1989 Appleby Line
City of Burlington
Transportation Impact and Parking Study

Paradigm Transportation Solutions Limited

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220073

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Project Summary

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City of Burlington
Transportation Impact and Parking Study



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Executive Summary

Content

Latch Developments Ltd. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact and Parking Study, for a proposed mixed-use development located at 1989 Appleby Line in the City of Burlington.

This study determines the impacts of the development traffic on the surrounding road network, forecasts the site's parking demand and identifies the improvements recommended to accommodate the site generated traffic.

Development Concept

The development concept includes a mixed use 20-storey building containing 475 units with approximately 817 m^2 of ground floor retail space. Build-out is expected to occur by Year 2025.

Vehicle access is proposed via two private driveways. Both driveways will function as right-in/right-out. Left-turns will be restricted through use of the existing raised centre median on Appleby Line and Upper Middle Road.

The Appleby Line driveway, Driveway 1, is proposed approximately 115 metres south of Upper Middle Road. The Upper Middle Road driveway, Driveway 2, is proposed approximately 90 metres east of Appleby Line. The driveway's position is approximately 30 metres east of the existing driveway. The new position provides improved intersection spacing along Upper Middle Road.

Two pick-up/drop-off layby areas are proposed along the main drive aisle. These areas will facilitate passenger pick-up/drop-off as well as on-demand delivery vehicles (e.g., car services and delivery type services). Large delivery trucks will use the site's loading zone.

The site's parking supply is proposed to consist of 502 spaces. Approximately 92 spaces are located at grade. The remaining spaces are in a multilevel parking structure.

Conclusions

Transportation Impact Study

The main findings and conclusions of this study are as follows:

- **Base Year Traffic Conditions**: Critical movements are noted at the Appleby Line intersections with Upper Middle Road and Ironstone Drive.
- **Existing Site Traffic**: The existing land use is generating approximately 134 AM peak hour trip and 162 PM peak hour trips. The removal of the existing land use would likely result in the removal of some of these trips from the existing road network. Gas stations typically generate a high number of pass-by trips. These trips would remain on the network as drivers find new location(s) for fuel
- **Site Trip Generation**: The subject site is forecast to generate approximately 151 and 191 new vehicle trips during the AM and PM peak hours, respectively.
- **Transportation Demand Management**: The site concept plan includes TDM measures intended to assist in mitigating the site's transportation and parking impacts. TDM measures are aimed at walking, transit, cycling, parking, and education/promotion.
- **Background Traffic Conditions**: The noted queue lengths and localized congestion identified under base year conditions are forecast to continue to occur with the addition of two critical movements at the intersection of Appleby Line at Upper Middle Road and Appleby Line at Ironstone Drive.
- **Total Traffic Conditions**: In comparing the total traffic operations to the background traffic operations, one movement is forecast to become critical. The northbound left-turn movement at the intersection of Appleby Line and Ironstone Drive during the PM peak hour is forecast to operate at a LOS F with a v/c ratio greater than 1.00. The 95th percentile queue length is forecast to exceed the available storage during the AM and PM peak hour. All other critical movements exist under background conditions.
- **Remedial Measures**: The following remedial measures have been identified to address forecast traffic volumes:
  - Regional Capital Improvement – widening of Appleby Line to 6 lanes and widening of Upper Middle Road to 6 lanes west of Appleby Line.
  - Optimized signal timings to reflect real world changes in traffic volumes and changes in travel patterns.
  - Additional storage for the eastbound and westbound left-turn lanes on Ironstone Drive.

- **Monitoring Program** – Site traffic is forecast to use Ironstone Drive and Imperial Way to access the subject site due to the right-in/right-out driveways. A pre and post monitoring program should be conducted to review traffic volumes and speeds along Ironstone Drive and Imperial Way. Should the results of the monitoring identify a significant portion of site traffic rerouting through Ironstone Drive and Imperial Way, the Applicant will work with the City of Burlington to implement appropriate corrective measures.

Parking Study

- The site's parking supply is identified as 502 spaces (1.06 spaces per unit) and is allocated as follows:
  - Occupant parking – 455 spaces (0.96 spaces per unit);
  - Visitor/Retail parking – 47 spaces (0.10 spaces per unit);
- The allocation of parking between occupants and visitors requires adjustment.
- With a comprehensive TDM program, a minimum occupant parking ratio of 0.87 spaces per unit and a minimum visitor parking ratio of 0.12 spaces per unit is supportable. The zoning requirements for retail parking will be provided and will be part of the shared visitor parking supply. Any additional parking spaces can be assigned to occupants or visitors.

Recommendations

Based on the findings of this study, it is recommended that:

- The site's TDM program be implemented and monitored over time to help manage the site's transportation and parking impacts.
- Pre and post monitoring program be conducted to mange the site traffic impacts on the adjacent community.
- In conjunction with the site's TDM program, that the site's parking supply be designed to provide for a minimum of 0.87 spaces per units for occupant and a minimum of 0.12 spaces per unit for shared visitors. The zoning requirements for retail parking will be provided.
- The road authorities continue to monitor and plan for the potential widening of Appleby Line and Upper Middle Road from four to six lanes.

- The road authorities consider extending the eastbound left-turn at the Ironstone Drive intersection to provide approximately 60 metres of storage.
- The road authorities consider extending the westbound left-turn at the Ironstone Drive intersection to provide approximately 40 metres of storage.

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1 Introduction

1.1 Overview

Latch Developments Ltd. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact and Parking Study, for a proposed mixed-use development located at 1989 Appleby Line in the City of Burlington. **Figure 1.1** illustrates the site location.

This report is part of a required Zoning By-law Amendment and Official Plan Amendment. The scope of the study includes:

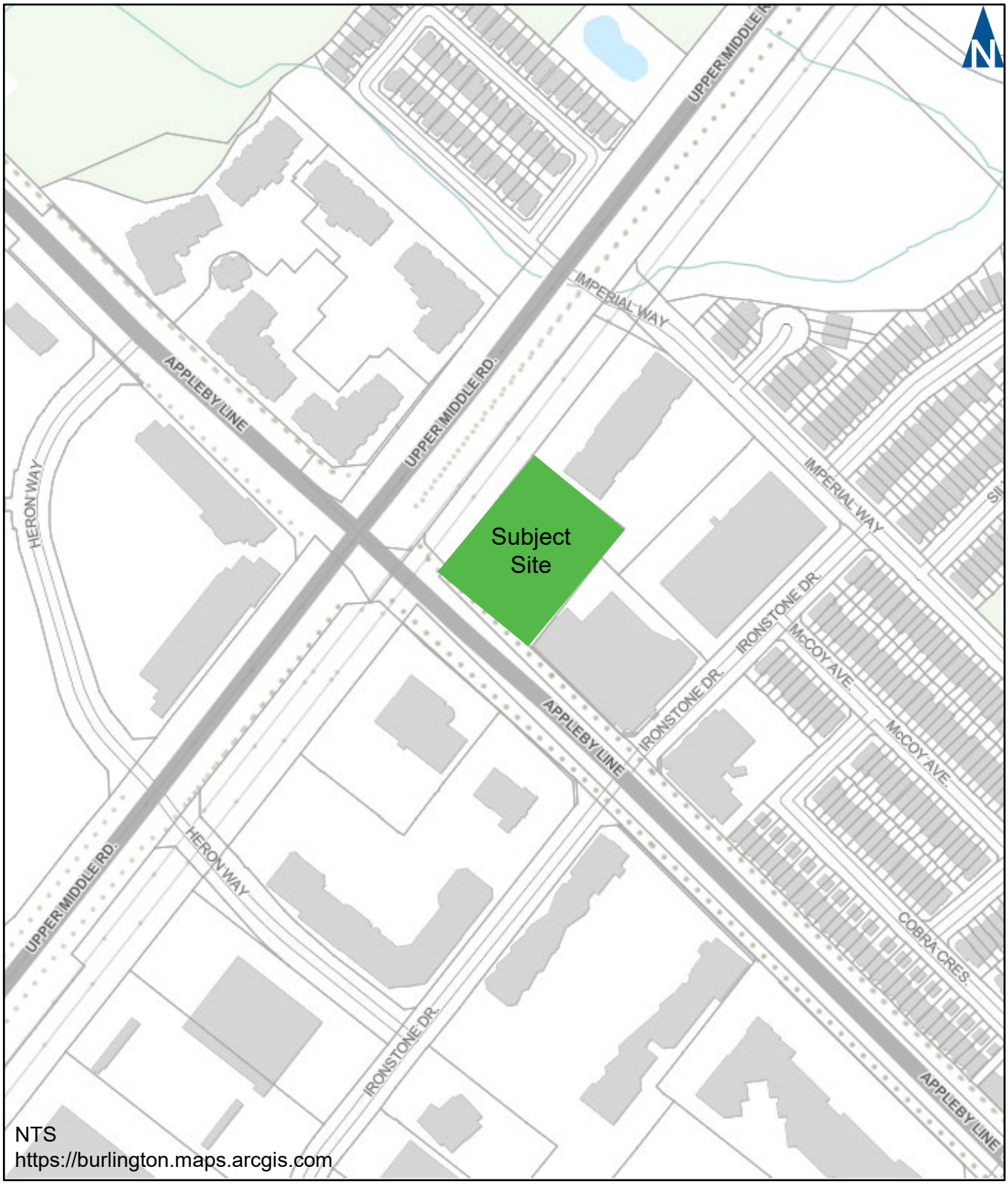
- Determine and assess the current study area traffic conditions;
- Forecast the additional traffic generated by the proposed development;
- Analyze the impacts of the additional traffic on the study area road network;
- Recommend necessary remedial measures to mitigate any identified impacts;
- An assessment of heavy vehicle circulation within the site; and
- Determine the sites parking demand and requirements.

Appendix A contains the pre-study consultation material and responses from the Halton Region and the City of Burlington. The study has been conducted in general accordance with the Halton Region Transportation Impact Study Guidelines[1].

The study area intersections assessed include:

- Appleby Line and Heron Way (signalized);
- Appleby Line and Upper Middle Road (signalized);
- Appleby Line and Ironstone Drive (signalized);
- Upper Middle Road and Imperial Way/Broadleaf Crescent (signalized); and
- The proposed site driveways

[1] Transportation Impact Study Guidelines, Halton Region, January 2015



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Site Location

1989 Appleby Line
220073

Figure 1.1

2 Existing Conditions

2.1 Neighbourhood Context

2.1.1 Existing Land Uses

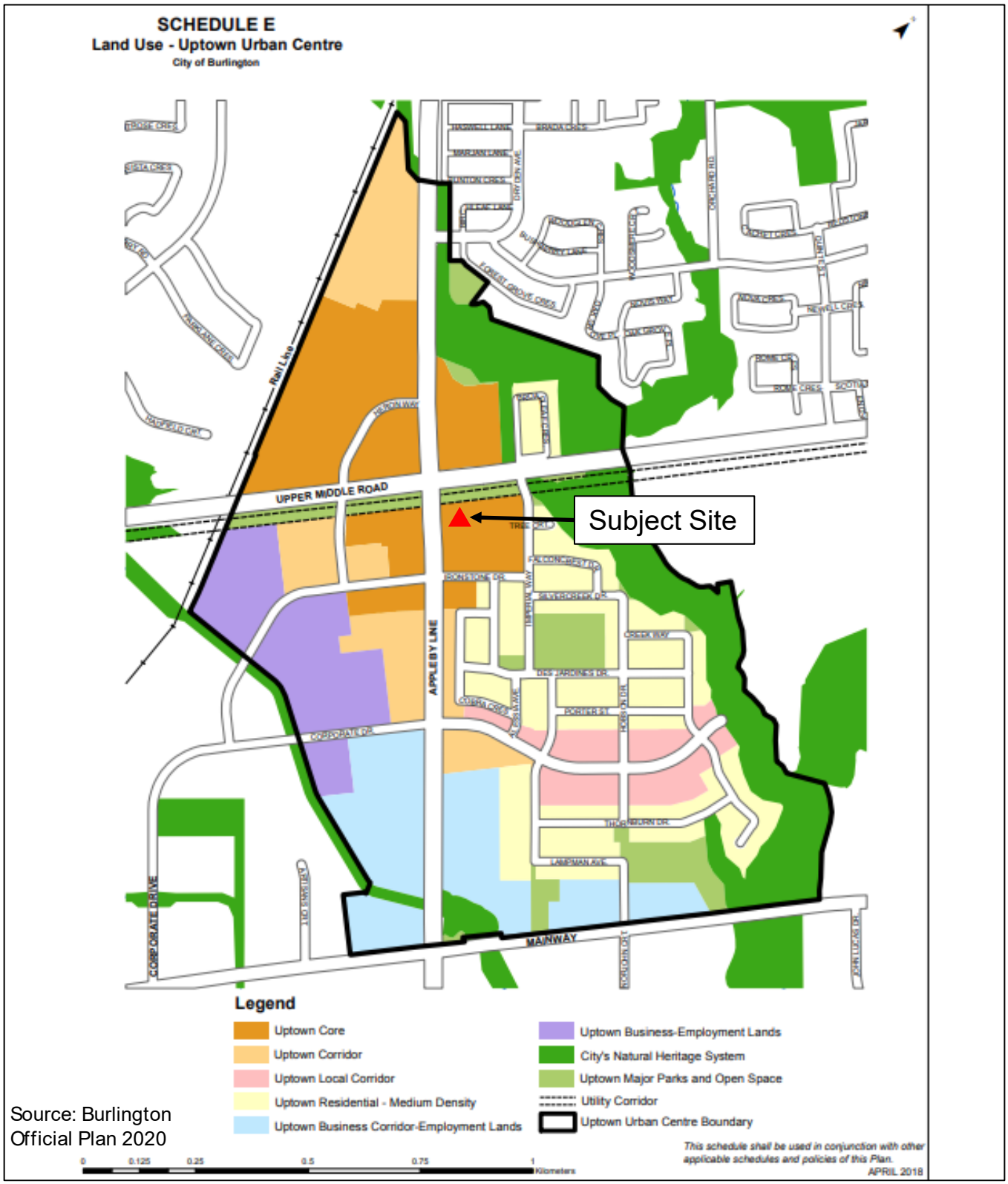
The subject site is an existing gas station. Buildings are positioned along the site's east and west property lines. At-grade parking is provided on site. The proposed redevelopment will replace the existing buildings on the site with a residential high-rise building.

2.1.2 Surrounding Land Uses

The subject site is surrounded by commercial, residential and employment land uses.

The site is located with in the City of Burlington's Uptown mixed-use centre. **Figure 2.1** illustrates the site's context.

The city intends to develop the area as an "intensification area." Intensification Areas are intended to foster a more pedestrian and transit friendly urban environment through a mixture of dense residential, employment, and retail land uses. This type of area is also conducive to supporting Transportation Demand Management (TDM).



Source: Burlington Official Plan 2020

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Site Context

1989 Appleby Line
220073

Figure 2.1

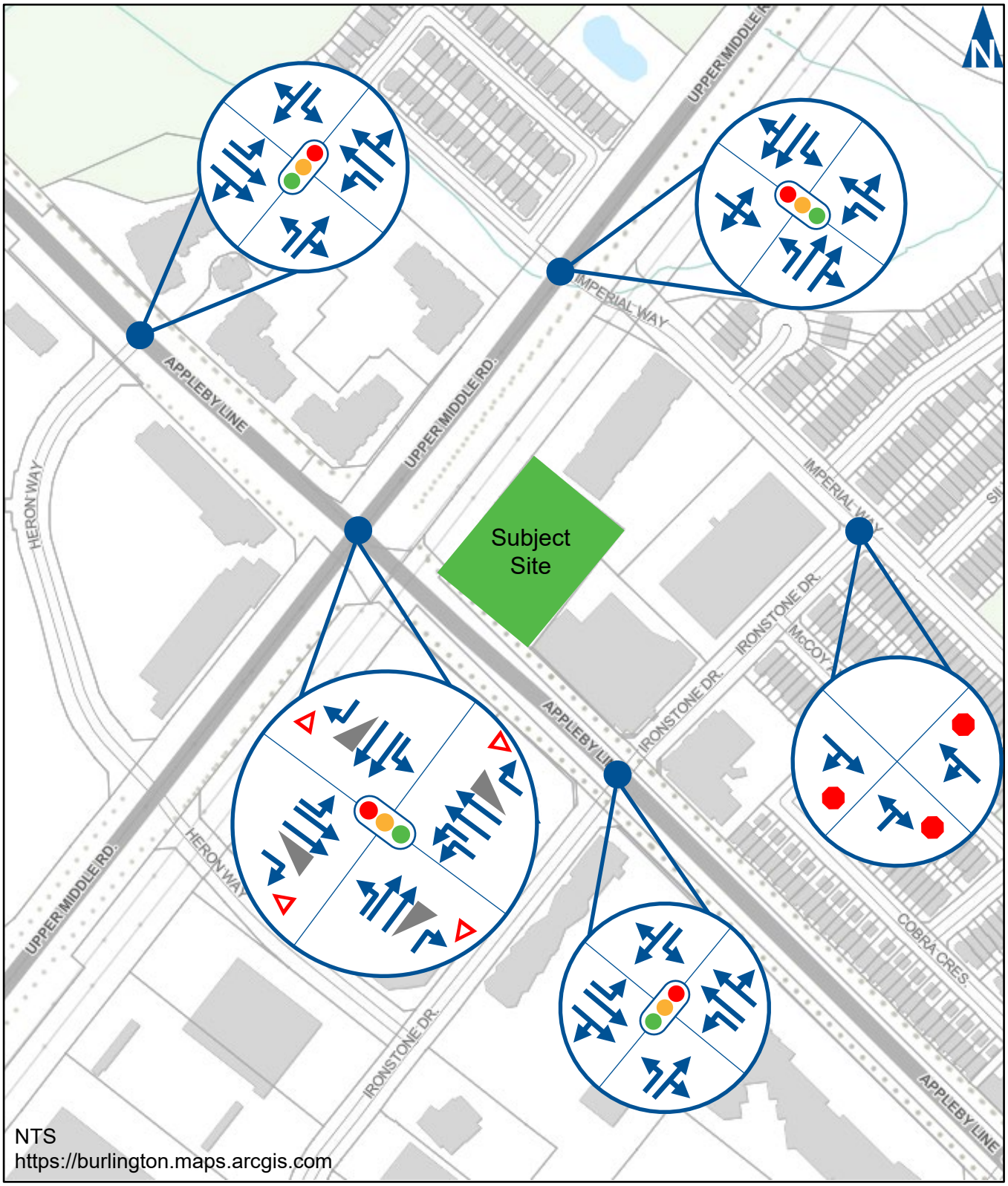
2.2 Roadway Network

The roadways of interest within the study area[2] include:

- **Appleby Line (Regional Road 20)** is a north-south four-lane major urban arterial roadway with a posted speed limit of 60 km/h. The intersections with Upper Middle Road, Heron Way and Ironstone Drive are signalized.
- **Heron Way** is a north-south two-lane urban collector roadway. The statutory 50 km/h speed limit is assumed. Marked on-street parking spaces are present on the east side of this roadway.
- **Upper Middle Road (Regional Road 38)** is an east-west four-lane minor urban arterial roadway with a posted speed limit of 60 km/h. The intersection with Imperial Way/Broadleaf Crescent is signalized.
- **Ironstone Drive** is an east-west two-lane urban collector roadway. The roadway has a posted speed limit of 40 km/h east of Appleby Line. The intersection with Imperial way is all-way stop controlled.
- **Imperial Way/Broadleaf Crescent** is a north-south two-lane urban local roadway with a posted speed limit of 40 km/h. Overnight on-street parking is permitted on Imperial Way from 1AM – 6AM. On-street parking is also permitted on Imperial Way for a maximum of 5 hours during all other time periods.

Figure 2.2 illustrates the existing lane configuration and traffic control at the study area intersections.

[2] Burlington Official Plan Schedule J Classification of Transportation Facilities South of No.1 Side Road



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Existing Lane Configuration and Traffic Control

1989 Appleby Line
220073

Figure 2.2

2.3 Pedestrian Network

Sidewalks are provided on both sides of most roadways in the study area. Heron Way only has sidewalk on the west/north side of the roadway while Broadleaf Crescent only has sidewalk on the east side of the roadway.

A multi-use pathway is provided on both sides of Appleby Line south of Upper Middle Road. North of Upper Middle Road, the multi-use pathway continues the east side of the road.

A multi-use pathway is provided on the south side of Upper Middle Road within the study area.

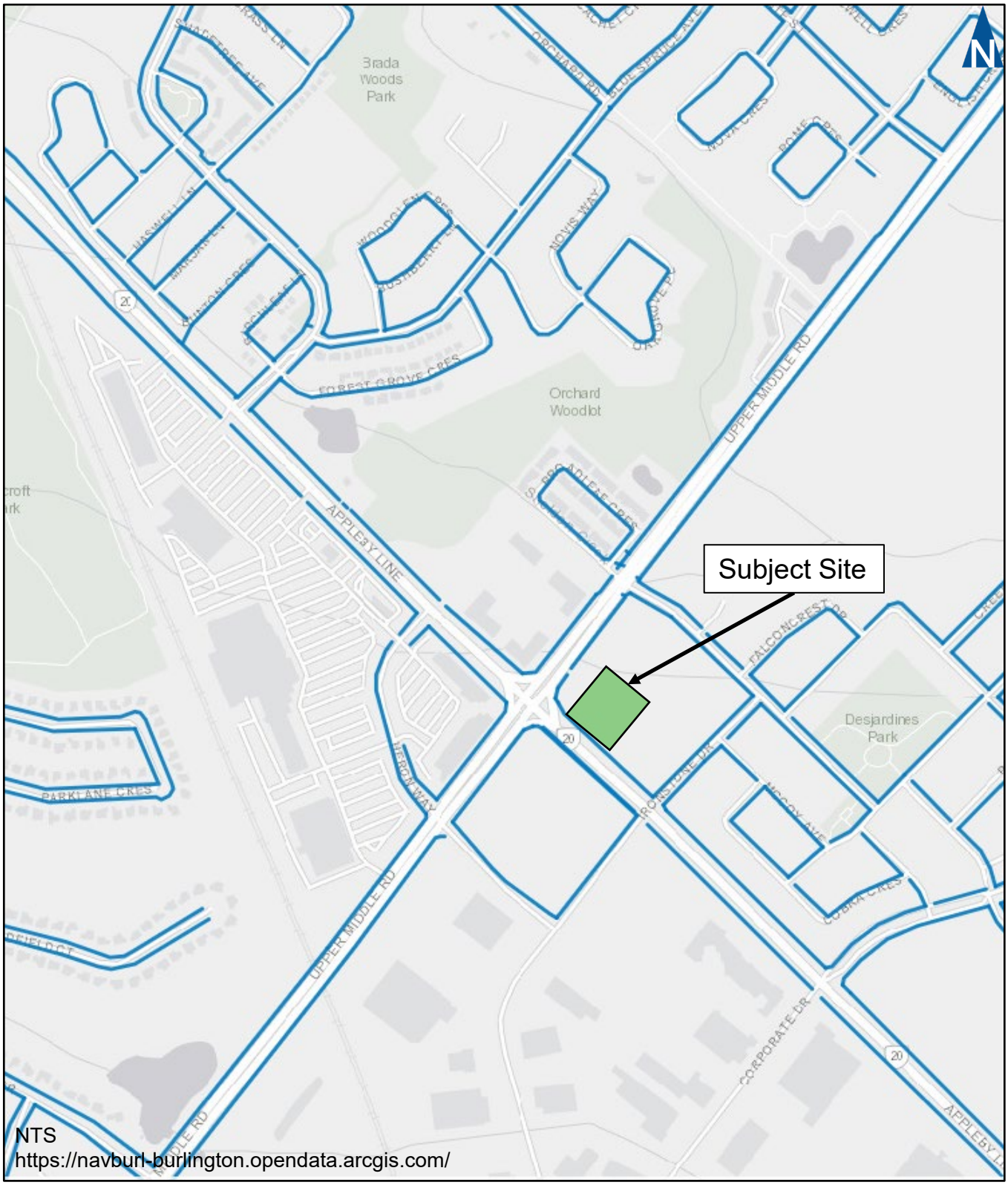
All signalized intersections in the study area provide crosswalks with pedestrian pushbuttons. The Upper Middle Road intersection with Appleby Line has pedestrian crossovers (PXO) on all channelized right-turn movements. A PXO is a type of road crossing where drivers and cyclists must stop for a pedestrian wanting to cross the road.

Figure 2.3 illustrates the existing sidewalks within the study area.

Walk Score[3] is an online tool that assigns a numerical walkability, transit, and cycling score between 0 and 100. Walk Score ranks communities nationwide based on the number of businesses, parks, theatres, schools, and other common destinations within walking distance of any given address.

1989 Appleby Line is noted to have a walk score of 70 and is considered “Very Walkable”, which means some errands can be accomplished on foot due to the availability of businesses and amenities in proximity to the subject site.

[3] https://www.walkscore.com/score/1989-appleby-line-burlington-on-canada, May 2022



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Existing Sidewalks

1989 Appleby Line
220073

Figure 2.3

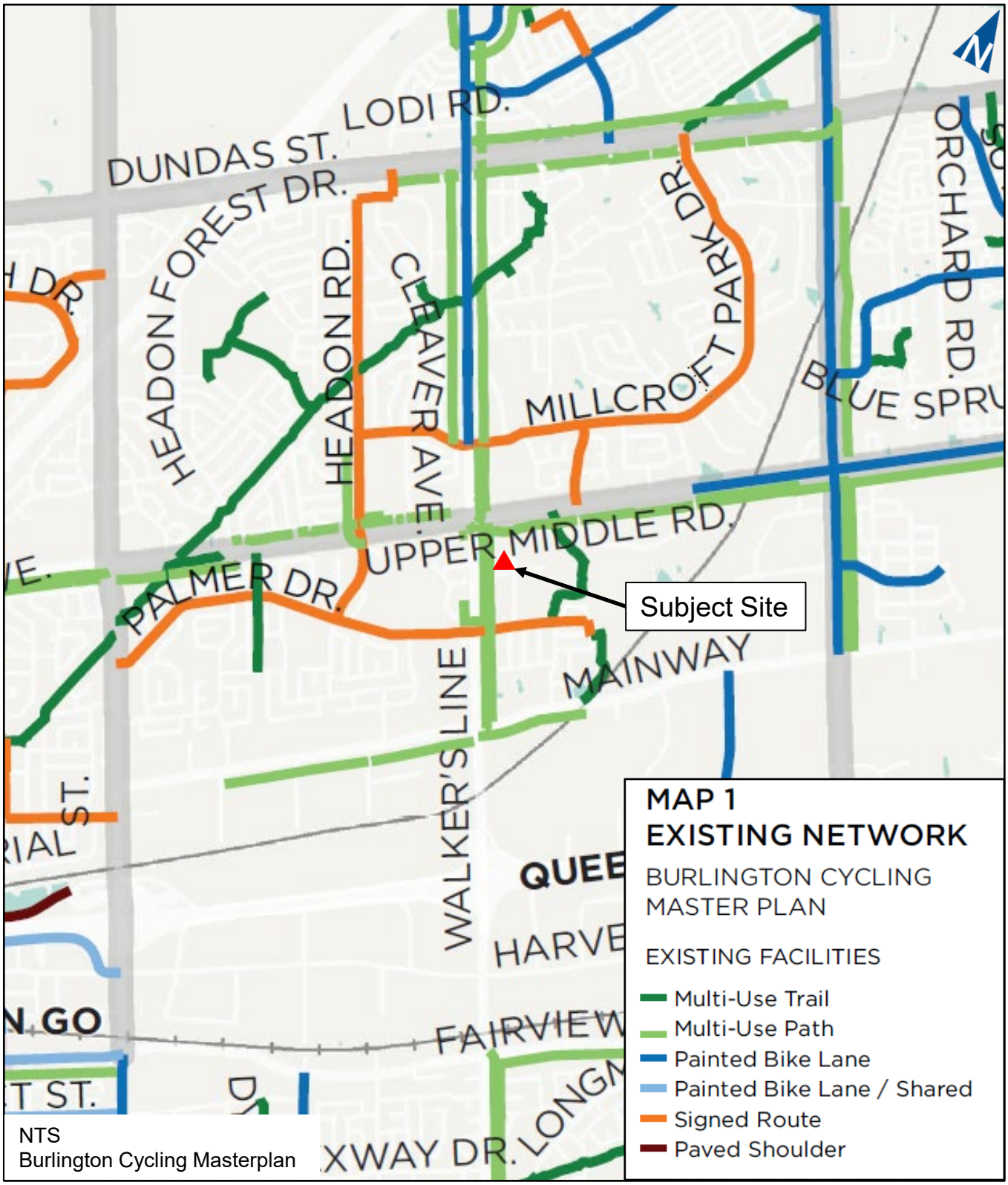
2.4 Cycling Network

The City of Burlington's bicycle network provides a variety of cycling facilities within the immediate area. **Figure 2.4** illustrates the existing cycling network. The following cycling infrastructure is noted:

- Appleby Line:
  - Painted on-street bicycle lanes are provided in both directions.
  - A multi-use pathway is provided on both sides of Appleby Line south of Upper Middle Road. North of Upper Middle Road, the multi-use pathway continues the east side of the road.
- Upper Middle Road:
  - Painted on-street bicycle lanes are provided in both directions.
  - Multi-use bidirectional path is provided on the south side of the roadway within the study area.

In addition to the area being "Very Walkable", the subject site registers a bike score of 80[4] and is considered "Very Bikeable" which means cycling as a form of transportation is classified as convenient for most trips.

[4] https://www.walkscore.com/score/1989-appleby-line-burlington-on-canada, May 2022



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Existing Cycling Network

1989 Appleby Line
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Figure 2.4

2.5 Transit Service

Transit service in the area is provided by Burlington Transit. Four (4) transit routes are in operation within the immediate area. These routes provide connectivity to the larger City-Wide transit network. Transit services is centralized around the three GO Transit stations in the city.

Figure 2.5 illustrates the existing transit network. The following routes operate along the adjacent roadways:

- **Route 11 (Sutton – Alton)** operates along Appleby Line and Upper Middle Road 7 days a week. Service is provided between the Appleby GO Station and the GO 407 Carpool Lot. Weekday service headways are approximately 30 minutes. Weekend service headways are approximately 60 minutes.
- **Route 12 (Upper Middle)** operates along Upper Middle Road and Appleby Line 7 days a week. Service is provided between the Burlington GO Station and the Burlington North SmartCentre. Weekday service headways are approximately 30 minutes. Weekend service headways are approximately 60 minutes.
- **Route 48 (Millcroft)** operates along Upper Middle Road and Millcroft Park Drive throughout the weekdays from September to June. Service is provided between the Corpis Christi Secondary School and the Harbor Community Centre. Weekday service is provided once between 7:30AM to 8:30AM and 2:30PM to 3:15PM.
- **Route 51 (Burlington North)** operates along Upper Middle Road and Appleby Line 7 days a week. Service is provided between the Burlington GO Station and North Burlington. Weekday and weekend service headways are approximately 60 minutes from 10:50AM to 1:30PM.

Figure 2.6 illustrates the existing transit stops within 500 metres of the subject site and the following is noted:

- The closest eastbound transit stop is located east of Imperial Way on the south side of Upper Middle Road. The stop services Routes 11 and 48 with a walk time of less than two (2) minutes.
- The closest westbound transit stop is located east of Imperial Way on the north side of Upper Middle Road. The stop services Routes 11, 48, and 51 with a walk time between 3-4 minutes.

Pedestrians can cross Upper Middle Road using the signal at Imperial Way.

- The closest northbound transit stop is located north of Ironstone Drive on the east side of Appleby Line. The stop services Route 11 with a walk time of less than 2 minutes.
- The closest southbound stop is located south of Upper Middle Road on the west side of Appleby Line. The stop services Route 11 with a walk time of less than 2 minutes. Pedestrians can cross Appleby Line using the signal at Upper Middle Road.

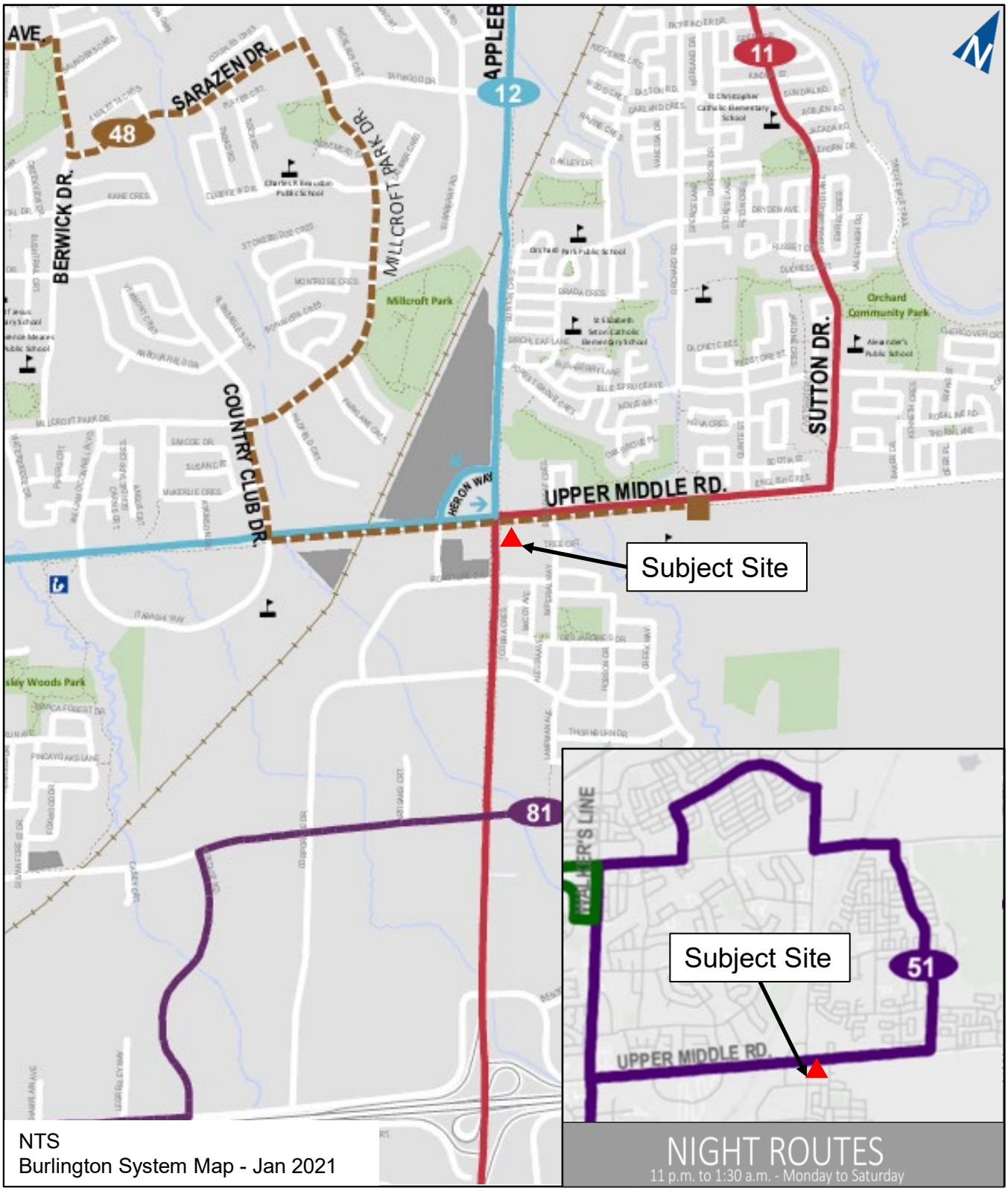
The City of Burlington Integrated Mobility Plan[5] is *built around eight pillars which, when implemented, will result in a new era of transportation that:*

- *Provides a wide range of options for getting around regardless of age, means or ability, including walking, cycling, public transit and automobiles*
- *Uses compact modes of travel like buses, bicycles and walking to efficiently move larger number of people*
- *Is well connected to transportation systems in surrounding regions*
- *Offers fast, reliable, and more frequent transit*
- *Features improved facilities and safety for cyclists and pedestrians*

Burlington's Integrated Mobility Plan plans to deliver bus rapid transit throughout the City with a route planned along Appleby Line between Dundas Street and New Street. This route would provide residents rapid bus service using dedicated bus transit lanes. The route specifics and implementation date are currently unknown. **Figure 2.7** illustrates the proposed rapid bus transit network.

In addition to being a very walkable and very bikeable area, the subject site has a Transit Score of 33[6] "Some Transit" which means there are few nearby public transportation options.

