



Mount Hope West Secondary Plan Town of Caledon

Proposed Residential Development Transportation Impact Study

Paradigm Transportation Solutions Limited

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Project Summary



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Mount Hope West Secondary Plan, Town of Caledon, ON Transportation Impact Study

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Executive Summary

Introduction

This report is an update to the February 2025 study previously prepared. This update addresses minor changes to the site plan.

Paradigm Transportation Solutions Limited (Paradigm) was retained by United Holdings Inc. (the client) to conduct a Transportation Impact Study for a proposed residential subdivision development containing a commercial block, at the northwest quadrant of Columbia Way and Mount Hope Road in the Town of Caledon.

The Transportation Impact Study includes an assessment of the existing transportation network and analyzes existing and future traffic conditions (with and without the proposed development). This study also provides a review of the proposed parking supply and a review of access and on-site circulation.

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

Development Concept

The subject site is located in the northwest quadrant of Columbia Way and Mount Hope Road in the Town of Caledon. It is currently undeveloped.

The property owner is proposing to create a residential subdivision with a commercial block, containing up to 721 units. It will consist of a mix of detached homes, townhouses, apartment units, and block townhouses. The commercial land parcel spans approximately 2.64 hectares. The land coverage was assumed to be 25% with a one-story building, resulting in a gross floor area of approximately 6,600 m² (71,042 sq ft).

Vehicle access is proposed via a new access road on Columbia Way (Street A, opposite Westchester Boulevard), two new access roads on Mount Hope Road (Street B and Street C), and one new driveway onto Mount Hope Road.



Conclusions

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

- ▶ **Existing Operations:** All study area intersections currently operate at acceptable levels of service and with their associated movement within capacity during the AM and PM peak hours.
- ▶ **Site Generated Traffic:** The subject site is estimated to generate approximately 506 AM peak hour trips and approximately 633 PM peak hour trips.
- ▶ **2028 Background Traffic Operations:** All study area intersections are reported to continue to operate at acceptable levels of service and within capacity during the AM and PM peak hours. The noted single exception due to background growth and other area site traffic contributions is as follows:
 - Highway 50 [Peel Regional Road 50] and Columbia Way (signalized):
 - The westbound left-turn movement reports a 95th percentile queue which is forecast to exceed the available storage provision during the AM peak hour.
- ▶ **2033 Background Traffic Operations:** The following additional critical movements are forecast that were not present under 2028 background traffic conditions:
 - Highway 50 [Peel Regional Road 50] and Columbia Way (signalized):
 - The westbound left-turn movement reports a 95th percentile queue which is forecast to exceed the available storage provision during the PM peak hour.

This is not considered a critical issue as the reported 50th percentile average queue would be contained by the available storage provision.
 - Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F during the AM peak hour. The shared movement is noted to operate within capacity; however, it is approaching capacity under background traffic conditions.



- ▶ **2028 Total Traffic Operations:** With the addition of site-generated traffic, the following critical movements are identified that were not present under 2028 background traffic conditions:
 - Columbia Way and Westchester Road/Street A (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F with v/c ratios exceeding capacity during the AM peak hour.
 - Mount Hope Road and Columbia Way (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F during the AM peak hour.

The northbound movement is forecast to operate within capacity; however, is noted to be approach capacity with a reported v/c ratio of 0.90.
 - The southbound movement is forecast to operate over-capacity with a v/c ratio of 1.71.
 - Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F during both the AM and PM peak hours.

The movement is reported to operate over-capacity with a v/c ratio of 1.46 during the AM peak hour.

The movement is reported to be within capacity during the PM peak hour; however, is noted to be approaching capacity with a v/c ratio of 0.94.
- ▶ **2033 Total Traffic Operations:** With the addition of site-generated traffic, the following critical movements are identified that were not present under 2033 background traffic conditions:
 - Columbia Way and Westchester Road/Street A (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F with v/c ratios exceeding capacity during the AM peak hour.
 - Mount Hope Road and Columbia Way (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F with v/c ratios exceeding capacity during the AM peak hour.



- Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F with v/c ratios exceeding capacity during both the AM and PM peak hours.
- ▶ **Mitigation Measures:** Applicable measures were investigated for consideration, including the following:
 - At the signalized intersection of Highway 50 [Peel Regional Road 50] and Columbia Way, adjustments to the signal timing plan was determined to mitigate the identified queue exceedance condition. This includes introduction of advance turn phases and optimization of phasing splits within the existing cycle length.
 - Poor traffic operations including over-capacity conditions are identified at three of the unsignalized study area intersections.

A traffic signal warrant analysis was conducted, and it was determined from a volume perspective signals would not be warranted for implementation under 2033 total traffic conditions for the intersections of Columbia Way with Westchester Road/Street A, Mount Hope Road, Caledon-King Townline South.

From an operational perspective, the upgrade of traffic control to signals would mitigate the reported poor operations.

- At the intersection of Columbia Way and Caledon-King Townline South, in addition of consideration of upgrading the traffic control, the provision of separate eastbound left and right turn lanes should be considered based upon the forecast traffic volumes.



Recommendations

Based on the findings of this study, the following is recommended:

- ▶ The Town of Caledon and Region of Peel recognize the conclusions drawn above;
- ▶ The applicable roadway jurisdiction should monitor traffic volumes and operations at the intersection of Highway 50 [Peel Regional Road 50] and Columbia Way and adjust signal timings as required;
- ▶ Upon development of the subject lands, the applicable roadway jurisdiction should monitor traffic volumes and operations at the intersections of Columbia Way with Westchester Road/Street A, Mount Hope Road, Caledon-King Townline South.

Specifically, it is recommended that traffic signal control be considered from implementation from an operational perspective to improve the anticipates poor traffic operations, if the projected growth and traffic contributions from other area developments are realized as forecast.



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1 Introduction

1.1 Overview

United Holdings Inc. retained Paradigm Transportation Solutions Limited (Paradigm) to complete this Transportation Impact Study (TIS) for a proposed residential subdivision with a commercial block. This report is support of United Holdings Inc's application for a Draft Plan of Subdivision. The area is included within a wider Secondary Plan that allows for up to 900 residential units.

This report is an update to the TIS report authored by Paradigm dated February 2025 in support of the original submission for the proposed development. Since the completion of the original TIS report, the proponent has been asked to adjust the location of one of the access roads to align with future development plans on the east side of Mount Hope. This resulted in minor changes to the residential unit count and the size of the commercial block.

The subject site is located in the northwest quadrant of Columbia Way and Mount Hope Road in the Town of Caledon. That lands are currently undeveloped.

The property owner is proposing to develop a residential subdivision with a commercial block, containing up to 721 units. The residential component will consist of detached homes, townhouses, apartment units, and block townhouses. The commercial land parcel spans approximately 2.64 hectares (26,400 m²). The land coverage was assumed to be 25% with a one-story building, resulting in an approximate gross floor area of 6,600 m² (71,042 sq ft).

Vehicle access is proposed via a new access road on Columbia Way (Street A, opposite Westchester Boulevard), and two new access roads on Mount Hope Road (Street B and Street C).

This study determines the impacts of the development traffic on the surrounding road network and identifies any necessary mitigation measures to accommodate the site generated traffic.

The study scope includes:

- ▶ Assessment of current traffic conditions in the study area;
- ▶ Estimates of background traffic growth;
- ▶ Estimates of additional traffic generated by the subject site;



- ▶ Analyses of the impact of future traffic on the surrounding road network; and
- ▶ Recommendations to mitigate the impacts of future traffic in a satisfactory manner, if required.

The study area intersections assessed include:

- ▶ Highway 50 [Peel Regional Road 50] and Columbia Way (signalized);
- ▶ Kingsview Drive and Columbia Way (signalized);
- ▶ Westchester Road/Street A and Columbia Way (unsignalized);
- ▶ Mount Hope Road and Columbia Way (unsignalized);
- ▶ Forest Gate Avenue and Columbia Way (unsignalized);
- ▶ Caledon-King Townline South and Columbia Way (unsignalized);
- ▶ Mount Hope Road and Castlederg Side Road (unsignalized);
- ▶ Mount Hope Road and Proposed Street C (unsignalized); and
- ▶ Mount Hope Road and Proposed Street B (unsignalized).

Figure 1.1 illustrates the site location.

Terms of Reference were provided to the Town of Caledon and to Peel Region for comment and sign-off. The study area does not include roads or intersections within the City of Vaughan or York Region's jurisdiction.

This study has been completed in general accordance with the Town of Caledon *Transportation Impact Studies Terms of Reference and Guidelines*¹ and direction provided by Town and Region staff during pre-study consultation.

Appendix A contains the pre-study consultation material and comments provided by the Region of Peel and Town of Caledon staff.

¹ Town of Caledon, *Transportation Impact Studies Terms of Reference and Guidelines*, March 2017.





Location of Subject Site and Study Area

2 Existing Conditions

2.1 Road Network

The characteristics of the roads and intersections in the vicinity of the subject site are described below. Reference was made to the Town of Caledon *Official Plan, Schedule J – Long Range Road Network*²:

- ▶ **Highway 50 [Peel Regional Road 50]:** A north-south, high-capacity arterial roadway with two lanes (one lane per direction).
At the intersection of Highway 50 [Peel Regional Road 50] and Columbia Way, the northbound and southbound approaches both provide dedicated left-turn and right-turn lanes. The roadway has a posted speed limit of 60 km/h north of Columbia Way, and 50 km/h south of Columbia Way. A sidewalk is present only on the east side of the segment south of Columbia Way. There are no dedicated cycling facilities, requiring all cyclists to share the travelled roadway with vehicles.
- ▶ **Columbia Way:** An east-west collector roadway with two lanes (one lane per direction). The roadway has a posted speed limit of 40 km/h west of Westchester Road and 50 km/h east of Westchester Road. Sidewalk is currently only provided on the south side of roadway. There are no dedicated cycling facilities, requiring all cyclists to share the travelled roadway with vehicles.
- ▶ **Kingsview Drive:** A north-south local roadway with two lanes (one lane per direction). The roadway has a posted speed limit of 40 km/h. Sidewalks are provided on both sides of Kingsview Drive between Taylorwood Drive and Columbia Way. South of this segment, sidewalks are only provided on the west side of Kingsview Drive. There are no dedicated cycling facilities, requiring all cyclists to share the travelled roadway with vehicles.
- ▶ **Westchester Road:** A north-south local roadway in the study area with two lanes (one lane per direction). The roadway has a posted speed limit of 40 km/h, with sidewalks on both sides of the road. There are no dedicated cycling facilities, requiring all cyclists to share the travelled roadway with vehicles.
- ▶ **Mount Hope Road:** A north-south collector roadway in the study area with two lanes (one lane per direction). The roadway

² Town of Caledon, *Official Plan, Schedule J – Long Range Road Network*, April 2018.

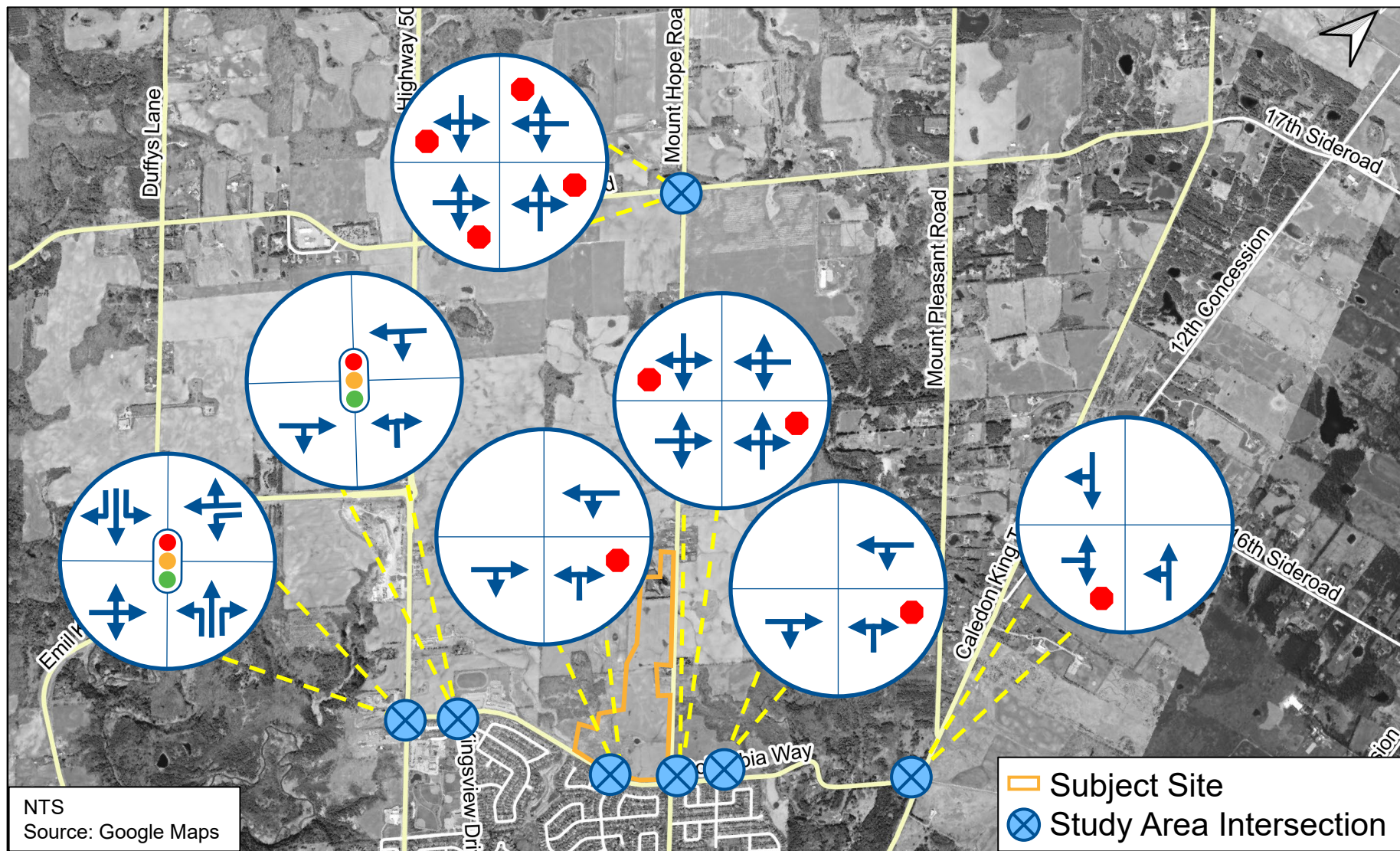


has a posted speed limit of 60 km/h. Sidewalks are not present north of Columbia Way; however, a sidewalk is present on the east side of the roadway, south of Columbia Way. This road is part of a signed cycling route

- ▶ **Forest Gate Avenue:** A north-south local roadway in the study area with two lanes (one lane per direction). The roadway has a posted speed limit of 40 km/h, and sidewalks are present on both sides of the roadway. There are no dedicated cycling facilities, requiring all cyclists to share the travelled roadway with vehicles.
- ▶ **Caledon-King Townline South:** A north-south collector roadway in the study area with two lanes (one lane per direction). The roadway has a posted speed limit of 60 km/h. Sidewalks are not present on the roadway, and there are no dedicated cycling facilities, requiring all cyclists to share the travelled roadway with vehicles.
- ▶ **Castlederg Side Road:** An east-west collector roadway study area in the vicinity with two lanes (one lane per direction). The roadway has a posted speed limit of 70 km/h. Sidewalks are not present on the roadway, and there are no dedicated cycling facilities, requiring all cyclists to share the travelled roadway with vehicles.

Figure 2.1 illustrates the existing lane configuration and traffic control at the study area intersections.





Existing Lane Configuration and Traffic Control

2.2 Transit Service

2.2.1 Existing Transit Services

The Town of Caledon currently does not run any regularly scheduled transit service within the study area. There are two on-demand specialized transit services currently provided:

- ▶ **TransHelp** is a specialized transit service that provides specific trips, flexible trips, subscription trips, return trips and cross-boundary trips to people with disabilities across Peel Region;³ and
- ▶ **Caledon Community Services (CCS)** is a door-to-door transportation service available for seniors and people with disabilities (unable to drive on their own).⁴

In addition, the following transit agencies operate transit routes serving the wider Bolton community:

- ▶ **Brampton Transit** operates route 41 BOLTON LINE. This operates between Highway 50 at the Caledon Recreation Centre and the intersection of Queen St and Highway 50 westbound. The nearest transit stop is located at Kingsview Drive and Rotarian Way, approximately 1 km from the site. This transit route provides connections to other Brampton Transit routes.
- ▶ **GO Transit** operates route 38 BOLTON/MALTON. This operates between Highway 50 at Columbia Way in Bolton, and Malton GO Station. The nearest stop is at Highway 50 at Columbia Way, approximately 1 km from the site. This route also serves also park-and-ride facilities on Regional Road 50 at George Bolton Parkway (5.5km / 8-minute drive from the site) and on Mayfield Rd at Highway 50 (7.1km / 10-minute drive from the site). This route provides connections to the wider regional transit network.

2.2.2 Future Transit Services

The subject site is generally situated on the north side of Bolton, the largest community in Caledon. Its population is approximately 26,000 people making up roughly two-thirds of Caledon's population. The

³ Region of Peel, *My Trips*, Accessed 7 December 2024.

<https://www.peelregion.ca/transhelp/my-trips#fares>

⁴ Caledon Community Services, *Specialized Transportation Application*, Accessed 7 December 2024. <https://ccs4u.org/specialized-transportation-application>



community is divided by Highway 50, with the southwest portion predominately providing employment land uses, and the northeast portion providing residential land uses, including two secondary schools.

The *Caledon Multi-Modal Transportation Plan*⁵ identifies a proposed transit network. A future transit route on Queen Street running from Brampton to Mount Hope Road is planned and identified. The route would circulate via Kingsview Drive and Bolton Heights Road. the closest point of this proposed transit route to the proposed development subdivision would be approximately 1 km. However, this does not preclude eventual transit route extension and/or service to the proposed development.

As we understand, an Official Plan Amendment (OPA) has been submitted to the Town of Caledon for a future GO Train Station. Alongside enhancements to bus service, Caledon's new Official Plan outlines the development of a future GO Train Station and surrounding areas. Caledon Station will have a diverse mix of uses, it will offer residents access to over 75 acres of parks, ponds, trails, and cycle-friendly pathways featuring shops, restaurants, workplaces, and the proposed Caledon GO Station. This future GO Station and transit hub will provide seamless connections to the GTA. The introduction of any of these routes and associated infrastructure would facilitate lower automobile usage within the immediate and surrounding community.

2.3 Active Transportation

2.3.1 Walking

Currently, there are few destinations within walking distance for prospective residents of the proposed subdivision development. The study area is surrounded by low-density residential development consisting of detached houses and townhomes.

The proposed subdivision site (9048 Columbia Way) has a Walk Score of 33 out of 100. This location is described as “Car-Dependent: most errands require a car”.⁶

The development proposal includes a commercial area at the south end of the site. This new destination would be within walking distance of both existing development to the south and much of the proposed

⁵ Town of Caledon, *Multi-Modal Transportation Master Plan*, Accessed 19 February 2026. <https://ccs4u.org/specialized-transportation-application>

⁶ Walk Score, *9048 Columbia: A location in Caledon*, Accessed 7 December 2024. [9048 Columbia Way, Caledon ON - Walk Score](#)



development. It is anticipated the commercial component would serve the immediate development and to an extent the surrounding area.

Sidewalks are discontinuous and not consistently provided throughout the study area.

Based on a review of the *Caledon Active Transportation Master Plan*,⁷ a multi-use path is proposed along Columbia Road.

Within the proposed residential subdivision open space and a park serving the residents is proposed. The proposed park is centrally located within the development and is accessible within an approximate 600 metre radius, or a 10-minute walking distance, from all proposed residential units.

2.3.2 Cycling

The proposed subdivision site (9048 Columbia Way) has a Bike Score of 29, which is described as “Somewhat Bikeable: minimal bike infrastructure”.

The majority of the study area roadways lack the provision of dedicated cycling facilities, requiring cyclists to share the travelled roadway with motor vehicles.

Based on a review of the *Caledon Active Transportation Master Plan*, future cycling facilities are proposed along Highway 50, Mount Hope Road, and Castlederg Side Road.

⁷ Town of Caledon, *Caledon Active Transportation Master Plan*, June 2024, p153 of PDF.



2.4 Traffic Volumes

To assess intersection operations, turning movement counts (TMCs) are used to quantify the movement of vehicles, pedestrians, trucks, buses, and cyclists through an intersection. Existing traffic data at an intersection or on a road section forms the foundation for operational analysis. The counts are usually collected during peak periods to complete level of service (LOS) analysis under its worst-case operating conditions.

TMCs for the study area intersections were collected in October 2023, and a subsequent January 2024 was collected to include the intersection of Forest Gate Avenue and Columbia Way. **Appendix B** contains the TMC data for reference.

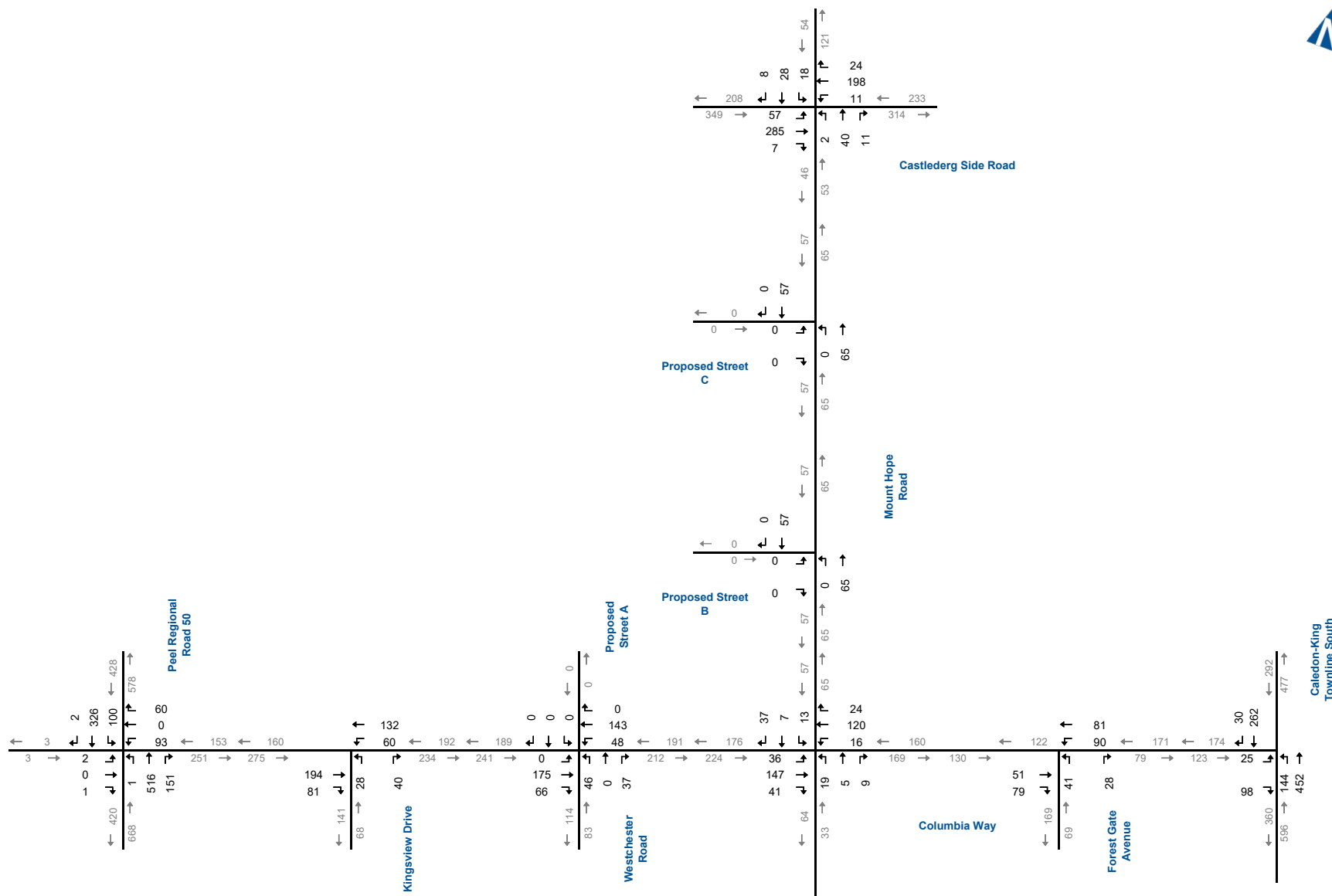
Figure 2.2 and **Figure 2.3** illustrate the base year (2023) AM and PM weekday peak hour traffic volumes, respectively.





Mount Hope Road Transportation Study
230561

Figure 2.2



Base Year (2023) Traffic Volumes PM Peak Hour

2.5 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the delay experienced by drivers at intersections. The term “Level of Service” denotes how well a traffic movement operates under given traffic demands, lane arrangements, and traffic control. Each level is determined by the average amount of control delay per vehicle. Control delay is the total delay associated with stopping for a signal or stop sign, and includes four components: deceleration delay, stopped delay, queue move up time and final acceleration delay.

Capacity is based on several criteria related to opposing traffic flows, intersection geometry, and at signalized intersections, signal timing.

Table 2.1 contains the level of service criteria for traffic signal controlled and stop-controlled intersections. As shown, LOS A indicates small average control delays (less than 10 second per vehicle) whereas LOS F indicates intersection failure, which results in extensive vehicular queues and long delays (over 50 seconds per vehicle at an unsignalized intersection, and over 80 seconds per vehicle at a traffic signal-controlled intersection).

TABLE 2.1: VEHICLE LEVEL OF SERVICE DEFINITIONS

LOS	Signalized Intersections Average Total Delay (seconds per vehicle)	Stop-Controlled Intersections Average Total Delay (seconds per vehicle)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

The Town of Caledon identifies critical movements as follows:⁸

- ▶ Signalized intersections:
 - Volume to capacity (V/C) ratio for overall intersections, through movements or shared through/turning movements increased to 0.90 or above;

⁸ Town of Caledon, *Transportation Impact Studies Terms of Reference and Guidelines*, March 2017.



- V/C ratios for individual through or turning movements increase to 1.00 or higher; *or*
- 95th percentile queue lengths for an individual movement exceed available lane storage.
- ▶ Unsignalized intersections:
 - Level of service, based on average delay per vehicle, on individual movements, exceed LOS E; *or*
 - The estimated maximum queue length for an individual movement exceeds the available lane storage.

To assess the base year (2023) peak hour automobile conditions, an operational analysis was conducted for the weekday AM and PM peak hour traffic volumes at the study area intersections using Synchro software, which implements the methods of the Highway Capacity Manual (HCM 2000). The key parameters used in the analysis include:

- ▶ Existing lane configurations;
- ▶ Heavy vehicle percentages derived from existing traffic count data;
- ▶ Conflicting pedestrian volumes derived from existing traffic count data;
- ▶ Calculated intersection peak hour factors (PHF), which facilitates an assessment of the busiest 15-minute period within the peak hour; and
- ▶ Synchro default values for all other inputs.

Table 2.2 and **Table 2.3** summarise the existing intersection operations for the AM and PM peak hours, respectively. **Appendix D** contains the detailed Synchro reports for reference.

The operational results indicate all intersections and their associated vehicle movements are operating with acceptable delays, levels of service, and are within capacity.



TABLE 2.2: AM EXISTING TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 35 0.04 10 - -	> > > > >	C 35	D 52 0.75 58 60 2	> > > > >	D 44	A 6 0.01 1 136 135	A 8 0.27 46 300 -	A 7 0.12 6 300 294	A 7	A 8 0.27 30 85 55	A 9 0.40 71 - 25	A 9 0.00 0 25 25	B 18		
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 6 0.34 35	> > > > >	A 6	< < < < <	A 8 0.56 55		A 8	D 46 0.62 30	> > > > >	D 46					B 14	
	Westchester Road & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.18 0	> > > > >	A 0	< < < < <	A 2 0.08 2		A 2	D 26 0.60 31	> > > > >	D 26					A 7 0.47	
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 1 0.02 1	> > > > >	A 1	< < < < <	A 0 0.00* 0.0	> > > > >	A 0	< < < < <	C 20 0.33 11	> > > > >	C 20	< < < < <	B 13 0.23 7	> > > > >	B 13	A 5 0.42
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	C 22 0.55 26		> > > > >	C 22					< < < < <	A 4 0.09 2	> > > > >	A 4		A 0 0.36 0	> > > > >	A 0	A 6 0.65
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < < <	A 10 0.29 21	> > > > >	A 10	< < < < <	A 10 0.32 17	> > > > >	A 10	< < < < <	A 9 0.10 18	> > > > >	A 9	< < < < <	A 9 0.22 17	> > > > >	A 9	A 10 0.32
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.09 0	> > > > >	A 0	< < < < <	A 2 0.02 0		A 2	B 11 0.24 8	> > > > >	B 11						A 5 0.32

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



TABLE 2.3: PM EXISTING TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Stor. Avail.	< < < < <	D 40 0.00 0 - -	> > > > >	D 40 0.64 34 60 26	> > > > >	D 47	A 3 0.00 1 136 135	A 5 0.38 61 300 -	A 3 0.10 6 300 294	A 4	A 4 0.17 13 85 72	A 4 0.24 35 - -	A 3 0 25 25	A 4	A 9		
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 3 0.22 19	> > > > >	A 3	< < < < <	A 4 0.18 16	A 4	C 31 0.21 15	> > > > >	C 31						A 7	
	Westchester Road & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.15 0	> > > > >	A 0	< < < < <	A 2 0.04 1	A 2	B 12 0.15 4	> > > > >	B 12						A 3 0.38	
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 1 0.03 1	> > > > >	A 1	< < < < <	A 1 0.01 0	A 1	< < < < <	B 12 0.07 2	> > > > >	B 12	< < < < <	B 11 0.09 2	> > > > >	B 11	A 3 0.30	
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	B 15 0.26 8	> > > > >	B 15					< < < < <	A 3 0.12 3	> > > > >	A 3		A 0 0.18 0	> > > > >	A 0	A 4 0.65	
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < < <	B 12 0.47 23	> > > > >	B 12	< < < < <	A 10 0.33 22	A 10	< < < < <	A 9 0.09 17	> > > > >	A 9	< < < < <	A 9 0.09 16	> > > > >	A 9	B 11 0.51	
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.09 0	> > > > >	A 0	< < < < <	A 4 0.07 2	A 4	B 11 0.12 3	> > > > >	B 11						A 4 0.31	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



3 Development Concept

3.1 Description

The subject site is located in the northwest quadrant of the Columbia Way and Mount Hope Road intersection. The land parcel is currently undeveloped.

The property owner is proposing to create a residential subdivision with a commercial block, containing up to 721 residential dwelling units. The proposed development includes a mix of residential and commercial land uses.

The residential component consists of 100 single-family detached dwelling units, 501 single-family attached dwelling units (330 units of semi-detached and 171 units of townhouses), and 120 multifamily low-rise dwelling units. The north parcel is intended to be developed as a mid-rise residential building; however, the final unit count has not yet been determined. For the purposes of this assessment, the north parcel has been conservatively (i.e., errs on the high side) assumed to provide 120 residential units.

The commercial land parcel spans approximately 2.64 hectares (26,400 m²). The land coverage was assumed to be 25% with a one-story building, resulting in an approximate gross floor area of 6,600 m² (71,041 sq ft).

Vehicle access is proposed via a new access road on Columbia Way (Street A, opposite Westchester Boulevard), and two new access roads on Mount Hope Road (Street B and Street C). Access for the north parcel has not been confirmed and will be confirmed at the site plan stage. For assessment purposes traffic generated by the north parcel has been assigned to the Street A, Street B, and Street C such that the site-traffic contributions of the north parcel are captured at the external study area intersections.

Figure 3.1 illustrates the site concept plan.



3.2 Site-Generated Traffic

The Institute of Transportation Engineers (ITE) publication *Trip Generation Manual*⁹ provides rates and equations to estimate the peak hour traffic volumes generated by various land uses. The following Land Use Codes (LUCs) were utilized:

- ▶ LUC 210: Single-Family Detached Housing;
- ▶ LUC 215: Single-Family Attached Housing;
- ▶ LUC 220: Multifamily Housing (Low-Rise); and
- ▶ LUC 821: Shopping Plaza (40-150k).

Pass-by rates were applied to the trips generated by the commercial land use. Pass-by trips are a subset of a trip generation that only applies to commercial/retail developments. These trips are already on the roadway, which businesses attract them to their site as they pass by.

The forecasts of pass-by trips were derived using data contained within the ITE Trip Generation Handbook. No pass-by trips were assumed under the AM peak hour, whereas a 40% pass-by was applied under the PM peak hour. An example of a pass-by trip is a vehicle driving from home to work and stopping for coffee. Pass-by trips are already included in the background traffic stream and do not load additional traffic onto the road network.

Table 3.1 summarizes the forecast number of net new trips generated by the proposed development. **Appendix E** contains the LUC data for reference.

Figure 3.2 and **Figure 3.3** illustrate the site-generated traffic volumes for the AM and PM peak hours, respectively.

⁹ Institute of Transportation Engineers Trip Generation Manual 12th Edition, 2025.

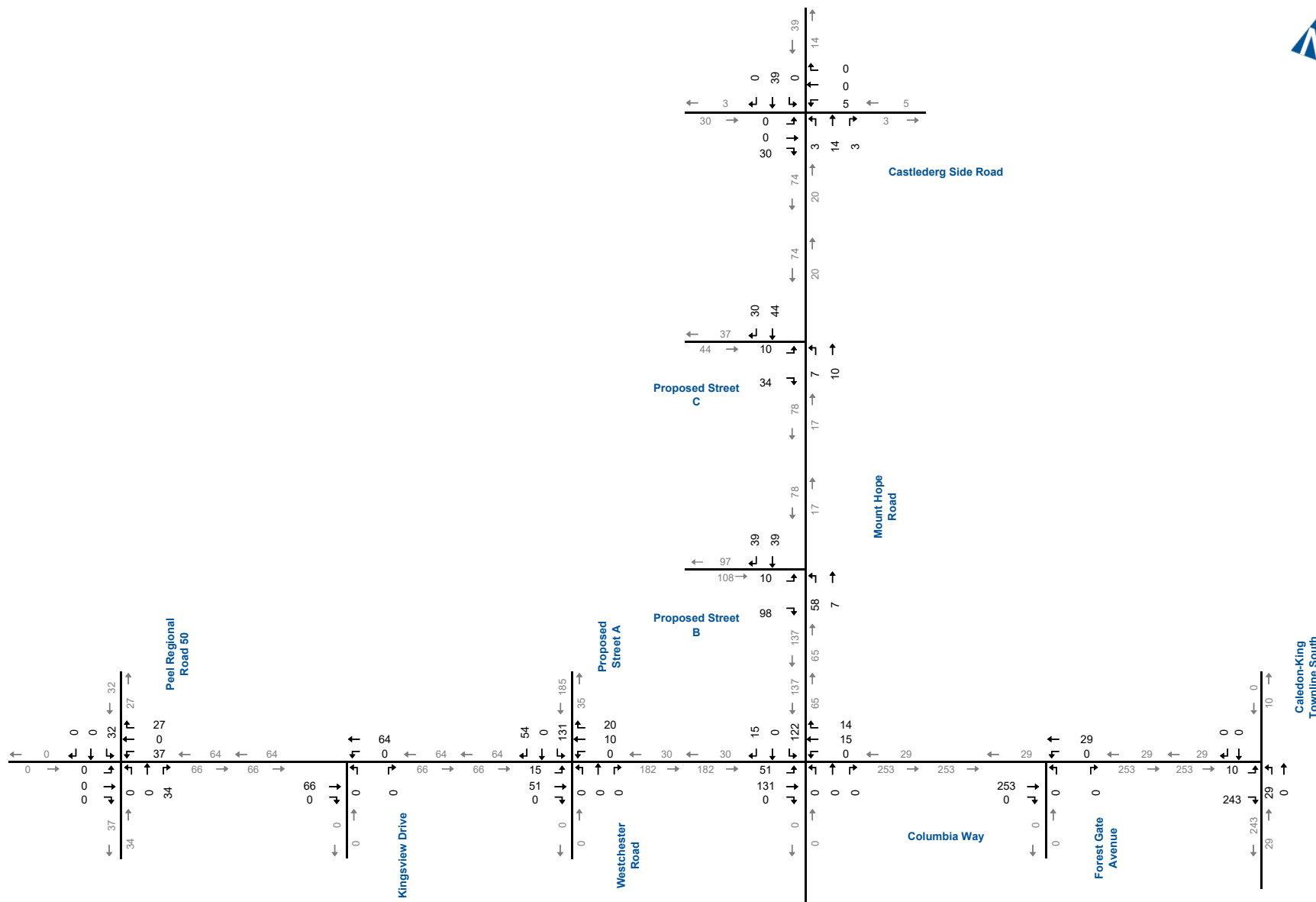


TABLE 3.1: TRIP GENERATION

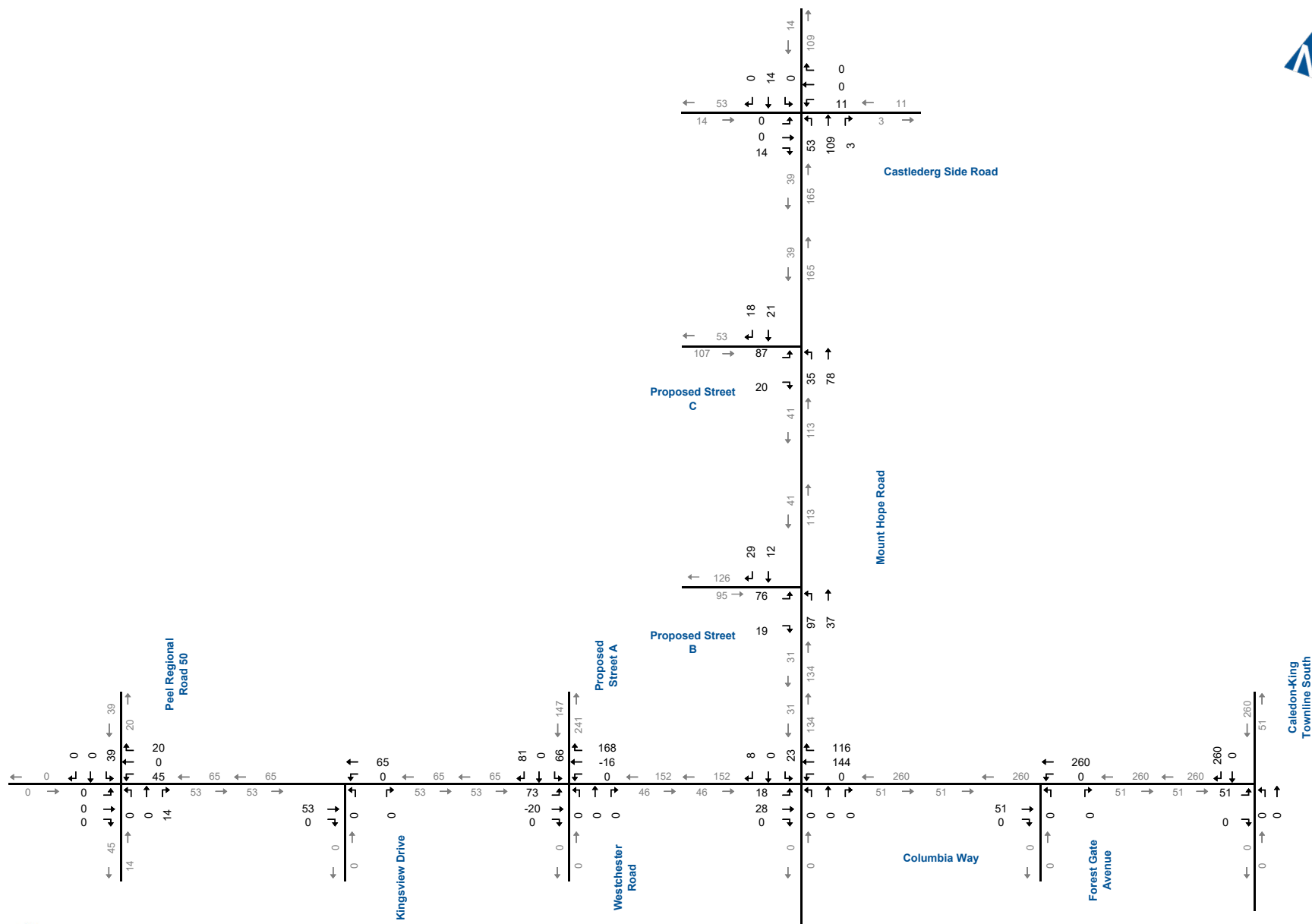
LUC	Amount	AM Peak Hour					PM Peak Hour				
		%	In	%	Out	Total	%	In	%	Out	Total
210: Single-Family Detached Housing	100 Units	27	20	73	53	73	62	60	38	36	96
215: Single-Family Attached Housing	330 Units	25	45	75	134	179	57	103	43	77	180
215: Single-Family Attached Housing	171 Units	25	21	75	65	86	57	51	43	39	90
220: Multifamily Housing (Low-Rise)	120 Units	24	13	76	42	55	62	40	38	25	65
821: Shopping Plaza (40-150k sq ft)	660 m ² (71,040 sq ft)	62	70	38	43	113	49	166	51	172	338
Total Trips (Vehicle)			169		337	506		420		349	769
Pass-By Trips (ITE 821)		0%	0		0	0	40%	68		68	136
Net Total Trips			169		337	506		352		281	633

LUC 210: AM: $T = 0.67(X) + 5.59$ | PM: $\ln(T) = 0.92 \ln(X) + 0.33$
 LUC 215: AM: $T = 0.59(X) - 15.25$ | PM: $T = 0.57(X) - 7.84$
 LUC 220: AM: $T = 0.35(X) + 12.93$ | PM: $T = 0.48(X) + 7.35$
 LUC 821: AM: Average Rate: 1.59 | PM: Average Rate: 4.76





Site-Generated Traffic Volumes AM Peak Hour



Site-Generated Traffic Volumes PM Peak Hour

Table 3.2 and **Table 3.3** summarize the estimated trip distribution. The distribution was developed using Transportation Tomorrow Survey¹⁰ data. Trips were assigned to the network based on the likely routes vehicles would travel to and from their destination and origin.

The site is located within TTS zone 3003, as this zone contains relatively little to no development, data from the adjacent nearby zone 3193 was also referenced as it includes detached single-family houses and low-density residential developments similar to the proposed development.

TABLE 3.2: TRIP DISTRIBUTION – TRIPS TO SITE

Origin	AM Peak Hour	PM Peak Hour
South of Caledon King Townline	17%	74%
East of Castlederg	3%	3%
North of Highway 50	19%	11%
West of Castlederg	18%	4%
South of Highway 50	20%	4%
North of Mount Hope	23%	4%
Total	100%	100%

TABLE 3.3: TRIP DISTRIBUTION – TRIPS FROM SITE

Destination	AM Peak Hour	PM Peak Hour
North via Mount Hope	4%	39%
North via Highway 50	8%	7%
North via Caledon King Townline	3%	18%
South via Caledon King Townline	72%	0%
South via Highway 50	11%	16%
West via Castlederg	1%	19%
East via Castlederg	1%	1%
Total	100%	100%

Trips were assigned to the adjacent transportation network based on the likely routes which vehicles would take to travel to/from their destination/origin.

As the development is an expansion to an existing developed area with the same land use, it is reasonable to assume that the trip distribution of the new development will be similar.

¹⁰ *Transportation Tomorrow Survey*, University of Toronto Data Management Group, 2016.



4 Future Conditions

The assessment of future conditions in this section includes the following components:

- ▶ Forecast background traffic volumes;
- ▶ Forecast total traffic volumes;
- ▶ Level of service analysis for background traffic (pre-development); *and*
- ▶ Level of service analysis for total traffic (post-development).

4.1 Planned Transportation Network Improvements

Two new collector roadways are proposed in the study area based on a review of the Town of Caledon's Official Plan.

The first is a northerly extension of Kingsview Drive, and the second is a new road running west from Mount Hope Road, south of Castlederg Side Road; this road is set to intersect with the northward extension of Kingsview Drive. However, neither are expected to significantly affect the routing of traffic moving to/from the subject site.

4.2 Background Traffic Conditions

4.2.1 Background Volumes

Per direction received from Town of Caledon Transportation Services staff during pre-study consultation, future scenarios were analyzed for the anticipated opening year of 2028, and a period of five years after the opening year of 2033.

The future traffic volumes near the subject site are estimated to consist of:

- ▶ Generalized background traffic growth; and
- ▶ Traffic contributions from other nearby sites.

Town of Caledon staff stipulated an annual background traffic growth rate of 2% for the roadways in the study area. The growth rate was only applied to the main roads and not any of the local roads or site access points.

Applicable nearby other area background developments were identified and accounted for within the background traffic forecasts.



Table 4.1 summarizes the status of each site, the development concept (if known), and whether a relevant traffic impact study was/is available for each site. The relevant site traffic information from each traffic impact study has been included within the background traffic forecasts.

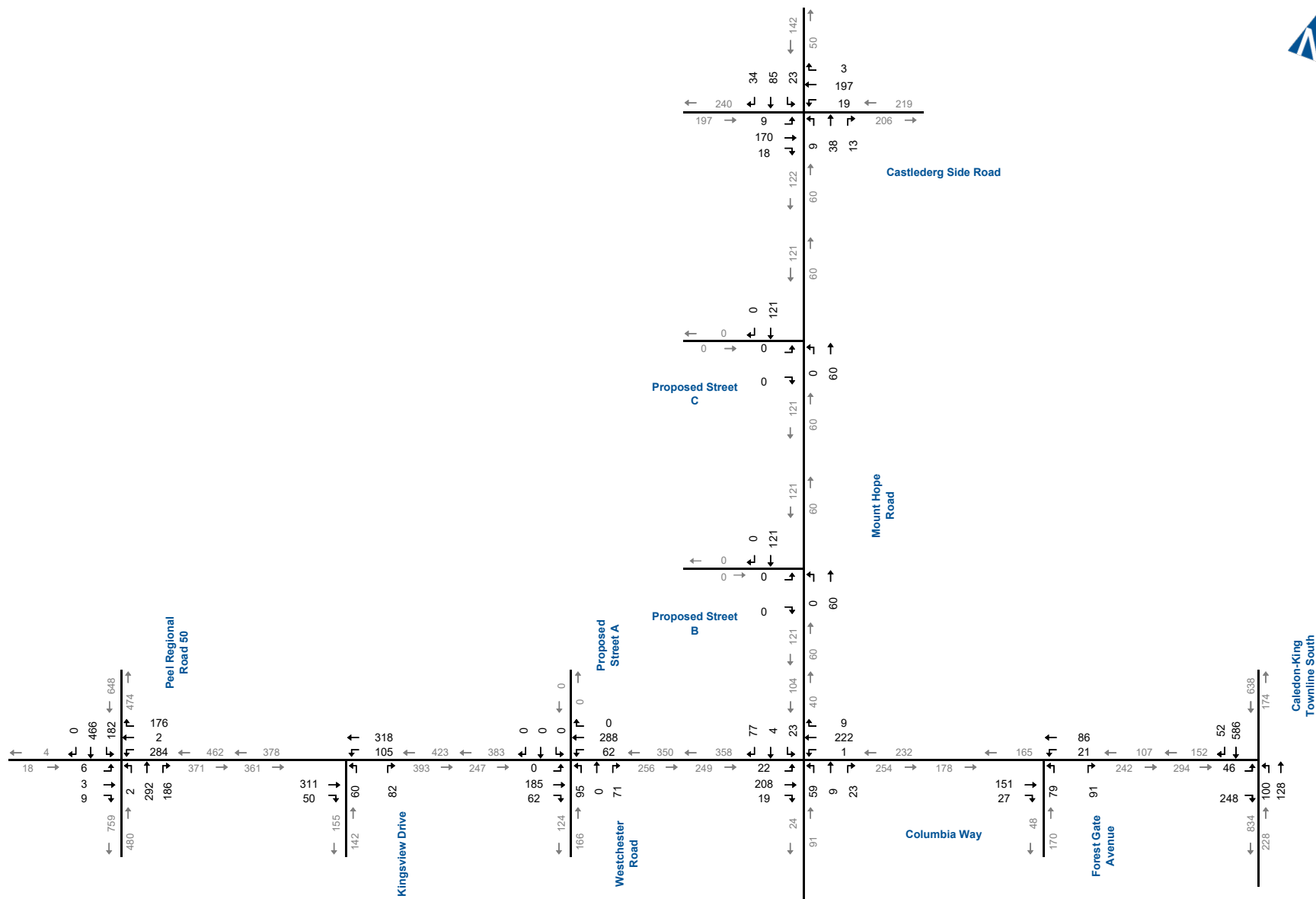
TABLE 4.1: BACKGROUND DEVELOPMENTS

Development	Development Concept	TIS Available
Hi-Lands of Bolton	143 residential units (140 residential townhouse detached units and 3 single family detached houses)	Yes
Bolton North Hill Option 1 and Option 2 lands	2,165 residential townhouse, 417 apartments, and 1,554 single family detached houses	Yes
Columbia Square	Mixed-use development with 24 units of single-family attached housing, 521 units of low-rise multifamily housing, and a strip retail plaza with a gross floor area of 19,741 square feet.	Yes

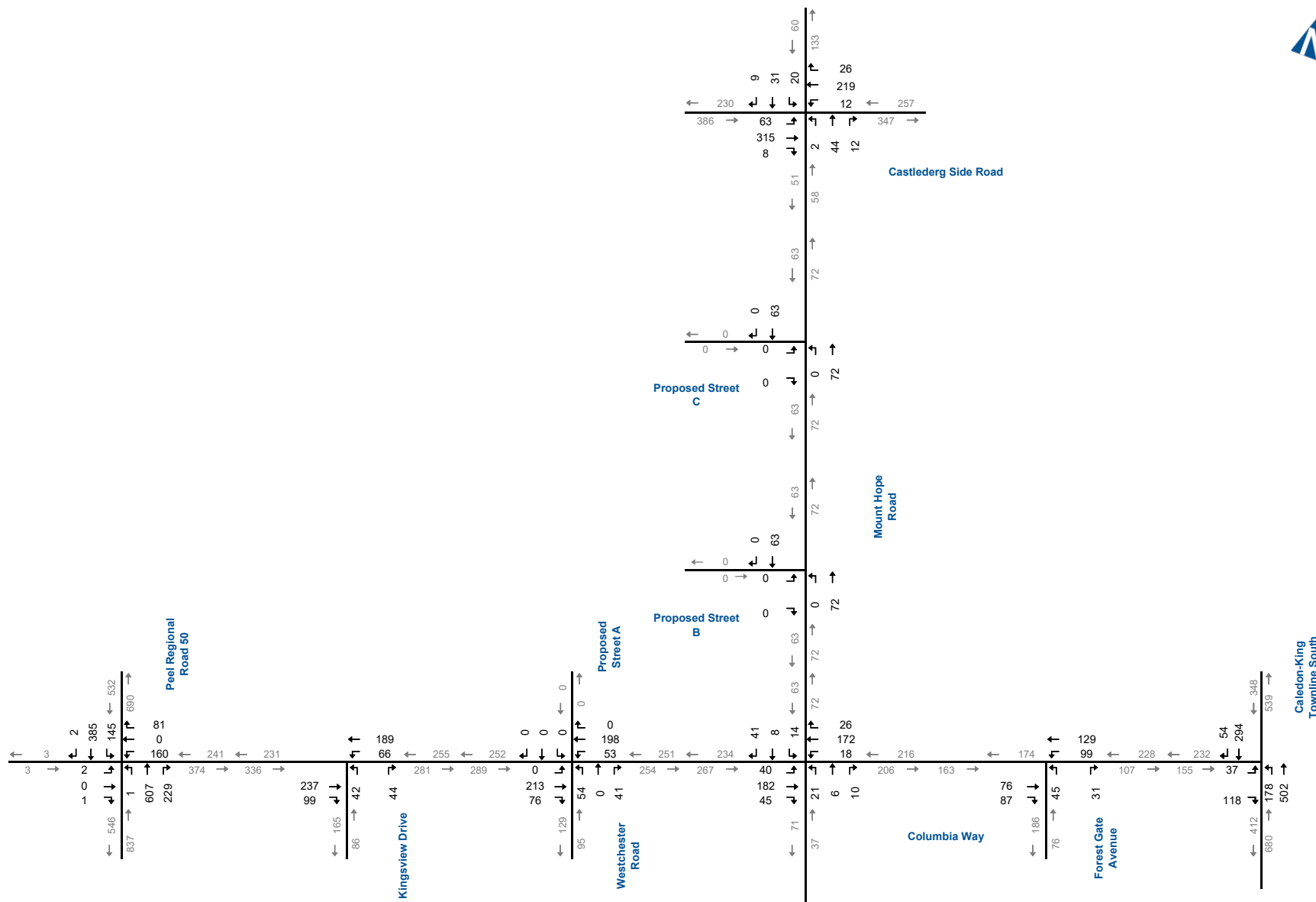
Figure 4.1 and **Figure 4.2** illustrate the 2028 background traffic volumes for the AM and PM peak hour hours, respectively.

Figure 4.3 and **Figure 4.4** illustrate the 2033 background traffic volumes for the AM and PM peak hours, respectively.





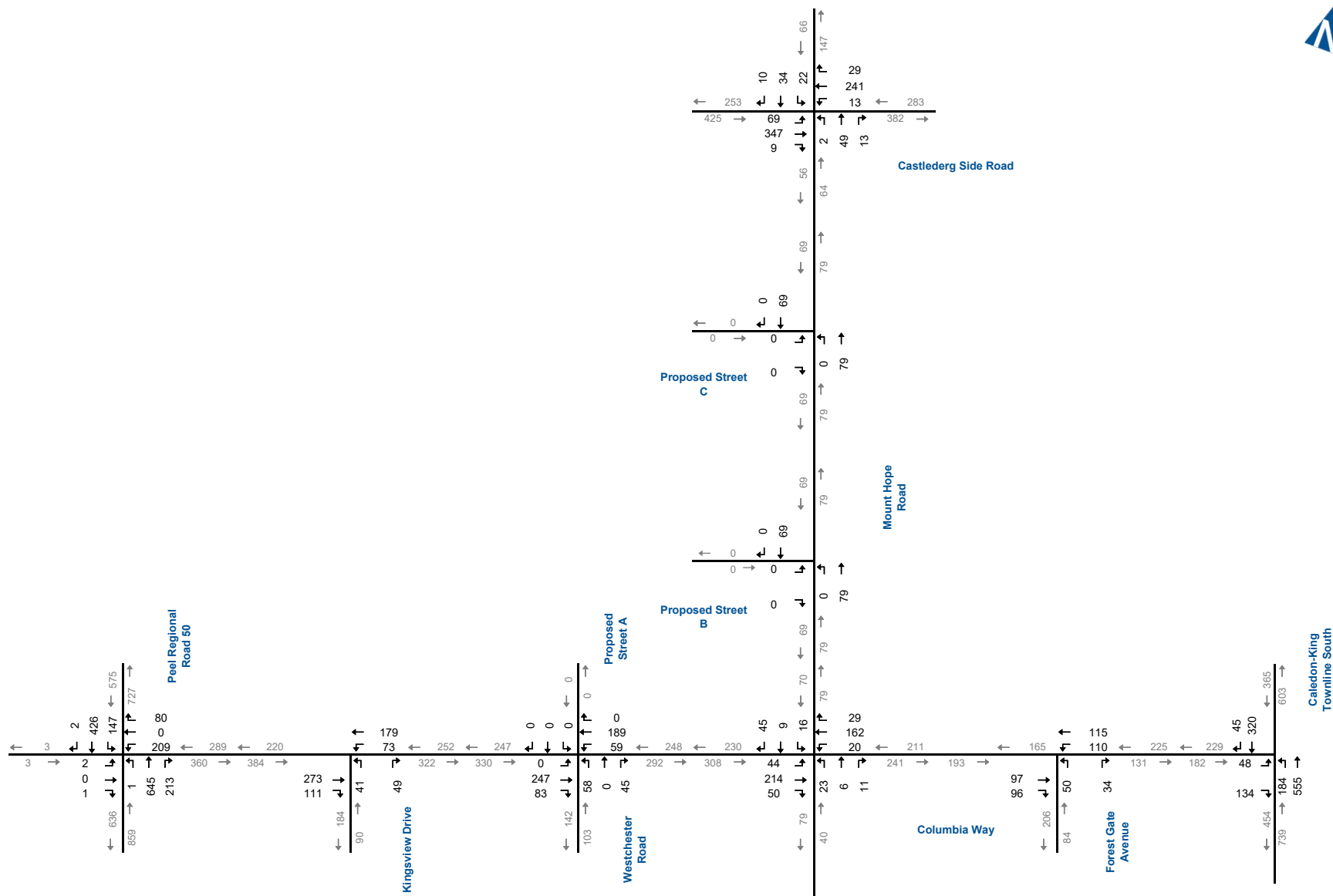
2028 Background Traffic Volumes AM Peak Hour





Mount Hope Road Transportation Study
230561

Figure 4.3



2033 Background Traffic Volumes PM Peak Hour

4.2.2 2028 Background Traffic Operations

The study area intersection operations analyses followed the same methodology used for existing conditions. No changes to the existing lane configurations or traffic control are assumed, that is, existing timing plans were maintained at the signalized intersections.

Table 4.2 and **Table 4.3** summarize the operational results for 2028 background traffic conditions under the AM and PM peak hours, respectively. **Appendix F** contains the detailed Synchro reports.

The results indicate the study area intersections are forecast to operate at acceptable levels of service and within capacity under the AM and PM peak hours.

The exception would be the following identified critical movements under 2028 background traffic conditions (without the subject development):

- ▶ Highway 50 [Peel Regional Road 50] and Columbia Way (signalized):
 - The westbound left turn movement reports a 95th percentile queue length which is forecast to exceed the available storage provision of by 32m during the AM peak hour.
The 50th percentile queue is forecast to exceed the available storage provision by 17m during the AM peak hour.
This is not considered a critical issue, and can be mitigated through adjustments to the signal timing.



TABLE 4.2: 2028 AM BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 27 0.04 10 - -	> > > > >	C 27 0.87 92 60 -32	D 54 0.16 10 - -	> > > > >	D 44	A 10 0.01 2 136 134	B 13 0.37 63 - -	B 11 0.15 7 300 293	B 12	B 16 0.46 48 85 37	B 16 0.55 102 - -	A 0 0.00 0 25 25	B 16	C 23	
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 7 0.43 48	> > >	A 7	< < <	B 12 0.68 72		B 12	D 47 0.66 34	> > >	D 47						B 15
	Westchester Road & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.22 0	> > >	A 0	< < <	A 2 0.08 2		A 2	E 38 0.73 44	> > >	E 38						A 9 0.52
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 1 0.03 1	> > > >	A 1	< < <	A 0 0.00* 0.0	> > >	A 0	< < <	D 28 0.46 18	> > >	D 28	< < <	B 15 0.30 10	> > >	B 15	A 6 0.47
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	E 42 0.81 57		> > >	E 42					< < <	A 5 0.12 3		A 5		A 0 0.41 0	> > >	A 0	B 12 0.74
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < <	B 10 0.33 23	> > > >	B 10	< < <	B 11 0.36 21	> > >	B 11	< < <	A 9 0.11 20	> > >	A 9	< < <	A 10 0.24 18	> > >	A 10	B 10 0.35
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.12 0	> > >	A 0	< < <	A 2 0.02 0	> > >	A 2	B 12 0.27 9	> > >	B 12						A 5 0.35

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



TABLE 4.3: 2028 PM BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 34 0.00 0 - -	> > > > >	C 34	D 47 0.69 51 60 9	C 35 0.06 0 - -	> > > > >	D 43	A 4 0.00 1 136 135	A 8 0.49 97 8 300 292	A 5 0.15 8	A 7	A 8 0.32 27 85 58	A 6 0.31 54 - -	A 4 0 25 25	A 7	B 12	
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 4 0.26 24	> > >	A 4	< < <	A 4 0.23 22		A 4	C 31 0.27 17		> > >	C 31						A 7
	Westchester Road & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.18 0	> > >	A 0	< < <	A 2 0.04 1		A 2	B 13 0.17 5		> > >	B 13						A 3 0.44
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 1 0.03 1	> > > >	A 1	< < <	A 1 0.01 0	> > >	A 1	< < <	B 14 0.09 2	> > >	B 14	< < <	B 12 0.11 3	> > >	B 12	A 3 0.35	
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	C 21 0.42 16		> > >	C 21					< < <	A 4 0.15 4		A 4		A 0 0.21 0	> > >	A 0	A 5 0.74	
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < <	B 13 0.53 26	> > > >	B 13	< < <	B 11 0.37 25	> > >	B 11	< < <	A 9 0.10 16	> > >	A 9	< < <	A 9 0.10 14	> > >	A 9	B 12 0.54	
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.10 0	> > >	A 0	< < <	A 4 0.07 2		A 4	B 12 0.13 4		> > >	B 12						A 4 0.35

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

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TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



4.2.3 2033 Background Traffic Operations

The study area intersection operations analyses followed the same methodology used for existing conditions. No changes to the existing lane configurations or traffic control are assumed, that is, existing timing plans were maintained at the signalized intersections.

Table 4.4 and **Table 4.5** summarize the operational results for 2033 background traffic conditions under the AM and PM peak hours, respectively. **Appendix G** contains the detailed Synchro reports.

The results indicate the study area intersections are forecast to operate at acceptable levels of service and within capacity under the AM and PM peak hours.

The exception includes the following additional critical movements forecast under 2033 background traffic conditions (without the subject development) that were not present under 2028 background traffic conditions:

- ▶ Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F during AM peak hour. It is noted the shared movement is forecast to be within capacity; however, is noted to be approaching capacity.
- ▶ Highway 50 [Peel Regional Road 50] and Columbia Way (signalized):
 - The westbound left turn movement reports a 95th percentile queue length which is forecast to exceed the available storage provision of by 3m during the PM peak hour.
This is not considered a critical issue as the reported 50th percentile average queue is forecast to be contained by the available storage provision during the PM peak hour.



TABLE 4.4: 2033 AM BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
AM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Stor. Avail.	< < < < <	C 26 0.04 10 - -	> > > > >	C 26 100 60 -40	E 57 0.90 10 - -	C 27 0.17 10 - -	> > > > >	D 45	B 10 0.01 2 136 134	B 15 0.41 70 300 -	B 12 0.17 7 300 293	B 14	B 20 0.55 56 85 29	B 18 0.61 116 - -	A 0 0.00 25 25	B 19	C 25	
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 7 0.47 53	> > > >	A 7	< < < <	B 14 0.74 83		B 14	D 47 0.66 34		> > >	D 47						B 16
	Westchester Road & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.24 0	> > > >	A 0	< < < <	A 2 0.09 2		A 2	E 47 0.79 51		> > >	E 47						B 11 0.54
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 1 0.03 1	> > > >	A 1	< < < <	A 0 0.00* 0.0	> > > >	A 0	< < < <	E 37 0.58 26	> > > >	E 37	< < < <	C 17 0.36 13	> > > >	C 17	A 8 0.51	
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	F 75 0.97 86		> > > >	F 75					< < < <	A 5 0.14 4		A 5		A 0 0.45 0	> > > >	A 0	C 20 0.80	
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < <	B 11 0.37 22	> > > >	B 11	< < < <	B 12 0.41 23	> > > >	B 12	< < < <	A 10 0.13 21	> > > >	A 10	< < < <	B 11 0.28 20	> > > >	B 11	B 11 0.38	
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.13 0	> > > >	A 0	< < < <	A 2 0.02 0		A 2	B 12 0.27 9		> > > >	B 12						A 5 0.36

MOE - Measure of Effectiveness

LOS - Level of Service

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V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



TABLE 4.5: 2033 PM BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 32 0.00 0 - -	> > > > >	C 32 0.75 63 60 -3	< < < < <	A 47 0.05 0 - -	> > > > >	D 43	A 6 0.00 1 136 135	B 10 0.55 122 - -	A 6 0.14 9 300 291	A 10	B 10 0.39 34 85 51	A 8 0.36 69 - -	A 6 0.00 0 25 25	A 9	B 15
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q	< < < < <	A 4 0.29 28	> > > > >	A 4	< < < < <	A 4	< < < < <	A 4	C 31 0.25 16	> > > > >	C 31	< < < < <	< < < < <	< < < < <	< < < < <	< < < < <	A 7
	Westchester Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 0 0.20 0	> > > > >	A 0	< < < < <	A 2	< < < < <	A 2	B 13 0.18 5	> > > > >	B 13	< < < < <	< < < < <	< < < < <	< < < < <	< < < < <	A 2 0.45
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 1 0.03 1	> > > > >	A 1	< < < < <	A 1	< < < < <	A 1	< < < < <	B 15 0.10 3	> > > > >	B 15	< < < < <	B 12 0.13 4	> > > > >	B 12	A 3 0.37
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	D 29 0.56 26	< < < < <	D 29	> > > > >	D 29	< < < < <	< < < < <	< < < < <	A 4 0.16 5	> > > > >	A 4	< < < < <	A 0 0.22 0	> > > > >	A 0	A 6 0.80	
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < < <	B 14 0.60 27	> > > > >	B 14	< < < < <	B 12 0.42 24	> > > > >	B 12	< < < < <	A 10 0.11 18	> > > > >	A 10	< < < < <	A 10 0.11 13	> > > > >	A 10	B 13 0.58
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 0 0.12 0	> > > > >	A 0	< < < < <	A 4 0.07 2	> > > > >	A 4	B 12 0.13 4	> > > > >	B 12	< < < < <	< < < < <	< < < < <	< < < < <	< < < < <	A 4 0.35

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Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



4.3 Total Traffic Conditions

4.3.1 Total Traffic Volumes

The future traffic volumes near the subject site are estimated to consist of:

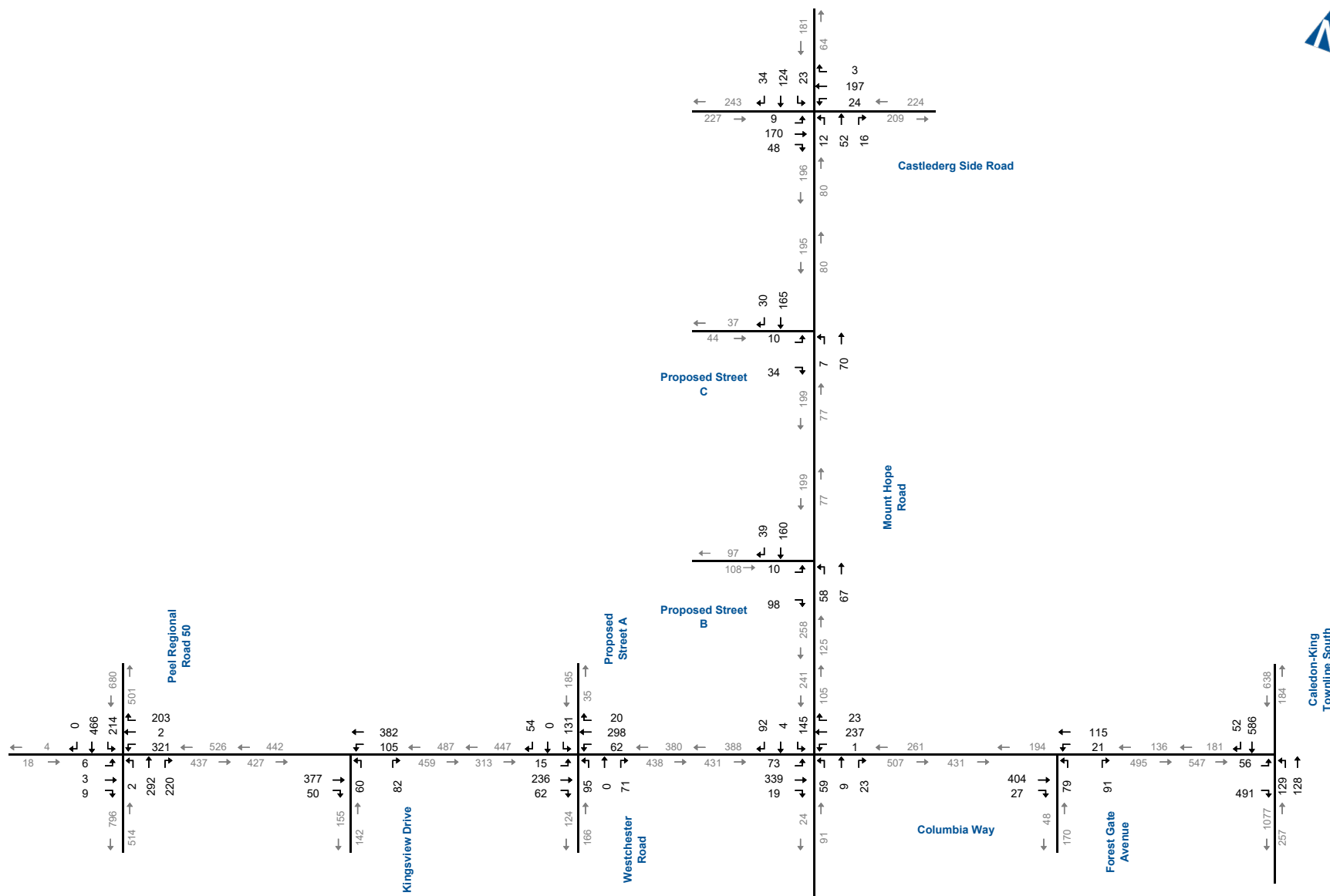
- ▶ Increased non-site traffic (generalized background traffic growth and traffic from other sites); and
- ▶ Traffic generated by the subject site.

