			1.00			1.00	
Satd. Flow (perm)		1855		1087	1863			3463			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	170	5	20	275	0	0	210	35	0	240	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	173	0	20	275	0	0	236	0	0	240	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.6		17.6	17.6			52.4			52.4	
Effective Green, g (s)		17.6		17.6	17.6			52.4			52.4	
Actuated g/C Ratio		0.22		0.22	0.22			0.65			0.65	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		408		239	409			2268			2318	
v/s Ratio Prot		0.09			c0.15			c0.07			0.07	
v/s Ratio Perm				0.02								
v/c Ratio		0.42		0.08	0.67			0.10			0.10	
Uniform Delay, d1		26.8		24.8	28.6			5.1			5.1	
Progression Factor		0.91		0.33	0.49			1.00			0.50	
Incremental Delay, d2		0.7		0.1	3.9			0.1			0.1	
Delay (s)		25.0		8.4	18.0			5.2			2.6	
Level of Service		C		A	B			A			A	
Approach Delay (s)		25.0			17.3			5.2			2.6	
Approach LOS		C			B			A			A	

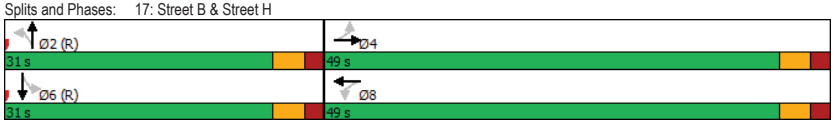
Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	210	15	465	360	145
Future Volume (vph)	210	15	465	360	145
Turn Type	NA	Perm	NA	NA	NA
Protected Phases	4		8	2	6
Permitted Phases		8			
Detector Phase	4	8	8	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	49.0	49.0	49.0	31.0	31.0
Total Split (%)	61.3%	61.3%	61.3%	38.8%	38.8%
Maximum Green (s)	44.0	44.0	44.0	26.0	26.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 78 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 17: Street B & Street H



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	215	15	465	405	145
v/c Ratio	0.34	0.04	0.74	0.22	0.08
Control Delay	5.7	4.3	19.5	10.8	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	4.3	19.5	10.8	12.2
Queue Length 50th (m)	5.1	1.3	74.5	15.6	5.5
Queue Length 95th (m)	6.2	m0.6	11.1	30.4	11.2
Internal Link Dist (m)	410.4		410.7	715.2	574.6
Turn Bay Length (m)		50.0			
Base Capacity (vph)	1022	586	1024	1883	1907
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	0.21	0.03	0.45	0.22	0.08

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	210	5	15	465	0	0	360	45	0	145	0
Future Volume (vph)	0	210	5	15	465	0	0	360	45	0	145	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor		1.00		1.00	1.00			0.95			0.95	
Frt		1.00		1.00	1.00			0.98			1.00	
Flt Protected		1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)		1856		1770	1863			3480			3539	
Flt Permitted		1.00		0.57	1.00			1.00			1.00	
Satd. Flow (perm)		1856		1066	1863			3480			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	210	5	15	465	0	0	360	45	0	145	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	214	0	15	465	0	0	397	0	0	145	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		26.9		26.9	26.9			43.1			43.1	
Effective Green, g (s)		26.9		26.9	26.9			43.1			43.1	
Actuated g/C Ratio		0.34		0.34	0.34			0.54			0.54	
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		624		358	626			1874			1906	
v/s Ratio Prot		0.12			c0.25			c0.11			0.04	
v/s Ratio Perm				0.01								
v/c Ratio		0.34		0.04	0.74			0.21			0.08	
Uniform Delay, d1		19.9		17.9	23.5			9.6			8.9	
Progression Factor		0.23		0.28	0.54			1.00			1.13	
Incremental Delay, d2		0.3		0.0	4.5			0.3			0.1	
Delay (s)		4.9		5.1	17.2			9.9			10.1	
Level of Service		A		A	B			A			B	
Approach Delay (s)		4.9			16.8			9.9			10.1	
Approach LOS		A			B			A			B	