[5] City of Burlington Integrated Mobility Plan www.burlington.ca/en/services-for-you/Transportation-Master-Plan.asp
[6] www.walkscore.com/score/1989-appleby-line-burlington-on-canada, May 2022



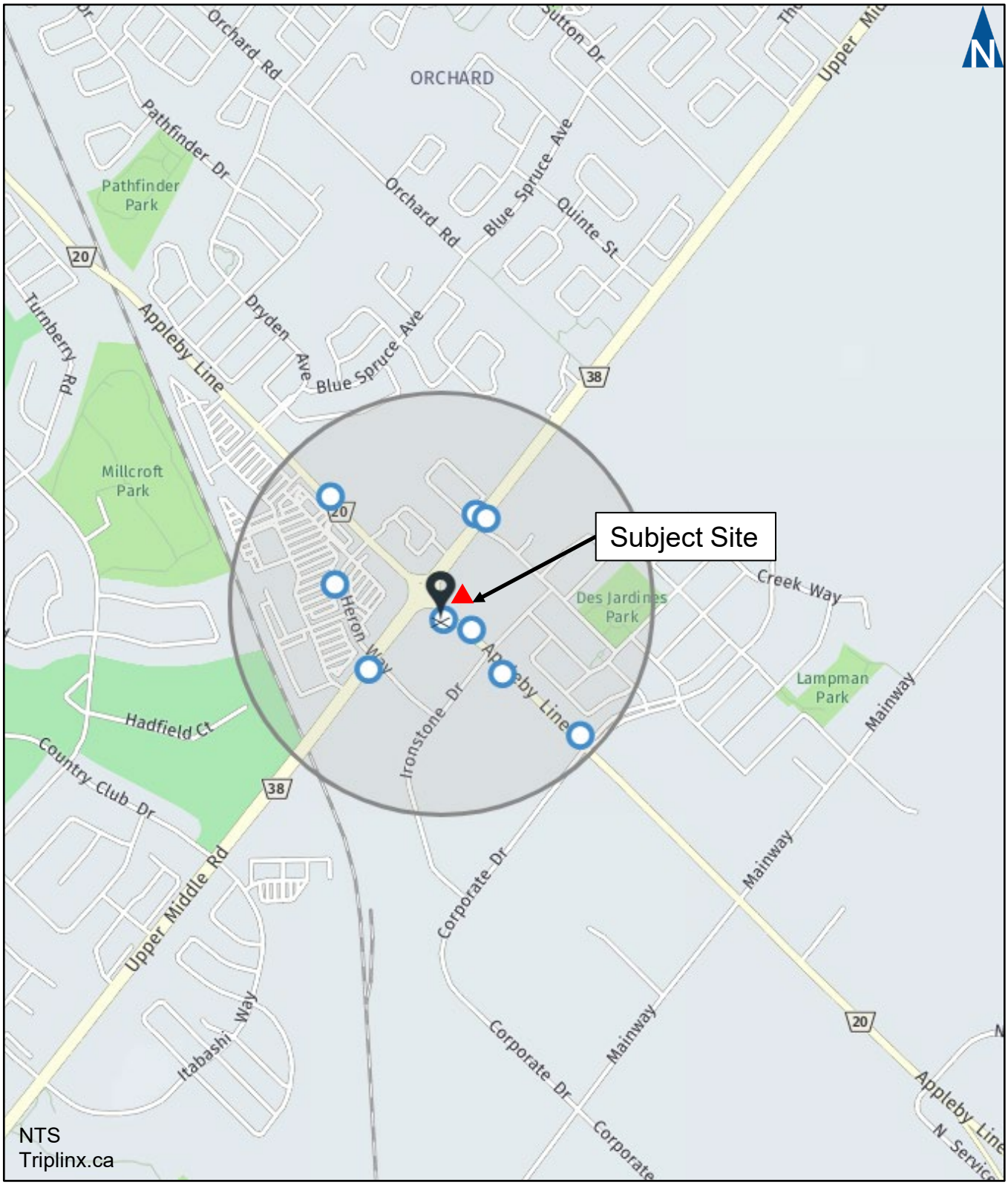
NTS
Burlington System Map - Jan 2021

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Existing Transit Network

1989 Appleby Line
220073

Figure 2.5

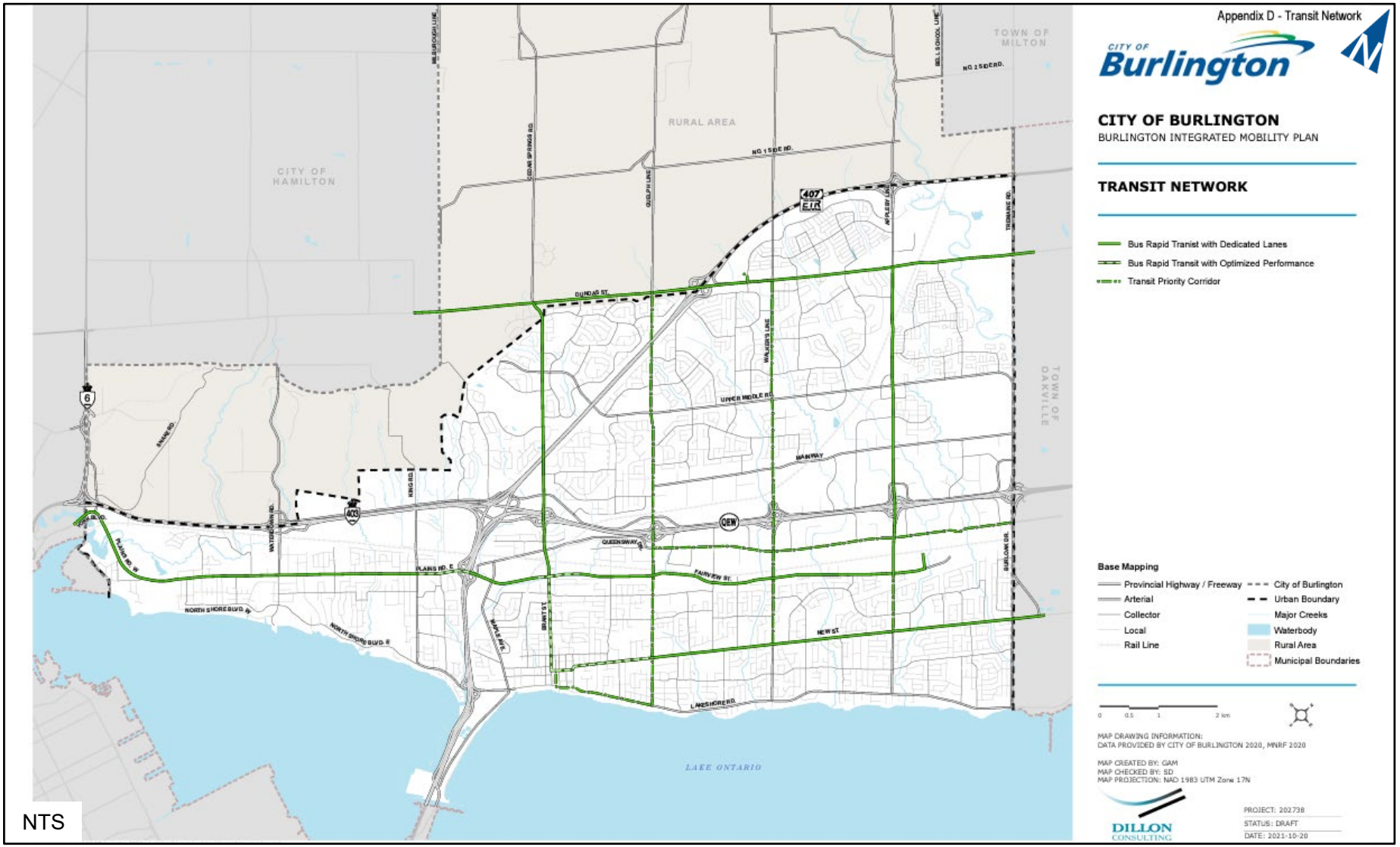


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Existing Transit Stops

1989 Appleby Line
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Figure 2.6



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Proposed Rapid Bus Transit Network

1989 Appleby Line
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Figure 2.7

2.6 Traffic Volumes

Table 2.1 summarizes the location and date of the existing turning movement count (TMC) data used in the analysis. The data was obtained from the Halton Region, the City of Burlington and collected by Paradigm. **Appendix B** contains the existing count data.

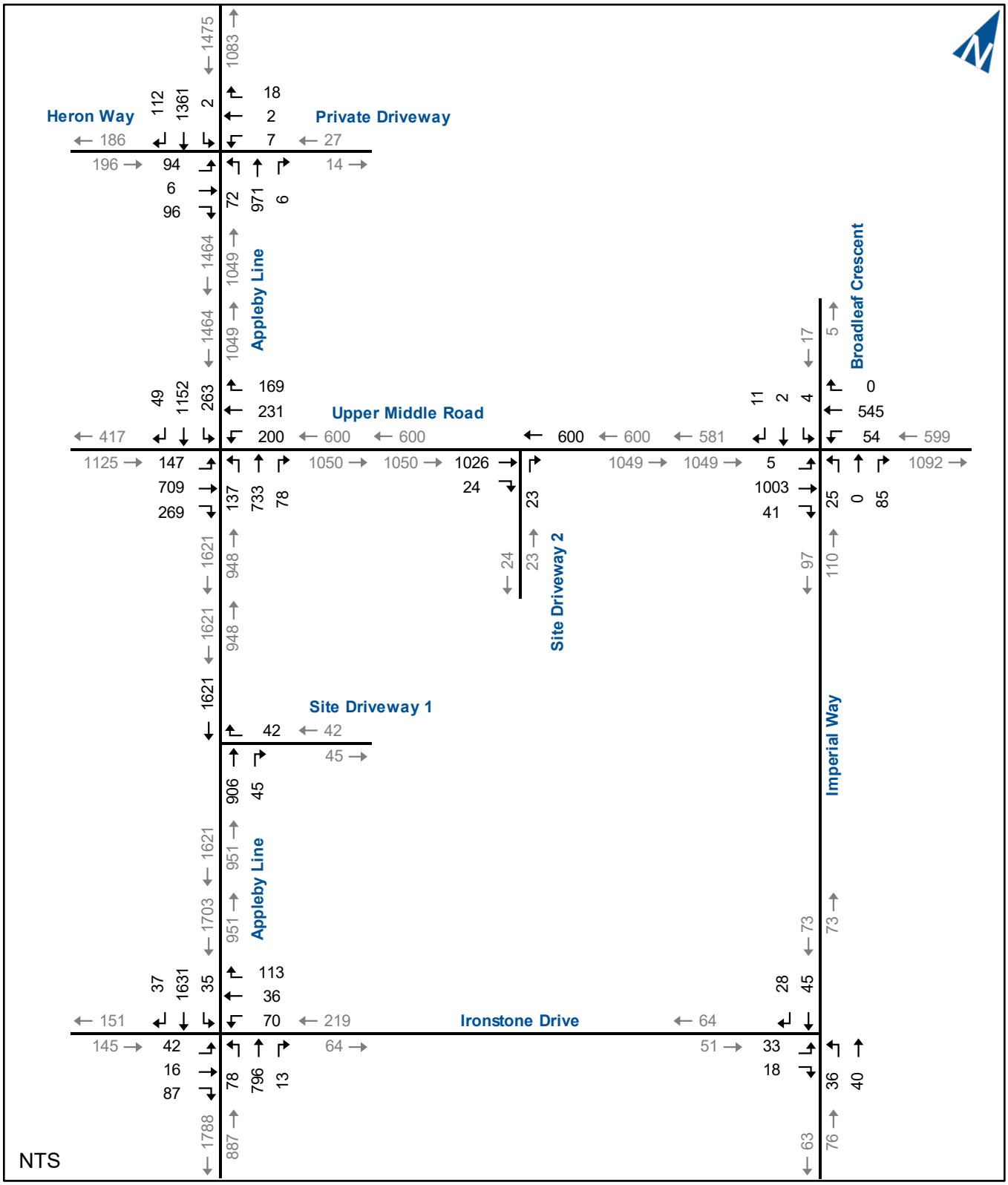
TABLE 2.1: EXISTING TMC DATA

Intersection	Date
Appleby Line at Heron Way	Wednesday, 04 December 2019
Appleby Line at Upper Middle Road	Tuesday, 29 October 2019
Appleby line at Site Driveway 1	Tuesday, 29 March 2022
Upper Middle Road at Site Driveway 2	Tuesday, 29 March 2022
Upper Middle Road at Imperial Way	Tuesday, 29 October 2019
Imperial Way at Ironstone Drive	Tuesday, 29 March 2022

To derive base year traffic volumes (Year 2022), the TMC data was factored to Year 2022 by using a 0.5% per annum growth rate. The growth rate was determined in consultation with the City of Burlington and Halton Region. The volumes were balanced then circulated to the City of Burlington and Halton Region for approval for use in the study.

Figure 2.8A-B illustrate the base year weekday AM and PM peak hour traffic volumes.

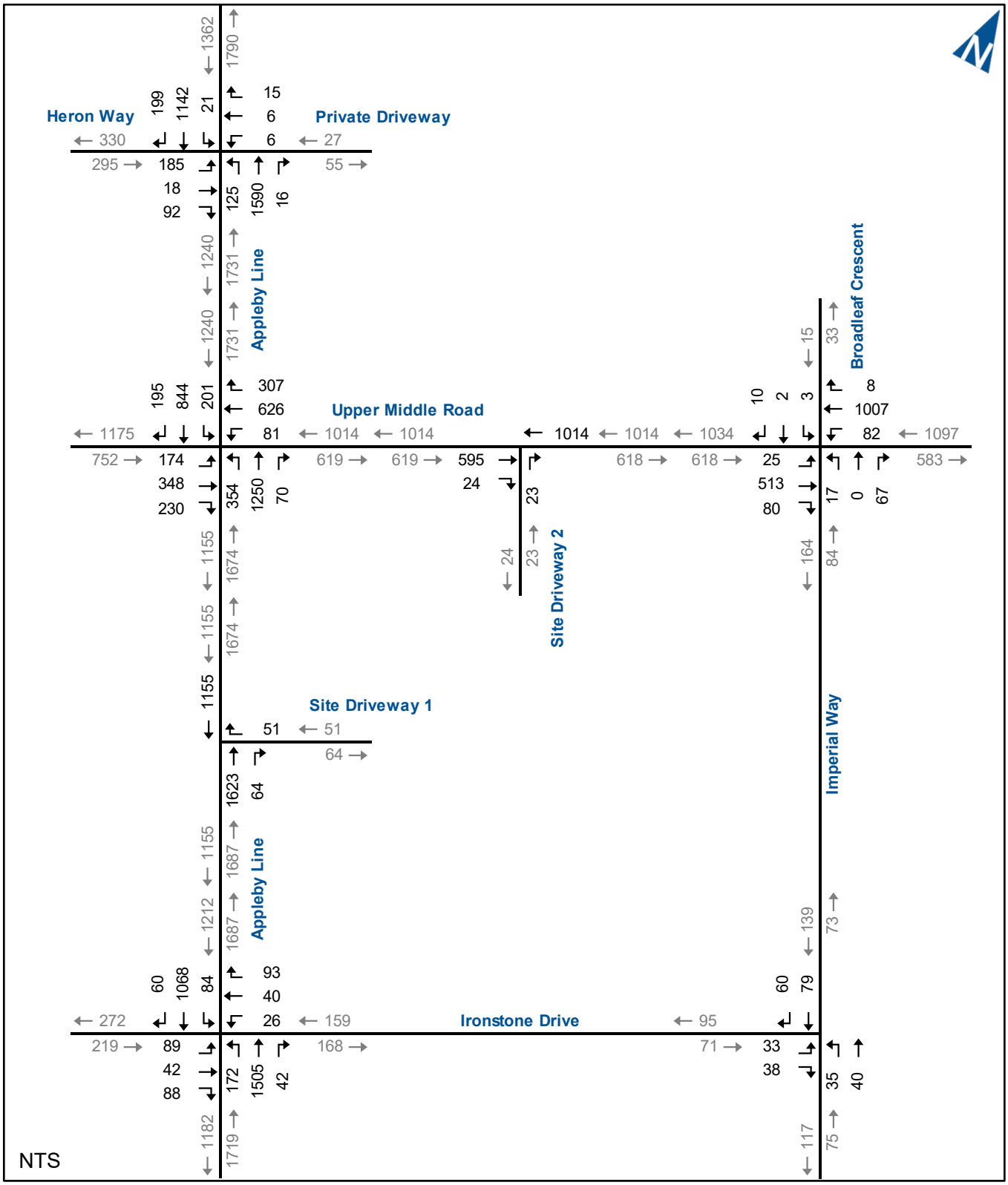
The existing land use is generating approximately 134 AM peak hour trip and 162 PM peak hour trips. The removal of the existing land use would like result in the removal of some of these trips from the existing road network. Gas stations typically generate a high number of pass-by trips. These trips would remain on the network as drivers find new location(s) for fuel.



Base Year Traffic – AM Peak Hour

1989 Appleby Line
220073

Figure 2.8A



Base Year Traffic – PM Peak Hour

1989 Appleby Line
220073

Figure 2.8B

2.7 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the efficiency of traffic flow at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles desiring to make a movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows. The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds at signalized intersections (50 seconds at unsignalized), the movement is considered to have a LOS F and remedial measures are usually implemented if they are feasible.

The operations of the study area intersections were evaluated under existing traffic volumes using Synchro 11 and HCM 2000 procedures. The intersection analysis considered the following measures of performance:

- The LOS for each turning movement. LOS is based on the average control delay per vehicle;
- The volume to capacity ratio for each intersection; and
- 95th percentile queue length (metres).

Under the Region's[7] TIS Guidelines, the following criteria indicate critical conditions and signify that mitigation measures may need to be considered:

- At signalized intersections,
  - Overall intersection operations, through movements, or shared through/turning movements increased to 0.85 or above.
  - V/C ratios for exclusive movements increased to 0.95 or above; or
  - Queues for an individual movement are projected to exceed turning lane storage.
- At unsignalized intersections,
  - LOS, based on average delay per vehicle, on individual movements exceeds LOS "D"; or

[7] Halton Region, Transportation Impact Study Guidelines, January 2015

- The estimated 95th percentile length for an individual movement exceeds the available queue storage.

Table 2.2A-B summarizes the base year operational conditions. The following critical movements are noted:

- Appleby Line and Upper Middle Road
  - Eastbound left-turn – PM peak hour, LOS F with a v/c ratio greater than 1.00 and a queue length exceeding the available storage in the AM and PM peak hour.
  - Eastbound through/right-turn – AM peak hour, LOS F with a v/c ratio greater than 1.00.
  - Westbound left-turn – AM Peak hour, LOS F with a v/c ratio greater than 1.00.
  - Westbound through/right-turn – PM peak hour, LOS F with a v/c greater than 1.00.
  - Northbound through/right-turn – AM and PM peak hour, LOS D with a v/c greater than 0.85.
    - The maximum forecast 95th percentile queue length in the northbound direction is expected to be approximately 245 metres. The queue length is forecast to block the existing site driveway.
  - Southbound left-turn – AM and PM peak hour, LOS F with a v/c ratio near or greater than 1.00 and a queue length exceeding the available storage.
  - Southbound through/right-turn – AM peak hour, LOS F with a v/c greater than 1.00.
- Appleby Line and Ironstone Drive
  - Eastbound left-turn – AM and PM peak hour queue length exceeding the available storage.
  - Westbound left-turn – AM peak hour queue length exceeding the available storage.
  - Southbound left-turn – PM peak hour queue length exceeding the available storage.

Appendix C contains the supporting detailed Synchro reports.

The above noted capacity deficiencies are forecast to occur under existing conditions. These deficiencies are not related or are a result of the development of the subject site.

TABLE 2.2A: BASE YEAR TRAFFIC OPERATIONS – AM PEAK HOUR

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	Appleby Line & Heron Way/Private Driveway	TCS	LOS	D	D	>	**D**	<	D	>	**D**	B	A	>	**A**	A	B	>	**B**	**B**
			Delay	44	39	>	**41**	<	39	>	**39**	11	5	>	**5**	6	14	>	**14**	**13**
			V/C	0.53	0.10	>		<	0.06	>		0.39	0.43	>		0.01	0.75	>		**0.70**
			95th	37	16	>		<	10	>		9	57	>		1	174	>		
			Storage	70	-	>		<	-	>		25	-	>		15	-	>		
			Avail.	33	-	>		<	-	>		16	-	>		14	-	>		
	Appleby Line & Upper Middle Road	TCS	LOS	C	F	>	**F**	F	C	>	**D**	C	D	>	**D**	E	E	>	**E**	**E**
			Delay	29	130	>	**116**	91	34	>	**53**	29	48	>	**45**	71	62	>	**63**	**72**
			V/C	0.50	1.17	>		1.00	0.38	>		0.45	0.87	>		0.94	1.01	>		**1.07**
			95th	42	204	>		91	46	>		15	144	>		106	223	>		
			Storage	45	-	>		120	-	>		80	-	>		40	-	>		
			Avail.	4	-	>		29	-	>		65	-	>		-66	-	>		
	Appleby Line & Driveway 1	TWSC	LOS							B	**B**		A	>	**A**		A		**A**	**A**
			Delay							11	**11**		0	>	**0**		0		**0**	**0**
			V/C							0.07			0.39	>			0.52			
			95th							2			0	>			0			
	Appleby Line & Ironstone Drive	TCS	LOS	D	D	>	**D**	D	D	>	**D**	B	A	>	**A**	A	B	>	**B**	**B**
			Delay	46	41	>	**43**	47	42	>	**44**	17	4	>	**5**	6	16	>	**15**	**16**
			V/C	0.46	0.15	>		0.52	0.27	>		0.52	0.36	>		0.11	0.82	>		**1**
			95th	22	20	>		32	29	>		18	42	>		8	215	>		
			Storage	15	-	>		15	-	>		35	-	>		30	-	>		
			Avail.	-7	-	>		-17	-	>		17	-	>		22	-	>		
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			A	**A**					**A**
			Delay		0	>	**0**		0		**0**			10	**10**					**0**
			V/C		0.44	>			0.19					0.03						
			95th		0	>			0					1						
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**	**A**
			Delay	4	6	>	**6**	3	2	>	**2**	45	41	>	**42**	<	41	>	**41**	**7**
			V/C	0.01	0.49	>		0.14	0.22	>		0.31	0.07	>		<	0.06	>		**0.44**
			95th	1	68	>		4	17	>		14	0	>		<	8	>		
			Storage	25	-	>		30	-	>		30	-	>		<	-	>		
			Avail.	24	-	>		26	-	>		16	-	>		<	-	>		
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
			Delay	8		>	**8**					<	8		**8**		7	>	**7**	**8**
			V/C	0.07		>						<	0.10				0.09	>		

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service
V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

TABLE 2.2B: BASE YEAR TRAFFIC OPERATIONS – PM PEAK HOUR

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	Appleby Line & Heron Way/Private Driveway	TCS	LOS	E	D	>	**D**	<	D	>	**D**	B	B		**B**	B	B		**B**	**B**
			Delay	57	43	>	**52**	<	42	>	**42**	18	12		**12**	13	17		**17**	**18**
			V/C	0.71	0.13	>		<	0.06	>		0.60	0.73			0.20	0.71			**0.75**
			95th	79	21	>		<	12	>		25	199			9	187			
			Storage	70	-	>		<	-	>		25	-			15	-			
			Avail.	-9	-	>		<	-	>		0	-	0		6	-	0		
	Appleby Line & Upper Middle Road	TCS	LOS	F	E	>	**E**	D	F	>	**F**	C	D	>	**D**	F	D	>	**D**	**F**
			Delay	128	56	>	**73**	46	246	>	**230**	25	44	>	**40**	112	36	>	**49**	**89**
			V/C	1.06	0.77	>		0.58	1.41	>		0.66	0.92	>		1.02	0.78	>		**1.08**
			95th	95	102	>		32	245	>		42	242	>		108	184	>		
			Storage	45	-	>		120	-	>		80	-	>		40	-	>		
			Avail.	-50	-	>		88	-	>		38	-	>		-68	-	>		
	Appleby Line & Driveway 1	TWSC	LOS							B	**B**		A	>	**A**		A		**A**	**A**
			Delay							12	**12**		0	>	**0**		0		**0**	**0**
			V/C							0.09			0.69	>			0.37			
			95th							3			0	>			0			
	Appleby Line & Ironstone Drive	TCS	LOS	E	D	>	**D**	D	D	>	**D**	B	A	>	**A**	C	B	>	**B**	**B**
			Delay	66	47	>	**55**	46	48	>	**48**	11	8	>	**8**	29	11	>	**13**	**15**
			V/C	0.71	0.33	>		0.20	0.44	>		0.61	0.67	>		0.62	0.56	>		**1**
			95th	44	37	>		16	45	>		23	154	>		50	120	>		
			Storage	15	-	>		15	-	>		35	-	>		30	-	>		
			Avail.	-29	-	>		-1	-	>		12	-	>		-20	-	>		
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			B	**B**					**A**
			Delay		0	>	**0**		0		**0**			11	**11**					**0**
			V/C		0.25	>			0.32					0.04						
			95th		0	>			0					1						
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**	**A**
			Delay	4	5	>	**5**	2	2	>	**2**	45	41	>	**42**	<	41	>	**41**	**5**
			V/C	0.08	0.28	>		0.14	0.41	>		0.23	0.05	>		<	0.05	>		**0.40**
			95th	5	31	>		5	35	>		11	0	>		<	7	>		
			Storage	25	-	>		30	-	>		30	-	>		<	-	>		
			Avail.	20	-	>		25	-	>		20	-	>		<	-	>		
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
			Delay	8		>	**8**					<	8		**8**		8	>	**8**	**8**
			V/C	0.09		>						<	0.10				0.16	>		

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service
V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

3 Development Concept

3.1 Development Description

The development concept includes a mixed use 20-storey building containing 475 units with approximately 817 m^2 of ground floor retail space. Build-out is expected to occur by Year 2025. **Figure 3.1** illustrates the site concept.

Vehicle access is proposed via two private driveways. Both driveways will function as right-in/right-out. Left-turns will be restricted through use of the existing raised centre median on Appleby Line and Upper Middle Road.

The Appleby Line driveway, Driveway 1, is proposed approximately 115 metres (CL to CL) south of Upper Middle Road. The driveway is located as far south as possible. The Upper Middle Road driveway, Driveway 2, is proposed approximately 90 metres (CL to CL) east of Appleby Line. The driveway's position is approximately 30 metres east of the existing driveway. The new position provides improved intersection spacing along Upper Middle Road.

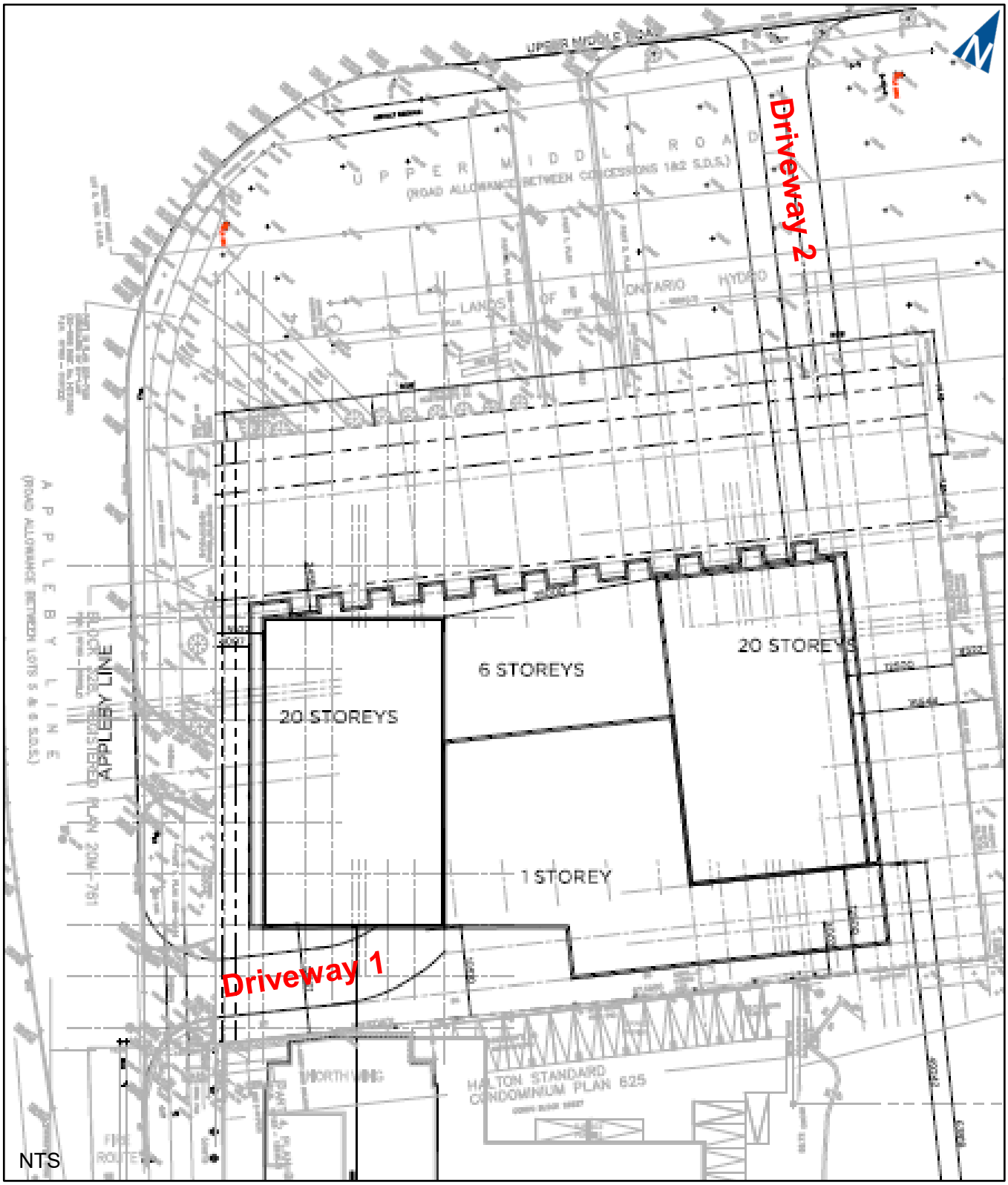
Paradigm staff completed a driveway sightline review in May 2022. Upper Middle Road and Appleby Line within the study area are both straight and flat with no substantial vertical or horizontal curves. No sightline concerns were observed during the review. Sightline for drivers turning right out of the site driveways extend for more than 130 metres[8].

Both driveways will be design in accordance with local design standards. The driveway design will be finalized at Site Plan Approval.

Two pick-up/drop-off layby areas are proposed along the main drive aisle. These areas will facilitate passenger pick-up/drop-off as well as on-demand delivery vehicles (e.g., car services and delivery type services). Large delivery trucks will use the site's loading zone.

The site's parking supply is proposed to consist of 502 spaces. Approximately 92 spaces are located at grade. The remaining spaces are in a multilevel parking structure. TAC

[8] Transportation Association of Canada Geometric Design Guide for Canadian Roadways – Table 9.9.6: Design Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver – Design Speed = 70 km/h



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Site Concept Plan

1989 Appleby Line
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Figure 3.1

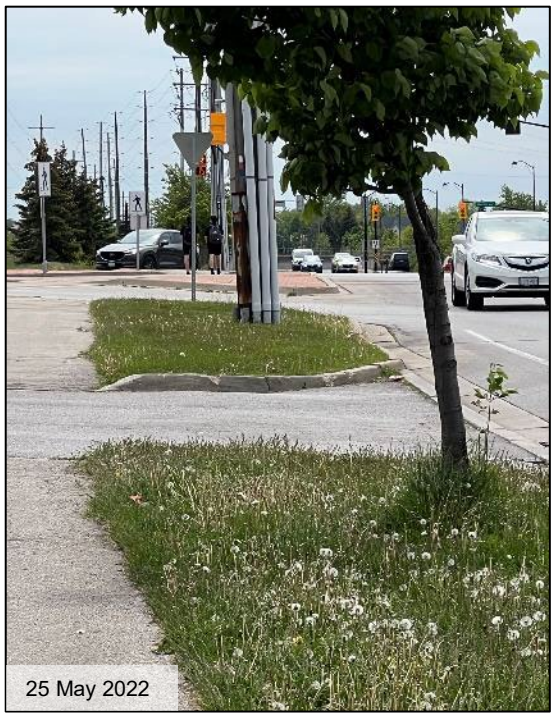
Appleby Line - Looking South from Driveway



Appleby Line - Looking North to Driveway



Upper Middle Road - Looking West from Driveway



Upper Middle Road - Looking East to Driveway



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Driveway Sightlines

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Figure 3.2

3.2 TDM Measures

The subject site is in the uptown urban centre which has a comprehensive pedestrian network and cycle facilities with a number of transit stops within 500 metres of the site.

The site plan includes Transportation Demand Management (TDM) measures to help improve transportation efficiency (reduced congestion), encouraging use of alternative modes, reducing reliance on single occupant vehicles, and encouraging a change in behaviour.

The proposed TDM measures include in the current development concept include:

- **Walking**
  - Safe, attractive, and direct walkways for pedestrians linking building entrances with public sidewalks;
  - All on-site sidewalks will conform to the City of Burlington's design standards and the Accessibility for Ontarians with Disabilities Act (AODA) design standards;
  - A continuous sidewalk along the subject site's frontage with Upper Middle Road and Appleby Line;
  - The outdoor space will have amenities such as benches, seating areas and pedestrian scale lighting; and
- **Cycling**
  - 272 long-term bicycle parking spaces (0.57 spaces per unit).
  - 48 short-term bicycle parking spaces (0.10 spaces per unit);
  - Long-term bicycle parking will be provided in a secure indoor room(s) with a bicycle repair station(s). Long-term bicycle parking will be located at grade with automatic door access to assist access;
  - Short-term bicycle parking is located at grade near primary building entrances;
  - Curb cut ramps adjacent to any bicycle parking will be considered to allow for improved accessibility; and
- **Transit**
  - A subsidized transit pass (Presto Card) will be provided to first time purchasers who do not purchase parking;
  - Proposed sidewalks connect directly to the adjacent Burlington Transit stops; and

- Transit information will be provided in the lobby.

- **Parking**
  - Reduced parking supply due to proximity to transit;
  - Parking is unbundled from the cost of the units;
  - The parking supply will be managed to limit the sale of spaces to buyer to be a maximum of one space per unit;
  - Parking costs will reflect the full cost of building and operating the parking facility;
  - Visitor parking is shared between the residential and non-residential land uses;
  - Visitor parking will be monitored and enforced to avoid disruption to the local community; and
  - A pre and post occupancy study to monitor the usage of on-street parking within the surrounding community.
- **Carshare**
  - The site operator will explore the feasibility of providing a carshare vehicle and space at grade as an amenity for residents and the local community. At present no carshare programs operate in the City of Burlington.
- **Wayfinding, Travel Planning, Education/Promotion**
  - Travel planning resources will be provided to residents (individualized marketing, active transportation maps, community resources, transit schedules);
  - Wayfinding signage will be provided in the lobby or near the main entrance; and
  - Marketing material will promote a strong TDM brand.

The above TDM measures can assist in mitigating the site's transportation and parking impacts on the adjacent road network, promote a strong and vibrant economy, and create a livable community that has a balanced transportation network. The monitoring and adjustment of the site's TDM program will be critical to the site's success.

3.3 Site Generated Traffic

The Institute of Transportation Engineers (ITE) Trip Generation[9] methods predict the site trip generation. The following land use codes were used to estimate the site's trip generation:

- Multifamily Housing (High-Rise) (LUC 222) – Not Close to Rail; and
- Shopping Plaza (<44k) (LUC 822).

Table 3.1 summarizes the estimated trip generation. The subject site is estimated to generate approximately 151 AM peak hour trips and 221 PM peak hour trips. Pass-by trips are expected to reduce the site's PM peak hour trip generation to approximately 191 trips.

Compared to the existing land use, the subject site is estimated to generate approximately 17 more AM peak hour trips and 29 more peak hour trips.

To remain conservative, no reductions for mode choice or internal capture were applied to the site's trip generation estimate.

TABLE 3.1: ESTIMATED TRIP GENERATION

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Multifamily Housing (High-Rise) (LUC 222) - Not Close to Rail - 475 units	42	81	**123**	82	65	**147**
Shopping Plaza (<40k) (LUC 822) - 871 m² (9,375 sq.ft.)	17	11	**28**	37	37	**74**
Total Generation	**59**	**92**	**151**	**119**	**102**	**221**
Shopping Center (>150k) (LUC 820) - Pass-by Trips	0	0	**0**	15	15	**30**
Net Generation	**59**	**92**	**151**	**104**	**87**	**191**

LUC 222 AM T = 0.22(X) + 18.85 | PM T = 0.26(X) + 23.12

LUC 822 AM Ln(T) = 0.66 Ln(X) + 1.84 | PM Ln(T) = 0.71 Ln(X) + 2.72

[9] Trip Generation Manual 11th Edition Institute of Transportation Engineers, Washington DC, September 2021

Table 3.2 summarizes the estimated trip distribution. The estimated distribution is based on a review of the Transportation Tomorrow Survey[10] (TTS) patterns and distribution zones surrounding the subject site. **Appendix D** contains the TTS survey data. **Figure 3.3A-B** illustrates the site generated traffic.

The proposed site driveway function as a right-in right-out. This will restrict travel patterns for site traffic and result in site traffic using Imperial Way and Ironstone Drive. Both roadways are defined as collector roadways by the City of Burlington. The Burlington Official Plan[11] defines the purpose of collector roadways as the following:

- Connects neighbourhoods;
- Distributes traffic to and from arterial roadways;
- Provides convenient local transit routes;
- Provides access to adjacent land uses; and
- Up to 12,000 daily vehicles.

Site traffic entering from the south will have direct access to the Driveway 1 on Appleby Line. Site traffic entering the site from the west will have direct access to Driveway 2 on Upper Middle Road.

Site traffic entering from the north can either perform a U-turn at the Ironstone Drive intersection or circle the block via Upper Middle Road, Imperial Way, and Ironstone Drive to gain access to Driveway 1. Site traffic entering from the east are expected to circle the block via Upper Middle Road, Imperial Way, and Ironstone Drive to gain access to Driveway 1.

Outbound site traffic travelling north on Appleby Line will have direct access from Driveway 1. Outbound site traffic travelling east on Upper Middle Road will have direct access from Driveway 2.

Outbound site traffic travelling south is expected to circle the block via Upper Middle Road, Imperial Way, and Ironstone Drive. Outbound site traffic travelling west can either exit by Driveway 1 and cross two lanes of traffic or travel around the block and access Upper Middle Road via Imperial Way, Ironstone Drive and Huron Way. Drivers wishing to cross two lanes of traffic to turn left at Upper Middle Road may become frustrated by the queuing of vehicles on Appleby Line. During peak hours this movement is not anticipated to be a frequent occurrence.