The background traffic forecasts were summed with the site-generated traffic forecasts to develop the total traffic volumes.

Figure 4.5 and **Figure 4.6** illustrate the 2028 total traffic volumes for the AM and PM peak hours, respectively.

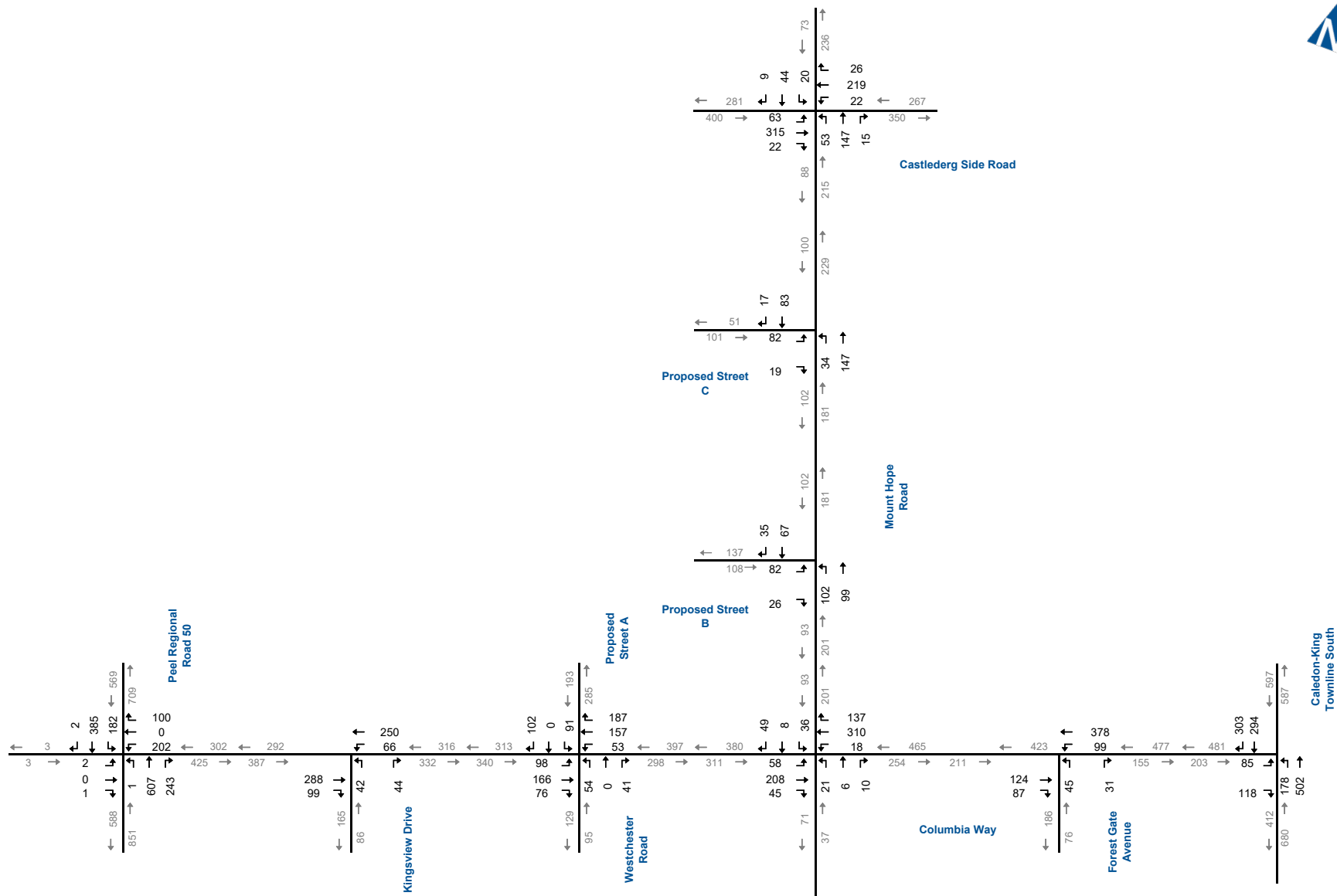
Figure 4.7 and **Figure 4.8** illustrate the 2033 total traffic volumes for the AM and PM peak hours, respectively.



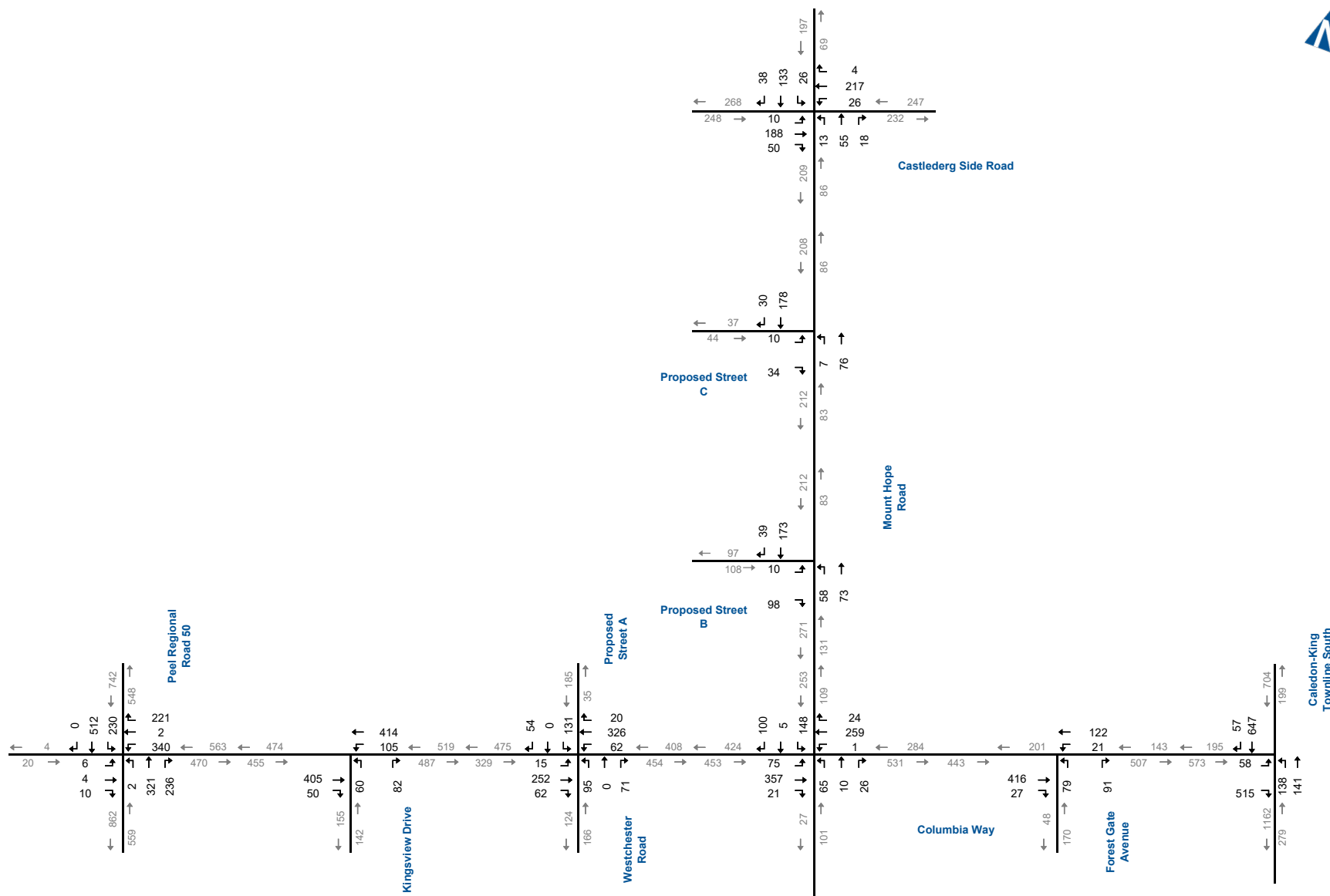


2028 Total Traffic Volumes AM Peak Hour

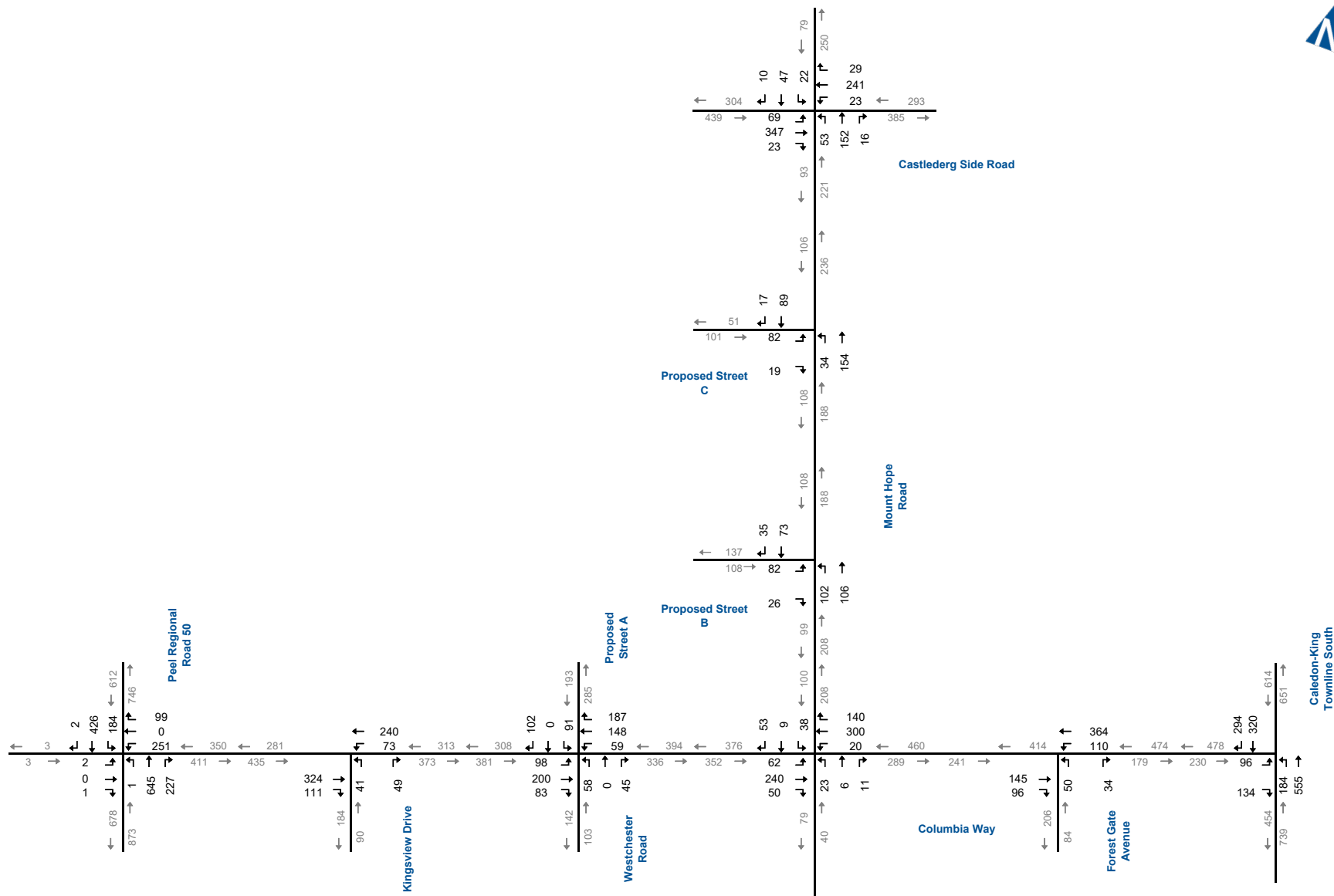




2028 Total Traffic Volumes PM Peak Hour



2033 Total Traffic Volumes AM Peak Hour



2033 Total Traffic Volumes PM Peak Hour



4.3.2 2028 Total Traffic Operations

The study area intersection operations analyses followed the same methodology used for existing and background traffic conditions. No changes to the existing lane configurations or traffic control are assumed, that is, existing timing plans were maintained at the signalized intersections.

Table 4.6 and **Table 4.7** summarize the operational results for 2028 total traffic conditions under the AM and PM peak hours, respectively. **Appendix H** contains the detailed Synchro reports.

With the addition of site-generated traffic, the following additional critical movements are forecast under 2028 total traffic conditions (with the subject development) that were not present under 2028 background traffic conditions:

- ▶ Columbia Way and Westchester Road/Street A (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at a LOS F during the AM peak hour, with reported v/c ratios exceeding capacity (i.e., $v/c > 1.00$).
- ▶ Mount Hope Road and Columbia Way (unsignalized):
 - The northbound and southbound shared left/through/right movements are both forecast to operate at a LOS F during the AM peak hour.
 The northbound shared left/through/right movement is forecast to operate within capacity; however, would be approaching capacity with a reported v/c of 0.90.
 - The southbound shared left/through/right movement is forecast to operate over-capacity with a v/c ratio of 1.71.
- ▶ Caledon-King Townline and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F during both the AM and PM peak hours.
 The movement is reported to operate over-capacity during the AM peak hour with a v/c ratio of 1.46.
 The movement is reported to be within capacity during the PM peak hour; however, is approaching capacity with a v/c ratio of 0.94.



Otherwise, all vehicle movements at intersections within the study area are operating with acceptable delays, levels of service, and within capacity.

Generally, the site access intersections are reported to operate at good levels of service and with movements within capacity. The exception would be Proposed Street A at its connection with Columbia Way. As noted above, the minor street approaches would be operating at a poor level of service and with the movements over-capacity.



TABLE 4.6: 2028 AM TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 25 0.04 10 -	> > > > >	C 25 107 60 -47	E 59 0.92 10 -	C 27 0.18 10 -	> > > > >	D 46	B 11 0.01 2 136 134	B 15 0.38 63 -	B 12 0.18 7 300 293	B 14	C 21 0.57 60 85 25	B 18 0.57 102 -	A 0 0 25 25	B 19	C 26
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 8 0.51 60	> > > > >	A 8	< < < < <	B 18 18 0.83 97		B 18	D 47 0.66 34		> > > > >	D 47					B 18
	Westchester Road/Proposed Street A & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 0 0.01 0	> > > > >	A 0	< < < < <	A 2 2 0.09 2	> > > > >	A 2	< < < < <	F 175 1.21 103	> > > > >	F 175	< < < < <	F 220 1.28 94	> > > > >	F 220	F 60 0.61
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 2 0.10 2	> > > > >	A 2	< < < < <	A 0 0 0.00* 0.0	> > > > >	A 0	< < < < <	F 110 0.90 50	> > > > >	F 110	< < < < <	F 379 1.71 189	> > > > >	F 379	F 100 0.63
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	F 248 1.46 247		> > > > >	F 248					< < < < <	A 6 0.16 4		A 6		A 0 0.41 0	> > > > >	A 0	F 95 0.91
	Mount Hope Road & Proposed Street C	TWSC	LOS Delay V/C Q	A 10 0.06 2		> > > > >	A 10					< < < < <	A 1 0.00* 0.1		A 1		A 0 0.12 0	> > > > >	A 0	A 2 0.20
	Mount Hope Road & Proposed Street B	TWSC	LOS Delay V/C Q	B 10 0.15 4		> > > > >	B 10					< < < < <	A 4 0.05 1		A 4		A 0 0.13 0	> > > > >	A 0	A 4 0.34
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < <	B 12 0.40 29	> > > > >	B 12	< < < < <	B 12 12 0.39 20	> > > > >	B 12	< < < < <	B 10 0.16 23	> > > > >	B 10	< < < < <	B 11 0.33 20	> > > > >	B 11	B 11 0.40
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.29 0	> > > > >	A 0	< < < < <	A 2 0.02 1		A 2	C 17 0.40 16		> > > > >	C 17					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



TABLE 4.7: 2028 PM TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Stor. Avail.	< < < < <	C 32 0.00 0 - -	> > > > >	C 32 0.74 62 -2	< < < < <	A 47 0.07 0 - -	> > > > >	D 42 0 - -	A 6 0.00 1 136 135	A 10 0.51 110 300 290	A 6 0.16 10 25	A 9	B 11 0.45 43 85 42	A 8 0.33 61 - 25	A 6 0 25	A 9	B 15	
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 4 0.31 31	> > > >	A 4	< < < <	A 4 0.30 29		A 4	C 31 0.29 18		> > > >	C 31						A 7
	Westchester Road/Proposed Street A & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 2 0.07 2	> > > >	A 2	< < < <	A 2 0.05 1	> > > >	A 2	< < < <	C 23 0.34 12	> > > >	C 23	< < < <	C 21 0.42 16	> > > >	C 21	A 7 0.47	
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 2 0.06 2	> > > >	A 2	< < < <	A 0 0.01 0	> > > >	A 0	< < < <	C 20 0.14 4	> > > >	C 20	< < < <	C 18 0.26 8	> > > >	C 18	A 4 0.53	
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	F 90 0.94 66		> > > >	F 90					< < < <	A 4 0.19 6		A 4		A 0 0.37 0	> > > >	A 0	B 15 0.93	
	Mount Hope Road & Proposed Street C	TWSC	LOS Delay V/C Q	B 11 0.17 5		> > > >	B 11					< < < <	A 2 0.03 1		A 2		A 0 0.07 0	> > > >	A 0	A 4 0.29	
	Mount Hope Road & Proposed Street B	TWSC	LOS Delay V/C Q	B 12 0.17 5		> > > >	B 12					< < < <	A 4 0.07 2		A 4		A 0 0.07 0	> > > >	A 0	A 5 0.30	
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < <	C 18 0.64 37	> > > >	C 18	< < < <	B 13 0.45 29	> > > >	B 13	< < < <	B 13 0.41 32	> > > >	B 13	< < < <	B 11 0.14 17	> > > >	B 11	B 15 0.57	
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.14 0	> > > >	A 0	< < < <	A 2 0.08 2	> > > >	A 2	C 16 0.21 6		> > > >	C 16						A 3 0.52

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



4.3.3 2033 Total Traffic Operations

The study area intersection operations analyses followed the same methodology used for existing and background traffic conditions. No changes to the existing lane configurations or traffic control are assumed, that is, existing timing plans were maintained at the signalized intersections.

Table 4.8 and **Table 4.9** summarize the operational results for 2033 total traffic conditions under the AM and PM peak hours, respectively. **Appendix I** contains the detailed Synchro reports.

As forecast, the level of service and projected queue lengths are expected to worsen due to background traffic growth. However, no intersections other than Highway 50 [Peel Regional Road 50] and Columbia Way are forecast to have any queuing issues.

With the addition of site-generated traffic, the intersections of Columbia Way with Westchester Road/Street A, and Mount Hope Road report poor operations at the stop-controlled approaches with Columbia Road.

The reported 95th percentile queue for the southbound shared left/through/right movement at Columbia Way and Westchester Road/Proposed Street A is approximately 100 m, which would occasionally encroach back to the upstream cross-street.

The increased delay on the Westchester Road/Street A and Mount Hope Road approaches is a result of the high volume of eastbound/westbound background traffic forecast along Columbia Way. Localized congestion along the minor street approaches during the peak hours is generally expected as volumes on the main road leave few gaps for minor street vehicle manoeuvres.

At the intersection of Caledon-King Townline South and Columbia Way, the eastbound left-turn movement is expected to operate with delays in the LOS F range with the movement forecast to be over-capacity during both the AM and PM peak hours. This critical movement is attributed to increased traffic volumes from the nearby other area developments for this horizon compared to previous horizons.

Generally, the site access intersections are reported to operate at good levels of service and with movements within capacity. The exception would be Proposed Street A at its connection with Columbia Way. As



noted above, the minor street approaches would be operating at a poor level of service and with the movements over-capacity.

With the addition of site-generated traffic, the following additional critical movements are forecast under 2033 total traffic conditions (with the subject development) that were not present under 2033 background traffic conditions:

- ▶ Columbia Way and Westchester Road/Street A (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at a LOS F during the AM peak hour, with reported v/c ratios exceeding capacity (i.e., $v/c > 1.00$).
- ▶ Mount Hope Road and Columbia Way (unsignalized):
 - The northbound and southbound shared left/through/right movements are both forecast to operate at a LOS F during the AM peak hour, with reported v/c ratios exceeding capacity (i.e., $v/c > 1.00$).
- ▶ Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F during both the AM and PM peak hours. The movement is reported to operate over-capacity during the AM and PM peak hours with v/c ratios of 1.70 and 1.19, respectively.

Otherwise, all vehicle movements at intersections within the study area are operating with acceptable delays, levels of service, and within capacity.



TABLE 4.8: 2033 AM TOTAL VOLUMES TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Stor. Avail.	< < < < <	C 24 0.04 10 - -	> > > > >	C 24 0.94 123 60 -63	E 63 0.19 10 - -	> > > > >	D 48 0.01 2 136 134	B 12 0.43 70 - 293	B 13 0.20 7 300 293	B 15 0.67 0.64 0.00 85 15	C 26 20 0 25 25	C 20 0.64 0 25 25	A 0 0.00 25 25	C 22 0.00 25 25	C 28 0.00 25 25		
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q	< < < < <	A 8 0.55 66	> > > > >	A 8	< < < < <	C 26 0.90 115	> > > > >	D 47 0.66 34	> > > > >	D 47	> > > > >	> > > > >	> > > > >	> > > > >	C 21		
	Westchester Road/Proposed Street A & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 0 0.02 0	> > > > >	A 0	< < < < <	A 2 0.09 2	> > > > >	A 2	< < < < <	F 232 1.34 117	> > > > >	F 232	< < < < <	F 288 1.43 106	> > > > >	F 288 0.63	
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 2 0.10 3	> > > > >	A 2	< < < < <	A 0 0.00* 0.0	> > > > >	A 0	< < < < <	F 195 1.15 70	> > > > >	F 195	< < < < <	F 513 2.00 223	> > > > >	F 513 0.66	
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	F 354 1.70 306	> > > > >	F 354	> > > > >	> > > > >	> > > > >	> > > > >	< < < < <	A 6 0.18 5	> > > > >	A 6	> > > > >	A 0 0.45 0	> > > > >	A 0 0.98		
	Mount Hope Road & Proposed Street C	TWSC	LOS Delay V/C Q	A 10 0.06 2	> > > > >	A 10	> > > > >	> > > > >	> > > > >	> > > > >	< < < < <	A 1 0.00* 0.1	> > > > >	A 1	> > > > >	A 0 0.13 0	> > > > >	A 2 0.21		
	Mount Hope Road & Proposed Street B	TWSC	LOS Delay V/C Q	B 10 0.15 4	> > > > >	B 10	> > > > >	> > > > >	> > > > >	> > > > >	< < < < <	A 4 0.05 1	> > > > >	A 4	> > > > >	A 0 0.14 0	> > > > >	A 4 0.35		
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < < <	B 13 0.45 25	> > > > >	B 13	< < < < <	B 13 0.45 23	> > > > >	B 13	< < < < <	B 10 0.17 22	> > > > >	B 10	< < < < <	B 12 0.37 22	> > > > >	B 12 0.43	
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q	< < < < <	A 0 0.30 0	> > > > >	A 0	< < < < <	A 1 0.02 1	> > > > >	A 1	C 18 0.41 16	> > > > >	C 18	> > > > >	> > > > >	> > > > >	> > > > >	A 4 0.41	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



TABLE 4.9: 2033 PM TOTAL VOLUMES TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Stor. Avail.	< < < <	C 29 0.00 0 - -	> > > >	C 29 49 0.80 76 60 -16	D < < < <	C 30 0.07 0 - -	> > > >	D 44 7 0.00 1 136 135	A B A B	12 0.57 127 300 290	8 0.15 10 300 290	B 11	B 15 0.53 52 85 33	A 10 0.38 72 - -	A 6 0.00 25 25	B 11	B 17	
	Kingsview Drive & Columbia Way	TCS	LOS Delay V/C Q		A 4 0.35 36	> > > >	A 4	< < < <	A 4 4 0.31 30		A 4	C 31 0.29 18		> > > >	C 31						A 7
	Westchester Road/Proposed Street A & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 2 0.07 2	> > > >	A 2	< < < <	A 2 2 0.05 1	> > > >	A 2	< < < <	D 26 26 0.39 14	> > > >	D 26	< < < <	C 22 22 0.44 18	> > > >	C 22	A 7 0.47	
	Mount Hope Road & Columbia Way	TWSC	LOS Delay V/C Q	< < < <	A 2 0.06 2	> > > >	A 2	< < < <	A 0 0 0.02 0	> > > >	A 0	< < < <	C 21 21 0.16 4	> > > >	C 21	< < < <	C 19 19 0.30 10	> > > >	C 19	A 4 0.55	
	Caledon-King Townline South & Columbia Way	TWSC	LOS Delay V/C Q	F 172 1.19 98		> > > >	F 172						< < < <	A 5 0.20 6		A 5		A 0 0.38 0	> > > >	A 0	D 27 0.99
	Mount Hope Road & Proposed Street C	TWSC	LOS Delay V/C Q	B 12 0.17 5		> > > >	B 12						< < < <	A 2 0.03 1		A 2		A 0 0.07 0	> > > >	A 0	A 4 0.30
	Mount Hope Road & Proposed Street B	TWSC	LOS Delay V/C Q	B 12 0.18 5		> > > >	B 12						< < < <	A 4 0.07 2		A 4		A 0 0.07 0	> > > >	A 0	A 5 0.30
	Mount Hope Road & Castlederg Side Road	AWSC	LOS Delay V/C Q	< < < <	C 22 0.73 42	> > > >	C 22	< < < <	C 15 15 0.52 30	> > > >	C 15	< < < <	B 14 14 0.44 38	> > > >	B 14	< < < <	B 11 11 0.16 16	> > > >	B 11	C 18 0.61	
	Forest Gate Avenue & Columbia Way	TWSC	LOS Delay V/C Q		A 0 0.16 0	> > > >	A 0	< < < <	A 3 3 0.10 3		A 3	C 17 0.25 8		> > > >	C 17						A 3 0.54

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

< / > - Shared with through movement



4.4 Mitigation Measures

4.4.1 Traffic Signal Warrants

Based upon the analyses conducted, poor traffic operations have been identified at three unsignalized study area intersections. These intersections are forecast to operate at LOS F with movements over-capacity due to the addition of site-generated traffic:

- ▶ Columbia Way and Westchester Road/Street A;
- ▶ Columbia Way and Mount Hope Road; and
- ▶ Columbia Way and Caledon-King Townline South.

It is noted the intersection of Caledon-King Townline South and Columbia Way is first reported to operate poorly under background traffic conditions (i.e., without the subject development).

Ontario Traffic Manual (OTM) Book 12 details the methodology and procedures for assessing traffic signal warrants at an intersection.¹¹ The justifications rely on existing or forecast traffic volumes, collision history, or pedestrian volumes in the case of signalized pedestrian crossings.

Justification 7 (Projected Volumes) is used to determine the need for traffic signals at any existing or future intersection using forecast traffic volumes. Justification 7 uses average hourly volumes (AHV) derived from peak hour volumes (PHV).

The uncertainty of estimating future traffic volumes requires an *existing* intersection with forecast traffic volumes to satisfy both Warrants 1A and 1B, or both Warrants 2A and 2B, to 120% of the threshold criteria.

Table 4.10 summarizes the findings of the signal warrant assessment for the noted intersections under 2033 total traffic conditions.

¹¹ OTM Book 12: Traffic Signals, *Ministry of Transportation of Ontario*, 2012



TABLE 4.10: SIGNAL WARRANTS

Intersection	Warrant		Results	Warranted?
Columbia Way and Westchester Road/Street A	Warrant 1 - Minimum Vehicular Volume	1A	73.6%	No
		1B	88.4%	
	Warrant 2 - Delay To Cross Traffic	2A	52.8%	No
		2B	180.0%	
Columbia Way and Mount Hope Road	Warrant 1 - Minimum Vehicular Volume	1A	71.4%	No
		1B	72.7%	
	Warrant 2 - Delay To Cross Traffic	2A	54.2%	No
		2B	100.5%	
Columbia Way and Caledon-King Townline South	Warrant 1 - Minimum Vehicular Volume	1A	109.5%	No
		1B	79.0%	
	Warrant 2 - Delay To Cross Traffic	2A	81.5%	No
		2B	52.3%	

The traffic signal warrant analyses indicate the forecast volumes do not satisfy the warrant thresholds under 2033 total traffic conditions for the consideration of traffic signal control at the study area intersections of Columbia Way with Westchester Road/Proposed Street A, Mount Hope Road, or Caledon-King Townline South.

Appendix K contains the traffic signal warrant analysis for reference.

4.4.2 Highway 50 [Peel Regional Road 50] and Columbia Way

First identified under background traffic conditions (without the subject development), the westbound left-turn movement reports 95th percentile queues that would exceed the available storage provision.

Further assessment determined that signal timing adjustments would mitigate the queue exceedance condition. That is, optimization of phasing splits.



4.4.3 Columbia Way and Westchester Road/Proposed Street A

The intersection of Columbia Way and Westchester Road/Proposed Street A is forecast to operate poorly with the addition of site-generated traffic. Specifically, the northbound and southbound minor road approaches are reported to operate at LOS F and with the shared left/through/right movements operating over-capacity.

The signal warrant analysis determined that traffic signal control is not warranted at the intersection from a volume perspective; however, from an operational perspective the implementation of traffic signals would mitigate the poor operations.

4.4.4 Columbia Way and Mount Hope Road

The intersection of Columbia Way and Mount Hope Road is forecast to operate poorly with the addition of site-generated traffic. Specifically, the northbound and southbound approaches are reported to operate at LOS F with the shared left/through/right movements operating over-capacity.

The signal warrant analysis determined that traffic signal control is not warranted at the intersection from a volume perspective; however, from an operational perspective the implementation of traffic signals would mitigate the poor operations.

4.4.5 Columbia Way and Caledon-King Townline South

The intersection of Columbia Way and Caledon-King Townline South is forecast to operate poor with the addition of site-generated traffic. Specifically, the eastbound shared left/right movement is reported to operate at LOS F and would be over-capacity.

The signal warrant analysis determined that traffic signal control is not warranted at the intersection from a volume perspective; however, from an operational perspective the implementation of traffic signals would mitigate the poor operations.

Additionally, separate eastbound left and right turn lanes should be considered based upon the forecast volumes.

4.4.6 Traffic Operations with Mitigation Measures in Place

Table 4.11 and **Table 4.12** summarizes operational results with mitigation measures for consideration under 2033 total traffic conditions for the AM and PM peak hours, respectively. **Appendix J** contains the detailed Synchro reports.



TABLE 4.11: 2033 AM TOTAL TRAFFIC OPERATIONS (MITIGATED)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach															
				Eastbound				Westbound				Northbound				Southbound			
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach
AM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 22 0.04 9 -	> > > > >	C 22 - - -	D 48 0.87 100 100 0	C 24 0.19 9 - -	> > > > >	D 38 - - -	C 24 0.01 2 136 134	D 39 0.70 122 - -	C 27 0.20 12 300 288	C 34 - -	C 23 0.69 57 85 28	C 23 0.67 139 - -	A 0 0 25 25	C 23 - - -
	Westchester Road/Proposed Street A & Columbia Way	TCS	LOS Delay V/C Q	< < < <	B 14 0.51 48	> > > >	B 14 - -	< < < <	B 13 0.68 48	> > > >	B 13 - -	< < < <	C 30 0.55 58	> > > >	C 30 - -	< < < <	C 29 0.49 48	> > > >	C 29 - -
	Mount Hope Road & Columbia Way	TCS	LOS Delay V/C Q	< < < <	C 25 0.84 70	> > > >	C 25 - -	< < < <	B 15 0.43 46	> > > >	B 15 - -	< < < <	C 21 0.31 23	> > > >	C 21 - -	< < < <	C 34 0.73 63	> > > >	C 34 - -
	Caledon-King Townline South & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	B 19 0.11 15 - -	D 40 0.87 108 110 2	> > > > >	D 38 - -					< < < < < <	D 46 0.91 113 - -		D 46 - -		B 18 0.73 170 - -	> > > > >	B 18 - -

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

< / > - Shared with through movement



TABLE 4.12: 2033 PM TOTAL TRAFFIC OPERATIONS (MITIGATED)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach															
				Eastbound				Westbound				Northbound				Southbound			
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach
PM Peak Hour	Hwy 50 [Peel Regional Road 50] & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 30 0.00 0 -	> > > > >	C 30	E 55 0.84 89 100 11	C 31 0.07 0 - -	> > > > >	D 48	B 12 0.00 2 136 134	C 22 0.70 155 - -	B 13 0.15 12 300 288	B 20	B 13 0.53 24 85 61	A 9 0.37 63 - -	A 6 0.00 0 25 25	B 10
	Westchester Road/Proposed Street A & Columbia Way	TCS	LOS Delay V/C Q	< < < <	B 12 0.45 59	> > > >	B 12	< < < <	A 9 0.44 37	> > > >	A 9	< < < <	C 23 0.18 22	> > > >	C 23	< < < <	C 24 0.25 28	> > > >	C 24
	Mount Hope Road & Columbia Way	TCS	LOS Delay V/C Q	< < < <	A 8 0.39 41	> > > >	A 8	< < < <	B 10 0.45 62	> > > >	B 10	< < < <	C 24 0.08 14	> > > >	C 24	< < < <	C 25 0.16 21	> > > >	C 25
	Caledon-King Townline South & Columbia Way	TCS	LOS Delay V/C Q Stor. Avail.	D 38 0.51 34 - -	C 34 0.09 16 110 94	> > > > >	D 35					< < < < < <	B 12 0.79 185 - -		B 12		A 5 0.46 52 - -	> > > > >	A 5
																			B 13

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

< / > - Shared with through movement



5 Conclusions and Recommendations

5.1 Conclusions

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

- ▶ **Existing Operations:** All study area intersections currently operate at acceptable levels of service and with their associated movement within capacity during the AM and PM peak hours.
- ▶ **Site Generated Traffic:** The subject site is estimated to generate approximately 506 AM peak hour trips and approximately 633 PM peak hour trips.
- ▶ **2028 Background Traffic Operations:** All study area intersections are reported to continue to operate at acceptable levels of service and within capacity during the AM and PM peak hours. The noted single exception due to background growth and other area site traffic contributions is as follows:
 - Highway 50 [Peel Regional Road 50] and Columbia Way (signalized):
 - The westbound left-turn movement reports a 95th percentile queue which is forecast to exceed the available storage provision during the AM peak hour.
- ▶ **2033 Background Traffic Operations:** The following additional critical movements are forecast that were not present under 2028 background traffic conditions:
 - Highway 50 [Peel Regional Road 50] and Columbia Way (signalized):
 - The westbound left-turn movement reports a 95th percentile queue which is forecast to exceed the available storage provision during the PM peak hour.
This is not considered a critical issue as the reported 50th percentile average queue would be contained by the available storage provision.
 - Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F during the AM peak hour. The shared movement is noted to operate within capacity; however, it is approaching capacity under background traffic conditions.



- ▶ **2028 Total Traffic Operations:** With the addition of site-generated traffic, the following critical movements are identified that were not present under 2028 background traffic conditions:
 - Columbia Way and Westchester Road/Street A (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F with v/c ratios exceeding capacity during the AM peak hour.
 - Mount Hope Road and Columbia Way (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F during the AM peak hour.

The northbound movement is forecast to operate within capacity; however, is noted to be approach capacity with a reported v/c ratio of 0.90.

The southbound movement is forecast to operate over-capacity with a v/c ratio of 1.71.
 - Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F during both the AM and PM peak hours.

The movement is reported to operate over-capacity with a v/c ratio of 1.46 during the AM peak hour.

The movement is reported to be within capacity during the PM peak hour; however, is noted to be approaching capacity with a v/c ratio of 0.94.
- ▶ **2033 Total Traffic Operations:** With the addition of site-generated traffic, the following critical movements are identified that were not present under 2033 background traffic conditions:
 - Columbia Way and Westchester Road/Street A (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F with v/c ratios exceeding capacity during the AM peak hour.



- Mount Hope Road and Columbia Way (unsignalized):
 - The northbound and southbound shared left/through/right movements both are forecast to operate at LOS F with v/c ratios exceeding capacity during the AM peak hour.
 - Caledon-King Townline South and Columbia Way (unsignalized):
 - The eastbound shared left/right movement is forecast to operate at a LOS F with v/c ratios exceeding capacity during both the AM and PM peak hours.
- **Mitigation Measures:** Applicable measures were investigated for consideration, including the following:
- At the signalized intersection of Highway 50 [Peel Regional Road 50] and Columbia Way, adjustments to the signal timing plan was determined to mitigate the identified queue exceedance condition. This includes introduction of advance turn phases and optimization of phasing splits within the existing cycle length.
 - Poor traffic operations including over-capacity conditions are identified at three of the unsignalized study area intersections.

A traffic signal warrant analysis was conducted, and it was determined from a volume perspective signals would not be warranted for implementation under 2033 total traffic conditions for the intersections of Columbia Way with Westchester Road/Street A, Mount Hope Road, Caledon-King Townline South.

From an operational perspective, the upgrade of traffic control to signals would mitigate the reported poor operations.

- At the intersection of Columbia Way and Caledon-King Townline South, in addition of consideration of upgrading the traffic control, the provision of separate eastbound left and right turn lanes should be considered based upon the forecast traffic volumes.



5.2 Recommendations

Based on the findings of this study, the following is recommended:

- ▶ The Town of Caledon and Region of Peel recognize the conclusions drawn above;
- ▶ The applicable roadway jurisdiction should monitor traffic volumes and operations at the intersection of Highway 50 [Peel Regional Road 50] and Columbia Way and adjust signal timings as required;
- ▶ Upon development of the subject lands, the applicable roadway jurisdiction should monitor traffic volumes and operations at the intersections of Columbia Way with Westchester Road/Street A, Mount Hope Road, Caledon-King Townline South.

Specifically, it is recommended that traffic signal control be considered from implementation from an operational perspective to improve the anticipated poor traffic operations, if the projected growth and traffic contributions from other area developments are realized as forecast.



Appendix A

Pre-Study Consultation Material and Responses



2023-03-11
Project number: 230561

Kavleen S. Younan, P.Eng.
Transportation Engineer
Town of Caledon
6311 Old Church Road,
Caledon, ON
L7C 1J6

Dear Kavleen:

**RE: *REVISED TERMS OF REFERENCE FOR TRANSPORTATION STUDY –
RESIDENTIAL DEVELOPMENT, MOUNT HOPE, CALEDON, ONTARIO***

Paradigm Transportation Solutions Limited is pleased to provide our terms of reference for a transportation study in support of the above development. The following outlines our understanding of the assignment and details our work plan. A site plan is attached.

Project Understanding

The subject site is located in the northwest quadrant of Columbia Way and Mount Hope Road. The property owner is proposing to create a residential subdivision with approximately 670 dwelling units. These will be a mix of detached homes, townhouses, and block townhouses. Vehicle access is proposed via a new access road on Columbia Way and two new access roads onto Mount Hope, plus direct access onto Mount Hope Road.

We will be conducting the following investigations:

- ▶ **A Transportation Impact Assessment (TIA)** to evaluate the effects of the proposed development on the transportation system and recommend improvements, if necessary, to address potential impacts. With the information we have to date, we believe that a reasonable study area would include the following ten intersections:
 - Hwy 50 [Peel Regional Road 50] and Columbia Way (signalized)
 - Kingsview Drive and Columbia Way (signalized)
 - Westchester Road Columbia Way (unsignalized)
 - Mount Hope Road and Columbia Way (unsignalized)

- Caledon-King Townline South and Columbia Way (unsignalized);
- Mount Hope Road and Castlederg Side Road (unsignalized);
- Columbia Way and Proposed North-South Road (unsignalized);
- Columbia Way and Forest Gate Avenue (unsignalized);
- Mount Hope Road and Proposed East-West Road A (unsignalized);
- Mount Hope Road and Proposed East-West Road B (unsignalized);
- Proposed North-South Road and Proposed East-West Road A (unsignalized);
- Proposed North-South Road and Proposed East-West Road B (unsignalized);

Error! Reference source not found. illustrates the location of internal roads in the proposed development.

Traffic forecasts and analysis will be completed for two planning horizons (five and ten years from the date the study is commissioned) and two analysis periods (weekday AM and PM peak hours).

- ▶ An **Access and Circulation Review (ACR)** to ensure compliance of the proposed development plan with review agencies requirements and applicable industry guidelines. This will include a **Pedestrian and Cyclist Circulation Plan** in line with the Town of Caledon's requirements.
- ▶ A **Transportation Demand Management (TDM) Plan** outlining existing and proposed TDM measures, assessing their likely effectiveness for the proposed development and determining implementation requirements to facilitate their use.

The study will follow the Town of Caledon's *Traffic Impact Study: Terms of Reference and Guidelines* (March 2017).

Work Plan

The following outlines our proposed work plan to carry out this assignment:

Task 1 – Pre-Study Consultation and Data Assembly

We will contact the Town of Caledon and Peel Region (the review agencies) to request their feedback on the scope of work, study area and other assumptions.

We will gather available data, relevant background reports and any other information about the study area pertinent to the assessment (e.g. other approved developments in the vicinity, zoning by-law provisions). Any apparent data gaps or discrepancies will be addressed with the review agencies.

We will visit the site to observe traffic and parking conditions on roads in the study area. Roadway configuration and traffic control will be documented, with a figure illustrating the



study area prepared. Other related features such as pedestrian and cycling facilities and transit stops will be noted.

Task 2 – Forecasting and Analysis

Transportation Impact Assessment

We will prepare vehicle traffic forecasts for each planning horizon and analysis period. The components of the forecasts are as follows:

- ▶ **Existing** 2023 volumes will be derived from the traffic data assembled in Task 1.
- ▶ **Future Background** volumes for the remaining horizon years will be estimated by applying a growth rate to the existing volumes and adding anticipated trips from nearby approved and in-stream developments(Bolton North Hill Landowners Group, 14245 Hwy 50 Caledon, and 13540 Caledon/king Town Line). Growth rates and developments to include in the background traffic forecasts will be confirmed with review agencies during Task 1 (2% growth rate per annum) .
- ▶ The **total trips generated** by the proposed development will be forecast based on the rates contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual (11th Edition)* or as directed by the review agencies.
- ▶ The **site-generated vehicle trips** will be distributed and assigned to the study area intersections based on existing traffic patterns and *Transportation Tomorrow Survey* data.
- ▶ The resulting site traffic assignments will be added to the Future Background estimates to produce **Future Total** volumes for each future horizon year and analysis period.
- ▶ Under background conditions, the planned cycling, walking, and transit improvements by the Region of Peel and the Town of Caledon will be addressed in the TIS;
- ▶ The TIS will include all planned infrastructure proposed by the planner that will be implemented for all modes of transportation in the proposed development; missing links will be addressed to ensure that the proposed development is accessible for all modes of transportation;
- ▶ The two internal roads serving the proposed development will be analyzed to ensure they are within capacity. The location of the roads has been shown on the attached map along with all the study are intersections;

We will analyze the operation of the study area intersections for the Existing, Future Background (without the development) and Future Total (with the development) traffic conditions for each analysis period using Synchro software. Volume-to-capacity (v/c) ratios, Level of Service (LOS) and queuing will be assessed.



Based on the analysis results, we will identify any operational deficiencies as well as the net impact of the proposed development on the study area road network. The need for road improvements (e.g. auxiliary turn lanes) and/or other mitigating measures (e.g. traffic control device modifications) to address deficiencies will be determined. We will assess whether these measures are required due to non-site traffic (i.e. Existing or Future Background) or the increase in volumes resulting from the proposed development (i.e. Future Total).

We will assess the potential impact and requirements of the site for non-auto modes of transportation. This would include identifying existing and planned transit, walking, and cycling routes and facilities that would enhance connectivity both within the subdivision and with the rest of the municipality for these modes.

Access and Circulation Review

We will review the site access and circulation design to ensure compliance with review agencies requirements and applicable industry guidelines. The analysis will be completed using AutoTURN and include assessments of vehicle access and egress, clearance and swept path manoeuvres within the site based on a suitable design vehicle (e.g. fire truck, garbage truck) to identify potential conflicts with the site driveways, circulation aisles, loading areas and/or parking layout (i.e. no “dead end” spaces). Recommended design changes resulting from the assessment will be provided to the client (or its agents) for consideration.

A **Pedestrian and Cyclist Circulation Plan** will be conducted which will also show the boundary connections. Clearances will be confirmed as specified in TAC are met for collector roadways. The intersection spacing and sight distance will be reviewed for all new roads along Town Roads.

Transportation Demand Management (TDM)

We will prepare a TDM Plan for the proposed development. The plan will capture:

- ▶ Existing TDM opportunities near the development site (such as proximity to existing or planned transit or active transportation networks); and
- ▶ Proposed TDM measures to be implemented on the site. This list of measures to encourage greater use of more sustainable modes of transportation (transit, walking, cycling) and trip decision making that reduces, combines, or shortens vehicle trips will be developed in consultation with the client (and/or its agents).

The plan will summarize existing and proposed measures, assess their likely effectiveness for the proposed development and determine implementation requirements to facilitate their use (e.g. bike racks, showers).

Task 3 – Report Preparation

We will document the study methodologies, findings and conclusions in a report for review by the client, prior to their submission to the City. The final report will include detailed analysis



results and any data collected. The report will be stamped by a suitably-qualified Professional Engineer in line with the requirements of Professional Engineers Ontario.

Conclusion

Please contact Tom Willis, the Project Manager for this assignment, at (416) 479 9684 x503 or by e-mail at twillis@ptsl.com if you have any questions related to this project.

Yours truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED

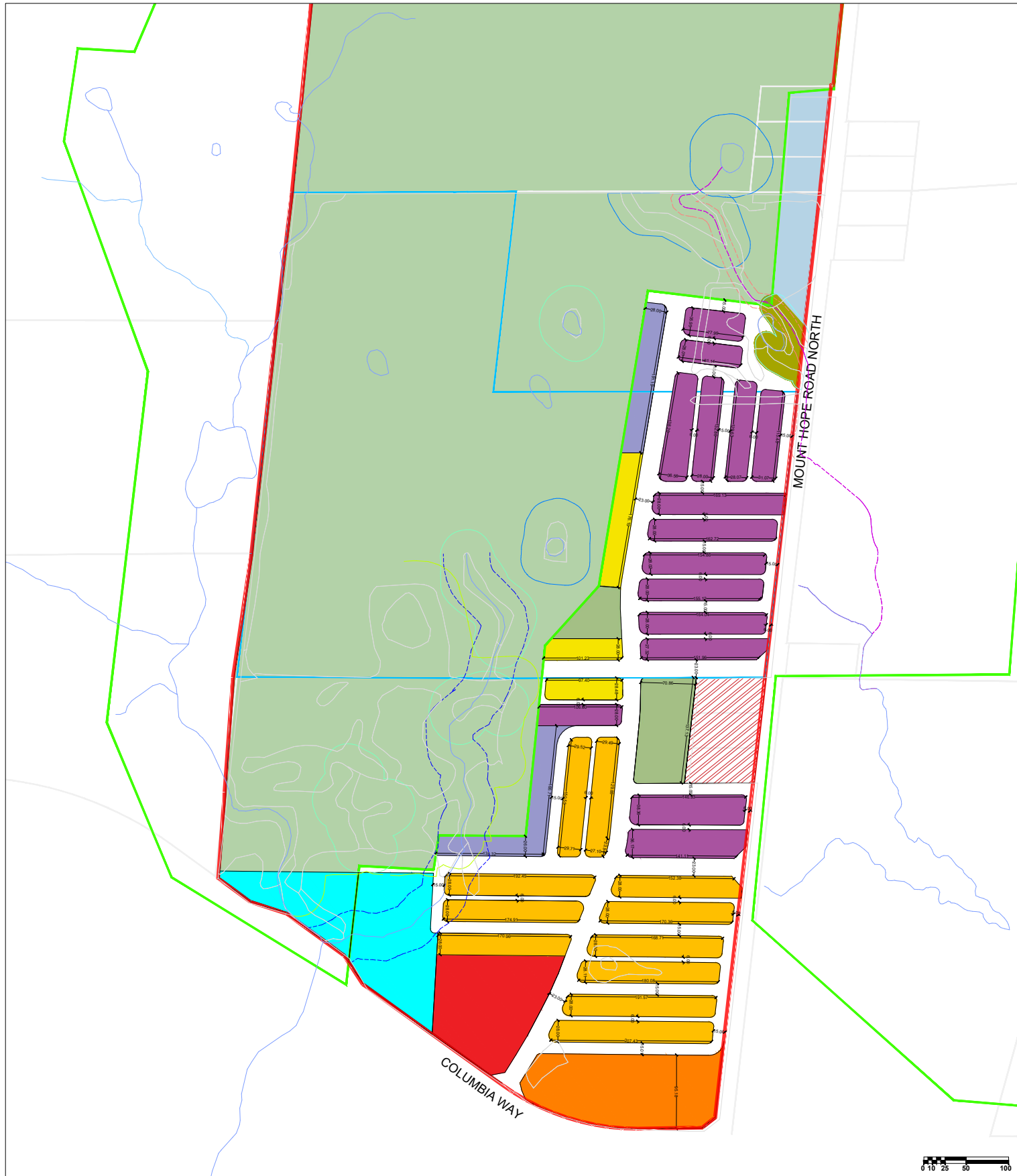


Tom Willis

MMath

Senior Project Manager





DEVELOPMENT CONCEPT PLAN

Takeoff Analysis

Subject Site
Gross Developable Area: 33.68ha
Net Developable Area: 31.69ha
-Savanta to Confirm-

Environmental Feature Take Out: 1.99ha
-Savanta to Confirm-

Boundary of Greenbelt Plan Area*

Flood Plain Area*

30m Offset -Savanta to Confirm-

Frontage Measurement

Non-Participating Landowners

13.7m Laneway Semi-Detached - 134 Units

15.2m Street Semi-Detached - 30 Units

6m Street Towns - 264 Units

11m Singles - 32 Units

Townhouse/Mid/Highrise Blk - 60UPH-250UPH

2.18ha * 60 = 131 Units

2.18ha * 250 = 545 Units

Park (1.31ha)

Commercial Block (1.87ha)

Wetland +15m Buffer

Note:

Parkland: 5% of 31.69ha = 1.58ha

Stormwater Pond: 8% of 31.69ha = 2.54ha

ROW's: Collector - 23m (matches Westchester Blvd.)

Local - 18m

Front YD Setback = 6m

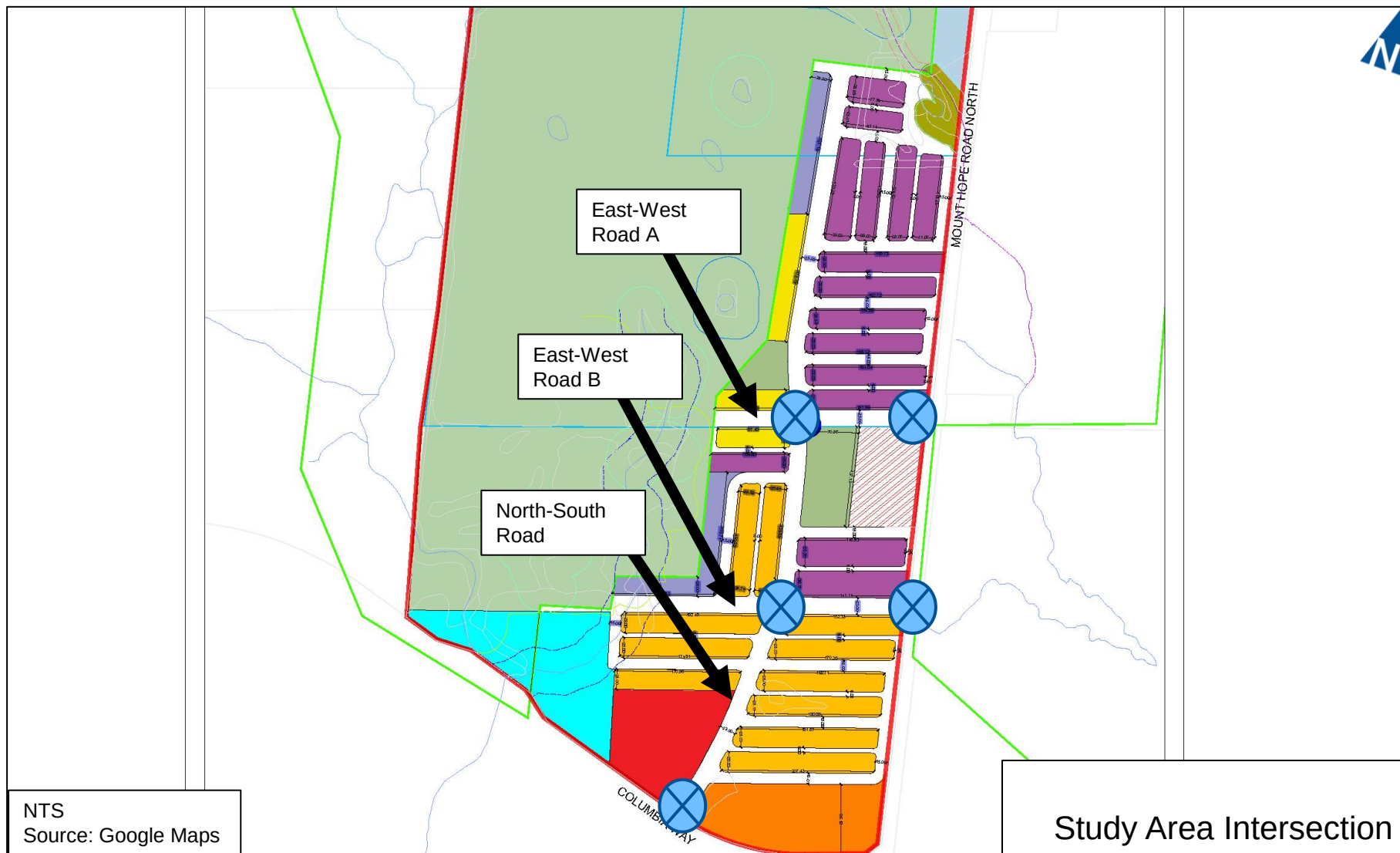
Rear YD Setback = 7.5m

Exterior YD Setback = 1.5m

* As per GIS data provided by
Town of Caledon - Jun 2020

Date: November 22, 2023





From: [Kavleen Younan](#)
To: [Mauro Peverini](#)
Cc: [Emma Howlett](#); [Tom Willis](#)
Subject: RE: Nount Hope West - Transportation Study Terms of Reference
Date: April 17, 2024 11:27:55
Attachments: [image002.png](#)
[image003.png](#)

Hi Mauro,

Please find our comments below.

- The updated TOR should be circulated to the Region. Consult with the Region regarding proposed growth rates on regional roadways.
- The Existing horizon year in the TOR is 2023, while the date of the TOR is 2024. Please revise.
- The Secondary Plan Level 'Pedestrian and Cyclist Circulation Plan' should follow the comments in the TOR response dated January 19th, 2024.
- The submission should demonstrate:
 - the alignment of the proposed north-south road and Westchester Boulevard.
 - that the proposed public roadway complies with the infrastructure requirements of the Town's standard ROW, including, but not limited to, off-road cycling facility provisions on collector and arterial roadways.
- Additional items that should be included:
 - A figure illustrating the proposed collector road network rights-of-way.
 - A high-level potential Transit Plan for the Secondary Plan Area. This should include transit planning, such as routes, bus stops, and connections to the existing and future Brampton Transit services
 - Discussion of the design parameters that were considered in the collector road layout, and how traffic calming will be achieved through design.
- Mention of the commercial development has been removed from paragraph 2. This should be included in the assessment.
- All new intersections are noted as unsignalized. Signalization warrants, delays, and pedestrian lines of desire should be reviewed, and recommendations should be made.
- Please note: a 'Mobility Plan' is required to support the Secondary Plan application, as per the DRAFT Official plan.
- Region of Peel Transportation Study Guidelines should be followed.

Kavleen S. Younan, P.Eng.

Transportation Engineer

Engineering, Public Works & Transportation Department

Upcoming Vacation Alert: I will be away from May 13th 2024 until May 27th 2024

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: Mauro Peverini <mauro@solmar.ca>

Sent: Wednesday, April 10, 2024 9:54 AM

To: Kavleen Younan <Kavleen.Younan@caledon.ca>

Cc: Emma Howlett <Emma.Howlett@caledon.ca>; Tom Willis <twillis@ptsl.com>

Subject: Nount Hope West - Transportation Study Terms of Reference

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

Good morning Kavleen, Emma,

Tom Willis of Paradigm Transportation Solutions on March 18, 2024, forwarded for Town review and comment the attached Terms of Reference (TOR) regarding a Transportation Study for lands at the northwest quadrant of Columbia Way & Mount Hope Road in the Town of Caledon. To date, no comments or response has been received. United Holdings wishes to advance the review process and respectfully requests that the attached TOR be reviewed, and comments provided to allow the required analysis to be undertaken to meet Town requirements. Please advise when comments are expected from the Town.

If you have any questions,

Thank you,

Mauro Peverini, MCIP, RPP

Vice President, Planning and Land Development

T. 905.660.9222 Ext. 293

M. 437.247.2310

www.solmar.ca

122 Romina Drive,
Concord, Ontario L4K 4Z7



Creating Communities for a Brighter Tomorrow



Save a tree, please do not print this e-mail unless necessary

“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.”

2024-05-07
Project number: 230561

Patrick Amaral MES(PI), MCIP, RPP
Principal Planner
Planning and Development Services
Region of Peel
10 Peel Centre Drive
Brampton, ON
L6T 4B9

Dear Patrick:

**RE: TERMS OF REFERENCE FOR TRANSPORTATION STUDY –
RESIDENTIAL DEVELOPMENT, MOUNT HOPE, CALEDON, ONTARIO**

Paradigm Transportation Solutions Limited is pleased to provide our terms of reference for a transportation study in support of the above development. The following outlines our understanding of the assignment and details our work plan. A concept plan is attached; this is subject to refinement.

Project Understanding

The subject site is located in the northwest quadrant of Columbia Way and Mount Hope Road. The property owner is proposing to create a residential subdivision with approximately 670 dwelling units. These will be a mix of detached homes, townhouses, and block townhouses, plus a small commercial site. Vehicle access is proposed via a new north-south access road on Columbia Way and two new access roads (“Road A” and “Road B”) onto Mount Hope Road North.

We will be conducting the following investigations:

- ▶ **A Transportation Impact Assessment (TIA)** to evaluate the effects of the proposed development on the transportation system and recommend improvements, if necessary, to address potential impacts. With the information we have to date, we believe that a reasonable study area would include the following ten intersections:
 - Hwy 50 [Peel Regional Road 50] and Columbia Way (signalized)
 - Kingsview Drive and Columbia Way (signalized)

- Westchester Road Columbia Way (unsignalized)
- Mount Hope Road and Columbia Way (unsignalized)
- Caledon-King Townline South and Columbia Way (unsignalized);
- Mount Hope Road and Castlederg Side Road (unsignalized);
- Columbia Way and Proposed North-South Road (unsignalized);
- Columbia Way and Forest Gate Avenue (unsignalized);
- Mount Hope Road and Proposed East-West Road A (unsignalized);
- Mount Hope Road and Proposed East-West Road B (unsignalized);
- Proposed North-South Road and Proposed East-West Road A (unsignalized);
- Proposed North-South Road and Proposed East-West Road B (unsignalized);

Traffic forecasts and analysis will be completed for two planning horizons (five and ten years from the date the study is commissioned) and two analysis periods (weekday AM and PM peak hours).

- ▶ An **Access and Circulation Review (ACR)** to ensure compliance of the proposed development plan with review agencies requirements and applicable industry guidelines. This will include a **Pedestrian and Cyclist Circulation Plan** and **high-level potential Transit Plan** in line with the Town of Caledon's requirements.
- ▶ A **Transportation Demand Management (TDM) Plan** outlining existing and proposed TDM measures, assessing their likely effectiveness for the proposed development and determining implementation requirements to facilitate their use.

The study will follow the Town of Caledon's *Traffic Impact Study: Terms of Reference and Guidelines* (March 2017) and Peel Region's *Traffic Impact Study - Terms of Reference* (2008). The report will form the **Mobility Plan** required by the Town.



Work Plan

The following outlines our proposed work plan to carry out this assignment:

Task 1 – Pre-Study Consultation and Data Assembly

We will contact the Town of Caledon and Peel Region (the review agencies) to request their feedback on the scope of work, study area and other assumptions.

We will gather available data, relevant background reports and any other information about the study area pertinent to the assessment (e.g. other approved developments in the vicinity, zoning by-law provisions). Any apparent data gaps or discrepancies will be addressed with the review agencies.

We will visit the site to observe traffic and parking conditions on roads in the study area. Roadway configuration and traffic control will be documented, with a figure illustrating the study area prepared. Other related features such as pedestrian and cycling facilities and transit stops will be noted.

Task 2 – Forecasting and Analysis

Transportation Impact Assessment

We will prepare vehicle traffic forecasts for each planning horizon and analysis period. The components of the forecasts are as follows:

- ▶ **Existing** 2024 volumes will be derived from the traffic data assembled in Task 1.
- ▶ **Future Background** volumes for the remaining horizon years will be estimated by applying a growth rate to the existing volumes and adding anticipated trips from nearby approved and in-stream developments(Bolton North Hill Landowners Group, 14245 Hwy 50 Caledon, and 13540 Caledon/king Town Line). Growth rates and developments to include in the background traffic forecasts will be confirmed with review agencies during Task 1 (2% growth rate per annum) .
- ▶ The **total trips generated** by the proposed development will be forecast based on the rates contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual (11th Edition)* or as directed by the review agencies.
- ▶ The **site-generated vehicle trips** will be distributed and assigned to the study area intersections based on existing traffic patterns and *Transportation Tomorrow Survey* data.
- ▶ The resulting site traffic assignments will be added to the Future Background estimates to produce **Future Total** volumes for each future horizon year and analysis period.
- ▶ Under background conditions, the planned cycling, walking, and transit improvements by the Region of Peel and the Town of Caledon will be addressed in the TIS;



- ▶ The TIS will include all planned infrastructure proposed by the planner that will be implemented for all modes of transportation in the proposed development; missing links will be addressed to ensure that the proposed development is accessible for all modes of transportation;
- ▶ The two internal roads serving the proposed development will be analyzed to ensure they are within capacity. The location of the roads has been shown on the attached map along with all the study area intersections;

We will analyze the operation of the study area intersections for the Existing, Future Background (without the development) and Future Total (with the development) traffic conditions for each analysis period using Synchro software. Volume-to-capacity (v/c) ratios, Level of Service (LOS) and queuing will be assessed.

Based on the analysis results, we will identify any operational deficiencies as well as the net impact of the proposed development on the study area road network. The need for road improvements (e.g. auxiliary turn lanes) and/or other mitigating measures (e.g. traffic control device modifications) to address deficiencies will be determined. We will assess whether these measures are required due to non-site traffic (i.e. Existing or Future Background) or the increase in volumes resulting from the proposed development (i.e. Future Total).

We will recommend the appropriate traffic control for new intersections, through consideration of signalization warrants and pedestrian lines of desire.

We will assess the potential impact and requirements of the site for non-auto modes of transportation. This would include identifying existing and planned transit, walking, and cycling routes and facilities that would enhance connectivity both within the subdivision and with the rest of the municipality for these modes.

Access and Circulation Review

We will review the site access and circulation design to ensure compliance with review agencies requirements and applicable industry guidelines. The analysis will be completed using AutoTURN and include assessments of vehicle access and egress, clearance and swept path manoeuvres within the site based on a suitable design vehicle (e.g. fire truck, garbage truck) to identify potential conflicts with the site driveways, circulation aisles, loading areas and/or parking layout (i.e. no “dead end” spaces). Recommended design changes resulting from the assessment will be provided to the client (or its agents) for consideration.