Intersection Summary					
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.42				
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	44.2%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	175	75	95	800	585
Future Volume (vph)	175	75	95	800	585
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	4			2	6
Permitted Phases		4	2		
Detector Phase	4	4	2	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	27.0	27.0	53.0	53.0	53.0
Total Split (%)	33.8%	33.8%	66.3%	66.3%	66.3%
Maximum Green (s)	22.0	22.0	48.0	48.0	48.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 5 (6%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 18: The Gore Road & Street H



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	175	75	95	800	1030
v/c Ratio	0.58	0.23	0.29	0.32	0.42
Control Delay	51.0	21.2	8.0	5.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	21.2	8.0	5.3	2.0
Queue Length 50th (m)	30.3	0.0	4.6	20.8	0.0
Queue Length 95th (m)	26.5	4.9	14.8	36.3	15.2
Internal Link Dist (m)	410.7			679.8	579.4
Turn Bay Length (m)	50.0		50.0		
Base Capacity (vph)	486	489	332	2496	2460
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	0.36	0.15	0.29	0.32	0.42

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	175	75	95	800	585	445
Future Volume (vph)	175	75	95	800	585	445
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.94	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3310	
Flt Permitted	0.95	1.00	0.25	1.00	1.00	
Satd. Flow (perm)	1770	1583	471	3539	3310	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	75	95	800	585	445
RTOR Reduction (vph)	0	62	0	0	126	0
Lane Group Flow (vph)	175	13	95	800	904	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	13.6	13.6	56.4	56.4	56.4	
Effective Green, g (s)	13.6	13.6	56.4	56.4	56.4	
Actuated g/C Ratio	0.17	0.17	0.70	0.70	0.70	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	300	269	332	2494	2333	
v/s Ratio Prot	c0.10			0.23	c0.27	
v/s Ratio Perm		0.01	0.20			
v/c Ratio	0.58	0.05	0.29	0.32	0.39	
Uniform Delay, d1	30.6	27.8	4.4	4.5	4.8	
Progression Factor	1.43	2.77	1.00	1.00	0.52	
Incremental Delay, d2	2.8	0.1	2.2	0.3	0.4	
Delay (s)	46.6	76.9	6.5	4.8	2.9	
Level of Service	D	E	A	A	A	
Approach Delay (s)	55.7			5.0	2.9	
Approach LOS	E			A	A	

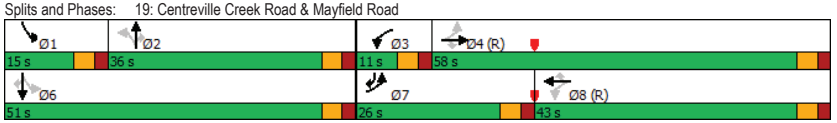
Intersection Summary				
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1045	5	80	1010	20	40	625	195	130	130	305
Future Volume (vph)	205	1045	5	80	1010	20	40	625	195	130	130	305
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8			2		1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0	10.0	23.0	10.0
Total Split (s)	26.0	58.0	58.0	11.0	43.0	43.0	36.0	36.0	36.0	15.0	51.0	26.0
Total Split (%)	21.7%	48.3%	48.3%	9.2%	35.8%	35.8%	30.0%	30.0%	30.0%	12.5%	42.5%	21.7%
Maximum Green (s)	21.0	53.0	53.0	6.0	38.0	38.0	31.0	31.0	31.0	10.0	46.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	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 Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead		Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0		0	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 19: Centreville Creek Road & Mayfield Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	205	1045	5	80	1010	20	40	625	195	130	130	305
v/c Ratio	0.60	0.43	0.01	0.28	0.48	0.03	0.14	0.79	0.40	0.57	0.10	0.38
Control Delay	21.9	22.8	0.0	10.3	18.9	0.1	37.1	51.8	8.8	35.4	24.8	17.2
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	21.9	22.8	0.0	10.3	18.9	0.1	37.1	51.8	8.8	35.4	24.8	17.2
Queue Length 50th (m)	24.5	64.8	0.0	3.8	70.4	0.0	8.0	77.1	2.5	22.0	11.1	41.6
Queue Length 95th (m)	42.2	81.2	0.0	7.5	85.6	m0.2	17.3	94.7	21.2	34.8	17.1	49.4
Internal Link Dist (m)		279.6			433.4			176.0			756.3	
Turn Bay Length (m)	125.0		85.0	125.0		85.0				100.0		100.0
Base Capacity (vph)	439	2494	832	286	2094	743	322	914	543	236	1381	912
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	0.42	0.01	0.28	0.48	0.03	0.12	0.68	0.36	0.55	0.09	0.33