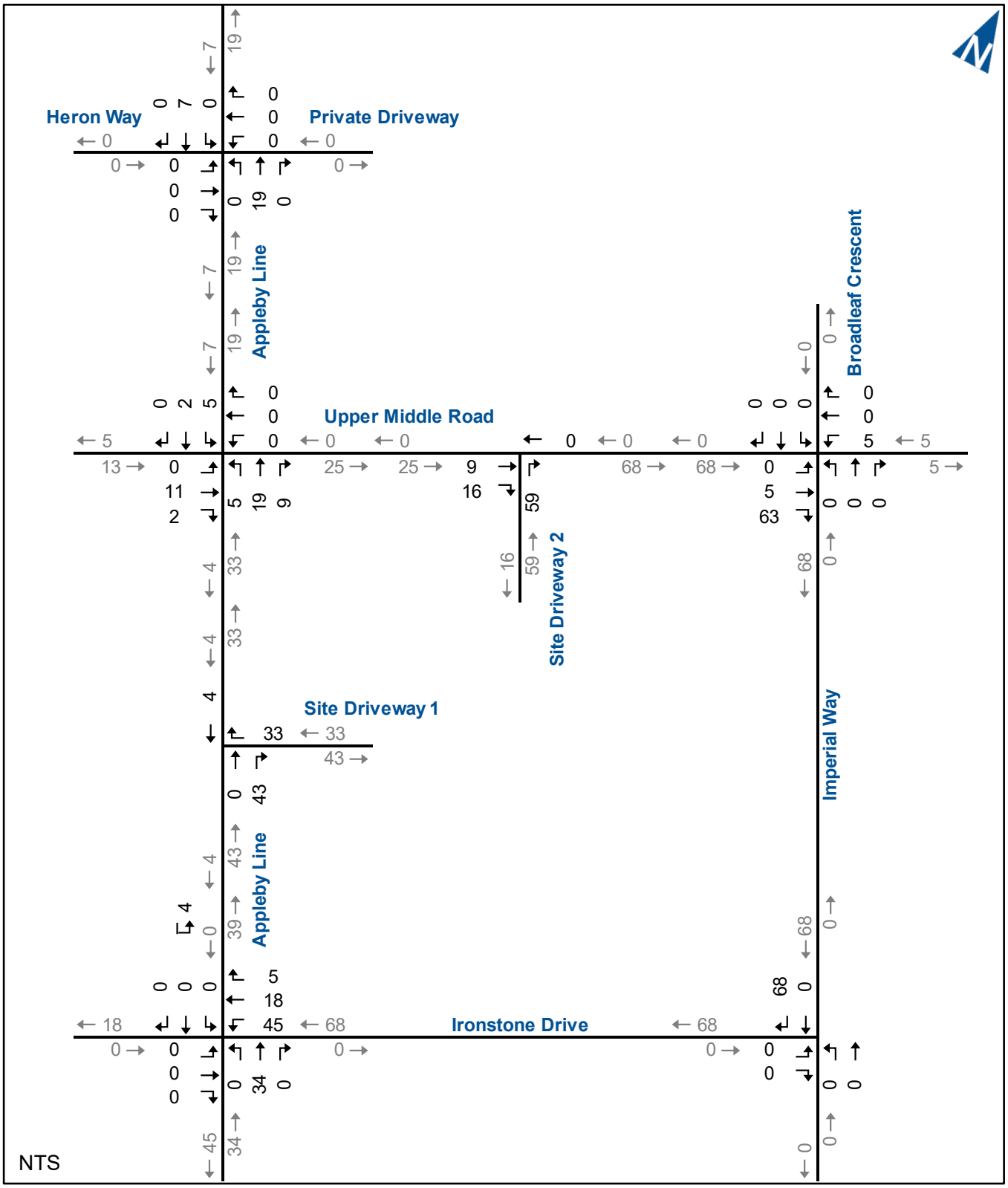
[10] Data Management Group, Transportation Tomorrow Survey Zone 4081, 2016
[11] Official Plan, City of Burlington, December 2013

It is expected that approximately 68 AM peak hour and 75 PM peak hour trips will be re-directed via Imperial Way and Ironstone Drive due to the configuration of the site driveways.

A pre and post monitoring program should be established to measure traffic volumes and speeds using Imperial Way and Ironstone Drive. The monitoring program is described in **Section 5.3**.

TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

Origin/Destination	AM Peak Hour		PM Peak hour	
	In	Out	In	Out
Residential Land Use				
East via Upper Middle Road	5%	5%	5%	5%
North via Appleby Line	10%	20%	20%	10%
South via Appleby Line	60%	50%	50%	65%
West via Upper Middle Road	25%	5%	25%	5%
West via Ironstone Drive	0%	20%	0%	15%
Total	**100%**	**100%**	**100%**	**100%**
Retail Land Use				
East via Upper Middle Road	15%	10%	15%	5%
North via Appleby Line	20%	25%	25%	20%
South via Appleby Line	50%	40%	30%	60%
West via Upper Middle Road	15%	5%	30%	5%
West via Ironstone Drive	0%	20%	0%	10%
Total	**100%**	**100%**	**100%**	**100%**

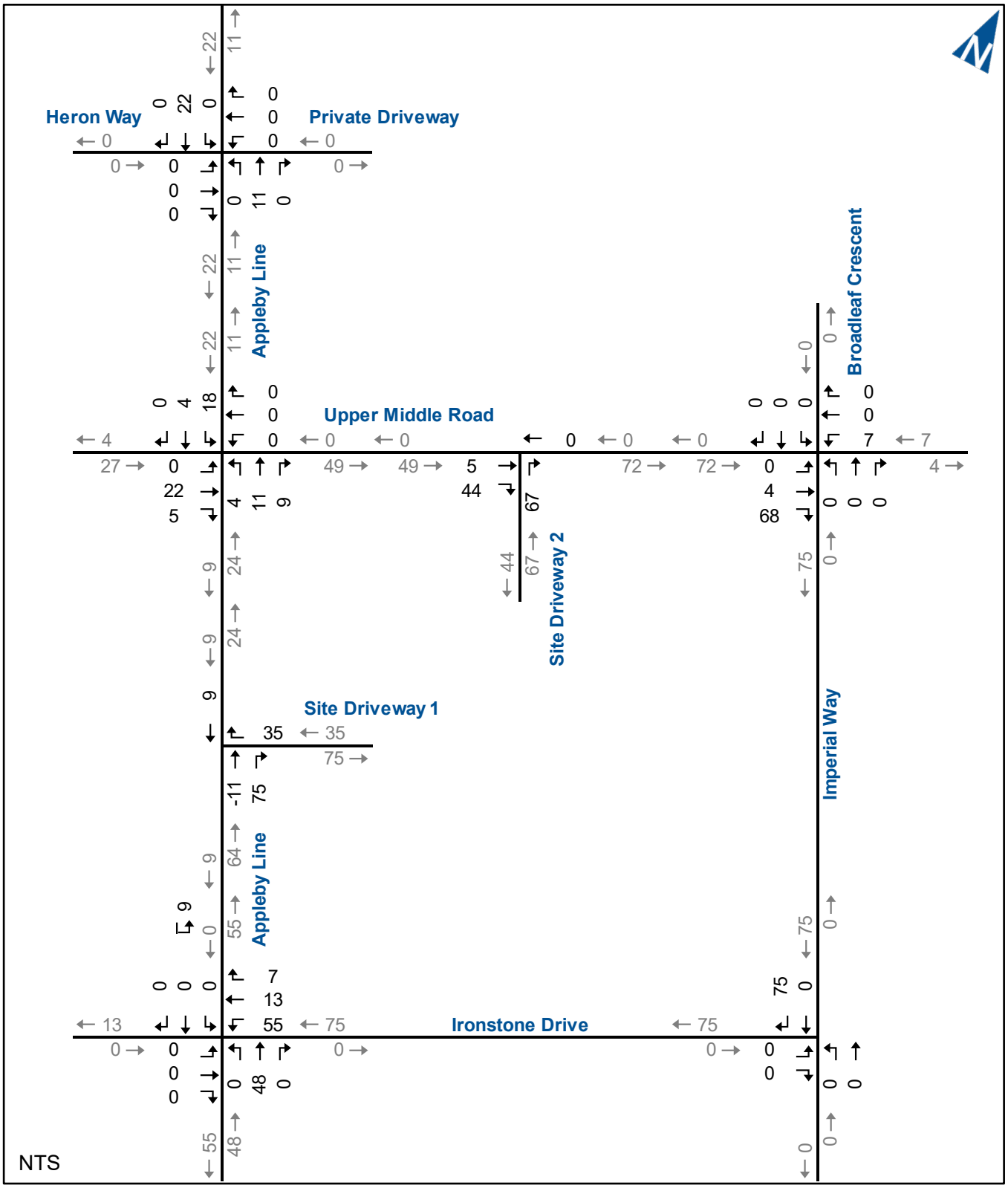


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Site Generate Traffic – AM Peak Hour

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Figure 3.3A



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Site Generate Traffic – PM Peak Hour

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Figure 3.3B

3.4 Site Circulation

Heavy vehicle and site circulation have been assessed using AutoTURN swept path analysis software. Five design vehicles were used in the analysis:

- Halton Front End Loading Garbage Truck;
- Delivery/Garbage Truck;
- Transportation Association of Canada (TAC) Heavy Single Unit (HSU) ;
- TAC Medium Signal Unit (MSU); and
- Passenger Car – TAC Passenger Car (P).

Appendix E contains the AutoTURN swept path analysis. No conflicts with the proposed on-site geometry is noted.

4 Future Traffic Conditions

4.1 Forecast Traffic

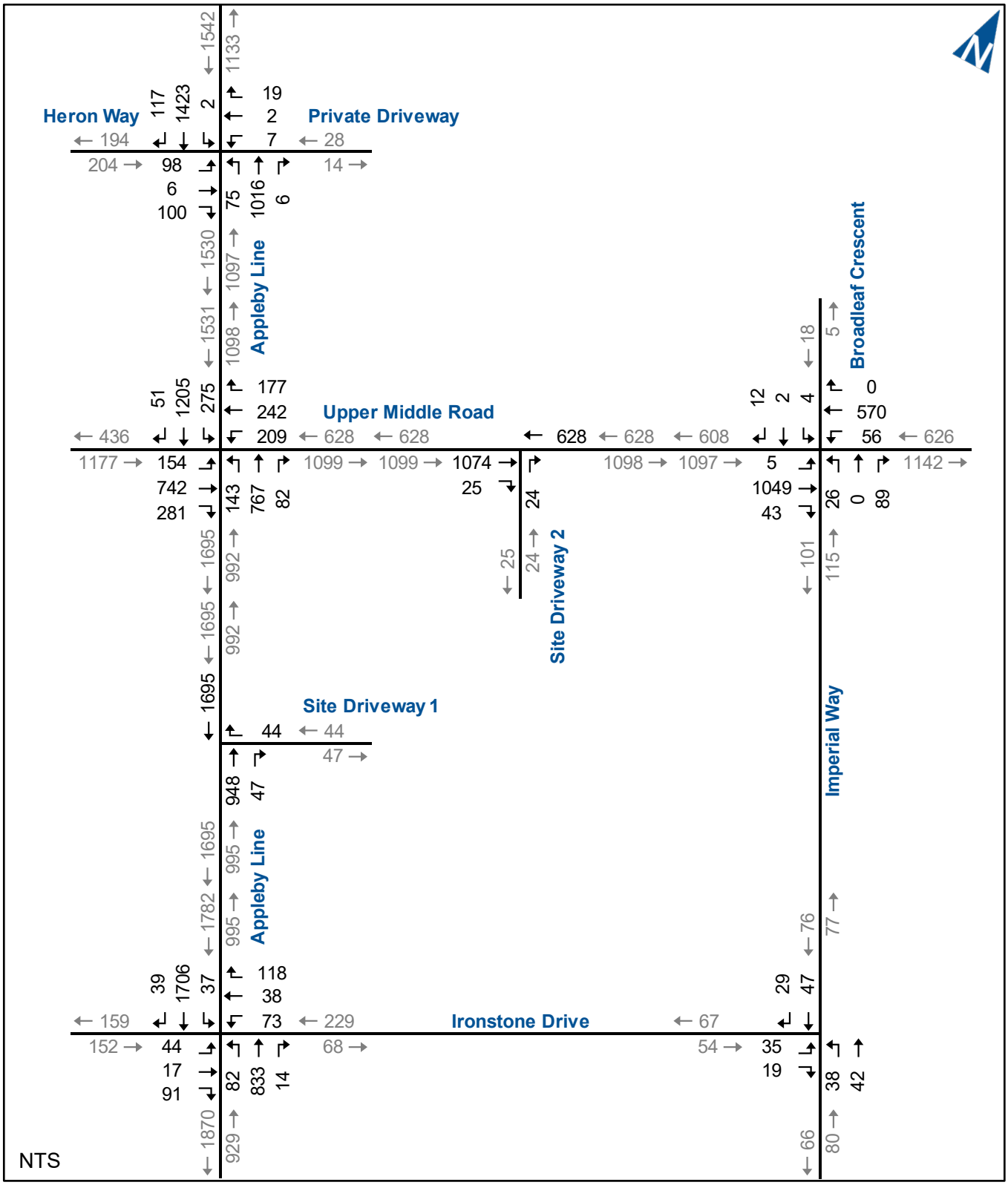
A five-year horizon following the expected build-out of the site (Year 2025) has been assessed. The likely future traffic volumes near the subject site are estimated to consist of increased non-site traffic (generalized background traffic growth) and background development generated traffic. A growth rate of 0.5% per annum was identified by the Region during pre-study consultations.

Traffic generated by the redevelopment of 1900 Appleby Line[12] is included in the background traffic forecast. **Appendix F** contains the detailed traffic forecast.

Figure 4.1A-B illustrates the forecast background traffic volumes. The background traffic volumes include the existing site traffic.

Figure 4.2A-B illustrates the forecast total traffic volumes. The total traffic volumes include the site generated traffic and removal of the existing site traffic (gas station).

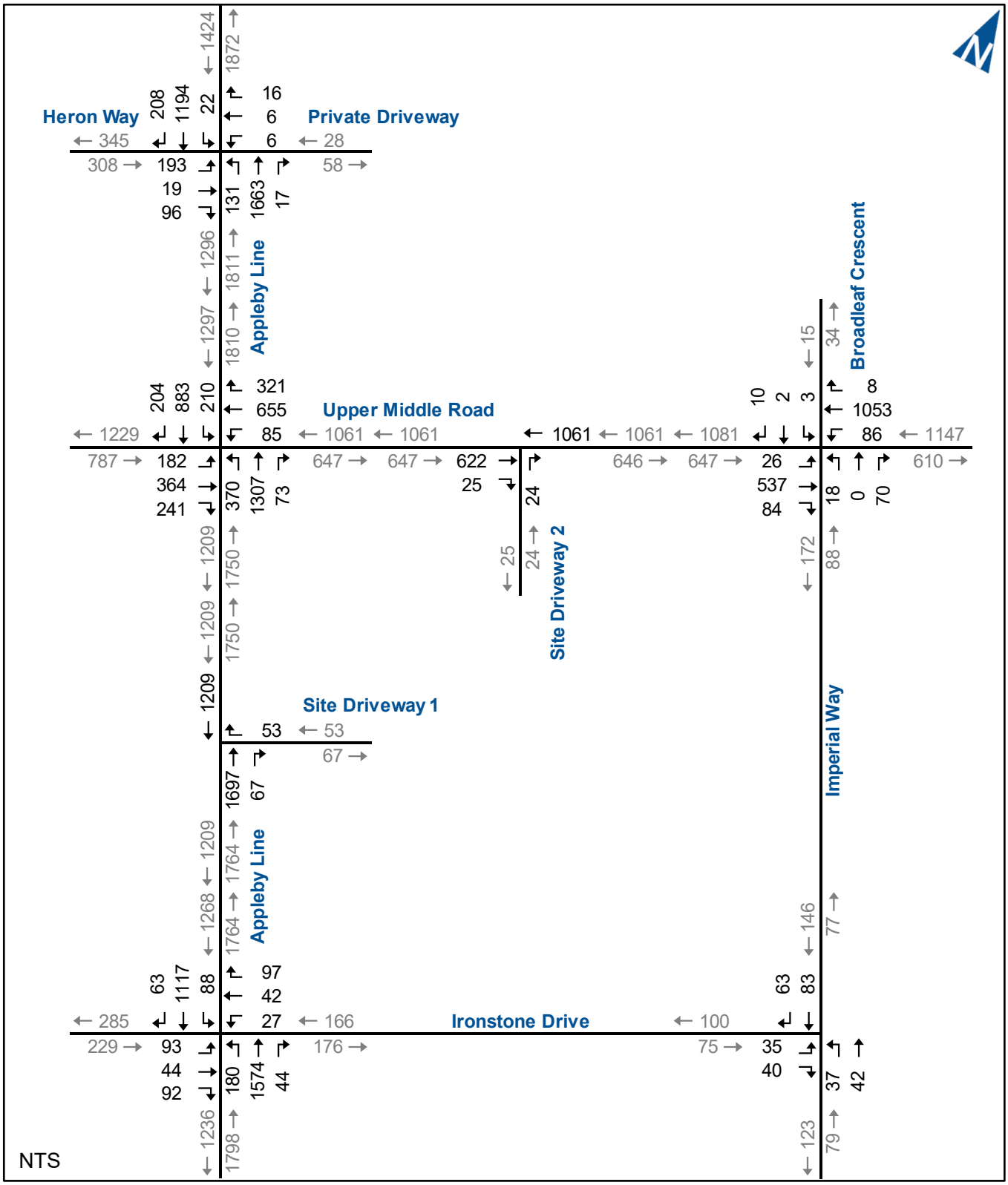
[12] 1860-1900 Appleby Line Transportation Impact Study, Paradigm Transportation Solutions Limited, October 2021



Background Traffic – AM Peak Hour

1989 Appleby Line
220073

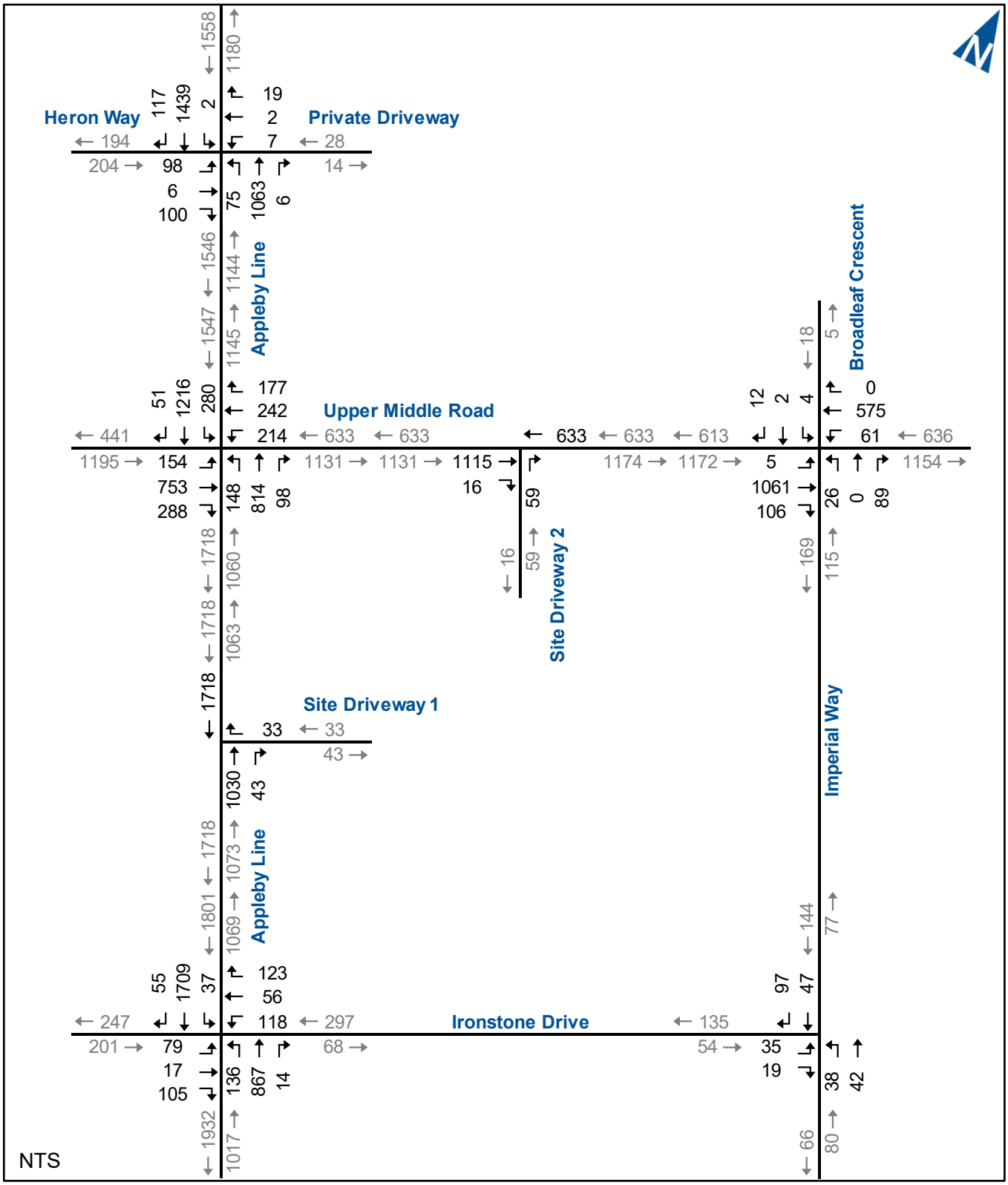
Figure 4.1A



Background Traffic – PM Peak Hour

1989 Appleby Line
220073

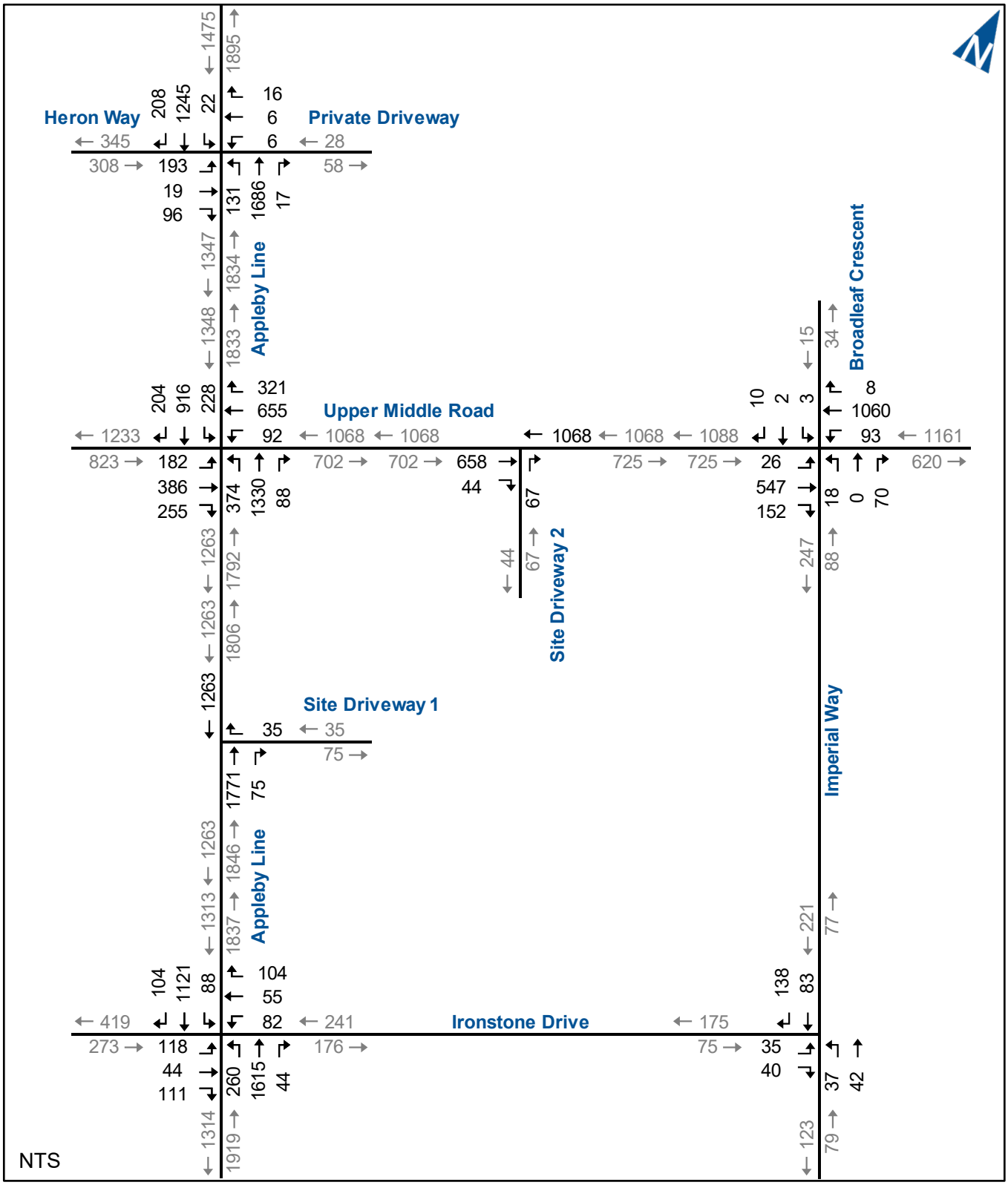
Figure 4.1B



Total Traffic – AM Peak Hour

1989 Appleby Line
220073

Figure 4.2A



Total Traffic – PM Peak Hour

1989 Appleby Line
220073

Figure 4.2B

4.2 Forecast Traffic Operations

4.2.1 Background Traffic

The study area intersection operation analyses for the future background traffic forecast followed the same methodology used for base year conditions. The signal timings were optimized.

Table 4.1A-B summarizes the level of service conditions. The following critical movements are noted:

- Appleby Line and Upper Middle Road
  - Eastbound left-turn – PM peak hour, LOS F with a v/c ratio greater than 1.00 and a queue length exceeding the available storage.
  - Eastbound through/right-turn – AM peak hour, LOS F with a v/c ratio greater than 1.00.
  - Westbound left-turn – AM peak hour, LOS F with a v/c greater than 1.00.
  - Westbound through/right-turn – PM peak hour, LOS F with a v/c greater than 1.00.
  - Northbound left-turn – PM peak hour, LOS E with a v/c ratio greater than 0.95.
  - Northbound through/right-turn – AM and PM peak hour, LOS D-E with a v/c ratio greater than 0.85.
    - The maximum forecast 95th percentile queue length in the northbound direction is expected to be approximately 245 metres. The queue length is forecast to block the existing site driveway.
  - Southbound left-turn – AM and PM peak hour, LOS E-F with a v/c ratio near or greater than 1.00. A queue length exceeding the available storage.
  - Southbound through/right-turn – AM and PM peak hour, LOS D-E with a maximum v/c ratio greater than 0.90.
- Appleby Line and Ironstone Drive
  - Eastbound left-turn – AM and PM peak hour queue length exceeding the available storage.
  - Westbound left-turn – AM peak hour queue length exceeding the available storage.

- Southbound left-turn – PM peak hour, LOS E with a v/c ratio near 0.95. A queue length exceeding the available storage.
- Southbound through/right-turn – AM and PM peak hour, LOS E-F with a v/c ratio of 0.85.

Appendix G contains the detailed Synchro reports.

The above noted capacity deficiencies are forecast to occur under background conditions. These deficiencies are not related or a result of the development of the subject site.

TABLE 4.1A: BACKGROUND TRAFFIC OPERATIONS – AM PEAK HOUR

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	Appleby Line & Heron Way/Private Driveway	TCS	LOS	D	D	>	**D**	<	D	>	**D**	A	A	>	**A**	A	B	>	**B**		**B**
			Delay	46	40	>	**43**	<	40	>	**40**	9	1	>	**2**	6	15	>	**15**		**12**
			V/C	0.54	0.11	>		<	0.06	>		0.42	0.45	>		0.01	0.78	>			**0.73**
			95th	38	17	>		<	10	>		5	14	>		1	193	>			
			Storage	70	-	>		<	-	>		25	-	>		15	-	>			
			Avail.	32	-	>		<	-	>		20	-	>		14	-	>			
	Appleby Line & Upper Middle Road	TCS	LOS	C	F	>	**F**	F	C	>	**F**	D	D	>	**D**	E	E	>	**E**		**E**
			Delay	27	108	>	**98**	187	29	>	**82**	43	45	>	**44**	61	65	>	**64**		**71**
			V/C	0.55	1.13	>		1.27	0.37	>		0.45	0.90	>		0.96	1.07	>			**1.13**
			95th	40	192	>		99	43	>		11	143	>		94	222	>			
			Storage	45	-	>		120	-	>		80	-	>		40	-	>			
			Avail.	5	-	>		21	-	>		69	-	>		-54	-	>			
	Appleby Line & Driveway 1	TWSC	LOS							B	**B**		A	>	**A**		A		**A**		**A**
			Delay							11	**11**		0	>	**0**		0		**0**		**0**
			V/C							0.08			0.40	>			0.54				
			95th							2			0	>			0				
	Appleby Line & Ironstone Drive	TCS	LOS	D	D	>	**D**	D	D	>	**D**	C	A	>	**A**	A	A	>	**A**		**B**
			Delay	48	42	>	**43**	48	43	>	**45**	34	4	>	**7**	2	5	>	**5**		**10**
			V/C	0.50	0.16	>		0.55	0.28	>		0.56	0.37	>		0.12	0.85	>			**1**
			95th	22	19	>		32	28	>		21	46	>		1	50	>			
			Storage	15	-	>		15	-	>		35	-	>		30	-	>			
			Avail.	-7	-	>		-17	-	>		14	-	>		29	-	>			
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			A	**A**						**A**
			Delay		0	>	**0**		0		**0**			10	**10**						**0**
			V/C		0.46	>			0.20					0.03							
			95th		0	>			0					1							
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**		**A**
			Delay	2	2	>	**2**	3	2	>	**2**	49	45	>	**46**	<	45	>	**45**		**5**
			V/C	0.01	0.51	>		0.16	0.23	>		0.28	0.07	>		<	0.05	>			**0.45**
			95th	0	17	>		4	19	>		15	0	>		<	9	>			
			Storage	25	-	>		30	-	>		30	-	>		<	-	>			
			Avail.	25	-	>		26	-	>		15	-	>		<	-	>			
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**		**A**
			Delay	8		>	**8**					<	8		**8**		7	>	**7**		**8**
			V/C	0.07		>						<	0.10				0.09	>			

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service
V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

TABLE 4.1B: BACKGROUND TRAFFIC OPERATIONS – PM PEAK HOUR

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	Appleby Line & Heron Way/Private Driveway	TCS	LOS	D	C	>	**D**	<	C	>	**C**	B	A		**A**	C	C		**C**	**B**
			Delay	47	34	>	**42**	<	33	>	**33**	15	3		**4**	29	22		**22**	**15**
			V/C	0.71	0.13	>		<	0.05	>		0.65	0.80			0.38	0.82			**0.81**
			95th	65	18	>		<	10	>		7	43			17	216			
			Storage	70	-	>		<	-	>		25	-			15	-			
			Avail.	5	-	>		<	-	>		19	-	0		-2	-	0		
	Appleby Line & Upper Middle Road	TCS	LOS	F	C	>	**E**	C	F	>	**F**	E	F	>	**E**	F	C	>	**D**	**E**
			Delay	161	34	>	**63**	27	94	>	**89**	69	82	>	**79**	167	24	>	**48**	**70**
			V/C	1.19	0.60	>		0.50	1.09	>		0.98	1.10	>		1.25	0.92	>		**1.15**
			95th	86	76	>		26	182	>		61	242	>		74	141	>		
			Storage	45	-	>		120	-	>		80	-	>		40	-	>		
			Avail.	-41	-	>		94	-	>		19	-	>		-34	-	>		
	Appleby Line & Driveway 1	TWSC	LOS							B	**B**		A	>	**A**		A		**A**	**A**
			Delay							11	**11**		0	>	**0**		0		**0**	**0**
			V/C							0.09			0.72	>			0.39			
			95th							2			0	>			0			
	Appleby Line & Ironstone Drive	TCS	LOS	E	D	>	**D**	D	D	>	**D**	C	A	>	**B**	E	A	>	**A**	**B**
			Delay	57	40	>	**47**	40	44	>	**43**	24	9	>	**10**	62	4	>	**8**	**13**
			V/C	0.70	0.25	>		0.19	0.52	>		0.64	0.71	>		0.94	0.60	>		**1**
			95th	38	26	>		14	45	>		29	158	>		36	44	>		
			Storage	15	-	>		15	-	>		35	-	>		30	-	>		
			Avail.	-23	-	>		1	-	>		6	-	>		-6	-	>		
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			B	**B**					**A**
			Delay		0	>	**0**		0		**0**			11	**11**					**0**
			V/C		0.27	>			0.34					0.04						
			95th		0	>			0					1						
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**	**A**
			Delay	2	2	>	**2**	2	2	>	**2**	51	47	>	**48**	<	47	>	**47**	**5**
			V/C	0.09	0.28	>		0.15	0.42	>		0.27	0.05	>		<	0.05	>		**0.41**
			95th	1	14	>		5	39	>		12	0	>		<	8	>		
			Storage	25	-	>		30	-	>		30	-	>		<	-	>		
			Avail.	24	-	>		25	-	>		18	-	>		<	-	>		
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
			Delay	8		>	**8**					<	8		**8**		8	>	**8**	**8**
			V/C	0.09		>						<	0.10				0.17	>		

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TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service
V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

4.2.2 Total Traffic

The study area intersection operation analyses for the future total traffic forecast followed the same methodology used for base year and background traffic conditions. The signal timings were optimized.

Table 4.2A-B summarizes the level of service conditions. The following critical movements are noted:

- Appleby Line and Upper Middle Road
  - Eastbound left-turn – PM peak hour, LOS F with a v/c ratio greater than 1.00 and a queue length exceeding the available storage.
  - Eastbound through/right-turn – AM peak hour, LOS F with a v/c ratio greater than 1.00.
  - Westbound left-turn – AM peak hour, LOS F with a v/c greater than 1.00.
  - Westbound through/right-turn – PM peak hour, LOS F with a v/c greater than 1.00.
  - Northbound left-turn – PM peak hour, LOS E with a v/c ratio greater than 0.95.
  - Northbound through/right-turn – AM and PM peak hour, LOS D-F with a v/c ratio greater than 0.90.
    - The maximum forecast 95th percentile queue length in the northbound direction is expected to be approximately 255 metres. The queue length is forecast to block the proposed site driveway.
  - Southbound left-turn – AM and PM peak hour, LOS F with a v/c ratio greater than 1.00. A queue length exceeding the available storage.
  - Southbound through/right-turn – AM and PM peak hour, LOS C-E with a maximum v/c ratio greater than 0.90.
- Appleby Line and Ironstone Drive
  - Eastbound left-turn – AM and PM peak hour queue length exceeding the available storage.
  - Westbound left-turn – AM and PM peak hour queue length exceeding the available storage.
  - Northbound left-turn – PM peak hour, LOS F with a v/c ratio greater than 1.00. A queue length exceeding the available storage during the AM and PM peak hour.

- Southbound left-turn – PM peak hour, LOS F with a v/c ratio greater than 1.00. A queue length exceeding the available storage.
- Southbound through/right-turn – AM and PM peak hour, LOS E-F with a v/c ratio greater than 0.85.

Appendix H contains the detailed Synchro reports.

The driveway approaches to Appleby Line and Upper Middle Road are forecast to operate with delays in the LOS A-B range with a v/c ratio of less than 0.75 during the AM and PM peak hours. The queue lengths on the driveway approaches are forecast to be 5 metres or less and are not anticipated impact the site's internal circulation.

In comparing the total traffic operations to the background traffic operations, one movement is forecast to become critical. The northbound left-turn movement at the intersection of Appleby Line and Ironstone Drive during the PM peak hour is forecast to operate at a LOS F with a v/c ratio greater than 0.95. The 95th percentile queue length is forecast to exceed the available storage during the AM and PM peak hour. Site generated traffic is not anticipated to contribute to this movement. All other critical movements exist under background conditions.

TABLE 4.2A: TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

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	Appleby Line & Heron Way/Private Driveway	TCS	LOS	D	D	>	**D**	<	D	>	**D**	A	A	>	**A**	A	B	>	**B**	**B**
			Delay	46	40	>	**43**	<	40	>	**40**	8	1	>	**1**	6	15	>	**15**	**12**
			V/C	0.54	0.11	>		<	0.06	>		0.43	0.47	>		0.01	0.79	>		**0.74**
			95th	38	17	>		<	10	>		4	12	>		1	198	>		
			Storage	70	-	>		<	-	>		25	-	>		15	-	>		
			Avail.	32	-	>		<	-	>		21	-	>		14	-	>		
	Appleby Line & Upper Middle Road	TCS	LOS	C	F	>	**F**	F	C	>	**F**	D	D	>	**D**	F	E	>	**E**	**E**
			Delay	27	113	>	**102**	200	29	>	**87**	42	49	>	**48**	95	70	>	**75**	**77**
			V/C	0.55	1.14	>		1.30	0.37	>		0.47	0.95	>		1.07	1.09	>		**1.16**
			95th	40	196	>		102	43	>		11	159	>		106	225	>		
			Storage	45	-	>		120	-	>		80	-	>		40	-	>		
			Avail.	5	-	>		18	-	>		69	-	>		-66	-	>		
	Appleby Line & Driveway 1	TWSC	LOS							B	**B**		A	>	**A**		A		**A**	**A**
			Delay							11	**11**		0	>	**0**		0		**0**	**0**
			V/C							0.06			0.44	>			0.55			
			95th							2			0	>			0			
	Appleby Line & Ironstone Drive	TCS	LOS	D	D	>	**D**	D	D	>	**D**	E	A	>	**B**	A	A	>	**A**	**B**
			Delay	55	38	>	**44**	52	40	>	**45**	78	6	>	**16**	3	7	>	**7**	**15**
			V/C	0.67	0.16	>		0.69	0.38	>		0.90	0.41	>		0.15	0.94	>		**1**
			95th	34	19	>		45	37	>		62	63	>		2	67	>		
			Storage	15	-	>		15	-	>		35	-	>		30	-	>		
			Avail.	-19	-	>		-30	-	>		-27	-	>		28	-	>		
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			B	**B**					**A**
			Delay		0	>	**0**		0		**0**			10	**10**					**0**
			V/C		0.48	>			0.20					0.08						
			95th		0	>			0					2						
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**	**A**
			Delay	2	2	>	**2**	3	2	>	**2**	49	45	>	**46**	<	45	>	**45**	**5**
			V/C	0.01	0.55	>		0.18	0.24	>		0.28	0.07	>		<	0.05	>		**0.49**
			95th	0	19	>		4	19	>		15	0	>		<	9	>		
			Storage	25	-	>		30	-	>		30	-	>		<	-	>		
			Avail.	25	-	>		26	-	>		15	-	>		<	-	>		
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
			Delay	8		>	**8**					<	8		**8**		8	>	**8**	**8**
			V/C	0.07		>						<	0.11				0.17	>		

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V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

TABLE 4.2B: TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																	OVERALL
				Eastbound				Westbound				Northbound				Southbound					
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	Appleby Line & Heron Way/Private Driveway	TCS	LOS	D	C	>	**D**	<	C	>	**C**	B	A		**A**	C	C		**C**		**B**
			Delay	47	34	>	**42**	<	33	>	**33**	15	3		**4**	28	22		**22**		**15**
			V/C	0.71	0.13	>		<	0.05	>		0.72	0.82			0.38	0.83				**0.82**
			95th	65	18	>		<	10	>		7	38			16	227				
			Storage	70	-	>		<	-	>		25	-			15	-				
			Avail.	5	-	>		<	-	>		18	-	0		-1	-	0			
	Appleby Line & Upper Middle Road	TCS	LOS	F	D	>	**E**	C	F	>	**F**	E	F	>	**F**	F	C	>	**D**		**E**
			Delay	163	38	>	**66**	31	114	>	**107**	71	91	>	**87**	170	23	>	**48**		**77**
			V/C	1.19	0.69	>		0.58	1.14	>		0.99	1.12	>		1.26	0.92	>			**1.17**
			95th	84	83	>		28	184	>		63	255	>		81	174	>			
			Storage	45	-	>		120	-	>		80	-	>		40	-	>			
			Avail.	-39	-	>		92	-	>		17	-	>		-41	-	>			
	Appleby Line & Driveway 1	TWSC	LOS							B	**B**		A	>	**A**		A		**A**		**A**
			Delay							10	**10**		0	>	**0**		0		**0**		**0**
			V/C							0.05			0.75	>			0.40				
			95th							1			0	>			0				
	Appleby Line & Ironstone Drive	TCS	LOS	E	D	>	**D**	D	D	>	**D**	E	B	>	**B**	F	A	>	**B**		**C**
			Delay	60	37	>	**47**	42	41	>	**41**	67	12	>	**19**	184	5	>	**17**		**22**
			V/C	0.77	0.24	>		0.51	0.51	>		0.96	0.76	>		1.30	0.69	>			**1**
			95th	46	26	>		32	49	>		91	196	>		40	52	>			
			Storage	15	-	>		15	-	>		35	-	>		30	-	>			
			Avail.	-31	-	>		-17	-	>		-56	-	>		-10	-	>			
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			B	**B**						**A**
			Delay		0	>	**0**		0		**0**			12	**12**						**0**
			V/C		0.28	>			0.34					0.12							
			95th		0	>			0					3							
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**		**A**
			Delay	2	3	>	**3**	2	2	>	**2**	51	47	>	**48**	<	47	>	**47**		**5**
			V/C	0.09	0.33	>		0.18	0.42	>		0.27	0.05	>		<	0.05	>			**0.41**
			95th	1	16	>		6	39	>		12	0	>		<	8	>			
			Storage	25	-	>		30	-	>		30	-	>		<	-	>			
			Avail.	24	-	>		24	-	>		18	-	>		<	-	>			
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**		**A**
			Delay	8		>	**8**					<	8		**8**		8	>	**8**		**8**
			V/C	0.10		>						<	0.11				0.25	>			

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V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

5 Remedial Measures

5.1 Halton Region Capital Improvements

The Halton Region is planning the widening of Appleby Line[13] from four lanes to six lanes from Fairview Street to Taywood Drive and Upper Middle Road[14] from four to six lanes from Appleby Line to Burloak Drive. The timing for widening is tentative scheduled for Year 2029. Detailed plans for the widening are currently not available.