We will confirm that the proposed public roadway complies with the infrastructure requirements of the Town’s standard ROW, including, but not limited to, off-road cycling facility provisions on collector and arterial roadways. We will provide a figure illustrating the proposed collector road network rights-of-way, a discussion of the design parameters that were considered in the collector road layout, and how traffic calming will be achieved through design.



We will create a **high-level potential Transit Plan** for the study. This will information on potential routes, bus stops, and connections to the existing and future Brampton Transit services

A **Pedestrian and Cyclist Circulation Plan** will be conducted which will also show the boundary connections. Clearances will be confirmed as specified in TAC are met for collector roadways. The intersection spacing and sight distance will be reviewed for all new roads along Town Roads.

Transportation Demand Management (TDM)

We will prepare a TDM Plan for the proposed development. The plan will capture:

- ▶ Existing TDM opportunities near the development site (such as proximity to existing or planned transit or active transportation networks); and
- ▶ Proposed TDM measures to be implemented on the site. This list of measures to encourage greater use of more sustainable modes of transportation (transit, walking, cycling) and trip decision making that reduces, combines, or shortens vehicle trips will be developed in consultation with the client (and/or its agents).

The plan will summarize existing and proposed measures, assess their likely effectiveness for the proposed development and determine implementation requirements to facilitate their use (e.g. bike racks, showers).

Task 3 – Report Preparation

We will document the study methodologies, findings and conclusions in a report for review by the client, prior to their submission to the City. The final report will include detailed analysis results and any data collected. The report will be stamped by a suitably-qualified Professional Engineer in line with the requirements of Professional Engineers Ontario.

Conclusion

Please contact Tom Willis, the Project Manager for this assignment, at (416) 479 9684 x503 or by e-mail at twillis@pts1.com if you have any questions related to this project.

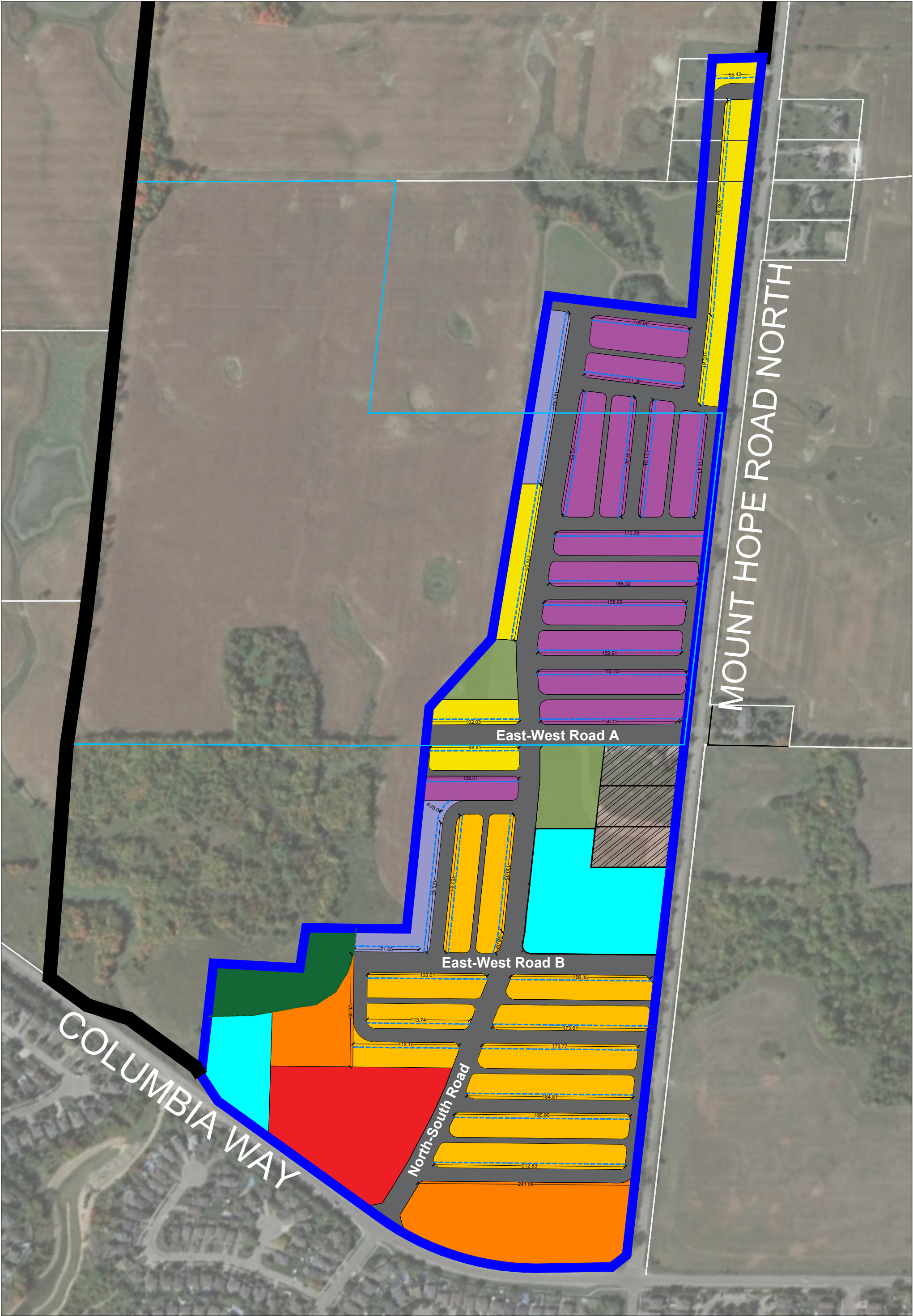
Yours truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED



Tom Willis
MMath
Senior Project Manager





**CONCEPT PLAN
GOLF COURSE &
GREATER CONTEXT**

- Boundary of Urban Area
- Frontage Measurement-**5,012m**
- Developable Limit

- Non-Participating Landowners
- 13.7m Laneway Semi-Detached-**142 Units**
- 15.2m Street Semi-Detached-**30 Units**
- 6m Street Towns-**234 Units**
- 11m Singles-**66 Units**
- Townhouse/Mid/Highrise Blk 60UPH-250UPH
 - 0.69ha * 60 = **40 Units**
 - 2.18ha * 60-250 = **131-545 Units**

- Commercial Block-2.19ha
- Park
- SWM
- Channel Realignment



From: [Amaral, Patrick](#)
To: [Tom Willis](#)
Cc: [Abanoub Gaber](#); [Tanjot Bal](#); [Kavleen Younan](#); [Pelopidas, Chrissy](#); [Hamdani, Hashim](#)
Subject: Region Review- Mount Hope West traffic study - TOR
Date: May 15, 2024 12:04:40
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[\(230561\) 9408 Columbia - terms of reference for Region 2024-05-07.pdf](#)

Hi Tom,

After our review of the TOR, we offer the following comments below and the [link](#) here for the detailed Region of Peel TIS formatting:

- Please see the following contacts to obtain data for your analysis:
 - Please contact transportationplanningdata@peelregion.ca to confirm growth rates along the subject Regional road(s).
 - Please contact Damian Jamroz (damian.jamroz@peelregion.ca) Supervisor of Traffic Operations to obtain the most recent TMCs and/or average annual daily traffic (AADT).
 - Please contact Rebecca Caughey (Rebecca.caughey@peelregion.ca) Supervisor of Traffic Signals and Streetlighting, to obtain traffic signal timing parameters and ensure that the information includes the appropriate walk/don't walk splits, recall modes and offsets.

We have no further comments regarding the TOR as it contains the appropriate information for the future study.

That being said, we continue to encourage the lands on the north east side of Mount Hope to be considered with this proposed secondary plan area.

Should you have any questions or concerns, please let us know.

Thank you,

Patrick Amaral MES(PI), MCIP, RPP

Principal Planner

Planning and Development Services | Region of Peel

Tel: 905-791-7800 ext. 4093

E-mail: patrick.amaral@peelregion.ca



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From: Tom Willis <twillis@ptsl.com>
Sent: Tuesday, May 7, 2024 9:52 AM
To: Amaral, Patrick <patrick.amaral@peelregion.ca>
Cc: Abanoub Gaber <agaber@ptsl.com>
Subject: RE: (230561) Mount Hope West traffic study - contact

CAUTION: EXTERNAL MAIL. DO NOT CLICK ON LINKS OR OPEN ATTACHMENTS YOU DO NOT TRUST.

Hi Patrick,

We've been working with Kavleen Younan in the Town's Engineering/Public Works/Transportation department. The Town has already reviewed and approved the Terms of Reference (with some minor comments). One requirement was that we seek the Region's approval for the terms of reference, and Kavleen recommended reaching out to the assigned planner (you) for this file.

Given you're the one-window for this development, it sounds like the way forward is for me to provide you with the transportation study Terms of Reference for you to circulate to the relevant people. These are attached – if there any comments or concerns, I am always available for a quick phone call.

Regards,

Tom Willis, MMath
Senior Project Manager
(He/Him)



5A-150 Pinebush Road, Cambridge ON, N1R 8J8
p: 416.479.9684 x503
w: www.ptsl.com

Paradigm operates on a four-day workweek. Our offices are closed on Fridays.
I will be on vacation 27-31 May

From: Amaral, Patrick <patrick.amaral@peelregion.ca>
Sent: Monday, May 6, 2024 5:14 PM
To: Tom Willis <twillis@ptsl.com>

Cc: Abanoub Gaber <agaber@ptsl.com>

Subject: RE: (230561) Mount Hope West traffic study - contact

Hi Tom,

Thanks for your email.

Typically these request will be sent to us directly from the Town. Can you advise who at the Town that you have been coordinating this with?

To answer your question, yes, I'll act as the one-window for our internal teams here at the Region who will review and offer any comments for the Traffic study ToR. That being said, we will need to ensure we are coordinated with the Town i.e. reviewing the same document etc.

Thanks,

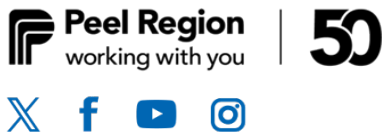
Patrick Amaral MES(PI), MCIP, RPP

Principal Planner

Planning and Development Services | Region of Peel

Tel: 905-791-7800 ext. 4093

E-mail: patrick.amaral@peelregion.ca



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From: Tom Willis <twillis@ptsl.com>

Sent: Monday, May 6, 2024 10:42 AM

To: Amaral, Patrick <patrick.amaral@peelregion.ca>

Cc: Abanoub Gaber <agaber@ptsl.com>

Subject: (230561) Mount Hope West traffic study - contact

CAUTION: EXTERNAL MAIL. DO NOT CLICK ON LINKS OR OPEN ATTACHMENTS YOU DO NOT TRUST.

Hi Patrick,

My client developing a subdivision in Caledon in the northeast quadrant of Columbia Way and

Mount Hope Roads, an area known as the “Mount Hope West”. I understand that you have already provided pre-application comments on behalf of the Region.

The Town has requested the Region’s transportation department review our planned terms of reference for the traffic study. Who would be the suitable person to contact?

Regards,

Tom Willis, MMath
Senior Project Manager
(He/Him)



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p: 416.479.9684 x503
w: www.ptsl.com

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I will be on vacation 27-31 May

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Appendix B

Traffic Count Data





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Columbia Way & Forest Gate
Avenue
Site Code: 230561
Start Date: 01/31/2024
Page No: 1

Turning Movement Data

Start Time	Columbia Way Eastbound					Columbia Way Westbound					Forest Gate Avenue Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
6:00 AM	12	1	0	0	13	1	3	0	0	4	6	13	0	0	19	36
6:15 AM	17	2	0	0	19	1	0	0	0	1	6	21	0	0	27	47
6:30 AM	20	0	0	0	20	0	1	0	0	1	5	17	0	0	22	43
6:45 AM	15	1	0	0	16	0	2	0	0	2	9	20	0	0	29	47
Hourly Total	64	4	0	0	68	2	6	0	0	8	26	71	0	0	97	173
7:00 AM	17	0	0	0	17	2	4	0	0	6	9	30	0	0	39	62
7:15 AM	35	2	0	0	37	0	2	0	0	2	22	24	0	0	46	85
7:30 AM	22	2	0	0	24	3	7	0	0	10	10	27	0	0	37	71
7:45 AM	23	3	0	0	26	8	19	0	0	27	23	22	0	0	45	98
Hourly Total	97	7	0	0	104	13	32	0	0	45	64	103	0	0	167	316
8:00 AM	30	7	0	0	37	3	29	0	0	32	20	23	0	0	43	112
8:15 AM	30	15	0	0	45	7	8	0	0	15	26	19	0	0	45	105
8:30 AM	25	8	0	0	33	5	5	0	0	10	9	19	0	0	28	71
8:45 AM	22	8	0	0	30	4	5	1	0	10	6	18	0	0	24	64
Hourly Total	107	38	0	0	145	19	47	1	0	67	61	79	0	0	140	352
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	10	17	0	0	27	13	21	0	0	34	10	10	0	0	20	81
4:15 PM	8	23	0	0	31	20	17	0	0	37	10	3	0	0	13	81
4:30 PM	7	21	0	0	28	10	20	0	0	30	9	9	0	0	18	76
4:45 PM	19	16	0	0	35	25	13	0	0	38	10	8	0	0	18	91
Hourly Total	44	77	0	0	121	68	71	0	0	139	39	30	0	0	69	329
5:00 PM	10	26	0	0	36	28	24	0	0	52	12	5	0	0	17	105
5:15 PM	9	13	0	0	22	22	19	0	0	41	12	10	0	0	22	85
5:30 PM	13	24	0	0	37	15	25	0	0	40	7	5	0	0	12	89
5:45 PM	7	15	0	0	22	16	23	0	0	39	13	7	0	0	20	81
Hourly Total	39	78	0	0	117	81	91	0	0	172	44	27	0	0	71	360
6:00 PM	8	14	1	0	23	24	20	0	0	44	11	8	0	0	19	86
6:15 PM	10	14	0	0	24	18	11	0	0	29	16	2	0	0	18	71
6:30 PM	3	20	0	0	23	11	16	0	0	27	12	7	0	0	19	69
6:45 PM	10	12	0	0	22	9	16	0	0	25	6	10	0	0	16	63
Hourly Total	31	60	1	0	92	62	63	0	0	125	45	27	0	0	72	289
Grand Total	382	264	1	0	647	245	310	1	0	556	279	337	0	0	616	1819
Approach %	59.0	40.8	0.2	-	-	44.1	55.8	0.2	-	-	45.3	54.7	0.0	-	-	-
Total %	21.0	14.5	0.1	-	35.6	13.5	17.0	0.1	-	30.6	15.3	18.5	0.0	-	33.9	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0

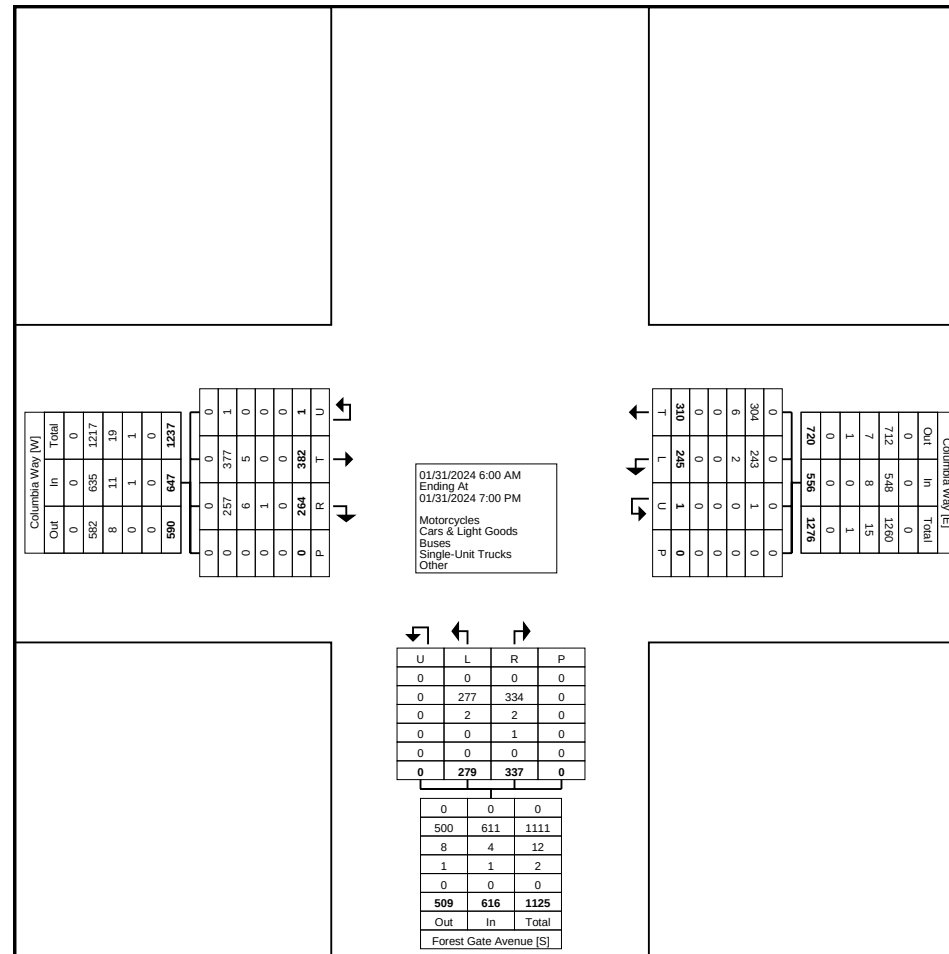
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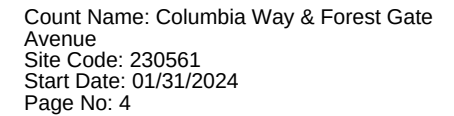
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Columbia Way & Forest Gate
Avenue
Site Code: 230561
Start Date: 01/31/2024
Page No: 3



Turning Movement Data Plot



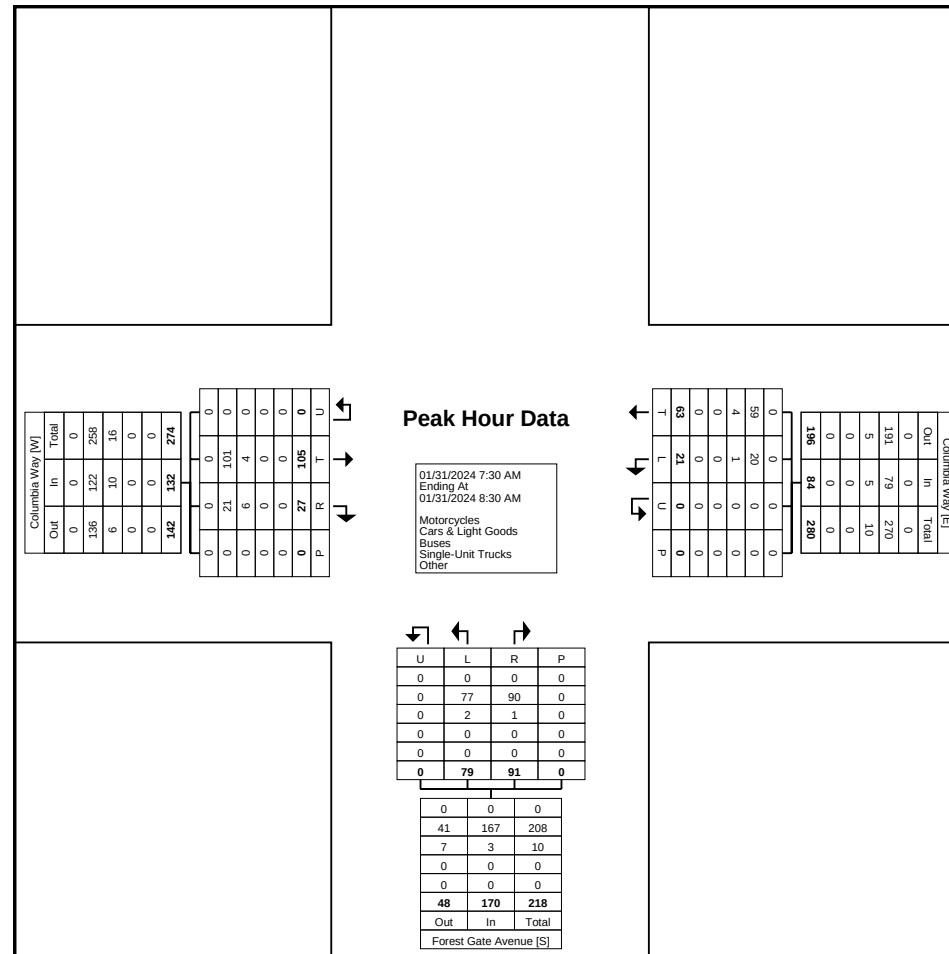
Start Time	Columbia Way Eastbound					Columbia Way Westbound					Forest Gate Avenue Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:30 AM	22	2	0	0	24	3	7	0	0	10	10	27	0	0	37	71
7:45 AM	23	3	0	0	26	8	19	0	0	27	23	22	0	0	45	98
8:00 AM	30	7	0	0	37	3	29	0	0	32	20	23	0	0	43	112
8:15 AM	30	15	0	0	45	7	8	0	0	15	26	19	0	0	45	105
Total	105	27	0	0	132	21	63	0	0	84	79	91	0	0	170	386
Approach %	79.5	20.5	0.0	-	-	25.0	75.0	0.0	-	-	46.5	53.5	0.0	-	-	-
Total %	27.2	7.0	0.0	-	34.2	5.4	16.3	0.0	-	21.8	20.5	23.6	0.0	-	44.0	-
PHF	0.875	0.450	0.000	-	0.733	0.656	0.543	0.000	-	0.656	0.760	0.843	0.000	-	0.944	0.862
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	101	21	0	-	122	20	59	0	-	79	77	90	0	-	167	368
% Cars & Light Goods	96.2	77.8	-	-	92.4	95.2	93.7	-	-	94.0	97.5	98.9	-	-	98.2	95.3
Buses	4	6	0	-	10	1	4	0	-	5	2	1	0	-	3	18
% Buses	3.8	22.2	-	-	7.6	4.8	6.3	-	-	6.0	2.5	1.1	-	-	1.8	4.7
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



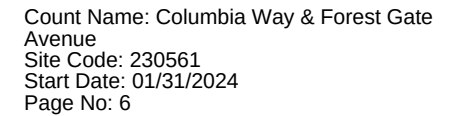
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5A-150 Pinebush Rd

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

Count Name: Columbia Way & Forest Gate
Avenue
Site Code: 230561
Start Date: 01/31/2024
Page No: 5



Turning Movement Peak Hour Data Plot (7:30 AM)

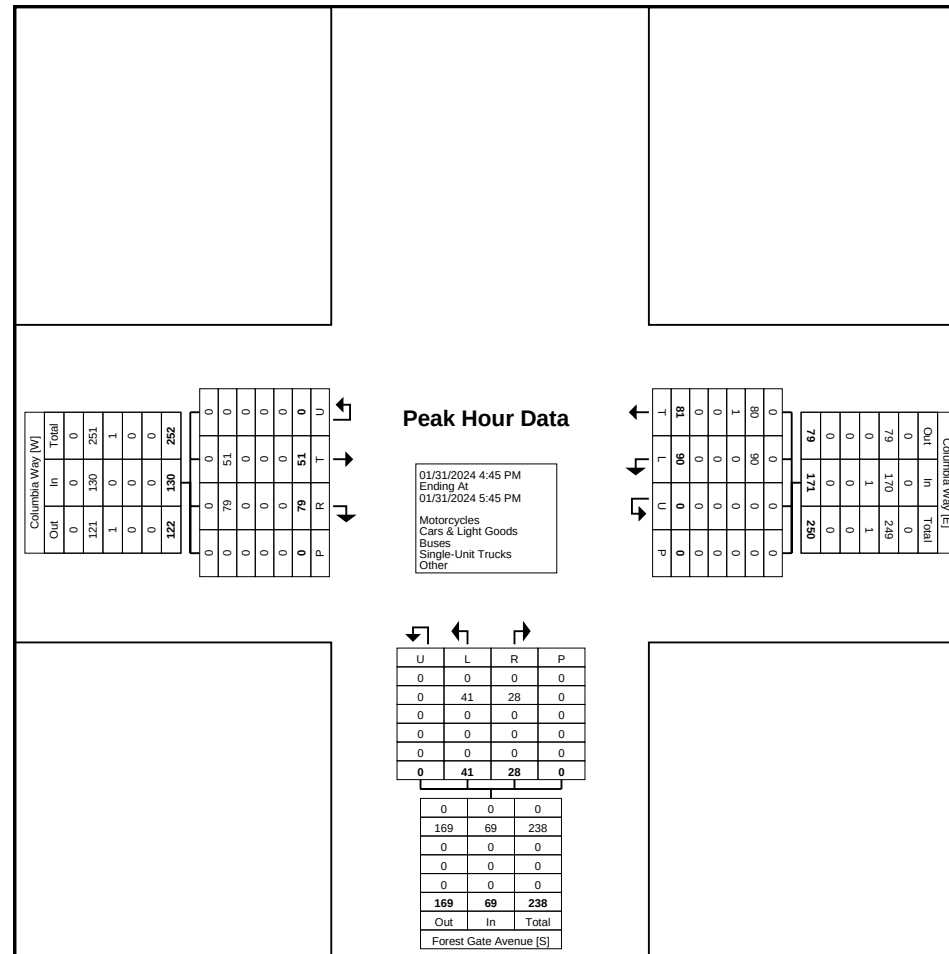
[illegible]



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

Count Name: Columbia Way & Forest Gate
Avenue
Site Code: 230561
Start Date: 01/31/2024
Page No: 7



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Caledon King Townline S and
Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 1

Turning Movement Data

Start Time	Caledon King Townline S Southbound					Columbia Way Northbound					Caledon King Townline S Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
6:00 AM	2	78	0	0	80	19	1	0	0	20	25	2	0	0	27	127
6:15 AM	0	88	0	0	88	23	1	0	0	24	35	1	0	0	36	148
6:30 AM	1	114	0	0	115	33	4	0	0	37	41	6	0	0	47	199
6:45 AM	0	108	0	0	108	40	4	0	0	44	48	3	0	0	51	203
Hourly Total	3	388	0	0	391	115	10	0	0	125	149	12	0	0	161	677
7:00 AM	2	134	0	0	136	27	11	0	0	38	52	4	0	0	56	230
7:15 AM	3	108	0	0	111	25	6	0	0	31	44	4	0	0	48	190
7:30 AM	6	164	0	0	170	37	14	0	0	51	49	2	0	0	51	272
7:45 AM	5	117	0	0	122	23	22	0	0	45	58	9	0	0	67	234
Hourly Total	16	523	0	0	539	112	53	0	0	165	203	19	0	0	222	926
8:00 AM	20	126	0	0	146	21	37	0	0	58	47	8	0	0	55	259
8:15 AM	9	123	0	0	132	31	10	0	0	41	57	6	0	0	63	236
8:30 AM	5	100	0	0	105	37	10	0	0	47	39	9	0	0	48	200
8:45 AM	7	79	0	0	86	30	9	0	0	39	32	4	0	0	36	161
Hourly Total	41	428	0	0	469	119	66	0	0	185	175	27	0	0	202	856
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	6	66	0	0	72	112	40	0	0	152	22	9	0	0	31	255
4:15 PM	10	53	0	0	63	113	36	0	0	149	19	2	0	0	21	233
4:30 PM	6	68	0	0	74	120	26	0	0	146	31	8	0	0	39	259
4:45 PM	8	75	0	0	83	107	42	0	0	149	26	6	0	0	32	264
Hourly Total	30	262	0	0	292	452	144	0	0	596	98	25	0	0	123	1011
5:00 PM	12	36	0	0	48	106	37	0	0	143	26	5	0	0	31	222
5:15 PM	4	48	0	0	52	103	48	0	0	151	28	5	0	0	33	236
5:30 PM	15	54	0	0	69	108	54	0	0	162	27	5	0	0	32	263
5:45 PM	10	45	0	0	55	102	43	0	0	145	33	8	0	0	41	241
Hourly Total	41	183	0	0	224	419	182	0	0	601	114	23	0	0	137	962
6:00 PM	6	39	0	0	45	105	44	0	0	149	22	7	0	0	29	223
6:15 PM	12	38	0	0	50	82	31	0	0	113	23	10	0	0	33	196
6:30 PM	1	39	0	0	40	50	31	0	0	81	18	5	0	0	23	144
6:45 PM	4	41	0	0	45	83	31	0	0	114	21	3	0	0	24	183
Hourly Total	23	157	0	0	180	320	137	0	0	457	84	25	0	0	109	746
Grand Total	154	1941	0	0	2095	1537	592	0	0	2129	823	131	0	0	954	5178
Approach %	7.4	92.6	0.0	-	-	72.2	27.8	0.0	-	-	86.3	13.7	0.0	-	-	-
Total %	3.0	37.5	0.0	-	40.5	29.7	11.4	0.0	-	41.1	15.9	2.5	0.0	-	18.4	-
Motorcycles	0	7	0	-	7	3	0	0	-	3	6	1	0	-	7	17
% Motorcycles	0.0	0.4	-	-	0.3	0.2	0.0	-	-	0.1	0.7	0.8	-	-	0.7	0.3

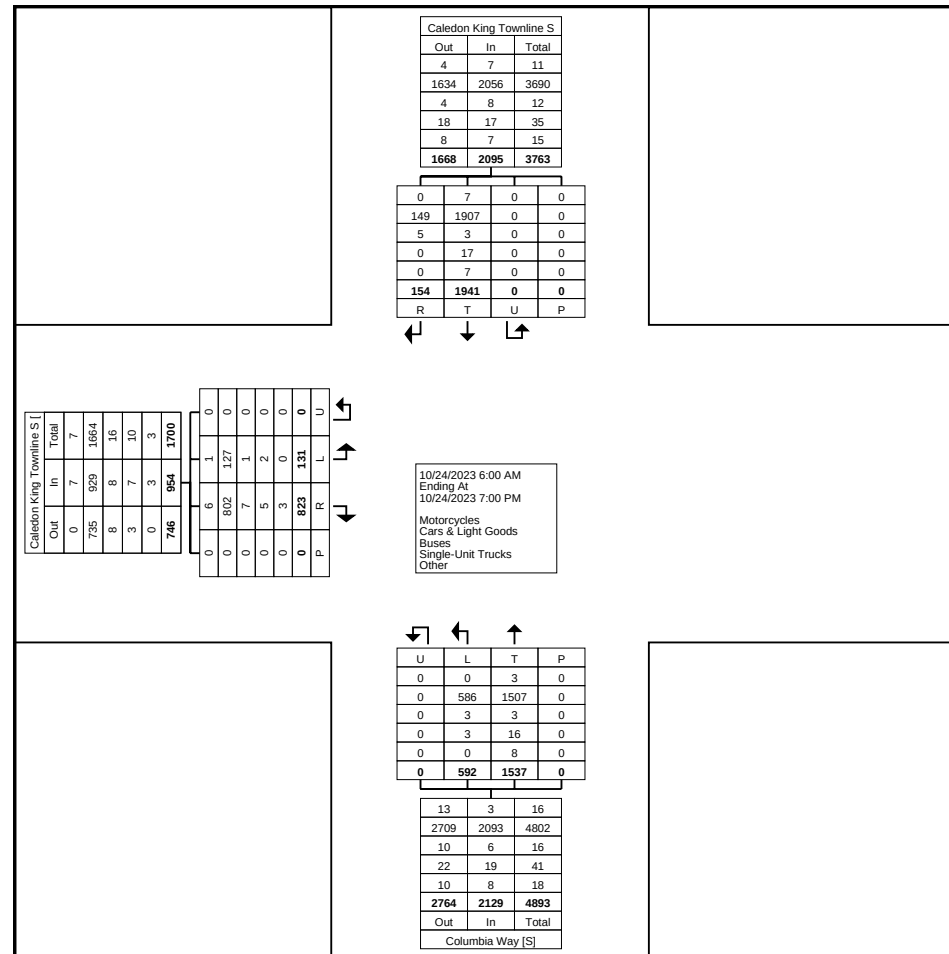
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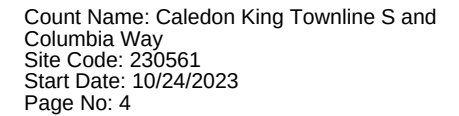
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Caledon King Townline S and
Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 3



Turning Movement Data Plot

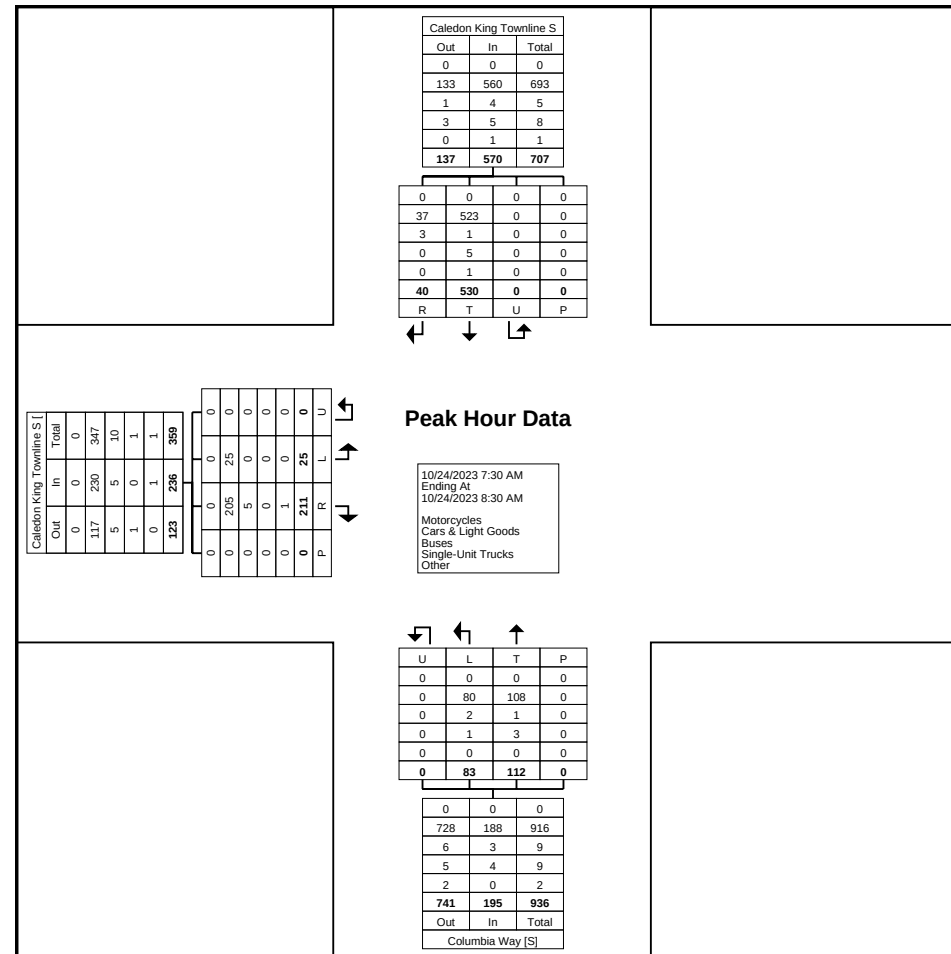
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Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsil.com

Count Name: Caledon King Townline S and
Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 5



Turning Movement Peak Hour Data Plot (7:30 AM)

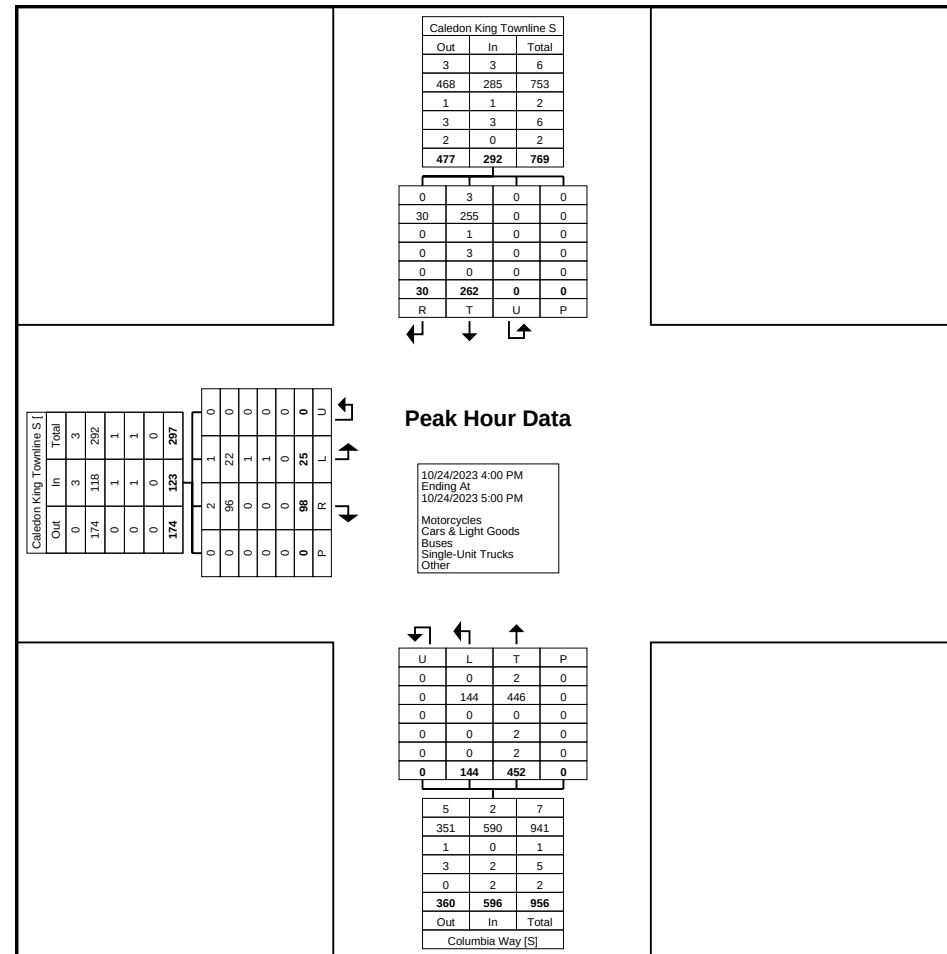
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Caledon King Townline S and
Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 7



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

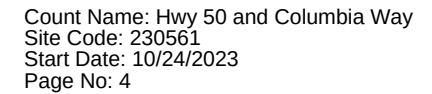
Count Name: Hwy 50 and Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 1

Turning Movement Data

Start Time	Highway 50 Southbound						Columbia Way Westbound						Highway 50 Northbound						Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	1	72	2	0	0	75	8	0	10	0	0	18	4	17	0	0	0	21	0	1	1	0	0	2	116
6:15 AM	0	62	7	0	0	69	6	0	14	0	0	20	2	34	0	0	0	36	1	0	0	0	0	1	126
6:30 AM	3	78	5	0	0	86	14	0	11	0	0	25	6	21	1	0	0	28	0	0	0	0	0	0	139
6:45 AM	9	85	8	0	0	102	17	2	10	0	0	29	5	36	0	0	0	41	0	0	0	0	0	0	172
Hourly Total	13	297	22	0	0	332	45	2	45	0	0	92	17	108	1	0	0	126	1	1	1	0	0	3	553
7:00 AM	3	89	7	0	0	99	11	0	30	0	0	41	7	45	0	0	0	52	0	0	0	0	0	0	192
7:15 AM	1	94	4	0	0	99	22	0	20	0	0	42	12	44	0	0	0	56	0	0	0	0	0	0	197
7:30 AM	0	80	19	0	0	99	26	0	26	0	0	52	21	37	0	0	0	58	0	0	0	0	0	0	209
7:45 AM	0	101	41	0	0	142	32	0	48	0	2	80	51	34	0	0	0	85	0	0	3	0	0	3	310
Hourly Total	4	364	71	0	0	439	91	0	124	0	2	215	91	160	0	0	0	251	0	0	3	0	0	3	908
8:00 AM	0	113	52	0	0	165	61	2	69	0	0	132	44	60	0	0	0	104	2	1	0	0	0	3	404
8:15 AM	0	115	37	0	0	152	30	0	32	0	0	62	26	81	1	0	0	108	1	2	1	0	0	4	326
8:30 AM	0	67	12	0	0	79	30	0	21	0	0	51	21	75	1	0	0	97	5	0	1	0	0	6	233
8:45 AM	0	83	9	0	0	92	15	0	26	0	0	41	21	76	0	0	0	97	0	0	0	0	0	0	230
Hourly Total	0	378	110	0	0	488	136	2	148	0	0	286	112	292	2	0	0	406	8	3	2	0	0	13	1193
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	58	20	0	3	78	21	0	17	0	0	38	36	126	0	0	0	162	1	0	0	0	3	1	279
4:15 PM	0	93	17	1	0	111	6	0	10	0	1	16	29	120	0	0	0	149	0	0	0	0	0	0	276
4:30 PM	0	87	21	0	0	108	13	0	14	0	0	27	24	143	0	0	0	167	0	0	1	0	0	1	303
4:45 PM	0	81	28	0	0	109	23	0	31	0	0	54	40	124	1	0	0	165	0	0	1	0	0	1	329
Hourly Total	0	319	86	1	3	406	63	0	72	0	1	135	129	513	1	0	0	643	1	0	2	0	3	3	1187
5:00 PM	1	72	22	0	0	95	11	0	24	0	0	35	62	122	0	0	0	184	0	0	0	0	0	0	314
5:15 PM	1	86	29	0	0	116	13	0	24	0	0	37	25	127	0	0	0	152	1	0	0	0	0	1	306
5:30 PM	0	70	27	0	0	97	15	0	20	0	0	35	46	105	0	0	0	151	1	0	0	0	0	1	284
5:45 PM	1	82	18	0	1	101	9	0	19	0	0	28	33	97	0	0	0	130	0	0	1	0	0	1	260
Hourly Total	3	310	96	0	1	409	48	0	87	0	0	135	166	451	0	0	0	617	2	0	1	0	0	3	1164
6:00 PM	0	75	25	0	0	100	19	0	15	0	0	34	43	102	0	0	0	145	1	0	0	0	0	1	280
6:15 PM	0	89	28	0	0	117	14	0	30	0	0	44	40	114	0	0	0	154	0	0	0	0	0	0	315
6:30 PM	0	68	18	0	0	86	9	0	30	0	0	39	32	107	0	0	0	139	0	0	0	0	0	0	264
6:45 PM	0	76	10	0	0	86	8	0	19	0	0	27	29	86	0	0	0	115	0	0	0	0	0	0	228
Hourly Total	0	308	81	0	0	389	50	0	94	0	0	144	144	409	0	0	0	553	1	0	0	0	0	1	1087
Grand Total	20	1976	466	1	4	2463	433	4	570	0	3	1007	659	1933	4	0	0	2596	13	4	9	0	3	26	6092
Approach %	0.8	80.2	18.9	0.0	-	-	43.0	0.4	56.6	0.0	-	-	25.4	74.5	0.2	0.0	-	-	50.0	15.4	34.6	0.0	-	-	-
Total %	0.3	32.4	7.6	0.0	-	40.4	7.1	0.1	9.4	0.0	-	16.5	10.8	31.7	0.1	0.0	-	42.6	0.2	0.1	0.1	0.0	-	0.4	-
Motorcycles	0	11	3	0	-	14	1	0	1	0	-	2	3	12	0	0	-	15	0	0	0	0	-	0	31

% Motorcycles	0.0	0.6	0.6	0.0	-	0.6	0.2	0.0	0.2	-	-	0.2	0.5	0.6	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.5
Cars & Light Goods	17	1932	437	1	-	2387	414	4	556	0	-	974	637	1874	3	0	-	2514	11	2	8	0	-	21	5896
% Cars & Light Goods	85.0	97.8	93.8	100.0	-	96.9	95.6	100.0	97.5	-	-	96.7	96.7	96.9	75.0	-	-	96.8	84.6	50.0	88.9	-	-	80.8	96.8
Buses	3	16	15	0	-	34	16	0	10	0	-	26	16	22	1	0	-	39	1	0	1	0	-	2	101
% Buses	15.0	0.8	3.2	0.0	-	1.4	3.7	0.0	1.8	-	-	2.6	2.4	1.1	25.0	-	-	1.5	7.7	0.0	11.1	-	-	7.7	1.7
Single-Unit Trucks	0	14	9	0	-	23	2	0	3	0	-	5	3	18	0	0	-	21	1	1	0	0	-	2	51
% Single-Unit Trucks	0.0	0.7	1.9	0.0	-	0.9	0.5	0.0	0.5	-	-	0.5	0.5	0.9	0.0	-	-	0.8	7.7	25.0	0.0	-	-	7.7	0.8
Articulated Trucks	0	3	1	0	-	4	0	0	0	0	-	0	0	6	0	0	-	6	0	1	0	0	-	1	11
% Articulated Trucks	0.0	0.2	0.2	0.0	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	0.0	25.0	0.0	-	-	3.8	0.2
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.2	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	33.3	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	66.7	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Turning Movement Data Plot



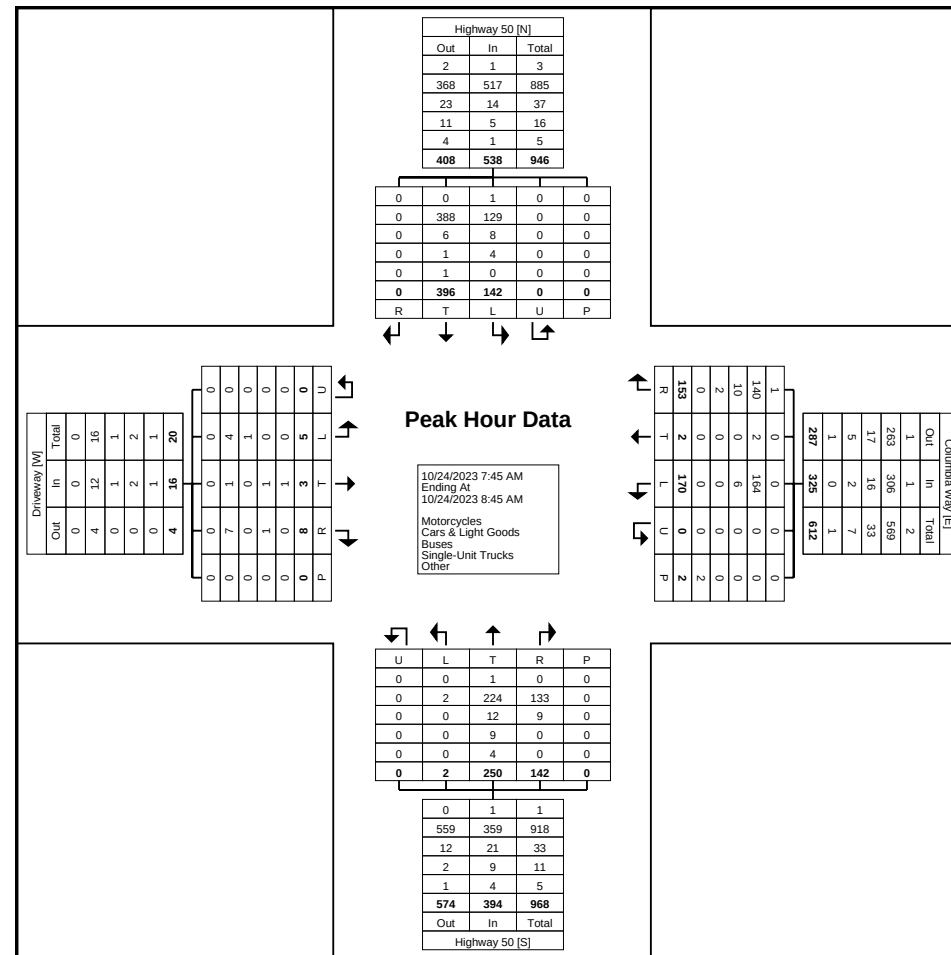
Start Time	Highway 50 Southbound						Columbia Way Westbound						Highway 50 Northbound						Driveway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:45 AM	0	101	41	0	0	142	32	0	48	0	2	80	51	34	0	0	0	85	0	0	3	0	0	3	310
8:00 AM	0	113	52	0	0	165	61	2	69	0	0	132	44	60	0	0	0	104	2	1	0	0	0	3	404
8:15 AM	0	115	37	0	0	152	30	0	32	0	0	62	26	81	1	0	0	108	1	2	1	0	0	4	326
8:30 AM	0	67	12	0	0	79	30	0	21	0	0	51	21	75	1	0	0	97	5	0	1	0	0	6	233
Total	0	396	142	0	0	538	153	2	170	0	2	325	142	250	2	0	0	394	8	3	5	0	0	16	1273
Approach %	0.0	73.6	26.4	0.0	-	-	47.1	0.6	52.3	0.0	-	-	36.0	63.5	0.5	0.0	-	-	50.0	18.8	31.3	0.0	-	-	-
Total %	0.0	31.1	11.2	0.0	-	42.3	12.0	0.2	13.4	0.0	-	25.5	11.2	19.6	0.2	0.0	-	31.0	0.6	0.2	0.4	0.0	-	1.3	-
PHF	0.000	0.861	0.683	0.000	-	0.815	0.627	0.250	0.616	0.000	-	0.616	0.696	0.772	0.500	0.000	-	0.912	0.400	0.375	0.417	0.000	-	0.667	0.788
Motorcycles	0	0	1	0	-	1	1	0	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	3
% Motorcycles	-	0.0	0.7	-	-	0.2	0.7	0.0	0.0	-	-	0.3	0.0	0.4	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.2
Cars & Light Goods	0	388	129	0	-	517	140	2	164	0	-	306	133	224	2	0	-	359	7	1	4	0	-	12	1194
% Cars & Light Goods	-	98.0	90.8	-	-	96.1	91.5	100.0	96.5	-	-	94.2	93.7	89.6	100.0	-	-	91.1	87.5	33.3	80.0	-	-	75.0	93.8
Buses	0	6	8	0	-	14	10	0	6	0	-	16	9	12	0	0	-	21	0	0	1	0	-	1	52
% Buses	-	1.5	5.6	-	-	2.6	6.5	0.0	3.5	-	-	4.9	6.3	4.8	0.0	-	-	5.3	0.0	0.0	20.0	-	-	6.3	4.1
Single-Unit Trucks	0	1	4	0	-	5	2	0	0	0	-	2	0	9	0	0	-	9	1	1	0	0	-	2	18
% Single-Unit Trucks	-	0.3	2.8	-	-	0.9	1.3	0.0	0.0	-	-	0.6	0.0	3.6	0.0	-	-	2.3	12.5	33.3	0.0	-	-	12.5	1.4
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	4	0	0	-	4	0	1	0	0	-	1	6
% Articulated Trucks	-	0.3	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	1.6	0.0	-	-	1.0	0.0	33.3	0.0	-	-	6.3	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



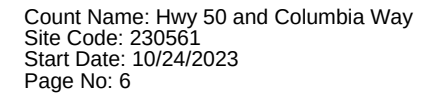
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hwy 50 and Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 5



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

[illegible]

Turning Movement Peak Hour Data Plot (4:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Kingsview Dr and Columbia Way
Site Code: 230500
Start Date: 10/24/2023
Page No: 1

Turning Movement Data

Start Time	Columbia Way Southbound					Kingsview Dr Westbound					Columbia Way Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
6:00 AM	14	2	0	0	16	5	6	0	2	11	0	7	0	0	7	34
6:15 AM	17	1	0	0	18	5	1	0	0	6	2	7	0	0	9	33
6:30 AM	18	2	0	0	20	6	6	0	0	12	1	9	0	0	10	42
6:45 AM	24	3	0	0	27	11	6	0	0	17	0	13	0	0	13	57
Hourly Total	73	8	0	0	81	27	19	0	2	46	3	36	0	0	39	166
7:00 AM	34	3	0	0	37	14	9	0	0	23	3	11	0	0	14	74
7:15 AM	35	3	0	0	38	15	9	0	0	24	2	14	0	0	16	78
7:30 AM	45	8	0	0	53	11	8	0	0	19	3	32	0	0	35	107
7:45 AM	66	13	0	7	79	12	10	0	1	22	2	89	0	0	91	192
Hourly Total	180	27	0	7	207	52	36	0	1	88	10	146	0	0	156	451
8:00 AM	114	39	0	8	153	26	18	0	1	44	10	91	0	5	101	298
8:15 AM	52	44	0	1	96	22	12	0	0	34	17	46	0	1	63	193
8:30 AM	40	9	0	0	49	22	13	0	0	35	9	22	0	0	31	115
8:45 AM	29	11	0	2	40	7	10	0	3	17	6	24	0	0	30	87
Hourly Total	235	103	0	11	338	77	53	0	4	130	42	183	0	6	225	693
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	26	16	0	0	42	12	12	0	1	24	18	39	0	0	57	123
4:15 PM	12	11	0	0	23	8	4	0	2	12	7	39	0	0	46	81
4:30 PM	24	8	0	0	32	16	6	0	2	22	14	32	0	0	46	100
4:45 PM	46	11	0	0	57	13	6	0	5	19	15	51	0	0	66	142
Hourly Total	108	46	0	0	154	49	28	0	10	77	54	161	0	0	215	446
5:00 PM	28	14	0	0	42	8	6	0	1	14	21	59	0	0	80	136
5:15 PM	28	18	0	0	46	9	9	0	1	18	16	41	0	0	57	121
5:30 PM	30	17	0	0	47	10	7	0	1	17	29	43	0	0	72	136
5:45 PM	21	15	0	0	36	13	7	0	0	20	15	39	0	0	54	110
Hourly Total	107	64	0	0	171	40	29	0	3	69	81	182	0	0	263	503
6:00 PM	32	15	0	0	47	9	4	0	2	13	17	49	0	0	66	126
6:15 PM	37	10	0	1	47	9	7	0	2	16	18	53	0	0	71	134
6:30 PM	30	7	0	2	37	10	8	0	2	18	11	37	0	0	48	103
6:45 PM	25	10	0	0	35	9	3	0	1	12	9	29	0	0	38	85
Hourly Total	124	42	0	3	166	37	22	0	7	59	55	168	0	0	223	448
Grand Total	827	290	0	21	1117	282	187	0	27	469	245	876	0	6	1121	2707
Approach %	74.0	26.0	0.0	-	-	60.1	39.9	0.0	-	-	21.9	78.1	0.0	-	-	-
Total %	30.6	10.7	0.0	-	41.3	10.4	6.9	0.0	-	17.3	9.1	32.4	0.0	-	41.4	-
Motorcycles	0	0	0	-	0	1	1	0	-	2	2	3	0	-	5	7
% Motorcycles	0.0	0.0	-	-	0.0	0.4	0.5	-	-	0.4	0.8	0.3	-	-	0.4	0.3

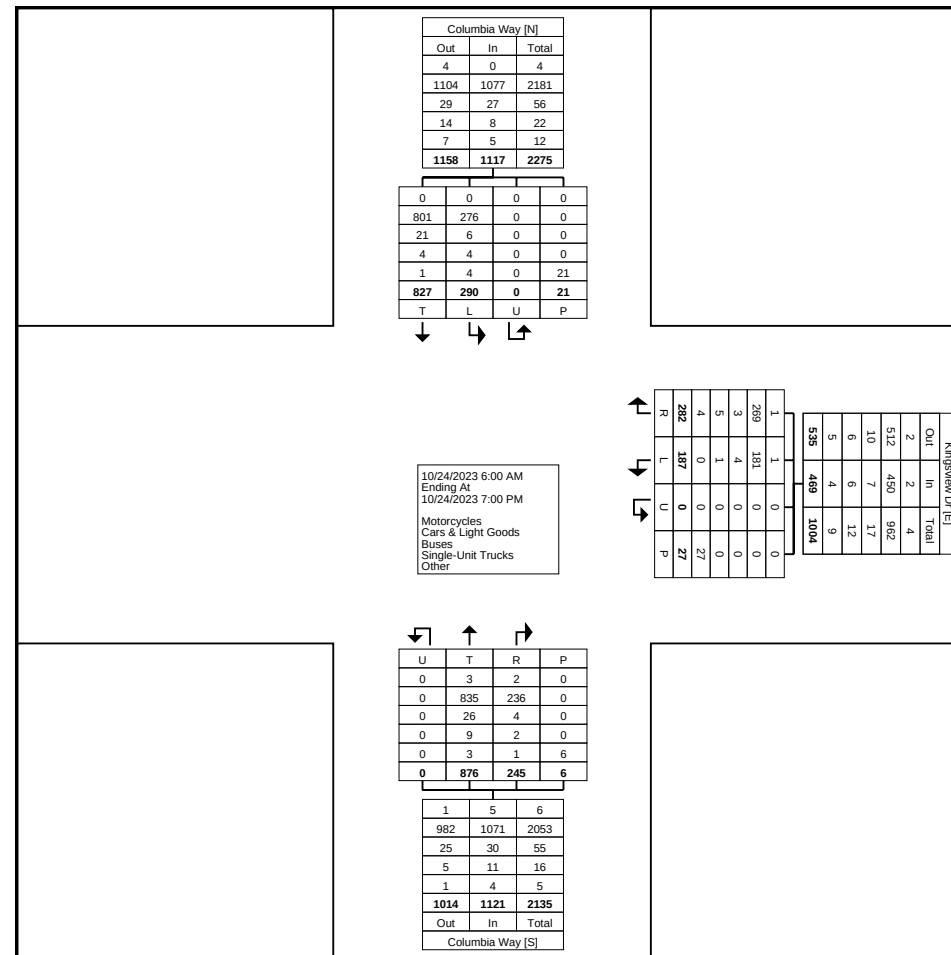
Cars & Light Goods	801	276	0	-	1077	269	181	0	-	450	236	835	0	-	1071	2598
% Cars & Light Goods	96.9	95.2	-	-	96.4	95.4	96.8	-	-	95.9	96.3	95.3	-	-	95.5	96.0
Buses	21	6	0	-	27	3	4	0	-	7	4	26	0	-	30	64
% Buses	2.5	2.1	-	-	2.4	1.1	2.1	-	-	1.5	1.6	3.0	-	-	2.7	2.4
Single-Unit Trucks	4	4	0	-	8	5	1	0	-	6	2	9	0	-	11	25
% Single-Unit Trucks	0.5	1.4	-	-	0.7	1.8	0.5	-	-	1.3	0.8	1.0	-	-	1.0	0.9
Articulated Trucks	0	0	0	-	0	1	0	0	-	1	1	2	0	-	3	4
% Articulated Trucks	0.0	0.0	-	-	0.0	0.4	0.0	-	-	0.2	0.4	0.2	-	-	0.3	0.1
Bicycles on Road	1	4	0	-	5	3	0	0	-	3	0	1	0	-	1	9
% Bicycles on Road	0.1	1.4	-	-	0.4	1.1	0.0	-	-	0.6	0.0	0.1	-	-	0.1	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	7.4	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	21	-	-	-	-	25	-	-	-	-	6	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	92.6	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Kingsview Dr and Columbia Way
Site Code: 230500
Start Date: 10/24/2023
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Kingsview Dr and Columbia Way
Site Code: 230500
Start Date: 10/24/2023
Page No: 4

Turning Movement Peak Hour Data (7:45 AM)

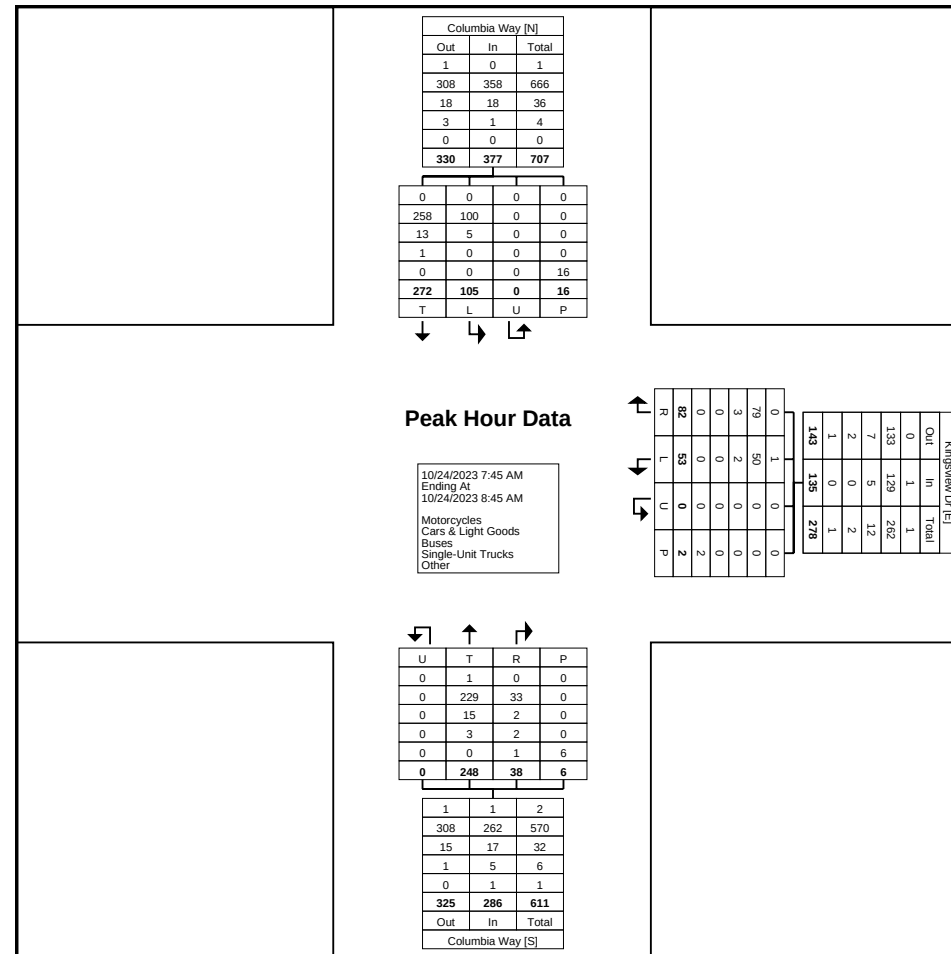
Start Time	Columbia Way Southbound					Kingsview Dr Westbound					Columbia Way Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:45 AM	66	13	0	7	79	12	10	0	1	22	2	89	0	0	91	192
8:00 AM	114	39	0	8	153	26	18	0	1	44	10	91	0	5	101	298
8:15 AM	52	44	0	1	96	22	12	0	0	34	17	46	0	1	63	193
8:30 AM	40	9	0	0	49	22	13	0	0	35	9	22	0	0	31	115
Total	272	105	0	16	377	82	53	0	2	135	38	248	0	6	286	798
Approach %	72.1	27.9	0.0	-	-	60.7	39.3	0.0	-	-	13.3	86.7	0.0	-	-	-
Total %	34.1	13.2	0.0	-	47.2	10.3	6.6	0.0	-	16.9	4.8	31.1	0.0	-	35.8	-
PHF	0.596	0.597	0.000	-	0.616	0.788	0.736	0.000	-	0.767	0.559	0.681	0.000	-	0.708	0.669
Motorcycles	0	0	0	-	0	0	1	0	-	1	0	1	0	-	1	2
% Motorcycles	0.0	0.0	-	-	0.0	0.0	1.9	-	-	0.7	0.0	0.4	-	-	0.3	0.3
Cars & Light Goods	258	100	0	-	358	79	50	0	-	129	33	229	0	-	262	749
% Cars & Light Goods	94.9	95.2	-	-	95.0	96.3	94.3	-	-	95.6	86.8	92.3	-	-	91.6	93.9
Buses	13	5	0	-	18	3	2	0	-	5	2	15	0	-	17	40
% Buses	4.8	4.8	-	-	4.8	3.7	3.8	-	-	3.7	5.3	6.0	-	-	5.9	5.0
Single-Unit Trucks	1	0	0	-	1	0	0	0	-	0	2	3	0	-	5	6
% Single-Unit Trucks	0.4	0.0	-	-	0.3	0.0	0.0	-	-	0.0	5.3	1.2	-	-	1.7	0.8
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	2.6	0.0	-	-	0.3	0.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	16	-	-	-	-	2	-	-	-	-	6	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Kingsview Dr and Columbia Way
Site Code: 230500
Start Date: 10/24/2023
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Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Kingsview Dr and Columbia Way
Site Code: 230500
Start Date: 10/24/2023
Page No: 6

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Columbia Way Southbound					Kingsview Dr Westbound					Columbia Way Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
4:45 PM	46	11	0	0	57	13	6	0	5	19	15	51	0	0	66	142
5:00 PM	28	14	0	0	42	8	6	0	1	14	21	59	0	0	80	136
5:15 PM	28	18	0	0	46	9	9	0	1	18	16	41	0	0	57	121
5:30 PM	30	17	0	0	47	10	7	0	1	17	29	43	0	0	72	136
Total	132	60	0	0	192	40	28	0	8	68	81	194	0	0	275	535
Approach %	68.8	31.3	0.0	-	-	58.8	41.2	0.0	-	-	29.5	70.5	0.0	-	-	-
Total %	24.7	11.2	0.0	-	35.9	7.5	5.2	0.0	-	12.7	15.1	36.3	0.0	-	51.4	-
PHF	0.717	0.833	0.000	-	0.842	0.769	0.778	0.000	-	0.895	0.698	0.822	0.000	-	0.859	0.942
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.4	0.2
Cars & Light Goods	130	59	0	-	189	40	28	0	-	68	81	191	0	-	272	529
% Cars & Light Goods	98.5	98.3	-	-	98.4	100.0	100.0	-	-	100.0	100.0	98.5	-	-	98.9	98.9
Buses	1	0	0	-	1	0	0	0	-	0	0	1	0	-	1	2
% Buses	0.8	0.0	-	-	0.5	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.4	0.4
Single-Unit Trucks	1	1	0	-	2	0	0	0	-	0	0	1	0	-	1	3
% Single-Unit Trucks	0.8	1.7	-	-	1.0	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.4	0.6
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	25.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	6	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	75.0	-	-	-	-	-	-	-

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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Castlederg
Side Rd
Site Code: 230561
Start Date: 10/24/2023
Page No: 1