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1045	5	80	1010	20	40	625	195	130	130	305
Future Volume (vph)	205	1045	5	80	1010	20	40	625	195	130	130	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.18	1.00	1.00	0.23	1.00	1.00	0.67	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	335	5085	1583	437	5085	1583	1247	3539	1583	264	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	205	1045	5	80	1010	20	40	625	195	130	130	305
RTOR Reduction (vph)	0	0	3	0	0	12	0	0	142	0	0	10
Lane Group Flow (vph)	205	1045	2	80	1010	8	40	625	53	130	130	295
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8			2		1	6	7
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	67.4	56.4	56.4	55.3	49.3	49.3	26.7	26.7	26.7	42.6	42.6	55.7
Effective Green, g (s)	67.4	56.4	56.4	55.3	49.3	49.3	26.7	26.7	26.7	42.6	42.6	55.7
Actuated g/C Ratio	0.56	0.47	0.47	0.46	0.41	0.41	0.22	0.22	0.22	0.36	0.36	0.46
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	344	2389	744	268	2089	650	277	787	352	230	1256	800
v/s Ratio Prot	c0.06	0.21		0.01	0.20			c0.18		c0.05	0.04	0.04
v/s Ratio Perm	c0.27		0.00	0.12		0.01	0.03		0.03	0.15		0.15
v/c Ratio	0.60	0.44	0.00	0.30	0.48	0.01	0.14	0.79	0.15	0.57	0.10	0.37
Uniform Delay, d1	15.4	21.2	16.9	18.4	26.0	20.9	37.5	44.1	37.5	29.1	25.9	20.8
Progression Factor	1.00	1.00	1.00	0.54	0.65	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.6	0.0	0.6	0.8	0.0	0.2	5.5	0.2	3.2	0.0	0.3
Delay (s)	18.1	21.8	16.9	10.5	17.7	21.0	37.7	49.6	37.7	32.3	26.0	21.1
Level of Service	B	C	B	B	B	C	D	D	D	C	C	C
Approach Delay (s)		21.2			17.2			46.4			24.8	
Approach LOS		C			B			D			C	

Intersection Summary						
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C			
HCM 2000 Volume to Capacity ratio	0.66					
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0			
Intersection Capacity Utilization	72.0%	ICU Level of Service	C			
Analysis Period (min)	15					

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	SBT	Ø2	Ø5
Lane Configurations							
Traffic Volume (vph)	345	1130	910	45	0		
Future Volume (vph)	345	1130	910	45	0		
Turn Type	pm+pt	NA	NA	Perm	NA		
Protected Phases	7	4	8		6	2	5
Permitted Phases	4			6			
Detector Phase	7	4	8	6	6		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	15.0	23.0	23.0	23.0	23.0	23.0	10.0
Total Split (s)	39.0	82.0	43.0	28.0	28.0	38.0	10.0
Total Split (%)	32.5%	68.3%	35.8%	23.3%	23.3%	32%	8%
Maximum Green (s)	36.0	77.0	38.0	23.0	23.0	33.0	5.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	3.0	5.0	5.0	5.0	5.0		
Lead/Lag	Lead		Lag	Lag	Lag		Lead
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0	0	0	0	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 88 (73%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 20: Street A & Mayfield Road