The typical cross-section identified for these roadways in the Halton Region 2020 Budget and Business Plan Capital Report, is a C(4) URBAN cross-section. The typical cross-section includes three travel lanes per direction with the curb lane identified as a High Occupancy Vehicle (HOV)/ Reserved Bus Lane (RBL). An HOV lane is reserved for vehicles with two or more people, including buses and taxis; bicycles may share the lane. RBL are dedicated lane for exclusive use of transit. The C(4) cross-section also includes a buffered sidewalk/multi-use path

Table 5.1A-B summarises the total traffic operation for the study area intersections with Appleby Line and Upper Middle Road widened to six lanes. Signal timings have been optimized.

Appendix I contains the detailed Synchro reports.

It is anticipated that the planned widening will provide additional north-south capacity along Appleby Line and additional east-west capacity east of Appleby Line on Upper Middle Road. Select turning movements will remain critical. Overall reductions in delay and v/c ratios are forecast for the northbound and southbound approaches. Minor increases in delay and v/c are forecast for the eastbound and westbound approaches.

[13] Halton Region 2020 Budget and Business Plan Capital Report, 2020-2029 Transportation Forecast
[14] Ibid

TABLE 5.1A: TOTAL TRAFFIC OPERATIONS – REMEDIAL – AM PEAK HOUR

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	Appleby Line & Heron Way/Private Driveway	TCS	LOS	D	D	>	**D**	<	D	>	**D**	A	A	>	**A**	A	B	>	**B**	**A**
			Delay	40	36	>	**38**	<	36	>	**36**	9	2	>	**2**	6	11	>	**11**	**10**
			V/C	0.52	0.10	>		<	0.06	>		0.34	0.33	>		0.01	0.58	>		**0.56**
			95th	35	15	>		<	9	>		7	19	>		1	98	>		
			Storage	70	-	>		<	-	>		25	-	>		15	-	>		
			Avail.	35	-	>		<	-	>		18	-	>		14	-	>		
	Appleby Line & Upper Middle Road	TCS	LOS	C	F	>	**F**	F	C	>	**D**	C	C	>	**C**	E	C	>	**C**	**D**
			Delay	25	116	>	**104**	87	22	>	**44**	35	30	>	**30**	77	25	>	**34**	**53**
			V/C	0.49	1.15	>		1.02	0.23	>		0.43	0.72	>		1.02	0.85	>		**1.09**
			95th	35	182	>		83	23	>		11	51	>		98	104	>		
			Storage	45	-	>		120	-	>		80	-	>		40	-	>		
			Avail.	10	-	>		37	-	>		69	-	>		-58	-	>		
	Appleby Line & Driveway 1	TWSC	LOS							B	**A**		A	>	**A**		A		**A**	**A**
			Delay							11	**10**		0	>	**0**		0		**0**	**0**
			V/C							0.04			0.26	>			0.37			
			95th							1			0	>			0			
	Appleby Line & Ironstone Drive	TCS	LOS	D	C	>	**D**	D	D	>	**D**	D	A	>	**A**	A	A	>	**A**	**B**
			Delay	46	34	>	**39**	45	36	>	**40**	38	5	>	**9**	3	4	>	**4**	**11**
			V/C	0.63	0.15	>		0.65	0.37	>		0.75	0.29	>		0.15	0.68	>		**1**
			95th	31	17	>		41	34	>		48	36	>		2	42	>		
			Storage	15	-	>		15	-	>		35	-	>		30	-	>		
			Avail.	-16	-	>		-26	-	>		-13	-	>		28	-	>		
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			B	**B**					**A**
			Delay		0	>	**0**		0		**0**			12	**12**					**0**
			V/C		0.29	>			0.13					0.03						
			95th		0	>			0					3						
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**	**A**
			Delay	2	2	>	**2**	2	2	>	**2**	46	42	>	**43**	<	42	>	**42**	**5**
			V/C	0.01	0.39	>		0.18	0.16	>		0.31	0.07	>		<	0.06	>		**0.35**
			95th	0	15	>		4	12	>		14	0	>		<	8	>		
			Storage	25	-	>		30	-	>		30	-	>		<	-	>		
			Avail.	25	-	>		26	-	>		16	-	>		<	-	>		
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
			Delay	8		>	**8**					<	8		**8**		8	>	**8**	**8**
			V/C	0.07		>						<	0.11				0.17	>		

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service
V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

TABLE 5.2B: TOTAL TRAFFIC OPERATIONS – REMEDIAL – PM PEAK HOUR

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	Appleby Line & Heron Way/Private Driveway	TCS	LOS	E	D	>	**D**	<	D	>	**D**	B	A		**A**	B	B		**B**	**B**
			Delay	57	42	>	**51**	<	41	>	**41**	14	9		**9**	15	15		**15**	**15**
			V/C	0.72	0.14	>		<	0.06	>		0.58	0.54			0.21	0.55			**0.62**
			95th	82	21	>		<	12	>		27	110			11	128			
			Storage	70	-	>		<	-	>		25	-			15	-			
			Avail.	-12	-	>		<	-	>		-2	-	0		4	-	0		
	Appleby Line & Upper Middle Road	TCS	LOS	E	C	>	**D**	C	C	>	**C**	E	D	>	**E**	F	C	>	**D**	**D**
			Delay	66	26	>	**35**	23	30	>	**29**	78	55	>	**60**	124	31	>	**47**	**46**
			V/C	0.94	0.55	>		0.46	0.67	>		0.99	1.00	>		1.09	0.76	>		**0.99**
			95th	65	64	>		21	73	>		56	145	>		85	90	>		
			Storage	45	-	>		120	-	>		80	-	>		40	-	>		
			Avail.	-20	-	>		99	-	>		24	-	>		-45	-	>		
	Appleby Line & Driveway 1	TWSC	LOS							A	**A**		A	>	**A**		A		**A**	**A**
			Delay							9	**9**		0	>	**0**		0		**0**	**0**
			V/C							0.04			0.45	>			0.27			
			95th							1			0	>			0			
	Appleby Line & Ironstone Drive	TCS	LOS	E	D	>	**E**	D	D	>	**D**	D	A	>	**B**	D	B	>	**B**	**B**
			Delay	74	45	>	**57**	50	47	>	**48**	48	8	>	**13**	52	13	>	**16**	**20**
			V/C	0.80	0.32	>		0.54	0.48	>		0.92	0.52	>		0.76	0.46	>		**1**
			95th	58	40	>		40	57	>		76	104	>		61	93	>		
			Storage	15	-	>		15	-	>		35	-	>		30	-	>		
			Avail.	-43	-	>		-25	-	>		-41	-	>		-31	-	>		
	Driveway 2 & Upper Middle Road	TWSC	LOS		A	>	**A**		A		**A**			B	**B**					**A**
			Delay		0	>	**0**		0		**0**			10	**10**					**0**
			V/C		0.17	>			0.23					0.10						
			95th		0	>			0					3						
	Imperial Way/Broadleaf Crescent & Upper Middle Road	TCS	LOS	A	A	>	**A**	A	A	>	**A**	D	D	>	**D**	<	D	>	**D**	**A**
			Delay	5	5	>	**5**	2	2	>	**2**	48	44	>	**45**	<	44	>	**44**	**5**
			V/C	0.10	0.23	>		0.18	0.30	>		0.26	0.05	>		<	0.05	>		**0.29**
			95th	5	22	>		6	22	>		12	0	>		<	8	>		
			Storage	25	-	>		30	-	>		30	-	>		<	-	>		
			Avail.	20	-	>		25	-	>		18	-	>		<	-	>		
	Imperial Way & Ironstone Drive	AWSC	LOS	A		>	**A**					<	A		**A**		A	>	**A**	**A**
			Delay	8		>	**8**					<	8		**8**		8	>	**8**	**8**
			V/C	0.10		>						<	0.11				0.25	>		

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service
V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

5.2 Intersections

5.2.1 Appleby Line & Heron Way

No capacity issues are forecast during the total traffic period with the proposed capital road improvements. No changes to the existing form of traffic control or lane geometry are required to accommodate the forecast traffic volumes.

The road authority should monitor and adjust signal timings along the Appleby Line corridor as traffic volumes increase.

5.2.2 Appleby Line & Upper Middle Road

Signal optimization and the planned widening of Appleby Line/Upper Middle Road provides additional capacity which helps improve intersection operations. The following critical movements are forecast to improve with the proposed capital road improvements:

- Northbound through/right-turn – AM peak hour, LOS C with a maximum v/c ratio of 0.72.
- Southbound through/right-turn – PM peak hour, LOS C with a maximum v/c ratio of 0.76.

The road authority should monitor and adjust signal timings along the Appleby Line and Upper Middle Road corridors as traffic volumes increase.

The eastbound left-turn lane can be extended to provide additional storage. Approximately 45 metres of additional storage could be provided without impacting the design of the westbound left-turn lane at the Huron Way intersection with Upper Middle Road. The need for the additional storage is driven by background traffic.

The storage lane lengths for the westbound left-turn lane and the northbound left-turn lane can not be extended without impacting the design of the upstream intersections.

The southbound left-turn lane can be extended to provide additional storage. Approximately 60 metres of additional storage could be provided without impacting the design of the northbound left-turn lane at the Huron Way intersection with Appleby Line. The need for the additional storage is driven by background traffic.

5.2.3 Appleby Line & Ironstone Drive

Signal optimization and the planned widening of Appleby Line/Upper Middle Road provides additional capacity which helps improve intersection operations.

The 95th percentile queue length is forecast to exceed the available storage for the northbound left-turn lane. The existing deceleration zone prior to the left-turn lane storage should contain the 95th percentile queue length.

The 95th percentile queue length is forecast to exceed the available storage for the eastbound/westbound left-turn lanes. The road authority may wish to extend the storage lane lengths to provide additional storage. Approximately 60 metres of storage is needed for the eastbound left-turn and approximately 40 metres of storage is needed for the westbound left-turn. The modifications do not appear to require the widening of the roadway. The additional storage can be achieved through modification of existing pavement markings.

The road authority should monitor and adjust signal timings along the Appleby Line corridor as traffic volumes increase.

5.2.4 Upper Middle Road & Imperial Way

No capacity issues are forecast to occur at this intersection. The existing lane configuration and traffic control should be maintained.

The road authority should monitor and adjust signal timings along the Upper Middle Road corridor as traffic volumes increase.

5.2.5 Imperial Way & Ironstone Drive

No capacity issues are forecast to occur at this intersection. The existing lane configuration and traffic control should be maintained.

5.3 Pre & Post Monitoring

Site traffic is forecast to use Ironstone Drive and Imperial Way to access the subject site due to the right-in-right-out nature of the two site driveways. The applicant will commit to pre and post monitoring program on these roadways.

The monitoring effort will focus on traffic patterns from the development along Ironstone Drive and Imperial Way. If the results of the monitoring and subsequent analysis identify a significant portion of site traffic rerouting through Ironstone Drive and Imperial Way, the



Applicant will work with the City of Burlington to implement appropriate corrective measures. These may include the implementation of traffic calming features to discourage vehicle speeds and volumes.

The pre-monitoring study should begin prior to construction and should record traffic volumes and speeds using Ironstone Drive and Imperial Way. Following occupancy, the post-monitoring study should be completed to remeasure traffic volumes and speeds along with a licence plate trace to identify site traffic using Ironstone Drive and Imperial Way.

6 Parking

6.1 Proposed Supply

6.1.1 Vehicle Parking

The site's parking demand is proposed to be accommodated on site. **Table 6.1** summarizes the parking supply for the site. Parking consists of 92 at grade spaces and 410 structured parking spaces. The structured parking spaces are accessed by a ramp located within the site.

TABLE 6.1: PROPOSED PARKING SUPPLY

Location	Occupant	Visitors	Total
At Grade	45	47	**92**
P1	136	-	**136**
P2	136	-	**136**
P3	138	-	**138**
Total	**455**	**47**	**502**
Ratio/Unit	**0.96**	**0.10**	**1.06**

6.1.2 Bicycle Parking

A total of 320 bicycle parking spaces (0.64 spaces per unit) are provided on site. Long-term bicycle parking consists of 272 spaces and short-term bicycle parking consists of 32 visitor and 16 retail spaces.

6.2 Zoning By-law Parking Requirements

6.2.1 Vehicle Parking

The City's Zoning By-law 2020 regulates the amount of parking for the subject site. **Table 6.2** summarizes the site's Zoning By-law 2020 parking requirements[15].

The proposed parking supply does not conform with the city's zoning requirements. The site's parking supply is considered deficient by 122 spaces when compared to the zoning requirements. The amount of on-site parking assigned to residents and visitors is undersupplied based on the by-law requirement.

TABLE 6.2: ZONING BY-LAW PARKING REQUIREMENTS

Land Use	Units	Ratio		Calculation		
		O	V	O	V	Total
Apartment Units	475	1.00	0.25	475	119	**594**
Retail Store (m^2) (Shared)	871	1.5 per 100 m^2		0	11	**11**
Total				**475**	**130**	**605**
Supply				455	47	502
Surplus/Deficiency				-72	-20	=122

6.2.2 Bicycle Parking

Burlington's zoning by-law requires a total of three (3) bicycle parking spaces for the retail land use. The site concept provides a total of 16 retail spaces.

In addition, both short-term and long-term bicycle parking spaces are proposed for the residential land use.

6.4 Local Parking Survey Data

A proven method of estimating parking demands is to survey existing sites with the same land use. Local surveys are a real-world reflection of parking demand.

[15] *Table 1.2.6 – By-law 2020*, City of Burlington, October 2019.

Paradigm and City of Burlington Staff previously collected parking data for apartment buildings within the City. The parking utilization surveys were undertaken at seven different sites. The sites include:

- 1284 Guelph Line – 78 units – 4 observations by Paradigm;
- 551 Maple Avenue – 186 units – 4 observations by Paradigm;
- 360 Pearl Street – 75 units – 4 observations by Paradigm and 6 observations by the City.
- 442 Maple Avenue – 135 units – 6 observations by the City;
- 505 Locust Street – 117 units – 6 observations by the City;
- 2121 Lakeshore Road – 39 units – 4 observations by the City; and
- 1477 Lakeshore Road – 60 units – 6 observations by the City.

Parking demand data collected by Paradigm was collected in 15-minute intervals from 16:00 to 22:00 on weekdays (Tuesday-Thursday) between April and November 2016. The City collected spot observations between 20:00 and 23:00 on weekdays (Tuesday or Thursdays).

The collected parking utilization data is in line with industry standard data collection methods and is representative of parking demand at local multi-family buildings.

The following parking demands were observed:

- Paradigm
  - Occupant demands range from 0.68 to 0.83 spaces per unit.
  - Visitor demands range from 0.08 to 0.24 spaces per unit.
- City of Burlington Staff
  - Occupant demands range from 0.86 to 1.25 spaces per unit.
  - Visitor demands range from 0.00 to 0.06 spaces per unit.

Figure 6.1 illustrates the data plots for the occupant and visitor parking. **Table 6.5** summarizes the site's forecast parking demands.

Based on the Burlington market parking utilization studies, the forecast parking demand for the subject site is estimated to be approximately 414 occupant parking spaces and 45 visitor parking spaces or 459 total parking spaces for the residential land use. If the zoning by-law

parking requirements for the retail land uses is considered (11 spaces) the site's overall parking demand is forecast to be 470 spaces.

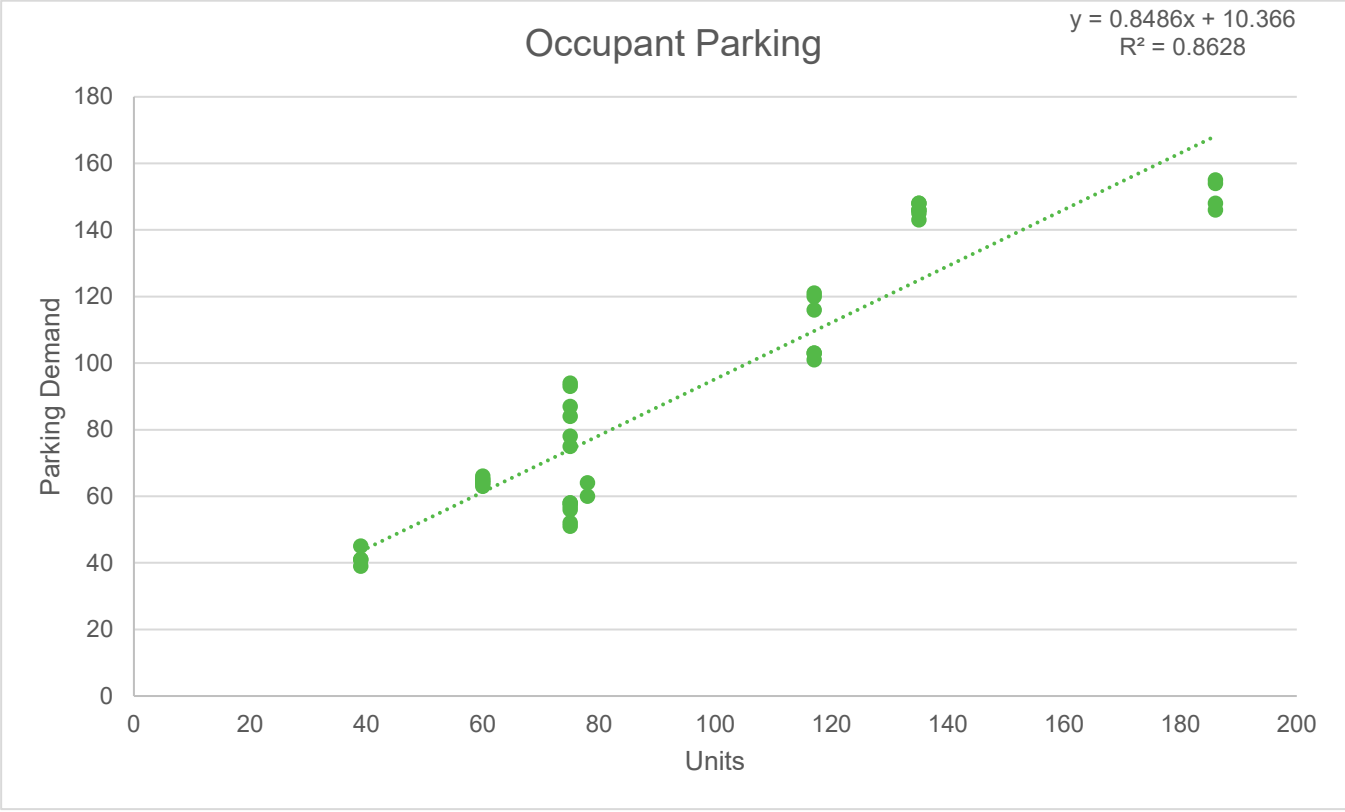
The allocation of visitor parking needs to be adjusted to allow for a parking supply at least 56 spaces (45 apartment visitor spaces + 11 retail spaces). Visitor parking should be located at grade or within the parking structure in area(s) accessible to the public.

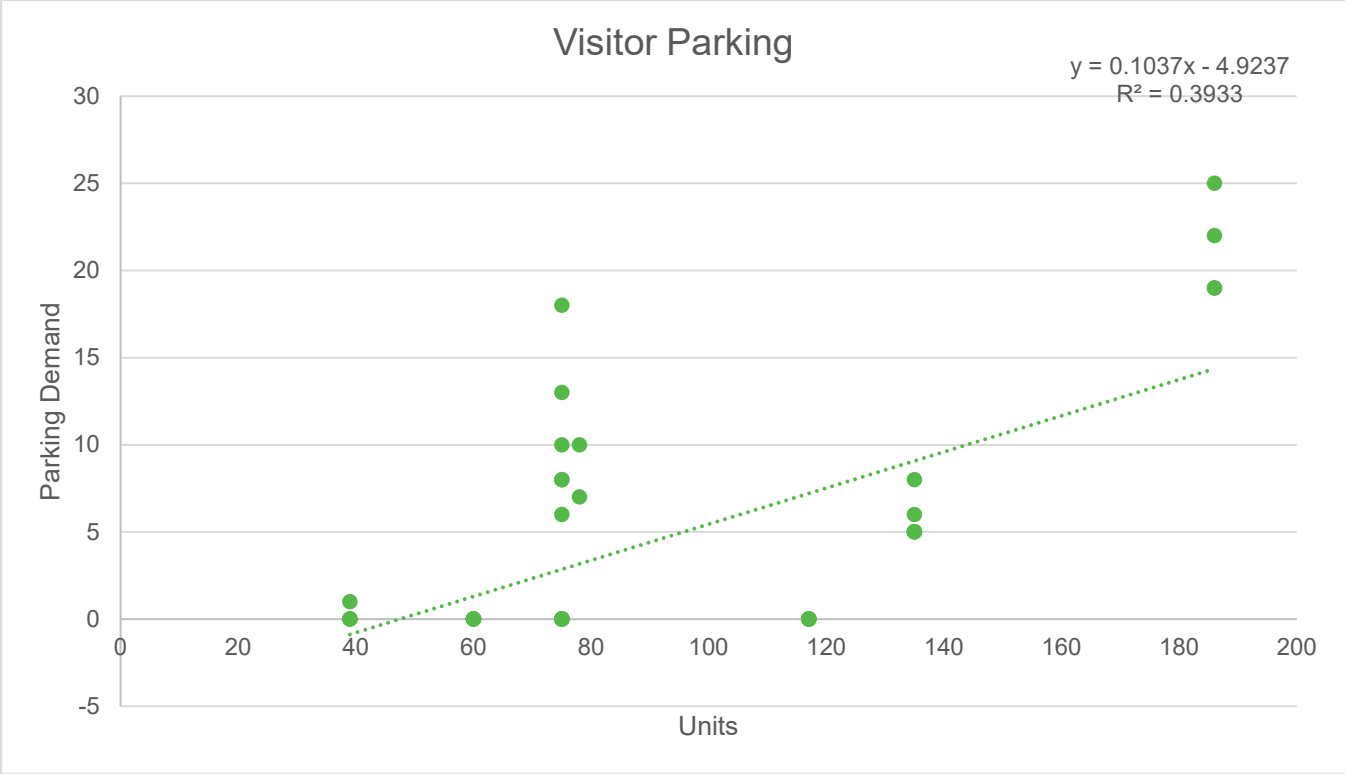
TABLE 6.5: PROXY SITE DATA FORECAST PARKING DEMAND

Parking	Estimated Parking Demand			
	O	V	Retail*	Sum
Demand	414	45	11	**470**
Ratio per Unit	0.87	0.12		**0.99**

*Retail supply meets zoning requirements

With the comprehensive TDM program outlined in **Section 3.2**, a minimum occupant parking ratio of 0.87 spaces per unit and a minimum visitor parking ratio of 0.12 spaces per unit is supportable. The zoning requirements for retail parking will be provided and will be part of the visitor parking supply. Any additional parking spaces can be assigned to occupants or visitors.





paradigm TRANSPORTATION SOLUTIONS LIMITED

Occupant and Visitor Parking Occupancy Data Plots

1989 Appleby Line
220073

Figure 6.1

7 Conclusions & Recommendations

7.1 Conclusions

Transportation Impact Study

The main findings and conclusions of this study are as follows:

- **Base Year Traffic Conditions**: Critical movements are noted at the Appleby Line intersections with Upper Middle Road and Ironstone Drive.
- **Existing Site Traffic**: The existing land use is generating approximately 134 AM peak hour trip and 162 PM peak hour trips. The removal of the existing land use would likely result in the removal of some of these trips from the existing road network. Gas stations typically generate a high number of pass-by trips. These trips would remain on the network as drivers find new location(s) for fuel
- **Site Trip Generation**: The subject site is forecast to generate approximately 151 and 191 new vehicle trips during the AM and PM peak hours, respectively.
- **Transportation Demand Management**: The site concept plan includes TDM measures intended to assist in mitigating the site's transportation and parking impacts. TDM measures are aimed at walking, transit, cycling, parking, and education/promotion.
- **Background Traffic Conditions**: The noted queue lengths and localized congestion identified under base year conditions are forecast to continue to occur with the addition of two critical movements at the intersection of Appleby Line at Upper Middle Road and Appleby Line at Ironstone Drive.
- **Total Traffic Conditions**: In comparing the total traffic operations to the background traffic operations, one movement is forecast to become critical. The northbound left-turn movement at the intersection of Appleby Line and Ironstone Drive during the PM peak hour is forecast to operate at a LOS F with a v/c ratio greater than 1.00. The 95th percentile queue length is forecast to exceed the available storage during the AM and PM peak hour. All other critical movements exist under background conditions.
- **Remedial Measures**: The following remedial measures have been identified to address forecast traffic volumes:



- Regional Capital Improvement – widening of Appleby Line to 6 lanes and widening of Upper Middle Road to 6 lanes west of Appleby Line.
- Optimized signal timings to reflect real world changes in traffic volumes and changes in travel patterns.
- Additional storage for the eastbound and westbound left-turn lanes on Ironstone Drive.

- **Monitoring Program** – Site traffic is forecast to use Ironstone Drive and Imperial Way to access the subject site due to the right-in/right-out driveways. A pre and post monitoring program should be conducted to review traffic volumes and speeds along Ironstone Drive and Imperial Way. Should the results of the monitoring identify a significant portion of site traffic rerouting through Ironstone Drive and Imperial Way, the Applicant will work with the City of Burlington to implement appropriate corrective measures.

Parking Study

- The site's parking supply is identified as 502 spaces (1.06 spaces per unit) and is allocated as follows:
  - Occupant parking – 455 spaces (0.96 spaces per unit);
  - Visitor/Retail parking – 47 spaces (0.10 spaces per unit);
- The allocation of parking between occupants and visitors requires adjustment.
- With a comprehensive TDM program, a minimum occupant parking ratio of 0.87 spaces per unit and a minimum visitor parking ratio of 0.12 spaces per unit is supportable. The zoning requirements for retail parking will be provided and will be part of the shared visitor parking supply. Any additional parking spaces can be assigned to occupants or visitors.

7.2 Recommendations

Based on the findings of this study, it is recommended that:

- The site's TDM program be implemented and monitored over time to help manage the site's transportation and parking impacts.
- Pre and post monitoring program be conducted to mange the site traffic impacts on the adjacent community.

- In conjunction with the site's TDM program, that the site's parking supply be designed to provide for a minimum of 0.87 spaces per units for occupant and a minimum of 0.12 spaces per unit for shared visitors. The zoning requirements for retail parking will be provided.
- The road authorities continue to monitor and plan for the potential widening of Appleby Line and Upper Middle Road from four to six lanes.
- The road authorities consider extending the eastbound left-turn at the Ironstone Drive intersection to provide approximately 60 metres of storage.
- The road authorities consider extending the westbound left-turn at the Ironstone Drive intersection to provide approximately 40 metres of storage.

Appendix A

Pre-Study Consultation

Scott Catton

From: Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>
Sent: 10-Mar-22 10:55
To: Scott Catton; Huycke, Adam; Scattolon, Walter; Lucas, Steve
Cc: Creighton Chartier; mnufrio@latch-developments.com
Subject: RE: 220073 (1989 Appleby Line) Traffic Study Terms of Reference

Hi Scott,
The City staff don't have any concerns with the TOR for 1989 Appleby Line Traffic Impact Study.
Thanks,

Dan Ozimkovic, C.E.T., A.Sc.T.
Transportation Planning Technologist
Transportation Services Department
City of Burlington

From: Scott Catton <scatton@ptsl.com>
Sent: Wednesday, March 9, 2022 4:56 PM
To: Huycke, Adam <Adam.Huycke@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Lucas, Steve <Steve.Lucas@burlington.ca>; Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>
Cc: Creighton Chartier <cchartier@ptsl.com>; mnufrio@latch-developments.com
Subject: RE: 220073 (1989 Appleby Line) Traffic 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 content is safe.

Hi All,
Following up on the below.

Wondering if you've had a chance to review or if you would like me to set up a call to discuss.

Thanks very much.

Scott Catton, C.E.T.
Senior Project Manager

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON N1R 8J8
p: 905.381.2229 x302
e: scatton@ptsl.com
w: www.ptsl.com

From: Scott Catton
Sent: 3-Mar-22 14:28
To: Huycke, Adam <Adam.Huycke@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Lucas, Steve <Steve.Lucas@burlington.ca>; Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>

Cc: Creighton Chartier <cchartier@ptsl.com>; marcmnufrio@latch-developments.com
Subject: 220073 (1989 Appleby Line) Traffic Study Terms of Reference

Hi All,
Paradigm Transportations Solutions Limited has been retained to complete a Transportation Impact and Parking Study for the proposed redevelopment of 1989 Appleby Line, City of Burlington.

Below is a brief description of the development and our proposed Terms of Reference for the traffic study.

Can you please review the study's terms of reference and advise if there are any questions, comments, or concern?

If you would like to set up quick call to discuss, please let me know. Thank you.

Development Description
The subject site is located at 1989 Appleby Line in the City of Burlington and is occupied by a gas station with convenience store and carwash. Vehicle access is provided by a right-in/right-out driveway to Appleby Line and a right-in/right-out driveway to Upper Middle Road.

The property owner is proposing to redevelop the site to include a high-rise multi-family building containing approximately 490 units and approximately 1,067 m^2 of ground floor retail space. The existing right-in/right-out driveways to both Appleby Line and Upper Middle Road will be retained, though the driveway geometrics will be revised. Both driveways will continue to operate as right-in/right-out.

The site's parking supply is identified on the site plan to be approximately 548 spaces with 74 spaces allocated to visitors. A preliminary site concept plan is attached.

Please note that the site's build-out date is not yet determined and unit counts may change as the site plan design progresses.

Preliminary ITE trip generation estimates are summarized below:

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Sum	In	Out	Sum
Multifamily Housing (High-Rise) - Not Close to Rail Transit (222) 490 units	43	84	**127**	84	67	**151**
Strip Retail Plaza (<40k) (822) 1,067 m2	19	13	**32**	43	43	**86**
Total Trip Generation	**62**	**97**	**159**	**127**	**110**	**237**
Pass-by Trips (ITE)	0	0	**0**	17	17	**34**
Net Trip Generation	**62**	**97**	**159**	**110**	**93**	**203**

PROPOSED TERMS OF REFERENCE

Transportation Impact Study

Study Area:
- Appleby Line & Upper Middle Road (signalized);
- Appleby Line & Ironstone Drive (signalized);
- Appleby Line & Heron Way (signalized);
- Upper Middle Road & Imperial Way (signalized);
- Ironstone Drive & Imperial Way (unsignalized); and
- The existing/proposed site driveways.

Horizon Year & Analysis Periods:

- Five Year Horizon post build-out (Year TBD)
- Weekday AM peak hours; and
- Weekday PM peak hours

Analysis:

- Synchro 10 with HCM 2000

Existing Data:

- Existing signal timing plans to be obtained from City/Region.
- Historical count data will be obtained from City/Region for the study area intersections.
- New data will be collected at Ironstone Drive & Imperial Way and at the existing site driveways.
- Historical count volumes to be factor to a baseline condition (Year 2022) using a generalized growth rate of 2% per annum.
- Base Year traffic forecast will be provided to the City and Region for review and comment.

Background Traffic:

- Generalized background growth rate of 2% per annum.
- Active development applications within 500 m of the site
    - 1900 Appleby Line.
    - Please advise if there are any other development application(s) we should consider in the traffic forecast.

Capital works

- Widening of Appleby Line from 4 to 6 lanes, from Fairview Street to Taywood Drive, Halton's Capital Forecast year 2029
- Widening of Upper Middle Road from 4 to 6 lanes, from Appleby Line to Burloak Drive, Halton's Capital Forecast year 2030

Site Traffic Estimates:

- ITE Trip Generation Data 11th Edition
    - Multifamily Housing (High-Rise) - Not Close to Rail Transit (222)
    - Strip Retail Plaza (<40k) (822)
- ITE 11th Edition Pass-by Trip Rates
    - 820 (PM = 40%)
- No modal split reductions.
- Distribution - existing travel patterns and/or TTS data

Parking Study

- The site's parking demand will be forecast using ITE Parking Generation (5th Edition) and in house data. This forecast may be refined through consideration of typical auto ownership characteristics for land uses of this nature and opportunities for shared parking.

Transportation Demand Management Plan

- Proposed TDM measures to be implemented on the site that can encourage greater use of sustainable modes of transportation (transit, walking, cycling) and trip decision making that reduces, combines, or shortens vehicle trips.

Circulation Review

- AutoTURN analysis for vehicle swept path manoeuvres within the site using typical TAC design vehicles and a Halton Region Front End Loading garbage truck (13 m centreline radius).

Report:

- We will document the study methodologies, findings, and conclusions in a report with appendices containing the detailed analysis results and any data collected.

Thank you.

Scott Catton, C.E.T.
Senior Project Manager

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON N1R 8J8
p: 905.381.2229 x302
e: scatton@ptsl.com
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Scott Catton

From: Scattolon, Walter <Walter.Scattolon@halton.ca>
Sent: 10-Mar-22 14:32
To: Scott Catton; Huycke, Adam
Cc: Creighton Chartier; mnufrio@latch-developments.com; 'Ozimkovic , Danijel'; Lucas, Steve; Krusto, Matt
Subject: RE: 220073 (1989 Appleby Line) Traffic Study Terms of Reference

Hello Scott,

Thank you for circulating the TIS Terms of Reference to the Region.
We are OK with the scope presented.
However, we have the following comments and added requirements.

Accesses:

While the Transportation Study will review and justify the two proposed site accesses and their locations, the following comments regarding access location and details must be considered.

Upper Middle Road (Regional Road 38) Access:

- Existing access is already restricted to R-in/R-out via centre median.
- It is approximately only 32m from nearest signal stop line, and even less-spaced from the channelized RT at the SE corner of the intersection with Appleby Line / Upper Middle Road.
- These distances are below the minimum spacing of 115m required for R-in/R-out by the Access Management Guidelines (2015).
- The Region would like to see the access point moved as far to the east a possible along the parcel frontage.
- A **Functional Design** review of a relocated north access is requested to capture all design elements for the revisions to the access.
- A **Site Line Review** analysis is also requested for the Existing and Relocated north access, to compare the safety improvements of a more easterly location.

Appleby Line (Regional Road 20) Access:

- The proposal will consolidate the two existing Appleby Line accesses into a singular, southerly access point.
- Existing south-most access is approximately only 87m from nearest signal stop line, and already restricted to R-in/R-out via centre median.
- This distance is below the minimum spacing of 115m required for R-in/R-out by the Access Management Guidelines (2015).
- Options to increase the spacing distance do not exist due to property limits to the south.
- A **Functional Design** review of a the reconfigured (consolidated) south-most access is requested to capture all design elements for the revisions to the access.

As such, Functional Design and Site Line Reviews are required, as noted above, as part of the Transportation Study scope.

Growth Rates:

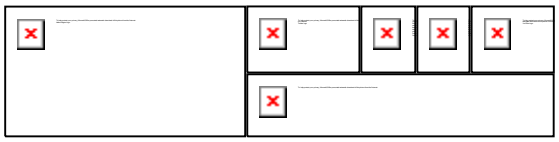
It is best to assume a 0.5% Growth Rate for Appleby Line through to 2029. This is a conservative value obtained from our EMME model, which reported a near-flat growth on Appleby Line in this location.

Please follow up if you have any questions. I have copied the Region Planner on this direct response.