Turning Movement Data

Start Time	Mount Hope Rd Southbound						Castlederg Side Rd Westbound						Mount Hope Rd Northbound						Castlederg Side Rd Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	5	1	2	0	0	8	0	24	0	0	0	24	2	1	1	0	0	4	0	33	0	0	0	33	69
6:15 AM	2	2	4	0	0	8	1	23	0	0	0	24	1	1	0	0	0	2	0	31	0	0	0	31	65
6:30 AM	8	2	1	0	0	11	1	34	1	0	0	36	0	1	1	0	0	2	2	31	0	0	0	33	82
6:45 AM	4	6	4	0	0	14	0	43	0	0	0	43	4	3	0	0	0	7	1	26	0	0	0	27	91
Hourly Total	19	11	11	0	0	41	2	124	1	0	0	127	7	6	2	0	0	15	3	121	0	0	0	124	307
7:00 AM	7	5	11	0	0	23	0	41	1	0	0	42	3	5	0	0	0	8	0	31	2	0	0	33	106
7:15 AM	5	7	4	0	0	16	2	41	0	0	0	43	4	4	0	0	0	8	0	41	2	0	0	43	110
7:30 AM	14	9	12	0	0	35	0	37	3	0	0	40	1	5	2	0	0	8	1	45	3	0	0	49	132
7:45 AM	4	19	2	0	0	25	1	44	5	0	0	50	0	7	3	0	0	10	4	35	2	0	0	41	126
Hourly Total	30	40	29	0	0	99	3	163	9	0	0	175	8	21	5	0	0	34	5	152	9	0	0	166	474
8:00 AM	9	24	6	0	0	39	0	57	5	0	0	62	6	10	0	0	0	16	6	42	2	0	0	50	167
8:15 AM	4	25	1	0	0	30	2	40	4	0	0	46	5	12	3	0	0	20	5	32	1	0	0	38	134
8:30 AM	7	7	3	0	0	17	2	35	1	0	0	38	4	12	1	0	0	17	1	35	3	0	0	39	111
8:45 AM	10	5	3	0	0	18	0	29	3	0	0	32	0	4	1	0	0	5	0	25	1	0	0	26	81
Hourly Total	30	61	13	0	0	104	4	161	13	0	0	178	15	38	5	0	0	58	12	134	7	0	0	153	493
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	1	7	0	0	0	8	4	32	1	0	0	37	0	7	2	0	0	9	2	59	9	0	0	70	124
4:15 PM	1	11	6	0	0	18	4	46	1	0	0	51	2	13	1	0	0	16	2	66	6	0	0	74	159
4:30 PM	1	9	6	0	0	16	5	43	3	0	0	51	2	13	0	0	0	15	2	68	18	0	0	88	170
4:45 PM	2	6	6	0	0	14	3	43	2	0	0	48	6	10	1	0	0	17	2	61	19	0	0	82	161
Hourly Total	5	33	18	0	0	56	16	164	7	0	0	187	10	43	4	0	0	57	8	254	52	0	0	314	614
5:00 PM	2	5	1	0	0	8	5	54	1	0	0	60	2	10	0	0	0	12	2	89	13	0	0	104	184
5:15 PM	3	8	5	0	0	16	11	58	5	0	0	74	1	7	1	0	0	9	1	67	7	0	0	75	174
5:30 PM	2	12	2	0	0	16	3	53	6	0	0	62	3	7	0	0	0	10	3	53	9	0	0	65	153
5:45 PM	5	19	5	0	0	29	7	43	5	0	1	55	1	11	1	0	0	13	3	50	7	0	0	60	157
Hourly Total	12	44	13	0	0	69	26	208	17	0	1	251	7	35	2	0	0	44	9	259	36	0	0	304	668
6:00 PM	2	8	3	0	0	13	2	38	1	0	0	41	2	7	1	0	0	10	2	40	7	0	0	49	113
6:15 PM	4	5	2	0	0	11	1	32	2	0	0	35	0	7	0	0	0	7	3	32	5	0	1	40	93
6:30 PM	4	4	1	0	0	9	3	20	0	0	0	23	0	10	0	0	0	10	2	23	7	0	0	32	74
6:45 PM	1	10	1	0	0	12	3	16	3	0	0	22	0	6	2	0	0	8	2	39	4	0	0	45	87
Hourly Total	11	27	7	0	0	45	9	106	6	0	0	121	2	30	3	0	0	35	9	134	23	0	1	166	367
Grand Total	107	216	91	0	0	414	60	926	53	0	1	1039	49	173	21	0	0	243	46	1054	127	0	1	1227	2923
Approach %	25.8	52.2	22.0	0.0	-	-	5.8	89.1	5.1	0.0	-	-	20.2	71.2	8.6	0.0	-	-	3.7	85.9	10.4	0.0	-	-	-
Total %	3.7	7.4	3.1	0.0	-	14.2	2.1	31.7	1.8	0.0	-	35.5	1.7	5.9	0.7	0.0	-	8.3	1.6	36.1	4.3	0.0	-	42.0	-
Motorcycles	1	3	0	0	-	4	0	3	0	0	-	3	0	0	0	0	-	0	0	2	1	0	-	3	10

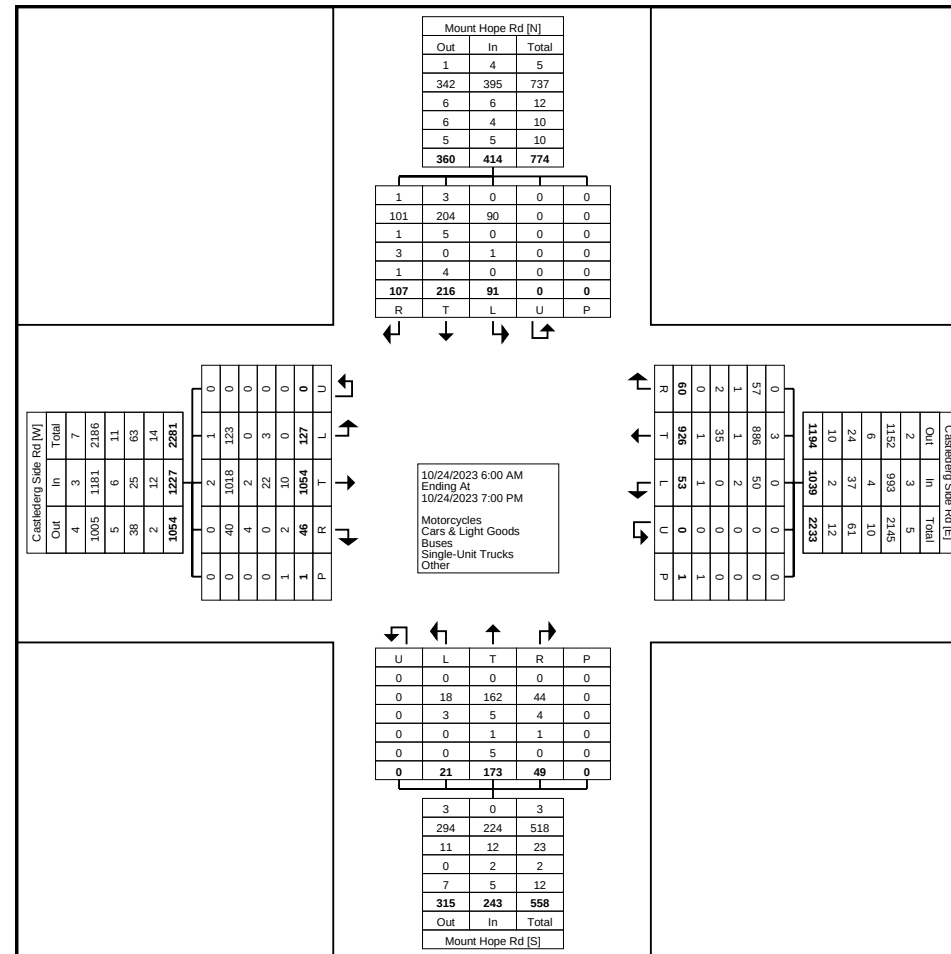
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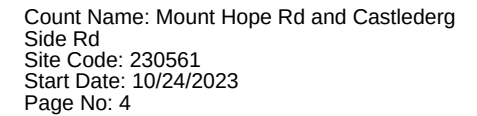


Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Castlederg
Side Rd
Site Code: 230561
Start Date: 10/24/2023
Page No: 3





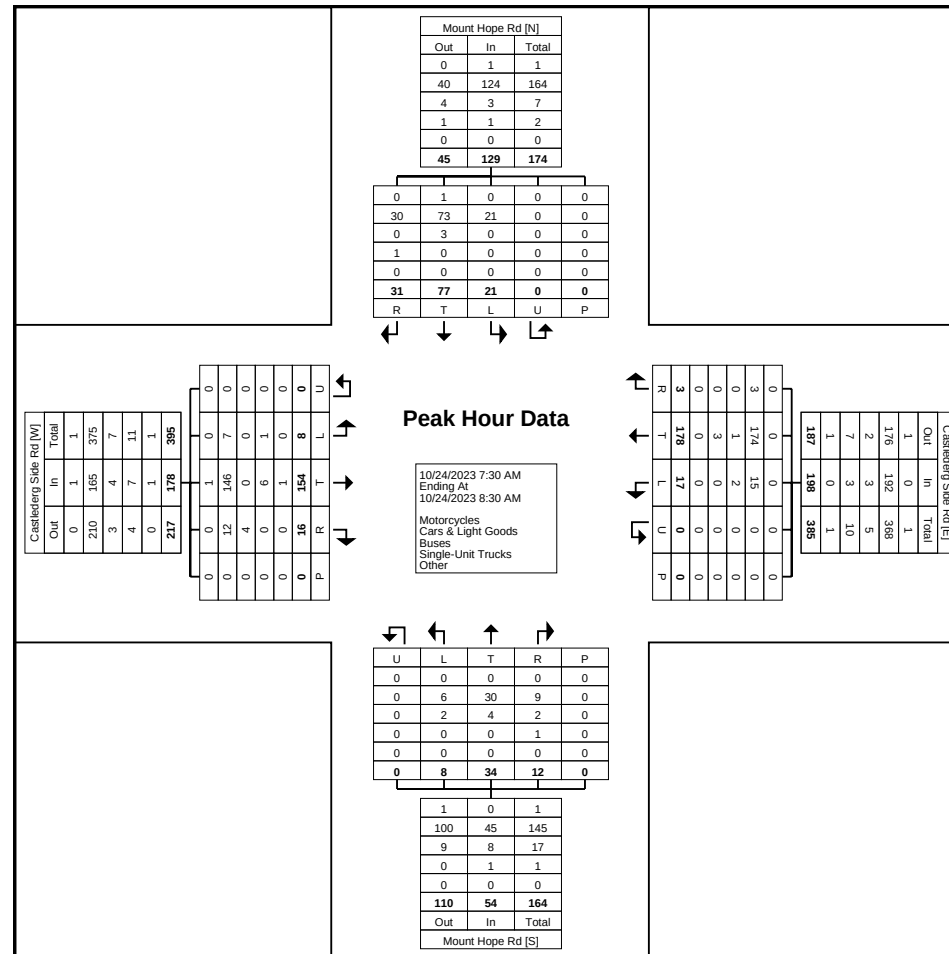
Start Time	Mount Hope Rd Southbound						Castleberg Side Rd Westbound						Mount Hope Rd Northbound						Castleberg Side Rd Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	14	9	12	0	0	35	0	37	3	0	0	40	1	5	2	0	0	8	1	45	3	0	0	49	132
7:45 AM	4	19	2	0	0	25	1	44	5	0	0	50	0	7	3	0	0	10	4	35	2	0	0	41	126
8:00 AM	9	24	6	0	0	39	0	57	5	0	0	62	6	10	0	0	0	16	6	42	2	0	0	50	167
8:15 AM	4	25	1	0	0	30	2	40	4	0	0	46	5	12	3	0	0	20	5	32	1	0	0	38	134
Total	31	77	21	0	0	129	3	178	17	0	0	198	12	34	8	0	0	54	16	154	8	0	0	178	559
Approach %	24.0	59.7	16.3	0.0	-	-	1.5	89.9	8.6	0.0	-	-	22.2	63.0	14.8	0.0	-	-	9.0	86.5	4.5	0.0	-	-	-
Total %	5.5	13.8	3.8	0.0	-	23.1	0.5	31.8	3.0	0.0	-	35.4	2.1	6.1	1.4	0.0	-	9.7	2.9	27.5	1.4	0.0	-	31.8	-
PHF	0.554	0.770	0.438	0.000	-	0.827	0.375	0.781	0.850	0.000	-	0.798	0.500	0.708	0.667	0.000	-	0.675	0.667	0.856	0.667	0.000	-	0.890	0.837
Motorcycles	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	2
% Motorcycles	0.0	1.3	0.0	-	-	0.8	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	-	-	0.6	0.4
Cars & Light Goods	30	73	21	0	-	124	3	174	15	0	-	192	9	30	6	0	-	45	12	146	7	0	-	165	526
% Cars & Light Goods	96.8	94.8	100.0	-	-	96.1	100.0	97.8	88.2	-	-	97.0	75.0	88.2	75.0	-	-	83.3	75.0	94.8	87.5	-	-	92.7	94.1
Buses	0	3	0	0	-	3	0	1	2	0	-	3	2	4	2	0	-	8	4	0	0	0	-	4	18
% Buses	0.0	3.9	0.0	-	-	2.3	0.0	0.6	11.8	-	-	1.5	16.7	11.8	25.0	-	-	14.8	25.0	0.0	0.0	-	-	2.2	3.2
Single-Unit Trucks	1	0	0	0	-	1	0	3	0	0	-	3	1	0	0	0	-	1	0	6	1	0	-	7	12
% Single-Unit Trucks	3.2	0.0	0.0	-	-	0.8	0.0	1.7	0.0	-	-	1.5	8.3	0.0	0.0	-	-	1.9	0.0	3.9	12.5	-	-	3.9	2.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	-	-	0.6	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

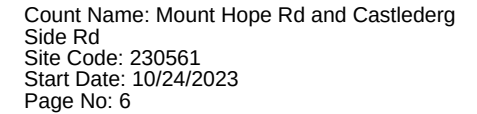


Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Castlederg
Side Rd
Site Code: 230561
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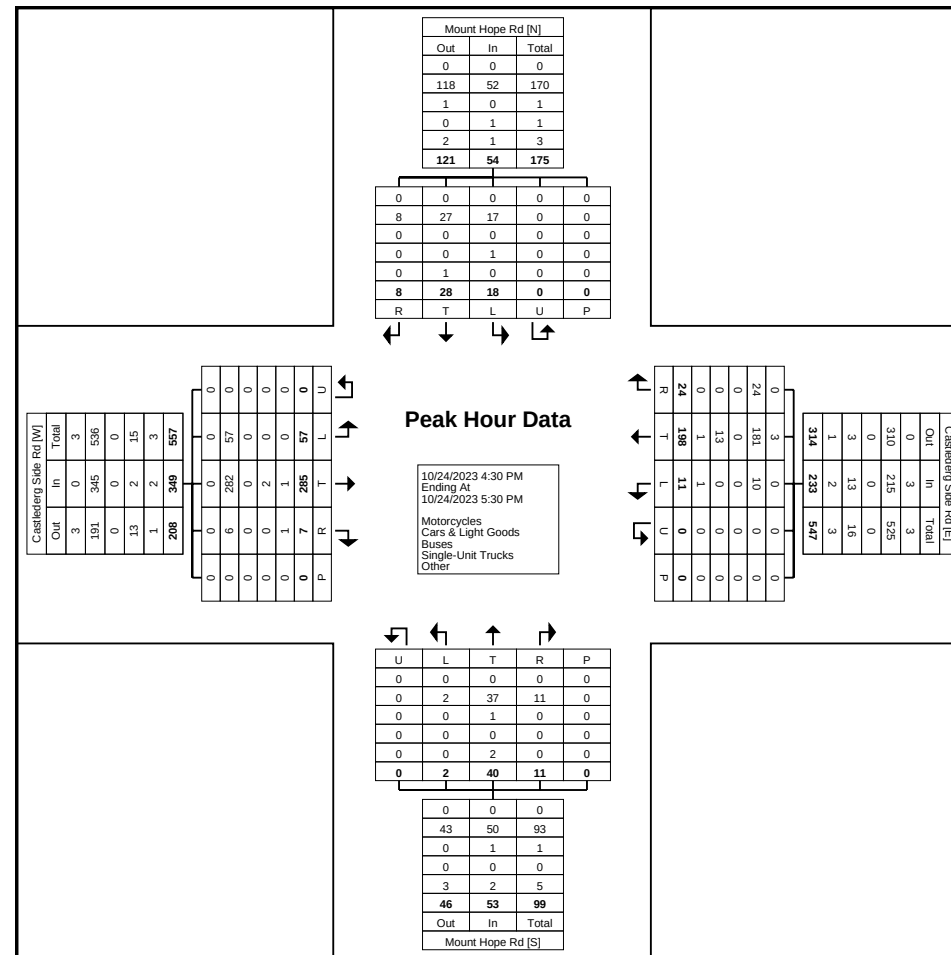
Start Time	Mount Hope Rd Southbound						Castlederg Side Rd Westbound						Mount Hope Rd Northbound						Castlederg Side Rd Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:30 PM	1	9	6	0	0	16	5	43	3	0	0	51	2	13	0	0	0	15	2	68	18	0	0	88	170
4:45 PM	2	6	6	0	0	14	3	43	2	0	0	48	6	10	1	0	0	17	2	61	19	0	0	82	161
5:00 PM	2	5	1	0	0	8	5	54	1	0	0	60	2	10	0	0	0	12	2	89	13	0	0	104	184
5:15 PM	3	8	5	0	0	16	11	58	5	0	0	74	1	7	1	0	0	9	1	67	7	0	0	75	174
Total	8	28	18	0	0	54	24	198	11	0	0	233	11	40	2	0	0	53	7	285	57	0	0	349	689
Approach %	14.8	51.9	33.3	0.0	-	-	10.3	85.0	4.7	0.0	-	-	20.8	75.5	3.8	0.0	-	-	2.0	81.7	16.3	0.0	-	-	-
Total %	1.2	4.1	2.6	0.0	-	7.8	3.5	28.7	1.6	0.0	-	33.8	1.6	5.8	0.3	0.0	-	7.7	1.0	41.4	8.3	0.0	-	50.7	-
PHF	0.667	0.778	0.750	0.000	-	0.844	0.545	0.853	0.550	0.000	-	0.787	0.458	0.769	0.500	0.000	-	0.779	0.875	0.801	0.750	0.000	-	0.839	0.936
Motorcycles	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	3
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	1.5	0.0	-	-	1.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.4
Cars & Light Goods	8	27	17	0	-	52	24	181	10	0	-	215	11	37	2	0	-	50	6	282	57	0	-	345	662
% Cars & Light Goods	100.0	96.4	94.4	-	-	96.3	100.0	91.4	90.9	-	-	92.3	100.0	92.5	100.0	-	-	94.3	85.7	98.9	100.0	-	-	98.9	96.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	2.5	0.0	-	-	1.9	0.0	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	0	0	1	0	-	1	0	13	0	0	-	13	0	0	0	0	-	0	0	2	0	0	-	2	16
% Single-Unit Trucks	0.0	0.0	5.6	-	-	1.9	0.0	6.6	0.0	-	-	5.6	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.6	2.3
Articulated Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	1	0	0	-	1	0	0	1	0	-	1	0	2	0	0	-	2	1	1	0	0	-	2	6
% Bicycles on Road	0.0	3.6	0.0	-	-	1.9	0.0	0.0	9.1	-	-	0.4	0.0	5.0	0.0	-	-	3.8	14.3	0.4	0.0	-	-	0.6	0.9



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Castlederg
Side Rd
Site Code: 230561
Start Date: 10/24/2023
Page No: 7



Turning Movement Peak Hour Data Plot (4:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Blvd and Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 1

Turning Movement Data

Start Time	Columbia Way Southbound					Westchester Blvd Westbound					Columbia Way Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
6:00 AM	7	0	0	0	7	6	9	0	1	15	1	8	0	0	9	31
6:15 AM	9	1	0	0	10	7	9	0	0	16	2	11	0	0	13	39
6:30 AM	13	2	0	0	15	12	7	0	0	19	3	13	0	0	16	50
6:45 AM	20	3	0	0	23	6	9	0	0	15	2	15	0	0	17	55
Hourly Total	49	6	0	0	55	31	34	0	1	65	8	47	0	0	55	175
7:00 AM	21	2	0	0	23	11	16	0	0	27	2	19	0	0	21	71
7:15 AM	27	3	0	0	30	13	10	0	1	23	6	14	0	0	20	73
7:30 AM	33	1	0	0	34	12	26	0	0	38	2	18	0	0	20	92
7:45 AM	53	8	0	0	61	15	19	0	2	34	6	26	0	0	32	127
Hourly Total	134	14	0	0	148	51	71	0	3	122	16	77	0	0	93	363
8:00 AM	111	21	0	0	132	23	40	0	1	63	18	43	0	0	61	256
8:15 AM	52	27	0	0	79	16	25	0	0	41	24	37	0	0	61	181
8:30 AM	31	6	0	0	37	17	9	0	0	26	11	31	0	0	42	105
8:45 AM	27	4	0	0	31	8	13	0	3	21	9	22	0	0	31	83
Hourly Total	221	58	0	0	279	64	87	0	4	151	62	133	0	0	195	625
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	31	8	0	0	39	8	7	0	4	15	16	38	0	0	54	108
4:15 PM	21	13	0	0	34	5	3	0	4	8	17	27	0	0	44	86
4:30 PM	29	7	0	0	36	8	10	0	2	18	8	40	0	0	48	102
4:45 PM	36	9	0	0	45	11	17	0	3	28	14	48	0	0	62	135
Hourly Total	117	37	0	0	154	32	37	0	13	69	55	153	0	0	208	431
5:00 PM	28	7	0	0	35	3	11	0	1	14	18	53	0	0	71	120
5:15 PM	34	14	0	0	48	11	11	0	0	22	16	35	0	0	51	121
5:30 PM	45	18	0	0	63	12	7	0	2	19	18	39	0	0	57	139
5:45 PM	24	26	0	0	50	13	9	0	1	22	16	37	0	0	53	125
Hourly Total	131	65	0	0	196	39	38	0	4	77	68	164	0	0	232	505
6:00 PM	30	19	0	0	49	8	14	0	3	22	13	32	0	0	45	116
6:15 PM	23	13	0	0	36	7	9	0	4	16	18	32	0	0	50	102
6:30 PM	21	12	0	0	33	8	10	0	2	18	20	29	0	0	49	100
6:45 PM	22	9	0	0	31	4	8	0	0	12	7	31	0	0	38	81
Hourly Total	96	53	0	0	149	27	41	0	9	68	58	124	0	0	182	399
Grand Total	748	233	0	0	981	244	308	0	34	552	267	698	0	0	965	2498
Approach %	76.2	23.8	0.0	-	-	44.2	55.8	0.0	-	-	27.7	72.3	0.0	-	-	-
Total %	29.9	9.3	0.0	-	39.3	9.8	12.3	0.0	-	22.1	10.7	27.9	0.0	-	38.6	-
Motorcycles	0	0	0	-	0	1	0	0	-	1	0	1	0	-	1	2
% Motorcycles	0.0	0.0	-	-	0.0	0.4	0.0	-	-	0.2	0.0	0.1	-	-	0.1	0.1

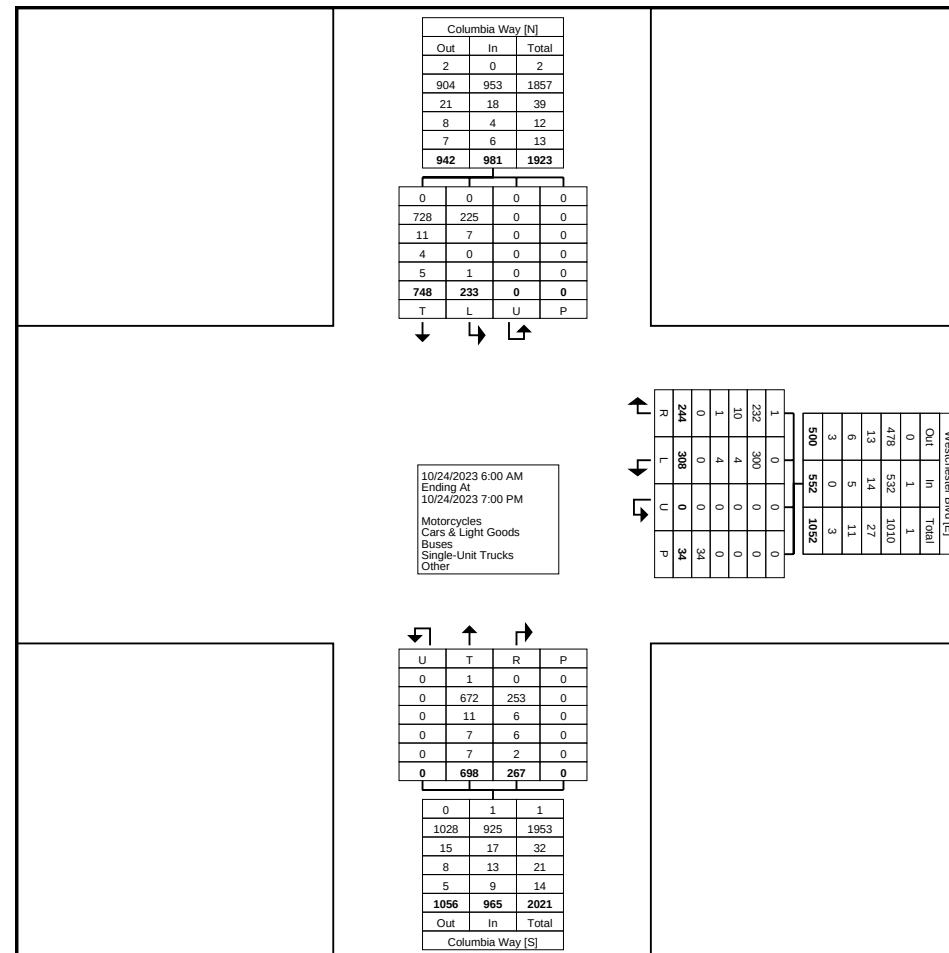
Cars & Light Goods	728	225	0	-	953	232	300	0	-	532	253	672	0	-	925	2410
% Cars & Light Goods	97.3	96.6	-	-	97.1	95.1	97.4	-	-	96.4	94.8	96.3	-	-	95.9	96.5
Buses	11	7	0	-	18	10	4	0	-	14	6	11	0	-	17	49
% Buses	1.5	3.0	-	-	1.8	4.1	1.3	-	-	2.5	2.2	1.6	-	-	1.8	2.0
Single-Unit Trucks	4	0	0	-	4	1	4	0	-	5	6	7	0	-	13	22
% Single-Unit Trucks	0.5	0.0	-	-	0.4	0.4	1.3	-	-	0.9	2.2	1.0	-	-	1.3	0.9
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	2	0	-	2	2
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.3	-	-	0.2	0.1
Bicycles on Road	5	1	0	-	6	0	0	0	-	0	2	5	0	-	7	13
% Bicycles on Road	0.7	0.4	-	-	0.6	0.0	0.0	-	-	0.0	0.7	0.7	-	-	0.7	0.5
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	4	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	11.8	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	30	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	88.2	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Blvd and Columbia
Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Blvd and Columbia
Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 4

Turning Movement Peak Hour Data (7:45 AM)

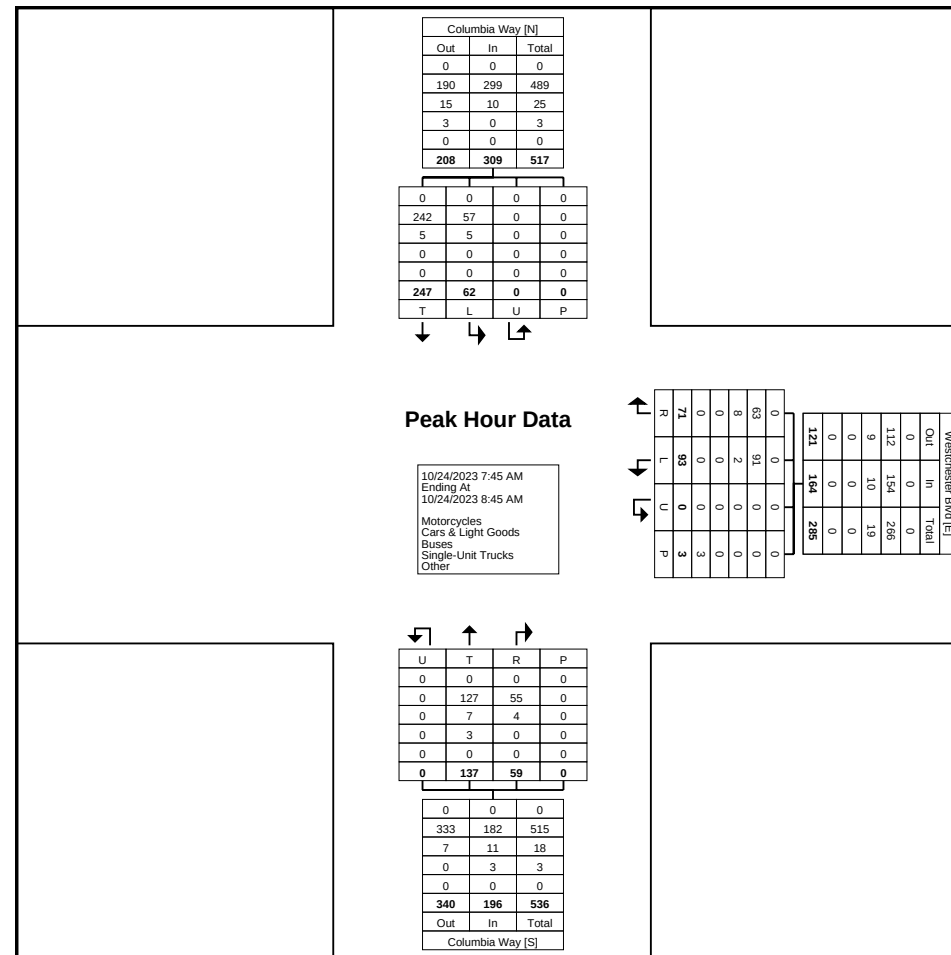
Start Time	Columbia Way Southbound					Westchester Blvd Westbound					Columbia Way Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
7:45 AM	53	8	0	0	61	15	19	0	2	34	6	26	0	0	32	127
8:00 AM	111	21	0	0	132	23	40	0	1	63	18	43	0	0	61	256
8:15 AM	52	27	0	0	79	16	25	0	0	41	24	37	0	0	61	181
8:30 AM	31	6	0	0	37	17	9	0	0	26	11	31	0	0	42	105
Total	247	62	0	0	309	71	93	0	3	164	59	137	0	0	196	669
Approach %	79.9	20.1	0.0	-	-	43.3	56.7	0.0	-	-	30.1	69.9	0.0	-	-	-
Total %	36.9	9.3	0.0	-	46.2	10.6	13.9	0.0	-	24.5	8.8	20.5	0.0	-	29.3	-
PHF	0.556	0.574	0.000	-	0.585	0.772	0.581	0.000	-	0.651	0.615	0.797	0.000	-	0.803	0.653
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	242	57	0	-	299	63	91	0	-	154	55	127	0	-	182	635
% Cars & Light Goods	98.0	91.9	-	-	96.8	88.7	97.8	-	-	93.9	93.2	92.7	-	-	92.9	94.9
Buses	5	5	0	-	10	8	2	0	-	10	4	7	0	-	11	31
% Buses	2.0	8.1	-	-	3.2	11.3	2.2	-	-	6.1	6.8	5.1	-	-	5.6	4.6
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	3	0	-	3	3
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	2.2	-	-	1.5	0.4
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	3	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Blvd and Columbia
Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 5



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Blvd and Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 6

Turning Movement Peak Hour Data (4:45 PM)

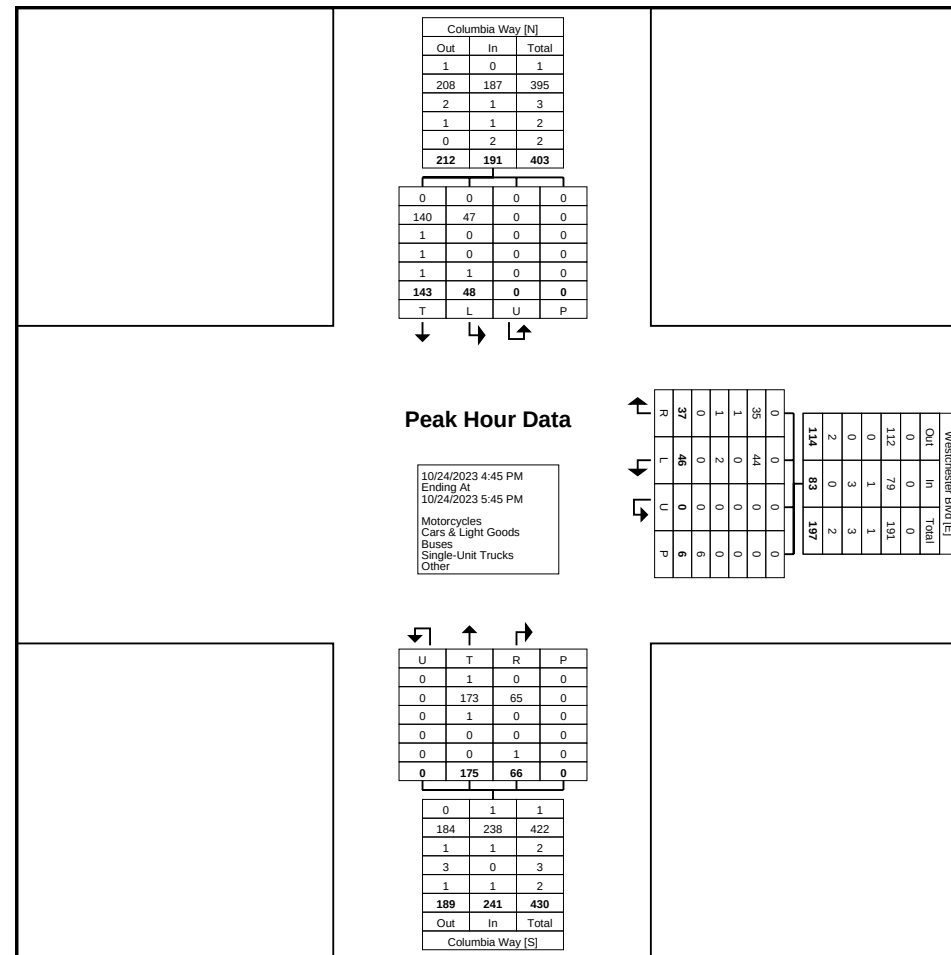
Start Time	Columbia Way Southbound					Westchester Blvd Westbound					Columbia Way Northbound					Int. Total
	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	Right	Thru	U-Turn	Peds	App. Total	
4:45 PM	36	9	0	0	45	11	17	0	3	28	14	48	0	0	62	135
5:00 PM	28	7	0	0	35	3	11	0	1	14	18	53	0	0	71	120
5:15 PM	34	14	0	0	48	11	11	0	0	22	16	35	0	0	51	121
5:30 PM	45	18	0	0	63	12	7	0	2	19	18	39	0	0	57	139
Total	143	48	0	0	191	37	46	0	6	83	66	175	0	0	241	515
Approach %	74.9	25.1	0.0	-	-	44.6	55.4	0.0	-	-	27.4	72.6	0.0	-	-	-
Total %	27.8	9.3	0.0	-	37.1	7.2	8.9	0.0	-	16.1	12.8	34.0	0.0	-	46.8	-
PHF	0.794	0.667	0.000	-	0.758	0.771	0.676	0.000	-	0.741	0.917	0.825	0.000	-	0.849	0.926
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.6	-	-	0.4	0.2
Cars & Light Goods	140	47	0	-	187	35	44	0	-	79	65	173	0	-	238	504
% Cars & Light Goods	97.9	97.9	-	-	97.9	94.6	95.7	-	-	95.2	98.5	98.9	-	-	98.8	97.9
Buses	1	0	0	-	1	1	0	0	-	1	0	1	0	-	1	3
% Buses	0.7	0.0	-	-	0.5	2.7	0.0	-	-	1.2	0.0	0.6	-	-	0.4	0.6
Single-Unit Trucks	1	0	0	-	1	1	2	0	-	3	0	0	0	-	0	4
% Single-Unit Trucks	0.7	0.0	-	-	0.5	2.7	4.3	-	-	3.6	0.0	0.0	-	-	0.0	0.8
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	1	1	0	-	2	0	0	0	-	0	1	0	0	-	1	3
% Bicycles on Road	0.7	2.1	-	-	1.0	0.0	0.0	-	-	0.0	1.5	0.0	-	-	0.4	0.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	33.3	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	4	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	66.7	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Blvd and Columbia
Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 7



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 1

Turning Movement Data

Start Time	Mount Hope Rd Southbound						Columbia Way Westbound						Mount Hope Rd Northbound						Columbia Way Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	1	0	1	0	0	2	0	5	0	0	0	5	3	0	1	0	1	4	1	9	3	0	0	13	24
6:15 AM	2	0	0	0	0	2	0	6	0	0	1	6	1	0	2	0	0	3	0	14	2	0	0	16	27
6:30 AM	2	0	3	0	0	5	0	9	0	0	0	9	5	1	3	0	0	9	1	22	2	0	0	25	48
6:45 AM	3	0	7	0	0	10	2	14	0	0	0	16	7	0	5	0	0	12	1	15	4	0	0	20	58
Hourly Total	8	0	11	0	0	19	2	34	0	0	1	36	16	1	11	0	1	28	3	60	11	0	0	74	157
7:00 AM	5	0	2	0	0	7	1	15	0	0	0	16	2	3	4	0	0	9	1	24	4	0	0	29	61
7:15 AM	5	1	2	0	0	8	1	20	0	0	0	21	4	3	4	0	1	11	0	23	5	0	0	28	68
7:30 AM	7	0	5	0	1	12	5	27	2	0	1	34	1	4	1	0	1	6	4	21	4	0	1	29	81
7:45 AM	14	3	5	0	0	22	3	45	0	0	0	48	3	3	4	0	3	10	1	33	5	0	2	39	119
Hourly Total	31	4	14	0	1	49	10	107	2	0	1	119	10	13	13	0	5	36	6	101	18	0	3	125	329
8:00 AM	36	0	6	1	0	43	1	74	1	0	0	76	2	0	19	0	2	21	6	42	17	0	0	65	205
8:15 AM	29	1	6	0	0	36	3	33	0	0	0	36	4	4	13	0	0	21	4	38	11	0	0	53	146
8:30 AM	8	1	4	0	0	13	2	26	0	0	0	28	3	1	3	0	1	7	4	34	13	0	0	51	99
8:45 AM	9	0	1	0	0	10	2	16	0	0	0	18	1	0	6	0	3	7	1	21	8	0	0	30	65
Hourly Total	82	2	17	1	0	102	8	149	1	0	0	158	10	5	41	0	6	56	15	135	49	0	0	199	515
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	8	1	0	0	0	9	4	28	3	0	0	35	2	0	2	0	5	4	9	29	5	0	0	43	91
4:15 PM	4	0	7	0	0	11	4	28	1	0	0	33	3	0	2	0	3	5	5	19	12	0	0	36	85
4:30 PM	6	3	5	0	0	14	2	31	4	0	0	37	5	1	2	0	2	8	7	27	14	0	0	48	107
4:45 PM	6	1	4	0	0	11	3	33	1	0	0	37	6	3	4	0	3	13	6	41	13	0	0	60	121
Hourly Total	24	5	16	0	0	45	13	120	9	0	0	142	16	4	10	0	13	30	27	116	44	0	0	187	404
5:00 PM	6	3	5	0	0	14	3	29	4	0	0	36	3	2	1	0	2	6	5	41	9	0	0	55	111
5:15 PM	7	2	1	0	0	10	1	39	4	0	0	44	4	0	1	0	4	5	7	27	12	0	0	46	105
5:30 PM	15	2	4	0	0	21	2	46	7	0	0	55	2	2	4	0	2	8	8	36	7	0	0	51	135
5:45 PM	21	5	8	0	0	34	5	28	2	0	0	35	2	1	0	0	3	3	7	38	8	0	0	53	125
Hourly Total	49	12	18	0	0	79	11	142	17	0	0	170	11	5	6	0	11	22	27	142	36	0	0	205	476
6:00 PM	5	3	4	0	0	12	4	39	2	0	0	45	1	0	4	0	5	5	4	32	4	0	0	40	102
6:15 PM	7	0	2	0	0	9	5	29	3	0	0	37	1	0	1	0	9	2	4	29	6	0	0	39	87
6:30 PM	2	1	3	1	0	7	1	34	3	0	0	38	1	1	1	0	5	3	5	23	6	0	0	34	82
6:45 PM	5	3	5	0	0	13	4	24	0	0	0	28	3	2	3	0	0	8	6	27	5	0	0	38	87
Hourly Total	19	7	14	1	0	41	14	126	8	0	0	148	6	3	9	0	19	18	19	111	21	0	0	151	358
Grand Total	213	30	90	2	1	335	58	678	37	0	2	773	69	31	90	0	55	190	97	665	179	0	3	941	2239
Approach %	63.6	9.0	26.9	0.6	-	-	7.5	87.7	4.8	0.0	-	-	36.3	16.3	47.4	0.0	-	-	10.3	70.7	19.0	0.0	-	-	-
Total %	9.5	1.3	4.0	0.1	-	15.0	2.6	30.3	1.7	0.0	-	34.5	3.1	1.4	4.0	0.0	-	8.5	4.3	29.7	8.0	0.0	-	42.0	-
Motorcycles	0	1	2	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	0	-	4	7

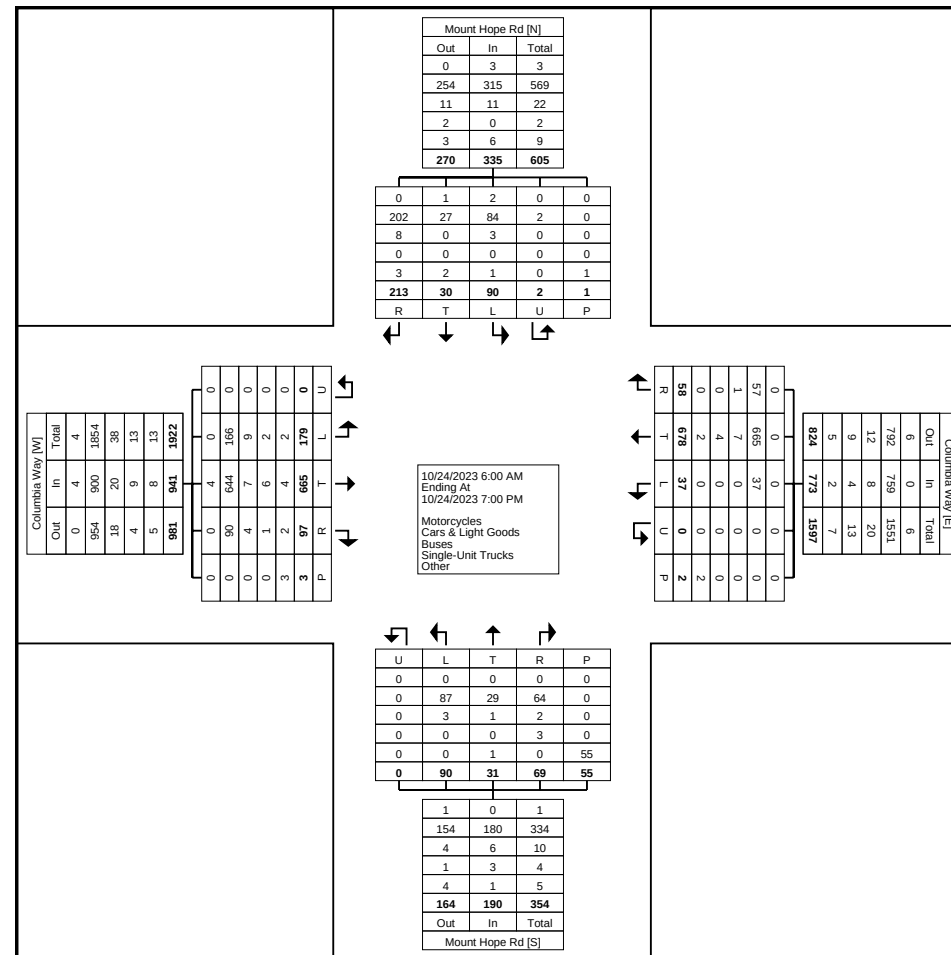
% Motorcycles	0.0	3.3	2.2	0.0	-	0.9	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	-	-	0.4	0.3
Cars & Light Goods	202	27	84	2	-	315	57	665	37	0	-	759	64	29	87	0	-	180	90	644	166	0	-	900	2154
% Cars & Light Goods	94.8	90.0	93.3	100.0	-	94.0	98.3	98.1	100.0	-	-	98.2	92.8	93.5	96.7	-	-	94.7	92.8	96.8	92.7	-	-	95.6	96.2
Buses	8	0	3	0	-	11	1	7	0	0	-	8	2	1	3	0	-	6	4	7	9	0	-	20	45
% Buses	3.8	0.0	3.3	0.0	-	3.3	1.7	1.0	0.0	-	-	1.0	2.9	3.2	3.3	-	-	3.2	4.1	1.1	5.0	-	-	2.1	2.0
Single-Unit Trucks	0	0	0	0	-	0	0	4	0	0	-	4	3	0	0	0	-	3	1	6	2	0	-	9	16
% Single-Unit Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.6	0.0	-	-	0.5	4.3	0.0	0.0	-	-	1.6	1.0	0.9	1.1	-	-	1.0	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	2
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	0.1
Bicycles on Road	3	2	1	0	-	6	0	2	0	0	-	2	0	1	0	0	-	1	2	2	2	0	-	6	15
% Bicycles on Road	1.4	6.7	1.1	0.0	-	1.8	0.0	0.3	0.0	-	-	0.3	0.0	3.2	0.0	-	-	0.5	2.1	0.3	1.1	-	-	0.6	0.7
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	1.8	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	54	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	98.2	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Columbia
Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 4

Turning Movement Peak Hour Data (7:45 AM)

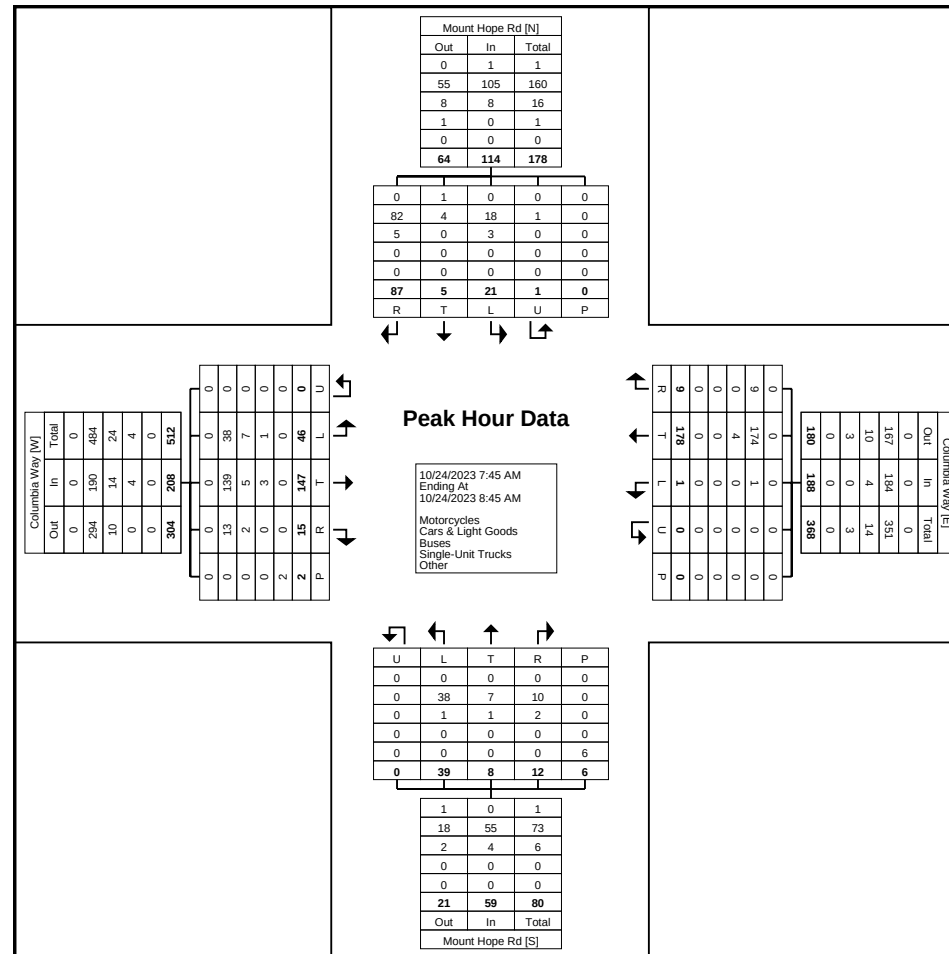
Start Time	Mount Hope Rd Southbound						Columbia Way Westbound						Mount Hope Rd Northbound						Columbia Way Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:45 AM	14	3	5	0	0	22	3	45	0	0	0	48	3	3	4	0	3	10	1	33	5	0	2	39	119
8:00 AM	36	0	6	1	0	43	1	74	1	0	0	76	2	0	19	0	2	21	6	42	17	0	0	65	205
8:15 AM	29	1	6	0	0	36	3	33	0	0	0	36	4	4	13	0	0	21	4	38	11	0	0	53	146
8:30 AM	8	1	4	0	0	13	2	26	0	0	0	28	3	1	3	0	1	7	4	34	13	0	0	51	99
Total	87	5	21	1	0	114	9	178	1	0	0	188	12	8	39	0	6	59	15	147	46	0	2	208	569
Approach %	76.3	4.4	18.4	0.9	-	-	4.8	94.7	0.5	0.0	-	-	20.3	13.6	66.1	0.0	-	-	7.2	70.7	22.1	0.0	-	-	-
Total %	15.3	0.9	3.7	0.2	-	20.0	1.6	31.3	0.2	0.0	-	33.0	2.1	1.4	6.9	0.0	-	10.4	2.6	25.8	8.1	0.0	-	36.6	-
PHF	0.604	0.417	0.875	0.250	-	0.663	0.750	0.601	0.250	0.000	-	0.618	0.750	0.500	0.513	0.000	-	0.702	0.625	0.875	0.676	0.000	-	0.800	0.694
Motorcycles	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	0.0	20.0	0.0	0.0	-	0.9	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Cars & Light Goods	82	4	18	1	-	105	9	174	1	0	-	184	10	7	38	0	-	55	13	139	38	0	-	190	534
% Cars & Light Goods	94.3	80.0	85.7	100.0	-	92.1	100.0	97.8	100.0	-	-	97.9	83.3	87.5	97.4	-	-	93.2	86.7	94.6	82.6	-	-	91.3	93.8
Buses	5	0	3	0	-	8	0	4	0	0	-	4	2	1	1	0	-	4	2	5	7	0	-	14	30
% Buses	5.7	0.0	14.3	0.0	-	7.0	0.0	2.2	0.0	-	-	2.1	16.7	12.5	2.6	-	-	6.8	13.3	3.4	15.2	-	-	6.7	5.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	3	1	0	-	4	4
% Single-Unit Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	2.0	2.2	-	-	1.9	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Columbia
Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 5



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Columbia Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 6

Turning Movement Peak Hour Data (5:00 PM)

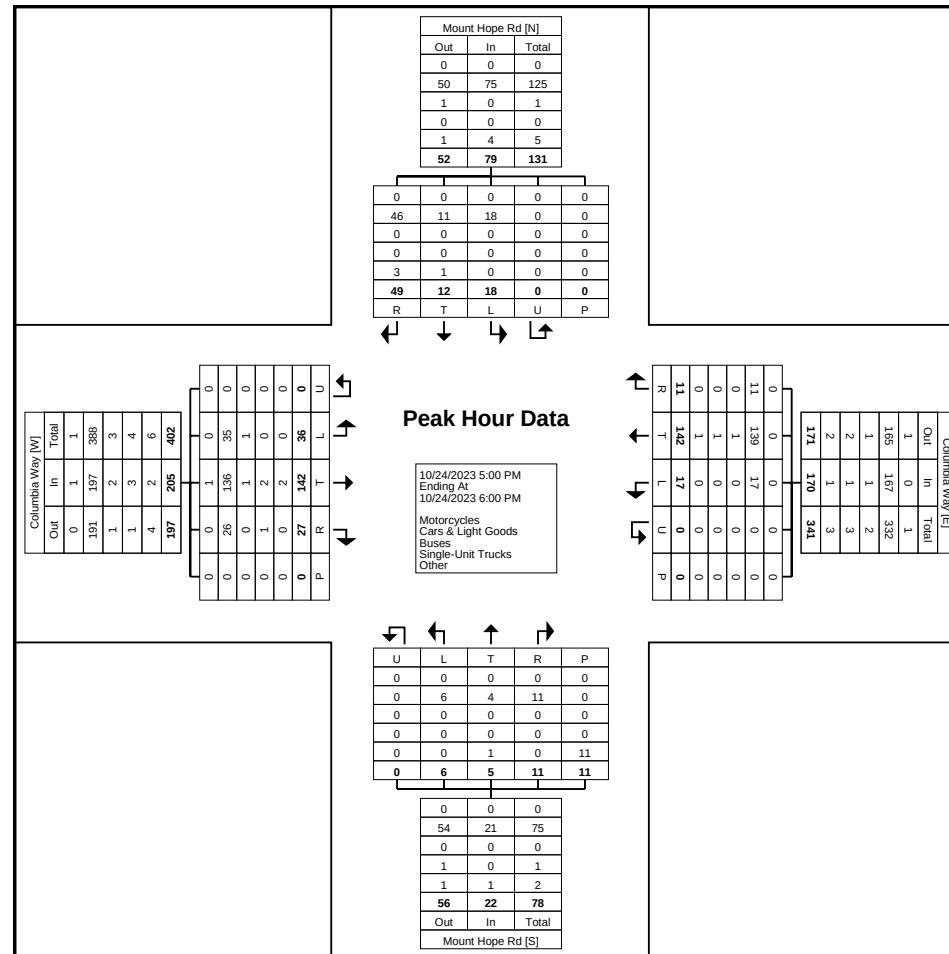
Start Time	Mount Hope Rd Southbound						Columbia Way Westbound						Mount Hope Rd Northbound						Columbia Way Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
5:00 PM	6	3	5	0	0	14	3	29	4	0	0	36	3	2	1	0	2	6	5	41	9	0	0	55	111
5:15 PM	7	2	1	0	0	10	1	39	4	0	0	44	4	0	1	0	4	5	7	27	12	0	0	46	105
5:30 PM	15	2	4	0	0	21	2	46	7	0	0	55	2	2	4	0	2	8	8	36	7	0	0	51	135
5:45 PM	21	5	8	0	0	34	5	28	2	0	0	35	2	1	0	0	3	3	7	38	8	0	0	53	125
Total	49	12	18	0	0	79	11	142	17	0	0	170	11	5	6	0	11	22	27	142	36	0	0	205	476
Approach %	62.0	15.2	22.8	0.0	-	-	6.5	83.5	10.0	0.0	-	-	50.0	22.7	27.3	0.0	-	-	13.2	69.3	17.6	0.0	-	-	-
Total %	10.3	2.5	3.8	0.0	-	16.6	2.3	29.8	3.6	0.0	-	35.7	2.3	1.1	1.3	0.0	-	4.6	5.7	29.8	7.6	0.0	-	43.1	-
PHF	0.583	0.600	0.563	0.000	-	0.581	0.550	0.772	0.607	0.000	-	0.773	0.688	0.625	0.375	0.000	-	0.688	0.844	0.866	0.750	0.000	-	0.932	0.881
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.5	0.2
Cars & Light Goods	46	11	18	0	-	75	11	139	17	0	-	167	11	4	6	0	-	21	26	136	35	0	-	197	460
% Cars & Light Goods	93.9	91.7	100.0	-	-	94.9	100.0	97.9	100.0	-	-	98.2	100.0	80.0	100.0	-	-	95.5	96.3	95.8	97.2	-	-	96.1	96.6
Buses	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	1	1	0	-	2	3
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.0	0.7	2.8	-	-	1.0	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1	2	0	0	-	3	4
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	3.7	1.4	0.0	-	-	1.5	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	3	1	0	0	-	4	0	1	0	0	-	1	0	1	0	0	-	1	0	2	0	0	-	2	8
% Bicycles on Road	6.1	8.3	0.0	-	-	5.1	0.0	0.7	0.0	-	-	0.6	0.0	20.0	0.0	-	-	4.5	0.0	1.4	0.0	-	-	1.0	1.7
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.1	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.9	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Rd and Columbia
Way
Site Code: 230561
Start Date: 10/24/2023
Page No: 7



Turning Movement Peak Hour Data Plot (5:00 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Road & Columbia Way
Site Code: 230561
Start Date: 01/31/2024
Page No: 1

Turning Movement Data

Start Time	Columbia Way Eastbound						Columbia Way Westbound						Mount Hope Road Northbound						Mount Hope Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
6:00 AM	3	7	0	0	0	10	0	9	0	0	0	9	3	0	2	0	0	5	3	0	0	0	0	3	27
6:15 AM	3	16	1	0	0	20	0	5	0	0	0	5	3	0	3	0	0	6	0	0	0	0	0	0	31
6:30 AM	2	15	0	0	0	17	0	6	1	0	0	7	1	0	4	0	0	5	1	0	2	0	0	3	32
6:45 AM	2	10	0	0	0	12	0	9	2	0	0	11	1	0	4	0	1	5	2	0	3	0	0	5	33
Hourly Total	10	48	1	0	0	59	0	29	3	0	0	32	8	0	13	0	1	21	6	0	5	0	0	11	123
7:00 AM	1	12	3	0	0	16	0	13	0	0	0	13	3	0	4	0	2	7	1	0	2	0	0	3	39
7:15 AM	4	28	0	0	0	32	1	23	0	0	0	24	2	0	9	0	0	11	2	0	3	0	0	5	72
7:30 AM	2	21	2	0	0	25	0	15	2	0	0	17	2	3	1	0	1	6	0	2	8	0	0	10	58
7:45 AM	5	20	0	0	0	25	0	40	2	0	0	42	7	2	3	0	0	12	4	0	9	0	0	13	92
Hourly Total	12	81	5	0	0	98	1	91	4	0	0	96	14	5	17	0	3	36	7	2	22	0	0	31	261
8:00 AM	1	31	7	0	0	39	0	49	0	0	0	49	14	2	5	0	1	21	3	2	20	0	0	25	134
8:15 AM	4	34	3	0	0	41	1	30	3	0	0	34	12	1	4	0	0	17	4	1	16	0	0	21	113
8:30 AM	4	27	2	0	0	33	0	14	1	0	0	15	5	1	3	0	1	9	4	0	5	0	0	9	66
8:45 AM	6	23	5	0	0	34	0	9	1	0	0	10	5	2	3	0	1	10	4	1	7	0	0	12	66
Hourly Total	15	115	17	0	0	147	1	102	5	0	0	108	36	6	15	0	3	57	15	4	48	0	0	67	379
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	6	24	8	0	0	38	7	20	3	0	0	30	1	0	2	0	0	3	1	2	1	0	0	4	75
4:15 PM	4	27	4	0	0	35	4	24	1	0	0	29	3	1	1	0	1	5	3	1	7	0	0	11	80
4:30 PM	9	25	4	0	0	38	4	18	6	0	0	28	3	1	1	0	0	5	3	3	4	0	0	10	81
4:45 PM	8	28	4	0	0	40	1	21	2	0	0	24	3	1	2	0	2	6	3	1	5	0	0	9	79
Hourly Total	27	104	20	0	0	151	16	83	12	0	0	111	10	3	6	0	3	19	10	7	17	0	0	34	315
5:00 PM	5	28	11	0	0	44	2	25	5	1	0	33	3	1	3	0	3	7	4	1	8	0	0	13	97
5:15 PM	7	23	7	1	0	38	6	22	6	0	0	34	4	2	0	0	1	6	2	3	8	0	0	13	91
5:30 PM	7	31	9	0	0	47	3	22	5	0	0	30	4	0	2	0	1	6	1	0	7	0	0	8	91
5:45 PM	4	21	4	0	0	29	4	29	5	0	0	38	1	1	1	0	1	3	0	2	7	0	0	9	79
Hourly Total	23	103	31	1	0	158	15	98	21	1	0	135	12	4	6	0	6	22	7	6	30	0	0	43	358
6:00 PM	4	18	6	0	0	28	4	25	3	0	0	32	5	2	1	0	1	8	3	1	3	0	0	7	75
6:15 PM	6	21	7	0	0	34	3	22	2	0	0	27	3	1	1	0	3	5	2	1	3	0	0	6	72
6:30 PM	4	20	4	0	0	28	1	25	2	0	0	28	5	1	1	0	2	7	3	0	5	0	0	8	71
6:45 PM	4	18	4	0	0	26	2	17	2	0	0	21	4	1	1	0	2	6	2	1	14	0	0	17	70
Hourly Total	18	77	21	0	0	116	10	89	9	0	0	108	17	5	4	0	8	26	10	3	25	0	0	38	288
Grand Total	105	528	95	1	0	729	43	492	54	1	0	590	97	23	61	0	24	181	55	22	147	0	0	224	1724
Approach %	14.4	72.4	13.0	0.1	-	-	7.3	83.4	9.2	0.2	-	-	53.6	12.7	33.7	0.0	-	-	24.6	9.8	65.6	0.0	-	-	-
Total %	6.1	30.6	5.5	0.1	-	42.3	2.5	28.5	3.1	0.1	-	34.2	5.6	1.3	3.5	0.0	-	10.5	3.2	1.3	8.5	0.0	-	13.0	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	102	520	92	1	-	715	43	485	53	1	-	582	95	22	60	0	-	177	53	22	144	0	-	219	1693
% Cars & Light Goods	97.1	98.5	96.8	100.0	-	98.1	100.0	98.6	98.1	100.0	-	98.6	97.9	95.7	98.4	-	-	97.8	96.4	100.0	98.0	-	-	97.8	98.2
Buses	3	8	2	0	-	13	0	7	1	0	-	8	1	1	1	0	-	3	2	0	3	0	-	5	29
% Buses	2.9	1.5	2.1	0.0	-	1.8	0.0	1.4	1.9	0.0	-	1.4	1.0	4.3	1.6	-	-	1.7	3.6	0.0	2.0	-	-	2.2	1.7
Single-Unit Trucks	0	0	1	0	-	1	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	2
% Single-Unit Trucks	0.0	0.0	1.1	0.0	-	0.1	0.0	0.0	0.0	0.0	-	0.0	1.0	0.0	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	24	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Mount Hope Road & Columbia
Way
Site Code: 230561
Start Date: 01/31/2024
Page No: 4

Turning Movement Peak Hour Data (7:45 AM)

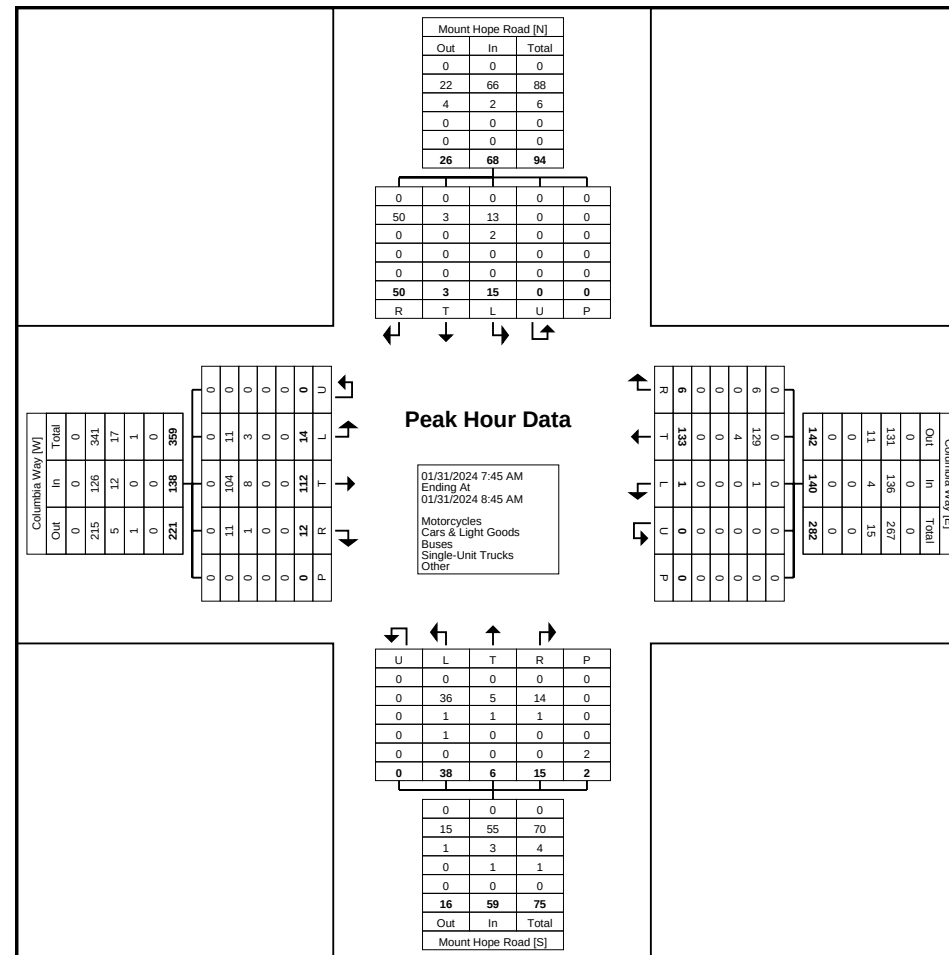
Start Time	Columbia Way Eastbound						Columbia Way Westbound						Mount Hope Road Northbound						Mount Hope Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	5	20	0	0	0	25	0	40	2	0	0	42	7	2	3	0	0	12	4	0	9	0	0	13	92
8:00 AM	1	31	7	0	0	39	0	49	0	0	0	49	14	2	5	0	1	21	3	2	20	0	0	25	134
8:15 AM	4	34	3	0	0	41	1	30	3	0	0	34	12	1	4	0	0	17	4	1	16	0	0	21	113
8:30 AM	4	27	2	0	0	33	0	14	1	0	0	15	5	1	3	0	1	9	4	0	5	0	0	9	66
Total	14	112	12	0	0	138	1	133	6	0	0	140	38	6	15	0	2	59	15	3	50	0	0	68	405
Approach %	10.1	81.2	8.7	0.0	-	-	0.7	95.0	4.3	0.0	-	-	64.4	10.2	25.4	0.0	-	-	22.1	4.4	73.5	0.0	-	-	-
Total %	3.5	27.7	3.0	0.0	-	34.1	0.2	32.8	1.5	0.0	-	34.6	9.4	1.5	3.7	0.0	-	14.6	3.7	0.7	12.3	0.0	-	16.8	-
PHF	0.700	0.824	0.429	0.000	-	0.841	0.250	0.679	0.500	0.000	-	0.714	0.679	0.750	0.750	0.000	-	0.702	0.938	0.375	0.625	0.000	-	0.680	0.756
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	11	104	11	0	-	126	1	129	6	0	-	136	36	5	14	0	-	55	13	3	50	0	-	66	383
% Cars & Light Goods	78.6	92.9	91.7	-	-	91.3	100.0	97.0	100.0	-	-	97.1	94.7	83.3	93.3	-	-	93.2	86.7	100.0	100.0	-	-	97.1	94.6
Buses	3	8	1	0	-	12	0	4	0	0	-	4	1	1	1	0	-	3	2	0	0	0	-	2	21
% Buses	21.4	7.1	8.3	-	-	8.7	0.0	3.0	0.0	-	-	2.9	2.6	16.7	6.7	-	-	5.1	13.3	0.0	0.0	-	-	2.9	5.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	1
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	2.6	0.0	0.0	-	-	1.7	0.0	0.0	0.0	-	-	0.0	0.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



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Count Name: Mount Hope Road & Columbia
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Start Date: 01/31/2024
Page No: 6

Turning Movement Peak Hour Data (4:45 PM)

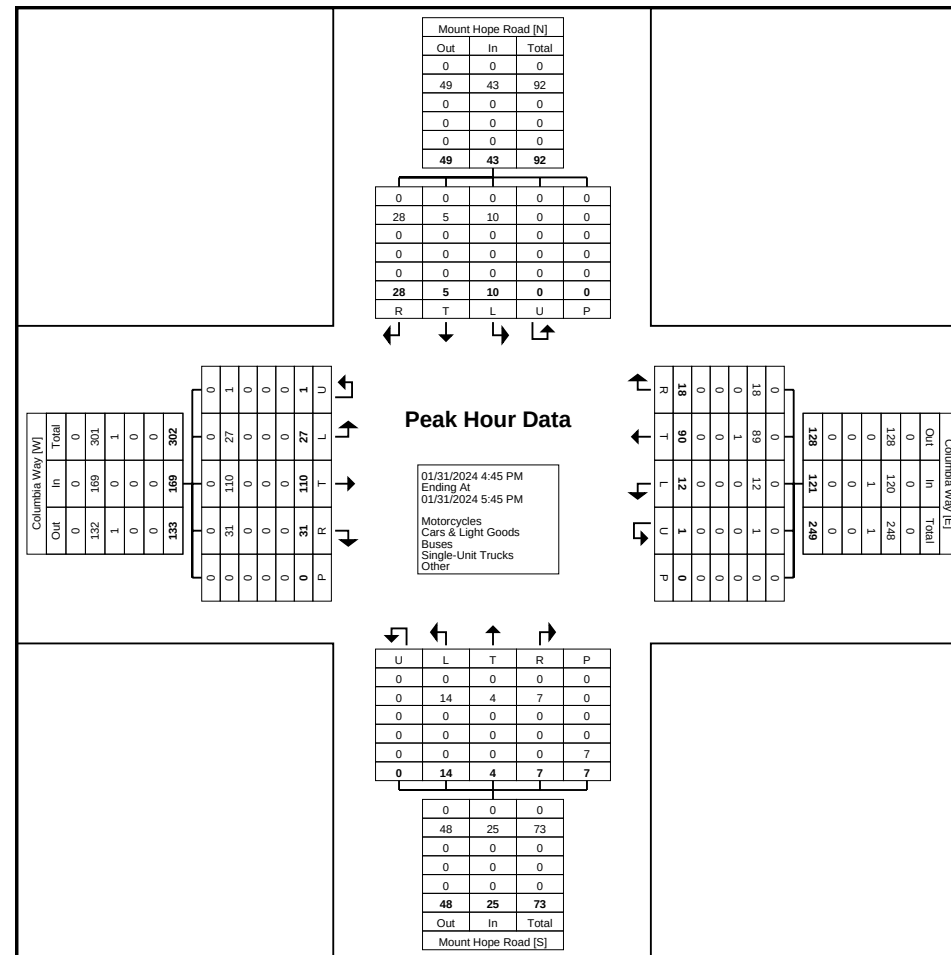
Start Time	Columbia Way Eastbound						Columbia Way Westbound						Mount Hope Road Northbound						Mount Hope Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	8	28	4	0	0	40	1	21	2	0	0	24	3	1	2	0	2	6	3	1	5	0	0	9	79
5:00 PM	5	28	11	0	0	44	2	25	5	1	0	33	3	1	3	0	3	7	4	1	8	0	0	13	97
5:15 PM	7	23	7	1	0	38	6	22	6	0	0	34	4	2	0	0	1	6	2	3	8	0	0	13	91
5:30 PM	7	31	9	0	0	47	3	22	5	0	0	30	4	0	2	0	1	6	1	0	7	0	0	8	91
Total	27	110	31	1	0	169	12	90	18	1	0	121	14	4	7	0	7	25	10	5	28	0	0	43	358
Approach %	16.0	65.1	18.3	0.6	-	-	9.9	74.4	14.9	0.8	-	-	56.0	16.0	28.0	0.0	-	-	23.3	11.6	65.1	0.0	-	-	-
Total %	7.5	30.7	8.7	0.3	-	47.2	3.4	25.1	5.0	0.3	-	33.8	3.9	1.1	2.0	0.0	-	7.0	2.8	1.4	7.8	0.0	-	12.0	-
PHF	0.844	0.887	0.705	0.250	-	0.899	0.500	0.900	0.750	0.250	-	0.890	0.875	0.500	0.583	0.000	-	0.893	0.625	0.417	0.875	0.000	-	0.827	0.923
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	27	110	31	1	-	169	12	89	18	1	-	120	14	4	7	0	-	25	10	5	28	0	-	43	357
% Cars & Light Goods	100.0	100.0	100.0	100.0	-	100.0	100.0	98.9	100.0	100.0	-	99.2	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	-	100.0	99.7
Buses	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	0.0	0.0	0.0	-	0.0	0.0	1.1	0.0	0.0	-	0.8	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
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Count Name: Mount Hope Road & Columbia
Way
Site Code: 230561
Start Date: 01/31/2024
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Turning Movement Peak Hour Data Plot (4:45 PM)

Appendix C

Signal Timings



REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	Feburary 12, 2024		Prepared Date	Feburary 14, 2024
Database Rev	iNET		Completed By	S.A.
Timing Card / Field rev	-		Checked By	A.P.