Lane Group	EBL	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	345	1130	935	45	310
v/c Ratio	0.61	0.27	0.27	0.36	0.46
Control Delay	7.1	2.3	1.9	59.2	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	2.3	1.9	59.2	2.3
Queue Length 50th (m)	1.9	2.6	2.1	10.8	0.0
Queue Length 95th (m)	3.0	3.6	10.1	22.9	0.0
Internal Link Dist (m)		433.4	392.0		732.3
Turn Bay Length (m)	50.0				
Base Capacity (vph)	804	4204	3488	270	769
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	0.43	0.27	0.27	0.17	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	1130	0	0	910	25	0	0	0	45	0	310
Future Volume (vph)	345	1130	0	0	910	25	0	0	0	45	0	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0			5.0					5.0	5.0	
Lane Util. Factor	1.00	0.91			0.91					1.00	1.00	
Frt	1.00	1.00			1.00					1.00	0.85	
Flt Protected	0.95	1.00			1.00					0.95	1.00	
Satd. Flow (prot)	1770	5085			5065					1770	1583	
Flt Permitted	0.27	1.00			1.00					0.76	1.00	
Satd. Flow (perm)	503	5085			5065					1410	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	345	1130	0	0	910	25	0	0	0	45	0	310
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	282	0
Lane Group Flow (vph)	345	1130	0	0	934	0	0	0	0	45	28	0
Turn Type	pm+pt	NA		Perm	NA		pm+pt			Perm	NA	
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	99.2	99.2			82.6					10.8	10.8	
Effective Green, g (s)	99.2	99.2			82.6					10.8	10.8	
Actuated g/C Ratio	0.83	0.83			0.69					0.09	0.09	
Clearance Time (s)	3.0	5.0			5.0					5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)	559	4203			3486					126	142	
v/s Ratio Prot	c0.07	0.22			0.18						0.02	
v/s Ratio Perm	c0.44									c0.03		
v/c Ratio	0.62	0.27			0.27					0.36	0.20	
Uniform Delay, d1	2.8	2.3			7.1					51.3	50.6	
Progression Factor	1.37	0.89			0.21					1.00	1.00	
Incremental Delay, d2	1.9	0.1			0.2					1.7	0.7	
Delay (s)	5.7	2.2			1.7					53.1	51.3	
Level of Service	A	A			A					D	D	
Approach Delay (s)		3.0			1.7			0.0			51.5	
Approach LOS		A			A			A			D	

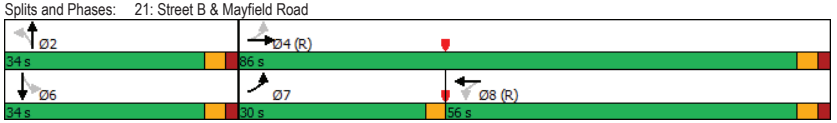
Intersection Summary				
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	68.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	SBT	Ø2
Lane Configurations						
Traffic Volume (vph)	260	555	1180	175	0	
Future Volume (vph)	260	555	1180	175	0	
Turn Type	pm+pt	NA	NA	Perm	NA	
Protected Phases	7	4	8		6	2
Permitted Phases	4			6		
Detector Phase	7	4	8	6	6	
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	30.0	86.0	56.0	34.0	34.0	34.0
Total Split (%)	25.0%	71.7%	46.7%	28.3%	28.3%	28%
Maximum Green (s)	27.0	81.0	51.0	29.0	29.0	29.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 44 (37%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 21: Street B & Mayfield Road



Lane Group	EBL	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	260	555	1465	175	80
v/c Ratio	0.68	0.15	0.50	0.74	0.13
Control Delay	42.9	3.1	10.3	65.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	3.1	10.3	65.4	0.5
Queue Length 50th (m)	41.2	8.3	79.4	41.7	0.0
Queue Length 95th (m)	67.8	10.7	129.2	62.5	0.0
Internal Link Dist (m)		392.0	460.3		715.2
Turn Bay Length (m)	50.0				
Base Capacity (vph)	524	3808	2942	340	681
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	0.50	0.15	0.50	0.51	0.12