Thank you,

Walter

Walter Scattolon, BASc (Eng.), PMP
Project Manager I, Transportation Planning Coordination
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 2687 | 1-866-442-5866



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From: Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>
Sent: Thursday, March 10, 2022 10:55 AM
To: Scott Catton <scatton@ptsl.com>; Huycke, Adam <Adam.Huycke@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Lucas, Steve <Steve.Lucas@burlington.ca>
Cc: Creighton Chartier <cchartier@ptsl.com>; mnufrio@latch-developments.com
Subject: RE: 220073 (1989 Appleby Line) Traffic Study Terms of Reference

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Hi Scott,
The City staff don't have any concerns with the TOR for 1989 Appleby Line Traffic Impact Study.
Thanks,

Dan Ozimkovic, C.E.T., A.Sc.T.
Transportation Planning Technologist
Transportation Services Department

From: Scott Catton <scatton@ptsl.com>
Sent: Wednesday, March 9, 2022 4:56 PM
To: Huycke, Adam <Adam.Huycke@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Lucas, Steve <Steve.Lucas@burlington.ca>; Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>
Cc: Creighton Chartier <cchartier@ptsl.com>; mnufrio@latch-developments.com
Subject: RE: 220073 (1989 Appleby Line) Traffic Study Terms of Reference

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Hi All,
Following up on the below.

Wondering if you've had a chance to review or if you would like me to set up a call to discuss.

Thanks very much.

Scott Catton, C.E.T.
Senior Project Manager

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON N1R 8J8
p: 905.381.2229 x302
e: scatton@ptsl.com
w: www.ptsl.com

From: Scott Catton
Sent: 3-Mar-22 14:28
To: Huycke, Adam <Adam.Huycke@halton.ca>; Scattolon, Walter <Walter.Scattolon@halton.ca>; Lucas, Steve <Steve.Lucas@burlington.ca>; Ozimkovic , Danijel <Danijel.Ozimkovic@burlington.ca>
Cc: Creighton Chartier <cchartier@ptsl.com>; marcmnufrio@latch-developments.com
Subject: 220073 (1989 Appleby Line) Traffic Study Terms of Reference

Hi All,
Paradigm Transportations Solutions Limited has been retained to complete a Transportation Impact and Parking Study for the proposed redevelopment of 1989 Appleby Line, City of Burlington.

Below is a brief description of the development and our proposed Terms of Reference for the traffic study.

Can you please review the study's terms of reference and advise if there are any questions, comments, or concern?

If you would like to set up quick call to discuss, please let me know. Thank you.

Development Description
The subject site is located at 1989 Appleby Line in the City of Burlington and is occupied by a gas station with convenience store and carwash. Vehicle access is provided by a right-in/right-out driveway to Appleby Line and a right-in/right-out driveway to Upper Middle Road.

The property owner is proposing to redevelop the site to include a high-rise multi-family building containing approximately 490 units and approximately 1,067 m^2 of ground floor retail space. The existing right-in/right-out driveways to both Appleby Line and Upper Middle Road will be retained, though the driveway geometrics will be revised. Both driveways will continue to operate as right-in/right-out.

The site's parking supply is identified on the site plan to be approximately 548 spaces with 74 spaces allocated to visitors. A preliminary site concept plan is attached.

Please note that the site's build-out date is not yet determined and unit counts may change as the site plan design progresses.

Preliminary ITE trip generation estimates are summarized below:

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Sum	In	Out	Sum
Multifamily Housing (High-Rise) - Not Close to Rail Transit (222) 490 units	43	84	**127**	84	67	**151**
Strip Retail Plaza (<40k) (822) 1,067 m2	19	13	**32**	43	43	**86**
Total Trip Generation	**62**	**97**	**159**	**127**	**110**	**237**
Pass-by Trips (ITE)	0	0	**0**	17	17	**34**
Net Trip Generation	**62**	**97**	**159**	**110**	**93**	**203**

PROPOSED TERMS OF REFERENCE

Transportation Impact Study

Study Area:

- Appleby Line & Upper Middle Road (signalized);
- Appleby Line & Ironstone Drive (signalized);
- Appleby Line & Heron Way (signalized);
- Upper Middle Road & Imperial Way (signalized);
- Ironstone Drive & Imperial Way (unsignalized); and
- The existing/proposed site driveways.

Horizon Year & Analysis Periods:

- Five Year Horizon post build-out (Year TBD)
- Weekday AM peak hours; and
- Weekday PM peak hours

Analysis:

- Synchro 10 with HCM 2000

Existing Data:

- Existing signal timing plans to be obtained from City/Region.
- Historical count data will be obtained from City/Region for the study area intersections.
- New data will be collected at Ironstone Drive & Imperial Way and at the existing site driveways.
- Historical count volumes to be factor to a baseline condition (Year 2022) using a generalized growth rate of 2% per annum.
- Base Year traffic forecast will be provided to the City and Region for review and comment.

Background Traffic:

- Generalized background growth rate of 2% per annum.
- Active development applications within 500 m of the site
    - 1900 Appleby Line.

- Please advise if there are any other development application(s) we should consider in the traffic forecast.

Capital works

- Widening of Appleby Line from 4 to 6 lanes, from Fairview Street to Taywood Drive, Halton's Capital Forecast year 2029
- Widening of Upper Middle Road from 4 to 6 lanes, from Appleby Line to Burloak Drive, Halton's Capital Forecast year 2030

Site Traffic Estimates:

- ITE Trip Generation Data 11th Edition
  - Multifamily Housing (High-Rise) - Not Close to Rail Transit (222)
  - Strip Retail Plaza (<40k) (822)
- ITE 11th Edition Pass-by Trip Rates
  - 820 (PM = 40%)
- No modal split reductions.
- Distribution - existing travel patterns and/or TTS data

Parking Study

- The site's parking demand will be forecast using ITE Parking Generation (5th Edition) and in house data. This forecast may be refined through consideration of typical auto ownership characteristics for land uses of this nature and opportunities for shared parking.

Transportation Demand Management Plan

- Proposed TDM measures to be implemented on the site that can encourage greater use of sustainable modes of transportation (transit, walking, cycling) and trip decision making that reduces, combines, or shortens vehicle trips.

Circulation Review

- AutoTURN analysis for vehicle swept path manoeuvres within the site using typical TAC design vehicles and a Halton Region Front End Loading garbage truck (13 m centreline radius).

Report:

- We will document the study methodologies, findings, and conclusions in a report with appendices containing the detailed analysis results and any data collected.

Thank you.

Scott Catton, C.E.T.
Senior Project Manager

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge, ON N1R 8J8
p: 905.381.2229 x302
e: scatton@ptsl.com
w: www.ptsl.com

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Appendix B

Traffic Data

Appleby Line @ Heron Way

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

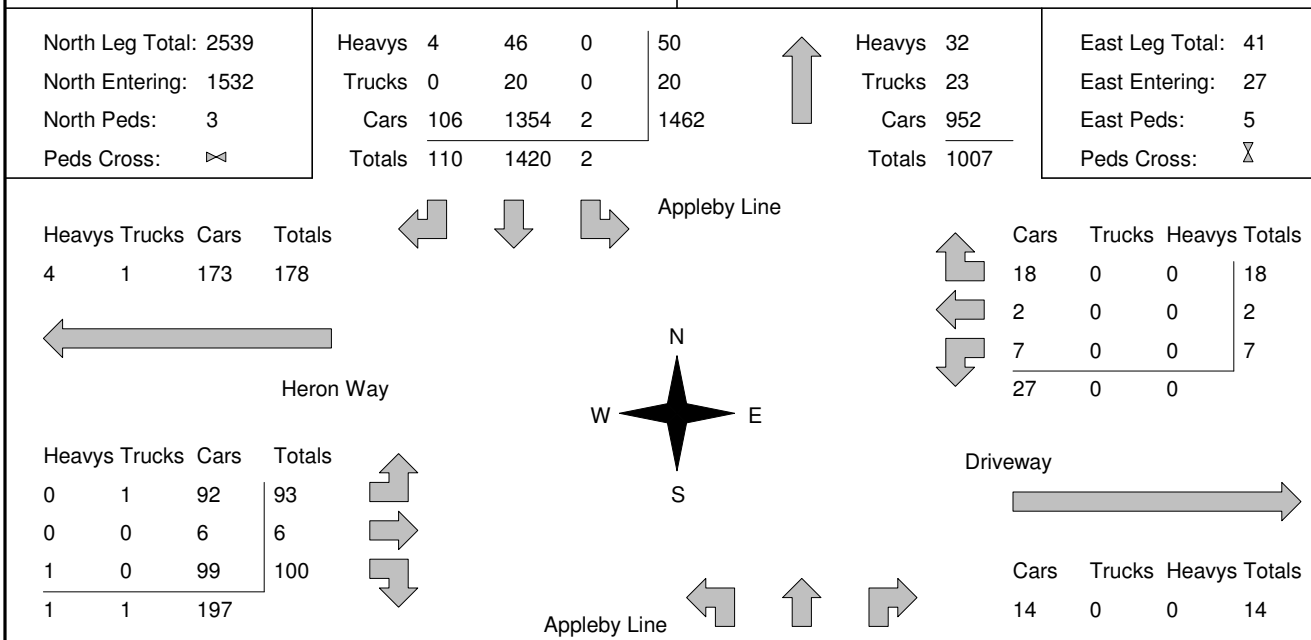
Municipality: Halton Region
Site #: 0000003321
Intersection: Appleby Line & Heron Way
TFR File #: 9
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Appleby Line @ Heron Way

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

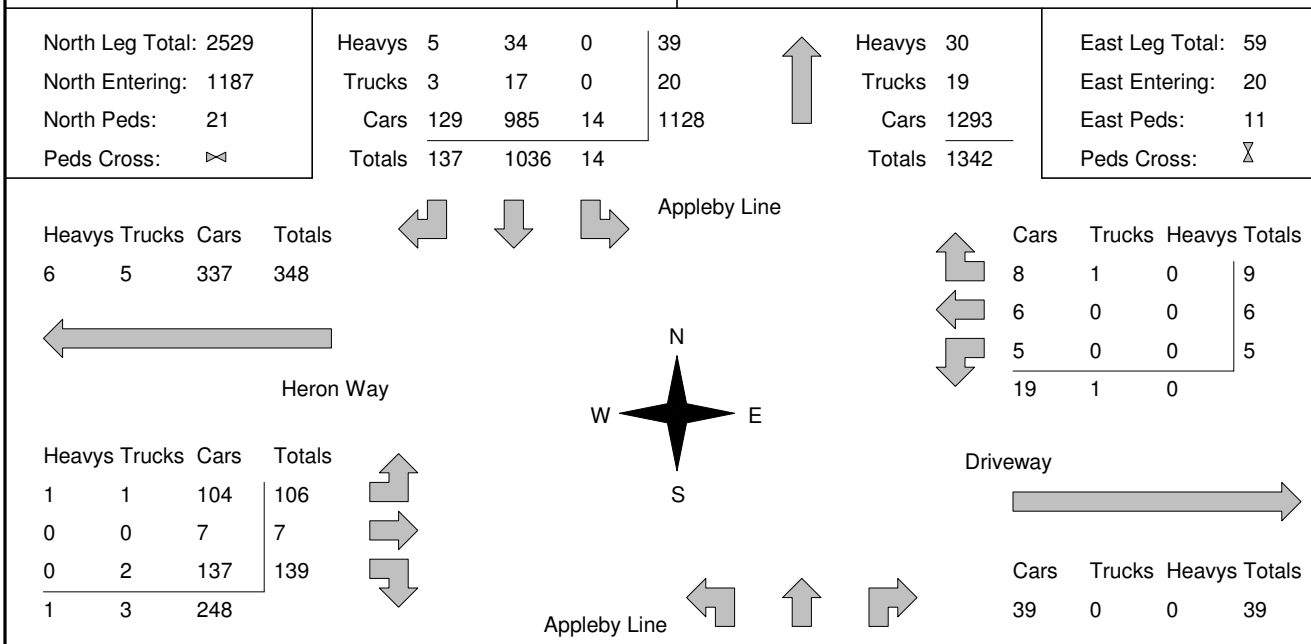
Municipality: Halton Region
Site #: 0000003321
Intersection: Appleby Line & Heron Way
TFR File #: 9
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Appleby Line @ Heron Way

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

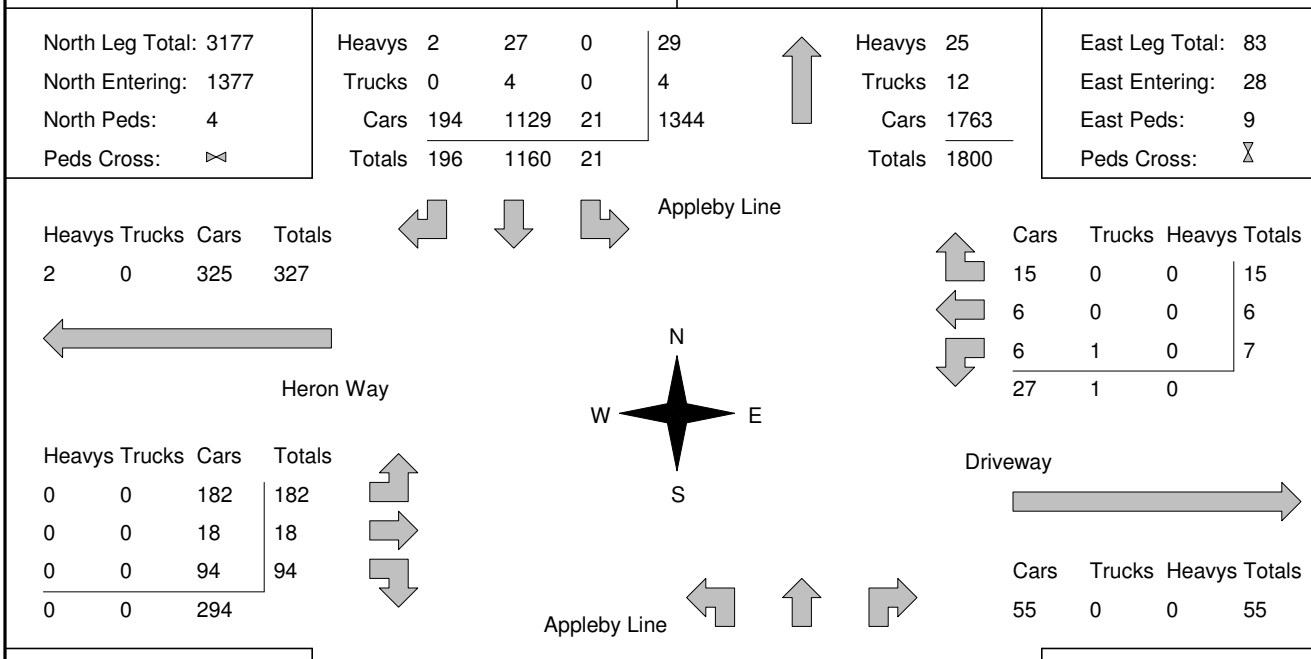
Municipality: Halton Region
Site #: 0000003321
Intersection: Appleby Line & Heron Way
TFR File #: 9
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Appleby Line @ Heron Way

Total Count Diagram

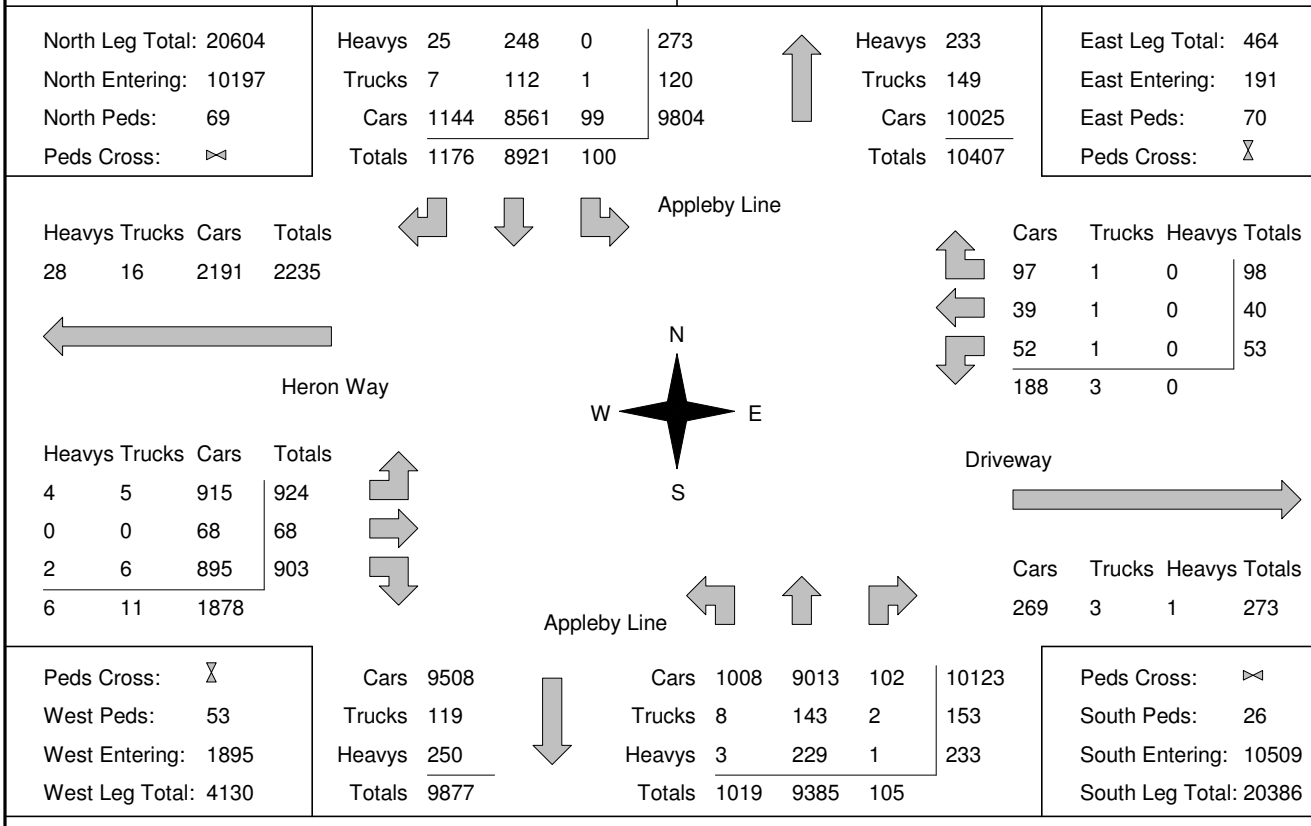
Municipality: Halton Region
Site #: 0000003321
Intersection: Appleby Line & Heron Way
TFR File #: 9
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Upper Middle Rd @ Appleby Line

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

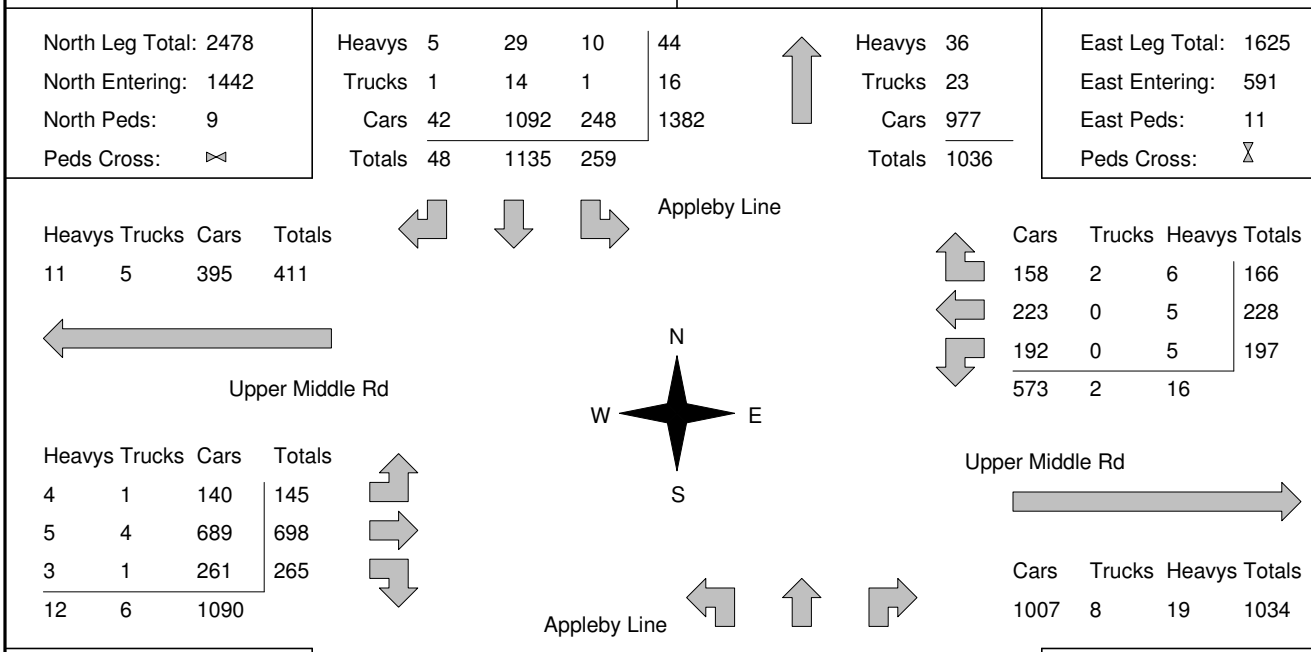
Municipality: Halton Region
Site #: 0000003287
Intersection: Appleby Line & Upper Middle Rd
TFR File #: 9
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Upper Middle Rd @ Appleby Line

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:15:00
To: 13:15:00

Municipality: Halton Region
Site #: 0000003287
Intersection: Appleby Line & Upper Middle Rd
TFR File #: 9
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S

North Leg Total:	2508			
North Entering:	1169			
North Peds:	12			
Peds Cross:	⋈			
Heavys	4	31	1	36
Trucks	2	9	4	15
Cars	125	822	171	1118
Totals	131	862	176	
Heavys	37			
Trucks	30			
Cars	1272			
Totals	1339			
East Leg Total:	898			
East Entering:	473			
East Peds:	15			
Peds Cross:	⧖			

Appleby Line

Heavys	Trucks	Cars	Totals
5	12	544	561

	Cars	Trucks	Heavys	Totals
	185	1	1	187
	182	4	1	187
	96	0	3	99
	463	5	5	

Upper Middle Rd

N
W E
S

Heavys	Trucks	Cars	Totals
6	5	132	143
0	2	178	180
1	5	194	200
7	12	504	

Upper Middle Rd

	Cars	Trucks	Heavys	Totals
	413	8	4	425

Appleby Line

Peds Cross:	⧖			
West Peds:	19			
West Entering:	523			
West Leg Total:	1084			
Cars	1112			
Trucks	14			
Heavys	35			
Totals	1161			
Cars	237	955	64	1256
Trucks	6	24	2	32
Heavys	0	30	3	33
Totals	243	1009	69	
Peds Cross:	⋈			
South Peds:	24			
South Entering:	1321			
South Leg Total:	2482			

Comments

Upper Middle Rd @ Appleby Line

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Halton Region
Site #: 0000003287
Intersection: Appleby Line & Upper Middle Rd
TFR File #: 9
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S

North Leg Total:	2938			
North Entering:	1221			
North Peds:	16			
Peds Cross:	⋈			
Heavys	1	15	0	16
Trucks	1	9	2	12
Cars	190	807	196	1193
Totals	192	831	198	
Heavys	15			
Trucks	16			
Cars	1686			
Totals	1717			
East Leg Total:	1609			
East Entering:	999			
East Peds:	29			
Peds Cross:	⧖			

Appleby Line

Heavys	Trucks	Cars	Totals
4	4	1150	1158

Upper Middle Rd

Cars	Trucks	Heavys	Totals
301	1	0	302
614	2	1	617
75	1	4	80
990	4	5	

N
W E
S

Heavys	Trucks	Cars	Totals
2	0	169	171
3	2	338	343
1	4	222	227
6	6	729	

Upper Middle Rd

Cars	Trucks	Heavys	Totals
597	5	8	610

Appleby Line

Peds Cross:	⧖			
West Peds:	14			
West Entering:	741			
West Leg Total:	1899			
Cars	1104			
Trucks	14			
Heavys	20			
Totals	1138			
Cars	346	1216	63	1625
Trucks	1	15	1	17
Heavys	2	13	5	20
Totals	349	1244	69	
Peds Cross:	⋈			
South Peds:	14			
South Entering:	1662			
South Leg Total:	2800			

Comments

Upper Middle Rd @ Appleby Line

Total Count Diagram

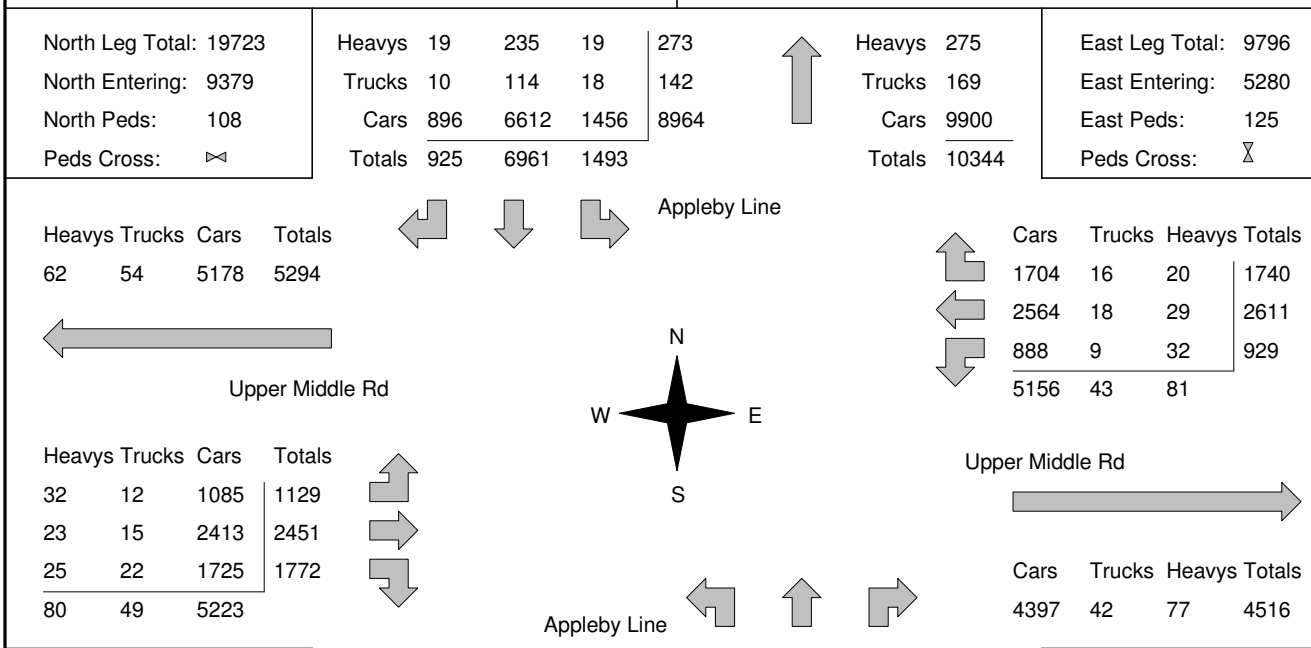
Municipality: Halton Region
Site #: 0000003287
Intersection: Appleby Line & Upper Middle Rd
TFR File #: 9
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Appleby Line @ Ironstone Dr

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Halton Region
Site #: 1024830100
Intersection: Appleby Line & Ironstone Dr
TFR File #: 27
Count date: 10-Apr-2018

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S

North Leg Total:	2578			
North Entering:	1669			
North Peds:	2			
Peds Cross:	⋈			
Heavys	0	35	2	37
Trucks	0	17	1	18
Cars	36	1547	31	1614
Totals	36	1599	34	
Heavys	22			
Trucks	22			
Cars	865			
Totals	909			
East Leg Total:	275			
East Entering:	212			
East Peds:	10			
Peds Cross:	⧖			

Appleby Line

Heavys	Trucks	Cars	Totals
3	2	142	147

Ironstone Dr

Heavys	Trucks	Cars	Totals
0	3	37	40
1	0	15	16
4	2	79	85
5	5	131	

Cars	Trucks	Heavys	Totals
105	1	2	108
35	0	0	35
69	0	0	69
209	1	2	

N
W E
S

Ironstone Dr

Cars	Trucks	Heavys	Totals
57	1	5	63

Appleby Line

Peds Cross:	⧖			
West Peds:	2			
West Entering:	141			
West Leg Total:	288			
Cars	1695			
Trucks	19			
Heavys	39			
Totals	1753			
Cars	71	723	11	805
Trucks	2	18	0	20
Heavys	3	20	2	25
Totals	76	761	13	
Peds Cross:	⋈			
South Peds:	5			
South Entering:	850			
South Leg Total:	2603			

Comments

Appleby Line @ Ironstone Dr

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

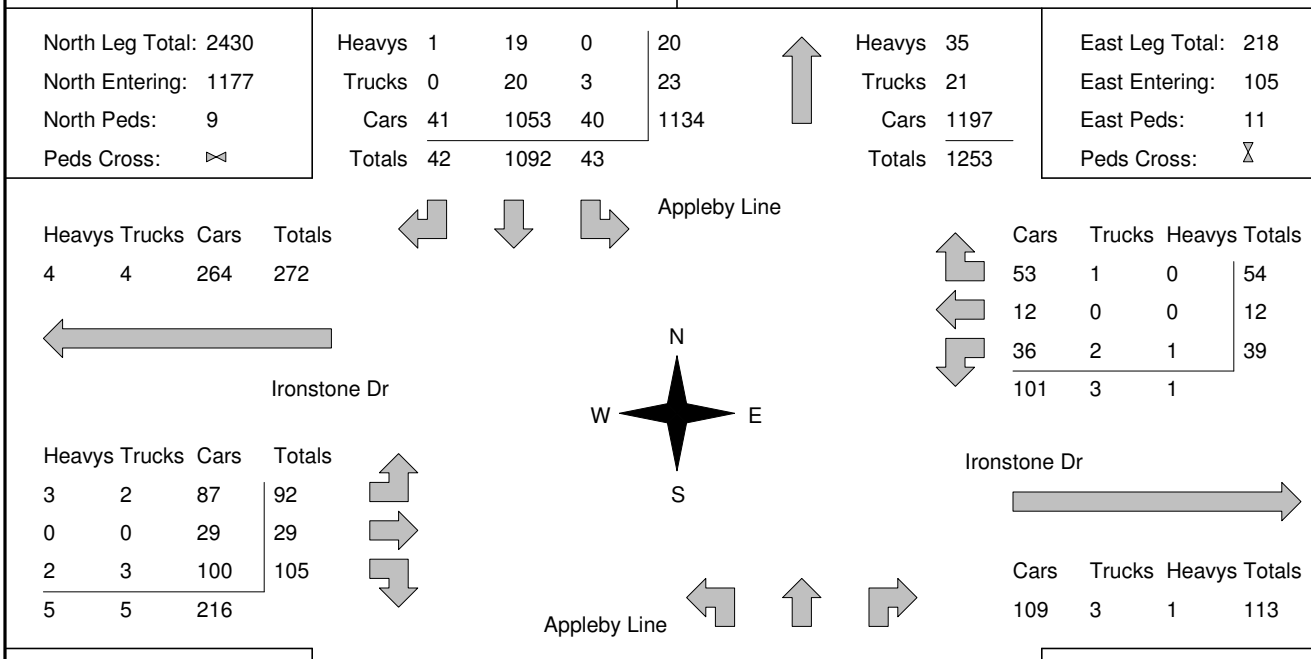
Municipality: Halton Region
Site #: 1024830100
Intersection: Appleby Line & Ironstone Dr
TFR File #: 27
Count date: 10-Apr-2018

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Appleby Line @ Ironstone Dr

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Halton Region
Site #: 1024830100
Intersection: Appleby Line & Ironstone Dr
TFR File #: 27
Count date: 10-Apr-2018

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S

North Leg Total:	2945			
North Entering:	1188			
North Peds:	8			
Peds Cross:	⋈			
Heavys	0	14	0	14
Trucks	0	10	0	10
Cars	59	1023	82	1164
Totals	59	1047	82	
Heavys	20			
Trucks	10			
Cars	1727			
Totals	1757			
East Leg Total:	326			
East Entering:	162			
East Peds:	14			
Peds Cross:	⧖			

Appleby Line

Heavys	Trucks	Cars	Totals
0	3	264	267

Cars	Trucks	Heavys	Totals
97	1	0	98
39	0	0	39
25	0	0	25
161	1	0	

Ironstone Dr

N
W E
S

Heavys	Trucks	Cars	Totals
1	0	91	92
0	0	41	41
0	1	85	86
1	1	217	

Ironstone Dr

Cars	Trucks	Heavys	Totals
164	0	0	164

Appleby Line

Peds Cross:	⧖			
West Peds:	9			
West Entering:	219			
West Leg Total:	486			
Cars	1133			
Trucks	11			
Heavys	14			
Totals	1158			
Cars	166	1539	41	1746
Trucks	3	9	0	12
Heavys	0	19	0	19
Totals	169	1567	41	
Peds Cross:	⋈			
South Peds:	4			
South Entering:	1777			
South Leg Total:	2935			

Comments

Appleby Line @ Ironstone Dr

Total Count Diagram

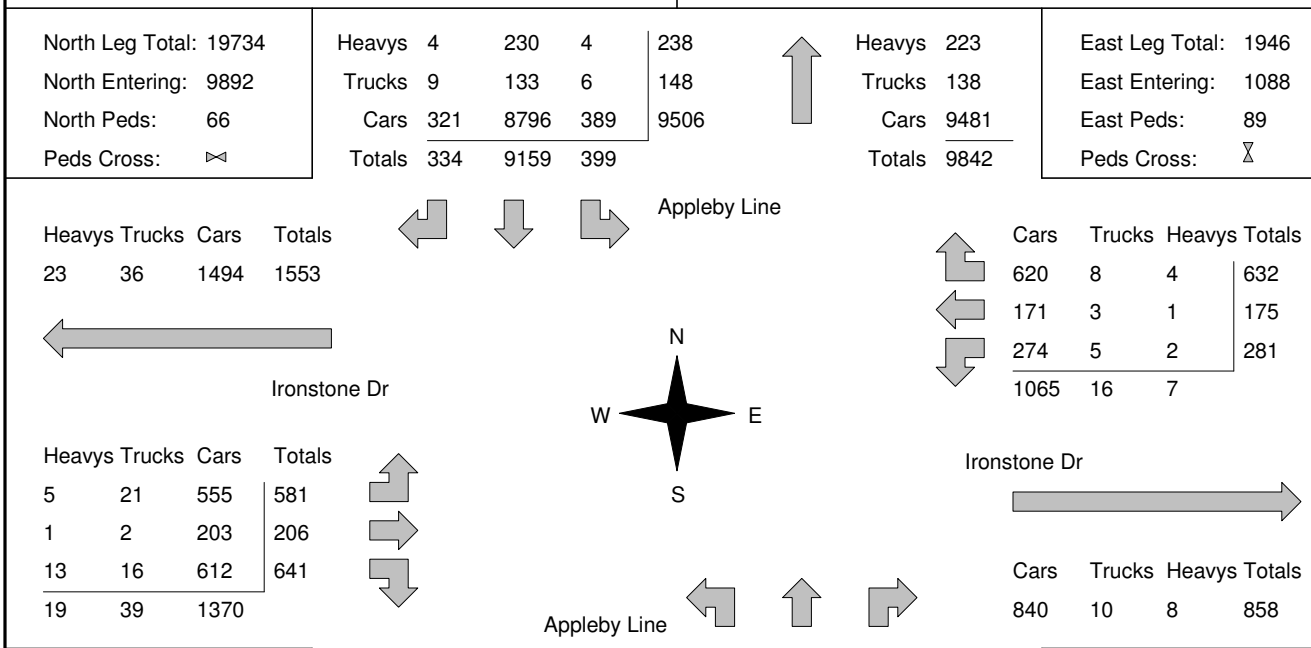
Municipality: Halton Region
Site #: 1024830100
Intersection: Appleby Line & Ironstone Dr
TFR File #: 27
Count date: 10-Apr-2018

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Appleby Line runs N/S



Comments

Upper Middle Rd @ Broadleaf Cres

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Halton Region
Site #: 0000003288
Intersection: Upper Middle Rd & Broadleaf Cres
TFR File #: 10
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Upper Middle Rd runs W/E

North Leg Total:	22
North Entering:	17
North Peds:	20
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	1	0	0	1
Cars	10	2	4	16
Totals	11	2	4	

Heavys	0
Trucks	0
Cars	5
Totals	5

East Leg Total:	1693
East Entering:	610
East Peds:	5
Peds Cross:	⧖

Broadleaf Cres

Heavys	Trucks	Cars	Totals
14	4	571	589

Cars	Trucks	Heavys	Totals
0	0	0	0
537	3	13	553
53	0	4	57
590	3	17	

Upper Middle Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	5	5
18	8	969	995
3	2	35	40
21	10	1009	