Location	Columbia Way and Kingsview Drive								

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK	FDWALK			AM SPLITS	OFF MAX	PM MAX
1	Not in Used	-	-	-	-	-	-	-	-
2	Columbia Way - EB	8	8	7	4	2	70	36	36
3	Not in Used	-	-	-	-	-	-	-	-
4	Kingsview Drive - NB	8	8	7	4	2.9	30	32	32
5	Not in Used	-	-	-	-	-	-	-	-
6	Columbia Way - WB	8	8	7	4	2	70	36	36
7	Not in Used	-	-	-	-	-	-	-	-
8	Computer Phase	8	8	7	4	2.9	30	32	32

System Control Yes Semi-Actuated Mode Yes	TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
	6:00 - 9:00	AM	100	0
	9:00 - 15:00	OFF	Free	0
	15:00 - 00:00	PM	Free	0

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	October 4, 2023		Prepared Date	October 10, 2023
Database Rev	iNET		Completed By	SA
Timing Card / Field rev	-		Checked By	MH

Location	Highway 50 and Columbia Way								

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Not in Use	-	-	-	-	-	-	-	-
2	Highway 50 - NB/SB	20	8	16	4	2.7	65	39	64
3	Not in Use	-	-	-	-	-	-	-	-
4	Columbia Way - WB/EB	8	8	11	4	2	45	36	36
5	Not in Use	-	-	-	-	-	-	-	-
6	Not in Use	-	-	-	-	-	-	-	-
7	Not in Use	-	-	-	-	-	-	-	-
8	Not in Use	-	-	-	-	-	-	-	-

System Control Yes Semi-Actuated Mode Yes	TIME (M-F)		PEAK	CYCLE LENGTH (s)	OFFSET (s)
	6:00 - 9:00		AM	110	0
	9:00 - 15:00		OFF	75	0
	15:00 - 19:00		PM	100	15

Appendix D

Synchro Reports – Existing Operations



Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	8	170	2	153	2	250	142	142	396	0
Future Volume (vph)	5	3	8	170	2	153	2	250	142	142	396	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98		1.00					
Frt		0.932			0.852				0.850			
Flt Protected		0.985		0.950			0.950			0.950		
Satd. Flow (prot)	0	1385	0	1736	1469	0	1805	1727	1524	1656	1863	1900
Flt Permitted		0.911		0.744			0.434			0.562		
Satd. Flow (perm)	0	1281	0	1359	1469	0	823	1727	1524	980	1863	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			194				180			
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Adj. Flow (vph)	6	4	10	215	3	194	3	316	180	180	501	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	215	197	0	3	316	180	180	501	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

02/19/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 1

Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2		2		2
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	45.0	45.0		45.0	45.0		65.0	65.0	65.0	65.0	65.0	65.0
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%	59.1%	59.1%	59.1%	59.1%
Maximum Green (s)	39.0	39.0		39.0	39.0		58.3	58.3	58.3	58.3	58.3	58.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		23.1		23.1	23.1		74.2	74.2	74.2	74.2	74.2	74.2
Actuated g/C Ratio		0.21		0.21	0.21		0.67	0.67	0.67	0.67	0.67	0.67
v/c Ratio		0.07		0.75	0.43		0.01	0.27	0.17	0.27	0.40	
Control Delay (s/veh)		20.9		56.6	7.7		8.5	8.9	1.7	9.8	10.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		20.9		56.6	7.7		8.5	8.9	1.7	9.8	10.2	
LOS		C		E	A		A	A	A	A	B	
Approach Delay (s/veh)		20.9			33.2			6.3			10.1	
Approach LOS		C			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 15.0

Intersection LOS: B

Intersection Capacity Utilization 69.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Paradigm Transportation Solutions Limited

Synchro 12 Report

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Queues

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base AM

								
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	215	197	3	316	180	180	501
v/c Ratio	0.07	0.75	0.43	0.01	0.27	0.17	0.27	0.40
Control Delay (s/veh)	20.9	56.6	7.7	8.5	8.9	1.7	9.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.9	56.6	7.7	8.5	8.9	1.7	9.8	10.2
Queue Length 50th (m)	2.7	47.3	0.6	0.2	27.3	0.0	15.5	45.9
Queue Length 95th (m)	9.5	57.5	11.0	1.3	45.7	5.9	29.8	70.9
Internal Link Dist (m)	32.6		222.0		711.7			453.2
Turn Bay Length (m)		60.0		136.0		300.0	85.0	
Base Capacity (vph)	460	481	646	555	1165	1086	661	1257
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.45	0.30	0.01	0.27	0.17	0.27	0.40
Intersection Summary								

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	8	170	2	153	2	250	142	142	396	0
Future Volume (vph)	5	3	8	170	2	153	2	250	142	142	396	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.93		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1386		1736	1469		1801	1727	1524	1656	1863	
Flt Permitted		0.91		0.74	1.00		0.43	1.00	1.00	0.56	1.00	
Satd. Flow (perm)		1282		1360	1469		823	1727	1524	979	1863	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	6	4	10	215	3	194	3	316	180	180	501	0
RTOR Reduction (vph)	0	8	0	0	153	0	0	0	59	0	0	0
Lane Group Flow (vph)	0	12	0	215	44	0	3	316	121	180	501	0
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		23.1		23.1	23.1		74.2	74.2	74.2	74.2	74.2	
Effective Green, g (s)		23.1		23.1	23.1		74.2	74.2	74.2	74.2	74.2	
Actuated g/C Ratio		0.21		0.21	0.21		0.67	0.67	0.67	0.67	0.67	
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		269		285	308		555	1164	1028	660	1256	
v/s Ratio Prot					0.03			0.18			c0.27	
v/s Ratio Perm		0.01		c0.16			0.00		0.08	0.18		
v/c Ratio		0.04		0.75	0.14		0.01	0.27	0.12	0.27	0.40	
Uniform Delay, d1		34.7		40.8	35.4		5.8	7.1	6.3	7.1	8.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1		10.8	0.2		0.0	0.6	0.2	1.0	0.9	
Delay (s)		34.7		51.6	35.6		5.9	7.7	6.6	8.2	8.9	
Level of Service		C		D	D		A	A	A	A	A	
Approach Delay (s/veh)		34.7			43.9			7.3			8.7	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			17.6			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			69.8%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

Base AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	248	38	105	272	53	82
Future Volume (vph)	248	38	105	272	53	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00	0.96	
Frt	0.982				0.918	
Flt Protected				0.986	0.981	
Satd. Flow (prot)	1711	0	0	1784	1594	0
Flt Permitted				0.766	0.981	
Satd. Flow (perm)	1711	0	0	1385	1560	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	15				72	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		2	2		16	6
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Adj. Flow (vph)	370	57	157	406	79	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	427	0	0	563	201	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
Base AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	4	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	70.0		70.0	70.0	30.0	
Total Split (s)	70.0		70.0	70.0	30.0	
Total Split (%)	70.0%		70.0%	70.0%	30.0%	
Maximum Green (s)	64.0		64.0	64.0	23.1	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.0	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	73.1			73.1	14.0	
Actuated g/C Ratio	0.73			0.73	0.14	
v/c Ratio	0.34			0.56	0.71	
Control Delay (s/veh)	6.2			9.6	38.9	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	6.2			9.6	38.9	
LOS	A			A	D	
Approach Delay (s/veh)	6.2			9.6	38.9	
Approach LOS	A			A	D	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay (s/veh): 13.3

Intersection LOS: B

Intersection Capacity Utilization 60.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
Base AM



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	427	563	201
v/c Ratio	0.34	0.56	0.71
Control Delay (s/veh)	6.2	9.6	38.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	6.2	9.6	38.9
Queue Length 50th (m)	26.4	45.2	26.3
Queue Length 95th (m)	34.8	55.2	29.8
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1254	1012	423
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.34	0.56	0.48
Intersection Summary			

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

2: Kingsview Drive & Columbia Way Base AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	🚗			🚗	🚗	
Traffic Volume (vph)	248	38	105	272	53	82
Future Volume (vph)	248	38	105	272	53	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.9	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	1.00			1.00	0.98	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.98			1.00	0.92	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1711			1783	1593	
Flt Permitted	1.00			0.77	0.98	
Satd. Flow (perm)	1711			1385	1593	
Peak-hour factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Adj. Flow (vph)	370	57	157	406	79	122
RTOR Reduction (vph)	4	0	0	0	62	0
Lane Group Flow (vph)	423	0	0	563	139	0
Confl. Peds. (#/hr)		2	2		16	6
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	
Permitted Phases			6			
Actuated Green, G (s)	73.1			73.1	14.0	
Effective Green, g (s)	73.1			73.1	14.0	
Actuated g/C Ratio	0.73			0.73	0.14	
Clearance Time (s)	6.0			6.0	6.9	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1250			1012	223	
v/s Ratio Prot	0.25				c0.09	
v/s Ratio Perm				c0.41		
v/c Ratio	0.34			0.56	0.62	
Uniform Delay, d1	4.8			6.1	40.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.7			2.2	5.3	
Delay (s)	5.5			8.3	45.9	
Level of Service	A			A	D	
Approach Delay (s/veh)	5.5			8.3	45.9	
Approach LOS	A			A	D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			13.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			60.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: Westchester Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

Base AM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	137	59	62	247	93	71
Future Volume (vph)	137	59	62	247	93	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.959				0.942	
Flt Protected				0.990	0.972	
Satd. Flow (prot)	1703	0	0	1823	1643	0
Flt Permitted				0.990	0.972	
Satd. Flow (perm)	1703	0	0	1823	1643	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	570.4			296.2	121.1	
Travel Time (s)	41.1			21.3	8.7	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	7%	7%	8%	2%	2%	11%
Adj. Flow (vph)	211	91	95	380	143	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	302	0	0	475	252	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	47.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope) 3: Westchester Road & Columbia Way Base AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	137	59	62	247	93	71
Future Volume (Veh/h)	137	59	62	247	93	71
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	211	91	95	380	143	109
Pedestrians					3	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			305		830	260
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			305		830	260
tC, single (s)			4.2		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			92		54	86
cM capacity (veh/h)			1219		313	756
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	302	475	252			
Volume Left	0	95	143			
Volume Right	91	0	109			
cSH	1700	1219	419			
Volume to Capacity	0.18	0.08	0.60			
Queue Length 95th (m)	0.0	2.0	30.6			
Control Delay (s/veh)	0.0	2.3	25.7			
Lane LOS		A	D			
Approach Delay (s/veh)	0.0	2.3	25.7			
Approach LOS			D			
Intersection Summary						
Average Delay			7.4			
Intersection Capacity Utilization			47.1%	ICU Level of Service	A	
Analysis Period (min)			15			

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	157	17	1	187	8	53	8	21	21	4	70
Future Volume (vph)	20	157	17	1	187	8	53	8	21	21	4	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.994			0.966			0.900	
Flt Protected		0.995						0.969			0.989	
Satd. Flow (prot)	0	1747	0	0	1853	0	0	1654	0	0	1561	0
Flt Permitted		0.995						0.969			0.989	
Satd. Flow (perm)	0	1747	0	0	1853	0	0	1654	0	0	1561	0
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			3082.6	
Travel Time (s)		17.8			14.3			30.3			185.0	
Confl. Peds. (#/hr)			6	6					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles (%)	17%	5%	13%	0%	2%	0%	3%	13%	17%	14%	20%	6%
Adj. Flow (vph)	29	228	25	1	271	12	77	12	30	30	6	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	282	0	0	284	0	0	119	0	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.4%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope) 4: Mount Hope Road & Columbia Way Base AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	157	17	1	187	8	53	8	21	21	4	70
Future Volume (Veh/h)	20	157	17	1	187	8	53	8	21	21	4	70
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	29	228	25	1	271	12	77	12	30	30	6	101
Pedestrians					2			6				
Lane Width (m)					3.6			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	283			259			688	590	249	616	596	277
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	283			259			688	590	249	616	596	277
tC, single (s)	4.3			4.1			7.1	6.6	6.4	7.2	6.7	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.1	3.5	3.6	4.2	3.4
p0 queue free %	98			100			74	97	96	92	98	87
cM capacity (veh/h)	1198			1311			299	394	750	353	382	752
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	282	284	119	137								
Volume Left	29	1	77	30								
Volume Right	25	12	30	101								
cSH	1198	1311	363	583								
Volume to Capacity	0.02	0.00*	0.33	0.23								
Queue Length 95th (m)	0.6	0.0	11.2	7.2								
Control Delay (s/veh)	1.0	0.0	19.7	13.1								
Lane LOS	A	A	C	B								
Approach Delay (s/veh)	1.0	0.0	19.7	13.1								
Approach LOS			C	B								
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			42.4%		ICU Level of Service				A			
Analysis Period (min)			15									

* Value less than 0.01.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	211	83	112	530	40
Future Volume (vph)	25	211	83	112	530	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879				0.991	
Flt Protected	0.995			0.979		
Satd. Flow (prot)	1618	0	0	1789	1855	0
Flt Permitted	0.995			0.979		
Satd. Flow (perm)	1618	0	0	1789	1855	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	4%	4%	1%	8%
Adj. Flow (vph)	27	229	90	122	576	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	256	0	0	212	619	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 65.2% ICU Level of Service C						
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
5: Caledon-King Townline South & Columbia Way Base AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	211	83	112	530	40
Future Volume (Veh/h)	25	211	83	112	530	40
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	229	90	122	576	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	900	598	619			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	900	598	619			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	54	91			
cM capacity (veh/h)	282	501	952			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	256	212	619			
Volume Left	27	90	0			
Volume Right	229	0	43			
cSH	463	952	1700			
Volume to Capacity	0.55	0.09	0.36			
Queue Length 95th (m)	26.3	2.5	0.0			
Control Delay (s/veh)	22.0	4.4	0.0			
Lane LOS	C	A				
Approach Delay (s/veh)	22.0	4.4	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			6.0			
Intersection Capacity Utilization		65.2%		ICU Level of Service		C
Analysis Period (min)		15				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	154	16	17	178	3	8	34	12	21	77	31
Future Volume (vph)	8	154	16	17	178	3	8	34	12	21	77	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.998			0.970			0.968	
Flt Protected		0.998			0.996			0.992			0.992	
Satd. Flow (prot)	0	1748	0	0	1837	0	0	1564	0	0	1759	0
Flt Permitted		0.998			0.996			0.992			0.992	
Satd. Flow (perm)	0	1748	0	0	1837	0	0	1564	0	0	1759	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			3082.6			634.1	
Travel Time (s)		27.2			28.6			185.0			38.0	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	5%	25%	12%	2%	0%	25%	12%	25%	0%	5%	3%
Adj. Flow (vph)	10	183	19	20	212	4	10	40	14	25	92	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	212	0	0	236	0	0	64	0	0	154	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.3%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 8: Mount Hope Road & Castlederg Side Road Base AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	8	154	16	17	178	3	8	34	12	21	77	31
Future Volume (vph)	8	154	16	17	178	3	8	34	12	21	77	31
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	10	183	19	20	212	4	10	40	14	25	92	37
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	212	236	64	154								
Volume Left (vph)	10	20	10	25								
Volume Right (vph)	19	4	14	37								
Hadj (s)	0.08	0.05	0.19	-0.05								
Departure Headway (s)	4.9	4.8	5.4	5.1								
Degree Utilization, x	0.29	0.32	0.10	0.22								
Capacity (veh/h)	695	707	594	649								
Control Delay (s/veh)	9.8	10.0	9.0	9.4								
Approach Delay (s/veh)	9.8	10.0	9.0	9.4								
Approach LOS	A	B	A	A								
Intersection Summary												
Delay			9.7									
Level of Service			A									
Intersection Capacity Utilization			32.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
9: Forest Gate Avenue & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

Base AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	105	27	21	63	79	91
Future Volume (vph)	105	27	21	63	79	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973				0.928	
Flt Protected					0.988	0.977
Satd. Flow (prot)	1717	0	0	1775	1690	0
Flt Permitted					0.988	0.977
Satd. Flow (perm)	1717	0	0	1775	1690	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	22%	5%	6%	3%	1%
Adj. Flow (vph)	122	31	24	73	92	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	153	0	0	97	198	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	100		100		100	100
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 31.6%						
ICU Level of Service A						
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 9: Forest Gate Avenue & Columbia Way Base AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↘↙	
Traffic Volume (veh/h)	105	27	21	63	79	91
Future Volume (Veh/h)	105	27	21	63	79	91
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	122	31	24	73	92	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			153		259	138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			153		259	138
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		87	88
cM capacity (veh/h)			1409		716	914
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	153	97	198			
Volume Left	0	24	92			
Volume Right	31	0	106			
cSH	1700	1409	810			
Volume to Capacity	0.09	0.02	0.24			
Queue Length 95th (m)	0.0	0.4	7.7			
Control Delay (s/veh)	0.0	2.0	10.9			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	2.0	10.9			
Approach LOS			B			
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utilization			31.6%	ICU Level of Service		A
Analysis Period (min)			15			

Network Totals

Number of Intersections	7
Total Delay (hr)	14
Stops (#)	2486
Average Speed (km/hr)	46
Total Travel Time (hr)	77
Distance Traveled (km)	3588
Fuel Consumed (l)	431
Fuel Economy (km/l)	8.3
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	21.0

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.5	18.8	22.8	19.4
Average Queue (m)	13.1	11.4	9.0	10.4
95th Queue (m)	21.1	17.1	18.4	16.5
Link Distance (m)	518.7	546.0	3063.8	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	93	0	60	1	516	151	100	326	2
Future Volume (vph)	2	0	1	93	0	60	1	516	151	100	326	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98							
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.968		0.950			0.950			0.950		
Satd. Flow (prot)	0	1756	0	1787	1535	0	902	1863	1599	1770	1845	808
Flt Permitted		0.837		0.756			0.555			0.440		
Satd. Flow (perm)	0	1519	0	1422	1535	0	527	1863	1599	820	1845	808
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			319				159			33
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Adj. Flow (vph)	2	0	1	98	0	63	1	543	159	105	343	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	98	63	0	1	543	159	105	343	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

02/19/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

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Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0	64.0	64.0	64.0	64.0
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%	64.0%	64.0%	64.0%	64.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		57.3	57.3	57.3	57.3	57.3	57.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		12.5		12.5	12.5		79.0	79.0	79.0	79.0	79.0	79.0
Actuated g/C Ratio		0.13		0.13	0.13		0.79	0.79	0.79	0.79	0.79	0.79
v/c Ratio		0.01		0.55	0.13		0.00	0.37	0.12	0.16	0.24	0.00
Control Delay (s/veh)		0.0		52.3	0.6		4.0	5.4	1.0	4.9	4.5	0.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		0.0		52.3	0.6		4.0	5.4	1.0	4.9	4.5	0.0
LOS		A		D	A		A	A	A	A	A	A
Approach Delay (s/veh)				32.1			4.4				4.6	
Approach LOS				C			A				A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay (s/veh): 7.8

Intersection LOS: A

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



02/19/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 2

Queues

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base PM

									
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	3	98	63	1	543	159	105	343	2
v/c Ratio	0.01	0.55	0.13	0.00	0.37	0.12	0.16	0.24	0.00
Control Delay (s/veh)	0.0	52.3	0.6	4.0	5.4	1.0	4.9	4.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	52.3	0.6	4.0	5.4	1.0	4.9	4.5	0.0
Queue Length 50th (m)	0.0	19.3	0.0	0.1	32.7	0.0	5.1	18.1	0.0
Queue Length 95th (m)	0.0	34.4	0.0	0.9	61.0	5.6	13.1	35.1	0.0
Internal Link Dist (m)	32.6		222.0		711.7			453.2	
Turn Bay Length (m)		60.0		136.0		300.0	85.0		25.0
Base Capacity (vph)	483	426	683	416	1471	1296	647	1457	645
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.23	0.09	0.00	0.37	0.12	0.16	0.24	0.00
Intersection Summary									

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

Base PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	2	0	1	93	0	60	1	516	151	100	326	2
Future Volume (vph)	2	0	1	93	0	60	1	516	151	100	326	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756		1787	1531		903	1863	1599	1770	1845	808
Flt Permitted		0.84		0.76	1.00		0.55	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)		1519		1422	1531		527	1863	1599	820	1845	808
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	0	1	98	0	63	1	543	159	105	343	2
RTOR Reduction (vph)	0	3	0	0	56	0	0	0	38	0	0	0
Lane Group Flow (vph)	0	0	0	98	7	0	1	543	121	105	343	2
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		10.9		10.9	10.9		76.4	76.4	76.4	76.4	76.4	76.4
Effective Green, g (s)		10.9		10.9	10.9		76.4	76.4	76.4	76.4	76.4	76.4
Actuated g/C Ratio		0.11		0.11	0.11		0.76	0.76	0.76	0.76	0.76	0.76
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		165		154	166		402	1423	1221	626	1409	617
v/s Ratio Prot					0.00			c0.29			0.19	
v/s Ratio Perm		0.00		c0.07			0.00		0.08	0.13		0.00
v/c Ratio		0.00		0.64	0.04		0.00	0.38	0.10	0.17	0.24	0.00
Uniform Delay, d1		39.7		42.7	39.9		2.8	3.9	3.0	3.2	3.4	2.8
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.0		8.3	0.1		0.0	0.8	0.2	0.6	0.4	0.0
Delay (s)		39.7		51.0	40.0		2.8	4.7	3.2	3.8	3.8	2.8
Level of Service		D		D	D		A	A	A	A	A	A
Approach Delay (s/veh)		39.7			46.7			4.4			3.8	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			9.4									
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			100.0									
Intersection Capacity Utilization			67.0%									
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
Base PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	194	81	60	132	28	40
Future Volume (vph)	194	81	60	132	28	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99			1.00		
Frt	0.960				0.920	
Flt Protected				0.985	0.980	
Satd. Flow (prot)	1777	0	0	1835	1713	0
Flt Permitted				0.836	0.980	
Satd. Flow (perm)	1777	0	0	1551	1713	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	36				43	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Adj. Flow (vph)	206	86	64	140	30	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	292	0	0	204	73	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
Base PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	36.0		36.0	36.0	36.0	
Total Split (s)	36.0		36.0	36.0	36.0	
Total Split (%)	50.0%		50.0%	50.0%	50.0%	
Maximum Green (s)	30.0		29.1	29.1	30.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.9	2.9	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.9	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	55.6			54.9	8.4	
Actuated g/C Ratio	0.77			0.76	0.12	
v/c Ratio	0.21			0.17	0.31	
Control Delay (s/veh)	3.3			3.9	18.9	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	3.3			3.9	18.9	
LOS	A			A	B	
Approach Delay (s/veh)	3.3			3.9	18.9	
Approach LOS	A			A	B	

Intersection Summary

Area Type: Other

Cycle Length: 72

Actuated Cycle Length: 72

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.31

Intersection Signal Delay (s/veh): 5.5

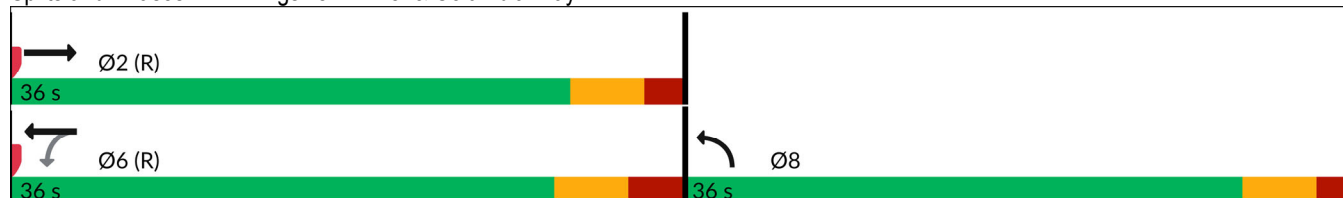
Intersection LOS: A

Intersection Capacity Utilization 48.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
Base PM

	→	←	↶
Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	292	204	73
v/c Ratio	0.21	0.17	0.31
Control Delay (s/veh)	3.3	3.9	18.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	3.3	3.9	18.9
Queue Length 50th (m)	9.4	7.9	4.0
Queue Length 95th (m)	19.0	16.2	14.9
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1380	1182	738
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.17	0.10
Intersection Summary			

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

2: Kingsview Drive & Columbia Way

Base PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	👉			👈	👈	
Traffic Volume (vph)	194	81	60	132	28	40
Future Volume (vph)	194	81	60	132	28	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.9	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.96			1.00	0.92	
Flt Protected	1.00			0.98	0.98	
Satd. Flow (prot)	1778			1827	1714	
Flt Permitted	1.00			0.84	0.98	
Satd. Flow (perm)	1778			1552	1714	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	206	86	64	140	30	43
RTOR Reduction (vph)	9	0	0	0	39	0
Lane Group Flow (vph)	283	0	0	204	34	0
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Actuated Green, G (s)	53.2			52.3	6.8	
Effective Green, g (s)	53.2			52.3	6.8	
Actuated g/C Ratio	0.74			0.73	0.09	
Clearance Time (s)	6.0			6.9	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1313			1127	161	
v/s Ratio Prot	c0.16				c0.02	
v/s Ratio Perm				0.13		
v/c Ratio	0.22			0.18	0.21	
Uniform Delay, d1	2.9			3.1	30.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.4			0.4	0.7	
Delay (s)	3.3			3.5	30.8	
Level of Service	A			A	C	
Approach Delay (s/veh)	3.3			3.5	30.8	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			6.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.22			
Actuated Cycle Length (s)			72.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			48.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: Westchester Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

Base PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	175	66	48	143	46	37
Future Volume (vph)	175	66	48	143	46	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.963				0.939	
Flt Protected				0.988	0.973	
Satd. Flow (prot)	1807	0	0	1840	1662	0
Flt Permitted				0.988	0.973	
Satd. Flow (perm)	1807	0	0	1840	1662	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	570.4			296.2	121.1	
Travel Time (s)	41.1			21.3	8.7	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	2%	2%	4%	5%
Adj. Flow (vph)	188	71	52	154	49	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	259	0	0	206	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope) 3: Westchester Road & Columbia Way

Base PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	175	66	48	143	46	37
Future Volume (Veh/h)	175	66	48	143	46	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	188	71	52	154	49	40
Pedestrians					6	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			265		488	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			265		488	230
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		90	95
cM capacity (veh/h)			1292		512	798
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	259	206	89			
Volume Left	0	52	49			
Volume Right	71	0	40			
cSH	1700	1292	610			
Volume to Capacity	0.15	0.04	0.15			
Queue Length 95th (m)	0.0	1.0	4.1			
Control Delay (s/veh)	0.0	2.3	11.9			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	2.3	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			38.4%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
4: Mount Hope Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

Base PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	147	41	16	120	24	19	5	9	13	7	37
Future Volume (vph)	36	147	41	16	120	24	19	5	9	13	7	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.975			0.979			0.961			0.912	
Flt Protected		0.992			0.995			0.972			0.988	
Satd. Flow (prot)	0	1770	0	0	1824	0	0	1725	0	0	1633	0
Flt Permitted		0.992			0.995			0.972			0.988	
Satd. Flow (perm)	0	1770	0	0	1824	0	0	1725	0	0	1633	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		296.2			237.5			421.4			3082.6	
Travel Time (s)		17.8			14.3			30.3			221.9	
Confl. Peds. (#/hr)			11	11								
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	4%	0%	2%	0%	0%	20%	0%	0%	8%	6%
Adj. Flow (vph)	38	156	44	17	128	26	20	5	10	14	7	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	238	0	0	171	0	0	35	0	0	60	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.0%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

4: Mount Hope Road & Columbia Way

Base PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	147	41	16	120	24	19	5	9	13	7	37
Future Volume (Veh/h)	36	147	41	16	120	24	19	5	9	13	7	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	38	156	44	17	128	26	20	5	10	14	7	39
Pedestrians								11				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	154			211			483	453	189	442	462	141
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154			211			483	453	189	442	462	141
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.1	3.4
p0 queue free %	97			99			96	99	99	97	98	96
cM capacity (veh/h)	1420			1359			449	454	850	500	465	896
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	238	171	35	60								
Volume Left	38	17	20	14								
Volume Right	44	26	10	39								
cSH	1420	1359	520	693								
Volume to Capacity	0.03	0.01	0.07	0.09								
Queue Length 95th (m)	0.7	0.3	1.7	2.3								
Control Delay (s/veh)	1.4	0.9	12.4	10.7								
Lane LOS	A	A	B	B								
Approach Delay (s/veh)	1.4	0.9	12.4	10.7								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			30.0%		ICU Level of Service				A			
Analysis Period (min)			15									



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	98	144	452	262	30
Future Volume (vph)	25	98	144	452	262	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.892				0.986	
Flt Protected	0.990			0.988		
Satd. Flow (prot)	1613	0	0	1863	1824	0
Flt Permitted	0.990			0.988		
Satd. Flow (perm)	1613	0	0	1863	1824	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	12%	2%	0%	1%	3%	0%
Adj. Flow (vph)	26	102	150	471	273	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	0	0	621	304	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 64.8% ICU Level of Service C

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

5: Caledon-King Townline South & Columbia Way

Base PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	98	144	452	262	30
Future Volume (Veh/h)	25	98	144	452	262	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	26	102	150	471	273	31
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1060	289	304			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1060	289	304			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	88	86	88			
cM capacity (veh/h)	210	751	1268			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	128	621	304			
Volume Left	26	150	0			
Volume Right	102	0	31			
cSH	492	1268	1700			
Volume to Capacity	0.26	0.12	0.18			
Queue Length 95th (m)	8.2	3.2	0.0			
Control Delay (s/veh)	14.9	3.0	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	14.9	3.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.6				
Intersection Capacity Utilization		64.8%		ICU Level of Service		C
Analysis Period (min)		15				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	285	7	11	198	24	2	40	11	18	28	8
Future Volume (vph)	57	285	7	11	198	24	2	40	11	18	28	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.986			0.972			0.979	
Flt Protected		0.992			0.998			0.998			0.984	
Satd. Flow (prot)	0	1859	0	0	1730	0	0	1738	0	0	1759	0
Flt Permitted		0.992			0.998			0.998			0.984	
Satd. Flow (perm)	0	1859	0	0	1730	0	0	1738	0	0	1759	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			3082.6			634.1	
Travel Time (s)		27.2			28.6			185.0			38.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	14%	9%	9%	0%	0%	8%	0%	6%	4%	0%
Adj. Flow (vph)	61	303	7	12	211	26	2	43	12	19	30	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	371	0	0	249	0	0	57	0	0	58	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	50.7%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
8: Mount Hope Road & Castlederg Side Road Base PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	57	285	7	11	198	24	2	40	11	18	28	8
Future Volume (vph)	57	285	7	11	198	24	2	40	11	18	28	8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	61	303	7	12	211	26	2	43	12	19	30	9
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	371	249	57	58								
Volume Left (vph)	61	12	2	19								
Volume Right (vph)	7	26	12	9								
Hadj (s)	0.04	0.08	-0.02	0.04								
Departure Headway (s)	4.6	4.7	5.4	5.5								
Degree Utilization, x	0.47	0.33	0.09	0.09								
Capacity (veh/h)	768	728	576	578								
Control Delay (s/veh)	11.5	10.0	8.9	9.0								
Approach Delay (s/veh)	11.5	10.0	8.9	9.0								
Approach LOS	B	B	A	A								
Intersection Summary												
Delay			10.6									
Level of Service			B									
Intersection Capacity Utilization			50.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
9: Forest Gate Avenue & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

Base PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	51	79	90	81	41	28
Future Volume (vph)	51	79	90	81	41	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.918				0.945	
Flt Protected				0.974	0.971	
Satd. Flow (prot)	1737	0	0	1842	1743	0
Flt Permitted				0.974	0.971	
Satd. Flow (perm)	1737	0	0	1842	1743	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	58	90	102	92	47	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	148	0	0	194	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 9: Forest Gate Avenue & Columbia Way Base PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	79	90	81	41	28
Future Volume (Veh/h)	51	79	90	81	41	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	58	90	102	92	47	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			148		399	103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			148		399	103
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		92	97
cM capacity (veh/h)			1446		567	957
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	148	194	79			
Volume Left	0	102	47			
Volume Right	90	0	32			
cSH	1700	1446	680			
Volume to Capacity	0.09	0.07	0.12			
Queue Length 95th (m)	0.0	1.8	3.1			
Control Delay (s/veh)	0.0	4.3	11.0			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	4.3	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			30.8%	ICU Level of Service		A
Analysis Period (min)			15			

Network Totals

Number of Intersections	7
Total Delay (hr)	8
Stops (#)	2120
Average Speed (km/hr)	50
Total Travel Time (hr)	69
Distance Traveled (km)	3460
Fuel Consumed (l)	398
Fuel Economy (km/l)	8.7
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	13.5

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	27.5	24.7	20.8	20.9
Average Queue (m)	14.9	14.4	8.6	7.6
95th Queue (m)	23.4	22.1	16.6	16.1
Link Distance (m)	518.7	546.0	3063.8	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Appendix E

ITE Trip Generation Reports



Single-Family Detached Housing

(210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 153

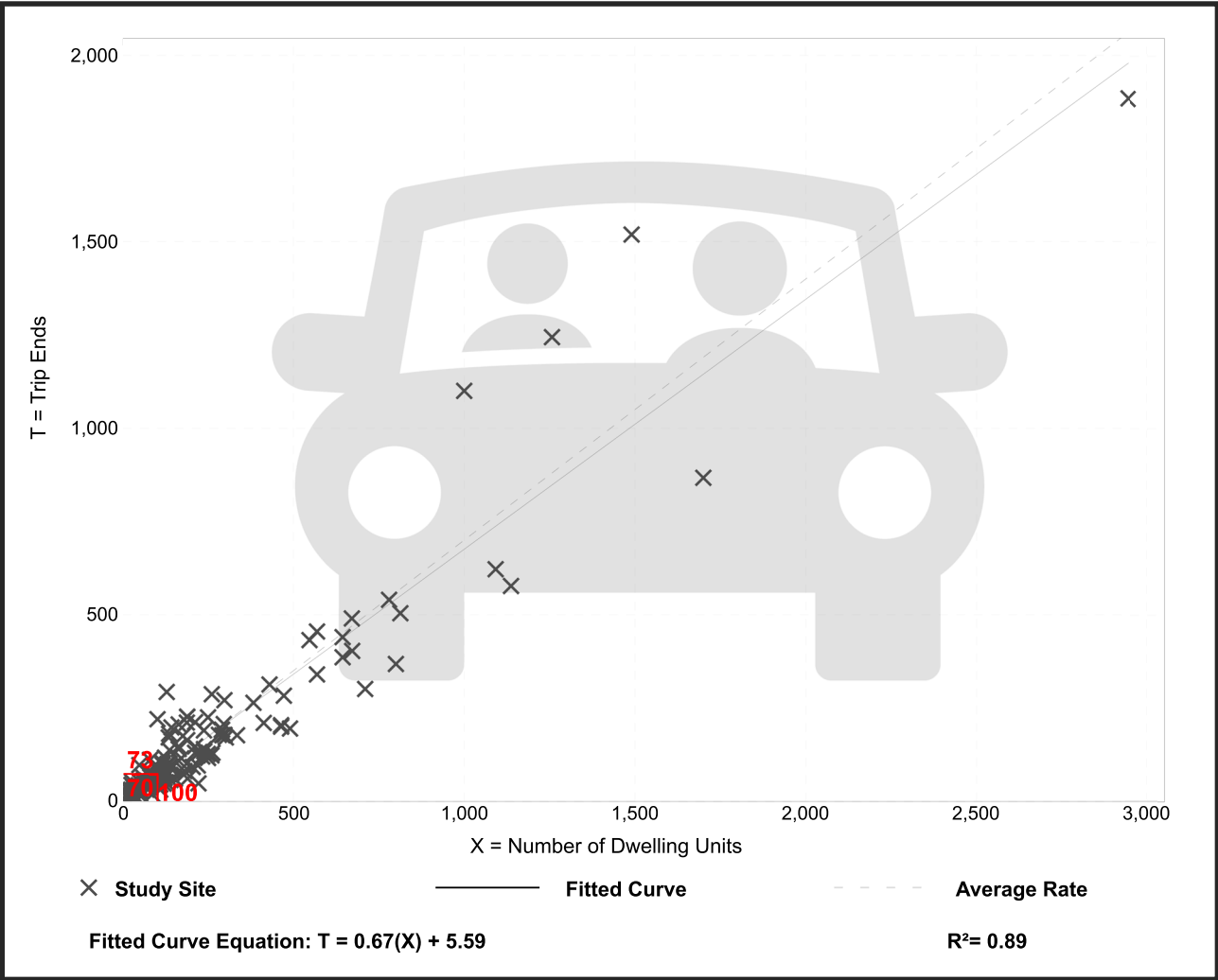
Avg. Num. of Dwelling Units: 239

Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.22 - 2.27	0.26

Data Plot and Equation



Single-Family Detached Housing

(210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 166

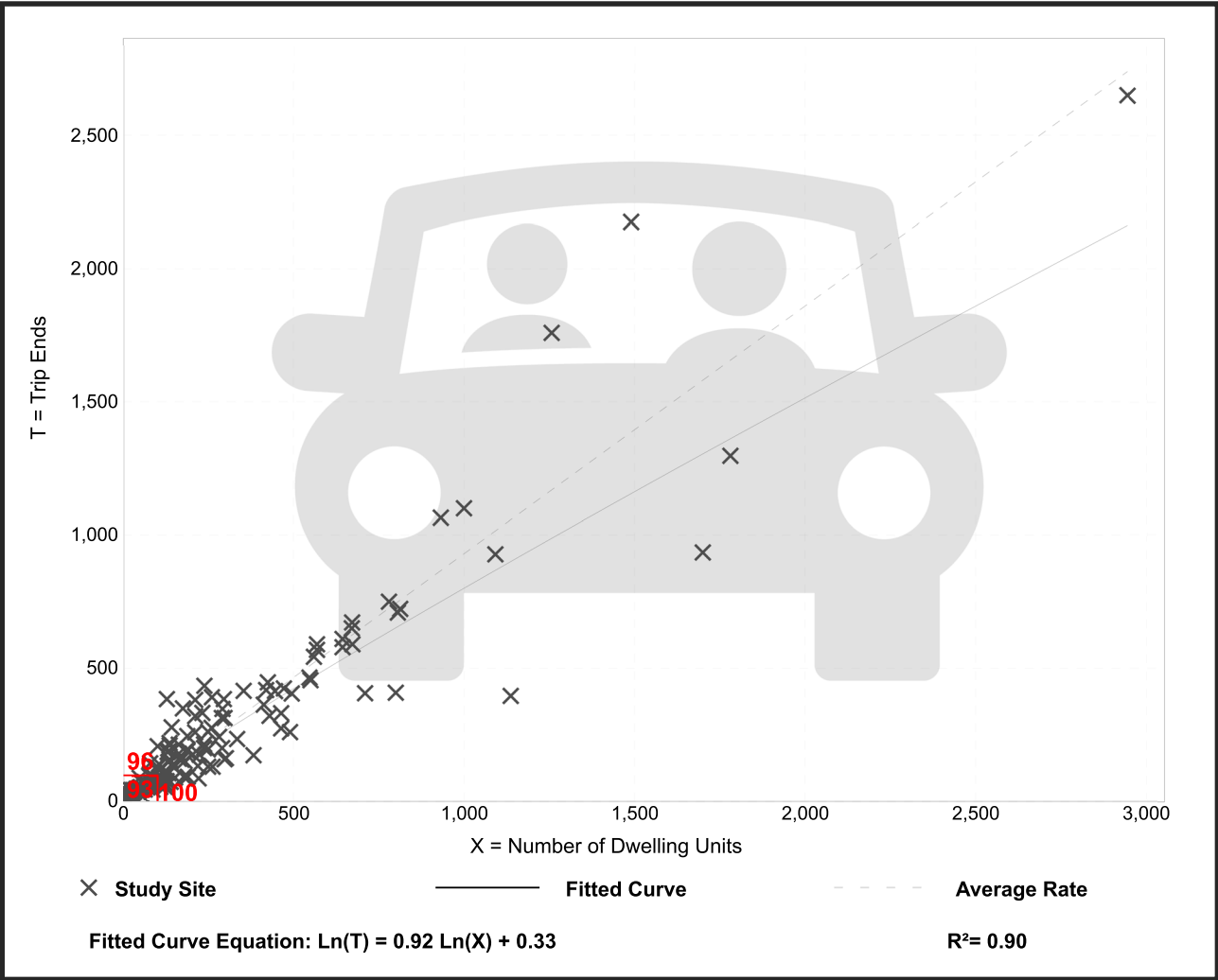
Avg. Num. of Dwelling Units: 266

Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.35 - 2.98	0.33

Data Plot and Equation



Single-Family Attached Housing

(215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 26

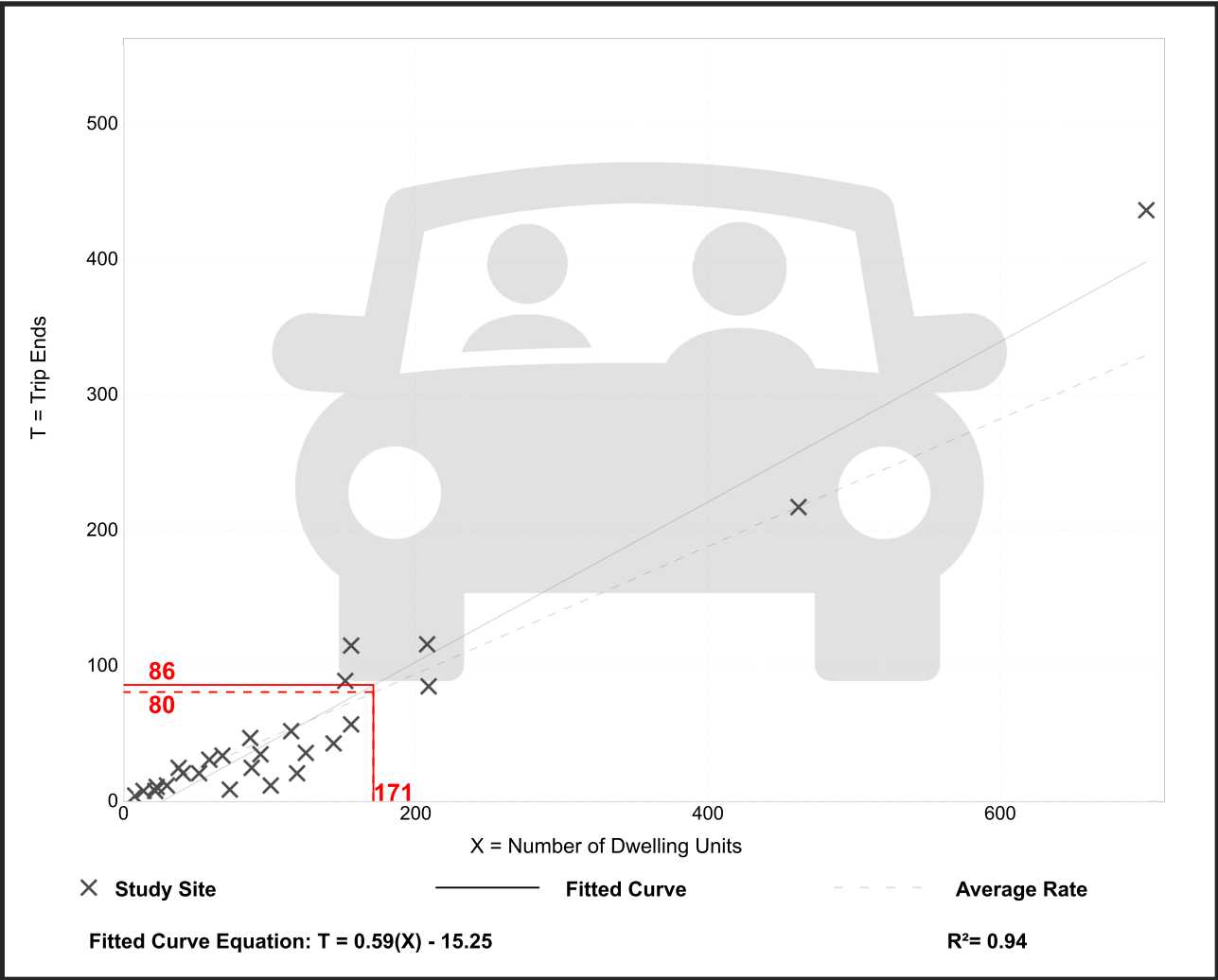
Avg. Num. of Dwelling Units: 129

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.12 - 0.74	0.16

Data Plot and Equation



Single-Family Attached Housing

(215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 26

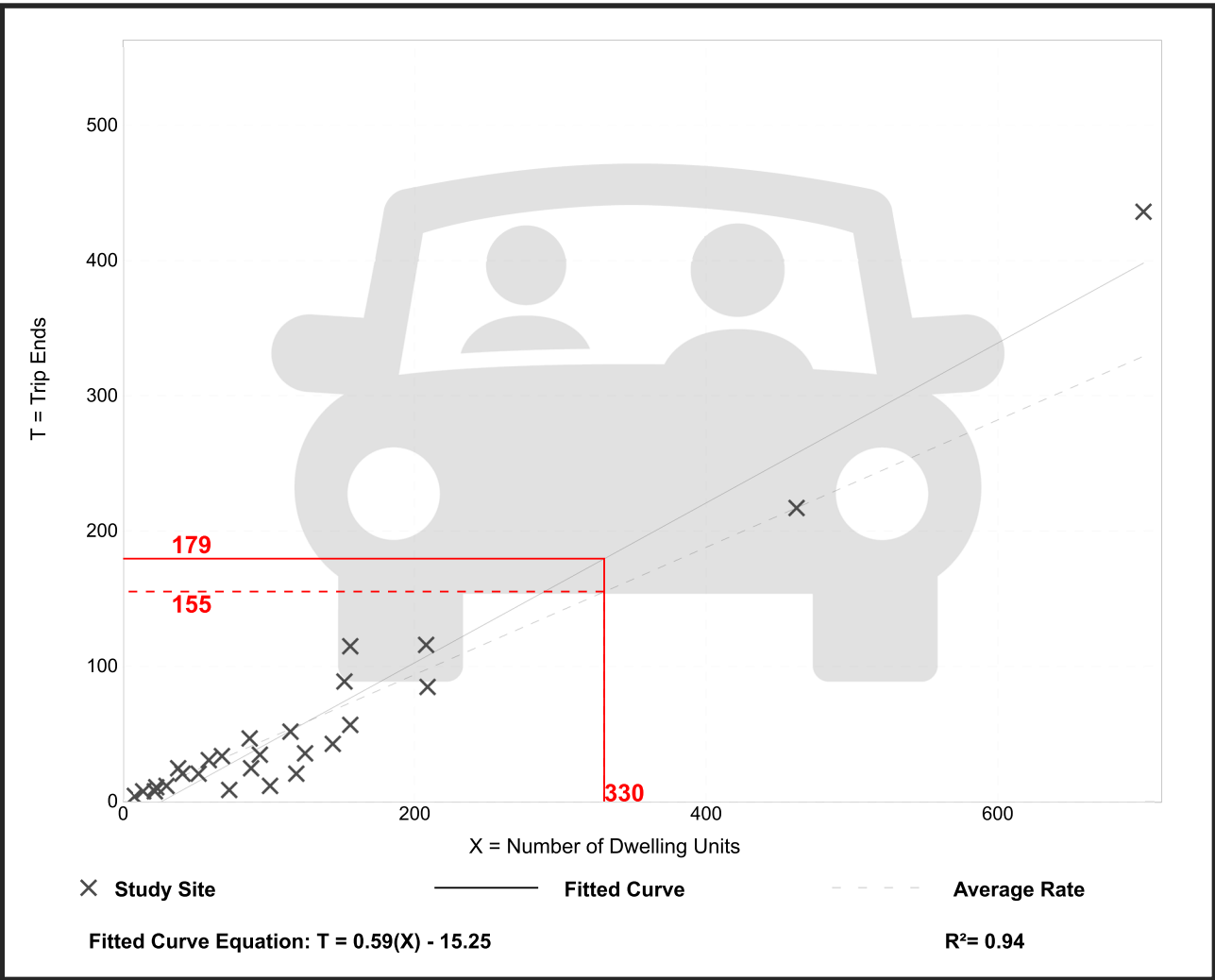
Avg. Num. of Dwelling Units: 129

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.12 - 0.74	0.16

Data Plot and Equation



Single-Family Attached Housing

(215)

Vehicle Trip Ends vs:

Dwelling Units

On a:

Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Number of Studies:

31

Avg. Num. of Dwelling Units:

131

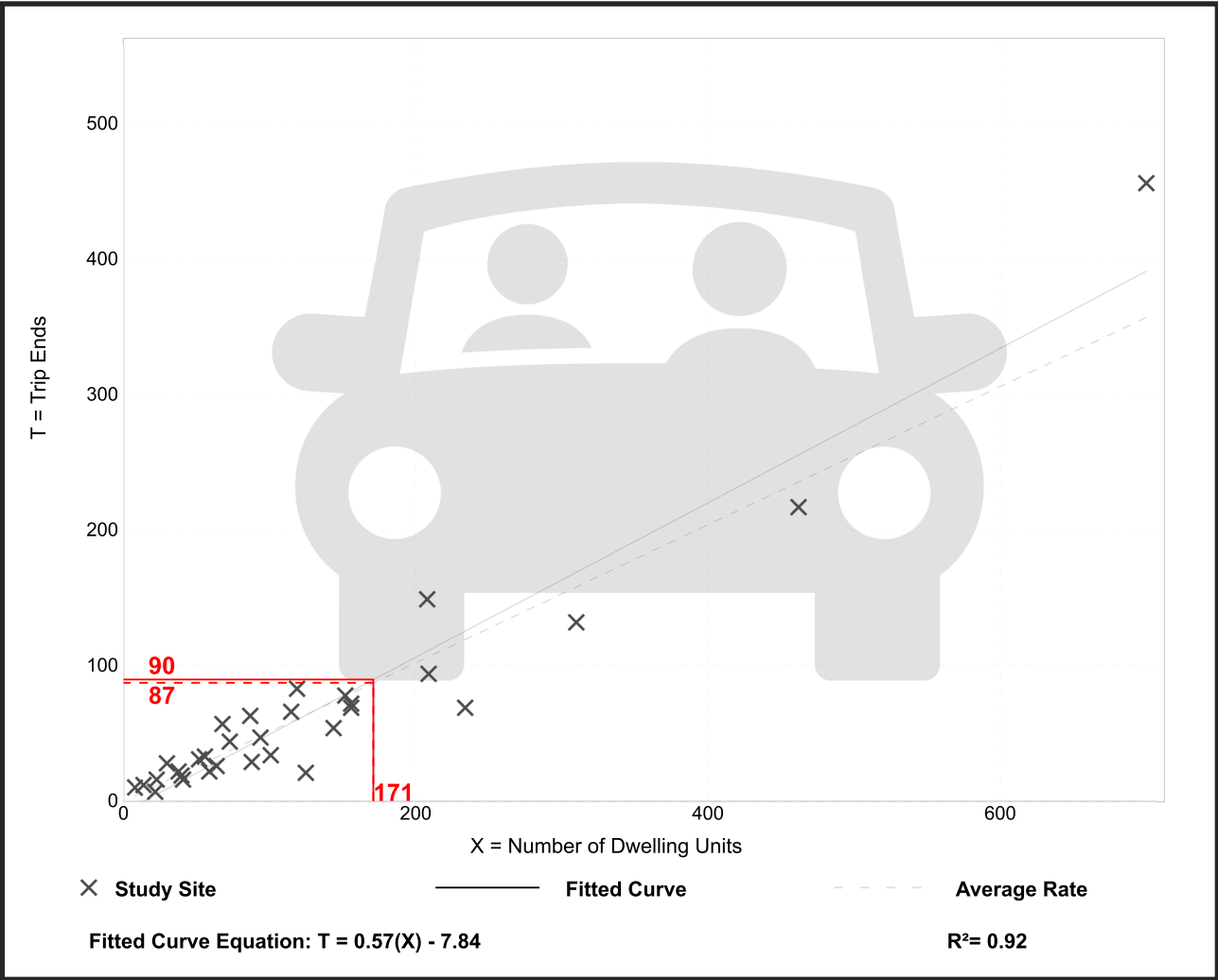
Directional Distribution:

57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.17 - 1.25	0.16

Data Plot and Equation



Single-Family Attached Housing

(215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 31

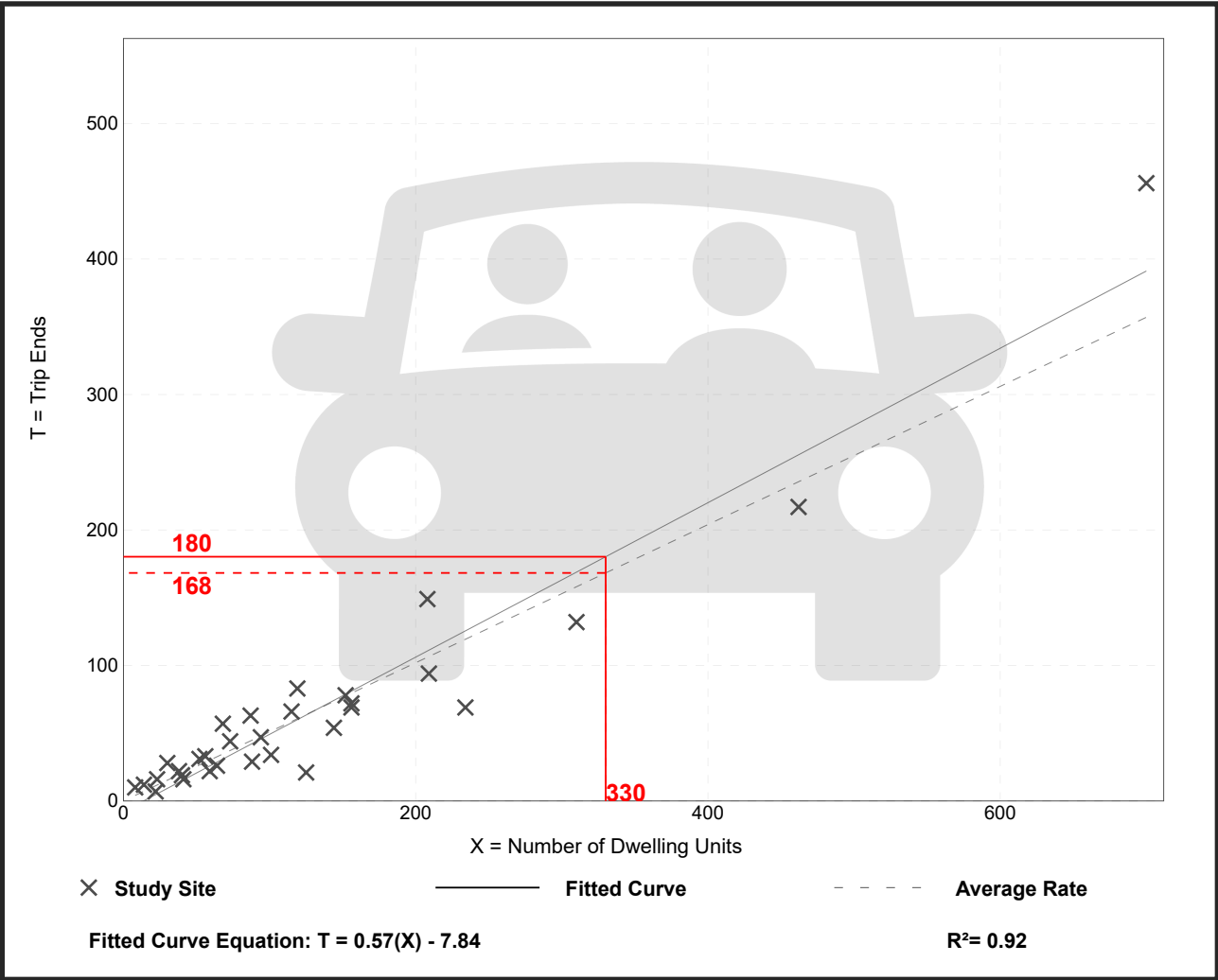
Avg. Num. of Dwelling Units: 131

Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.17 - 1.25	0.16

Data Plot and Equation



Multifamily Housing (Low-Rise)

Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 51

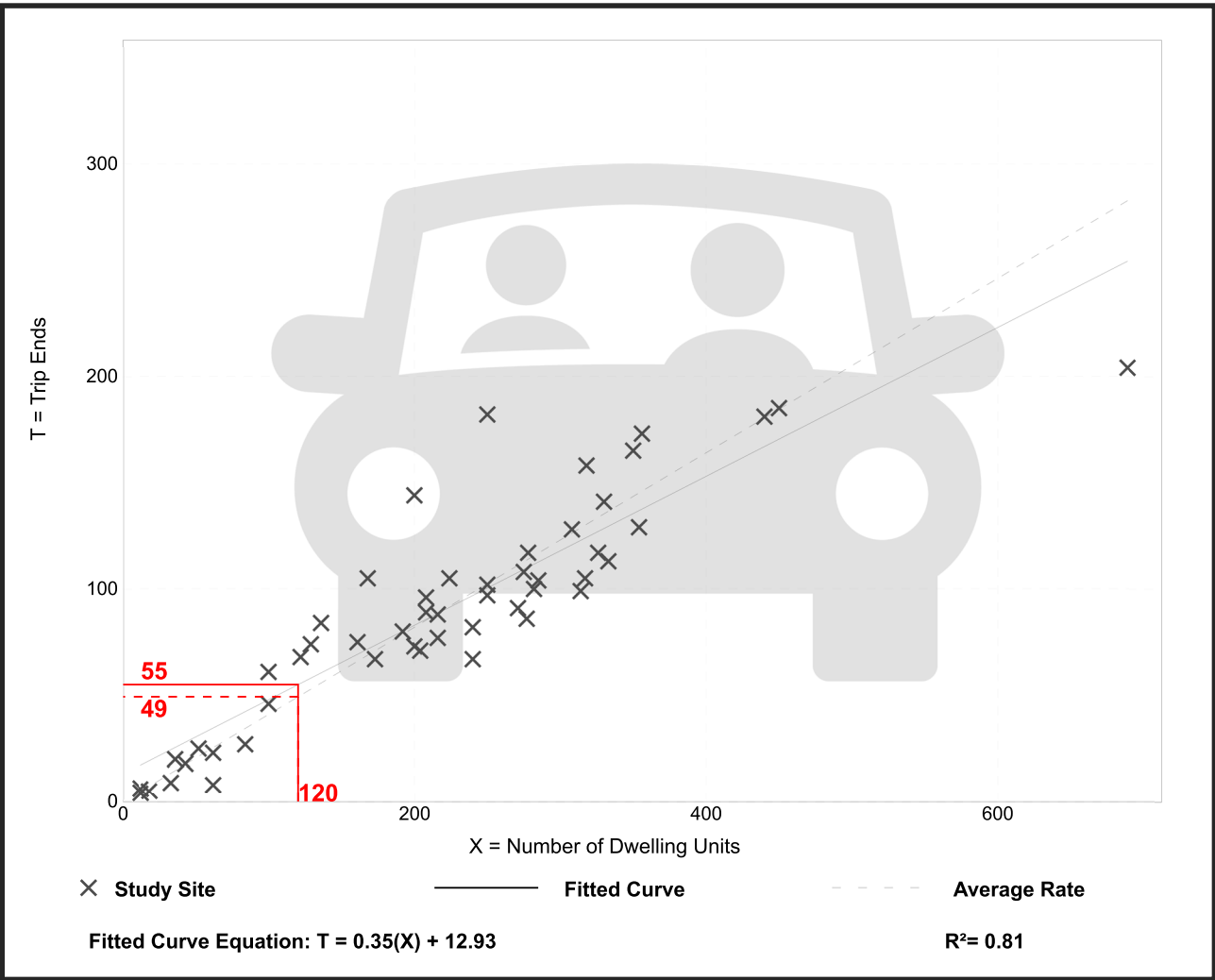
Avg. Num. of Dwelling Units: 219

Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.13 - 0.73	0.10

Data Plot and Equation



Multifamily Housing (Low-Rise)

Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 61

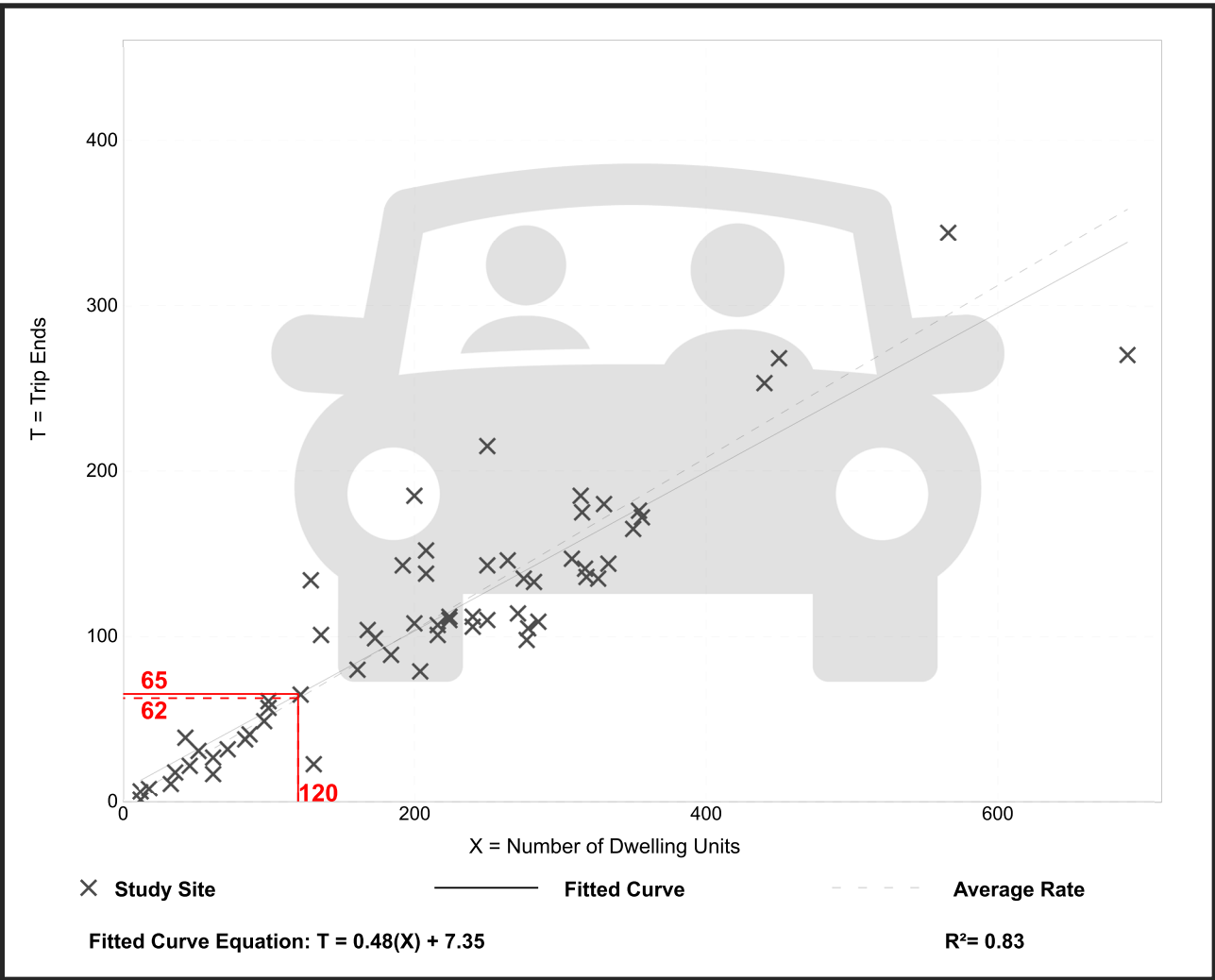
Avg. Num. of Dwelling Units: 215

Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.08 - 1.04	0.13

Data Plot and Equation



Shopping Plaza (40-150k) - Supermarket - No (821)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 9

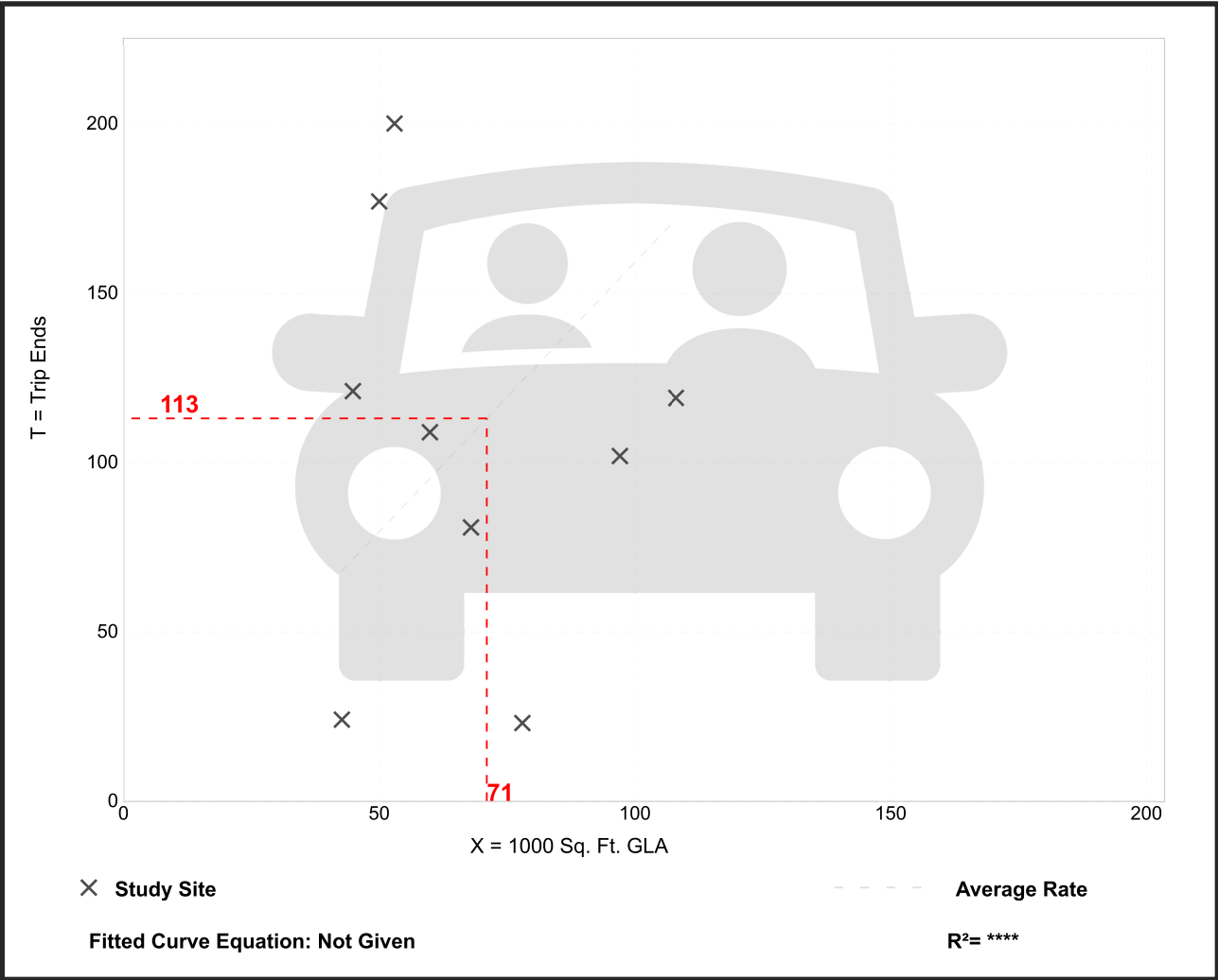
Avg. 1000 Sq. Ft. GLA: 67

Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
1.59	0.29 - 3.77	1.18

Data Plot and Equation



Shopping Plaza (40-150k) - Supermarket - No (821)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 24

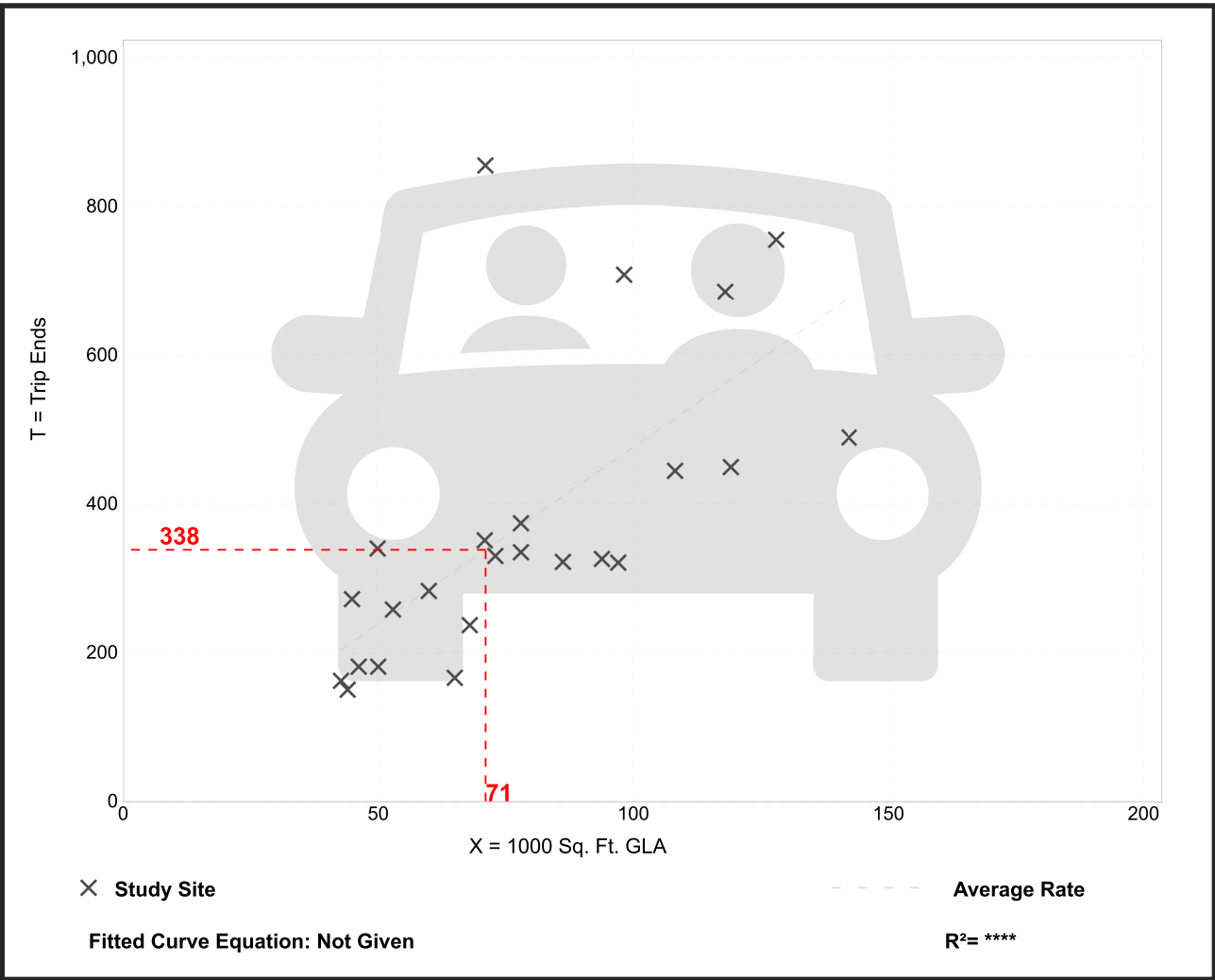
Avg. 1000 Sq. Ft. GLA: 79

Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.76	2.55 - 12.04	1.89

Data Plot and Equation



Appendix F

Synchro Reports – 2028 Background Operations



Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	3	9	284	2	176	2	292	186	182	466	0
Future Volume (vph)	6	3	9	284	2	176	2	292	186	182	466	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98		1.00					
Frt		0.935			0.852				0.850			
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1399	0	1736	1469	0	1805	1727	1524	1656	1863	1900
Flt Permitted		0.902		0.742			0.333			0.497		
Satd. Flow (perm)	0	1284	0	1356	1469	0	632	1727	1524	866	1863	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			223				235			
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Adj. Flow (vph)	8	4	11	359	3	223	3	370	235	230	590	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	359	226	0	3	370	235	230	590	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

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Synchro 12 Report

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Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2		2		2
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	45.0	45.0		45.0	45.0		65.0	65.0	65.0	65.0	65.0	65.0
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%	59.1%	59.1%	59.1%	59.1%
Maximum Green (s)	39.0	39.0		39.0	39.0		58.3	58.3	58.3	58.3	58.3	58.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		33.4		33.4	33.4		63.9	63.9	63.9	63.9	63.9	63.9
Actuated g/C Ratio		0.30		0.30	0.30		0.58	0.58	0.58	0.58	0.58	0.58
v/c Ratio		0.06		0.87	0.38		0.01	0.37	0.24	0.46	0.55	0.55
Control Delay (s/veh)		16.3		57.8	5.4		12.0	14.8	2.3	18.4	17.7	17.7
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		16.3		57.8	5.4		12.0	14.8	2.3	18.4	17.7	17.7
LOS		B		E	A		B	B	A	B	B	B
Approach Delay (s/veh)		16.3			37.5			9.9			17.9	
Approach LOS		B			D			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay (s/veh): 21.2

Intersection LOS: C

Intersection Capacity Utilization 79.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Synchro 12 Report

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Queues

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 AM

								
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	359	226	3	370	235	230	590
v/c Ratio	0.06	0.87	0.38	0.01	0.37	0.24	0.46	0.55
Control Delay (s/veh)	16.3	57.8	5.4	12.0	14.8	2.3	18.4	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.3	57.8	5.4	12.0	14.8	2.3	18.4	17.7
Queue Length 50th (m)	2.8	77.3	0.5	0.3	46.6	0.0	30.8	80.8
Queue Length 95th (m)	9.5	91.7	10.1	1.6	63.3	7.1	48.4	102.2
Internal Link Dist (m)	32.6		222.0		711.7			453.2
Turn Bay Length (m)		60.0		136.0		300.0	85.0	
Base Capacity (vph)	462	480	664	367	1003	983	502	1082
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.75	0.34	0.01	0.37	0.24	0.46	0.55
Intersection Summary								

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way 2028 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	3	9	284	2	176	2	292	186	182	466	0
Future Volume (vph)	6	3	9	284	2	176	2	292	186	182	466	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.94		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1400		1736	1469		1803	1727	1524	1656	1863	
Flt Permitted		0.90		0.74	1.00		0.33	1.00	1.00	0.50	1.00	
Satd. Flow (perm)		1284		1356	1469		631	1727	1524	866	1863	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	8	4	11	359	3	223	3	370	235	230	590	0
RTOR Reduction (vph)	0	8	0	0	155	0	0	0	98	0	0	0
Lane Group Flow (vph)	0	15	0	359	71	0	3	370	137	230	590	0
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		33.4		33.4	33.4		63.9	63.9	63.9	63.9	63.9	
Effective Green, g (s)		33.4		33.4	33.4		63.9	63.9	63.9	63.9	63.9	
Actuated g/C Ratio		0.30		0.30	0.30		0.58	0.58	0.58	0.58	0.58	
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		389		411	446		366	1003	885	503	1082	
v/s Ratio Prot					0.05			0.21			c0.32	
v/s Ratio Perm		0.01		c0.26			0.00		0.09	0.27		
v/c Ratio		0.04		0.87	0.16		0.01	0.37	0.15	0.46	0.55	
Uniform Delay, d1		27.0		36.3	28.0		9.7	12.3	10.6	13.2	14.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		18.2	0.2		0.0	1.0	0.4	3.0	2.0	
Delay (s)		27.0		54.5	28.2		9.7	13.3	11.0	16.1	16.1	
Level of Service		C		D	C		A	B	B	B	B	
Approach Delay (s/veh)		27.0			44.3			12.4			16.1	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			23.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			79.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	311	50	105	318	60	82
Future Volume (vph)	311	50	105	318	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00	0.96	
Frt	0.981				0.922	
Flt Protected				0.988	0.979	
Satd. Flow (prot)	1708	0	0	1788	1598	0
Flt Permitted				0.713	0.979	
Satd. Flow (perm)	1708	0	0	1289	1562	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	16				63	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		2	2		16	6
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Adj. Flow (vph)	464	75	157	475	90	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	539	0	0	632	212	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	4	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	70.0		70.0	70.0	30.0	
Total Split (s)	70.0		70.0	70.0	30.0	
Total Split (%)	70.0%		70.0%	70.0%	30.0%	
Maximum Green (s)	64.0		64.0	64.0	23.1	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.0	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
v/c Ratio	0.44			0.68	0.73	
Control Delay (s/veh)	7.6			13.7	41.8	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	7.6			13.7	41.8	
LOS	A			B	D	
Approach Delay (s/veh)	7.6			13.7	41.8	
Approach LOS	A			B	D	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 15.6

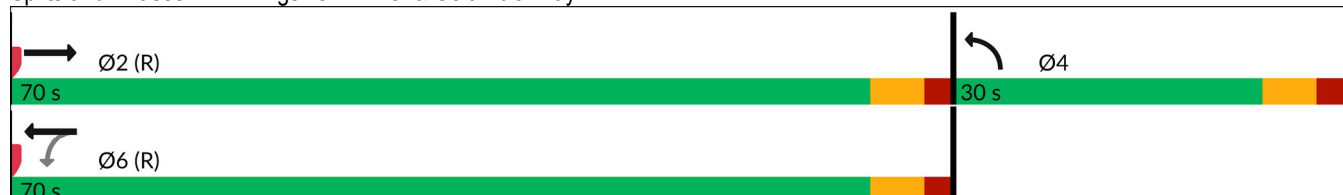
Intersection LOS: B

Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	539	632	212
v/c Ratio	0.44	0.68	0.73
Control Delay (s/veh)	7.6	13.7	41.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	7.6	13.7	41.8
Queue Length 50th (m)	39.0	62.6	30.5
Queue Length 95th (m)	48.1	72.4	33.6
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1236	929	417
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.44	0.68	0.51
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

2028 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	311	50	105	318	60	82
Future Volume (vph)	311	50	105	318	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.9	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	1.00			1.00	0.98	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.98			1.00	0.92	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1709			1786	1599	
Flt Permitted	1.00			0.71	0.98	
Satd. Flow (perm)	1709			1289	1599	
Peak-hour factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Adj. Flow (vph)	464	75	157	475	90	122
RTOR Reduction (vph)	4	0	0	0	54	0
Lane Group Flow (vph)	535	0	0	632	158	0
Confl. Peds. (#/hr)		2	2		16	6
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	
Permitted Phases			6			
Actuated Green, G (s)	72.1			72.1	15.0	
Effective Green, g (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
Clearance Time (s)	6.0			6.0	6.9	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1232			929	239	
v/s Ratio Prot	0.31				c0.10	
v/s Ratio Perm				c0.49		
v/c Ratio	0.43			0.68	0.66	
Uniform Delay, d1	5.7			7.6	40.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.1			4.0	6.8	
Delay (s)	6.8			11.7	46.9	
Level of Service	A			B	D	
Approach Delay (s/veh)	6.8			11.7	46.9	
Approach LOS	A			B	D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			15.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			67.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: Westchester Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	185	62	62	288	95	71
Future Volume (vph)	185	62	62	288	95	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.966				0.942	
Flt Protected				0.991	0.972	
Satd. Flow (prot)	1715	0	0	1827	1644	0
Flt Permitted				0.991	0.972	
Satd. Flow (perm)	1715	0	0	1827	1644	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	570.4			296.2	121.1	
Travel Time (s)	41.1			21.3	8.7	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	7%	7%	8%	2%	2%	11%
Adj. Flow (vph)	285	95	95	443	146	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	0	0	538	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	51.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope) 3: Westchester Road & Columbia Way 2028 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	185	62	62	288	95	71
Future Volume (Veh/h)	185	62	62	288	95	71
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	285	95	95	443	146	109
Pedestrians					3	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			383		969	336
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			383		969	336
tC, single (s)			4.2		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			92		43	84
cM capacity (veh/h)			1141		257	685
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	380	538	255			
Volume Left	0	95	146			
Volume Right	95	0	109			
cSH	1700	1141	351			
Volume to Capacity	0.22	0.08	0.73			
Queue Length 95th (m)	0.0	2.2	43.8			
Control Delay (s/veh)	0.0	2.3	38.2			
Lane LOS		A	E			
Approach Delay (s/veh)	0.0	2.3	38.2			
Approach LOS			E			
Intersection Summary						
Average Delay			9.4			
Intersection Capacity Utilization			51.8%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
4: Mount Hope Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	208	19	1	222	9	59	9	23	23	4	77
Future Volume (vph)	22	208	19	1	222	9	59	9	23	23	4	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.995			0.966			0.900	
Flt Protected		0.996						0.968			0.989	
Satd. Flow (prot)	0	1756	0	0	1855	0	0	1653	0	0	1562	0
Flt Permitted		0.996						0.968			0.989	
Satd. Flow (perm)	0	1756	0	0	1855	0	0	1653	0	0	1562	0
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			3082.6	
Travel Time (s)		17.8			14.3			30.3			185.0	
Confl. Peds. (#/hr)			6	6					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles (%)	17%	5%	13%	0%	2%	0%	3%	13%	17%	14%	20%	6%
Adj. Flow (vph)	32	301	28	1	322	13	86	13	33	33	6	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	361	0	0	336	0	0	132	0	0	151	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.3%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

4: Mount Hope Road & Columbia Way

2028 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	208	19	1	222	9	59	9	23	23	4	77
Future Volume (Veh/h)	22	208	19	1	222	9	59	9	23	23	4	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	32	301	28	1	322	13	86	13	33	33	6	112
Pedestrians					2			6				
Lane Width (m)					3.6			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	335			335			831	722	323	751	730	329
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	335			335			831	722	323	751	730	329
tC, single (s)	4.3			4.1			7.1	6.6	6.4	7.2	6.7	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.1	3.5	3.6	4.2	3.4
p0 queue free %	97			100			63	96	95	88	98	84
cM capacity (veh/h)	1145			1229			231	328	680	281	317	704
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	361	336	132	151								
Volume Left	32	1	86	33								
Volume Right	28	13	33	112								
cSH	1145	1229	287	511								
Volume to Capacity	0.03	0.00*	0.46	0.30								
Queue Length 95th (m)	0.7	0.0	18.3	9.8								
Control Delay (s/veh)	1.0	0.0	27.8	15.0								
Lane LOS	A	A	D	B								
Approach Delay (s/veh)	1.0	0.0	27.8	15.0								
Approach LOS			D	B								
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			47.3%		ICU Level of Service				A			
Analysis Period (min)			15									
* Value less than 0.01.												



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	248	100	128	586	52
Future Volume (vph)	46	248	100	128	586	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.886				0.989	
Flt Protected	0.992			0.978		
Satd. Flow (prot)	1629	0	0	1787	1850	0
Flt Permitted	0.992			0.978		
Satd. Flow (perm)	1629	0	0	1787	1850	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	4%	4%	1%	8%
Adj. Flow (vph)	50	270	109	139	637	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	320	0	0	248	694	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 74.1%

ICU Level of Service D

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 5: Caledon-King Townline South & Columbia Way 2028 AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	248	100	128	586	52
Future Volume (Veh/h)	46	248	100	128	586	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	270	109	139	637	57
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1023	666	694			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1023	666	694			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	78	41	88			
cM capacity (veh/h)	231	458	892			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	320	248	694			
Volume Left	50	109	0			
Volume Right	270	0	57			
cSH	397	892	1700			
Volume to Capacity	0.81	0.12	0.41			
Queue Length 95th (m)	57.2	3.3	0.0			
Control Delay (s/veh)	42.4	4.9	0.0			
Lane LOS	E	A				
Approach Delay (s/veh)	42.4	4.9	0.0			
Approach LOS	E					
Intersection Summary						
Average Delay		11.7				
Intersection Capacity Utilization		74.1%		ICU Level of Service		D
Analysis Period (min)		15				

Lanes, Volumes, Timings
8: Mount Hope Road & Castlederg Side Road

9408 Columbia Way, Caledon (Mount Hope)

2028 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	170	18	19	197	3	9	38	13	23	85	34
Future Volume (vph)	9	170	18	19	197	3	9	38	13	23	85	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.998			0.971			0.968	
Flt Protected		0.998			0.996			0.992			0.992	
Satd. Flow (prot)	0	1748	0	0	1836	0	0	1567	0	0	1759	0
Flt Permitted		0.998			0.996			0.992			0.992	
Satd. Flow (perm)	0	1748	0	0	1836	0	0	1567	0	0	1759	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			3082.6			634.1	
Travel Time (s)		27.2			28.6			185.0			38.0	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	5%	25%	12%	2%	0%	25%	12%	25%	0%	5%	3%
Adj. Flow (vph)	11	202	21	23	235	4	11	45	15	27	101	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	234	0	0	262	0	0	71	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	34.9%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 8: Mount Hope Road & Castlederg Side Road 2028 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	170	18	19	197	3	9	38	13	23	85	34
Future Volume (vph)	9	170	18	19	197	3	9	38	13	23	85	34
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	11	202	21	23	235	4	11	45	15	27	101	40
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	234	262	71	168								
Volume Left (vph)	11	23	11	27								
Volume Right (vph)	21	4	15	40								
Hadj (s)	0.08	0.06	0.19	-0.05								
Departure Headway (s)	5.0	5.0	5.6	5.2								
Degree Utilization, x	0.33	0.36	0.11	0.24								
Capacity (veh/h)	677	689	560	626								
Control Delay (s/veh)	10.4	10.7	9.3	9.9								
Approach Delay (s/veh)	10.4	10.7	9.3	9.9								
Approach LOS	B	B	A	A								
Intersection Summary												
Delay				10.3								
Level of Service				B								
Intersection Capacity Utilization				34.9%	ICU Level of Service		A					
Analysis Period (min)				15								

Lanes, Volumes, Timings
9: Forest Gate Avenue & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	151	27	21	86	79	91
Future Volume (vph)	151	27	21	86	79	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.928	
Flt Protected				0.990	0.977	
Satd. Flow (prot)	1745	0	0	1778	1690	0
Flt Permitted				0.990	0.977	
Satd. Flow (perm)	1745	0	0	1778	1690	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	22%	5%	6%	3%	1%
Adj. Flow (vph)	176	31	24	100	92	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	207	0	0	124	198	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	35.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 9: Forest Gate Avenue & Columbia Way 2028 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	151	27	21	86	79	91
Future Volume (Veh/h)	151	27	21	86	79	91
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	176	31	24	100	92	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			207			192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			207			192
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			98			88
cM capacity (veh/h)			1346			853
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	207	124	198			
Volume Left	0	24	92			
Volume Right	31	0	106			
cSH	1700	1346	740			
Volume to Capacity	0.12	0.02	0.27			
Queue Length 95th (m)	0.0	0.4	8.6			
Control Delay (s/veh)	0.0	1.6	11.6			
Lane LOS			A			
Approach Delay (s/veh)	0.0	1.6	11.6			
Approach LOS			B			
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			35.2%	ICU Level of Service		A
Analysis Period (min)			15			

Network Totals

Number of Intersections	7
Total Delay (hr)	23
Stops (#)	3140
Average Speed (km/hr)	43
Total Travel Time (hr)	97
Distance Traveled (km)	4187
Fuel Consumed (l)	525
Fuel Economy (km/l)	8.0
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	31.4

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	31.4	23.8	24.9	23.8
Average Queue (m)	13.6	13.1	9.5	11.1
95th Queue (m)	22.9	20.6	19.5	18.0
Link Distance (m)	518.7	546.0	3063.8	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	160	0	81	1	607	229	145	385	2
Future Volume (vph)	2	0	1	160	0	81	1	607	229	145	385	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98							
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.968		0.950			0.950			0.950		
Satd. Flow (prot)	0	1756	0	1787	1535	0	902	1863	1599	1770	1845	808
Flt Permitted		0.879		0.756			0.510			0.364		
Satd. Flow (perm)	0	1595	0	1422	1535	0	484	1863	1599	678	1845	808
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			255				241			33
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Adj. Flow (vph)	2	0	1	168	0	85	1	639	241	153	405	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	168	85	0	1	639	241	153	405	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Synchro 12 Report

Page 1

Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0	64.0	64.0	64.0	64.0
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%	64.0%	64.0%	64.0%	64.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		57.3	57.3	57.3	57.3	57.3	57.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		17.1		17.1	17.1		70.2	70.2	70.2	70.2	70.2	70.2
Actuated g/C Ratio		0.17		0.17	0.17		0.70	0.70	0.70	0.70	0.70	0.70
v/c Ratio		0.01		0.69	0.18		0.00	0.49	0.20	0.32	0.31	0.00
Control Delay (s/veh)		0.0		53.0	0.8		6.0	9.2	1.3	9.1	7.2	0.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		0.0		53.0	0.8		6.0	9.2	1.3	9.1	7.2	0.0
LOS		A		D	A		A	A	A	A	A	A
Approach Delay (s/veh)				35.4			7.0				7.7	
Approach LOS				D			A				A	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 11.5

Intersection LOS: B

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 2

Queues

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 PM

	→	↘	←	↙	↑	↗	↘	↓	↙
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	3	168	85	1	639	241	153	405	2
v/c Ratio	0.01	0.69	0.18	0.00	0.49	0.20	0.32	0.31	0.00
Control Delay (s/veh)	0.0	53.0	0.8	6.0	9.2	1.3	9.1	7.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	53.0	0.8	6.0	9.2	1.3	9.1	7.2	0.0
Queue Length 50th (m)	0.0	32.8	0.0	0.1	52.2	0.0	10.6	28.1	0.0
Queue Length 95th (m)	0.0	51.2	0.0	1.2	97.2	8.5	27.2	53.9	0.0
Internal Link Dist (m)	32.6		222.0		711.7			453.2	
Turn Bay Length (m)		60.0		136.0		300.0	85.0		25.0
Base Capacity (vph)	506	426	639	339	1307	1194	475	1294	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.39	0.13	0.00	0.49	0.20	0.32	0.31	0.00
Intersection Summary									

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way 2028 PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	2	0	1	160	0	81	1	607	229	145	385	2
Future Volume (vph)	2	0	1	160	0	81	1	607	229	145	385	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756		1787	1533		903	1863	1599	1770	1845	808
Flt Permitted		0.88		0.76	1.00		0.51	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)		1594		1422	1533		484	1863	1599	678	1845	808
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	0	1	168	0	85	1	639	241	153	405	2
RTOR Reduction (vph)	0	2	0	0	70	0	0	0	72	0	0	1
Lane Group Flow (vph)	0	1	0	168	15	0	1	639	169	153	405	1
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		17.1		17.1	17.1		70.2	70.2	70.2	70.2	70.2	70.2
Effective Green, g (s)		17.1		17.1	17.1		70.2	70.2	70.2	70.2	70.2	70.2
Actuated g/C Ratio		0.17		0.17	0.17		0.70	0.70	0.70	0.70	0.70	0.70
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		272		243	262		339	1307	1122	475	1295	567
v/s Ratio Prot					0.01			c0.34			0.22	
v/s Ratio Perm		0.00		c0.12			0.00		0.11	0.23		0.00
v/c Ratio		0.00		0.69	0.06		0.00	0.49	0.15	0.32	0.31	0.00
Uniform Delay, d1		34.4		39.0	34.7		4.4	6.8	5.0	5.7	5.7	4.4
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.0		8.2	0.1		0.0	1.3	0.3	1.8	0.6	0.0
Delay (s)		34.4		47.2	34.8		4.5	8.1	5.3	7.5	6.3	4.5
Level of Service		C		D	C		A	A	A	A	A	A
Approach Delay (s/veh)		34.4			43.0			7.3			6.6	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			12.5			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			76.9%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	237	91	60	189	39	40
Future Volume (vph)	237	91	60	189	39	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99			1.00		
Frt	0.962				0.931	
Flt Protected				0.988	0.976	
Satd. Flow (prot)	1781	0	0	1840	1726	0
Flt Permitted				0.854	0.976	
Satd. Flow (perm)	1781	0	0	1587	1726	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	33				43	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Adj. Flow (vph)	252	97	64	201	41	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	349	0	0	265	84	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	36.0		36.0	36.0	36.0	
Total Split (s)	36.0		36.0	36.0	36.0	
Total Split (%)	50.0%		50.0%	50.0%	50.0%	
Maximum Green (s)	30.0		29.1	29.1	30.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.9	2.9	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.9	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	55.3			54.6	8.7	
Actuated g/C Ratio	0.77			0.76	0.12	
v/c Ratio	0.25			0.22	0.34	
Control Delay (s/veh)	3.7			4.3	20.6	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	3.7			4.3	20.6	
LOS	A			A	C	
Approach Delay (s/veh)	3.7			4.3	20.6	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other

Cycle Length: 72

Actuated Cycle Length: 72

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay (s/veh): 6.0

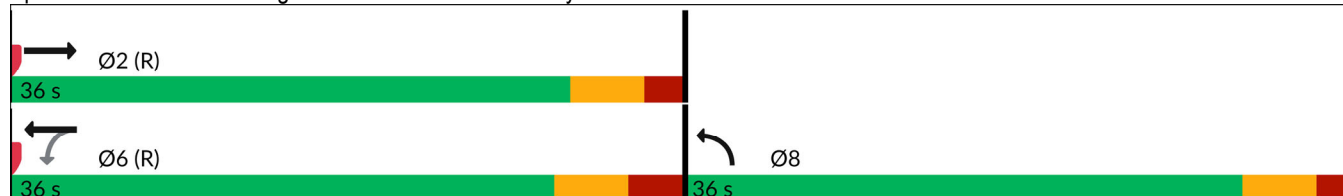
Intersection LOS: A

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 PM



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	349	265	84
v/c Ratio	0.25	0.22	0.34
Control Delay (s/veh)	3.7	4.3	20.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	3.7	4.3	20.6
Queue Length 50th (m)	12.2	10.7	5.4
Queue Length 95th (m)	24.5	21.9	17.1
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1376	1204	744
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.25	0.22	0.11
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

2028 PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	👉			👈	👈	👉
Traffic Volume (vph)	237	91	60	189	39	40
Future Volume (vph)	237	91	60	189	39	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.9	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.96			1.00	0.93	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1783			1835	1727	
Flt Permitted	1.00			0.85	0.98	
Satd. Flow (perm)	1783			1586	1727	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	252	97	64	201	41	43
RTOR Reduction (vph)	9	0	0	0	39	0
Lane Group Flow (vph)	340	0	0	265	45	0
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Actuated Green, G (s)	52.9			52.0	7.1	
Effective Green, g (s)	52.9			52.0	7.1	
Actuated g/C Ratio	0.73			0.72	0.10	
Clearance Time (s)	6.0			6.9	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1310			1145	170	
v/s Ratio Prot	c0.19				c0.03	
v/s Ratio Perm				0.17		
v/c Ratio	0.26			0.23	0.27	
Uniform Delay, d1	3.1			3.3	30.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.5			0.5	0.8	
Delay (s)	3.6			3.8	30.9	
Level of Service	A			A	C	
Approach Delay (s/veh)	3.6			3.8	30.9	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			7.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.26			
Actuated Cycle Length (s)			72.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			53.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: Westchester Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	213	69	48	198	49	37
Future Volume (vph)	213	69	48	198	49	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.967				0.942	
Flt Protected				0.990	0.972	
Satd. Flow (prot)	1815	0	0	1844	1666	0
Flt Permitted				0.990	0.972	
Satd. Flow (perm)	1815	0	0	1844	1666	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	570.4			296.2	121.1	
Travel Time (s)	41.1			21.3	8.7	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	2%	2%	4%	5%
Adj. Flow (vph)	229	74	52	213	53	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	303	0	0	265	93	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	43.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 3: Westchester Road & Columbia Way 2028 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	213	69	48	198	49	37
Future Volume (Veh/h)	213	69	48	198	49	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	229	74	52	213	53	40
Pedestrians						6
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						1
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			309	589		272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			309	589		272
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			96	88		95
cM capacity (veh/h)			1245	446		756
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	303	265	93			
Volume Left	0	52	53			
Volume Right	74	0	40			
cSH	1700	1245	541			
Volume to Capacity	0.18	0.04	0.17			
Queue Length 95th (m)	0.0	1.0	4.9			
Control Delay (s/veh)	0.0	1.9	13.0			
Lane LOS			A B			
Approach Delay (s/veh)	0.0	1.9	13.0			
Approach LOS			B			
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			43.6%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings
4: Mount Hope Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

2028 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	182	45	18	172	26	21	6	10	14	8	41
Future Volume (vph)	40	182	45	18	172	26	21	6	10	14	8	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.977			0.984			0.962			0.913	
Flt Protected		0.993			0.996			0.973			0.989	
Satd. Flow (prot)	0	1775	0	0	1833	0	0	1725	0	0	1635	0
Flt Permitted		0.993			0.996			0.973			0.989	
Satd. Flow (perm)	0	1775	0	0	1833	0	0	1725	0	0	1635	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		296.2			237.5			421.4			3082.6	
Travel Time (s)		17.8			14.3			30.3			221.9	
Confl. Peds. (#/hr)			11	11								
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	4%	0%	2%	0%	0%	20%	0%	0%	8%	6%
Adj. Flow (vph)	43	194	48	19	183	28	22	6	11	15	9	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	285	0	0	230	0	0	39	0	0	68	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control	Free				Free				Stop			
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	34.8%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

4: Mount Hope Road & Columbia Way

2028 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	182	45	18	172	26	21	6	10	14	8	41
Future Volume (Veh/h)	40	182	45	18	172	26	21	6	10	14	8	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	43	194	48	19	183	28	22	6	11	15	9	44
Pedestrians								11				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	211			253			599	564	229	553	574	197
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	211			253			599	564	229	553	574	197
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.1	3.4
p0 queue free %	97			99			94	98	99	96	98	95
cM capacity (veh/h)	1354			1312			368	388	808	417	398	834
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	285	230	39	68								
Volume Left	43	19	22	15								
Volume Right	48	28	11	44								
cSH	1354	1312	439	611								
Volume to Capacity	0.03	0.01	0.09	0.11								
Queue Length 95th (m)	0.8	0.4	2.3	3.0								
Control Delay (s/veh)	1.4	0.8	14.0	11.6								
Lane LOS	A	A	B	B								
Approach Delay (s/veh)	1.4	0.8	14.0	11.6								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			34.8%		ICU Level of Service				A			
Analysis Period (min)			15									



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	118	178	502	294	54
Future Volume (vph)	37	118	178	502	294	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.897				0.979	
Flt Protected	0.988			0.987		
Satd. Flow (prot)	1613	0	0	1862	1814	0
Flt Permitted	0.988			0.987		
Satd. Flow (perm)	1613	0	0	1862	1814	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	12%	2%	0%	1%	3%	0%
Adj. Flow (vph)	39	123	185	523	306	56
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	0	708	362	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 74.3%

ICU Level of Service D

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
5: Caledon-King Townline South & Columbia Way 2028 PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	118	178	502	294	54
Future Volume (Veh/h)	37	118	178	502	294	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	39	123	185	523	306	56
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1227	334	362			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1227	334	362			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	75	83	85			
cM capacity (veh/h)	159	708	1208			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	162	708	362			
Volume Left	39	185	0			
Volume Right	123	0	56			
cSH	387	1208	1700			
Volume to Capacity	0.42	0.15	0.21			
Queue Length 95th (m)	16.1	4.3	0.0			
Control Delay (s/veh)	20.9	3.6	0.0			
Lane LOS	C	A				
Approach Delay (s/veh)	20.9	3.6	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay		4.8				
Intersection Capacity Utilization		74.3%		ICU Level of Service		D
Analysis Period (min)		15				

Lanes, Volumes, Timings
8: Mount Hope Road & Castlederg Side Road

9408 Columbia Way, Caledon (Mount Hope)

2028 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	315	8	12	219	26	2	44	12	20	31	9
Future Volume (vph)	63	315	8	12	219	26	2	44	12	20	31	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.986			0.972			0.979	
Flt Protected		0.992			0.998			0.998			0.984	
Satd. Flow (prot)	0	1858	0	0	1730	0	0	1738	0	0	1759	0
Flt Permitted		0.992			0.998			0.998			0.984	
Satd. Flow (perm)	0	1858	0	0	1730	0	0	1738	0	0	1759	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			3082.6			634.1	
Travel Time (s)		27.2			28.6			185.0			38.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	14%	9%	9%	0%	0%	8%	0%	6%	4%	0%
Adj. Flow (vph)	67	335	9	13	233	28	2	47	13	21	33	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	411	0	0	274	0	0	62	0	0	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	54.3%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 8: Mount Hope Road & Castlederg Side Road 2028 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	63	315	8	12	219	26	2	44	12	20	31	9
Future Volume (vph)	63	315	8	12	219	26	2	44	12	20	31	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	67	335	9	13	233	28	2	47	13	21	33	10
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	411	274	62	64								
Volume Left (vph)	67	13	2	21								
Volume Right (vph)	9	28	13	10								
Hadj (s)	0.04	0.09	-0.02	0.04								
Departure Headway (s)	4.6	4.8	5.6	5.7								
Degree Utilization, x	0.53	0.37	0.10	0.10								
Capacity (veh/h)	745	712	551	552								
Control Delay (s/veh)	12.8	10.6	9.2	9.3								
Approach Delay (s/veh)	12.8	10.6	9.2	9.3								
Approach LOS	B	B	A	A								
Intersection Summary												
Delay			11.5									
Level of Service			B									
Intersection Capacity Utilization			54.3%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
9: Forest Gate Avenue & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	76	79	90	129	41	28
Future Volume (vph)	76	79	90	129	41	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.931				0.945	
Flt Protected				0.980	0.971	
Satd. Flow (prot)	1760	0	0	1851	1743	0
Flt Permitted				0.980	0.971	
Satd. Flow (perm)	1760	0	0	1851	1743	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	86	90	102	147	47	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	0	0	249	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 9: Forest Gate Avenue & Columbia Way 2028 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	76	79	90	129	41	28
Future Volume (Veh/h)	76	79	90	129	41	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	86	90	102	147	47	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	176			482	131	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176			482	131	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	93			91	97	
cM capacity (veh/h)	1412			507	924	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	176	249	79			
Volume Left	0	102	47			
Volume Right	90	0	32			
cSH	1700	1412	621			
Volume to Capacity	0.10	0.07	0.13			
Queue Length 95th (m)	0.0	1.9	3.5			
Control Delay (s/veh)	0.0	3.5	11.6			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	3.5	11.6			
Approach LOS			B			
Intersection Summary						
Average Delay	3.6					
Intersection Capacity Utilization	34.6%			ICU Level of Service	A	
Analysis Period (min)	15					

Network Totals

Number of Intersections	7
Total Delay (hr)	11
Stops (#)	2718
Average Speed (km/hr)	49
Total Travel Time (hr)	85
Distance Traveled (km)	4134
Fuel Consumed (l)	486
Fuel Economy (km/l)	8.5
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	19.0

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	32.5	30.0	18.0	16.9
Average Queue (m)	16.9	15.8	8.2	7.6
95th Queue (m)	26.2	25.0	16.0	13.9
Link Distance (m)	518.7	546.0	3063.8	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Appendix G

Synchro Reports – 2033 Background Operations



Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	10	303	2	194	2	321	202	198	512	0
Future Volume (vph)	6	4	10	303	2	194	2	321	202	198	512	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98		1.00					
Frt		0.932			0.852				0.850			
Flt Protected		0.985		0.950			0.950			0.950		
Satd. Flow (prot)	0	1389	0	1736	1469	0	1805	1727	1524	1656	1863	1900
Flt Permitted		0.908		0.740			0.285			0.464		
Satd. Flow (perm)	0	1281	0	1352	1469	0	541	1727	1524	809	1863	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			246				256			
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Adj. Flow (vph)	8	5	13	384	3	246	3	406	256	251	648	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	384	249	0	3	406	256	251	648	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

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Synchro 12 Report

Page 1

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2		2		2
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	45.0	45.0		45.0	45.0		65.0	65.0	65.0	65.0	65.0	65.0
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%	59.1%	59.1%	59.1%	59.1%
Maximum Green (s)	39.0	39.0		39.0	39.0		58.3	58.3	58.3	58.3	58.3	58.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		34.8		34.8	34.8		62.5	62.5	62.5	62.5	62.5	62.5
Actuated g/C Ratio		0.32		0.32	0.32		0.57	0.57	0.57	0.57	0.57	0.57
v/c Ratio		0.06		0.90	0.39		0.01	0.41	0.26	0.55	0.61	0.61
Control Delay (s/veh)		15.6		60.0	5.3		12.5	16.0	2.4	21.9	19.9	19.9
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		15.6		60.0	5.3		12.5	16.0	2.4	21.9	19.9	19.9
LOS		B		E	A		B	B	A	C	B	B
Approach Delay (s/veh)		15.6			38.5			10.7			20.5	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay (s/veh): 22.6

Intersection LOS: C

Intersection Capacity Utilization 83.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 2

Queues

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM

								
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	384	249	3	406	256	251	648
v/c Ratio	0.06	0.90	0.39	0.01	0.41	0.26	0.55	0.61
Control Delay (s/veh)	15.6	60.0	5.3	12.5	16.0	2.4	21.9	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.6	60.0	5.3	12.5	16.0	2.4	21.9	19.9
Queue Length 50th (m)	2.9	81.9	0.4	0.3	55.5	0.0	37.8	98.4
Queue Length 95th (m)	10.0	99.9	10.3	1.6	70.5	7.3	56.1	116.1
Internal Link Dist (m)	32.6		222.0		711.7			453.2
Turn Bay Length (m)		60.0		136.0		300.0	85.0	
Base Capacity (vph)	462	479	679	307	980	976	459	1057
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.80	0.37	0.01	0.41	0.26	0.55	0.61
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	6	4	10	303	2	194	2	321	202	198	512	0
Future Volume (vph)	6	4	10	303	2	194	2	321	202	198	512	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.93		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1390		1736	1469		1803	1727	1524	1656	1863	
Flt Permitted		0.91		0.74	1.00		0.28	1.00	1.00	0.46	1.00	
Satd. Flow (perm)		1282		1352	1469		540	1727	1524	808	1863	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	8	5	13	384	3	246	3	406	256	251	648	0
RTOR Reduction (vph)	0	9	0	0	168	0	0	0	111	0	0	0
Lane Group Flow (vph)	0	17	0	384	81	0	3	406	145	251	648	0
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		34.8		34.8	34.8		62.5	62.5	62.5	62.5	62.5	
Effective Green, g (s)		34.8		34.8	34.8		62.5	62.5	62.5	62.5	62.5	
Actuated g/C Ratio		0.32		0.32	0.32		0.57	0.57	0.57	0.57	0.57	
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		405		427	464		306	981	865	459	1058	
v/s Ratio Prot					0.06			0.24			c0.35	
v/s Ratio Perm		0.01		c0.28			0.01		0.10	0.31		
v/c Ratio		0.04		0.90	0.17		0.01	0.41	0.17	0.55	0.61	
Uniform Delay, d1		26.1		35.9	27.2		10.3	13.4	11.3	14.9	15.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		21.1	0.2		0.1	1.3	0.4	4.6	2.6	
Delay (s)		26.1		57.1	27.4		10.4	14.7	11.8	19.5	18.4	
Level of Service		C		E	C		B	B	B	B	B	
Approach Delay (s/veh)		26.1			45.4			13.5			18.7	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			83.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

2033 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	339	50	105	350	60	82
Future Volume (vph)	339	50	105	350	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00	0.96	
Frt	0.983				0.922	
Flt Protected				0.989	0.979	
Satd. Flow (prot)	1713	0	0	1790	1598	0
Flt Permitted				0.699	0.979	
Satd. Flow (perm)	1713	0	0	1264	1562	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	15				63	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		2	2		16	6
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Adj. Flow (vph)	506	75	157	522	90	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	581	0	0	679	212	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	

Lanes, Volumes, Timings

2: Kingsview Drive & Columbia Way

2033 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	4	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	70.0		70.0	70.0	30.0	
Total Split (s)	70.0		70.0	70.0	30.0	
Total Split (%)	70.0%		70.0%	70.0%	30.0%	
Maximum Green (s)	64.0		64.0	64.0	23.1	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.0	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
v/c Ratio	0.47			0.75	0.73	
Control Delay (s/veh)	8.0			16.6	41.8	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	8.0			16.6	41.8	
LOS	A			B	D	
Approach Delay (s/veh)	8.0			16.6	41.8	
Approach LOS	A			B	D	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 16.9

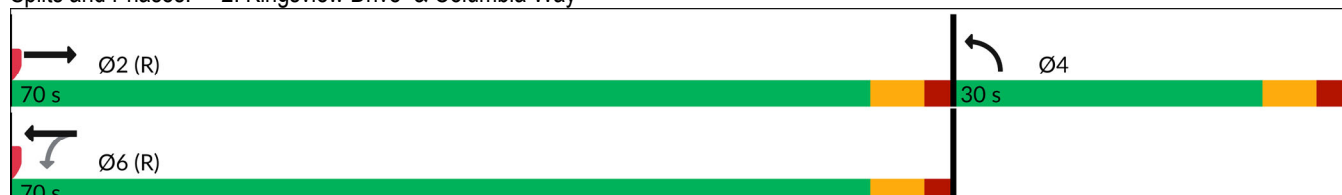
Intersection LOS: B

Intersection Capacity Utilization 70.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues

2: Kingsview Drive & Columbia Way

2033 AM



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	581	679	212
v/c Ratio	0.47	0.75	0.73
Control Delay (s/veh)	8.0	16.6	41.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	8.0	16.6	41.8
Queue Length 50th (m)	43.9	74.0	30.5
Queue Length 95th (m)	53.1	82.8	33.6
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1239	911	417
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.47	0.75	0.51
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2: Kingsview Drive & Columbia Way

2033 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	🚗			🚗	🚗	
Traffic Volume (vph)	339	50	105	350	60	82
Future Volume (vph)	339	50	105	350	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.9	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	1.00			1.00	0.98	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.98			1.00	0.92	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1712			1788	1599	
Flt Permitted	1.00			0.70	0.98	
Satd. Flow (perm)	1712			1265	1599	
Peak-hour factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Adj. Flow (vph)	506	75	157	522	90	122
RTOR Reduction (vph)	4	0	0	0	54	0
Lane Group Flow (vph)	577	0	0	679	158	0
Confl. Peds. (#/hr)		2	2		16	6
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	
Permitted Phases			6			
Actuated Green, G (s)	72.1			72.1	15.0	
Effective Green, g (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
Clearance Time (s)	6.0			6.0	6.9	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1234			912	239	
v/s Ratio Prot	0.34				c0.10	
v/s Ratio Perm				c0.54		
v/c Ratio	0.47			0.74	0.66	
Uniform Delay, d1	5.9			8.4	40.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.3			5.5	6.8	
Delay (s)	7.1			13.9	46.9	
Level of Service	A			B	D	
Approach Delay (s/veh)	7.1			13.9	46.9	
Approach LOS	A			B	D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			16.0		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			70.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

3: Westchester Road & Columbia Way

2033 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	201	62	62	316	95	71
Future Volume (vph)	201	62	62	316	95	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.968				0.942	
Flt Protected				0.992	0.972	
Satd. Flow (prot)	1719	0	0	1830	1644	0
Flt Permitted				0.992	0.972	
Satd. Flow (perm)	1719	0	0	1830	1644	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	570.4			296.2	121.1	
Travel Time (s)	41.1			21.3	8.7	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	7%	7%	8%	2%	2%	11%
Adj. Flow (vph)	309	95	95	486	146	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	404	0	0	581	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	54.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

3: Westchester Road & Columbia Way

2033 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	201	62	62	316	95	71
Future Volume (Veh/h)	201	62	62	316	95	71
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	309	95	95	486	146	109
Pedestrians					3	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			407		1036	360
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			407		1036	360
tC, single (s)			4.2		6.4	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.4
p0 queue free %			91		38	84
cM capacity (veh/h)			1117		234	663
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	404	581	255			
Volume Left	0	95	146			
Volume Right	95	0	109			
cSH	1700	1117	324			
Volume to Capacity	0.24	0.09	0.79			
Queue Length 95th (m)	0.0	2.2	51.1			
Control Delay (s/veh)	0.0	2.2	47.2			
Lane LOS		A	E			
Approach Delay (s/veh)	0.0	2.2	47.2			
Approach LOS			E			
Intersection Summary						
Average Delay			10.8			
Intersection Capacity Utilization			54.1%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2033 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	226	21	1	244	10	65	10	26	26	5	85
Future Volume (vph)	24	226	21	1	244	10	65	10	26	26	5	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.995			0.965			0.901	
Flt Protected		0.996						0.969			0.989	
Satd. Flow (prot)	0	1756	0	0	1855	0	0	1651	0	0	1562	0
Flt Permitted		0.996						0.969			0.989	
Satd. Flow (perm)	0	1756	0	0	1855	0	0	1651	0	0	1562	0
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			3082.6	
Travel Time (s)		17.8			14.3			30.3			185.0	
Confl. Peds. (#/hr)			6	6					2	2		
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles (%)	17%	5%	13%	0%	2%	0%	3%	13%	17%	14%	20%	6%
Adj. Flow (vph)	35	328	30	1	354	14	94	14	38	38	7	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	393	0	0	369	0	0	146	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	50.5%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

4: Mount Hope Road & Columbia Way

2033 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	226	21	1	244	10	65	10	26	26	5	85
Future Volume (Veh/h)	24	226	21	1	244	10	65	10	26	26	5	85
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	35	328	30	1	354	14	94	14	38	38	7	123
Pedestrians					2		6					
Lane Width (m)					3.6		3.6					
Walking Speed (m/s)					1.2		1.2					
Percent Blockage					0		1					
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	368			364			909	789	351	823	797	361
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368			364			909	789	351	823	797	361
tC, single (s)	4.3			4.1			7.1	6.6	6.4	7.2	6.7	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.1	3.5	3.6	4.2	3.4
p0 queue free %	97			100			52	95	94	85	98	82
cM capacity (veh/h)	1112			1200			198	299	655	246	288	675
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	393	369	146	168								
Volume Left	35	1	94	38								
Volume Right	30	14	38	123								
cSH	1112	1200	252	465								
Volume to Capacity	0.03	0.00*	0.58	0.36								
Queue Length 95th (m)	0.8	0.0	26.5	13.0								
Control Delay (s/veh)	1.0	0.0	37.3	17.0								
Lane LOS	A	A	E	C								
Approach Delay (s/veh)	1.0	0.0	37.3	17.0								
Approach LOS			E	C								
Intersection Summary												
Average Delay				8.1								
Intersection Capacity Utilization				50.5%	ICU Level of Service				A			
Analysis Period (min)				15								

* Value less than 0.01.

Lanes, Volumes, Timings

5: Caledon-King Townline South & Columbia Way

2033 AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	48	272	109	141	647	57
Future Volume (vph)	48	272	109	141	647	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.885				0.989	
Flt Protected	0.993				0.979	
Satd. Flow (prot)	1628	0	0	1789	1850	0
Flt Permitted	0.993				0.979	
Satd. Flow (perm)	1628	0	0	1789	1850	0
Link Speed (k/h)	60				60	60
Link Distance (m)	504.6				1060.6	1231.4
Travel Time (s)	30.3				63.6	73.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	4%	4%	1%	8%
Adj. Flow (vph)	52	296	118	153	703	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	348	0	0	271	765	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	4.8				4.8	4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	15		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	80.4%			ICU Level of Service D		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

5: Caledon-King Townline South & Columbia Way

2033 AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	272	109	141	647	57
Future Volume (Veh/h)	48	272	109	141	647	57
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	296	118	153	703	62
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1123	734	765			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1123	734	765			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	29	86			
cM capacity (veh/h)	197	418	839			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	348	271	765			
Volume Left	52	118	0			
Volume Right	296	0	62			
cSH	358	839	1700			
Volume to Capacity	0.97	0.14	0.45			
Queue Length 95th (m)	86.3	3.9	0.0			
Control Delay (s/veh)	75.1	5.2	0.0			
Lane LOS	F	A				
Approach Delay (s/veh)	75.1	5.2	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		19.9				
Intersection Capacity Utilization		80.4%		ICU Level of Service		D
Analysis Period (min)		15				

Lanes, Volumes, Timings

8: Mount Hope Road & Castlederg Side Road

2033 AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	188	20	21	217	4	10	41	15	26	94	38
Future Volume (vph)	10	188	20	21	217	4	10	41	15	26	94	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.998			0.969			0.968	
Flt Protected		0.998			0.996			0.992			0.992	
Satd. Flow (prot)	0	1747	0	0	1837	0	0	1562	0	0	1759	0
Flt Permitted		0.998			0.996			0.992			0.992	
Satd. Flow (perm)	0	1747	0	0	1837	0	0	1562	0	0	1759	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			3082.6			634.1	
Travel Time (s)		27.2			28.6			185.0			38.0	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	5%	25%	12%	2%	0%	25%	12%	25%	0%	5%	3%
Adj. Flow (vph)	12	224	24	25	258	5	12	49	18	31	112	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	260	0	0	288	0	0	79	0	0	188	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	38.0%											
Analysis Period (min)	15											
	ICU Level of Service A											

2033 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	188	20	21	217	4	10	41	15	26	94	38
Future Volume (vph)	10	188	20	21	217	4	10	41	15	26	94	38
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	12	224	24	25	258	5	12	49	18	31	112	45
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	260	288	79	188								
Volume Left (vph)	12	25	12	31								
Volume Right (vph)	24	5	18	45								
Hadj (s)	0.08	0.06	0.18	-0.05								
Departure Headway (s)	5.2	5.1	5.9	5.4								
Degree Utilization, x	0.37	0.41	0.13	0.28								
Capacity (veh/h)	653	666	532	602								
Control Delay (s/veh)	11.2	11.6	9.7	10.6								
Approach Delay (s/veh)	11.2	11.6	9.7	10.6								
Approach LOS	B	B	A	B								
Intersection Summary												
Delay				11.1								
Level of Service				B								
Intersection Capacity Utilization				38.0%	ICU Level of Service	A						
Analysis Period (min)				15								

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	163	27	21	93	79	91
Future Volume (vph)	163	27	21	93	79	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981				0.928	
Flt Protected				0.991	0.977	
Satd. Flow (prot)	1750	0	0	1779	1690	0
Flt Permitted				0.991	0.977	
Satd. Flow (perm)	1750	0	0	1779	1690	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	22%	5%	6%	3%	1%
Adj. Flow (vph)	190	31	24	108	92	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	221	0	0	132	198	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

9: Forest Gate Avenue & Columbia Way

2033 AM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	163	27	21	93	79	91
Future Volume (Veh/h)	163	27	21	93	79	91
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	190	31	24	108	92	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			221		362	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			221		362	206
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		85	87
cM capacity (veh/h)			1331		624	838
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	221	132	198			
Volume Left	0	24	92			
Volume Right	31	0	106			
cSH	1700	1331	723			
Volume to Capacity	0.13	0.02	0.27			
Queue Length 95th (m)	0.0	0.4	8.9			
Control Delay (s/veh)	0.0	1.5	11.9			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	1.5	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			4.6			
Intersection Capacity Utilization			36.2%	ICU Level of Service		A
Analysis Period (min)			15			

Network Totals

Number of Intersections	7
Total Delay (hr)	29
Stops (#)	3468
Average Speed (km/hr)	42
Total Travel Time (hr)	110
Distance Traveled (km)	4569
Fuel Consumed (l)	587
Fuel Economy (km/l)	7.8
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	39.0

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.6	29.4	26.6	25.0
Average Queue (m)	13.8	13.9	10.4	11.5
95th Queue (m)	22.3	23.0	21.2	19.9
Link Distance (m)	518.7	546.0	3063.8	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	209	0	80	1	645	213	147	426	2
Future Volume (vph)	2	0	1	209	0	80	1	645	213	147	426	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98							
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.968		0.950			0.950			0.950		
Satd. Flow (prot)	0	1756	0	1787	1535	0	902	1863	1599	1770	1845	808
Flt Permitted		0.894		0.756			0.471			0.324		
Satd. Flow (perm)	0	1622	0	1422	1535	0	447	1863	1599	604	1845	808
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			232				224			33
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Adj. Flow (vph)	2	0	1	220	0	84	1	679	224	155	448	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	220	84	0	1	679	224	155	448	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Synchro 12 Report

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Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0	64.0	64.0	64.0	64.0
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%	64.0%	64.0%	64.0%	64.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		57.3	57.3	57.3	57.3	57.3	57.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		20.7		20.7	20.7		66.6	66.6	66.6	66.6	66.6	66.6
Actuated g/C Ratio		0.21		0.21	0.21		0.67	0.67	0.67	0.67	0.67	0.67
v/c Ratio		0.01		0.75	0.17		0.00	0.55	0.20	0.39	0.36	0.00
Control Delay (s/veh)		0.0		52.2	0.7		8.0	12.0	1.6	12.6	9.4	0.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		0.0		52.2	0.7		8.0	12.0	1.6	12.6	9.4	0.0
LOS		A		D	A		A	B	A	B	A	A
Approach Delay (s/veh)				38.0			9.4				10.2	
Approach LOS				D			A				B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 14.4

Intersection LOS: B

Intersection Capacity Utilization 82.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Paradigm Transportation Solutions Limited

Synchro 12 Report

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Queues

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	3	220	84	1	679	224	155	448	2
v/c Ratio	0.01	0.75	0.17	0.00	0.55	0.20	0.39	0.36	0.00
Control Delay (s/veh)	0.0	52.2	0.7	8.0	12.0	1.6	12.6	9.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	52.2	0.7	8.0	12.0	1.6	12.6	9.4	0.0
Queue Length 50th (m)	0.0	42.6	0.0	0.1	66.4	0.0	12.9	37.0	0.0
Queue Length 95th (m)	0.0	62.9	0.0	1.4	121.6	9.4	33.8	69.3	0.0
Internal Link Dist (m)	32.6		222.0		711.7			453.2	
Turn Bay Length (m)		60.0		136.0		300.0	85.0		25.0
Base Capacity (vph)	514	426	622	297	1240	1139	402	1228	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.52	0.14	0.00	0.55	0.20	0.39	0.36	0.00
Intersection Summary									

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 1: Hwy 50 [Peel Regional Road 50] & Columbia Way 2033 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	209	0	80	1	645	213	147	426	2
Future Volume (vph)	2	0	1	209	0	80	1	645	213	147	426	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756		1787	1534		903	1863	1599	1770	1845	808
Flt Permitted		0.89		0.76	1.00		0.47	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)		1623		1422	1534		447	1863	1599	604	1845	808
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	0	1	220	0	84	1	679	224	155	448	2
RTOR Reduction (vph)	0	2	0	0	67	0	0	0	75	0	0	1
Lane Group Flow (vph)	0	1	0	220	17	0	1	679	149	155	448	1
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		20.7		20.7	20.7		66.6	66.6	66.6	66.6	66.6	66.6
Effective Green, g (s)		20.7		20.7	20.7		66.6	66.6	66.6	66.6	66.6	66.6
Actuated g/C Ratio		0.21		0.21	0.21		0.67	0.67	0.67	0.67	0.67	0.67
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		335		294	317		297	1240	1064	402	1228	538
v/s Ratio Prot					0.01			c0.36			0.24	
v/s Ratio Perm		0.00		c0.15			0.00		0.09	0.26		0.00
v/c Ratio		0.00		0.75	0.05		0.00	0.55	0.14	0.39	0.36	0.00
Uniform Delay, d1		31.5		37.2	31.8		5.6	8.8	6.2	7.5	7.4	5.6
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.0		10.0	0.1		0.0	1.7	0.3	2.8	0.8	0.0
Delay (s)		31.5		47.2	31.9		5.6	10.5	6.4	10.3	8.2	5.6
Level of Service		C		D	C		A	B	A	B	A	A
Approach Delay (s/veh)		31.5			42.9			9.5			8.7	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			14.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			82.6%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2033 PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	273	93	60	179	35	40
Future Volume (vph)	273	93	60	179	35	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99			1.00		
Frt	0.966				0.927	
Flt Protected				0.988	0.977	
Satd. Flow (prot)	1790	0	0	1840	1721	0
Flt Permitted				0.839	0.977	
Satd. Flow (perm)	1790	0	0	1559	1721	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29				43	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Adj. Flow (vph)	290	99	64	190	37	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	389	0	0	254	80	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2033 PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	36.0		36.0	36.0	36.0	
Total Split (s)	36.0		36.0	36.0	36.0	
Total Split (%)	50.0%		50.0%	50.0%	50.0%	
Maximum Green (s)	30.0		29.1	29.1	30.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.9	2.9	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.9	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	55.5			54.7	8.5	
Actuated g/C Ratio	0.77			0.76	0.12	
v/c Ratio	0.28			0.21	0.33	
Control Delay (s/veh)	3.9			4.2	20.1	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	3.9			4.2	20.1	
LOS	A			A	C	
Approach Delay (s/veh)	3.9			4.2	20.1	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other

Cycle Length: 72

Actuated Cycle Length: 72

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay (s/veh): 5.8

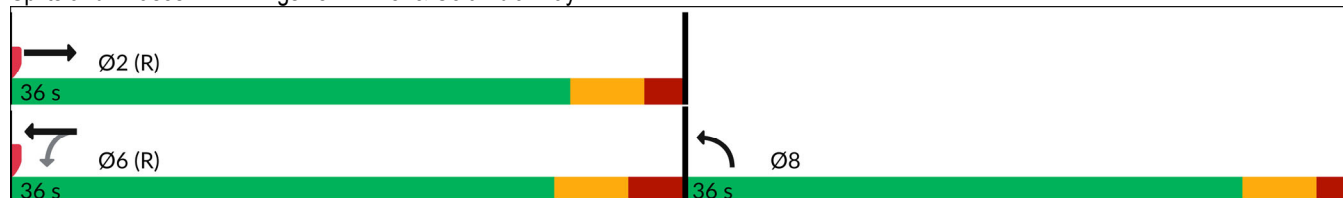
Intersection LOS: A

Intersection Capacity Utilization 55.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2033 PM



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	389	254	80
v/c Ratio	0.28	0.21	0.33
Control Delay (s/veh)	3.9	4.2	20.1
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	3.9	4.2	20.1
Queue Length 50th (m)	14.3	10.2	4.9
Queue Length 95th (m)	27.7	20.7	16.4
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1385	1185	742
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.28	0.21	0.11
Intersection Summary			