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	555	0	0	1180	285	0	0	0	175	0	80
Future Volume (vph)	260	555	0	0	1180	285	0	0	0	175	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0			5.0					5.0	5.0	
Lane Util. Factor	1.00	0.91			0.91					1.00	1.00	
Frt	1.00	1.00			0.97					1.00	0.85	
Flt Protected	0.95	1.00			1.00					0.95	1.00	
Satd. Flow (prot)	1770	5085			4937					1770	1583	
Flt Permitted	0.13	1.00			1.00					0.76	1.00	
Satd. Flow (perm)	233	5085			4937					1410	1583	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	260	555	0	0	1180	285	0	0	0	175	0	80
RTOR Reduction (vph)	0	0	0	0	24	0	0	0	0	0	67	0
Lane Group Flow (vph)	260	555	0	0	1441	0	0	0	0	175	13	0
Turn Type	pm+pt	NA		Perm	NA		Perm			Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	89.9	89.9			70.9					20.1	20.1	
Effective Green, g (s)	89.9	89.9			70.9					20.1	20.1	
Actuated g/C Ratio	0.75	0.75			0.59					0.17	0.17	
Clearance Time (s)	3.0	5.0			5.0					5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0					3.0	3.0	
Lane Grp Cap (vph)	379	3809			2916					236	265	
v/s Ratio Prot	c0.09	0.11			0.29						0.01	
v/s Ratio Perm	c0.42									c0.12		
v/c Ratio	0.69	0.15			0.49					0.74	0.05	
Uniform Delay, d1	14.2	4.2			14.2					47.5	41.9	
Progression Factor	2.79	0.63			0.63					1.00	1.00	
Incremental Delay, d2	5.0	0.1			0.6					11.8	0.1	
Delay (s)	44.7	2.7			9.5					59.3	42.0	
Level of Service	D	A			A					E	D	
Approach Delay (s)		16.1			9.5			0.0			53.9	
Approach LOS		B			A			A			D	

Intersection Summary					
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.71				
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		13.0	
Intersection Capacity Utilization	64.9%	ICU Level of Service		C	
Analysis Period (min)	15				

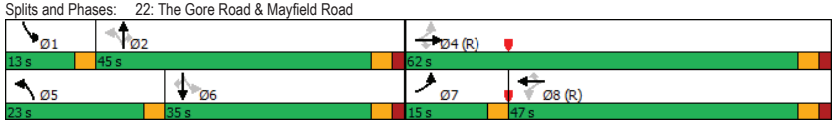
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	325	150	10	940	95	240	650	10	100	310	225
Future Volume (vph)	125	325	150	10	940	95	240	650	10	100	310	225
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	23.0	23.0	23.0	23.0	23.0	10.0	23.0	23.0	8.0	23.0	23.0
Total Split (s)	15.0	62.0	62.0	47.0	47.0	47.0	23.0	45.0	45.0	13.0	35.0	35.0
Total Split (%)	12.5%	51.7%	51.7%	39.2%	39.2%	39.2%	19.2%	37.5%	37.5%	10.8%	29.2%	29.2%
Maximum Green (s)	12.0	57.0	57.0	42.0	42.0	42.0	20.0	40.0	40.0	10.0	30.0	30.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
Lost Time Adjust (s)	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 Lost Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	C-Min	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0		0	0		0	0