Upper Middle Rd

Cars	Trucks	Heavys	Totals
1053	8	22	1083

Imperial Way

Peds Cross:	⧖
West Peds:	7
West Entering:	1040
West Leg Total:	1629

Cars	90			
Trucks	2			
Heavys	7			
Totals	99			

Cars	24	0	80	104
Trucks	0	0	0	0
Heavys	1	0	4	5
Totals	25	0	84	

Peds Cross:	⋈
South Peds:	24
South Entering:	109
South Leg Total:	208

Comments

Upper Middle Rd @ Broadleaf Cres

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

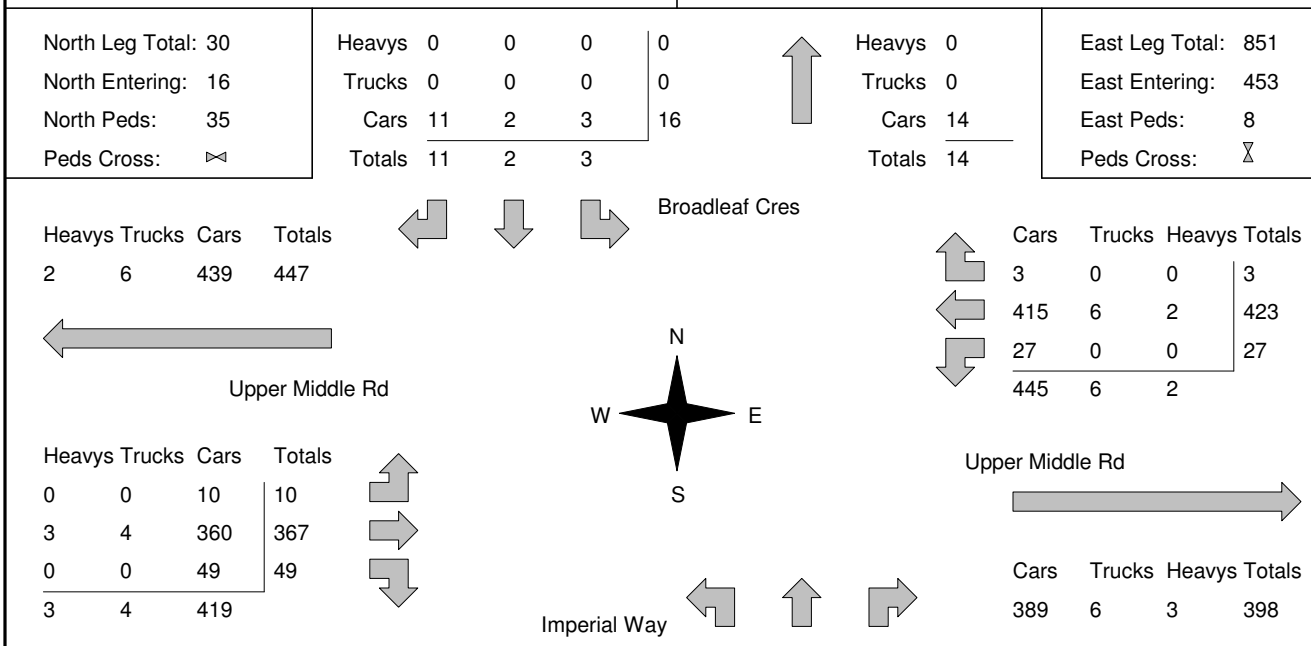
Municipality: Halton Region
Site #: 0000003288
Intersection: Upper Middle Rd & Broadleaf Cres
TFR File #: 10
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Upper Middle Rd runs W/E



Comments

Upper Middle Rd @ Broadleaf Cres

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:45:00
To: 16:45:00

Municipality: Halton Region
Site #: 0000003288
Intersection: Upper Middle Rd & Broadleaf Cres
TFR File #: 10
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Upper Middle Rd runs W/E

North Leg Total: 49
North Entering: 17
North Peds: 20
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	1	0	0	1
Cars	11	2	3	16
Totals	12	2	3	

Heavys	0
Trucks	1
Cars	31
Totals	32

East Leg Total: 1826
East Entering: 1276
East Peds: 5
Peds Cross: ⧖

Broadleaf Cres

Heavys	Trucks	Cars	Totals
22	6	1192	1220

Cars	Trucks	Heavys	Totals
7	1	0	8
1162	5	20	1187
79	0	2	81
1248	6	22	

Upper Middle Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	24	24
9	4	468	481
2	0	73	75
11	4	565	

Upper Middle Rd

Cars	Trucks	Heavys	Totals
536	4	10	550

Imperial Way

Peds Cross: ⧖
West Peds: 1
West Entering: 580
West Leg Total: 1800

Cars	154			
Trucks	0			
Heavys	4			
Totals	158			

Cars	19	0	65	84
Trucks	0	0	0	0
Heavys	2	0	1	3
Totals	21	0	66	

Peds Cross: ⋈
South Peds: 29
South Entering: 87
South Leg Total: 245

Comments

Upper Middle Rd @ Broadleaf Cres

Total Count Diagram

Municipality: Halton Region
Site #: 0000003288
Intersection: Upper Middle Rd & Broadleaf Cres
TFR File #: 10
Count date: 29-Oct-2019

Weather conditions:
Cloudy/Dry

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Upper Middle Rd runs W/E

North Leg Total:	271			
North Entering:	142			
North Peds:	137			
Peds Cross:	⋈			

Heavys	0	0	1	1
Trucks	4	0	0	4
Cars	96	16	25	137
Totals	100	16	26	

Heavys	1			
Trucks	3			
Cars	125			
Totals	129			

East Leg Total:	10098			
East Entering:	5476			
East Peds:	42			
Peds Cross:	⧖			

Broadleaf Cres

Heavys	Trucks	Cars	Totals
79	41	5225	5345

Cars	Trucks	Heavys	Totals
17	1	0	18
4959	37	75	5071
377	1	9	387
5353	39	84	

Upper Middle Rd

N
W E
S

Heavys	Trucks	Cars	Totals
1	1	104	106
81	35	4023	4139
6	5	448	459
88	41	4575	

Upper Middle Rd

Cars	Trucks	Heavys	Totals
4495	37	90	4622

Imperial Way

Peds Cross:	⧖			
West Peds:	52			
West Entering:	4704			
West Leg Total:	10049			

Cars	841			
Trucks	6			
Heavys	15			
Totals	862			

Cars	170	4	447	621
Trucks	0	1	2	3
Heavys	4	0	8	12
Totals	174	5	457	

Peds Cross:	⋈			
South Peds:	417			
South Entering:	636			
South Leg Total:	1498			

Comments

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B		B		B		B		B							
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 12																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 13																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 14																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 15																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 16																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use		X		X	X	X		X								
Exclusive Ped																

Phase Compatibility (MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Overlap	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
Description																

Administration (MM) 1-7-1

Enable Controller/Cabinet Interlock CRC	No
CRC (16 bit)	BD30
Enable Automatic Backup to Datakey	No

Backup Prevent (MM) 1-1-3

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing	**1**		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phases	**2**	X		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	X		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	X		.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	X		.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

Simultaneous Gap (MM) 1-1-4

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
Phase	**6**	.	.	.	.	.		.	.	.	.	.	.	.	.	.	.
Must	**7**	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
Gap	**8**	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.
With	**9**	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
Phase	**10**	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
	Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MM) 1-3

	Phase / Overlap	Type	Dimming				Power Up	Auto		Flash Together
			Red	Yellow	Green	Dark		Red	Yellow	
1	1	.				-	Auto	X		
2	2	V				-	Auto	X		X
3	3	.				-	Auto	X		
4	4	V				-	Auto	X		X
5	5	V				+	Auto	X		
6	6	V				+	Auto	X		X
7	7	.				+	Auto	X		
8	8	V				+	Auto	X		X
9	2	P				-	Auto			
10	4	P				-	Auto			
11	6	P				+	Auto			
12	8	P				+	Auto			
13	1	O				-	Auto	X		
14	2	O				+	Auto	X		X
15	3	O				-	Auto	X		
16	4	O				+	Auto	X		X

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Configuration Port 1 (SDLC)

Port 1 SDLC (MM) 1-4-1

BIU	1	2	3	4	5	6	7	8
Term & Facility	X	X						
Detector Rack	X							

Enable TS2/MMU Type Cabinet: No
Enable MMU Extended Status: Yes
Enable SDLC Stop Time: Yes
Enable 3 Critical RFE's Lockup: Yes

MMU Program (MM) 1-4-2

Channel Can Serve With Channel	
Channel 1	**Channel 2**
1	5
1	6
1	11
2	5
2	6
2	9
2	11
3	7
3	8
3	12
4	7
4	8
4	10
4	12
5	9
6	9
6	11
7	10
8	10
8	12
9	11
10	12

Color Check Enable (MM) 1-4-3

Enable Color Check: No

MMU/LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green																
Yellow																
Red																

Secondary Stations/Tests (MM) 1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term & Facility									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack									

Enable SDLC Diagnostic Test: No

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Configuration Communications 1 (SDLC)

Ethernet Port Configuration (MM) 1-5-1

Controller IP:	172.22.137.2
Subnet Mask:	255.255.0.0
Default Gateway IP:	172.22.0.255
Server IP:	192.168.210.120

NTCIP (MM) 1-5-5

NTCIP Backup Time (Sec):	0
NTCIP UDP Port:	501
Ethernet Priority:	1
Port 2 Priority (Port C50S for 2070):	4
Port 3A Priority (Port C21S for 2070):	2
Port 3B Priority (Port C22S for 2070):	3

Port Configuration (MM) 1-5-2 to 1-5-4

Port	2 (C50S)	3A (C21S)	3B (C22S)
Protocol	TERMINAL	NTCIP	ECPIP
Enable	No	No	Yes
Data Rate (BPS)	9600	19.2K	1200
Data, Parity, Stop	8 N 1	8 N 1	8 O 1
Address	0	0	1
Telemetry Response Delay	0.0	0.0	0.9
Duplex - Half or Full	Half	Full	Full
Flow Control	Yes	Yes	Yes
Group Address	0	0	0
Single Flag Enable	Yes	Yes	Yes
RTS to CTS Delay	n/a	n/a	3.0
RTS Turn Off Delay	n/a	n/a	2.0
Dropout Time	10	10	300
Early RTS	n/a	n/a	No
Telemetry Mode	n/a	n/a	FSK
ATCS Railroad	0	n/a	n/a
ATCS Railroad Line	0	n/a	n/a
ATCS Group	0	n/a	n/a
Wayside Device	0	n/a	n/a
ATC Device	0	n/a	n/a
Wayside Subnode	0	n/a	n/a
ATC Subnode	0	n/a	n/a

ECPIP (MM) 1-5-6

Controller Address:	1
Expanded System Detector Address:	0

System Detector Assignment

System Detector	Local Detector

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Configuration Logging / Display

Event Logging (MM) 1-6-1

Critical RFE's (MMU/TF)	Yes	3 Critical Errors Within 24 Hours	Yes
MMU Flash Faults	Yes	Local Flash Fault	Yes
Non-Critical RFE's (Det/Test)	Yes	Detector Errors	Yes
Coordination Errors	Yes	Controller Download	Yes
Preemption Events	Yes	TSP Events	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online / Offline	Yes		

Alarm Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Display Options (MM) 1-7-2

Key Click Enable:	No
Backlight Enable:	Yes
LED Mode:	Auto
Display Mode:	Basic
Screen Format:	Advanced
Trans Mode Pop-Up Disable:	No

Sign On (MM) 8-5

Sign On Message Line 1: Solutions that Move the World
Sign On Message Line 2:

Software Modules (MM) 8-7

Application Version: 02.58.00
OS (Boot) Version: 01.12.05

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Logic Processor Page 1

Logic Statement Control (MM) 1-8-1

Logic #	Statement Control
2	E

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Logic Processor Page 2

Logic Statements (MM) 1-8-2

Logic #: 1

If:

	Assignment	#		State
IF	VEH GREEN ON PH	3	IS	On

Then:

Assignment	#	State
CTR CALL PHASE	4	On

Logic #: 2

If:

	Assignment	#	State
IF	LP CIB CODE ON		169

Then:

Assignment	#	State
CTR SET TMGPLN A-C	2	On

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Controller Timing Plan (MM) 2-1

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction		NB		EB	NBLT	SB		WB								
Min Green	0	8	0	8	7	8	0	8	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	15	0	23	0	15	0	23	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	0.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	0	55	0	30	15	55	0	30	35	35	35	35	35	35	35	35
Max2	0	55	0	30	15	55	0	30	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	0.0	3.7	0.0	3.3	3.0	3.7	0.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	0.0	2.3	0.0	3.2	1.0	2.3	0.0	3.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction		NB		EB	NBLT	SB		WB								
Min Green	0	8	0	8	7	8	0	8	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	15	0	23	0	15	0	23	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	0.0	3.0	0.0	3.0	3.0	3.0	0.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	0	55	0	30	15	55	0	30	35	35	35	35	35	35	35	35
Max2	0	55	0	30	15	55	0	30	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	0.0	3.7	0.0	3.3	3.0	3.7	0.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	0.0	2.3	0.0	3.2	1.0	2.3	0.0	3.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction		NB		EB	NBLT	SB		WB								
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction		NB		EB	NBLT	SB		WB								
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

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MOVING TRAFFIC FORWARD

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Controller Overlaps

Vehicle Overlaps (MM) 2-2

Overlap	Type	Lag Green	Yellow	Red	Adv. Green

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phases	Lag 2 Phases	Flash Green

PPLT FYA

Overlap	Protected Phase (Left Turn)	Permissive Phase (Opposing Thru)	Flashing Arrow Output	Flashing Arrow Output CH	Delay Start of FYA	Delay Start of Clearance	Action Plan SF Bit Disable	Ped Protected Enable

Guaranteed Minimum Time Data (MM) 2-4

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5

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Controller Pedestrian Overlaps
Vehicle / Pedestrian Overlaps (MM) 2-3

Included	Pedestrian Overlaps

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Controller Start / Flash Data (MM) 2-5

Start Up

Phase	Phase Setting
1	.
2	Y
3	.
4	.
5	.
6	Y
7	.
8	.
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.

Overlap
A
B
C
D

Flash Thru Mon: No
Flash Time: 0
All Red: 0
Power Start Seq: 1
MUTCD Enabled: No
Y->G: n/a

Automatic Flash

Entry
2
6

Exit
2
6

Overlap Exit
A
B
C
D

Flash Thru Mon: No
Exit Flash: W
Minimum Flash: 8
Mimimum Recall: No
Cycle Through Phase: No

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Controller Options

Controller Options (MM) 2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Grn Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guar Passage																
Non-Act I		X				X										
Non-Act II																
Dual Entry		X		X		X		X								
Cond Service																
Cond Reservice																
Ped Re-Service																
Rest In Walk		X				X										
Flashing Walk																
Ped Clr-Yel																
Ped Clr-Red																
IGRN + Veh Ext																

Ped Clear Protect: Off Unit Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Pre-Timed Mode (MM) 2-7

Enable Pre-Timed Mode: No Free Input Disables Pre-Timed: No

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed																

Phase Recall Options (MM) 2-8

Plan # 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector				X												
Vehicle Recall																
Ped Recall		X				X										
Max Recall																
Soft Recall																
No Rest																
AI Calc																

Plan # 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall																
Ped Recall		X				X										
Max Recall																
Soft Recall																
No Rest																
AI Calc																

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Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Coordination Options

Options (MM) 3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	SYS	System Format	PTN
Splits In	Seconds	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell / Add Time	0		
Delay Coord Wk-LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	No
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Ini Green	No
Re-sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM) 3-4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Split Demand (MM) 3-5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

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Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Coordination Pattern Data
Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Seconds
Cycle	120	Std (COS)	9	Offsets In	Seconds
Offset Value	110s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Splits (Split Pat 1)	0	82	0	38	12	70	0	38	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	120s	120s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase					X				X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Seconds
Cycle	110	Std (COS)	17	Offsets In	Seconds
Offset Value	18s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Splits (Split Pat 2)	0	72	0	38	12	60	0	38	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	110s	110s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Seconds
Cycle	140	Std (COS)	25	Offsets In	Seconds
Offset Value	122s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Splits (Split Pat 3)	0	100	0	40	12	88	0	40	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	140s	140s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 11

Split Pattern	11	TS2 (Pat-Off)	3-2	Splits In	Seconds
Cycle	120	Std (COS)	137	Offsets In	Seconds
Offset Value	110s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Splits (Split Pat 11)	0	82	0	38	12	70	0	38	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	120s	120s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase					X				X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 13

Split Pattern	13	TS2 (Pat-Off)	4-1	Splits In	Seconds
Cycle	140	Std (COS)	153	Offsets In	Seconds
Offset Value	122s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Splits (Split Pat 13)	0	100	0	40	12	88	0	40	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	140s	140s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Coordination Split Pattern
Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Split (seconds)	0	82	0	38	12	70	0	38	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase					X				X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	120s	120s	0s	0s

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Split (seconds)	0	72	0	38	12	60	0	38	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	110s	110s	0s	0s

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Split (seconds)	0	100	0	40	12	88	0	40	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	140s	140s	0s	0s

Split Pattern # 11

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Split (seconds)	0	82	0	38	12	70	0	38	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase					X				X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	120s	120s	0s	0s

Split Pattern # 13

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description		NB		EB	NBLT	SB		WB								
Split (seconds)	0	100	0	40	12	88	0	40	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	140s	140s	0s	0s

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Preempt Plan

Preempt Plan (MM) 4-1

Preempt Plan 5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing																
Dwell Veh	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	Yes	Duration	8	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Yel	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	8	8	4.0	3.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	8	0.0	45	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Preempt Preempt Filtering
Enable Preempt Filtering & TSP/SCP (MM) 4-2

Input	Solid	Pulsing
1	...BYPASSED...	...BYPASSED...
2	...BYPASSED...	...BYPASSED...
3	PREEMPTION 3	PREEMPTION 7
4	PREEMPTION 4	PREEMPTION 8
5	PREEMPTION 5	PREEMPTION 9
6	PREEMPTION 6	PREEMPTION 10
7	...BYPASSED...	...BYPASSED...
8	...BYPASSED...	...BYPASSED...
9	...BYPASSED...	...BYPASSED...
10	...BYPASSED...	...BYPASSED...

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Preempt TSP/SCP Plan and Split

TSP / SCP Plan (MM) 4-3

TSP/SCP Plan	Enable Option	Signal Type	Det Lock	Delay Time	Max Presence	PMT Enables Reservice	No Delay in TSP	Action SF Inhibit	Reservice Cycles	Bus Heading
1	No	Solid	No	0	0	No	False	0	0	NB
2	No	Solid	No	0	0	No	False	0	0	SB
3	No	Solid	No	0	0	No	False	0	0	EB
4	No	Solid	No	0	0	No	False	0	0	WB
5	No	Solid	No	0	0	No	False	0	0	.
6	No	Solid	No	0	0	No	False	0	0	.

Mode: TSP
Free Default Pattern: 120
Headway Allowance: 0

TSP/SCP Plan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

TSP / SCP Split Pattern (MM) 4-4

TSP/SCP Split Pattern	Max Type	Phase															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	Max Reduction	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Time Base Clock/Calendar
Clock/Calendar Data (MM) 5-1

Manual Action Plan:	0
SYNC Reference Time:	00:00
SYNC Reference:	Reference Time
Day Light Savings:	No
Time Reset Input Set Time:	0:00:00
Standard Time From GMT:	0

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Time Base Action Plan
Action Plan (MM) 5-2

Action Plan - 1

Pattern	1	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 2

Pattern	2	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 3

Pattern	3	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 10

Pattern	Free	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 11

Pattern	11	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 13

Pattern	13	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1

Event	Action Plan	Start Time
1	1	06:00
2	2	09:00
3	3	15:00
4	2	19:00
5	10	22:00

Day Plan #2

Event	Action Plan	Start Time
1	2	06:00
2	10	21:30

Day Plan #3

Event	Action Plan	Start Time
1	2	06:00
2	10	21:30

Schedule (MM) 5-4

Schedule Number - 1

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X	X	X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
							X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 3

Day Plan No.: 3

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X						

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Time Base Exceptions
Exception Day Program (MM) 5-5

Excep Day	Float/Fixed	Mon/Mon	DOW/DOM	WOM/Year	Day Plan
1	FIXED	1	1	0	3
2	FLOAT	2	2	3	3
3	FIXED	4	19	0	3
4	FLOAT	5	2	3	3
5	FIXED	7	1	0	3
6	FLOAT	8	2	1	3
7	FLOAT	9	2	1	3
8	FLOAT	10	2	2	3
9	FIXED	12	25	0	3

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Detectors

Detectors - Pg 1

Veh Det Phase Assignment (MM) 6-1

Vehicle Detector Plan Number - 1

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	4	4	S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Plan Number - 2

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Plan Number - 3

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S

13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Plan Number - 4

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Setup (MM) 6-2

Veh Detector	Type	TS2 Detector	Description
1	S-STANDARD	No	
2	S-STANDARD	No	
3	S-STANDARD	No	
4	S-STANDARD	No	
5	S-STANDARD	No	
6	S-STANDARD	No	
7	S-STANDARD	No	
8	S-STANDARD	No	
9	S-STANDARD	No	
10	S-STANDARD	No	
11	S-STANDARD	No	
12	S-STANDARD	No	
13	S-STANDARD	No	
14	S-STANDARD	No	
15	S-STANDARD	No	
16	S-STANDARD	No	

Vehicle Detector Plan Number - 1

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 2

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 3

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 4

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Ped Detector Phase Assignment (MM) 6-3

Mode: NTCIP

Called Phase	Detector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Heron Way - TS 294 - Econolite Type - ASC/3

Detectors

Detectors - Pg 2

Log - Speed Detector Setup (MM) 6-4

NTCIP Log Period: 60 ECPI Log Period: 0 Length Unit: Inches

Speed Detector	Local Detector	One/Two Detector	Vehicle Length	Trap length	Enable Log
1	0	1	0	0	No
2	0	1	0	0	No
3	0	1	0	0	No
4	0	1	0	0	No
5	0	1	0	0	No
6	0	1	0	0	No
7	0	1	0	0	No
8	0	1	0	0	No
9	0	1	0	0	No
10	0	1	0	0	No
11	0	1	0	0	No
12	0	1	0	0	No
13	0	1	0	0	No
14	0	1	0	0	No
15	0	1	0	0	No
16	0	1	0	0	No

Vehicle Detector Diagnostics (MM) 6-5

Veh Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Pedestrian Detector Diagnostics (MM) 6-6

Ped Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier

Intersection Name:	TS ID:	Line No:	Model:	IP address:	Controller Make:
Appleby Ln @ UMR	290	9	ACS/3	172.22.136.2	Econolite

Type of Operation: 8 Phase Semi-Actuated

*-Start from Main Menu

No	Date			Description	Prepared by
	Y	M	D		MA
1					
3	2017	2	3	Amber and All red Changed as per OTM12	

PHASE DESCRIPTION

Ph1	SBLT - Appleby Ln	Ph5	NBLT - Appleby Ln
Ph2	NB - Appleby Ln	Ph6	SB - Appleby Ln
Ph3	WBLT - UMR	Ph7	EBLT - UMR
Ph4	EB - UMR	Ph8	WB - UMR

CONFIGURATION (PHASE SEQ): PHASE IN USE/EXCLUSIVE PED (MM) *- 1 - 2

Phase:	1	2	3	4	5	6	7	8
Phase in Use	X	X	X	X	X	X	X	X
Exclusive PED								

CONTROLLER TIMING DATA - VEHICLE TIMING * - 2 - 1

Timing Plan: 1	Phase: 1	2	3	4	5	6	7	8
Minimum Green	7	8	7	8	7	8	7	8
Walk		7		7		7		7
Ped. Clearance		21		21		21		21
Pedestrian Carry Over								
Vehicle Extension	3	3	3	5	3	3	3	5
MAX 1	10	35	10	30	20	35	10	30
MAX 2	10	35	10	30	20	35	10	30
Yellow Change	3	3.7	3	3.7	3	3.7	3	3.7
Red Clearance	1	2.8	1	2.7	2	2.8	1	2.7
Phase Minimum:	5	35.5	5	35.4	6	35.5	5	35.4

PHASE DATA - VEHICLE AND PEDESTRIAN RECALLS * - 2 - 8

Phase:	1	2	3	4	5	6	7	8
Lock Detector								
Vehicle Recall								
Pedestrian Recall		X				X		
MAX Recall		X				X		
Min Recall								

COORDINATION: COORDINATOR PATTERN, SPLIT PATTERN *** - 3 - 2, - 3 - 3**

Coordinator	Cycle	Offset (sec)	Timing Plan	Split	Phases (sec)							
					1	2	3	4	5	6	7	8
1	120	0	1	1	23	43	16	38	13	53	16	38
2	110	0	1	2	12	51	12	35	19	44	12	35
3	140	0	1	3	18	72	14	36	30	60	15	35
10	0	0	1	10	0	0	0	0	0	0	0	0

TIME BASE: ACTION PLAN, DAY PLAN *** - 5 - 2, - 5 - 3, -5 - 4**

Day Plan	Sched. #	Action Plan	Time Period	Pattern	Timing Plan
1	1	1	06:00	1	1
1	1	2	09:00	2	1
1	1	3	15:00	3	1
1	1	2	19:00	2	1
1	1	10	22:00	254	1
2	2	2	06:00	2	1
2	2	10	21:30	254	1
3	3	2	06:00	2	1
3	3	10	21:30	254	1

Schedule 1 = Day Plan 1
Schedule 2 = Day Plan 2
Schedule 3 = Day Plan 3

Day Plan 1 (Weekday)
Day Plan 2 (Saturday)
Day Plan 3 (Sunday, Holidays)

Action Plan 10 = free (254)

Special Programming:

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B		B		B		B		B							
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 12																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 13																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 14																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 15																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 16																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	X	X		X		X		X								
Exclusive Ped																

Phase Compatibility (MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Overlap	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
Description																

Administration (MM) 1-7-1

Enable Controller/Cabinet Interlock CRC	No
CRC (16 bit)	3897
Enable Automatic Backup to Datakey	No

Backup Prevent (MM) 1-1-3

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing	**1**		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phases	**2**	X		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	X		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	X		.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	X		.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

Simultaneous Gap (MM) 1-1-4

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
Phase	**6**	.	.	.	.	.		.	.	.	.	.	.	.	.	.	.
Must	**7**	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
Gap	**8**	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.
With	**9**	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
Phase	**10**	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
	Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MM) 1-3

	Phase / Overlap	Type	Dimming				Power Up	Auto		Flash Together
			Red	Yellow	Green	Dark		Red	Yellow	
1	1	V				-	Auto	X		
2	2	V				-	Auto	X		X
3	3	V				-	Auto	X		
4	4	V				-	Auto	X		X
5	5	V				+	Auto	X		
6	6	V				+	Auto	X		X
7	7	V				+	Auto	X		
8	8	V				+	Auto	X		X
9	2	P				-	Auto			
10	4	P				-	Auto			
11	6	P				+	Auto			
12	8	P				+	Auto			
13	1	O				-	Auto	X		
14	2	O				+	Auto	X		X
15	3	O				-	Auto	X		
16	4	O				+	Auto	X		X

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MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Configuration Port 1 (SDLC)

Port 1 SDLC (MM) 1-4-1

BIU	1	2	3	4	5	6	7	8
Term & Facility	X	X						
Detector Rack	X	X						

Enable TS2/MMU Type Cabinet: No
Enable MMU Extended Status: Yes
Enable SDLC Stop Time: Yes
Enable 3 Critical RFE's Lockup: Yes

MMU Program (MM) 1-4-2

Channel Can Serve With Channel	
Channel 1	**Channel 2**
1	5
1	6
1	11
2	5
2	6
2	9
2	11
3	7
3	8
3	12
4	7
4	8
4	10
4	12
5	9
6	9
6	11
7	10
8	10
8	12
9	11
10	12

Color Check Enable (MM) 1-4-3

Enable Color Check: No

MMU/LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green																
Yellow																
Red																

Secondary Stations/Tests (MM) 1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term & Facility									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack									

Enable SDLC Diagnostic Test: No

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Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Configuration Communications 1 (SDLC)

Ethernet Port Configuration (MM) 1-5-1

Controller IP:	172.22.135.2
Subnet Mask:	255.255.0.0
Default Gateway IP:	172.22.0.255
Server IP:	192.168.210.120

NTCIP (MM) 1-5-5

NTCIP Backup Time (Sec):	0
NTCIP UDP Port:	501
Ethernet Priority:	1
Port 2 Priority (Port C50S for 2070):	4
Port 3A Priority (Port C21S for 2070):	2
Port 3B Priority (Port C22S for 2070):	3

Port Configuration (MM) 1-5-2 to 1-5-4

Port	2 (C50S)	3A (C21S)	3B (C22S)
Protocol	NTCIP	NTCIP	ECPIP
Enable	No	No	Yes
Data Rate (BPS)	19.2K	19.2K	1200
Data, Parity, Stop	8 N 1	8 N 1	8 O 1
Address	0	0	0
Telemetry Response Delay	0.0	0.0	0.9
Duplex - Half or Full	Full	Full	Full
Flow Control	Yes	Yes	Yes
Group Address	0	0	0
Single Flag Enable	Yes	Yes	Yes
RTS to CTS Delay	n/a	n/a	3.0
RTS Turn Off Delay	n/a	n/a	2.0
Dropout Time	10	10	300
Early RTS	n/a	n/a	No
Telemetry Mode	n/a	n/a	FSK
ATCS Railroad	0	n/a	n/a
ATCS Railroad Line	0	n/a	n/a
ATCS Group	0	n/a	n/a
Wayside Device	0	n/a	n/a
ATC Device	0	n/a	n/a
Wayside Subnode	0	n/a	n/a
ATC Subnode	0	n/a	n/a

ECPIP (MM) 1-5-6

Controller Address:	0
Expanded System Detector Address:	0

System Detector Assignment

System Detector	Local Detector

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Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Configuration Logging / Display

Event Logging (MM) 1-6-1

Critical RFE's (MMU/TF)	Yes	3 Critical Errors Within 24 Hours	No
MMU Flash Faults	Yes	Local Flash Fault	Yes
Non-Critical RFE's (Det/Test)	No	Detector Errors	No
Coordination Errors	Yes	Controller Download	Yes
Preemption Events	Yes	TSP Events	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online / Offline	Yes		

Alarm Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Display Options (MM) 1-7-2

Key Click Enable:	No
Backlight Enable:	Yes
LED Mode:	Auto
Display Mode:	Basic
Screen Format:	Basic
Trans Mode Pop-Up Disable:	No

Sign On (MM) 8-5

Sign On Message Line 1: Solutions that Move the World
Sign On Message Line 2:

Software Modules (MM) 8-7

Application Version: 02.58.00
OS (Boot) Version: 01.14.03

City of Burlington

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MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Logic Processor Page 1

Logic Statement Control (MM) 1-8-1

Logic #	Statement Control

City of Burlington

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MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Logic Processor Page 2

Logic Statements (MM) 1-8-2

City of Burlington

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MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Controller Timing Plan (MM) 2-1

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	SBLT	NB		EB		SB		WB								
Min Green	7	8	0	8	0	8	0	8	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	14	0	27	0	14	0	27	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	10	35	0	20	0	35	0	20	35	35	35	35	35	35	35	35
Max2	10	35	0	20	0	35	0	20	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.7	0.0	3.3	0.0	3.7	0.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	2.1	0.0	3.2	0.0	2.1	0.0	3.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	SBLT	NB		EB		SB		WB								
Min Green	7	8	0	8	0	8	0	8	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	14	0	27	0	14	0	27	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	10	35	0	20	0	35	0	20	35	35	35	35	35	35	35	35
Max2	10	35	0	20	0	35	0	20	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.7	0.0	3.3	0.0	3.7	0.0	3.3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	2.1	0.0	3.2	0.0	2.1	0.0	3.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	SBLT	NB		EB		SB		WB								
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	SBLT	NB		EB		SB		WB								
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

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MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Controller Overlaps

Vehicle Overlaps (MM) 2-2

Overlap	Type	Lag Green	Yellow	Red	Adv. Green

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phases	Lag 2 Phases	Flash Green

PPLT FYA

Overlap	Protected Phase (Left Turn)	Permissive Phase (Opposing Thru)	Flashing Arrow Output	Flashing Arrow Output CH	Delay Start of FYA	Delay Start of Clearance	Action Plan SF Bit Disable	Ped Protected Enable

Guaranteed Minimum Time Data (MM) 2-4

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5

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Controller Pedestrian Overlaps
Vehicle / Pedestrian Overlaps (MM) 2-3

Included	Pedestrian Overlaps

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Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Controller Start / Flash Data (MM) 2-5

Start Up

Phase	Phase Setting
1	.
2	Y
3	.
4	.
5	.
6	Y
7	.
8	.
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.

Overlap
A
B
C
D

Flash Thru Mon: No
Flash Time: 0
All Red: 0
Power Start Seq: 1
MUTCD Enabled: No
Y->G: n/a

Automatic Flash

Entry
2
6

Exit
2
6

Overlap Exit
A
B
C
D

Flash Thru Mon: No
Exit Flash: W
Minimum Flash: 8
Mimimum Recall: No
Cycle Through Phase: No

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Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Controller Options

Controller Options (MM) 2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Grn Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guar Passage																
Non-Act I		X				X										
Non-Act II				X				X								
Dual Entry		X		X		X		X								
Cond Service																
Cond Reservice																
Ped Re-Service																
Rest In Walk		X				X										
Flashing Walk																
Ped Clr-Yel																
Ped Clr-Red																
IGRN + Veh Ext																

Ped Clear Protect: Off Unit Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Pre-Timed Mode (MM) 2-7

Enable Pre-Timed Mode: No Free Input Disables Pre-Timed: No

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed																

Phase Recall Options (MM) 2-8

Plan # 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector									X	X	X	X	X	X	X	X
Vehicle Recall																
Ped Recall		X				X										
Max Recall		X				X										
Soft Recall																
No Rest																
AI Calc																

Plan # 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector									X	X	X	X	X	X	X	X
Vehicle Recall																
Ped Recall		X				X										
Max Recall		X				X										
Soft Recall																
No Rest																
AI Calc																

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Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Coordination Options

Options (MM) 3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	SYS	System Format	PTN
Splits In	Seconds	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell / Add Time	0		
Delay Coord Wk-LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	No
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Ini Green	No
Re-sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM) 3-4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Split Demand (MM) 3-5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

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Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Coordination Pattern Data
Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Seconds
Cycle	120	Std (COS)	9	Offsets In	Seconds
Offset Value	118s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Splits (Split Pat 1)	12	66	0	42	0	78	0	42	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	120s	120s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Seconds
Cycle	110	Std (COS)	17	Offsets In	Seconds
Offset Value	92s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Splits (Split Pat 2)	12	56	0	42	0	68	0	42	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	110s	110s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Seconds
Cycle	140	Std (COS)	25	Offsets In	Seconds
Offset Value	126s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Splits (Split Pat 3)	12	86	0	42	0	98	0	42	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	140s	140s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 11

Split Pattern	11	TS2 (Pat-Off)	3-2	Splits In	Seconds
Cycle	120	Std (COS)	137	Offsets In	Seconds
Offset Value	118s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	2		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Splits (Split Pat 11)	12	66	0	42	0	78	0	42	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	120s	120s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 13

Split Pattern	13	TS2 (Pat-Off)	4-1	Splits In	Seconds
Cycle	140	Std (COS)	153	Offsets In	Seconds
Offset Value	126s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Splits (Split Pat 13)	12	86	0	42	0	98	0	42	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	140s	140s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

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Coordination Split Pattern
Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Split (seconds)	12	66	0	42	0	78	0	42	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	120s	120s	0s	0s

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Split (seconds)	12	56	0	42	0	68	0	42	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	110s	110s	0s	0s

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Split (seconds)	12	86	0	42	0	98	0	42	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	140s	140s	0s	0s

Split Pattern # 11

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Split (seconds)	12	66	0	42	0	78	0	42	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	120s	120s	0s	0s

Split Pattern # 13

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB		EB		SB		WB								
Split (seconds)	12	86	0	42	0	98	0	42	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	140s	140s	0s	0s

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MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Preempt Plan

Preempt Plan (MM) 4-1

Preempt Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing																
Dwell Veh	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	Yes	Duration	5	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Red	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	10	5	4.0	2.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	8	0.0	45	4.0	2.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Preempt Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing																
Dwell Veh	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																

Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases				X				X								
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	Yes	Duration	5	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	**1**	**2**	**3**	**4**
Free During Pmt	No	No	No	No

Timing	**Walk**	**Ped Clr**	**Min Grn**	**Yellow**	**Red**
Entrance	0	10	5	4.0	3.0
	Min Grn	**Ext Grn**	**Max Grn**	**Yellow**	**Red**
Track Clear	0	0	0	4.0	3.0
	Min Dwell	**Pmt Ext**	**Max Time**	**Yellow**	**Red**
Dwell / Cycle-Exit	8	0.0	45	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Preempt Preempt Filtering
Enable Preempt Filtering & TSP/SCP (MM) 4-2

Input	Solid	Pulsing
1	PREEMPTION 1	...BYPASSED...
2	PREEMPTION 2	...BYPASSED...
3	PREEMPTION 3	PREEMPTION 7
4	PREEMPTION 4	PREEMPTION 8
5	PREEMPTION 5	PREEMPTION 9
6	PREEMPTION 6	PREEMPTION 10
7	...BYPASSED...	...BYPASSED...
8	...BYPASSED...	...BYPASSED...
9	...BYPASSED...	...BYPASSED...
10	...BYPASSED...	...BYPASSED...

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Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Preempt TSP/SCP Plan and Split

TSP / SCP Plan (MM) 4-3

TSP/SCP Plan	Enable Option	Signal Type	Det Lock	Delay Time	Max Presence	PMT Enables Reservice	No Delay in TSP	Action SF Inhibit	Reservice Cycles	Bus Heading
1	No	Solid	No	0	0	No	False	0	0	NB
2	No	Solid	No	0	0	No	False	0	0	SB
3	No	Solid	No	0	0	No	False	0	0	EB
4	No	Solid	No	0	0	No	False	0	0	WB
5	No	Solid	No	0	0	No	False	0	0	.
6	No	Solid	No	0	0	No	False	0	0	.