HCM Signalized Intersection Capacity Analysis 2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2033 PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	🚗			🚗	🚗	
Traffic Volume (vph)	273	93	60	179	35	40
Future Volume (vph)	273	93	60	179	35	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.9	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.97			1.00	0.93	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1789			1834	1722	
Flt Permitted	1.00			0.84	0.98	
Satd. Flow (perm)	1789			1558	1722	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	290	99	64	190	37	43
RTOR Reduction (vph)	8	0	0	0	39	0
Lane Group Flow (vph)	381	0	0	254	41	0
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Actuated Green, G (s)	53.1			52.2	6.9	
Effective Green, g (s)	53.1			52.2	6.9	
Actuated g/C Ratio	0.74			0.73	0.10	
Clearance Time (s)	6.0			6.9	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1319			1129	165	
v/s Ratio Prot	c0.21				c0.02	
v/s Ratio Perm				0.16		
v/c Ratio	0.29			0.22	0.25	
Uniform Delay, d1	3.2			3.3	30.2	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.6			0.5	0.8	
Delay (s)	3.7			3.7	30.9	
Level of Service	A			A	C	
Approach Delay (s/veh)	3.7			3.7	30.9	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			6.7		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.29			
Actuated Cycle Length (s)			72.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			55.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings
3: Westchester Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2033 PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	247	69	48	189	48	37
Future Volume (vph)	247	69	48	189	48	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.971				0.941	
Flt Protected				0.990	0.973	
Satd. Flow (prot)	1823	0	0	1844	1666	0
Flt Permitted				0.990	0.973	
Satd. Flow (perm)	1823	0	0	1844	1666	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	570.4			296.2	121.1	
Travel Time (s)	41.1			21.3	8.7	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	2%	2%	4%	5%
Adj. Flow (vph)	266	74	52	203	52	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	340	0	0	255	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	44.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

3: Westchester Road & Columbia Way

2033 PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↘↙	
Traffic Volume (veh/h)	247	69	48	189	48	37
Future Volume (Veh/h)	247	69	48	189	48	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	266	74	52	203	52	40
Pedestrians					6	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			346		616	309
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			346		616	309
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		88	94
cM capacity (veh/h)			1207		429	720
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	340	255	92			
Volume Left	0	52	52			
Volume Right	74	0	40			
cSH	1700	1207	521			
Volume to Capacity	0.20	0.04	0.18			
Queue Length 95th (m)	0.0	1.1	5.1			
Control Delay (s/veh)	0.0	2.0	13.4			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	2.0	13.4			
Approach LOS			B			
Intersection Summary						
Average Delay		2.5				
Intersection Capacity Utilization		44.9%	ICU Level of Service	A		
Analysis Period (min)		15				

Lanes, Volumes, Timings
4: Mount Hope Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

2033 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	214	50	20	162	29	23	6	11	16	9	45
Future Volume (vph)	44	214	50	20	162	29	23	6	11	16	9	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.978			0.981			0.961			0.914	
Flt Protected		0.993			0.995			0.972			0.989	
Satd. Flow (prot)	0	1777	0	0	1827	0	0	1725	0	0	1637	0
Flt Permitted		0.993			0.995			0.972			0.989	
Satd. Flow (perm)	0	1777	0	0	1827	0	0	1725	0	0	1637	0
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		296.2			237.5			421.4			3082.6	
Travel Time (s)		17.8			14.3			30.3			221.9	
Confl. Peds. (#/hr)			11	11								
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	4%	0%	2%	0%	0%	20%	0%	0%	8%	6%
Adj. Flow (vph)	47	228	53	21	172	31	24	6	12	17	10	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	0	224	0	0	42	0	0	75	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	37.1%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope) 4: Mount Hope Road & Columbia Way 2033 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	214	50	20	162	29	23	6	11	16	9	45
Future Volume (Veh/h)	44	214	50	20	162	29	23	6	11	16	9	45
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	47	228	53	21	172	31	24	6	12	17	10	48
Pedestrians								11				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	203			292			642	605	266	593	616	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203			292			642	605	266	593	616	188
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.1	3.4
p0 queue free %	97			98			93	98	98	96	97	94
cM capacity (veh/h)	1363			1269			341	366	771	390	375	844
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	328	224	42	75								
Volume Left	47	21	24	17								
Volume Right	53	31	12	48								
cSH	1363	1269	410	590								
Volume to Capacity	0.03	0.02	0.10	0.13								
Queue Length 95th (m)	0.9	0.4	2.7	3.5								
Control Delay (s/veh)	1.4	0.9	14.8	12.0								
Lane LOS	A	A	B	B								
Approach Delay (s/veh)	1.4	0.9	14.8	12.0								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			37.1%		ICU Level of Service				A			
Analysis Period (min)			15									



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	48	134	184	555	320	45
Future Volume (vph)	48	134	184	555	320	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.901				0.983	
Flt Protected	0.987			0.988		
Satd. Flow (prot)	1615	0	0	1863	1820	0
Flt Permitted	0.987			0.988		
Satd. Flow (perm)	1615	0	0	1863	1820	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	12%	2%	0%	1%	3%	0%
Adj. Flow (vph)	50	140	192	578	333	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	190	0	0	770	380	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
5: Caledon-King Townline South & Columbia Way 2033 PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	134	184	555	320	45
Future Volume (Veh/h)	48	134	184	555	320	45
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	50	140	192	578	333	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1319	357	380			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1319	357	380			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	64	80	84			
cM capacity (veh/h)	138	688	1190			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	190	770	380			
Volume Left	50	192	0			
Volume Right	140	0	47			
cSH	336	1190	1700			
Volume to Capacity	0.56	0.16	0.22			
Queue Length 95th (m)	26.4	4.6	0.0			
Control Delay (s/veh)	28.7	3.7	0.0			
Lane LOS	D	A				
Approach Delay (s/veh)	28.7	3.7	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay		6.2				
Intersection Capacity Utilization		79.9%		ICU Level of Service		D
Analysis Period (min)		15				

Lanes, Volumes, Timings
8: Mount Hope Road & Castlederg Side Road

9408 Columbia Way, Caledon (Mount Hope)

2033 PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	347	9	13	241	29	2	49	13	22	34	10
Future Volume (vph)	69	347	9	13	241	29	2	49	13	22	34	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.986			0.972			0.979	
Flt Protected		0.992			0.998			0.999			0.984	
Satd. Flow (prot)	0	1858	0	0	1730	0	0	1739	0	0	1759	0
Flt Permitted		0.992			0.998			0.999			0.984	
Satd. Flow (perm)	0	1858	0	0	1730	0	0	1739	0	0	1759	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			3082.6			634.1	
Travel Time (s)		27.2			28.6			185.0			38.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	14%	9%	9%	0%	0%	8%	0%	6%	4%	0%
Adj. Flow (vph)	73	369	10	14	256	31	2	52	14	23	36	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	452	0	0	301	0	0	68	0	0	70	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	58.1%				ICU Level of Service B							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 8: Mount Hope Road & Castlederg Side Road 2033 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	69	347	9	13	241	29	2	49	13	22	34	10
Future Volume (vph)	69	347	9	13	241	29	2	49	13	22	34	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	73	369	10	14	256	31	2	52	14	23	36	11
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	452	301	68	70								
Volume Left (vph)	73	14	2	23								
Volume Right (vph)	10	31	14	11								
Hadj (s)	0.04	0.08	-0.01	0.04								
Departure Headway (s)	4.8	5.0	5.9	5.9								
Degree Utilization, x	0.60	0.42	0.11	0.11								
Capacity (veh/h)	732	696	527	528								
Control Delay (s/veh)	14.5	11.5	9.6	9.7								
Approach Delay (s/veh)	14.5	11.5	9.6	9.7								
Approach LOS	B	B	A	A								
Intersection Summary												
Delay				12.7								
Level of Service				B								
Intersection Capacity Utilization				58.1%	ICU Level of Service	B						
Analysis Period (min)				15								

Lanes, Volumes, Timings
9: Forest Gate Avenue & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2033 PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	97	79	90	115	41	28
Future Volume (vph)	97	79	90	115	41	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.939				0.945	
Flt Protected				0.979	0.971	
Satd. Flow (prot)	1774	0	0	1850	1743	0
Flt Permitted				0.979	0.971	
Satd. Flow (perm)	1774	0	0	1850	1743	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	110	90	102	131	47	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	0	0	233	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 9: Forest Gate Avenue & Columbia Way 2033 PM

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	97	79	90	115	41	28
Future Volume (Veh/h)	97	79	90	115	41	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	110	90	102	131	47	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			200		490	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			200		490	155
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		91	96
cM capacity (veh/h)			1384		501	896
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	200	233	79			
Volume Left	0	102	47			
Volume Right	90	0	32			
cSH	1700	1384	610			
Volume to Capacity	0.12	0.07	0.13			
Queue Length 95th (m)	0.0	1.9	3.5			
Control Delay (s/veh)	0.0	3.8	11.8			
Lane LOS		A	B			
Approach Delay (s/veh)	0.0	3.8	11.8			
Approach LOS			B			
Intersection Summary						
Average Delay			3.5			
Intersection Capacity Utilization			34.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Network Totals

Number of Intersections	7
Total Delay (hr)	14
Stops (#)	3073
Average Speed (km/hr)	48
Total Travel Time (hr)	92
Distance Traveled (km)	4400
Fuel Consumed (l)	528
Fuel Economy (km/l)	8.3
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	23.0

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	32.5	26.2	20.6	17.0
Average Queue (m)	17.5	16.2	9.2	8.1
95th Queue (m)	26.6	24.4	17.8	13.4
Link Distance (m)	518.7	546.0	3063.8	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Appendix H

Synchro Reports – 2028 Total Operations



Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	3	9	321	2	203	2	292	220	214	466	0
Future Volume (vph)	6	3	9	321	2	203	2	292	220	214	466	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.935			0.852				0.850			
Flt Protected		0.983		0.950			0.950			0.950		
Satd. Flow (prot)	0	1399	0	1736	1500	0	1805	1727	1524	1656	1863	1900
Flt Permitted		0.898		0.742			0.319			0.489		
Satd. Flow (perm)	0	1278	0	1356	1500	0	605	1727	1524	852	1863	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			257				278			
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Adj. Flow (vph)	8	4	11	406	3	257	3	370	278	271	590	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	406	260	0	3	370	278	271	590	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Synchro 12 Report

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Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	45.0	45.0		45.0	45.0		65.0	65.0	65.0	65.0	65.0	65.0
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%	59.1%	59.1%	59.1%	59.1%
Maximum Green (s)	39.0	39.0		39.0	39.0		58.3	58.3	58.3	58.3	58.3	58.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		36.0		36.0	36.0		61.3	61.3	61.3	61.3	61.3	
Actuated g/C Ratio		0.33		0.33	0.33		0.56	0.56	0.56	0.56	0.56	
v/c Ratio		0.05		0.92	0.39		0.01	0.38	0.29	0.57	0.57	
Control Delay (s/veh)		16.0		62.0	5.1		12.5	15.9	2.4	22.9	19.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		16.0		62.0	5.1		12.5	15.9	2.4	22.9	19.3	
LOS		B		E	A		B	B	A	C	B	
Approach Delay (s/veh)		16.0			39.8			10.1			20.4	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 23.2

Intersection LOS: C

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Paradigm Transportation Solutions Limited

Synchro 12 Report

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Queues

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 AM Total

	→	↘	←	↙	↑	↗	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	406	260	3	370	278	271	590
v/c Ratio	0.05	0.92	0.39	0.01	0.38	0.29	0.57	0.57
Control Delay (s/veh)	16.0	62.0	5.1	12.5	15.9	2.4	22.9	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.0	62.0	5.1	12.5	15.9	2.4	22.9	19.3
Queue Length 50th (m)	2.6	86.2	0.4	0.3	51.2	0.0	43.0	88.9
Queue Length 95th (m)	9.5	107.2	10.3	1.6	63.3	7.3	60.3	102.2
Internal Link Dist (m)	32.6		222.0		711.7			453.2
Turn Bay Length (m)		60.0		136.0		300.0	85.0	
Base Capacity (vph)	460	480	697	337	962	972	474	1038
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.85	0.37	0.01	0.38	0.29	0.57	0.57
Intersection Summary								

HCM Signalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way 2028 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	3	9	321	2	203	2	292	220	214	466	0
Future Volume (vph)	6	3	9	321	2	203	2	292	220	214	466	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.94		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1400		1736	1500		1803	1727	1524	1656	1863	
Flt Permitted		0.90		0.74	1.00		0.32	1.00	1.00	0.49	1.00	
Satd. Flow (perm)		1279		1356	1500		605	1727	1524	853	1863	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	8	4	11	406	3	257	3	370	278	271	590	0
RTOR Reduction (vph)	0	7	0	0	173	0	0	0	123	0	0	0
Lane Group Flow (vph)	0	16	0	406	87	0	3	370	155	271	590	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2				2
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		36.0		36.0	36.0		61.3	61.3	61.3	61.3	61.3	
Effective Green, g (s)		36.0		36.0	36.0		61.3	61.3	61.3	61.3	61.3	
Actuated g/C Ratio		0.33		0.33	0.33		0.56	0.56	0.56	0.56	0.56	
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		418		443	490		337	962	849	475	1038	
v/s Ratio Prot					0.06			0.21			0.32	
v/s Ratio Perm		0.01		c0.30			0.00		0.10	c0.32		
v/c Ratio		0.04		0.92	0.18		0.01	0.38	0.18	0.57	0.57	
Uniform Delay, d1		25.2		35.6	26.4		10.8	13.7	12.0	15.8	15.8	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		23.5	0.2		0.0	1.2	0.5	4.9	2.3	
Delay (s)		25.2		59.0	26.6		10.9	14.9	12.5	20.7	18.0	
Level of Service		C		E	C		B	B	B	C	B	
Approach Delay (s/veh)		25.2			46.4			13.8			18.9	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			25.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			81.8%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	377	50	105	382	60	82
Future Volume (vph)	377	50	105	382	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00	0.96	
Frt	0.984				0.922	
Flt Protected				0.989	0.979	
Satd. Flow (prot)	1716	0	0	1790	1598	0
Flt Permitted				0.674	0.979	
Satd. Flow (perm)	1716	0	0	1219	1562	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	13				63	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		2	2		16	6
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Adj. Flow (vph)	563	75	157	570	90	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	638	0	0	727	212	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	
Permitted Phases			6			

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	4	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	70.0		70.0	70.0	30.0	
Total Split (s)	70.0		70.0	70.0	30.0	
Total Split (%)	70.0%		70.0%	70.0%	30.0%	
Maximum Green (s)	64.0		64.0	64.0	23.1	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.0	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
v/c Ratio	0.51			0.83	0.73	
Control Delay (s/veh)	8.7			21.7	41.8	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	8.7			21.7	41.8	
LOS	A			C	D	
Approach Delay (s/veh)	8.7			21.7	41.8	
Approach LOS	A			C	D	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 19.2

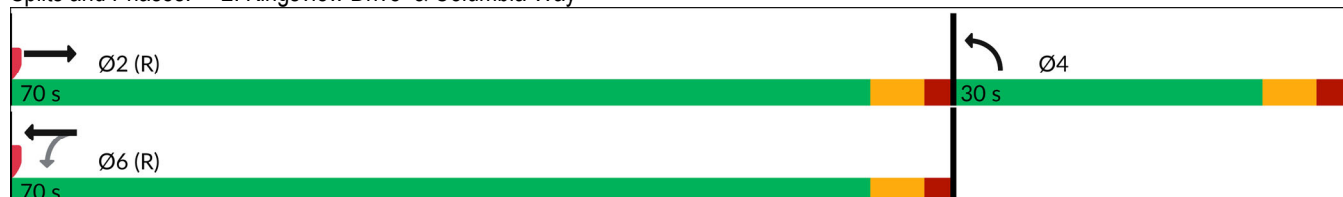
Intersection LOS: B

Intersection Capacity Utilization 74.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues
2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM Total

	→	←	↶
Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	638	727	212
v/c Ratio	0.51	0.83	0.73
Control Delay (s/veh)	8.7	21.7	41.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	8.7	21.7	41.8
Queue Length 50th (m)	50.9	90.9	30.5
Queue Length 95th (m)	60.1	97.4	33.6
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1241	879	417
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.51	0.83	0.51
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2: Kingsview Drive & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

2028 AM Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	👉			👈	👈	👉
Traffic Volume (vph)	377	50	105	382	60	82
Future Volume (vph)	377	50	105	382	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.9	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	1.00			1.00	0.98	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.98			1.00	0.92	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1717			1789	1599	
Flt Permitted	1.00			0.67	0.98	
Satd. Flow (perm)	1717			1220	1599	
Peak-hour factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Adj. Flow (vph)	563	75	157	570	90	122
RTOR Reduction (vph)	4	0	0	0	54	0
Lane Group Flow (vph)	634	0	0	727	158	0
Confl. Peds. (#/hr)		2	2		16	6
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	
Permitted Phases			6			
Actuated Green, G (s)	72.1			72.1	15.0	
Effective Green, g (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
Clearance Time (s)	6.0			6.0	6.9	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1237			879	239	
v/s Ratio Prot	0.37				c0.10	
v/s Ratio Perm				c0.60		
v/c Ratio	0.51			0.83	0.66	
Uniform Delay, d1	6.2			9.6	40.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.5			8.8	6.8	
Delay (s)	7.7			18.4	46.9	
Level of Service	A			B	D	
Approach Delay (s/veh)	7.7			18.4	46.9	
Approach LOS	A			B	D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			17.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			74.0%		ICU Level of Service	D
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)	15	236	62	62	298	20	95	0	71	131	0	54
Future Volume (vph)	15	236	62	62	298	20	95	0	71	131	0	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.995			0.942			0.960	
Flt Protected		0.998			0.992			0.972			0.966	
Satd. Flow (prot)	0	1727	0	0	1821	0	0	1644	0	0	1727	0
Flt Permitted		0.998			0.992			0.972			0.966	
Satd. Flow (perm)	0	1727	0	0	1821	0	0	1644	0	0	1727	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		570.4			296.2			121.1			116.7	
Travel Time (s)		41.1			21.3			8.7			8.4	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.92	0.65	0.65	0.65	0.65	0.92	0.65	0.92	0.65	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	7%	8%	2%	2%	2%	2%	11%	2%	2%	2%
Adj. Flow (vph)	16	363	95	95	458	22	146	0	109	142	0	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	474	0	0	575	0	0	255	0	0	201	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	61.4%						ICU Level of Service B					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope) 3: Westchester Road/Proposed Street A & Columbia Way 2028 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	236	62	62	298	20	95	0	71	131	0	54
Future Volume (Veh/h)	15	236	62	62	298	20	95	0	71	131	0	54
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.65	0.65	0.65	0.65	0.92	0.65	0.92	0.65	0.92	0.92	0.92
Hourly flow rate (vph)	16	363	95	95	458	22	146	0	109	142	0	59
Pedestrians								3				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	480			461			1164	1116	414	1211	1152	469
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480			461			1164	1116	414	1211	1152	469
tC, single (s)	4.1			4.2			7.1	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	99			91			0	100	82	0	100	90
cM capacity (veh/h)	1082			1067			142	186	618	121	177	594
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	474	575	255	201								
Volume Left	16	95	146	142								
Volume Right	95	22	109	59								
cSH	1082	1067	211	157								
Volume to Capacity	0.01	0.09	1.21	1.28								
Queue Length 95th (m)	0.4	2.3	103.0	94.5								
Control Delay (s/veh)	0.4	2.3	175.2	220.4								
Lane LOS	A	A	F	F								
Approach Delay (s/veh)	0.4	2.3	175.2	220.4								
Approach LOS			F	F								
Intersection Summary												
Average Delay			60.1									
Intersection Capacity Utilization			61.4%		ICU Level of Service				B			
Analysis Period (min)			15									

Lanes, Volumes, Timings
4: Mount Hope Road & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)

2028 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	339	19	1	237	23	59	9	23	145	4	92
Future Volume (vph)	73	339	19	1	237	23	59	9	23	145	4	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.988			0.966			0.949	
Flt Protected		0.992						0.968			0.971	
Satd. Flow (prot)	0	1745	0	0	1844	0	0	1653	0	0	1577	0
Flt Permitted		0.992						0.968			0.971	
Satd. Flow (perm)	0	1745	0	0	1844	0	0	1653	0	0	1577	0
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			267.1	
Travel Time (s)		17.8			14.3			30.3			16.0	
Confl. Peds. (#/hr)			6	6					2	2		
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles (%)	17%	5%	13%	0%	2%	0%	3%	13%	17%	14%	20%	6%
Adj. Flow (vph)	106	491	28	1	343	33	86	13	33	210	6	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	625	0	0	377	0	0	132	0	0	349	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	62.9%				ICU Level of Service B							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
4: Mount Hope Road & Columbia Way 2028 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	339	19	1	237	23	59	9	23	145	4	92
Future Volume (Veh/h)	73	339	19	1	237	23	59	9	23	145	4	92
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	106	491	28	1	343	33	86	13	33	210	6	133
Pedestrians					2			6				
Lane Width (m)					3.6			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	376			525			1221	1101	513	1120	1099	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	376			525			1221	1101	513	1120	1099	360
tC, single (s)	4.3			4.1			7.1	6.6	6.4	7.2	6.7	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.1	3.5	3.6	4.2	3.4
p0 queue free %	90			100			23	93	94	0	97	80
cM capacity (veh/h)	1105			1047			112	182	529	142	177	676
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	625	377	132	349								
Volume Left	106	1	86	210								
Volume Right	28	33	33	133								
cSH	1105	1047	147	204								
Volume to Capacity	0.10	0.00*	0.90	1.71								
Queue Length 95th (m)	2.5	0.0	49.5	188.9								
Control Delay (s/veh)	2.4	0.0	109.6	378.6								
Lane LOS	A	A	F	F								
Approach Delay (s/veh)	2.4	0.0	109.6	378.6								
Approach LOS			F	F								
Intersection Summary												
Average Delay			99.9									
Intersection Capacity Utilization			62.9%		ICU Level of Service				B			
Analysis Period (min)			15									

* Value less than 0.01.

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	491	129	128	586	52
Future Volume (vph)	56	491	129	128	586	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879				0.989	
Flt Protected	0.995			0.976		
Satd. Flow (prot)	1618	0	0	1783	1850	0
Flt Permitted	0.995			0.976		
Satd. Flow (perm)	1618	0	0	1783	1850	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	4%	4%	1%	8%
Adj. Flow (vph)	61	534	140	139	637	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	595	0	0	279	694	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	91.3%			ICU Level of Service F		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
5: Caledon-King Townline South & Columbia Way 2028 AM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	491	129	128	586	52
Future Volume (Veh/h)	56	491	129	128	586	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	534	140	139	637	57
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1085	666	694			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1085	666	694			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	70	0	84			
cM capacity (veh/h)	204	458	892			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	595	279	694			
Volume Left	61	140	0			
Volume Right	534	0	57			
cSH	406	892	1700			
Volume to Capacity	1.46	0.16	0.41			
Queue Length 95th (m)	246.7	4.4	0.0			
Control Delay (s/veh)	248.1	5.7	0.0			
Lane LOS	F	A				
Approach Delay (s/veh)	248.1	5.7	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		95.2				
Intersection Capacity Utilization		91.3%		ICU Level of Service		F
Analysis Period (min)		15				

Lanes, Volumes, Timings
6: Mount Hope Road & Proposed Street C

9408 Columbia Way, Caledon (Mount Hope)
2028 AM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	34	7	70	165	30
Future Volume (vph)	10	34	7	70	165	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.896				0.979	
Flt Protected	0.989			0.995		
Satd. Flow (prot)	1651	0	0	1853	1824	0
Flt Permitted	0.989			0.995		
Satd. Flow (perm)	1651	0	0	1853	1824	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	124.1			186.7	2628.7	
Travel Time (s)	8.9			11.2	157.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	37	8	76	179	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	84	212	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 20.5%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
6: Mount Hope Road & Proposed Street C 2028 AM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	34	7	70	165	30
Future Volume (Veh/h)	10	34	7	70	165	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	37	8	76	179	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	288	196	212			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288	196	212			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	96	99			
cM capacity (veh/h)	699	846	1358			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	48	84	212			
Volume Left	11	8	0			
Volume Right	37	0	33			
cSH	807	1358	1700			
Volume to Capacity	0.06	0.00*	0.12			
Queue Length 95th (m)	1.5	0.1	0.0			
Control Delay (s/veh)	9.7	0.8	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.7	0.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		1.5				
Intersection Capacity Utilization		20.5%		ICU Level of Service		A
Analysis Period (min)		15				
* Value less than 0.01.						

Lanes, Volumes, Timings
7: Mount Hope Road & Proposed Street B

9408 Columbia Way, Caledon (Mount Hope)
2028 AM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	98	58	67	160	39
Future Volume (vph)	10	98	58	67	160	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878	0.974				
Flt Protected	0.995	0.977				
Satd. Flow (prot)	1627	0	0	1820	1814	0
Flt Permitted	0.995	0.977				
Satd. Flow (perm)	1627	0	0	1820	1814	0
Link Speed (k/h)	50	60				
Link Distance (m)	134.0	267.1				
Travel Time (s)	9.6	11.2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	107	63	73	174	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	136	216	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	0.0				
Link Offset(m)	0.0	0.0				
Crosswalk Width(m)	4.8	4.8				
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	15		
Sign Control	Stop	Free			Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 34.1%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 7: Mount Hope Road & Proposed Street B 2028 AM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	98	58	67	160	39
Future Volume (Veh/h)	10	98	58	67	160	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	107	63	73	174	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	394	195	216			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	394	195	216			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	87	95			
cM capacity (veh/h)	582	846	1354			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	118	136	216			
Volume Left	11	63	0			
Volume Right	107	0	42			
cSH	812	1354	1700			
Volume to Capacity	0.15	0.05	0.13			
Queue Length 95th (m)	4.1	1.2	0.0			
Control Delay (s/veh)	10.2	3.8	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	10.2	3.8	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.7				
Intersection Capacity Utilization		34.1%		ICU Level of Service		A
Analysis Period (min)		15				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	170	48	24	197	3	12	52	16	23	124	34
Future Volume (vph)	9	170	48	24	197	3	12	52	16	23	124	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.998			0.973			0.975	
Flt Protected		0.998			0.995			0.993			0.994	
Satd. Flow (prot)	0	1681	0	0	1831	0	0	1576	0	0	1771	0
Flt Permitted		0.998			0.995			0.993			0.994	
Satd. Flow (perm)	0	1681	0	0	1831	0	0	1576	0	0	1771	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			2628.7			634.1	
Travel Time (s)		27.2			28.6			157.7			38.0	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	5%	25%	12%	2%	0%	25%	12%	25%	0%	5%	3%
Adj. Flow (vph)	11	202	57	29	235	4	14	62	19	27	148	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	270	0	0	268	0	0	95	0	0	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	39.6%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 8: Mount Hope Road & Castlederg Side Road 2028 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	170	48	24	197	3	12	52	16	23	124	34
Future Volume (vph)	9	170	48	24	197	3	12	52	16	23	124	34
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	11	202	57	29	235	4	14	62	19	27	148	40
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	270	268	95	215								
Volume Left (vph)	11	29	14	27								
Volume Right (vph)	57	4	19	40								
Hadj (s)	0.04	0.06	0.19	-0.02								
Departure Headway (s)	5.3	5.3	5.9	5.5								
Degree Utilization, x	0.40	0.39	0.16	0.33								
Capacity (veh/h)	639	638	526	597								
Control Delay (s/veh)	11.7	11.7	10.1	11.2								
Approach Delay (s/veh)	11.7	11.7	10.1	11.2								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay				11.4								
Level of Service				B								
Intersection Capacity Utilization				39.6%	ICU Level of Service		A					
Analysis Period (min)				15								

Lanes, Volumes, Timings
9: Forest Gate Avenue & Columbia Way

9408 Columbia Way, Caledon (Mount Hope)
2028 AM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	404	27	21	115	79	91
Future Volume (vph)	404	27	21	115	79	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992				0.928	
Flt Protected				0.992	0.977	
Satd. Flow (prot)	1793	0	0	1781	1690	0
Flt Permitted				0.992	0.977	
Satd. Flow (perm)	1793	0	0	1781	1690	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	22%	5%	6%	3%	1%
Adj. Flow (vph)	470	31	24	134	92	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	501	0	0	158	198	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	40.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 9408 Columbia Way, Caledon (Mount Hope)
 9: Forest Gate Avenue & Columbia Way 2028 AM Total

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	404	27	21	115	79	91
Future Volume (Veh/h)	404	27	21	115	79	91
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	470	31	24	134	92	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			501		668	486
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			501		668	486
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		78	82
cM capacity (veh/h)			1048		412	584
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	501	158	198			
Volume Left	0	24	92			
Volume Right	31	0	106			
cSH	1700	1048	489			
Volume to Capacity	0.29	0.02	0.40			
Queue Length 95th (m)	0.0	0.6	15.5			
Control Delay (s/veh)	0.0	1.5	17.3			
Lane LOS		A	C			
Approach Delay (s/veh)	0.0	1.5	17.3			
Approach LOS			C			
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			40.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Network Totals

Number of Intersections	9
Total Delay (hr)	106
Stops (#)	4468
Average Speed (km/hr)	27
Total Travel Time (hr)	200
Distance Traveled (km)	5313
Fuel Consumed (l)	895
Fuel Economy (km/l)	5.9
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	118.9

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	36.3	25.1	26.6	24.0
Average Queue (m)	16.5	13.0	12.6	12.5
95th Queue (m)	28.5	20.3	22.9	20.2
Link Distance (m)	518.7	546.0	2609.0	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	205	0	101	1	607	243	184	385	2
Future Volume (vph)	2	0	1	205	0	101	1	607	243	184	385	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98							
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.968		0.950			0.950			0.950		
Satd. Flow (prot)	0	1756	0	1787	1535	0	902	1863	1599	1770	1845	808
Flt Permitted		0.888		0.756			0.501			0.350		
Satd. Flow (perm)	0	1611	0	1422	1535	0	476	1863	1599	652	1845	808
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			255				256			33
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Adj. Flow (vph)	2	0	1	216	0	106	1	639	256	194	405	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	216	106	0	1	639	256	194	405	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Synchro 12 Report

Page 1

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0	64.0	64.0	64.0	64.0
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%	64.0%	64.0%	64.0%	64.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		57.3	57.3	57.3	57.3	57.3	57.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		20.4		20.4	20.4		66.9	66.9	66.9	66.9	66.9	66.9
Actuated g/C Ratio		0.20		0.20	0.20		0.67	0.67	0.67	0.67	0.67	0.67
v/c Ratio		0.01		0.74	0.21		0.00	0.51	0.22	0.45	0.33	0.00
Control Delay (s/veh)		0.0		52.2	0.9		8.0	11.2	1.6	13.4	8.9	0.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		0.0		52.2	0.9		8.0	11.2	1.6	13.4	8.9	0.0
LOS		A		D	A		A	B	A	B	A	A
Approach Delay (s/veh)					35.3			8.5			10.3	
Approach LOS					D			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 13.8

Intersection LOS: B

Intersection Capacity Utilization 80.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Synchro 12 Report

Page 2

Queues

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 PM Total

	→	↘	←	↙	↑	↗	↘	↓	↙
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	3	216	106	1	639	256	194	405	2
v/c Ratio	0.01	0.74	0.21	0.00	0.51	0.22	0.45	0.33	0.00
Control Delay (s/veh)	0.0	52.2	0.9	8.0	11.2	1.6	13.4	8.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	52.2	0.9	8.0	11.2	1.6	13.4	8.9	0.0
Queue Length 50th (m)	0.0	41.9	0.0	0.1	59.7	0.0	17.0	32.1	0.0
Queue Length 95th (m)	0.0	62.2	0.0	1.4	109.8	9.8	43.1	60.9	0.0
Internal Link Dist (m)	32.6		222.0		711.7			453.2	
Turn Bay Length (m)		60.0		136.0		300.0	85.0		25.0
Base Capacity (vph)	511	426	639	318	1245	1154	435	1233	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.51	0.17	0.00	0.51	0.22	0.45	0.33	0.00
Intersection Summary									

HCM Signalized Intersection Capacity Analysis

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2028 PM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	2	0	1	205	0	101	1	607	243	184	385	2
Future Volume (vph)	2	0	1	205	0	101	1	607	243	184	385	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756		1787	1534		903	1863	1599	1770	1845	808
Flt Permitted		0.89		0.76	1.00		0.50	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)		1611		1422	1534		476	1863	1599	651	1845	808
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	0	1	216	0	106	1	639	256	194	405	2
RTOR Reduction (vph)	0	2	0	0	84	0	0	0	85	0	0	1
Lane Group Flow (vph)	0	1	0	216	22	0	1	639	171	194	405	1
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		20.4		20.4	20.4		66.9	66.9	66.9	66.9	66.9	66.9
Effective Green, g (s)		20.4		20.4	20.4		66.9	66.9	66.9	66.9	66.9	66.9
Actuated g/C Ratio		0.20		0.20	0.20		0.67	0.67	0.67	0.67	0.67	0.67
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		328		290	312		318	1246	1069	435	1234	540
v/s Ratio Prot					0.01			c0.34			0.22	
v/s Ratio Perm		0.00		c0.15			0.00		0.11	0.30		0.00
v/c Ratio		0.00		0.74	0.07		0.00	0.51	0.16	0.45	0.33	0.00
Uniform Delay, d1		31.7		37.4	32.1		5.5	8.3	6.1	7.8	7.0	5.5
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.0		9.9	0.1		0.0	1.5	0.3	3.3	0.7	0.0
Delay (s)		31.7		47.3	32.2		5.5	9.8	6.5	11.1	7.7	5.5
Level of Service		C		D	C		A	A	A	B	A	A
Approach Delay (s/veh)		31.7			42.3			8.9			8.8	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			14.8			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			80.3%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

2028 PM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	290	99	66	254	42	44
Future Volume (vph)	290	99	66	254	42	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99			1.00		
Frt	0.966				0.931	
Flt Protected				0.990	0.976	
Satd. Flow (prot)	1790	0	0	1844	1726	0
Flt Permitted				0.853	0.976	
Satd. Flow (perm)	1790	0	0	1586	1726	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29				47	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Adj. Flow (vph)	309	105	70	270	45	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	414	0	0	340	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	

Lanes, Volumes, Timings

2: Kingsview Drive & Columbia Way

2028 PM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	36.0		36.0	36.0	36.0	
Total Split (s)	36.0		36.0	36.0	36.0	
Total Split (%)	50.0%		50.0%	50.0%	50.0%	
Maximum Green (s)	30.0		29.1	29.1	30.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.9	2.9	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.9	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	55.2			54.5	8.8	
Actuated g/C Ratio	0.77			0.76	0.12	
v/c Ratio	0.30			0.28	0.37	
Control Delay (s/veh)	4.1			4.7	20.7	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	4.1			4.7	20.7	
LOS	A			A	C	
Approach Delay (s/veh)	4.1			4.7	20.7	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other

Cycle Length: 72

Actuated Cycle Length: 72

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay (s/veh): 6.2

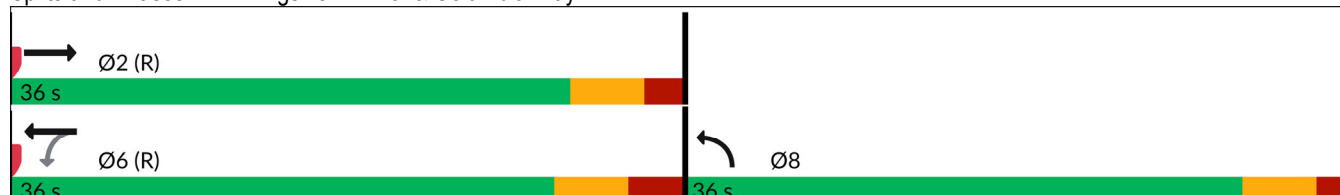
Intersection LOS: A

Intersection Capacity Utilization 60.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



03/02/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 6

Queues

2: Kingsview Drive & Columbia Way

2028 PM Total



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	414	340	92
v/c Ratio	0.30	0.28	0.37
Control Delay (s/veh)	4.1	4.7	20.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	4.1	4.7	20.7
Queue Length 50th (m)	15.5	14.6	6.0
Queue Length 95th (m)	31.2	29.4	18.2
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1380	1200	746
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.30	0.28	0.12
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2: Kingsview Drive & Columbia Way

2028 PM Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	👉			👈	👈	
Traffic Volume (vph)	290	99	66	254	42	44
Future Volume (vph)	290	99	66	254	42	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.9	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.97			1.00	0.93	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1790			1840	1727	
Flt Permitted	1.00			0.85	0.98	
Satd. Flow (perm)	1790			1586	1727	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	309	105	70	270	45	47
RTOR Reduction (vph)	8	0	0	0	42	0
Lane Group Flow (vph)	406	0	0	340	50	0
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Actuated Green, G (s)	52.8			51.9	7.2	
Effective Green, g (s)	52.8			51.9	7.2	
Actuated g/C Ratio	0.73			0.72	0.10	
Clearance Time (s)	6.0			6.9	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1312			1143	172	
v/s Ratio Prot	c0.23				c0.03	
v/s Ratio Perm				0.21		
v/c Ratio	0.31			0.30	0.29	
Uniform Delay, d1	3.3			3.6	30.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.6			0.7	0.9	
Delay (s)	3.9			4.2	31.0	
Level of Service	A			A	C	
Approach Delay (s/veh)	3.9			4.2	31.0	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			7.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.31			
Actuated Cycle Length (s)			72.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			60.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

3: Westchester Road/Proposed Street A & Columbia Way

2028 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	193	76	53	182	168	54	0	41	66	0	81
Future Volume (vph)	73	193	76	53	182	168	54	0	41	66	0	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.970			0.943			0.942			0.926	
Flt Protected		0.989			0.994			0.972			0.978	
Satd. Flow (prot)	0	1797	0	0	1746	0	0	1666	0	0	1687	0
Flt Permitted		0.989			0.994			0.972			0.978	
Satd. Flow (perm)	0	1797	0	0	1746	0	0	1666	0	0	1687	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		570.4			296.2			121.1			116.7	
Travel Time (s)		41.1			21.3			8.7			8.4	
Confl. Peds. (#/hr)			6	6								
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%	4%	2%	5%	2%	2%	2%
Adj. Flow (vph)	79	208	82	57	196	183	58	0	44	72	0	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	369	0	0	436	0	0	102	0	0	160	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	46.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 3: Westchester Road/Proposed Street A & Columbia Way

2028 PM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	193	76	53	182	168	54	0	41	66	0	81
Future Volume (Veh/h)	73	193	76	53	182	168	54	0	41	66	0	81
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Hourly flow rate (vph)	79	208	82	57	196	183	58	0	44	72	0	88
Pedestrians								6				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	379			296			903	906	255	853	856	288
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			296			903	906	255	853	856	288
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			95			72	100	94	70	100	88
cM capacity (veh/h)	1179			1259			206	245	773	241	262	752
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	369	436	102	160								
Volume Left	79	57	58	72								
Volume Right	82	183	44	88								
cSH	1179	1259	301	384								
Volume to Capacity	0.07	0.05	0.34	0.42								
Queue Length 95th (m)	1.7	1.1	11.6	16.0								
Control Delay (s/veh)	2.3	1.5	23.0	20.9								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	2.3	1.5	23.0	20.9								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.7									
Intersection Capacity Utilization			46.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2028 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	210	45	18	316	142	21	6	10	37	8	49
Future Volume (vph)	58	210	45	18	316	142	21	6	10	37	8	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.960			0.962			0.930	
Flt Protected		0.991			0.998			0.973			0.981	
Satd. Flow (prot)	0	1779	0	0	1796	0	0	1725	0	0	1669	0
Flt Permitted		0.991			0.998			0.973			0.981	
Satd. Flow (perm)	0	1779	0	0	1796	0	0	1725	0	0	1669	0
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			267.1	
Travel Time (s)		17.8			14.3			30.3			16.0	
Confl. Peds. (#/hr)			11	11								
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	4%	0%	2%	0%	0%	20%	0%	0%	8%	6%
Adj. Flow (vph)	62	223	48	19	336	151	22	6	11	39	9	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	333	0	0	506	0	0	39	0	0	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	52.7%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

4: Mount Hope Road & Columbia Way

2028 PM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	210	45	18	316	142	21	6	10	37	8	49
Future Volume (Veh/h)	58	210	45	18	316	142	21	6	10	37	8	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	62	223	48	19	336	151	22	6	11	39	9	52
Pedestrians								11				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	487			282			888	907	258	835	856	412
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	487			282			888	907	258	835	856	412
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.1	3.4
p0 queue free %	94			99			90	97	99	85	97	92
cM capacity (veh/h)	1071			1280			222	237	778	263	266	632
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	333	506	39	100								
Volume Left	62	19	22	39								
Volume Right	48	151	11	52								
cSH	1071	1280	281	378								
Volume to Capacity	0.06	0.01	0.14	0.26								
Queue Length 95th (m)	1.5	0.4	3.8	8.4								
Control Delay (s/veh)	2.1	0.5	19.9	17.9								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	2.1	0.5	19.9	17.9								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			52.7%		ICU Level of Service					A		
Analysis Period (min)			15									

Lanes, Volumes, Timings

5: Caledon-King Townline South & Columbia Way

2028 PM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	118	178	502	294	314
Future Volume (vph)	88	118	178	502	294	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923				0.930	
Flt Protected	0.979				0.987	
Satd. Flow (prot)	1615	0	0	1862	1742	0
Flt Permitted	0.979				0.987	
Satd. Flow (perm)	1615	0	0	1862	1742	0
Link Speed (k/h)	60				60	60
Link Distance (m)	504.6				1060.6	1231.4
Travel Time (s)	30.3				63.6	73.9
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	12%	2%	0%	1%	3%	0%
Adj. Flow (vph)	92	123	185	523	306	327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	215	0	0	708	633	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	4.8				4.8	4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	15		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	93.1%			ICU Level of Service F		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 5: Caledon-King Townline South & Columbia Way

2028 PM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	88	118	178	502	294	314
Future Volume (Veh/h)	88	118	178	502	294	314
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	92	123	185	523	306	327
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1363	470	633			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1363	470	633			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	27	79	81			
cM capacity (veh/h)	125	594	960			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	215	708	633			
Volume Left	92	185	0			
Volume Right	123	0	327			
cSH	228	960	1700			
Volume to Capacity	0.94	0.19	0.37			
Queue Length 95th (m)	65.5	5.7	0.0			
Control Delay (s/veh)	90.5	4.5	0.0			
Lane LOS	F	A				
Approach Delay (s/veh)	90.5	4.5	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		14.6				
Intersection Capacity Utilization		93.1%		ICU Level of Service		F
Analysis Period (min)		15				

Lanes, Volumes, Timings

6: Mount Hope Road & Proposed Street C

2028 PM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	87	20	35	150	84	18
Future Volume (vph)	87	20	35	150	84	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.975				0.976	
Flt Protected	0.961			0.991		
Satd. Flow (prot)	1745	0	0	1846	1818	0
Flt Permitted	0.961			0.991		
Satd. Flow (perm)	1745	0	0	1846	1818	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	124.1			186.7	2628.7	
Travel Time (s)	8.9			11.2	157.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	22	38	163	91	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	0	201	111	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

6: Mount Hope Road & Proposed Street C

2028 PM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			T	T	L
Traffic Volume (veh/h)	87	20	35	150	84	18
Future Volume (Veh/h)	87	20	35	150	84	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	22	38	163	91	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	340	101	111			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	340	101	111			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	98	97			
cM capacity (veh/h)	639	954	1479			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	117	201	111			
Volume Left	95	38	0			
Volume Right	22	0	20			
cSH	681	1479	1700			
Volume to Capacity	0.17	0.03	0.07			
Queue Length 95th (m)	4.9	0.6	0.0			
Control Delay (s/veh)	11.4	1.6	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.4	1.6	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			29.2%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

7: Mount Hope Road & Proposed Street B

2028 PM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	76	19	97	109	75	29
Future Volume (vph)	76	19	97	109	75	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973				0.962	
Flt Protected	0.962	0.977				
Satd. Flow (prot)	1744	0	0	1820	1792	0
Flt Permitted	0.962	0.977				
Satd. Flow (perm)	1744	0	0	1820	1792	0
Link Speed (k/h)	50	60			60	
Link Distance (m)	134.0	267.1			186.7	
Travel Time (s)	9.6	16.0			11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	21	105	118	82	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	0	223	114	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	0.0			0.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop	Free			Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 29.8%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis

7: Mount Hope Road & Proposed Street B

2028 PM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	19	97	109	75	29
Future Volume (Veh/h)	76	19	97	109	75	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	21	105	118	82	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	426	98	114			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	426	98	114			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	98	93			
cM capacity (veh/h)	544	958	1475			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	104	223	114			
Volume Left	83	105	0			
Volume Right	21	0	32			
cSH	596	1475	1700			
Volume to Capacity	0.17	0.07	0.07			
Queue Length 95th (m)	5.0	1.8	0.0			
Control Delay (s/veh)	12.3	3.9	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	12.3	3.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			4.9			
Intersection Capacity Utilization			29.8%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

8: Mount Hope Road & Castlederg Side Road

2028 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	315	22	23	219	26	55	153	15	20	45	9
Future Volume (vph)	63	315	22	23	219	26	55	153	15	20	45	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.987			0.991			0.983	
Flt Protected		0.992			0.996			0.988			0.987	
Satd. Flow (prot)	0	1843	0	0	1728	0	0	1764	0	0	1772	0
Flt Permitted		0.992			0.996			0.988			0.987	
Satd. Flow (perm)	0	1843	0	0	1728	0	0	1764	0	0	1772	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			2628.7			634.1	
Travel Time (s)		27.2			28.6			157.7			38.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	14%	9%	9%	0%	0%	8%	0%	6%	4%	0%
Adj. Flow (vph)	67	335	23	24	233	28	59	163	16	21	48	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	425	0	0	285	0	0	238	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	56.9%						ICU Level of Service B					
Analysis Period (min)	15											

2028 PM Total

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Sign Control		Stop			Stop			Stop			Stop									
Traffic Volume (vph)	63	315	22	23	219	26	55	153	15	20	45	9								
Future Volume (vph)	63	315	22	23	219	26	55	153	15	20	45	9								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94								
Hourly flow rate (vph)	67	335	23	24	233	28	59	163	16	21	48	10								
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total (vph)	425	285	238	79																
Volume Left (vph)	67	24	59	21																
Volume Right (vph)	23	28	16	10																
Hadj (s)	0.03	0.10	0.10	0.05																
Departure Headway (s)	5.4	5.7	6.1	6.5																
Degree Utilization, x	0.64	0.45	0.41	0.14																
Capacity (veh/h)	632	589	529	454																
Control Delay (s/veh)	17.7	13.4	13.3	10.6																
Approach Delay (s/veh)	17.7	13.4	13.3	10.6																
Approach LOS	C	B	B	B																
Intersection Summary																				
Delay			14.9																	
Level of Service			B																	
Intersection Capacity Utilization			56.9%	ICU Level of Service				B												
Analysis Period (min)			15																	

Lanes, Volumes, Timings

9: Forest Gate Avenue & Columbia Way

2028 PM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	127	87	99	389	45	31
Future Volume (vph)	127	87	99	389	45	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.945				0.945	
Flt Protected				0.990	0.971	
Satd. Flow (prot)	1785	0	0	1866	1743	0
Flt Permitted				0.990	0.971	
Satd. Flow (perm)	1785	0	0	1866	1743	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	144	99	113	442	51	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	243	0	0	555	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	52.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

9: Forest Gate Avenue & Columbia Way

2028 PM Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↰	
Traffic Volume (veh/h)	127	87	99	389	45	31
Future Volume (Veh/h)	127	87	99	389	45	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	144	99	113	442	51	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			243		862	194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			243		862	194
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		83	96
cM capacity (veh/h)			1335		301	853
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	243	555	86			
Volume Left	0	113	51			
Volume Right	99	0	35			
cSH	1700	1335	408			
Volume to Capacity	0.14	0.08	0.21			
Queue Length 95th (m)	0.0	2.2	6.3			
Control Delay (s/veh)	0.0	2.3	16.2			
Lane LOS		A	C			
Approach Delay (s/veh)	0.0	2.3	16.2			
Approach LOS			C			
Intersection Summary						
Average Delay		3.0				
Intersection Capacity Utilization		52.3%	ICU Level of Service	A		
Analysis Period (min)		15				

Network Totals

Number of Intersections	9
Total Delay (hr)	22
Stops (#)	4135
Average Speed (km/hr)	47
Total Travel Time (hr)	124
Distance Traveled (km)	5819
Fuel Consumed (l)	702
Fuel Economy (km/l)	8.3
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	33.6

Intersection: 7: Mount Hope Road & Proposed Street B

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	22.8	12.9	1.4
Average Queue (m)	10.8	2.9	0.0
95th Queue (m)	18.2	10.2	0.9
Link Distance (m)	125.4	250.8	170.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	47.4	35.2	37.3	22.3
Average Queue (m)	21.5	17.8	19.8	9.2
95th Queue (m)	36.7	28.8	32.3	17.0
Link Distance (m)	518.7	546.0	2609.0	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 0

Appendix I

Synchro Reports – 2033 Total Operations



Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Future Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.932			0.852				0.850			
Flt Protected		0.985		0.950			0.950			0.950		
Satd. Flow (prot)	0	1389	0	1736	1500	0	1805	1727	1524	1656	1863	1900
Flt Permitted		0.905		0.740			0.270			0.455		
Satd. Flow (perm)	0	1277	0	1352	1500	0	512	1727	1524	793	1863	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			280				299			
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Adj. Flow (vph)	8	5	13	430	3	280	3	406	299	291	648	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	430	283	0	3	406	299	291	648	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 1

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	45.0	45.0		45.0	45.0		65.0	65.0	65.0	65.0	65.0	65.0
Total Split (%)	40.9%	40.9%		40.9%	40.9%		59.1%	59.1%	59.1%	59.1%	59.1%	59.1%
Maximum Green (s)	39.0	39.0		39.0	39.0		58.3	58.3	58.3	58.3	58.3	58.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		37.2		37.2	37.2		60.1	60.1	60.1	60.1	60.1	
Actuated g/C Ratio		0.34		0.34	0.34		0.55	0.55	0.55	0.55	0.55	
v/c Ratio		0.06		0.94	0.41		0.01	0.43	0.31	0.67	0.64	
Control Delay (s/veh)		15.5		65.6	5.0		12.5	17.1	2.4	28.3	21.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		15.5		65.6	5.0		12.5	17.1	2.4	28.3	21.5	
LOS		B		E	A		B	B	A	C	C	
Approach Delay (s/veh)		15.5			41.5			10.9			23.6	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay (s/veh): 25.1

Intersection LOS: C

Intersection Capacity Utilization 85.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



02/19/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 2

Queues

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total

	→	↗	←	↖	↑	↘	↙	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	430	283	3	406	299	291	648
v/c Ratio	0.06	0.94	0.41	0.01	0.43	0.31	0.67	0.64
Control Delay (s/veh)	15.5	65.6	5.0	12.5	17.1	2.4	28.3	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.5	65.6	5.0	12.5	17.1	2.4	28.3	21.5
Queue Length 50th (m)	2.8	93.7	0.4	0.3	57.8	0.0	49.7	102.3
Queue Length 95th (m)	10.0	#123.3	10.3	1.6	70.5	7.3	70.2	116.1
Internal Link Dist (m)	32.6		222.0		711.7			453.2
Turn Bay Length (m)		60.0		136.0		300.0	85.0	
Base Capacity (vph)	461	479	712	279	943	968	433	1017
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.90	0.40	0.01	0.43	0.31	0.67	0.64

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Future Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.93		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1390		1736	1499		1803	1727	1524	1656	1863	
Flt Permitted		0.90		0.74	1.00		0.27	1.00	1.00	0.46	1.00	
Satd. Flow (perm)		1277		1352	1499		512	1727	1524	794	1863	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	8	5	13	430	3	280	3	406	299	291	648	0
RTOR Reduction (vph)	0	9	0	0	185	0	0	0	136	0	0	0
Lane Group Flow (vph)	0	17	0	430	98	0	3	406	163	291	648	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		37.2		37.2	37.2		60.1	60.1	60.1	60.1	60.1	
Effective Green, g (s)		37.2		37.2	37.2		60.1	60.1	60.1	60.1	60.1	
Actuated g/C Ratio		0.34		0.34	0.34		0.55	0.55	0.55	0.55	0.55	
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		431		457	506		279	943	832	433	1017	
v/s Ratio Prot					0.07			0.24			0.35	
v/s Ratio Perm		0.01		c0.32			0.01		0.11	c0.37		
v/c Ratio		0.04		0.94	0.19		0.01	0.43	0.20	0.67	0.64	
Uniform Delay, d1		24.4		35.3	25.8		11.4	14.8	12.7	17.9	17.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		27.7	0.2		0.1	1.4	0.5	8.1	3.1	
Delay (s)		24.5		63.1	26.0		11.5	16.2	13.2	26.0	20.4	
Level of Service		C		E	C		B	B	B	C	C	
Approach Delay (s/veh)		24.5			48.3			14.9			22.1	
Approach LOS		C			D			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			27.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				12.7		
Intersection Capacity Utilization			85.3%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings

2: Kingsview Drive & Columbia Way

2033 AM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↗	
Traffic Volume (vph)	405	50	105	414	60	82
Future Volume (vph)	405	50	105	414	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.96	
Frt	0.985				0.922	
Flt Protected				0.990	0.979	
Satd. Flow (prot)	1719	0	0	1791	1598	0
Flt Permitted				0.658	0.979	
Satd. Flow (perm)	1719	0	0	1191	1562	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	12				63	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		2	2		16	6
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Adj. Flow (vph)	604	75	157	618	90	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	679	0	0	775	212	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	
Permitted Phases			6			

02/19/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

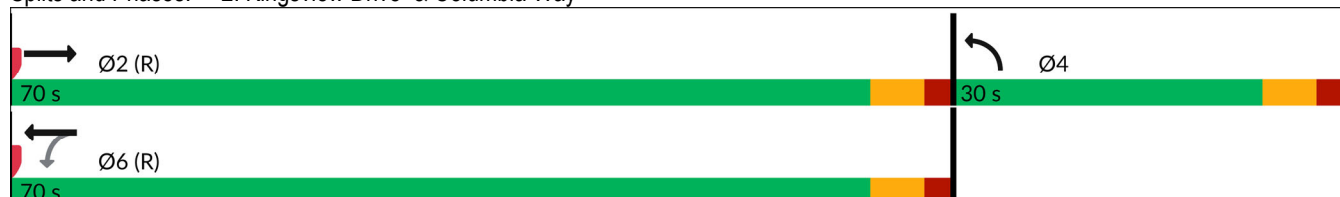
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Lanes, Volumes, Timings
2: Kingsview Drive & Columbia Way

2033 AM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	4	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	70.0		70.0	70.0	30.0	
Total Split (s)	70.0		70.0	70.0	30.0	
Total Split (%)	70.0%		70.0%	70.0%	30.0%	
Maximum Green (s)	64.0		64.0	64.0	23.1	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.0	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effct Green (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
v/c Ratio	0.55			0.90	0.73	
Control Delay (s/veh)	9.2			29.4	41.8	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	9.2			29.4	41.8	
LOS	A			C	D	
Approach Delay (s/veh)	9.2			29.4	41.8	
Approach LOS	A			C	D	
Intersection Summary						
Area Type:	Other					
Cycle Length: 100						
Actuated Cycle Length: 100						
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green						
Natural Cycle: 110						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.90						
Intersection Signal Delay (s/veh): 22.7				Intersection LOS: C		
Intersection Capacity Utilization 77.1%				ICU Level of Service D		
Analysis Period (min) 15						

Splits and Phases: 2: Kingsview Drive & Columbia Way



Queues

2: Kingsview Drive & Columbia Way

2033 AM Total



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	679	775	212
v/c Ratio	0.55	0.90	0.73
Control Delay (s/veh)	9.2	29.4	41.8
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	9.2	29.4	41.8
Queue Length 50th (m)	56.4	111.9	30.5
Queue Length 95th (m)	65.5	114.6	33.6
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1243	859	417
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.55	0.90	0.51
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2: Kingsview Drive & Columbia Way

2033 AM Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	405	50	105	414	60	82
Future Volume (vph)	405	50	105	414	60	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	6.9	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	1.00			1.00	0.98	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.99			1.00	0.92	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1719			1791	1599	
Flt Permitted	1.00			0.66	0.98	
Satd. Flow (perm)	1719			1191	1599	
Peak-hour factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67
Adj. Flow (vph)	604	75	157	618	90	122
RTOR Reduction (vph)	3	0	0	0	54	0
Lane Group Flow (vph)	676	0	0	775	158	0
Confl. Peds. (#/hr)		2	2		16	6
Heavy Vehicles (%)	8%	13%	5%	5%	6%	4%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	4	
Permitted Phases			6			
Actuated Green, G (s)	72.1			72.1	15.0	
Effective Green, g (s)	72.1			72.1	15.0	
Actuated g/C Ratio	0.72			0.72	0.15	
Clearance Time (s)	6.0			6.0	6.9	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1239			858	239	
v/s Ratio Prot	0.39				c0.10	
v/s Ratio Perm				c0.65		
v/c Ratio	0.55			0.90	0.66	
Uniform Delay, d1	6.4			11.2	40.1	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.7			14.7	6.8	
Delay (s)	8.1			25.8	46.9	
Level of Service	A			C	D	
Approach Delay (s/veh)	8.1			25.8	46.9	
Approach LOS	A			C	D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)		21.3		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio		0.86				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)	12.9	
Intersection Capacity Utilization		77.1%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

Lanes, Volumes, Timings

3: Westchester Road/Proposed Street A & Columbia Way

2033 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	252	62	62	326	20	95	0	71	131	0	54
Future Volume (vph)	15	252	62	62	326	20	95	0	71	131	0	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.974			0.995			0.942			0.960	
Flt Protected		0.998			0.992			0.972			0.966	
Satd. Flow (prot)	0	1729	0	0	1822	0	0	1644	0	0	1727	0
Flt Permitted		0.998			0.992			0.972			0.966	
Satd. Flow (perm)	0	1729	0	0	1822	0	0	1644	0	0	1727	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		570.4			296.2			121.1			116.7	
Travel Time (s)		41.1			21.3			8.7			8.4	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.92	0.65	0.65	0.65	0.65	0.92	0.65	0.92	0.65	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	7%	8%	2%	2%	2%	2%	11%	2%	2%	2%
Adj. Flow (vph)	16	388	95	95	502	22	146	0	109	142	0	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	499	0	0	619	0	0	255	0	0	201	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	63.4%						ICU Level of Service B					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

3: Westchester Road/Proposed Street A & Columbia Way

2033 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	252	62	62	326	20	95	0	71	131	0	54
Future Volume (Veh/h)	15	252	62	62	326	20	95	0	71	131	0	54
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.65	0.65	0.65	0.65	0.92	0.65	0.92	0.65	0.92	0.92	0.92
Hourly flow rate (vph)	16	388	95	95	502	22	146	0	109	142	0	59
Pedestrians								3				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								0				
Right turn flare (veh)												
Median type	None				None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	524			486			1233	1185	439	1280	1221	513
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	524			486			1233	1185	439	1280	1221	513
tC, single (s)	4.1			4.2			7.1	6.5	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	98			91			0	100	82	0	100	89
cM capacity (veh/h)	1043			1044			126	169	598	107	161	561
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	499	619	255	201								
Volume Left	16	95	146	142								
Volume Right	95	22	109	59								
cSH	1043	1044	190	141								
Volume to Capacity	0.02	0.09	1.34	1.43								
Queue Length 95th (m)	0.4	2.4	117.1	106.0								
Control Delay (s/veh)	0.4	2.3	232.1	288.2								
Lane LOS	A	A	F	F								
Approach Delay (s/veh)	0.4	2.3	232.1	288.2								
Approach LOS			F	F								
Intersection Summary												
Average Delay	75.5											
Intersection Capacity Utilization	63.4%				ICU Level of Service				B			
Analysis Period (min)	15											

Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2033 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	357	21	1	259	24	65	10	26	148	5	100
Future Volume (vph)	75	357	21	1	259	24	65	10	26	148	5	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.989			0.965			0.947	
Flt Protected		0.992						0.969			0.972	
Satd. Flow (prot)	0	1745	0	0	1845	0	0	1651	0	0	1576	0
Flt Permitted		0.992						0.969			0.972	
Satd. Flow (perm)	0	1745	0	0	1845	0	0	1651	0	0	1576	0
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			267.1	
Travel Time (s)		17.8			14.3			30.3			16.0	
Confl. Peds. (#/hr)			6	6					2	2		
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles (%)	17%	5%	13%	0%	2%	0%	3%	13%	17%	14%	20%	6%
Adj. Flow (vph)	109	517	30	1	375	35	94	14	38	214	7	145
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	656	0	0	411	0	0	146	0	0	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	66.0%											
Analysis Period (min)	15											
	ICU Level of Service C											

HCM Unsignalized Intersection Capacity Analysis

4: Mount Hope Road & Columbia Way

2033 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	357	21	1	259	24	65	10	26	148	5	100
Future Volume (Veh/h)	75	357	21	1	259	24	65	10	26	148	5	100
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	109	517	30	1	375	35	94	14	38	214	7	145
Pedestrians					2		6					
Lane Width (m)					3.6		3.6					
Walking Speed (m/s)					1.2		1.2					
Percent Blockage					0		1					
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	410			553			1299	1168	540	1192	1166	393
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	410			553			1299	1168	540	1192	1166	393
tC, single (s)	4.3			4.1			7.1	6.6	6.4	7.2	6.7	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.1	3.5	3.6	4.2	3.4
p0 queue free %	90			100			0	91	93	0	96	78
cM capacity (veh/h)	1072			1022			94	165	510	123	160	648
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	656	411	146	366								
Volume Left	109	1	94	214								
Volume Right	30	35	38	145								
cSH	1072	1022	126	183								
Volume to Capacity	0.10	0.00*	1.15	2.00								
Queue Length 95th (m)	2.7	0.0	69.8	222.7								
Control Delay (s/veh)	2.5	0.0	194.8	512.6								
Lane LOS	A	A	F	F								
Approach Delay (s/veh)	2.5	0.0	194.8	512.6								
Approach LOS				F	F							
Intersection Summary												
Average Delay			137.9									
Intersection Capacity Utilization			66.0%	ICU Level of Service				C				
Analysis Period (min)			15									

* Value less than 0.01.

Lanes, Volumes, Timings

5: Caledon-King Townline South & Columbia Way

2033 AM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	515	138	141	647	57
Future Volume (vph)	58	515	138	141	647	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879				0.989	
Flt Protected	0.995			0.976		
Satd. Flow (prot)	1618	0	0	1783	1850	0
Flt Permitted	0.995			0.976		
Satd. Flow (perm)	1618	0	0	1783	1850	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	4%	4%	1%	8%
Adj. Flow (vph)	63	560	150	153	703	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	623	0	0	303	765	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	97.6%			ICU Level of Service F		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 5: Caledon-King Townline South & Columbia Way

2033 AM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	515	138	141	647	57
Future Volume (Veh/h)	58	515	138	141	647	57
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	560	150	153	703	62
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1187	734	765			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1187	734	765			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	63	0	82			
cM capacity (veh/h)	173	418	839			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	623	303	765			
Volume Left	63	150	0			
Volume Right	560	0	62			
cSH	366	839	1700			
Volume to Capacity	1.70	0.18	0.45			
Queue Length 95th (m)	306.1	5.2	0.0			
Control Delay (s/veh)	353.7	6.1	0.0			
Lane LOS	F	A				
Approach Delay (s/veh)	353.7	6.1	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		131.4				
Intersection Capacity Utilization		97.6%		ICU Level of Service		F
Analysis Period (min)		15				

Lanes, Volumes, Timings

6: Mount Hope Road & Proposed Street C

2033 AM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	34	7	76	178	30
Future Volume (vph)	10	34	7	76	178	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.896				0.980	
Flt Protected	0.989			0.996		
Satd. Flow (prot)	1651	0	0	1855	1825	0
Flt Permitted	0.989			0.996		
Satd. Flow (perm)	1651	0	0	1855	1825	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	124.1			186.7	2628.7	
Travel Time (s)	8.9			11.2	157.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	37	8	83	193	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	91	226	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

6: Mount Hope Road & Proposed Street C

2033 AM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	34	7	76	178	30
Future Volume (Veh/h)	10	34	7	76	178	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	37	8	83	193	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	309	210	226			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	309	210	226			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	96	99			
cM capacity (veh/h)	680	831	1342			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	48	91	226			
Volume Left	11	8	0			
Volume Right	37	0	33			
cSH	790	1342	1700			
Volume to Capacity	0.06	0.00*	0.13			
Queue Length 95th (m)	1.5	0.1	0.0			
Control Delay (s/veh)	9.8	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.8	0.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			21.2%	ICU Level of Service		A
Analysis Period (min)			15			
* Value less than 0.01.						