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 22: The Gore Road & Mayfield Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	125	325	150	10	940	95	240	650	10	100	310	225
v/c Ratio	0.35	0.11	0.15	0.02	0.39	0.12	0.60	0.79	0.02	0.45	0.51	0.49
Control Delay	10.4	7.6	2.2	22.0	22.6	4.6	34.0	50.6	0.1	31.7	47.9	9.1
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	10.4	7.6	2.2	22.0	22.6	4.6	34.0	50.6	0.1	31.7	47.9	9.1
Queue Length 50th (m)	2.5	2.4	0.0	1.3	53.4	0.0	44.0	80.4	0.0	16.8	37.3	0.0
Queue Length 95th (m)	26.2	20.0	10.4	5.5	79.5	10.6	58.3	95.2	0.0	26.1	49.8	20.9
Internal Link Dist (m)		460.3			187.9			250.0			679.8	
Turn Bay Length (m)	75.0		60.0	60.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	389	2930	975	482	2403	800	430	1179	576	237	884	564
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	0.32	0.11	0.15	0.02	0.39	0.12	0.56	0.55	0.02	0.42	0.35	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	325	150	10	940	95	240	650	10	100	310	225
Future Volume (vph)	125	325	150	10	940	95	240	650	10	100	310	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.23	1.00	1.00	0.55	1.00	1.00	0.37	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	426	5085	1583	1020	5085	1583	694	3539	1583	413	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	125	325	150	10	940	95	240	650	10	100	310	225
RTOR Reduction (vph)	0	0	64	0	0	50	0	0	8	0	0	187
Lane Group Flow (vph)	125	325	87	10	940	45	240	650	2	100	310	38
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	69.2	69.2	69.2	56.8	56.8	56.8	40.8	27.8	27.8	30.4	20.4	20.4
Effective Green, g (s)	69.2	69.2	69.2	56.8	56.8	56.8	40.8	27.8	27.8	30.4	20.4	20.4
Actuated g/C Ratio	0.58	0.58	0.58	0.47	0.47	0.47	0.34	0.23	0.23	0.25	0.17	0.17
Clearance Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	350	2932	912	482	2406	749	391	819	366	217	601	269
v/s Ratio Prot	c0.03	0.06			c0.18		c0.09	c0.18		0.04	0.09	
v/s Ratio Perm	0.18		0.05	0.01		0.03	0.12		0.00	0.08		0.02
v/c Ratio	0.36	0.11	0.09	0.02	0.39	0.06	0.61	0.79	0.01	0.46	0.52	0.14
Uniform Delay, d1	12.5	11.5	11.4	16.8	20.4	17.1	30.6	43.4	35.5	35.9	45.3	42.4
Progression Factor	0.63	0.60	0.77	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.2	0.1	0.5	0.2	2.9	5.3	0.0	1.5	0.8	0.2
Delay (s)	8.5	7.0	8.9	16.9	20.9	17.3	33.4	48.7	35.5	37.4	46.1	42.6
Level of Service	A	A	A	B	C	B	C	D	D	D	D	D
Approach Delay (s)		7.8			20.5			44.5			43.5	
Approach LOS		A			C			D			D	

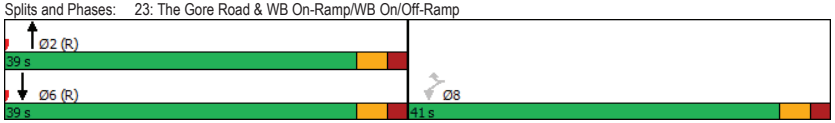
Intersection Summary				
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.52			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	63.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	515	215	400	565	395	180
Future Volume (vph)	515	215	400	565	395	180
Turn Type	Perm	Perm	NA	Free	NA	Free
Protected Phases			2		6	
Permitted Phases	8	8		Free		Free
Detector Phase	8	8	2		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	23.0	23.0	23.0		23.0	
Total Split (s)	41.0	41.0	39.0		39.0	
Total Split (%)	51.3%	51.3%	48.8%		48.8%	
Maximum Green (s)	36.0	36.0	34.0		34.0	
Yellow Time (s)	3.0	3.0	3.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Minimum Gap (s)	3.0	3.0	3.0		3.0	
Time Before Reduce (s)	0.0	0.0	0.0		0.0	
Time To Reduce (s)	0.0	0.0	0.0		0.0	
Recall Mode	None	None	C-Min		C-Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 4 (5%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 23: The Gore Road & WB On-Ramp/WB On/Off-Ramp





Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	515	215	400	565	395	180
v/c Ratio	0.81	0.30	0.22	0.36	0.22	0.11
Control Delay	32.7	3.3	19.4	1.2	6.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.7	3.3	19.4	1.2	6.8	0.1
Queue Length 50th (m)	72.2	0.0	27.6	0.7	8.9	0.0
Queue Length 95th (m)	94.1	11.2	45.2	11.3	18.6	0.0
Internal Link Dist (m)			349.0		629.5	
Turn Bay Length (m)				50.0		100.0
Base Capacity (vph)	798	832	1821	1583	1821	1583
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	0.65	0.26	0.22	0.36	0.22	0.11