Mode: TSP
Free Default Pattern: 120
Headway Allowance: 0

TSP/SCP Plan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

TSP / SCP Split Pattern (MM) 4-4

TSP/SCP Split Pattern	Max Type	Phase															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	Max Reduction	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Time Base Clock/Calendar
Clock/Calendar Data (MM) 5-1

Manual Action Plan:	0
SYNC Reference Time:	00:00
SYNC Reference:	Reference Time
Day Light Savings:	No
Time Reset Input Set Time:	0:00:00
Standard Time From GMT:	0

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Time Base Action Plan
Action Plan (MM) 5-2

Action Plan - 1

Pattern	1	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 2

Pattern	2	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 3

Pattern	3	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 9

Pattern	Free	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 10

Pattern	Free	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 11

Pattern	11	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								

Aux Func (1-3)			

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 13

Pattern	13	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								

Aux Func (1-3)			

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1

Event	Action Plan	Start Time
1	1	06:00
2	2	09:00
3	3	15:00
4	2	19:00
5	10	22:00
6	0	22:00

Day Plan #2

Event	Action Plan	Start Time
1	2	06:00
2	10	21:30

Day Plan #3

Event	Action Plan	Start Time
1	2	06:00
2	10	21:30

Schedule (MM) 5-4

Schedule Number - 1

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X	X	X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
							X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 3

Day Plan No.: 3

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X						

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Time Base Exceptions
Exception Day Program (MM) 5-5

Excep Day	Float/Fixed	Mon/Mon	DOW/DOM	WOM/Year	Day Plan
1	FIXED	1	1	0	3
2	FLOAT	2	2	3	3
3	FIXED	4	19	0	3
4	FLOAT	5	2	3	3
5	FIXED	7	1	0	3
6	FLOAT	8	2	1	3
7	FLOAT	9	2	1	3
8	FLOAT	10	2	2	3
9	FIXED	12	25	0	3

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Detectors

Detectors - Pg 1

Veh Det Phase Assignment (MM) 6-1

Vehicle Detector Plan Number - 1

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	1		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
20	4		N
24	8		N

Vehicle Detector Plan Number - 2

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Plan Number - 3

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Plan Number - 4

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Setup (MM) 6-2

Veh Detector	Type	TS2 Detector	Description
1	S-STANDARD	No	
2	S-STANDARD	No	
3	S-STANDARD	No	
4	S-STANDARD	No	
5	S-STANDARD	No	
6	S-STANDARD	No	
7	S-STANDARD	No	
8	S-STANDARD	No	
9	S-STANDARD	No	
10	S-STANDARD	No	
11	S-STANDARD	No	
12	S-STANDARD	No	
13	S-STANDARD	No	
14	S-STANDARD	No	
15	S-STANDARD	No	
16	S-STANDARD	No	
17	S-STANDARD	Yes	
18	S-STANDARD	Yes	
19	S-STANDARD	Yes	
20	N-NTCIP	Yes	
21	S-STANDARD	Yes	
22	S-STANDARD	Yes	
23	S-STANDARD	Yes	
24	N-NTCIP	Yes	
25	S-STANDARD	Yes	
26	S-STANDARD	Yes	
27	S-STANDARD	Yes	
28	S-STANDARD	Yes	
29	S-STANDARD	Yes	
30	S-STANDARD	Yes	
31	S-STANDARD	Yes	
32	S-STANDARD	Yes	
33	S-STANDARD	Yes	
34	S-STANDARD	Yes	
35	S-STANDARD	Yes	
36	S-STANDARD	Yes	
37	S-STANDARD	Yes	
38	S-STANDARD	Yes	
39	S-STANDARD	Yes	
40	S-STANDARD	Yes	
41	S-STANDARD	Yes	
42	S-STANDARD	Yes	
43	S-STANDARD	Yes	

44	S-STANDARD	Yes	
45	S-STANDARD	Yes	
46	S-STANDARD	Yes	
47	S-STANDARD	Yes	
48	S-STANDARD	Yes	
49	S-STANDARD	Yes	
50	S-STANDARD	Yes	
51	S-STANDARD	Yes	
52	S-STANDARD	Yes	
53	S-STANDARD	Yes	
54	S-STANDARD	Yes	
55	S-STANDARD	Yes	
56	S-STANDARD	Yes	
57	S-STANDARD	Yes	
58	S-STANDARD	Yes	
59	S-STANDARD	Yes	
60	S-STANDARD	Yes	
61	S-STANDARD	Yes	
62	S-STANDARD	Yes	
63	S-STANDARD	Yes	
64	S-STANDARD	Yes	

Vehicle Detector Plan Number - 1

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	5.0	Passage	0.0	0	No	0	None	No	No	No
2	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
18	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
19	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
20	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
21	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
22	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
23	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
24	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
25	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
26	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
27	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
28	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
29	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
30	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
31	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
32	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
33	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
34	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
35	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
36	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
37	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

38	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
39	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
40	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
41	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
42	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
43	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
44	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
45	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
46	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
47	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
48	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
49	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
50	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
51	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
52	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
53	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
54	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
55	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
56	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
57	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
58	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
59	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
60	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
61	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
62	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
63	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
64	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 2

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
18	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
19	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
20	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
21	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
22	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
23	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
24	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
25	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
26	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
27	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
28	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
29	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
30	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
31	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
32	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

33	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
34	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
35	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
36	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
37	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
38	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
39	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
40	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
41	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
42	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
43	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
44	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
45	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
46	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
47	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
48	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
49	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
50	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
51	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
52	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
53	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
54	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
55	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
56	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
57	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
58	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
59	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
60	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
61	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
62	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
63	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
64	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 3

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
18	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
19	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
20	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
21	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
22	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
23	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
24	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
25	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
26	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
27	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

28	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
29	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
30	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
31	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
32	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
33	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
34	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
35	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
36	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
37	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
38	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
39	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
40	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
41	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
42	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
43	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
44	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
45	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
46	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
47	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
48	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
49	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
50	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
51	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
52	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
53	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
54	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
55	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
56	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
57	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
58	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
59	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
60	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
61	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
62	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
63	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
64	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 4

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
18	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
19	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
20	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
21	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
22	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

23	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
24	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
25	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
26	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
27	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
28	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
29	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
30	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
31	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
32	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
33	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
34	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
35	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
36	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
37	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
38	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
39	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
40	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
41	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
42	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
43	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
44	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
45	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
46	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
47	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
48	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
49	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
50	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
51	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
52	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
53	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
54	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
55	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
56	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
57	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
58	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
59	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
60	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
61	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
62	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
63	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
64	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Ped Detector Phase Assignment (MM) 6-3

Mode: NTCIP

Called Phase	Detector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

Appleby Ln @ Ironstone Dr - TS 286 - Econolite Type - ASC/3

Detectors

Detectors - Pg 2

Log - Speed Detector Setup (MM) 6-4

NTCIP Log Period: 60 ECPI Log Period: 0 Length Unit: Inches

Speed Detector	Local Detector	One/Two Detector	Vehicle Length	Trap length	Enable Log
1	0	1	0	0	No
2	0	1	0	0	No
3	0	1	0	0	No
4	0	1	0	0	No
5	0	1	0	0	No
6	0	1	0	0	No
7	0	1	0	0	No
8	0	1	0	0	No
9	0	1	0	0	No
10	0	1	0	0	No
11	0	1	0	0	No
12	0	1	0	0	No
13	0	1	0	0	No
14	0	1	0	0	No
15	0	1	0	0	No
16	0	1	0	0	No

Vehicle Detector Diagnostics (MM) 6-5

Veh Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Pedestrian Detector Diagnostics (MM) 6-6

Ped Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B		B		B		B		B							
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 12																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 13																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 14																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 15																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 16																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	X	X		X		X		X								
Exclusive Ped																

Phase Compatibility (MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		NB		WB		SB								
Overlap	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
Description																

Administration (MM) 1-7-1

Enable Controller/Cabinet Interlock CRC	No
CRC (16 bit)	EC4B
Enable Automatic Backup to Datakey	No

Backup Prevent (MM) 1-1-3

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing	**1**		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phases	**2**	X		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	X		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	X		.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	X		.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

Simultaneous Gap (MM) 1-1-4

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
Phase	**6**	.	.	.	.	.		.	.	.	.	.	.	.	.	.	.
Must	**7**	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
Gap	**8**	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.
With	**9**	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
Phase	**10**	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
	Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MM) 1-3

	Phase / Overlap	Type	Dimming				Power Up	Auto		Flash Together
			Red	Yellow	Green	Dark		Red	Yellow	
1	1	V				-	Auto	X		
2	2	V				-	Auto	X		X
3	3	V				-	Auto	X		
4	4	V				-	Auto	X		X
5	5	V				+	Auto	X		
6	6	V				+	Auto	X		X
7	7	V				+	Auto	X		
8	8	V				+	Auto	X		X
9	2	P				-	Auto			
10	4	P				-	Auto			
11	6	P				+	Auto			
12	8	P				+	Auto			
13	1	O				-	Auto	X		
14	2	O				+	Auto	X		X
15	3	O				-	Auto	X		
16	4	O				+	Auto	X		X

City of Burlington

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MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Configuration Port 1 (SDLC)

Port 1 SDLC (MM) 1-4-1

BIU	1	2	3	4	5	6	7	8
Term & Facility	X	X						
Detector Rack	X							

Enable TS2/MMU Type Cabinet: No
Enable MMU Extended Status: Yes
Enable SDLC Stop Time: Yes
Enable 3 Critical RFE's Lockup: Yes

MMU Program (MM) 1-4-2

Channel Can Serve With Channel	
Channel 1	**Channel 2**
1	5
1	6
1	11
2	5
2	6
2	9
2	11
3	7
3	8
3	12
4	7
4	8
4	10
4	12
5	9
6	9
6	11
7	10
8	10
8	12
9	11
10	12

Color Check Enable (MM) 1-4-3

Enable Color Check: No

MMU/LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green													X	X	X	X
Yellow													X	X	X	X
Red													X	X	X	X

Secondary Stations/Tests (MM) 1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term & Facility									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack									

Enable SDLC Diagnostic Test: No

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UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Configuration Communications 1 (SDLC)

Ethernet Port Configuration (MM) 1-5-1

Controller IP:	172.24.224.2
Subnet Mask:	255.255.0.0
Default Gateway IP:	172.24.254.254
Server IP:	192.168.210.120

NTCIP (MM) 1-5-5

NTCIP Backup Time (Sec):	0
NTCIP UDP Port:	501
Ethernet Priority:	1
Port 2 Priority (Port C50S for 2070):	4
Port 3A Priority (Port C21S for 2070):	2
Port 3B Priority (Port C22S for 2070):	3

Port Configuration (MM) 1-5-2 to 1-5-4

Port	2 (C50S)	3A (C21S)	3B (C22S)
Protocol	TERMINAL	NTCIP	ECPIP
Enable	No	No	Yes
Data Rate (BPS)	9600	19.2K	1200
Data, Parity, Stop	8 N 1	8 N 1	8 O 1
Address	0	0	1
Telemetry Response Delay	0.0	0.0	0.9
Duplex - Half or Full	Half	Full	Full
Flow Control	Yes	Yes	Yes
Group Address	0	0	0
Single Flag Enable	Yes	Yes	Yes
RTS to CTS Delay	n/a	n/a	3.0
RTS Turn Off Delay	n/a	n/a	2.0
Dropout Time	10	10	300
Early RTS	n/a	n/a	No
Telemetry Mode	n/a	n/a	FSK
ATCS Railroad	0	n/a	n/a
ATCS Railroad Line	0	n/a	n/a
ATCS Group	0	n/a	n/a
Wayside Device	0	n/a	n/a
ATC Device	0	n/a	n/a
Wayside Subnode	0	n/a	n/a
ATC Subnode	0	n/a	n/a

ECPIP (MM) 1-5-6

Controller Address:	1
Expanded System Detector Address:	0

System Detector Assignment

System Detector	Local Detector

City of Burlington

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MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Configuration Logging / Display

Event Logging (MM) 1-6-1

Critical RFE's (MMU/TF)	Yes	3 Critical Errors Within 24 Hours	Yes
MMU Flash Faults	Yes	Local Flash Fault	Yes
Non-Critical RFE's (Det/Test)	Yes	Detector Errors	Yes
Coordination Errors	Yes	Controller Download	Yes
Preemption Events	Yes	TSP Events	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online / Offline	Yes		

Alarm Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Display Options (MM) 1-7-2

Key Click Enable:	No
Backlight Enable:	Yes
LED Mode:	Auto
Display Mode:	Basic
Screen Format:	Advanced
Trans Mode Pop-Up Disable:	No

Sign On (MM) 8-5

Sign On Message Line 1: Solutions that Move the World
Sign On Message Line 2:

Software Modules (MM) 8-7

Application Version: 02.64.00
OS (Boot) Version: 01.14.03

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Logic Processor Page 1

Logic Statement Control (MM) 1-8-1

Logic #	Statement Control
1	E
2	E
3	E
4	E
5	E

City of Burlington

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MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Logic Processor Page 2

Logic Statements (MM) 1-8-2

Logic #: 1

If:

	Assignment	#		State
IF	VEH GREEN ON PH	2	IS	On

Then:

Assignment	#	State
CTR OMIT PHASE	1	On

Logic #: 2

If:

	Assignment	#		State
IF	VEH GREEN ON PH	6	IS	On

Then:

Assignment	#	State
CTR OMIT PHASE	5	On

Logic #: 3

If:

	Assignment	#	State
IF	LP CIB CODE ON		169

Then:

Assignment	#	State
CTR SET TMGPLN A-C	2	On

Logic #: 4

If:

	Assignment	#		State
IF	VEH GREEN ON PH	3	IS	On

Then:

Assignment	#	State
CTR CALL PHASE	4	On

Logic #: 5

If:

	Assignment	#		State
IF	VEH GREEN ON PH	7	IS	On

Then:

Assignment	#	State
CTR CALL PHASE	8	On

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Controller Timing Plan (MM) 2-1

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	WBLT	EB		NB		WB		SB								
Min Green	7	8	0	8	0	8	0	8	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	12	0	19	0	12	0	19	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	15	35	0	25	0	35	0	25	35	35	35	35	35	35	35	35
Max2	15	35	0	25	0	35	0	25	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	4.0	0.0	4.0	0.0	4.0	0.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	2.0	0.0	3.0	0.0	2.0	0.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	WBLT	EB		NB		WB		SB								
Min Green	7	8	0	8	0	8	0	8	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	12	0	19	0	12	0	19	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	15	35	0	25	0	35	0	25	35	35	35	35	35	35	35	35
Max2	15	35	0	25	0	35	0	25	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	4.0	0.0	4.0	0.0	4.0	0.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	2.0	0.0	3.0	0.0	2.0	0.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	WBLT	EB		NB		WB		SB								
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	WBLT	EB		NB		WB		SB								
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	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
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	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
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	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
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	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
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	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

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UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Controller Overlaps

Vehicle Overlaps (MM) 2-2

Overlap	Type	Lag Green	Yellow	Red	Adv. Green

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phases	Lag 2 Phases	Flash Green

PPLT FYA

Overlap	Protected Phase (Left Turn)	Permissive Phase (Opposing Thru)	Flashing Arrow Output	Flashing Arrow Output CH	Delay Start of FYA	Delay Start of Clearance	Action Plan SF Bit Disable	Ped Protected Enable

Guaranteed Minimum Time Data (MM) 2-4

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5

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Controller Pedestrian Overlaps
Vehicle / Pedestrian Overlaps (MM) 2-3

Included	Pedestrian Overlaps

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Controller Start / Flash Data (MM) 2-5

Start Up

Phase	Phase Setting
1	.
2	Y
3	.
4	.
5	.
6	Y
7	.
8	.
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.

Overlap
A
B
C
D

Flash Thru Mon: Yes
Flash Time: 0
All Red: 0
Power Start Seq: 1
MUTCD Enabled: No
Y->G: n/a

Automatic Flash

Entry
2
6

Exit
2
6

Overlap Exit
A
B
C
D

Flash Thru Mon: Yes
Exit Flash: W
Minimum Flash: 8
Mimimum Recall: No
Cycle Through Phase: No

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Controller Options

Controller Options (MM) 2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Grn Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guar Passage																
Non-Act I		X				X										
Non-Act II																
Dual Entry		X		X		X		X								
Cond Service																
Cond Reservice																
Ped Re-Service																
Rest In Walk		X				X										
Flashing Walk																
Ped Clr-Yel																
Ped Clr-Red																
IGRN + Veh Ext																

Ped Clear Protect: Off Unit Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Pre-Timed Mode (MM) 2-7

Enable Pre-Timed Mode: No Free Input Disables Pre-Timed: No

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed																

Phase Recall Options (MM) 2-8

Plan # 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall																
Ped Recall		X				X										
Max Recall		X				X										
Soft Recall																
No Rest																
AI Calc																

Plan # 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall																
Ped Recall		X				X										
Max Recall		X				X										
Soft Recall																
No Rest																
AI Calc																

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Coordination Options

Options (MM) 3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	SYS	System Format	PTN
Splits In	Seconds	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell / Add Time	0		
Delay Coord Wk-LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	Yes
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Ini Green	No
Re-sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM) 3-4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Split Demand (MM) 3-5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

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Coordination Pattern Data
Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Seconds
Cycle	120	Std (COS)	9	Offsets In	Seconds
Offset Value	42s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		NB		WB		SB								
Splits (Split Pat 1)	13	71	0	36	0	84	0	36	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	120s	120s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Seconds
Cycle	90	Std (COS)	17	Offsets In	Seconds
Offset Value	48s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		NB		WB		SB								
Splits (Split Pat 2)	12	42	0	36	0	54	0	36	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	90s	90s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Seconds
Cycle	120	Std (COS)	25	Offsets In	Seconds
Offset Value	76s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		NB		WB		SB								
Splits (Split Pat 3)	13	71	0	36	0	84	0	36	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	120s	120s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

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Coordination Split Pattern
Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		NB		WB		SB								
Split (seconds)	13	71	0	36	0	84	0	36	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	120s	120s	0s	0s

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		NB		WB		SB								
Split (seconds)	12	42	0	36	0	54	0	36	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	90s	90s	0s	0s

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		NB		WB		SB								
Split (seconds)	13	71	0	36	0	84	0	36	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	120s	120s	0s	0s

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Preempt Plan

Preempt Plan (MM) 4-1

Preempt Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	5	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	8	5	4.0	1.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	8	0.0	45	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Preempt Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																

Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	5	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	No	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	**1**	**2**	**3**	**4**
Free During Pmt	No	No	No	No

Timing	**Walk**	**Ped Clr**	**Min Grn**	**Yellow**	**Red**
Entrance	0	8	5	4.0	1.0
	Min Grn	**Ext Grn**	**Max Grn**	**Yellow**	**Red**
Track Clear	0	0	0	4.0	1.0
	Min Dwell	**Pmt Ext**	**Max Time**	**Yellow**	**Red**
Dwell / Cycle-Exit	8	0.0	45	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Preempt Preempt Filtering
Enable Preempt Filtering & TSP/SCP (MM) 4-2

Input	Solid	Pulsing
1	...BYPASSED...	...BYPASSED...
2	...BYPASSED...	...BYPASSED...
3	PREEMPTION 3	PREEMPTION 7
4	PREEMPTION 4	PREEMPTION 8
5	PREEMPTION 5	PREEMPTION 9
6	PREEMPTION 6	PREEMPTION 10
7	...BYPASSED...	...BYPASSED...
8	...BYPASSED...	...BYPASSED...
9	...BYPASSED...	...BYPASSED...
10	...BYPASSED...	...BYPASSED...

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Preempt TSP/SCP Plan and Split

TSP / SCP Plan (MM) 4-3

TSP/SCP Plan	Enable Option	Signal Type	Det Lock	Delay Time	Max Presence	PMT Enables Reservice	No Delay in TSP	Action SF Inhibit	Reservice Cycles	Bus Heading
1	No	Solid	No	0	0	No	False	0	0	NB
2	No	Solid	No	0	0	No	False	0	0	SB
3	No	Solid	No	0	0	No	False	0	0	EB
4	No	Solid	No	0	0	No	False	0	0	WB
5	No	Solid	No	0	0	No	False	0	0	.
6	No	Solid	No	0	0	No	False	0	0	.

Mode: TSP
Free Default Pattern: 120
Headway Allowance: 0

TSP/SCP Plan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

TSP / SCP Split Pattern (MM) 4-4

TSP/SCP Split Pattern	Max Type	Phase															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	Max Reduction	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Time Base Clock/Calendar
Clock/Calendar Data (MM) 5-1

Manual Action Plan:	0
SYNC Reference Time:	00:00
SYNC Reference:	Reference Time
Day Light Savings:	No
Time Reset Input Set Time:	0:00:00
Standard Time From GMT:	0

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Time Base Action Plan
Action Plan (MM) 5-2

Action Plan - 1

Pattern	1	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 2

Pattern	2	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 3

Pattern	3	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 4

Pattern	4	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 8

Pattern	Auto	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 10

Pattern	Free	Override Sys	No
Timing Plan	1	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall		X				X										
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1

Event	Action Plan	Start Time
1	1	06:00
2	2	09:00
3	3	15:15
4	2	19:00
5	10	21:30

Day Plan #2

Event	Action Plan	Start Time
1	10	09:00

Day Plan #3

Event	Action Plan	Start Time
1	10	00:00

Schedule (MM) 5-4

Schedule Number - 1

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X	X	X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
							X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 3

Day Plan No.: 3

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X						

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Time Base Exceptions
Exception Day Program (MM) 5-5

Excep Day	Float/Fixed	Mon/Mon	DOW/DOM	WOM/Year	Day Plan
1	FIXED	1	1	0	3
2	FLOAT	2	2	3	3
3	FIXED	4	19	0	3
4	FLOAT	5	2	3	3
5	FIXED	7	1	0	3
6	FLOAT	8	2	1	3
7	FLOAT	9	2	1	3
8	FLOAT	10	2	2	3
9	FIXED	12	25	0	3

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Detectors

Detectors - Pg 1

Veh Det Phase Assignment (MM) 6-1

Vehicle Detector Plan Number - 1

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 2

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 3

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N

13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 4

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Setup (MM) 6-2

Veh Detector	Type	TS2 Detector	Description
1	N-NTCIP	No	
2	N-NTCIP	No	
3	N-NTCIP	No	
4	N-NTCIP	No	
5	N-NTCIP	No	
6	N-NTCIP	No	
7	N-NTCIP	No	
8	N-NTCIP	No	
9	N-NTCIP	No	
10	N-NTCIP	No	
11	N-NTCIP	No	
12	N-NTCIP	No	
13	N-NTCIP	No	
14	N-NTCIP	No	
15	N-NTCIP	No	
16	N-NTCIP	No	
17	N-NTCIP	Yes	
18	N-NTCIP	Yes	
19	N-NTCIP	Yes	
20	N-NTCIP	Yes	
21	N-NTCIP	Yes	
22	N-NTCIP	Yes	
23	N-NTCIP	Yes	
24	N-NTCIP	Yes	
25	N-NTCIP	Yes	
26	N-NTCIP	Yes	
27	N-NTCIP	Yes	
28	N-NTCIP	Yes	
29	N-NTCIP	Yes	
30	N-NTCIP	Yes	
31	N-NTCIP	Yes	
32	N-NTCIP	Yes	
33	N-NTCIP	Yes	
34	N-NTCIP	Yes	
35	N-NTCIP	Yes	
36	N-NTCIP	Yes	
37	N-NTCIP	Yes	
38	N-NTCIP	Yes	
39	N-NTCIP	Yes	

40	N-NTCIP	Yes	
41	N-NTCIP	Yes	
42	N-NTCIP	Yes	
43	N-NTCIP	Yes	
44	N-NTCIP	Yes	
45	N-NTCIP	Yes	
46	N-NTCIP	Yes	
47	N-NTCIP	Yes	
48	N-NTCIP	Yes	
49	N-NTCIP	Yes	
50	N-NTCIP	Yes	
51	N-NTCIP	Yes	
52	N-NTCIP	Yes	
53	N-NTCIP	Yes	
54	N-NTCIP	Yes	
55	N-NTCIP	Yes	
56	N-NTCIP	Yes	
57	N-NTCIP	Yes	
58	N-NTCIP	Yes	
59	N-NTCIP	Yes	
60	N-NTCIP	Yes	
61	N-NTCIP	Yes	
62	N-NTCIP	Yes	
63	N-NTCIP	Yes	
64	N-NTCIP	Yes	

Vehicle Detector Plan Number - 1

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	No	0.0	None	0.0	0	No	0	None	Yes	Yes	No
10	10	No	No	0.0	None	0.0	0	No	0	None	Yes	Yes	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	Yes	Yes	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	Yes	Yes	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 2

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 3

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 4

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Ped Detector Phase Assignment (MM) 6-3

Mode: NTCIP

Called Phase	Detector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13

Called Phase	Detector
14	14
15	15
16	16

City of Burlington

ECONOLITE

MOVING TRAFFIC FORWARD

UMR @ Imperial Way / Broadleaf Cres - TS 90 - Econolite Type - ASC/3

Detectors

Detectors - Pg 2

Log - Speed Detector Setup (MM) 6-4

NTCIP Log Period: 60 ECPI Log Period: 0 Length Unit: Inches

Speed Detector	Local Detector	One/Two Detector	Vehicle Length	Trap length	Enable Log
1	0	1	0	0	No
2	0	1	0	0	No
3	0	1	0	0	No
4	0	1	0	0	No
5	0	1	0	0	No
6	0	1	0	0	No
7	0	1	0	0	No
8	0	1	0	0	No
9	0	1	0	0	No
10	0	1	0	0	No
11	0	1	0	0	No
12	0	1	0	0	No
13	0	1	0	0	No
14	0	1	0	0	No
15	0	1	0	0	No
16	0	1	0	0	No

Vehicle Detector Diagnostics (MM) 6-5

Veh Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Pedestrian Detector Diagnostics (MM) 6-6

Ped Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier
4	0	0	10	1
8	0	0	10	1

Ped Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier

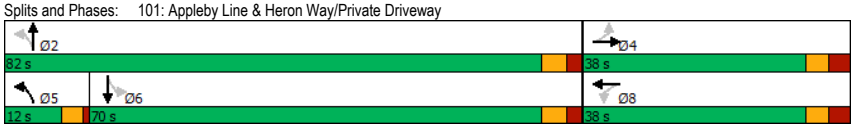
Appendix C

Base Year Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	94	6	7	2	72	971	2	1361
Future Volume (vph)	94	6	7	2	72	971	2	1361
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	38.0	38.0	38.0	38.0	12.0	82.0	70.0	70.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	10.0%	68.3%	58.3%	58.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	16.1	16.1		16.1	80.9	80.9	71.7	71.7
Actuated g/C Ratio	0.15	0.15		0.15	0.77	0.77	0.68	0.68
v/c Ratio	0.52	0.35		0.13	0.35	0.43	0.01	0.75
Control Delay	49.6	11.7		20.6	7.8	5.2	7.5	15.3
Queue Delay	0.0	0.0		0.0	0.0	0.3	0.0	0.0
Total Delay	49.6	11.7		20.6	7.8	5.5	7.5	15.3
LOS	D	B		C	A	A	A	B
Approach Delay		29.9		20.6		5.7		15.3
Approach LOS		C		C		A		B

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 105.1			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	102	111	30	78	1062	2	1601
v/c Ratio	0.52	0.35	0.13	0.35	0.43	0.01	0.75
Control Delay	49.6	11.7	20.6	7.8	5.2	7.5	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	49.6	11.7	20.6	7.8	5.5	7.5	15.3
Queue Length 50th (m)	19.7	1.3	1.8	3.3	33.2	0.1	109.9
Queue Length 95th (m)	36.8	16.2	10.0	8.6	56.6	1.2	174.3
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	412	546	481	235	2483	320	2139
Starvation Cap Reductn	0	0	0	0	758	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.20	0.06	0.33	0.62	0.01	0.75

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	6	96	7	2	18	72	971	6	2	1361	112
Future Volume (vph)	94	6	96	7	2	18	72	971	6	2	1361	112
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	1470			1555		1630	3225		1658	3127	
Flt Permitted	0.74	1.00			0.92		0.09	1.00		0.27	1.00	
Satd. Flow (perm)	1274	1470			1445		160	3225		470	3127	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	7	104	8	2	20	78	1055	7	2	1479	122
RTOR Reduction (vph)	0	88	0	0	17	0	0	0	0	0	4	0
Lane Group Flow (vph)	102	23	0	0	13	0	78	1062	0	2	1597	0
Confl. Peds. (#/hr)	3		2	2		3	1		5	5		1
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	2%	3%	0%	0%	5%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.6	13.6			13.6		79.7	79.7		69.8	69.8	
Effective Green, g (s)	16.1	16.1			16.1		79.7	81.7		71.8	71.8	
Actuated g/C Ratio	0.15	0.15			0.15		0.75	0.77		0.68	0.68	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	223			219		202	2490		318	2122	
v/s Ratio Prot		0.02					0.02	c0.33			c0.51	
v/s Ratio Perm	c0.08				0.01		0.27			0.00		
v/c Ratio	0.53	0.10			0.06		0.39	0.43		0.01	0.75	
Uniform Delay, d1	41.4	38.6			38.4		9.3	4.1		5.5	11.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.2			0.1		1.2	0.5		0.0	2.5	
Delay (s)	44.0	38.8			38.5		10.6	4.6		5.5	13.7	
Level of Service	D	D			D		B	A		A	B	
Approach Delay (s)		41.3			38.5			5.0			13.7	
Approach LOS		D			D			A			B	

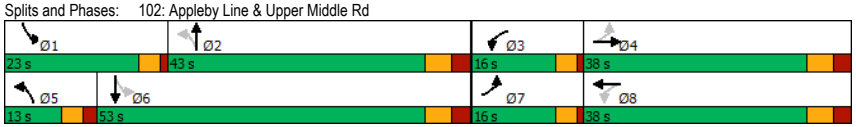
Intersection Summary				
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	105.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	73.7%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	147	709	200	231	137	733	263	1152
Future Volume (vph)	147	709	200	231	137	733	263	1152
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	16.0	38.0	16.0	38.0	13.0	43.0	23.0	53.0
Total Split (%)	13.3%	31.7%	13.3%	31.7%	10.8%	35.8%	19.2%	44.2%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	45.2	34.0	46.8	34.8	48.2	39.4	61.8	49.1
Actuated g/C Ratio	0.38	0.28	0.39	0.29	0.40	0.33	0.52	0.41
v/c Ratio	0.48	1.16	0.98	0.45	0.44	0.87	0.93	1.01
Control Delay	28.2	121.6	86.2	23.7	20.7	47.7	68.0	61.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.6
Total Delay	28.2	121.6	86.2	23.7	20.7	47.7	68.0	96.4
LOS	C	F	F	C	C	D	E	F
Approach Delay		109.4		44.5		43.8		91.3
Approach LOS		F		D		D		F

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 119.8			
Natural Cycle: 115			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 78.5		Intersection LOS: E	
Intersection Capacity Utilization 98.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	160	1063	217	435	149	882	286	1305
v/c Ratio	0.48	1.16	0.98	0.45	0.44	0.87	0.93	1.01
Control Delay	28.2	121.6	86.2	23.7	20.7	47.7	68.0	61.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.6
Total Delay	28.2	121.6	86.2	23.7	20.7	47.7	68.0	96.4
Queue Length 50th (m)	25.3	~160.3	38.6	29.5	9.3	107.1	53.5	~171.0
Queue Length 95th (m)	41.5	#204.0	#90.6	45.5	15.0	#143.5	#106.3	#223.0
Internal Link Dist (m)		140.8		58.0		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	343	916	222	977	347	1019	314	1298
Starvation Cap Reductn	0	0	0	0	0	0	0	118
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	0.47	1.16	0.98	0.45	0.43	0.87	0.91	1.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	709	269	200	231	169	137	733	78	263	1152	49
Future Volume (vph)	147	709	269	200	231	169	137	733	78	263	1152	49
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1611	3115		1614	2986		3101	3075		1598	3163	
Flt Permitted	0.38	1.00		0.12	1.00		0.11	1.00		0.10	1.00	
Satd. Flow (perm)	643	3115		210	2986		345	3075		172	3163	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	771	292	217	251	184	149	797	85	286	1252	53
RTOR Reduction (vph)	0	33	0	0	109	0	0	7	0	0	2	0
Lane Group Flow (vph)	160	1030	0	217	326	0	149	875	0	286	1303	0
Confl. Peds. (#/hr)	9		21	21		9	10		11	11		10
Heavy Vehicles (%)	3%	1%	2%	3%	2%	5%	4%	6%	9%	4%	4%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.8	31.6		44.4	32.4		44.6	36.9		59.3	46.6	
Effective Green, g (s)	42.8	34.0		44.4	34.8		46.6	39.4		59.3	49.1	
Actuated g/C Ratio	0.36	0.28		0.37	0.29		0.39	0.33		0.49	0.41	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	320	884		218	867		334	1011		304	1296	
v/s Ratio Prot	0.05	c0.33		c0.10	0.11		0.03	0.28		c0.14	c0.41	
v/s Ratio Perm	0.13			0.27			0.14			0.32		
v/c Ratio	0.50	1.17		1.00	0.38		0.45	0.87		0.94	1.01	
Uniform Delay, d1	27.8	42.9		32.1	33.8		27.6	37.7		34.5	35.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	86.7		59.3	0.6		1.0	9.9		36.1	26.2	
Delay (s)	29.0	129.6		91.4	34.4		28.6	47.6		70.7	61.6	
Level of Service	C	F		F	C		C	D		E	E	
Approach Delay (s)		116.4			53.4			44.8			63.2	
Approach LOS		F			D			D			E	

Intersection Summary					
HCM 2000 Control Delay	72.0	HCM 2000 Level of Service		E	
HCM 2000 Volume to Capacity ratio	1.07				
Actuated Cycle Length (s)	119.8	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	98.7%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	42	906	45	0	1621
Future Volume (Veh/h)	0	42	906	45	0	1621
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	46	985	49	0	1762
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.64	0.92			0.92	
vC, conflicting volume	1890	517			1034	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	312			871	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			100	
cM capacity (veh/h)	229	632			711	

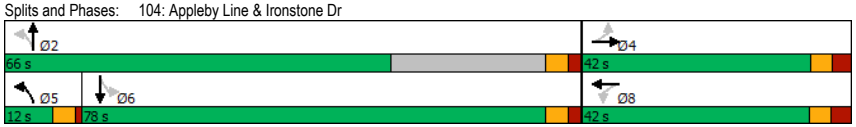
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	46	657	377	881	881
Volume Left	0	0	0	0	0
Volume Right	46	0	49	0	0
cSH	632	1700	1700	1700	1700
Volume to Capacity	0.07	0.39	0.22	0.52	0.52
Queue Length 95th (m)	1.9	0.0	0.0	0.0	0.0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.1	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	42	16	70	36	78	796	35	1631
Future Volume (vph)	42	16	70	36	78	796	35	1631
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	42.0	42.0	42.0	42.0	12.0	66.0	78.0	78.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	9.1%	50.0%	59.1%	59.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	15.4	15.4	15.4	15.4	84.1	84.1	74.9	74.9
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.78	0.78	0.70	0.70
v/c Ratio	0.46	0.40	0.52	0.51	0.45	0.36	0.11	0.81
Control Delay	58.3	16.0	56.4	19.1	17.1	4.3	8.1	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Total Delay	58.3	16.0	56.4	19.1	17.1	4.3	8.1	18.8
LOS	E	B	E	B	B	A	A	B
Approach Delay		28.3		31.0		5.4		18.6
Approach LOS		C		C		A		B

Intersection Summary			
Cycle Length: 132			
Actuated Cycle Length: 107.6			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 87.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	46	112	76	162	85	879	38	1813
v/c Ratio	0.46	0.40	0.52	0.51	0.45	0.36	0.11	0.81
Control Delay	58.3	16.0	56.4	19.1	17.1	4.3	8.1	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Total Delay	58.3	16.0	56.4	19.1	17.1	4.3	8.1	18.8
Queue Length 50th (m)	9.6	3.4	16.1	8.3	3.4	24.4	2.7	141.8
Queue Length 95th (m)	22.0	19.5	31.7	28.6	18.1	42.4	8.1	214.6
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	248	560	363	610	190	2532	360	2238
Starvation Cap Reductn	0	0	0	0	0	0	0	264
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.20	0.21	0.27	0.45	0.35	0.11	0.92

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	16	87	70	36	113	78	796	13	35	1631	37
Future Volume (vph)	42	16	87	70	36	113	78	796	13	35	1631	37
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.89		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1537	1409		1656	1500		1554	3152		1523	3216	
Flt Permitted	0.43	1.00		0.59	1.00		0.06	1.00		0.32	1.00	
Satd. Flow (perm)	701	1409		1025	1500		105	3152		518	3216	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	17	95	76	39	123	85	865	14	38	1773	40
RTOR Reduction (vph)	0	82	0	0	104	0	0	0	0	0	1	0
Lane Group Flow (vph)	46	30	0	76	58	0	85	879	0	38	1812	0
Confl. Peds. (#/hr)	2		5	5		2	2		10	2		10
Heavy Vehicles (%)	8%	6%	7%	0%	0%	3%	7%	5%	15%	9%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.9	12.9		12.8	12.8		83.3	83.3		73.0	73.0	
Effective Green, g (s)	15.4	15.4		15.4	15.4		83.8	85.1		74.8	74.8	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.77	0.78		0.69	0.69	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	99	199		145	212		165	2472		357	2217	
v/s Ratio Prot		0.02			0.04		c0.03	0.28			c0.56	
v/s Ratio Perm	0.07			c0.07			0.37			0.07		
v/c Ratio	0.46	0.15		0.52	0.27		0.52	0.36		0.11	0.82	
Uniform Delay, d1	42.8	40.8		43.2	41.6		14.3	3.5		5.6	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.4	0.4		3.4	0.7		2.7	0.4		0.6	3.5	
Delay (s)	46.2	41.2		46.5	42.3		17.0	3.9		6.2	15.5	
Level of Service	D	D		D	D		B	A		A	B	
Approach Delay (s)		42.6			43.6			5.1			15.3	
Approach LOS		D			D			A			B	

Intersection Summary					
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.75				
Actuated Cycle Length (s)	108.5	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	87.1%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1026	24	0	600	0	23
Future Volume (Veh/h)	1026	24	0	600	0	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1115	26	0	652	0	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked			0.73		0.74	0.73
vC, conflicting volume			1141		1454	570
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			457		766	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			804		252	793

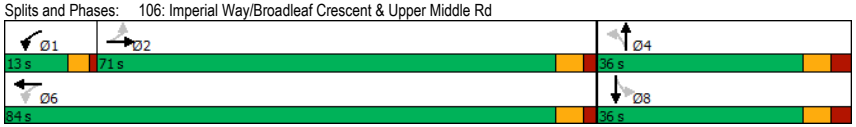
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	743	398	326	326	25
Volume Left	0	0	0	0	0
Volume Right	0	26	0	0	25
cSH	1700	1700	1700	1700	793
Volume to Capacity	0.44	0.23	0.19	0.19	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.8
Control Delay (s)	0.0	0.0	0.0	0.0	9.7
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.7
Approach LOS					A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	1003	54	545	25	0	4	2
Future Volume (vph)	5	1003	54	545	25	0	4	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	71.0	71.0	13.0	84.0	36.0	36.0	36.0	36.0
Total Split (%)	59.2%	59.2%	10.8%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	71.8	71.8	81.6	80.4	8.6	10.6		10.6
Actuated g/C Ratio	0.75	0.75	0.86	0.84	0.09	0.11		0.11
v/c Ratio	0.01	0.47	0.13	0.22	0.24	0.28		0.11
Control Delay	5.0	7.2	2.3	2.3	47.0	2.1		25.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0		0.0
Total Delay	5.0	7.3	2.3	2.3	47.0	2.1		25.7
LOS	A	A	A	A	D	A		C
Approach Delay		7.3		2.3		12.3		25.7
Approach LOS		A		A		B		C