Lanes, Volumes, Timings

7: Mount Hope Road & Proposed Street B

2033 AM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	98	58	73	173	39
Future Volume (vph)	10	98	58	73	173	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878				0.975	
Flt Protected	0.995				0.978	
Satd. Flow (prot)	1627	0	0	1822	1816	0
Flt Permitted	0.995				0.978	
Satd. Flow (perm)	1627	0	0	1822	1816	0
Link Speed (k/h)	50				60	60
Link Distance (m)	134.0				267.1	186.7
Travel Time (s)	9.6				16.0	11.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	107	63	79	188	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	0	142	230	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	4.8				4.8	4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	15		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 35.1%				ICU Level of Service A		
Analysis Period (min) 15						

HCM Unsignalized Intersection Capacity Analysis

7: Mount Hope Road & Proposed Street B

2033 AM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	98	58	73	173	39
Future Volume (Veh/h)	10	98	58	73	173	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	107	63	79	188	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	414	209	230			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414	209	230			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	87	95			
cM capacity (veh/h)	567	831	1338			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	118	142	230			
Volume Left	11	63	0			
Volume Right	107	0	42			
cSH	797	1338	1700			
Volume to Capacity	0.15	0.05	0.14			
Queue Length 95th (m)	4.1	1.2	0.0			
Control Delay (s/veh)	10.3	3.7	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	10.3	3.7	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.5				
Intersection Capacity Utilization		35.1%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings

8: Mount Hope Road & Castlederg Side Road

2033 AM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	188	50	26	217	4	13	55	18	26	133	38
Future Volume (vph)	10	188	50	26	217	4	13	55	18	26	133	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.998			0.972			0.974	
Flt Protected		0.998			0.995			0.993			0.993	
Satd. Flow (prot)	0	1687	0	0	1831	0	0	1572	0	0	1768	0
Flt Permitted		0.998			0.995			0.993			0.993	
Satd. Flow (perm)	0	1687	0	0	1831	0	0	1572	0	0	1768	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			2628.7			634.1	
Travel Time (s)		27.2			28.6			157.7			38.0	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	5%	25%	12%	2%	0%	25%	12%	25%	0%	5%	3%
Adj. Flow (vph)	12	224	60	31	258	5	15	65	21	31	158	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	296	0	0	294	0	0	101	0	0	234	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.6%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

8: Mount Hope Road & Castlederg Side Road

2033 AM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	188	50	26	217	4	13	55	18	26	133	38
Future Volume (vph)	10	188	50	26	217	4	13	55	18	26	133	38
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	12	224	60	31	258	5	15	65	21	31	158	45
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	296	294	101	234								
Volume Left (vph)	12	31	15	31								
Volume Right (vph)	60	5	21	45								
Hadj (s)	0.05	0.06	0.19	-0.02								
Departure Headway (s)	5.5	5.5	6.2	5.7								
Degree Utilization, x	0.45	0.45	0.17	0.37								
Capacity (veh/h)	618	617	499	573								
Control Delay (s/veh)	12.8	12.8	10.5	12.0								
Approach Delay (s/veh)	12.8	12.8	10.5	12.0								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay				12.4								
Level of Service				B								
Intersection Capacity Utilization				42.6%	ICU Level of Service	A						
Analysis Period (min)				15								

Lanes, Volumes, Timings

9: Forest Gate Avenue & Columbia Way

2033 AM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	416	27	21	122	79	91
Future Volume (vph)	416	27	21	122	79	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992				0.928	
Flt Protected				0.993	0.977	
Satd. Flow (prot)	1794	0	0	1782	1690	0
Flt Permitted				0.993	0.977	
Satd. Flow (perm)	1794	0	0	1782	1690	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	4%	22%	5%	6%	3%	1%
Adj. Flow (vph)	484	31	24	142	92	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	515	0	0	166	198	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	40.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

9: Forest Gate Avenue & Columbia Way

2033 AM Total

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	416	27	21	122	79	91
Future Volume (Veh/h)	416	27	21	122	79	91
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	484	31	24	142	92	106
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			515	690		500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			515	690		500
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			98	77		82
cM capacity (veh/h)			1035	400		573
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	515	166	198			
Volume Left	0	24	92			
Volume Right	31	0	106			
cSH	1700	1035	477			
Volume to Capacity	0.30	0.02	0.41			
Queue Length 95th (m)	0.0	0.6	16.1			
Control Delay (s/veh)	0.0	1.4	17.8			
Lane LOS			A C			
Approach Delay (s/veh)	0.0	1.4	17.8			
Approach LOS			C			
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			40.9%	ICU Level of Service		A
Analysis Period (min)			15			

Network Totals

Number of Intersections	9
Total Delay (hr)	148
Stops (#)	4833
Average Speed (km/hr)	23
Total Travel Time (hr)	248
Distance Traveled (km)	5697
Fuel Consumed (l)	1056
Fuel Economy (km/l)	5.4
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	161.9

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	29.3	29.1	28.2	27.2
Average Queue (m)	15.7	14.0	12.6	13.5
95th Queue (m)	25.3	22.7	22.2	21.7
Link Distance (m)	518.7	546.0	2609.0	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lanes, Volumes, Timings

9408 Columbia Way, Caledon (Mount Hope)

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Future Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98							
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.968		0.950			0.950			0.950		
Satd. Flow (prot)	0	1756	0	1787	1535	0	902	1863	1599	1770	1845	808
Flt Permitted		0.898		0.756			0.462			0.310		
Satd. Flow (perm)	0	1629	0	1422	1535	0	439	1863	1599	577	1845	808
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			232				239			33
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Adj. Flow (vph)	2	0	1	267	0	105	1	679	239	196	448	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	267	105	0	1	679	239	196	448	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 1

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Future Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	60.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98							
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.968		0.950			0.950			0.950		
Satd. Flow (prot)	0	1756	0	1787	1535	0	902	1863	1599	1770	1845	808
Flt Permitted		0.898		0.756			0.462			0.310		
Satd. Flow (perm)	0	1629	0	1422	1535	0	439	1863	1599	577	1845	808
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			232				239			33
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		4.1			17.7			53.0			34.4	
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Adj. Flow (vph)	2	0	1	267	0	105	1	679	239	196	448	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	267	105	0	1	679	239	196	448	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 1

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Detector Phase	4	4		4	4		2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	30.7	30.7	30.7
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0	64.0	64.0	64.0	64.0
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%	64.0%	64.0%	64.0%	64.0%
Maximum Green (s)	30.0	30.0		30.0	30.0		57.3	57.3	57.3	57.3	57.3	57.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lead/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
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)		23.4		23.4	23.4		63.9	63.9	63.9	63.9	63.9	63.9
Actuated g/C Ratio		0.23		0.23	0.23		0.64	0.64	0.64	0.64	0.64	0.64
v/c Ratio		0.01		0.80	0.20		0.00	0.57	0.22	0.53	0.38	0.00
Control Delay (s/veh)		0.0		53.6	0.8		9.0	13.8	1.8	18.4	10.8	0.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		0.0		53.6	0.8		9.0	13.8	1.8	18.4	10.8	0.0
LOS		A		D	A		A	B	A	B	B	A
Approach Delay (s/veh)				38.7			10.7				13.0	
Approach LOS				D			B				B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBSB and 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay (s/veh): 16.8

Intersection LOS: B

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



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Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 2

Queues

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total

	→	↘	←	↙	↑	↗	↘	↓	↙
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	3	267	105	1	679	239	196	448	2
v/c Ratio	0.01	0.80	0.20	0.00	0.57	0.22	0.53	0.38	0.00
Control Delay (s/veh)	0.0	53.6	0.8	9.0	13.8	1.8	18.4	10.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	53.6	0.8	9.0	13.8	1.8	18.4	10.8	0.0
Queue Length 50th (m)	0.0	51.5	0.0	0.1	74.0	0.0	20.6	41.2	0.0
Queue Length 95th (m)	0.0	75.6	0.0	1.4	127.3	10.1	52.2	72.5	0.0
Internal Link Dist (m)	32.6		222.0		711.7			453.2	
Turn Bay Length (m)		60.0		136.0		300.0	85.0		25.0
Base Capacity (vph)	516	426	622	280	1189	1107	368	1178	528
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.63	0.17	0.00	0.57	0.22	0.53	0.38	0.00
Intersection Summary									

HCM Signalized Intersection Capacity Analysis

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↑	↔	↔	↑	↔
Traffic Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Future Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756		1787	1534		903	1863	1599	1770	1845	808
Flt Permitted		0.90		0.76	1.00		0.46	1.00	1.00	0.31	1.00	1.00
Satd. Flow (perm)		1629		1422	1534		439	1863	1599	578	1845	808
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	0	1	267	0	105	1	679	239	196	448	2
RTOR Reduction (vph)	0	2	0	0	80	0	0	0	86	0	0	1
Lane Group Flow (vph)	0	1	0	267	25	0	1	679	153	196	448	1
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		2
Actuated Green, G (s)		23.4		23.4	23.4		63.9	63.9	63.9	63.9	63.9	63.9
Effective Green, g (s)		23.4		23.4	23.4		63.9	63.9	63.9	63.9	63.9	63.9
Actuated g/C Ratio		0.23		0.23	0.23		0.64	0.64	0.64	0.64	0.64	0.64
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		381		332	358		280	1190	1021	369	1178	516
v/s Ratio Prot					0.02			c0.36			0.24	
v/s Ratio Perm		0.00		c0.19			0.00		0.10	0.34		0.00
v/c Ratio		0.00		0.80	0.07		0.00	0.57	0.15	0.53	0.38	0.00
Uniform Delay, d1		29.4		36.1	29.8		6.5	10.3	7.2	9.9	8.6	6.5
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.0		13.2	0.1		0.0	2.0	0.3	5.4	0.9	0.0
Delay (s)		29.4		49.3	29.9		6.6	12.2	7.5	15.3	9.5	6.5
Level of Service		C		D	C		A	B	A	B	A	A
Approach Delay (s/veh)		29.4			43.8			11.0			11.3	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			17.4			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.7			
Intersection Capacity Utilization			86.0%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings

2: Kingsview Drive & Columbia Way

2033 PM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	
Traffic Volume (vph)	326	111	73	244	41	49
Future Volume (vph)	326	111	73	244	41	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99			1.00		
Frt	0.966				0.927	
Flt Protected				0.989	0.978	
Satd. Flow (prot)	1790	0	0	1842	1723	0
Flt Permitted				0.821	0.978	
Satd. Flow (perm)	1790	0	0	1527	1723	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29				52	
Link Speed (k/h)	50			50	50	
Link Distance (m)	246.0			351.6	165.2	
Travel Time (s)	17.7			25.3	11.9	
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Adj. Flow (vph)	347	118	78	260	44	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	465	0	0	338	96	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	
Detector Template	Thru			Thru	Left	
Leading Detector (m)	10.0			10.0	2.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	0.6			0.6	2.0	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	

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Paradigm Transportation Solutions Limited

Synchro 12 Report

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Lanes, Volumes, Timings

2: Kingsview Drive & Columbia Way

2033 PM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases	6					
Detector Phase	2		6	6	8	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	36.0		36.0	36.0	36.0	
Total Split (s)	36.0		36.0	36.0	36.0	
Total Split (%)	50.0%		50.0%	50.0%	50.0%	
Maximum Green (s)	30.0		29.1	29.1	30.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.9	2.9	2.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	6.0			6.9	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	C-Max		C-Max	C-Max	None	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Don't Walk (s)	7.0		7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0		0	0	0	
Act Effect Green (s)	55.2			54.5	8.8	
Actuated g/C Ratio	0.77			0.76	0.12	
v/c Ratio	0.34			0.29	0.38	
Control Delay (s/veh)	4.4			4.9	19.9	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	4.4			4.9	19.9	
LOS	A			A	B	
Approach Delay (s/veh)	4.4			4.9	19.9	
Approach LOS	A			A	B	

Intersection Summary

Area Type: Other

Cycle Length: 72

Actuated Cycle Length: 72

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay (s/veh): 6.2

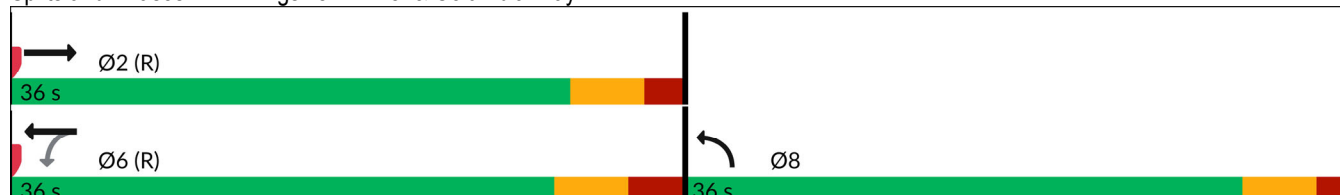
Intersection LOS: A

Intersection Capacity Utilization 63.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Kingsview Drive & Columbia Way



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Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 6

Queues

2: Kingsview Drive & Columbia Way

2033 PM Total



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	465	338	96
v/c Ratio	0.34	0.29	0.38
Control Delay (s/veh)	4.4	4.9	19.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	4.4	4.9	19.9
Queue Length 50th (m)	18.2	14.6	5.8
Queue Length 95th (m)	36.5	30.0	18.2
Internal Link Dist (m)	222.0	327.6	141.2
Turn Bay Length (m)			
Base Capacity (vph)	1379	1155	748
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.34	0.29	0.13
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

2: Kingsview Drive & Columbia Way

2033 PM Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	🚗			🚗	🚗	
Traffic Volume (vph)	326	111	73	244	41	49
Future Volume (vph)	326	111	73	244	41	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.9	6.0	
Lane Util. Factor	1.00			1.00	1.00	
Frpb, ped/bikes	0.99			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.97			1.00	0.93	
Flt Protected	1.00			0.99	0.98	
Satd. Flow (prot)	1790			1837	1722	
Flt Permitted	1.00			0.82	0.98	
Satd. Flow (perm)	1790			1527	1722	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	347	118	78	260	44	52
RTOR Reduction (vph)	8	0	0	0	47	0
Lane Group Flow (vph)	457	0	0	338	49	0
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		2	2			
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases			6			
Actuated Green, G (s)	52.8			51.9	7.2	
Effective Green, g (s)	52.8			51.9	7.2	
Actuated g/C Ratio	0.73			0.72	0.10	
Clearance Time (s)	6.0			6.9	6.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1312			1100	172	
v/s Ratio Prot	c0.26				c0.03	
v/s Ratio Perm				0.22		
v/c Ratio	0.35			0.31	0.29	
Uniform Delay, d1	3.4			3.6	30.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	0.7			0.7	0.9	
Delay (s)	4.2			4.3	30.9	
Level of Service	A			A	C	
Approach Delay (s/veh)	4.2			4.3	30.9	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			7.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.35			
Actuated Cycle Length (s)			72.0		Sum of lost time (s)	12.9
Intersection Capacity Utilization			63.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings

3: Westchester Road/Proposed Street A & Columbia Way

2033 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	227	83	59	173	168	58	0	45	66	0	81
Future Volume (vph)	73	227	83	59	173	168	58	0	45	66	0	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.971			0.943			0.941			0.926	
Flt Protected		0.991			0.993			0.973			0.978	
Satd. Flow (prot)	0	1803	0	0	1744	0	0	1666	0	0	1687	0
Flt Permitted		0.991			0.993			0.973			0.978	
Satd. Flow (perm)	0	1803	0	0	1744	0	0	1666	0	0	1687	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		570.4			296.2			121.1			115.1	
Travel Time (s)		41.1			21.3			8.7			8.3	
Confl. Peds. (#/hr)			6	6								
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%	4%	2%	5%	2%	2%	2%
Adj. Flow (vph)	79	244	89	63	186	183	62	0	48	72	0	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	412	0	0	432	0	0	110	0	0	160	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.4%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

3: Westchester Road/Proposed Street A & Columbia Way

2033 PM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	227	83	59	173	168	58	0	45	66	0	81
Future Volume (Veh/h)	73	227	83	59	173	168	58	0	45	66	0	81
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Hourly flow rate (vph)	79	244	89	63	186	183	62	0	48	72	0	88
Pedestrians								6				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	369			339			944	948	295	898	901	278
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	369			339			944	948	295	898	901	278
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			95			68	100	93	67	100	88
cM capacity (veh/h)	1190			1214			192	230	734	221	245	761
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	412	432	110	160								
Volume Left	79	63	62	72								
Volume Right	89	183	48	88								
cSH	1190	1214	283	362								
Volume to Capacity	0.07	0.05	0.39	0.44								
Queue Length 95th (m)	1.7	1.3	14.1	17.5								
Control Delay (s/veh)	2.1	1.6	25.5	22.5								
Lane LOS	A	A	D	C								
Approach Delay (s/veh)	2.1	1.6	25.5	22.5								
Approach LOS			D	C								
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization			47.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2033 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	242	50	20	306	145	23	6	11	39	9	53
Future Volume (vph)	62	242	50	20	306	145	23	6	11	39	9	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.959			0.961			0.929	
Flt Protected		0.991			0.998			0.972			0.981	
Satd. Flow (prot)	0	1779	0	0	1795	0	0	1725	0	0	1667	0
Flt Permitted		0.991			0.998			0.972			0.981	
Satd. Flow (perm)	0	1779	0	0	1795	0	0	1725	0	0	1667	0
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			267.1	
Travel Time (s)		17.8			14.3			30.3			16.0	
Confl. Peds. (#/hr)			11	11								
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	4%	0%	2%	0%	0%	20%	0%	0%	8%	6%
Adj. Flow (vph)	66	257	53	21	326	154	24	6	12	41	10	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	376	0	0	501	0	0	42	0	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	55.1%											
Analysis Period (min)	15											
ICU Level of Service B												

HCM Unsignalized Intersection Capacity Analysis

4: Mount Hope Road & Columbia Way

2033 PM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	242	50	20	306	145	23	6	11	39	9	53
Future Volume (Veh/h)	62	242	50	20	306	145	23	6	11	39	9	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	66	257	53	21	326	154	24	6	12	41	10	56
Pedestrians								11				
Lane Width (m)								3.6				
Walking Speed (m/s)								1.2				
Percent Blockage								1				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	480			321			933	949	295	876	898	403
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480			321			933	949	295	876	898	403
tC, single (s)	4.1			4.1			7.1	6.7	6.2	7.1	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.3	3.5	4.1	3.4
p0 queue free %	94			98			88	97	98	83	96	91
cM capacity (veh/h)	1077			1239			204	222	743	245	249	639
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	376	501	42	107								
Volume Left	66	21	24	41								
Volume Right	53	154	12	56								
cSH	1077	1239	261	362								
Volume to Capacity	0.06	0.02	0.16	0.30								
Queue Length 95th (m)	1.6	0.4	4.5	9.7								
Control Delay (s/veh)	2.0	0.5	21.4	19.0								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	2.0	0.5	21.4	19.0								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			55.1%		ICU Level of Service				B			
Analysis Period (min)			15									

Lanes, Volumes, Timings

5: Caledon-King Townline South & Columbia Way

2033 PM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	99	134	184	555	320	305
Future Volume (vph)	99	134	184	555	320	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922				0.934	
Flt Protected	0.979			0.988		
Satd. Flow (prot)	1614	0	0	1863	1748	0
Flt Permitted	0.979			0.988		
Satd. Flow (perm)	1614	0	0	1863	1748	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	12%	2%	0%	1%	3%	0%
Adj. Flow (vph)	103	140	192	578	333	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	243	0	0	770	651	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	98.6%			ICU Level of Service F		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis 5: Caledon-King Townline South & Columbia Way

2033 PM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	134	184	555	320	305
Future Volume (Veh/h)	99	134	184	555	320	305
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	103	140	192	578	333	318
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1454	492	651			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1454	492	651			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	5	76	80			
cM capacity (veh/h)	108	577	945			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	243	770	651			
Volume Left	103	192	0			
Volume Right	140	0	318			
cSH	204	945	1700			
Volume to Capacity	1.19	0.20	0.38			
Queue Length 95th (m)	98.4	6.1	0.0			
Control Delay (s/veh)	172.4	4.7	0.0			
Lane LOS	F	A				
Approach Delay (s/veh)	172.4	4.7	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		27.3				
Intersection Capacity Utilization		98.6%		ICU Level of Service		F
Analysis Period (min)		15				

Lanes, Volumes, Timings

6: Mount Hope Road & Proposed Street C

2033 PM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	87	20	35	157	90	18
Future Volume (vph)	87	20	35	157	90	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.975				0.977	
Flt Protected	0.961			0.991		
Satd. Flow (prot)	1745	0	0	1846	1820	0
Flt Permitted	0.961			0.991		
Satd. Flow (perm)	1745	0	0	1846	1820	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	124.1			186.7	2628.7	
Travel Time (s)	8.9			11.2	157.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	22	38	171	98	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	0	0	209	118	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

6: Mount Hope Road & Proposed Street C

2033 PM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	20	35	157	90	18
Future Volume (Veh/h)	87	20	35	157	90	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	22	38	171	98	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	355	108	118			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	355	108	118			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	98	97			
cM capacity (veh/h)	626	946	1470			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	117	209	118			
Volume Left	95	38	0			
Volume Right	22	0	20			
cSH	669	1470	1700			
Volume to Capacity	0.17	0.03	0.07			
Queue Length 95th (m)	5.0	0.6	0.0			
Control Delay (s/veh)	11.5	1.5	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.5	1.5	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			29.6%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

7: Mount Hope Road & Proposed Street B

2033 PM Total

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	76	19	97	116	81	29
Future Volume (vph)	76	19	97	116	81	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973				0.964	
Flt Protected	0.962			0.978		
Satd. Flow (prot)	1744	0	0	1822	1796	0
Flt Permitted	0.962			0.978		
Satd. Flow (perm)	1744	0	0	1822	1796	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	134.0			267.1	186.7	
Travel Time (s)	9.6			16.0	11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	21	105	126	88	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	0	231	120	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

7: Mount Hope Road & Proposed Street B

2033 PM Total

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	19	97	116	81	29
Future Volume (Veh/h)	76	19	97	116	81	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	83	21	105	126	88	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	440	104	120			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440	104	120			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	98	93			
cM capacity (veh/h)	533	951	1468			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	104	231	120			
Volume Left	83	105	0			
Volume Right	21	0	32			
cSH	585	1468	1700			
Volume to Capacity	0.18	0.07	0.07			
Queue Length 95th (m)	5.1	1.8	0.0			
Control Delay (s/veh)	12.5	3.8	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	12.5	3.8	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		4.8				
Intersection Capacity Utilization		30.2%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings

8: Mount Hope Road & Castlederg Side Road

2033 PM Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	347	23	24	241	29	55	158	16	22	48	10
Future Volume (vph)	69	347	23	24	241	29	55	158	16	22	48	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.987			0.991			0.983	
Flt Protected		0.992			0.996			0.988			0.987	
Satd. Flow (prot)	0	1844	0	0	1728	0	0	1763	0	0	1772	0
Flt Permitted		0.992			0.996			0.988			0.987	
Satd. Flow (perm)	0	1844	0	0	1728	0	0	1763	0	0	1772	0
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		528.0			555.3			2628.7			634.1	
Travel Time (s)		27.2			28.6			157.7			38.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	14%	9%	9%	0%	0%	8%	0%	6%	4%	0%
Adj. Flow (vph)	73	369	24	26	256	31	59	168	17	23	51	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	466	0	0	313	0	0	244	0	0	85	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	61.1%				ICU Level of Service B							
Analysis Period (min)	15											

2033 PM Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	69	347	23	24	241	29	55	158	16	22	48	10
Future Volume (vph)	69	347	23	24	241	29	55	158	16	22	48	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	73	369	24	26	256	31	59	168	17	23	51	11
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	466	313	244	85								
Volume Left (vph)	73	26	59	23								
Volume Right (vph)	24	31	17	11								
Hadj (s)	0.03	0.10	0.10	0.04								
Departure Headway (s)	5.6	5.9	6.4	6.9								
Degree Utilization, x	0.73	0.52	0.44	0.16								
Capacity (veh/h)	617	562	505	440								
Control Delay (s/veh)	22.3	15.1	14.3	11.2								
Approach Delay (s/veh)	22.3	15.1	14.3	11.2								
Approach LOS	C	C	B	B								
Intersection Summary												
Delay				17.7								
Level of Service				C								
Intersection Capacity Utilization				61.1%	ICU Level of Service	B						
Analysis Period (min)				15								

Lanes, Volumes, Timings

9: Forest Gate Avenue & Columbia Way

2033 PM Total

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	148	96	110	375	50	34
Future Volume (vph)	148	96	110	375	50	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.947				0.945	
Flt Protected				0.989	0.971	
Satd. Flow (prot)	1788	0	0	1865	1743	0
Flt Permitted				0.989	0.971	
Satd. Flow (perm)	1788	0	0	1865	1743	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	237.5			314.7	240.6	
Travel Time (s)	14.3			18.9	17.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	168	109	125	426	57	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	277	0	0	551	96	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		100	100		100	100
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	54.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

9: Forest Gate Avenue & Columbia Way

2033 PM Total

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↱	
Traffic Volume (veh/h)	148	96	110	375	50	34
Future Volume (Veh/h)	148	96	110	375	50	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	168	109	125	426	57	39
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			277		899	223
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			277		899	223
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		80	95
cM capacity (veh/h)			1298		282	822
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	277	551	96			
Volume Left	0	125	57			
Volume Right	109	0	39			
cSH	1700	1298	385			
Volume to Capacity	0.16	0.10	0.25			
Queue Length 95th (m)	0.0	2.6	7.8			
Control Delay (s/veh)	0.0	2.6	17.4			
Lane LOS		A	C			
Approach Delay (s/veh)	0.0	2.6	17.4			
Approach LOS			C			
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization			54.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Network Totals

Number of Intersections	9
Total Delay (hr)	32
Stops (#)	4598
Average Speed (km/hr)	44
Total Travel Time (hr)	139
Distance Traveled (km)	6122
Fuel Consumed (l)	769
Fuel Economy (km/l)	8.0
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	44.6

Intersection: 7: Mount Hope Road & Proposed Street B

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	21.4	13.0
Average Queue (m)	10.9	3.5
95th Queue (m)	17.8	11.1
Link Distance (m)	125.4	250.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Mount Hope Road & Castlederg Side Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	58.4	36.1	47.8	20.9
Average Queue (m)	23.5	18.4	22.1	9.3
95th Queue (m)	42.0	29.7	38.2	16.4
Link Distance (m)	518.7	546.0	2609.0	624.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty: 0

Appendix J

Synchro Reports – 2033 Mitigations



Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Future Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	100.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.932			0.852				0.850			
Flt Protected		0.985		0.950			0.950			0.950		
Satd. Flow (prot)	0	1389	0	1736	1500	0	1805	1727	1524	1656	1863	1900
Flt Permitted		0.907		0.740			0.386			0.282		
Satd. Flow (perm)	0	1279	0	1352	1500	0	732	1727	1524	492	1863	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			280				299			
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		56.6			246.0			735.7			477.2	
Travel Time (s)		3.4			14.8			53.0			34.4	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Adj. Flow (vph)	8	5	13	430	3	280	3	406	299	291	648	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	430	283	0	3	406	299	291	648	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

03/03/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 1

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total MIT

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	8	8		4	4		6	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	9.5	30.7	30.7
Total Split (s)	54.0	54.0		54.0	54.0		36.0	36.0	36.0	20.0	56.0	56.0
Total Split (%)	49.1%	49.1%		49.1%	49.1%		32.7%	32.7%	32.7%	18.2%	50.9%	50.9%
Maximum Green (s)	48.0	48.0		48.0	48.0		29.3	29.3	29.3	15.5	49.3	49.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	4.5	6.7	6.7
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0		8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0		0	0
Act Effect Green (s)		40.2		40.2	40.2		36.9	36.9	36.9	59.3	57.1	
Actuated g/C Ratio		0.37		0.37	0.37		0.34	0.34	0.34	0.54	0.52	
v/c Ratio		0.05		0.87	0.39		0.01	0.70	0.42	0.68	0.67	
Control Delay (s/veh)		12.4		50.4	4.1		30.0	42.2	5.7	25.2	25.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		12.4		50.4	4.1		30.0	42.2	5.7	25.2	25.7	
LOS		B		D	A		C	D	A	C	C	
Approach Delay (s/veh)		12.4			32.0			26.8			25.5	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay (s/veh): 27.7

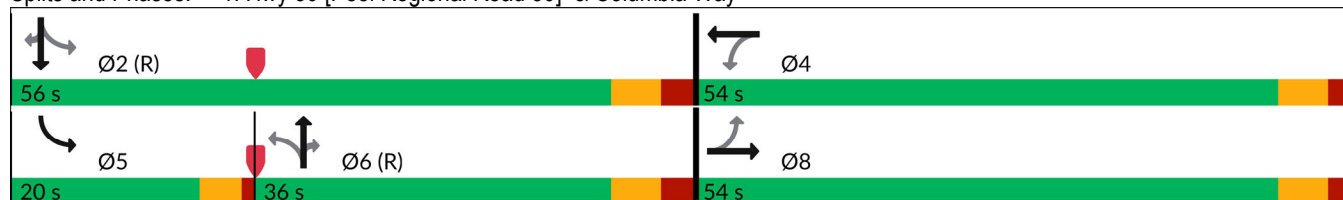
Intersection LOS: C

Intersection Capacity Utilization 85.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



03/03/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 2

Queues

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total MIT

	→	↘	←	↙	↑	↗	↘	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	430	283	3	406	299	291	648
v/c Ratio	0.05	0.87	0.39	0.01	0.70	0.42	0.68	0.67
Control Delay (s/veh)	12.4	50.4	4.1	30.0	42.2	5.7	25.2	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.4	50.4	4.1	30.0	42.2	5.7	25.2	25.7
Queue Length 50th (m)	2.7	89.5	0.4	0.5	90.6	0.0	38.7	108.9
Queue Length 95th (m)	8.6	99.7	8.9	2.5	#121.7	12.0	56.6	139.0
Internal Link Dist (m)	32.6		222.0		711.7			453.2
Turn Bay Length (m)		100.0		136.0		300.0	85.0	
Base Capacity (vph)	565	589	812	244	578	709	439	966
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.73	0.35	0.01	0.70	0.42	0.66	0.67

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 AM Total MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Future Volume (vph)	6	4	10	340	2	221	2	321	236	230	512	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	4.5	6.7	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.93		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1390		1736	1499		1802	1727	1524	1656	1863	
Flt Permitted		0.91		0.74	1.00		0.39	1.00	1.00	0.28	1.00	
Satd. Flow (perm)		1280		1352	1499		733	1727	1524	492	1863	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	8	5	13	430	3	280	3	406	299	291	648	0
RTOR Reduction (vph)	0	8	0	0	178	0	0	0	199	0	0	0
Lane Group Flow (vph)	0	18	0	430	105	0	3	406	100	291	648	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	20%	67%	13%	4%	0%	8%	0%	10%	6%	9%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)		40.2		40.2	40.2		36.9	36.9	36.9	57.1	57.1	
Effective Green, g (s)		40.2		40.2	40.2		36.9	36.9	36.9	57.1	57.1	
Actuated g/C Ratio		0.37		0.37	0.37		0.34	0.34	0.34	0.52	0.52	
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	4.5	6.7	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		467		494	547		245	579	511	421	967	
v/s Ratio Prot					0.07			0.24		0.10	c0.35	
v/s Ratio Perm		0.01		c0.32			0.00		0.07	c0.26		
v/c Ratio		0.04		0.87	0.19		0.01	0.70	0.20	0.69	0.67	
Uniform Delay, d1		22.5		32.5	23.8		24.4	31.8	26.0	17.9	19.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		15.3	0.2		0.1	6.9	0.9	4.8	3.7	
Delay (s)		22.5		47.8	24.0		24.5	38.7	26.9	22.7	23.2	
Level of Service		C		D	C		C	D	C	C	C	
Approach Delay (s/veh)		22.5			38.4			33.6			23.0	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			30.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			85.3%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings

3: Westchester Road/Proposed Street A & Columbia Way

2033 AM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	252	62	62	326	20	95	0	71	131	0	54
Future Volume (vph)	15	252	62	62	326	20	95	0	71	131	0	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00							
Frt		0.974			0.995			0.942			0.960	
Flt Protected		0.998			0.992			0.972			0.966	
Satd. Flow (prot)	0	1720	0	0	1822	0	0	1644	0	0	1727	0
Flt Permitted		0.977			0.864			0.737			0.648	
Satd. Flow (perm)	0	1683	0	0	1586	0	0	1246	0	0	1159	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			3			44			25	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		570.4			296.2			121.1			116.7	
Travel Time (s)		34.2			17.8			8.7			8.4	
Confl. Peds. (#/hr)			3	3								
Peak Hour Factor	0.92	0.65	0.65	0.65	0.65	0.92	0.65	0.92	0.65	0.92	0.92	0.92
Heavy Vehicles (%)	2%	7%	7%	8%	2%	2%	2%	2%	11%	2%	2%	2%
Adj. Flow (vph)	16	388	95	95	502	22	146	0	109	142	0	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	499	0	0	619	0	0	255	0	0	201	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	56.0	56.0		56.0	56.0		34.0	34.0		34.0	34.0	
Total Split (%)	62.2%	62.2%		62.2%	62.2%		37.8%	37.8%		37.8%	37.8%	
Maximum Green (s)	51.5	51.5		51.5	51.5		29.5	29.5		29.5	29.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't 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	
Act Effect Green (s)		51.5			51.5			29.5			29.5	
Actuated g/C Ratio		0.57			0.57			0.33			0.33	
v/c Ratio		0.51			0.68			0.58			0.51	

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Paradigm Transportation Solutions Limited

Synchro 12 Report

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Lanes, Volumes, Timings

3: Westchester Road/Proposed Street A & Columbia Way

2033 AM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay (s/veh)		13.4			13.7			26.9			26.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		13.4			13.7			26.9			26.6	
LOS		B			B			C			C	
Approach Delay (s/veh)		13.4			13.7			26.9			26.6	
Approach LOS		B			B			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.68

Intersection Signal Delay (s/veh): 17.4

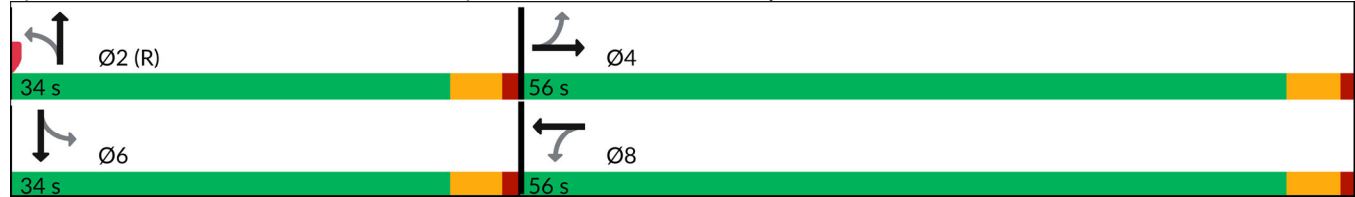
Intersection LOS: B

Intersection Capacity Utilization 64.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Westchester Road/Proposed Street A & Columbia Way



Queues

3: Westchester Road/Proposed Street A & Columbia Way

2033 AM Total MIT

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	499	619	255	201
v/c Ratio	0.51	0.68	0.58	0.51
Control Delay (s/veh)	13.4	13.7	26.9	26.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.4	13.7	26.9	26.6
Queue Length 50th (m)	51.1	57.7	31.9	25.8
Queue Length 95th (m)	47.5	47.5	58.3	48.2
Internal Link Dist (m)	546.4	272.2	97.1	92.7
Turn Bay Length (m)				
Base Capacity (vph)	972	908	437	396
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	0.51	0.68	0.58	0.51
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

3: Westchester Road/Proposed Street A & Columbia Way

2033 AM Total MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	15	252	62	62	326	20	95	0	71	131	0	54
Future Volume (vph)	15	252	62	62	326	20	95	0	71	131	0	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.94			0.96	
Flt Protected		1.00			0.99			0.97			0.97	
Satd. Flow (prot)		1721			1822			1644			1728	
Flt Permitted		0.98			0.86			0.74			0.65	
Satd. Flow (perm)		1684			1586			1247			1159	
Peak-hour factor, PHF	0.92	0.65	0.65	0.65	0.65	0.92	0.65	0.92	0.65	0.92	0.92	0.92
Adj. Flow (vph)	16	388	95	95	502	22	146	0	109	142	0	59
RTOR Reduction (vph)	0	9	0	0	1	0	0	30	0	0	17	0
Lane Group Flow (vph)	0	490	0	0	618	0	0	225	0	0	184	0
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	2%	7%	7%	8%	2%	2%	2%	2%	11%	2%	2%	2%
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)		51.5			51.5			29.5			29.5	
Effective Green, g (s)		51.5			51.5			29.5			29.5	
Actuated g/C Ratio		0.57			0.57			0.33			0.33	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		963			907			408			379	
v/s Ratio Prot												
v/s Ratio Perm		0.29			0.39			0.18			0.16	
v/c Ratio		0.51			0.68			0.55			0.49	
Uniform Delay, d1		11.6			13.5			24.8			24.2	
Progression Factor		1.00			0.71			1.00			1.00	
Incremental Delay, d2		1.9			3.7			5.3			4.4	
Delay (s)		13.5			13.3			30.1			28.6	
Level of Service		B			B			C			C	
Approach Delay (s/veh)		13.5			13.3			30.1			28.6	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		18.0			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.63										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		64.2%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2033 AM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	357	21	1	259	24	65	10	26	148	5	100
Future Volume (vph)	75	357	21	1	259	24	65	10	26	148	5	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.99			1.00	
Frt		0.994			0.989			0.965			0.947	
Flt Protected		0.992						0.969			0.972	
Satd. Flow (prot)	0	1742	0	0	1845	0	0	1640	0	0	1576	0
Flt Permitted		0.861			0.999			0.667			0.750	
Satd. Flow (perm)	0	1512	0	0	1844	0	0	1129	0	0	1214	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			8			23			43	
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			267.1	
Travel Time (s)		17.8			14.3			30.3			16.0	
Confl. Peds. (#/hr)			6	6					2	2		
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles (%)	17%	5%	13%	0%	2%	0%	3%	13%	17%	14%	20%	6%
Adj. Flow (vph)	109	517	30	1	375	35	94	14	38	214	7	145
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	656	0	0	411	0	0	146	0	0	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	51.0	51.0		51.0	51.0		39.0	39.0		39.0	39.0	
Total Split (%)	56.7%	56.7%		56.7%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	46.5	46.5		46.5	46.5		34.5	34.5		34.5	34.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't 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	
Act Effect Green (s)		46.5			46.5			34.5			34.5	
Actuated g/C Ratio		0.52			0.52			0.38			0.38	
v/c Ratio		0.84			0.43			0.33			0.75	

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Synchro 12 Report

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Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2033 AM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay (s/veh)		26.4			15.0			18.8			32.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		26.4			15.0			18.8			32.2	
LOS		C			B			B			C	
Approach Delay (s/veh)		26.4			15.0			18.8			32.2	
Approach LOS		C			B			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 24.1

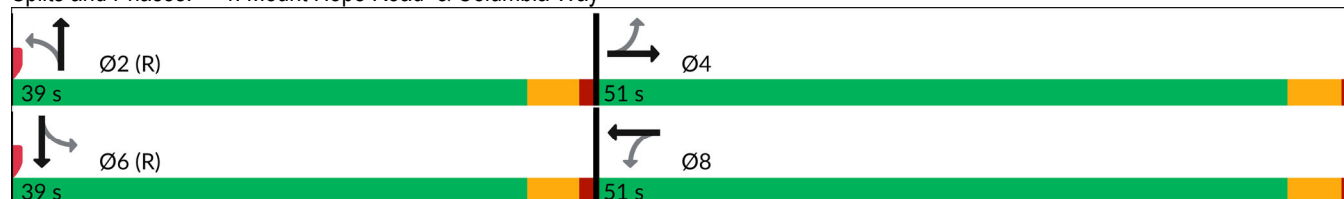
Intersection LOS: C

Intersection Capacity Utilization 67.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Mount Hope Road & Columbia Way



Queues

4: Mount Hope Road & Columbia Way

2033 AM Total MIT

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	656	411	146	366
v/c Ratio	0.84	0.43	0.33	0.75
Control Delay (s/veh)	26.4	15.0	18.8	32.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.4	15.0	18.8	32.2
Queue Length 50th (m)	99.2	43.7	16.6	57.2
Queue Length 95th (m)	69.9	46.3	23.4	63.3
Internal Link Dist (m)	272.2	213.5	397.4	243.1
Turn Bay Length (m)				
Base Capacity (vph)	783	956	446	491
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	0.84	0.43	0.33	0.75
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

4: Mount Hope Road & Columbia Way

2033 AM Total MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	75	357	21	1	259	24	65	10	26	148	5	100
Future Volume (vph)	75	357	21	1	259	24	65	10	26	148	5	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.96			0.95	
Flt Protected		0.99			1.00			0.97			0.97	
Satd. Flow (prot)		1742			1844			1640			1572	
Flt Permitted		0.86			1.00			0.67			0.75	
Satd. Flow (perm)		1511			1843			1129			1213	
Peak-hour factor, PHF	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Adj. Flow (vph)	109	517	30	1	375	35	94	14	38	214	7	145
RTOR Reduction (vph)	0	2	0	0	4	0	0	14	0	0	27	0
Lane Group Flow (vph)	0	654	0	0	407	0	0	132	0	0	339	0
Confl. Peds. (#/hr)			6	6					2	2		
Heavy Vehicles (%)	17%	5%	13%	0%	2%	0%	3%	13%	17%	14%	20%	6%
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)		46.5			46.5			34.5			34.5	
Effective Green, g (s)		46.5			46.5			34.5			34.5	
Actuated g/C Ratio		0.52			0.52			0.38			0.38	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		780			952			432			464	
v/s Ratio Prot												
v/s Ratio Perm		c0.43			0.22			0.12			c0.28	
v/c Ratio		0.84			0.43			0.31			0.73	
Uniform Delay, d1		18.5			13.5			19.4			23.8	
Progression Factor		0.85			1.00			1.00			1.00	
Incremental Delay, d2		9.3			1.4			1.8			9.8	
Delay (s)		25.1			14.9			21.2			33.6	
Level of Service		C			B			C			C	
Approach Delay (s/veh)		25.1			14.9			21.2			33.6	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			24.1									
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			67.3%									
Analysis Period (min)			15									
c Critical Lane Group												

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	515	138	141	647	57
Future Volume (vph)	58	515	138	141	647	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	110.0	0.0			0.0
Storage Lanes	1	1	0			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.989	
Flt Protected	0.950			0.976		
Satd. Flow (prot)	1805	1568	0	1783	1850	0
Flt Permitted	0.950			0.324		
Satd. Flow (perm)	1805	1568	0	592	1850	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		176			7	
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	4%	4%	1%	8%
Adj. Flow (vph)	63	560	150	153	703	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	560	0	303	765	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	40.0	40.0	50.0	50.0	50.0	
Total Split (%)	44.4%	44.4%	55.6%	55.6%	55.6%	
Maximum Green (s)	35.5	35.5	45.5	45.5	45.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	Max	Max	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effect Green (s)	26.5	26.5		45.9	45.9	
Actuated g/C Ratio	0.33	0.33		0.56	0.56	
v/c Ratio	0.11	0.89		0.91	0.73	
Control Delay (s/veh)	18.5	35.1		53.5	20.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	18.5	35.1		53.5	20.5	
LOS	B	D		D	C	
Approach Delay (s/veh)	33.4			53.5	20.5	
Approach LOS	C			D	C	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 81.5

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.91

Intersection Signal Delay (s/veh): 31.2

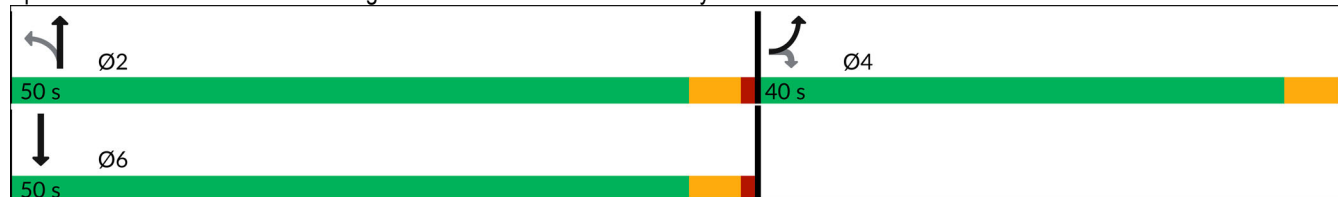
Intersection LOS: C

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Caledon-King Townline South & Columbia Way



Queues

5: Caledon-King Townline South & Columbia Way

2033 AM Total MIT



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	63	560	303	765
v/c Ratio	0.11	0.89	0.91	0.73
Control Delay (s/veh)	18.5	35.1	53.5	20.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	18.5	35.1	53.5	20.5
Queue Length 50th (m)	7.0	62.1	43.7	89.1
Queue Length 95th (m)	15.2	108.0	#112.6	#170.2
Internal Link Dist (m)	480.6		1036.6	1207.4
Turn Bay Length (m)		110.0		
Base Capacity (vph)	793	788	333	1045
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	0.08	0.71	0.91	0.73

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Caledon-King Townline South & Columbia Way

2033 AM Total MIT

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	515	138	141	647	57
Future Volume (vph)	58	515	138	141	647	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		0.98	1.00	
Satd. Flow (prot)	1805	1568		1783	1850	
Flt Permitted	0.95	1.00		0.32	1.00	
Satd. Flow (perm)	1805	1568		593	1850	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	560	150	153	703	62
RTOR Reduction (vph)	0	119	0	0	3	0
Lane Group Flow (vph)	63	441	0	303	762	0
Heavy Vehicles (%)	0%	3%	4%	4%	1%	8%
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	26.5	26.5		45.9	45.9	
Effective Green, g (s)	26.5	26.5		45.9	45.9	
Actuated g/C Ratio	0.33	0.33		0.56	0.56	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	587	510		334	1043	
v/s Ratio Prot	0.03				0.41	
v/s Ratio Perm		c0.28		c0.51		
v/c Ratio	0.11	0.87		0.91	0.73	
Uniform Delay, d1	19.2	25.8		15.8	13.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	14.2		30.5	4.5	
Delay (s)	19.3	40.0		46.3	17.7	
Level of Service	B	D		D	B	
Approach Delay (s/veh)	37.9			46.3	17.7	
Approach LOS	D			D	B	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			30.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.89			
Actuated Cycle Length (s)			81.4		Sum of lost time (s)	9.0
Intersection Capacity Utilization			76.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Zone A Totals

Number of Intersections	4
Total Delay (hr)	41
Stops (#)	3626
Average Speed (km/hr)	34
Total Travel Time (hr)	102
Distance Traveled (km)	3499
Fuel Consumed (l)	530
Fuel Economy (km/l)	6.6
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	148
Performance Index	50.7

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Future Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	100.0		0.0	136.0		300.0	85.0		25.0
Storage Lanes	0		0	1		0	1		0	1		1
Taper Length (m)	7.5			60.0			45.0			90.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					0.98							
Frt		0.955			0.850				0.850			0.850
Flt Protected		0.968		0.950			0.950			0.950		
Satd. Flow (prot)	0	1756	0	1787	1534	0	902	1863	1599	1770	1845	808
Flt Permitted		0.895		0.756			0.504			0.215		
Satd. Flow (perm)	0	1624	0	1422	1534	0	479	1863	1599	400	1845	808
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89			313				239			33
Link Speed (k/h)		50			50			50				50
Link Distance (m)		56.6			246.0			735.7				477.2
Travel Time (s)		4.1			17.7			53.0				34.4
Confl. Bikes (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Adj. Flow (vph)	2	0	1	267	0	105	1	679	239	196	448	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	267	105	0	1	679	239	196	448	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2	1	1	2	1
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

03/03/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 1

Lanes, Volumes, Timings

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total MIT

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Detector Phase	8	8		4	4		6	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	25.0	25.0		25.0	25.0		30.7	30.7	30.7	9.5	30.7	30.7
Total Split (s)	31.0	31.0		31.0	31.0		56.0	56.0	56.0	13.0	69.0	69.0
Total Split (%)	31.0%	31.0%		31.0%	31.0%		56.0%	56.0%	56.0%	13.0%	69.0%	69.0%
Maximum Green (s)	25.0	25.0		25.0	25.0		49.3	49.3	49.3	8.5	62.3	62.3
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.7	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	4.5	6.7	6.7
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0		8.0	8.0
Flash Don't Walk (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0		0	0
Act Effect Green (s)		22.3		22.3	22.3		52.3	52.3	52.3	67.2	65.0	65.0
Actuated g/C Ratio		0.22		0.22	0.22		0.52	0.52	0.52	0.67	0.65	0.65
v/c Ratio		0.01		0.84	0.18		0.00	0.70	0.25	0.51	0.37	0.00
Control Delay (s/veh)		0.0		60.7	0.7		13.0	23.7	2.6	11.5	9.7	0.0
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		0.0		60.7	0.7		13.0	23.7	2.6	11.5	9.7	0.0
LOS		A		E	A		B	C	A	B	A	A
Approach Delay (s/veh)					43.8			18.2			10.2	
Approach LOS					D			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 20.4

Intersection LOS: C

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Hwy 50 [Peel Regional Road 50] & Columbia Way



03/03/2026

Paradigm Transportation Solutions Limited

Synchro 12 Report

Page 2

Queues

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total MIT

	→	↗	←	↖	↑	↘	↙	↓	↕
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	3	267	105	1	679	239	196	448	2
v/c Ratio	0.01	0.84	0.18	0.00	0.70	0.25	0.51	0.37	0.00
Control Delay (s/veh)	0.0	60.7	0.7	13.0	23.7	2.6	11.5	9.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.0	60.7	0.7	13.0	23.7	2.6	11.5	9.7	0.0
Queue Length 50th (m)	0.0	51.2	0.0	0.2	107.7	0.0	14.4	41.8	0.0
Queue Length 95th (m)	0.0	#89.1	0.0	1.7	155.0	12.3	24.1	62.6	0.0
Internal Link Dist (m)	32.6		222.0		711.7			453.2	
Turn Bay Length (m)		100.0		136.0		300.0	85.0		25.0
Base Capacity (vph)	472	355	618	250	973	950	387	1200	536
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.75	0.17	0.00	0.70	0.25	0.51	0.37	0.00

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Hwy 50 [Peel Regional Road 50] & Columbia Way

2033 PM Total MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Future Volume (vph)	2	0	1	254	0	100	1	645	227	186	426	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0		6.7	6.7	6.7	4.5	6.7	6.7
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00		1.00	0.98		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.96		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756		1787	1534		903	1863	1599	1770	1845	808
Flt Permitted		0.89		0.76	1.00		0.50	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)		1623		1422	1534		479	1863	1599	400	1845	808
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	0	1	267	0	105	1	679	239	196	448	2
RTOR Reduction (vph)	0	2	0	0	82	0	0	0	114	0	0	1
Lane Group Flow (vph)	0	1	0	267	23	0	1	679	125	196	448	1
Confl. Bikes (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	1%	0%	3%	100%	2%	1%	2%	3%	100%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)		22.3		22.3	22.3		52.2	52.2	52.2	65.0	65.0	65.0
Effective Green, g (s)		22.3		22.3	22.3		52.2	52.2	52.2	65.0	65.0	65.0
Actuated g/C Ratio		0.22		0.22	0.22		0.52	0.52	0.52	0.65	0.65	0.65
Clearance Time (s)		6.0		6.0	6.0		6.7	6.7	6.7	4.5	6.7	6.7
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		361		317	342		250	972	834	373	1199	525
v/s Ratio Prot					0.02			c0.36		c0.04	0.24	
v/s Ratio Perm		0.00		c0.19			0.00		0.08	0.30		0.00
v/c Ratio		0.00		0.84	0.07		0.00	0.70	0.15	0.53	0.37	0.00
Uniform Delay, d1		30.2		37.2	30.7		11.4	18.0	12.4	11.7	8.1	6.1
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.0		18.0	0.1		0.0	4.2	0.4	1.3	0.9	0.0
Delay (s)		30.2		55.2	30.7		11.5	22.1	12.8	13.1	9.0	6.1
Level of Service		C		E	C		B	C	B	B	A	A
Approach Delay (s/veh)		30.2			48.3			19.7			10.2	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			22.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			77.8%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

3: Westchester Road/Proposed Street A & Columbia Way

2033 PM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	227	83	59	173	168	58	0	45	66	0	81
Future Volume (vph)	73	227	83	59	173	168	58	0	45	66	0	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00							
Frt		0.971			0.943			0.941			0.926	
Flt Protected		0.991			0.993			0.973			0.978	
Satd. Flow (prot)	0	1789	0	0	1744	0	0	1666	0	0	1687	0
Flt Permitted		0.852			0.893			0.793			0.828	
Satd. Flow (perm)	0	1538	0	0	1567	0	0	1358	0	0	1428	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			71			45			72	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		570.4			296.2			121.1			115.1	
Travel Time (s)		41.1			21.3			8.7			8.3	
Confl. Peds. (#/hr)			6	6								
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%	4%	2%	5%	2%	2%	2%
Adj. Flow (vph)	79	244	89	63	186	183	62	0	48	72	0	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	412	0	0	432	0	0	110	0	0	160	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	57.0	57.0		57.0	57.0		33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%		63.3%	63.3%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	52.5	52.5		52.5	52.5		28.5	28.5		28.5	28.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't 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	
Act Effect Green (s)		52.5			52.5			28.5			28.5	
Actuated g/C Ratio		0.58			0.58			0.32			0.32	
v/c Ratio		0.45			0.46			0.24			0.32	

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Lanes, Volumes, Timings

3: Westchester Road/Proposed Street A & Columbia Way

2033 PM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay (s/veh)		11.9			8.2			15.6			15.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		11.9			8.2			15.6			15.0	
LOS		B			A			B			B	
Approach Delay (s/veh)		11.9			8.2			15.6			15.0	
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 45

Control Type: Pretimed

Maximum v/c Ratio: 0.46

Intersection Signal Delay (s/veh): 11.3

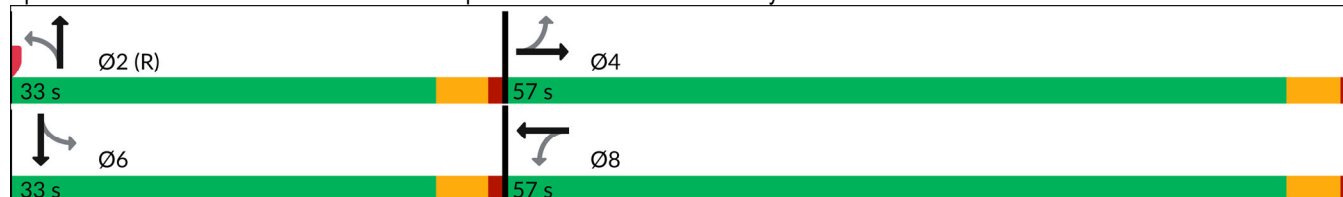
Intersection LOS: B

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Westchester Road/Proposed Street A & Columbia Way



Queues

3: Westchester Road/Proposed Street A & Columbia Way

2033 PM Total MIT

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	412	432	110	160
v/c Ratio	0.45	0.46	0.24	0.32
Control Delay (s/veh)	11.9	8.2	15.6	15.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.9	8.2	15.6	15.0
Queue Length 50th (m)	36.7	23.9	8.6	11.8
Queue Length 95th (m)	58.9	37.3	21.6	28.1
Internal Link Dist (m)	546.4	272.2	97.1	91.1
Turn Bay Length (m)				
Base Capacity (vph)	908	943	460	501
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	0.45	0.46	0.24	0.32
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

3: Westchester Road/Proposed Street A & Columbia Way

2033 PM Total MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	73	227	83	59	173	168	58	0	45	66	0	81
Future Volume (vph)	73	227	83	59	173	168	58	0	45	66	0	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.94			0.94			0.93	
Flt Protected		0.99			0.99			0.97			0.98	
Satd. Flow (prot)		1788			1742			1665			1686	
Flt Permitted		0.85			0.89			0.79			0.83	
Satd. Flow (perm)		1539			1567			1358			1429	
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	79	244	89	63	186	183	62	0	48	72	0	88
RTOR Reduction (vph)	0	11	0	0	30	0	0	31	0	0	49	0
Lane Group Flow (vph)	0	401	0	0	402	0	0	79	0	0	111	0
Confl. Peds. (#/hr)			6	6								
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%	4%	2%	5%	2%	2%	2%
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)		52.5			52.5			28.5			28.5	
Effective Green, g (s)		52.5			52.5			28.5			28.5	
Actuated g/C Ratio		0.58			0.58			0.32			0.32	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		897			914			430			452	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.26			0.06			c0.08	
v/c Ratio		0.45			0.44			0.18			0.25	
Uniform Delay, d1		10.6			10.5			22.3			22.8	
Progression Factor		1.00			0.74			1.00			1.00	
Incremental Delay, d2		1.6			1.5			0.9			1.3	
Delay (s)		12.2			9.3			23.3			24.1	
Level of Service		B			A			C			C	
Approach Delay (s/veh)		12.2			9.3			23.3			24.1	
Approach LOS		B			A			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			13.9									
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			48.2%									
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2033 PM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	242	50	20	306	145	23	6	11	39	9	53
Future Volume (vph)	62	242	50	20	306	145	23	6	11	39	9	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00							
Frt		0.981			0.959			0.961			0.929	
Flt Protected		0.991			0.998			0.972			0.981	
Satd. Flow (prot)	0	1767	0	0	1795	0	0	1725	0	0	1667	0
Flt Permitted		0.856			0.979			0.849			0.891	
Satd. Flow (perm)	0	1526	0	0	1760	0	0	1507	0	0	1514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			46			12			56	
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		296.2			237.5			421.4			267.1	
Travel Time (s)		17.8			14.3			30.3			16.0	
Confl. Peds. (#/hr)			11	11								
Confl. Bikes (#/hr)			1	1								
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	4%	4%	0%	2%	0%	0%	20%	0%	0%	8%	6%
Adj. Flow (vph)	66	257	53	21	326	154	24	6	12	41	10	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	376	0	0	501	0	0	42	0	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	60.0	60.0		60.0	60.0		30.0	30.0		30.0	30.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	55.5	55.5		55.5	55.5		25.5	25.5		25.5	25.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't 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	
Act Effct Green (s)		55.5			55.5			25.5			25.5	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	

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Synchro 12 Report

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Lanes, Volumes, Timings

4: Mount Hope Road & Columbia Way

2033 PM Total MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.40			0.45			0.10			0.23	
Control Delay (s/veh)		8.2			9.8			19.3			14.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay (s/veh)		8.2			9.8			19.3			14.5	
LOS		A			A			B			B	
Approach Delay (s/veh)		8.2			9.8			19.3			14.5	
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 50

Control Type: Pretimed

Maximum v/c Ratio: 0.45

Intersection Signal Delay (s/veh): 10.1

Intersection LOS: B

Intersection Capacity Utilization 55.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 4: Mount Hope Road & Columbia Way

	Ø2 (R)		Ø4
30 s		60 s	
	Ø6 (R)		Ø8
30 s		60 s	

Queues

4: Mount Hope Road & Columbia Way

2033 PM Total MIT

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	376	501	42	107
v/c Ratio	0.40	0.45	0.10	0.23
Control Delay (s/veh)	8.2	9.8	19.3	14.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.2	9.8	19.3	14.5
Queue Length 50th (m)	26.3	40.1	4.6	7.3
Queue Length 95th (m)	41.1	62.4	13.6	20.9
Internal Link Dist (m)	272.2	213.5	397.4	243.1
Turn Bay Length (m)				
Base Capacity (vph)	947	1102	435	469
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	0.40	0.45	0.10	0.23
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

4: Mount Hope Road & Columbia Way

2033 PM Total MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	242	50	20	306	145	23	6	11	39	9	53
Future Volume (vph)	62	242	50	20	306	145	23	6	11	39	9	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.96			0.93	
Flt Protected		0.99			1.00			0.97			0.98	
Satd. Flow (prot)		1768			1793			1727			1668	
Flt Permitted		0.86			0.98			0.85			0.89	
Satd. Flow (perm)		1527			1758			1507			1514	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	66	257	53	21	326	154	24	6	12	41	10	56
RTOR Reduction (vph)	0	7	0	0	18	0	0	9	0	0	40	0
Lane Group Flow (vph)	0	369	0	0	483	0	0	33	0	0	67	0
Confl. Peds. (#/hr)			11	11								
Confl. Bikes (#/hr)			1	1								
Heavy Vehicles (%)	3%	4%	4%	0%	2%	0%	0%	20%	0%	0%	8%	6%
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)		55.5			55.5			25.5			25.5	
Effective Green, g (s)		55.5			55.5			25.5			25.5	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		941			1084			426			428	
v/s Ratio Prot												
v/s Ratio Perm		0.24			c0.27			0.02			c0.04	
v/c Ratio		0.39			0.45			0.08			0.16	
Uniform Delay, d1		8.7			9.1			23.6			24.2	
Progression Factor		0.82			1.00			1.00			1.00	
Incremental Delay, d2		1.2			1.3			0.4			0.8	
Delay (s)		8.3			10.4			24.0			25.0	
Level of Service		A			B			C			C	
Approach Delay (s/veh)		8.3			10.4			24.0			25.0	
Approach LOS		A			B			C			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		11.7			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		55.9%			ICU Level of Service			B				
Analysis Period (min)		15										

c Critical Lane Group

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	99	134	184	555	320	305
Future Volume (vph)	99	134	184	555	320	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	110.0	0.0			0.0
Storage Lanes	1	1	0			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.934	
Flt Protected	0.950			0.988		
Satd. Flow (prot)	1612	1583	0	1863	1748	0
Flt Permitted	0.950			0.673		
Satd. Flow (perm)	1612	1583	0	1269	1748	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		140			127	
Link Speed (k/h)	60			60	60	
Link Distance (m)	504.6			1060.6	1231.4	
Travel Time (s)	30.3			63.6	73.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	12%	2%	0%	1%	3%	0%
Adj. Flow (vph)	103	140	192	578	333	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	140	0	770	651	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	

Lanes, Volumes, Timings

5: Caledon-King Townline South & Columbia Way

2033 PM Total MIT

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	22.5	22.5	67.5	67.5	67.5	
Total Split (%)	25.0%	25.0%	75.0%	75.0%	75.0%	
Maximum Green (s)	18.0	18.0	63.0	63.0	63.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	Max	Max	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effect Green (s)	10.8	10.8		66.5	66.5	
Actuated g/C Ratio	0.13	0.13		0.77	0.77	
v/c Ratio	0.51	0.44		0.79	0.47	
Control Delay (s/veh)	43.2	10.6		14.6	4.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	43.2	10.6		14.6	4.4	
LOS	D	B		B	A	
Approach Delay (s/veh)	24.4			14.6	4.4	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 86.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 12.1

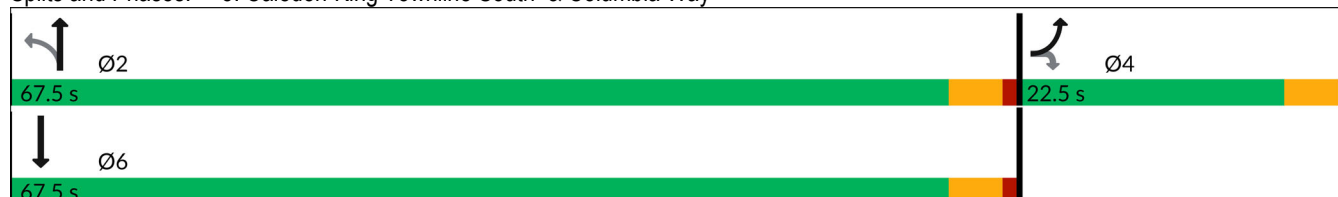
Intersection LOS: B

Intersection Capacity Utilization 91.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Caledon-King Townline South & Columbia Way



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Synchro 12 Report

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Queues

5: Caledon-King Townline South & Columbia Way

2033 PM Total MIT



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	103	140	770	651
v/c Ratio	0.51	0.44	0.79	0.47
Control Delay (s/veh)	43.2	10.6	14.6	4.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.2	10.6	14.6	4.4
Queue Length 50th (m)	17.5	0.0	59.4	23.0
Queue Length 95th (m)	34.1	15.7	#185.4	51.7
Internal Link Dist (m)	480.6		1036.6	1207.4
Turn Bay Length (m)		110.0		
Base Capacity (vph)	336	441	978	1376
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	0.31	0.32	0.79	0.47

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Caledon-King Townline South & Columbia Way

2033 PM Total MIT

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	99	134	184	555	320	305
Future Volume (vph)	99	134	184	555	320	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.93	
Flt Protected	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1612	1583		1863	1748	
Flt Permitted	0.95	1.00		0.67	1.00	
Satd. Flow (perm)	1612	1583		1269	1748	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	103	140	192	578	333	318
RTOR Reduction (vph)	0	122	0	0	29	0
Lane Group Flow (vph)	103	18	0	770	622	0
Heavy Vehicles (%)	12%	2%	0%	1%	3%	0%
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	10.8	10.8		66.5	66.5	
Effective Green, g (s)	10.8	10.8		66.5	66.5	
Actuated g/C Ratio	0.13	0.13		0.77	0.77	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	198		977	1346	
v/s Ratio Prot	c0.06				0.36	
v/s Ratio Perm		0.01		c0.61		
v/c Ratio	0.51	0.09		0.79	0.46	
Uniform Delay, d1	35.3	33.4		5.8	3.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.2		6.4	1.1	
Delay (s)	37.5	33.6		12.2	4.7	
Level of Service	D	C		B	A	
Approach Delay (s/veh)	35.2			12.2	4.7	
Approach LOS	D			B	A	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			12.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			86.3		Sum of lost time (s)	9.0
Intersection Capacity Utilization			91.6%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

Zone A Totals

Number of Intersections	4
Total Delay (hr)	22
Stops (#)	2513
Average Speed (km/hr)	42
Total Travel Time (hr)	86
Distance Traveled (km)	3602
Fuel Consumed (l)	452
Fuel Economy (km/l)	8.0
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	126
Performance Index	28.7

Appendix K

Traffic Signal Warrant



Signal Justification Calculation for Forecast Volumes (OTM Book 12 - Justification 7)



Horizon Year: 2033
Region/City/Township: Town of Caledon

Major Street: Columbia Way
Minor Street: Westchester Road/Proposed Str

North/South?: N

Number of Approach Lanes: 1
Tee Intersection?: N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Feet Crossing Main Road
	Columbia Way						Westchester Road/Proposed Street A						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	15	252	62	62	326	20	95	0	71	131	0	54	3
PM Peak Hour	73	227	83	59	173	168	58	0	45	66	0	81	187
Average Hourly Volume	22	120	36	30	125	47	38	0	29	49	0	34	48

Warrant	AHV
1A - All	530
1B - Minor	150
2A - Major	380
2B - Cross	135

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	
% Fulfilled						73.6%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	
% Fulfilled						88.4%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	
% Fulfilled						52.8%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	
% Fulfilled						180.0%

Signal Justification Calculation for Forecast Volumes (OTM Book 12 - Justification 7)



Horizon Year: 2033
Region/City/Township: Town of Caledon

Major Street: Columbia Way
Minor Street: Mount Hope Road

North/South?: N

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Feet Crossing Main Road
	Columbia Way						Mount Hope Road						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	75	357	21	1	259	24	65	10	26	148	5	100	0
PM Peak Hour	62	242	50	20	306	145	23	6	11	38.5	9	53	11
Average Hourly Volume	34	150	18	5	141	42	22	4	9	47	4	38	3

Warrant	AHV
1A - All	514
1B - Minor	124
2A - Major	391
2B - Cross	75

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	
% Fulfilled						71.4%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	
% Fulfilled						72.7%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	
% Fulfilled						54.2%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	
% Fulfilled						100.5%

Signal Justification Calculation for Forecast Volumes (OTM Book 12 - Justification 7)



Horizon Year: 2033
Region/City/Township: Town of Caledon

Major Street: Caledon-King Townline South
Minor Street: Columbia Way

North/South?: Y

Number of Approach Lanes: 1
Tee Intersection?: Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Feet Crossing Main Road
	Caledon-King Townline South						Columbia Way						
	Northbound			Southbound			Eastbound			Westbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	138	141	0	0	647	57	58	0	515	0	0	0	0
PM Peak Hour	184	555	0	0	320	305	99	0	134	0	0	0	0
Average Hourly Volume	81	174	0	0	242	91	39	0	162	0	0	0	0

Warrant	AHV
1A - All	788
1B - Minor	202
2A - Major	587
2B - Cross	39

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	788
% Fulfilled						109.5%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	202
% Fulfilled						79.0%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	587
% Fulfilled						81.5%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	39
% Fulfilled						52.3%