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	515	0	215	0	400	565	0	395	180
Future Volume (vph)	0	0	0	515	0	215	0	400	565	0	395	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0		5.0		5.0	4.0		5.0	4.0
Lane Util. Factor				1.00		1.00		0.95	1.00		0.95	1.00
Frt				1.00		0.85		1.00	0.85		1.00	0.85
Flt Protected				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1770		1583		3539	1583		3539	1583
Flt Permitted				0.95		1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1770		1583		3539	1583		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	515	0	215	0	400	565	0	395	180
RTOR Reduction (vph)	0	0	0	0	0	137	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	515	0	78	0	400	565	0	395	180
Turn Type				Perm		Perm		NA	Free		NA	Free
Protected Phases								2			6	
Permitted Phases				8		8			Free			Free
Actuated Green, G (s)				28.9		28.9		41.1	80.0		41.1	80.0
Effective Green, g (s)				28.9		28.9		41.1	80.0		41.1	80.0
Actuated g/C Ratio				0.36		0.36		0.51	1.00		0.51	1.00
Clearance Time (s)				5.0		5.0		5.0			5.0	
Vehicle Extension (s)				3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)				639		571		1818	1583		1818	1583
v/s Ratio Prot								0.11			0.11	
v/s Ratio Perm				c0.29		0.05			c0.36			0.11
v/c Ratio				0.81		0.14		0.22	0.36		0.22	0.11
Uniform Delay, d1				23.0		17.2		10.7	0.0		10.6	0.0
Progression Factor				1.00		1.00		1.59	1.00		0.54	1.00
Incremental Delay, d2				7.3		0.1		0.3	0.6		0.3	0.1
Delay (s)				30.4		17.3		17.2	0.6		6.1	0.1
Level of Service				C		B		B	A		A	A
Approach Delay (s)		0.0			26.5			7.5			4.2	
Approach LOS		A			C			A			A	

Intersection Summary				
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	47.1%	ICU Level of Service	A	
Analysis Period (min)	15			

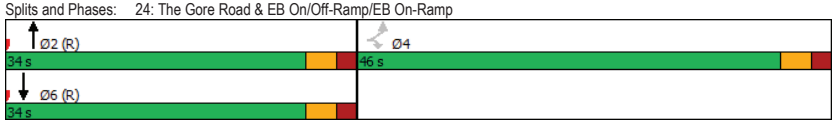
c Critical Lane Group

Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	270	1055	770	510	765	20
Future Volume (vph)	270	1055	770	510	765	20
Turn Type	Perm	Perm	NA	Free	NA	Free
Protected Phases			2		6	
Permitted Phases	4	4		Free		Free
Detector Phase	4	4	2		6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	23.0	23.0	23.0		23.0	
Total Split (s)	46.0	46.0	34.0		34.0	
Total Split (%)	57.5%	57.5%	42.5%		42.5%	
Maximum Green (s)	41.0	41.0	29.0		29.0	
Yellow Time (s)	3.0	3.0	3.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Minimum Gap (s)	3.0	3.0	3.0		3.0	
Time Before Reduce (s)	0.0	0.0	0.0		0.0	
Time To Reduce (s)	0.0	0.0	0.0		0.0	
Recall Mode	None	None	C-Min		C-Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 2 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 24: The Gore Road & EB On/Off-Ramp/EB On-Ramp



Lane Group	EBL	EBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	270	1055	770	510	765	20
v/c Ratio	0.35	0.82	0.50	0.32	0.50	0.01
Control Delay	15.2	22.7	10.3	0.5	14.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	22.7	10.3	0.5	14.3	0.0
Queue Length 50th (m)	26.9	71.4	24.4	0.0	43.5	0.0
Queue Length 95th (m)	38.6	86.9	34.5	0.0	64.9	m0.0
Internal Link Dist (m)			420.4		349.0	
Turn Bay Length (m)				100.0		50.0
Base Capacity (vph)	907	1484	1540	1583	1540	1583
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	0.71	0.50	0.32	0.50	0.01

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	0	1055	0	0	0	0	770	510	0	765	20
Future Volume (vph)	270	0	1055	0	0	0	0	770	510	0	765	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0					5.0	4.0		5.0	4.0
Lane Util. Factor	1.00		0.88					0.95	1.00		0.95	1.00
Frt	1.00		0.85					1.00	0.85		1.00	0.85
Flt Protected	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770		2787					3539	1583		3539	1583
Flt Permitted	0.95		1.00					1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770		2787					3539	1583		3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	0	1055	0	0	0	0	770	510	0	765	20
RTOR Reduction (vph)	0	0	64	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	270	0	991	0	0	0	0	770	510	0	765	20
Turn Type	Perm		Perm					NA	Free		NA	Free
Protected Phases								2			6	
Permitted Phases	4		4						Free			Free
Actuated Green, G (s)	35.2		35.2					34.8	80.0		34.8	80.0
Effective Green, g (s)	35.2		35.2					34.8	80.0		34.8	80.0
Actuated g/C Ratio	0.44		0.44					0.43	1.00		0.43	1.00
Clearance Time (s)	5.0		5.0					5.0			5.0	
Vehicle Extension (s)	3.0		3.0					3.0			3.0	
Lane Grp Cap (vph)	778		1226					1539	1583		1539	1583
v/s Ratio Prot								c0.22			0.22	
v/s Ratio Perm	0.15		c0.36						0.32			0.01
v/c Ratio	0.35		0.81					0.50	0.32		0.50	0.01
Uniform Delay, d1	14.8		19.5					16.3	0.0		16.3	0.0
Progression Factor	1.00		1.00					0.52	1.00		0.75	1.00
Incremental Delay, d2	0.3		4.0					1.0	0.5		1.0	0.0
Delay (s)	15.1		23.5					9.5	0.5		13.2	0.0
Level of Service	B		C					A	A		B	A
Approach Delay (s)		21.8			0.0			5.9			12.9	
Approach LOS		C			A			A			B	

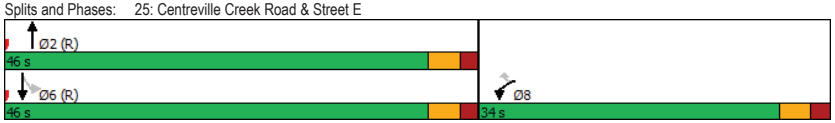
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	95	10	435	35	335
Future Volume (vph)	95	10	435	35	335
Turn Type	Prot	Perm	NA	Perm	NA
Protected Phases	8		2		6
Permitted Phases		8		6	
Detector Phase	8	8	2	6	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0
Total Split (s)	34.0	34.0	46.0	46.0	46.0
Total Split (%)	42.5%	42.5%	57.5%	57.5%	57.5%
Maximum Green (s)	29.0	29.0	41.0	41.0	41.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 78 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 25: Centreville Creek Road & Street E



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	95	10	490	370
v/c Ratio	0.45	0.05	0.18	0.15
Control Delay	15.7	2.6	0.8	1.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.7	2.6	0.8	1.7
Queue Length 50th (m)	3.2	0.1	1.6	3.0
Queue Length 95th (m)	13.4	m0.3	2.1	7.3
Internal Link Dist (m)	479.1		398.0	330.1
Turn Bay Length (m)	50.0			
Base Capacity (vph)	641	580	2768	2487
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.02	0.18	0.15

Intersection Summary

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	95	10	435	55	35	335
Future Volume (vph)	95	10	435	55	35	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0			5.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.98			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1583	3480			3523
Flt Permitted	0.95	1.00	1.00			0.89
Satd. Flow (perm)	1770	1583	3480			3133
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	95	10	435	55	35	335
RTOR Reduction (vph)	0	9	6	0	0	0
Lane Group Flow (vph)	95	1	484	0	0	370
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	8.5	8.5	61.5			61.5
Effective Green, g (s)	8.5	8.5	61.5			61.5
Actuated g/C Ratio	0.11	0.11	0.77			0.77
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	188	168	2675			2408
v/s Ratio Prot	c0.05		c0.14			
v/s Ratio Perm		0.00				0.12
v/c Ratio	0.51	0.01	0.18			0.15
Uniform Delay, d1	33.8	32.0	2.5			2.4
Progression Factor	0.29	0.13	0.24			0.55
Incremental Delay, d2	2.1	0.0	0.1			0.1
Delay (s)	11.8	4.2	0.7			1.5
Level of Service	B	A	A			A
Approach Delay (s)	11.0		0.7			1.5
Approach LOS	B		A			A

Intersection Summary				
HCM 2000 Control Delay	2.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group