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 95.4			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 6.1		Intersection LOS: A	
Intersection Capacity Utilization 58.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	1135	59	592	27	92	18
v/c Ratio	0.01	0.47	0.13	0.22	0.24	0.28	0.11
Control Delay	5.0	7.2	2.3	2.3	47.0	2.1	25.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	7.3	2.3	2.3	47.0	2.1	25.7
Queue Length 50th (m)	0.3	48.2	1.4	10.6	5.1	0.0	1.1
Queue Length 95th (m)	1.4	68.2	3.8	17.0	13.7	0.0	7.8
Internal Link Dist (m)		94.2		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	547	2397	471	2771	378	585	442
Starvation Cap Reductn	0	357	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.56	0.13	0.21	0.07	0.16	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1003	41	54	545	0	25	0	85	4	2	11
Future Volume (vph)	5	1003	41	54	545	0	25	0	85	4	2	11
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1625	3186		1660	3228		1586	1392			1465	
Flt Permitted	0.43	1.00		0.21	1.00		0.75	1.00			0.90	
Satd. Flow (perm)	733	3186		369	3228		1245	1392			1337	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1090	45	59	592	0	27	0	92	4	2	12
RTOR Reduction (vph)	0	2	0	0	0	0	0	84	0	0	11	0
Lane Group Flow (vph)	5	1133	0	59	592	0	27	8	0	0	7	0
Confl. Peds. (#/hr)	20		24	24		20	7		5	5		7
Heavy Vehicles (%)	0%	3%	13%	0%	3%	7%	4%	0%	5%	0%	0%	9%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	68.5	68.5		78.0	78.0		6.8	6.8			6.8	
Effective Green, g (s)	71.0	71.0		80.5	80.5		6.8	8.8			8.8	
Actuated g/C Ratio	0.73	0.73		0.82	0.82		0.07	0.09			0.09	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	532	2312		409	2656		86	125			120	
v/s Ratio Prot		c0.36		0.01	c0.18			0.01				
v/s Ratio Perm	0.01			0.11			c0.02				0.01	
v/c Ratio	0.01	0.49		0.14	0.22		0.31	0.07			0.06	
Uniform Delay, d1	3.7	5.7		2.3	1.9		43.3	40.7			40.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	0.7		0.2	0.0		2.1	0.2			0.2	
Delay (s)	3.7	6.4		2.5	1.9		45.4	41.0			40.9	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		6.4			2.0			42.0			40.9	
Approach LOS		A			A			D			D	

Intersection Summary					
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.44				
Actuated Cycle Length (s)	97.8	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	58.1%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	33	18	36	40	45	28
Future Volume (vph)	33	18	36	40	45	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	20	39	43	49	30

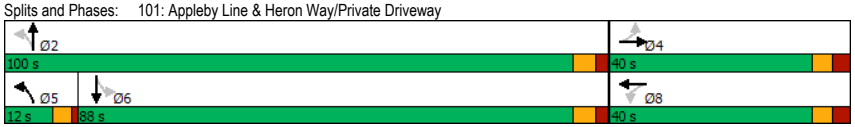
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	56	82	79
Volume Left (vph)	36	39	0
Volume Right (vph)	20	0	30
Hadj (s)	-0.02	0.19	-0.11
Departure Headway (s)	4.2	4.3	4.0
Degree Utilization, x	0.07	0.10	0.09
Capacity (veh/h)	817	816	880
Control Delay (s)	7.5	7.8	7.4
Approach Delay (s)	7.5	7.8	7.4
Approach LOS	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	21.8%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	185	18	6	6	125	1590	21	1142
Future Volume (vph)	185	18	6	6	125	1590	21	1142
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	40.0	40.0	40.0	40.0	12.0	100.0	88.0	88.0
Total Split (%)	28.6%	28.6%	28.6%	28.6%	8.6%	71.4%	62.9%	62.9%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	26.5	26.5		26.5	96.2	96.2	84.5	84.5
Actuated g/C Ratio	0.20	0.20		0.20	0.74	0.74	0.65	0.65
v/c Ratio	0.71	0.31		0.10	0.60	0.73	0.20	0.71
Control Delay	62.7	13.3		24.8	18.9	13.2	16.8	18.5
Queue Delay	0.0	0.0		0.0	0.0	6.0	0.0	0.0
Total Delay	62.7	13.3		24.8	18.9	19.2	16.8	18.5
LOS	E	B		C	B	B	B	B
Approach Delay		44.3		24.8		19.2		18.5
Approach LOS		D		C		B		B

Intersection Summary			
Cycle Length: 140			
Actuated Cycle Length: 130.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 21.1		Intersection LOS: C	
Intersection Capacity Utilization 84.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	201	120	30	136	1745	23	1457
v/c Ratio	0.71	0.31	0.10	0.60	0.73	0.20	0.71
Control Delay	62.7	13.3	24.8	18.9	13.2	16.8	18.5
Queue Delay	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Total Delay	62.7	13.3	24.8	18.9	19.2	16.8	18.5
Queue Length 50th (m)	51.2	4.4	3.1	9.5	126.5	2.4	127.0
Queue Length 95th (m)	78.8	20.9	11.7	24.6	198.5	9.3	186.6
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	383	487	414	230	2396	116	2039
Starvation Cap Reductn	0	0	0	0	598	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.25	0.07	0.59	0.97	0.20	0.71

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	18	92	6	6	15	125	1590	16	21	1142	199
Future Volume (vph)	185	18	92	6	6	15	125	1590	16	21	1142	199
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88			0.93		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1654	1506			1538		1662	3254		1660	3145	
Flt Permitted	0.80	1.00			0.94		0.11	1.00		0.10	1.00	
Satd. Flow (perm)	1394	1506			1462		191	3254		180	3145	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	20	100	7	7	16	136	1728	17	23	1241	216
RTOR Reduction (vph)	0	80	0	0	13	0	0	1	0	0	9	0
Lane Group Flow (vph)	201	40	0	0	17	0	136	1744	0	23	1448	0
Confl. Peds. (#/hr)	4		6	6		4	8		9	9		8
Heavy Vehicles (%)	0%	0%	0%	14%	0%	0%	0%	2%	0%	0%	3%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.0	24.0			24.0		94.3	94.3		82.5	82.5	
Effective Green, g (s)	26.5	26.5			26.5		94.3	96.3		84.5	84.5	
Actuated g/C Ratio	0.20	0.20			0.20		0.72	0.74		0.65	0.65	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	282	305			296		225	2395		116	2031	
v/s Ratio Prot		0.03					0.04	c0.54			0.46	
v/s Ratio Perm	c0.14				0.01		0.40			0.13		
v/c Ratio	0.71	0.13			0.06		0.60	0.73		0.20	0.71	
Uniform Delay, d1	48.6	42.7			42.1		13.5	9.8		9.4	15.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	0.2			0.1		4.5	2.0		3.8	2.2	
Delay (s)	56.9	42.9			42.2		18.0	11.8		13.2	17.4	
Level of Service	E	D			D		B	B		B	B	
Approach Delay (s)		51.6			42.2			12.2			17.3	
Approach LOS		D			D			B			B	

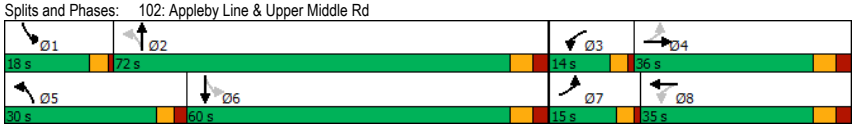
Intersection Summary				
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	84.0%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	174	348	81	626	354	1250	201	844
Future Volume (vph)	174	348	81	626	354	1250	201	844
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	15.0	36.0	14.0	35.0	30.0	72.0	18.0	60.0
Total Split (%)	10.7%	25.7%	10.0%	25.0%	21.4%	51.4%	12.9%	42.9%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	None	Max
Act Effct Green (s)	43.7	32.7	40.3	31.0	84.3	68.0	78.2	64.2
Actuated g/C Ratio	0.31	0.23	0.29	0.22	0.60	0.49	0.56	0.46
v/c Ratio	1.04	0.80	0.56	1.38	0.66	0.92	1.01	0.78
Control Delay	115.0	50.6	47.8	218.5	22.8	43.8	103.5	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	26.2	0.0	8.4
Total Delay	115.0	50.6	47.8	218.5	22.8	70.0	103.5	45.0
LOS	F	D	D	F	C	E	F	D
Approach Delay		65.5		204.9		60.0		54.5
Approach LOS		E		F		E		D

Intersection Summary			
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.38			
Intersection Signal Delay: 90.8		Intersection LOS: F	
Intersection Capacity Utilization 105.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	189	628	88	1014	385	1435	218	1129
v/c Ratio	1.04	0.80	0.56	1.38	0.66	0.92	1.01	0.78
Control Delay	115.0	50.6	47.8	218.5	22.8	43.8	103.5	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	26.2	0.0	8.4
Total Delay	115.0	50.6	47.8	218.5	22.8	70.0	103.5	45.0
Queue Length 50th (m)	~43.1	78.0	18.2	~200.0	25.2	199.3	~49.0	140.9
Queue Length 95th (m)	#95.3	102.0	32.2	#244.6	42.3	#241.7	#107.6	184.0
Internal Link Dist (m)		140.8		58.3		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	182	789	165	734	752	1563	216	1448
Starvation Cap Reductn	0	0	0	0	0	199	0	290
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.80	0.53	1.38	0.51	1.05	1.01	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	348	230	81	626	307	354	1250	70	201	844	195
Future Volume (vph)	174	348	230	81	626	307	354	1250	70	201	844	195
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1646	3043		1567	3124		3193	3213		1646	3129	
Flt Permitted	0.13	1.00		0.15	1.00		0.11	1.00		0.06	1.00	
Satd. Flow (perm)	229	3043		243	3124		374	3213		112	3129	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	378	250	88	680	334	385	1359	76	218	917	212
RTOR Reduction (vph)	0	79	0	0	43	0	0	3	0	0	13	0
Lane Group Flow (vph)	189	549	0	88	971	0	385	1432	0	218	1116	0
Confl. Peds. (#/hr)	16		14	14		16	14		29	29		14
Heavy Vehicles (%)	1%	1%	2%	6%	0%	0%	1%	2%	9%	1%	3%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.3	30.3		37.9	28.6		82.3	65.5		75.7	61.7	
Effective Green, g (s)	41.3	32.7		37.9	31.0		84.3	68.0		75.7	64.2	
Actuated g/C Ratio	0.29	0.23		0.27	0.22		0.60	0.49		0.54	0.46	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	710		153	691		583	1560		213	1434	
v/s Ratio Prot	c0.08	0.18		0.04	c0.31		c0.08	0.45		c0.10	0.36	
v/s Ratio Perm	0.23			0.12			0.31			c0.45		
v/c Ratio	1.06	0.77		0.58	1.41		0.66	0.92		1.02	0.78	
Uniform Delay, d1	43.4	50.2		40.8	54.5		22.5	33.4		44.4	31.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	84.8	6.1		5.1	191.1		2.8	10.1		67.9	4.2	
Delay (s)	128.2	56.3		46.0	245.6		25.3	43.5		112.3	36.1	
Level of Service	F	E		D	F		C	D		F	D	
Approach Delay (s)		72.9			229.6			39.7			48.5	
Approach LOS		E			F			D			D	

Intersection Summary					
HCM 2000 Control Delay	88.5	HCM 2000 Level of Service		F	
HCM 2000 Volume to Capacity ratio	1.08				
Actuated Cycle Length (s)	140.0	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	105.9%	ICU Level of Service		G	
Analysis Period (min)	15				

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	51	1623	64	0	1155
Future Volume (Veh/h)	0	51	1623	64	0	1155
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	55	1764	70	0	1255
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.84	0.75			0.75	
vC, conflicting volume	2426	917			1834	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	976	226			1447	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			100	
cM capacity (veh/h)	208	584			349	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	55	1176	658	628	628
Volume Left	0	0	0	0	0
Volume Right	55	0	70	0	0
cSH	584	1700	1700	1700	1700
Volume to Capacity	0.09	0.69	0.39	0.37	0.37
Queue Length 95th (m)	2.5	0.0	0.0	0.0	0.0
Control Delay (s)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.8	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		61.0%	ICU Level of Service B
Analysis Period (min)		15	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	89	42	26	40	172	1505	84	1068
Future Volume (vph)	89	42	26	40	172	1505	84	1068
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	40.0	40.0	40.0	40.0	12.0	100.0	88.0	88.0
Total Split (%)	28.6%	28.6%	28.6%	28.6%	8.6%	71.4%	62.9%	62.9%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	19.9	19.9	19.9	19.9	96.3	96.3	84.3	84.3
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.78	0.78	0.68	0.68
v/c Ratio	0.71	0.46	0.20	0.51	0.60	0.67	0.61	0.56
Control Delay	76.3	28.1	47.6	39.4	12.6	9.0	35.1	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	76.3	28.1	47.6	39.4	12.6	9.0	35.1	12.8
LOS	E	C	D	D	B	A	D	B
Approach Delay		47.6		40.8		9.4		14.3
Approach LOS		D		D		A		B

Intersection Summary		
Cycle Length: 140		
Actuated Cycle Length: 124.2		
Natural Cycle: 130		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.71		
Intersection Signal Delay: 15.2	Intersection LOS: B	
Intersection Capacity Utilization 86.9%	ICU Level of Service E	
Analysis Period (min) 15		

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	97	142	28	144	187	1682	91	1226
v/c Ratio	0.71	0.46	0.20	0.51	0.60	0.67	0.61	0.56
Control Delay	76.3	28.1	47.6	39.4	12.6	9.0	35.1	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	76.3	28.1	47.6	39.4	12.6	9.0	35.1	12.8
Queue Length 50th (m)	23.8	16.0	6.3	23.9	10.3	89.2	11.7	77.8
Queue Length 95th (m)	43.9	36.5	15.6	45.2	22.9	153.8	#50.0	120.2
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	247	499	254	474	312	2514	148	2192
Starvation Cap Reductn	0	0	0	0	0	0	0	497
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	0.39	0.28	0.11	0.30	0.60	0.67	0.61	0.72

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	42	88	26	40	93	172	1505	42	84	1068	60
Future Volume (vph)	89	42	88	26	40	93	172	1505	42	84	1068	60
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.89		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1635	1545		1657	1533		1630	3243		1658	3229	
Flt Permitted	0.50	1.00		0.50	1.00		0.17	1.00		0.13	1.00	
Satd. Flow (perm)	854	1545		875	1533		292	3243		218	3229	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	46	96	28	43	101	187	1636	46	91	1161	65
RTOR Reduction (vph)	0	60	0	0	35	0	0	1	0	0	2	0
Lane Group Flow (vph)	97	82	0	28	109	0	187	1681	0	91	1224	0
Confl. Peds. (#/hr)	8		4	4		8	9		14	14		9
Heavy Vehicles (%)	1%	0%	1%	0%	0%	1%	2%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.4	17.4		17.3	17.3		94.4	94.4		82.4	82.4	
Effective Green, g (s)	19.9	19.9		19.9	19.9		94.9	96.2		84.2	84.2	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.76	0.78		0.68	0.68	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	136	247		140	245		309	2513		147	2190	
v/s Ratio Prot		0.05			0.07		0.04	c0.52			0.38	
v/s Ratio Perm	c0.11			0.03			0.42			0.42		
v/c Ratio	0.71	0.33		0.20	0.44		0.61	0.67		0.62	0.56	
Uniform Delay, d1	49.4	46.2		45.2	47.1		7.7	6.5		11.1	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.2	0.8		0.7	1.3		3.3	1.4		18.0	1.0	
Delay (s)	65.6	47.0		45.9	48.4		11.0	7.9		29.1	11.4	
Level of Service	E	D		D	D		B	A		C	B	
Approach Delay (s)		54.5			48.0			8.3			12.6	
Approach LOS		D			D			A			B	

Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.70				
Actuated Cycle Length (s)	124.1	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	86.9%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	595	24	0	1014	0	23
Future Volume (Veh/h)	595	24	0	1014	0	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	647	26	0	1102	0	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked					0.92	
vC, conflicting volume			673		1211	336
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			673		1047	336
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			914		205	659

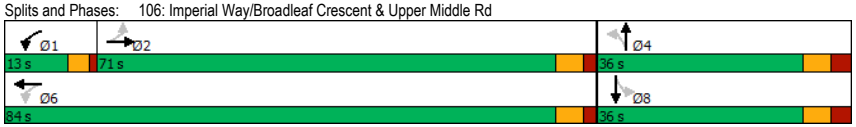
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	431	242	551	551	25
Volume Left	0	0	0	0	0
Volume Right	0	26	0	0	25
cSH	1700	1700	1700	1700	659
Volume to Capacity	0.25	0.14	0.32	0.32	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	10.7
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.7
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	513	82	1007	17	0	3	2
Future Volume (vph)	25	513	82	1007	17	0	3	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	71.0	71.0	13.0	84.0	36.0	36.0	36.0	36.0
Total Split (%)	59.2%	59.2%	10.8%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	72.3	72.3	82.1	80.9	8.3	10.3		10.3
Actuated g/C Ratio	0.76	0.76	0.86	0.85	0.09	0.11		0.11
v/c Ratio	0.08	0.27	0.14	0.40	0.18	0.15		0.10
Control Delay	5.8	5.2	2.0	2.9	45.7	0.7		25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	5.8	5.2	2.0	2.9	45.7	0.7		25.9
LOS	A	A	A	A	D	A		C
Approach Delay		5.3		2.8		9.6		25.9
Approach LOS		A		A		A		C

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 95.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 4.2		Intersection LOS: A	
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	27	645	89	1104	18	73	16
v/c Ratio	0.08	0.27	0.14	0.40	0.18	0.15	0.10
Control Delay	5.8	5.2	2.0	2.9	45.7	0.7	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	5.2	2.0	2.9	45.7	0.7	25.9
Queue Length 50th (m)	1.5	21.3	2.2	24.4	3.4	0.0	0.9
Queue Length 95th (m)	4.7	30.8	4.9	34.7	10.5	0.0	7.3
Internal Link Dist (m)		94.0		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	337	2361	670	2789	360	708	453
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.27	0.13	0.40	0.05	0.10	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	513	80	82	1007	8	17	0	67	3	2	10
Future Volume (vph)	25	513	80	82	1007	8	17	0	67	3	2	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1644	3123		1614	3251		1510	1433			1476	
Flt Permitted	0.26	1.00		0.38	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	447	3123		652	3251		1187	1433			1372	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	558	87	89	1095	9	18	0	73	3	2	11
RTOR Reduction (vph)	0	6	0	0	0	0	0	67	0	0	10	0
Lane Group Flow (vph)	27	639	0	89	1104	0	18	6	0	0	6	0
Confl. Peds. (#/hr)	20		29	29		20	1		5	5		1
Heavy Vehicles (%)	0%	3%	3%	2%	2%	13%	10%	0%	2%	0%	0%	8%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	69.0	69.0		78.5	78.5		6.5	6.5			6.5	
Effective Green, g (s)	71.5	71.5		81.0	81.0		6.5	8.5			8.5	
Actuated g/C Ratio	0.73	0.73		0.83	0.83		0.07	0.09			0.09	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	326	2278		617	2687		78	124			119	
v/s Ratio Prot		0.20		0.01	c0.34			0.00				
v/s Ratio Perm	0.06			0.11			c0.02				0.00	
v/c Ratio	0.08	0.28		0.14	0.41		0.23	0.05			0.05	
Uniform Delay, d1	3.8	4.5		1.7	2.2		43.4	41.1			41.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.5	0.3		0.1	0.1		1.5	0.2			0.2	
Delay (s)	4.3	4.8		1.8	2.3		44.9	41.2			41.2	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		4.8			2.3			41.9			41.2	
Approach LOS		A			A			D			D	

Intersection Summary					
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.40				
Actuated Cycle Length (s)	98.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	57.0%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	33	38	35	40	79	60
Future Volume (vph)	33	38	35	40	79	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	41	38	43	86	65

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	77	81	151
Volume Left (vph)	36	38	0
Volume Right (vph)	41	0	65
Hadj (s)	-0.23	0.12	-0.26
Departure Headway (s)	4.2	4.3	3.9
Degree Utilization, x	0.09	0.10	0.16
Capacity (veh/h)	818	802	901
Control Delay (s)	7.6	7.8	7.7
Approach Delay (s)	7.6	7.8	7.7
Approach LOS	A	A	A

Intersection Summary				
Delay	7.7			
Level of Service	A			
Intersection Capacity Utilization	30.0%	ICU Level of Service		A
Analysis Period (min)	15			

Appendix D

Transportation Tomorrow Study Data

Zone	Trips	Peak/Dir	Region	Route
8950	42	PM out	Brant	South via Appleby Line
8915	17	PM in	Brantford	South via Appleby Line
8915	17	AM Out	Brantford	South via Appleby Line
4001	49	Am in	Halton	East via Upper Middle
4001	64	PM out	Halton	East via Upper Middle
4001	43	PM in	Halton	East via Upper Middle
4004	60	Am in	Halton	East via Upper Middle
4004	14	PM out	Halton	East via Upper Middle
4005	18	PM out	Halton	East via Upper Middle
4005	18	PM in	Halton	East via Upper Middle
4005	27	AM Out	Halton	East via Upper Middle
4007	23	Am in	Halton	South via Appleby Line
4007	23	PM out	Halton	South via Appleby Line
4008	11	Am in	Halton	South via Appleby Line
4008	11	AM Out	Halton	South via Appleby Line
4012	18	PM out	Halton	South via Appleby Line
4012	44	PM in	Halton	South via Appleby Line
4024	11	PM in	Halton	North via Appleby Line
4024	28	AM Out	Halton	North via Appleby Line
4027	14	PM in	Halton	North via Appleby Line
4027	23	AM Out	Halton	North via Appleby Line
4030	19	PM in	Halton	South via Appleby Line
4030	19	AM Out	Halton	South via Appleby Line
4036	18	PM in	Halton	North via Appleby Line
4039	31	Am in	Halton	North via Appleby Line
4039	72	PM out	Halton	North via Appleby Line
4041	53	Am in	Halton	South via Appleby Line
4041	10	PM out	Halton	South via Appleby Line
4041	12	PM in	Halton	South via Appleby Line
4041	12	AM Out	Halton	South via Appleby Line
4042	49	PM out	Halton	South via Appleby Line
4042	40	PM in	Halton	South via Appleby Line
4044	14	PM in	Halton	East via Upper Middle
4045	16	Am in	Halton	North via Appleby Line
4045	16	PM out	Halton	North via Appleby Line
4045	23	PM in	Halton	North via Appleby Line
4050	13	PM out	Halton	South via Appleby Line
4051	8	AM Out	Halton	South via Appleby Line
4052	12	Am in	Halton	South via Appleby Line
4052	12	PM out	Halton	South via Appleby Line
4053	71	PM out	Halton	South via Appleby Line
4053	55	PM in	Halton	South via Appleby Line
4053	26	AM Out	Halton	South via Appleby Line
4055	115	Am in	Halton	South via Appleby Line
4055	111	PM out	Halton	South via Appleby Line
4057	79	Am in	Halton	South via Appleby Line
4057	120	PM out	Halton	West via UMR
4057	99	PM in	Halton	West via UMR
4057	45	AM Out	Halton	West via UMR

4058	16	PM in	Halton	West via UMR
4058	16	AM Out	Halton	West via UMR
4059	46	Am in	Halton	West via UMR
4059	57	PM out	Halton	West via UMR
4059	39	PM in	Halton	South via Appleby Line
4059	10	AM Out	Halton	South via Appleby Line
4060	68	Am in	Halton	South via Appleby Line
4060	24	PM out	Halton	South via Appleby Line
4060	13	PM in	Halton	South via Appleby Line
4060	29	AM Out	Halton	South via Appleby Line
4062	103	Am in	Halton	South via Appleby Line
4062	67	PM out	Halton	South via Appleby Line
4063	67	PM in	Halton	South via Appleby Line
4063	55	AM Out	Halton	South via Appleby Line
4064	62	Am in	Halton	South via Appleby Line
4064	32	PM out	Halton	South via Appleby Line
4065	50	PM in	Halton	South via Appleby Line
4065	9	AM Out	Halton	South via Appleby Line
4066	14	PM out	Halton	South via Appleby Line
4066	46	PM in	Halton	South via Appleby Line
4067	32	PM out	Halton	South via Appleby Line
4067	19	PM in	Halton	South via Appleby Line
4068	25	PM out	Halton	South via Appleby Line
4068	18	AM Out	Halton	South via Appleby Line
4069	32	Am in	Halton	South via Appleby Line
4069	32	PM in	Halton	South via Appleby Line
4069	24	AM Out	Halton	South via Appleby Line
4070	23	Am in	Halton	South via Appleby Line
4070	46	PM out	Halton	South via Appleby Line
4070	22	PM in	Halton	South via Appleby Line
4071	64	Am in	Halton	South via Appleby Line
4071	79	PM out	Halton	South via Appleby Line
4071	10	PM in	Halton	South via Appleby Line
4072	54	Am in	Halton	South via Appleby Line
4072	79	PM out	Halton	South via Appleby Line
4072	53	PM in	Halton	South via Appleby Line
4074	4	Am in	Halton	South via Appleby Line
4074	77	PM out	Halton	South via Appleby Line
4074	4	AM Out	Halton	South via Appleby Line
4075	28	Am in	Halton	South via Appleby Line
4075	22	PM out	Halton	South via Appleby Line
4076	119	Am in	Halton	South via Appleby Line
4076	188	PM out	Halton	South via Appleby Line
4077	54	Am in	Halton	South via Appleby Line
4077	91	PM out	Halton	South via Appleby Line
4077	14	PM in	Halton	South via Appleby Line
4077	38	AM Out	Halton	South via Appleby Line
4078	211	Am in	Halton	South via Appleby Line
4078	89	PM out	Halton	South via Appleby Line
4078	231	PM in	Halton	South via Appleby Line

4078	190	AM Out	Halton	South via Appleby Line
4079	183	Am in	Halton	South via Appleby Line
4079	347	PM out	Halton	South via Appleby Line
4079	204	PM in	Halton	South via Appleby Line
4079	61	AM Out	Halton	South via Appleby Line
4080	95	Am in	Halton	South via Appleby Line
4080	75	PM out	Halton	South via Appleby Line
4080	205	PM in	Halton	South via Appleby Line
4080	83	AM Out	Halton	South via Appleby Line
4081	13	PM out	Halton	South via Appleby Line
4081	9	PM in	Halton	South via Appleby Line
4081	42	AM Out	Halton	South via Appleby Line
4082	14	Am in	Halton	South via Appleby Line
4082	60	PM in	Halton	South via Appleby Line
4082	20	AM Out	Halton	South via Appleby Line
4083	295	Am in	Halton	West via UMR
4083	225	PM out	Halton	West via UMR
4083	182	PM in	Halton	West via UMR
4083	152	AM Out	Halton	West via UMR
4084	189	Am in	Halton	West via UMR
4084	276	PM out	Halton	West via UMR
4084	277	PM in	Halton	West via UMR
4084	156	AM Out	Halton	West via UMR
4085	80	Am in	Halton	West via UMR
4085	40	PM out	Halton	West via UMR
4085	88	PM in	Halton	West via UMR
4085	20	AM Out	Halton	West via UMR
4086	20	Am in	Halton	West via UMR
4087	85	PM out	Halton	West via UMR
4087	21	AM Out	Halton	West via UMR
4088	58	Am in	Halton	West via UMR
4088	80	PM out	Halton	West via UMR
4088	81	PM in	Halton	West via UMR
4088	84	AM Out	Halton	West via UMR
4089	76	Am in	Halton	West via UMR
4089	206	PM out	Halton	West via UMR
4089	86	PM in	Halton	West via UMR
4089	58	AM Out	Halton	West via UMR
4090	19	PM in	Halton	West via UMR
4091	13	Am in	Halton	West via UMR
4091	22	PM out	Halton	West via UMR
4091	27	AM Out	Halton	West via UMR
4093	19	PM out	Halton	West via UMR
4094	10	PM in	Halton	West via UMR
4097	8	Am in	Halton	West via UMR
4103	31	Am in	Halton	West via UMR
4108	30	Am in	Halton	West via UMR
4108	30	PM out	Halton	West via UMR
4110	24	Am in	Halton	West via UMR
4110	34	PM out	Halton	West via UMR

4110	22	PM in	Halton	West via UMR
4110	22	AM Out	Halton	South via Appleby Line
4119	20	Am in	Halton	South via Appleby Line
4119	20	PM out	Halton	South via Appleby Line
4119	24	AM Out	Halton	South via Appleby Line
4120	14	Am in	Halton	South via Appleby Line
4120	14	PM out	Halton	South via Appleby Line
4120	9	PM in	Halton	South via Appleby Line
4120	9	AM Out	Halton	South via Appleby Line
4124	11	PM out	Halton	South via Appleby Line
4124	22	AM Out	Halton	South via Appleby Line
4125	28	PM in	Halton	South via Appleby Line
4125	28	AM Out	Halton	South via Appleby Line
4126	19	PM in	Halton	South via Appleby Line
4147	9	PM in	Halton	South via Appleby Line
4186	33	Am in	Halton	South via Appleby Line
4186	33	PM out	Halton	South via Appleby Line
4186	62	PM in	Halton	South via Appleby Line
4186	19	AM Out	Halton	South via Appleby Line
4188	21	AM Out	Halton	South via Appleby Line
4189	71	Am in	Halton	South via Appleby Line
4189	132	PM out	Halton	South via Appleby Line
4189	74	PM in	Halton	South via Appleby Line
4189	40	AM Out	Halton	South via Appleby Line
4190	142	Am in	Halton	South via Appleby Line
4190	9	PM out	Halton	South via Appleby Line
4190	13	PM in	Halton	South via Appleby Line
4190	101	AM Out	Halton	South via Appleby Line
4191	19	Am in	Halton	South via Appleby Line
4191	19	PM out	Halton	South via Appleby Line
5045	26	Am in	Hamilton	South via Appleby Line
5089	59	Am in	Hamilton	South via Appleby Line
5,098	101	Am in	Hamilton	South via Appleby Line
5105	45	Am in	Hamilton	South via Appleby Line
5109	22	Am in	Hamilton	South via Appleby Line
5111	46	Am in	Hamilton	South via Appleby Line
5115	29	Am in	Hamilton	South via Appleby Line
5154	18	Am in	Hamilton	South via Appleby Line
5158	36	Am in	Hamilton	South via Appleby Line
5163	43	Am in	Hamilton	South via Appleby Line
5183	38	Am in	Hamilton	South via Appleby Line
5207	22	Am in	Hamilton	South via Appleby Line
5212	26	Am in	Hamilton	South via Appleby Line
5223	18	Am in	Hamilton	South via Appleby Line
5230	15	Am in	Hamilton	South via Appleby Line
5232	89	Am in	Hamilton	South via Appleby Line
5233	69	Am in	Hamilton	South via Appleby Line
5238	28	Am in	Hamilton	South via Appleby Line
5248	30	Am in	Hamilton	South via Appleby Line
5249	26	Am in	Hamilton	South via Appleby Line

5030	14	PM out	Hamilton	South via Appleby Line
5045	52	PM out	Hamilton	South via Appleby Line
5061	17	PM out	Hamilton	South via Appleby Line
5065	45	PM out	Hamilton	South via Appleby Line
5066	65	PM out	Hamilton	South via Appleby Line
5069	56	PM out	Hamilton	South via Appleby Line
5072	16	PM out	Hamilton	South via Appleby Line
5084	66	PM out	Hamilton	South via Appleby Line
5089	67	PM out	Hamilton	South via Appleby Line
5094	43	PM out	Hamilton	South via Appleby Line
5140	21	PM out	Hamilton	South via Appleby Line
5142	42	PM out	Hamilton	South via Appleby Line
5144	46	PM out	Hamilton	South via Appleby Line
5148	24	PM out	Hamilton	South via Appleby Line
5149	15	PM out	Hamilton	South via Appleby Line
5150	7	PM out	Hamilton	South via Appleby Line
5151	35	PM out	Hamilton	South via Appleby Line
5154	18	PM out	Hamilton	South via Appleby Line
5158	36	PM out	Hamilton	South via Appleby Line
5163	43	PM out	Hamilton	South via Appleby Line
5180	38	PM out	Hamilton	South via Appleby Line
5183	38	PM out	Hamilton	South via Appleby Line
5194	13	PM out	Hamilton	South via Appleby Line
5200	34	PM out	Hamilton	South via Appleby Line
5203	15	PM out	Hamilton	South via Appleby Line
5212	26	PM out	Hamilton	South via Appleby Line
5219	15	PM out	Hamilton	South via Appleby Line
5230	27	PM out	Hamilton	South via Appleby Line
5,232	156	PM out	Hamilton	South via Appleby Line
5237	15	PM out	Hamilton	South via Appleby Line
5241	42	PM out	Hamilton	South via Appleby Line
5244	69	PM out	Hamilton	South via Appleby Line
5249	26	PM out	Hamilton	South via Appleby Line
5250	43	PM out	Hamilton	South via Appleby Line
5008	19	PM in	Hamilton	South via Appleby Line
5075	52	PM in	Hamilton	South via Appleby Line
5108	12	PM in	Hamilton	South via Appleby Line
5119	12	PM in	Hamilton	South via Appleby Line
5168	30	PM in	Hamilton	South via Appleby Line
5193	12	PM in	Hamilton	South via Appleby Line
5194	13	PM in	Hamilton	South via Appleby Line
5197	28	PM in	Hamilton	South via Appleby Line
5198	27	PM in	Hamilton	South via Appleby Line
5200	27	PM in	Hamilton	South via Appleby Line
5135	27	AM Out	Hamilton	South via Appleby Line
5142	13	AM Out	Hamilton	South via Appleby Line
5161	69	AM Out	Hamilton	South via Appleby Line
5193	12	AM Out	Hamilton	South via Appleby Line
5198	16	AM Out	Hamilton	South via Appleby Line
6351	18	Am in	Niagara	South via Appleby Line

6031	12	PM out	Niagara	South via Appleby Line
6071	30	PM out	Niagara	South via Appleby Line
6198	3	PM out	Niagara	South via Appleby Line
6312	38	PM in	Niagara	South via Appleby Line
6090	48	AM Out	Niagara	South via Appleby Line
6174	35	AM Out	Niagara	South via Appleby Line
6362	38	AM Out	Niagara	South via Appleby Line
3192	20	Am in	Peel	North via Appleby Line
3602	33	Am in	Peel	North via Appleby Line
3610	24	Am in	Peel	North via Appleby Line
3645	71	Am in	Peel	North via Appleby Line
3678	18	Am in	Peel	North via Appleby Line
3683	10	Am in	Peel	North via Appleby Line
3719	12	Am in	Peel	North via Appleby Line
3854	9	Am in	Peel	North via Appleby Line
3192	20	PM out	Peel	North via Appleby Line
3337	15	PM out	Peel	North via Appleby Line
3,367	112	PM out	Peel	North via Appleby Line
3499	10	PM out	Peel	North via Appleby Line
3610	24	PM out	Peel	North via Appleby Line
3615	14	PM out	Peel	North via Appleby Line
3634	10	PM out	Peel	North via Appleby Line
3678	18	PM out	Peel	North via Appleby Line
3683	10	PM out	Peel	North via Appleby Line
3714	33	PM out	Peel	North via Appleby Line
3719	12	PM out	Peel	North via Appleby Line
3864	71	PM out	Peel	North via Appleby Line
3428	11	PM in	Peel	North via Appleby Line
3605	20	PM in	Peel	North via Appleby Line
3612	32	PM in	Peel	North via Appleby Line
3613	11	PM in	Peel	North via Appleby Line
3615	12	PM in	Peel	North via Appleby Line
3627	29	PM in	Peel	North via Appleby Line
3633	9	PM in	Peel	North via Appleby Line
3634	10	PM in	Peel	North via Appleby Line
3699	18	PM in	Peel	North via Appleby Line
3711	44	PM in	Peel	North via Appleby Line
3816	45	PM in	Peel	North via Appleby Line
3835	34	PM in	Peel	North via Appleby Line
3854	20	PM in	Peel	North via Appleby Line
3605	20	AM Out	Peel	North via Appleby Line
3612	32	AM Out	Peel	North via Appleby Line
3613	11	AM Out	Peel	North via Appleby Line
3633	9	AM Out	Peel	North via Appleby Line
3724	46	AM Out	Peel	North via Appleby Line
3816	45	AM Out	Peel	North via Appleby Line
3854	20	AM Out	Peel	North via Appleby Line
3862	17	AM Out	Peel	North via Appleby Line
8653	12	PM out	Simcoe	North via Appleby Line
175	30	Am in	Toronto	South via Appleby Line

307	14	Am in	Toronto	South via Appleby Line
344	11	Am in	Toronto	South via Appleby Line
77	63	PM out	Toronto	South via Appleby Line
122	28	PM out	Toronto	South via Appleby Line
177	25	PM out	Toronto	South via Appleby Line
290	6	PM out	Toronto	South via Appleby Line
295	11	PM out	Toronto	South via Appleby Line
307	14	PM out	Toronto	South via Appleby Line
374	14	PM out	Toronto	South via Appleby Line
16	19	PM in	Toronto	North via Appleby Line
42	15	PM in	Toronto	North via Appleby Line
53	64	PM in	Toronto	North via Appleby Line
89	38	PM in	Toronto	North via Appleby Line
204	19	PM in	Toronto	North via Appleby Line
350	18	PM in	Toronto	North via Appleby Line
371	11	PM in	Toronto	North via Appleby Line
603	12	PM in	Toronto	North via Appleby Line
35	16	AM Out	Toronto	North via Appleby Line
89	38	AM Out	Toronto	North via Appleby Line
290	15	AM Out	Toronto	North via Appleby Line
332	28	AM Out	Toronto	North via Appleby Line
350	18	AM Out	Toronto	North via Appleby Line
7458	31	Am in	Waterloo	North via Appleby Line
7262	18	PM out	Waterloo	North via Appleby Line
7339	24	PM out	Waterloo	North via Appleby Line
7361	75	PM out	Waterloo	North via Appleby Line
7442	11	PM out	Waterloo	North via Appleby Line
7458	31	PM out	Waterloo	North via Appleby Line
7353	24	PM in	Waterloo	North via Appleby Line
8315	44	Am in	Wellington	North via Appleby Line
2096	38	PM in	York	North via Appleby Line
2111	15	PM in	York	North via Appleby Line
2140	11	AM Out	York	North via Appleby Line
2253	9	AM Out	York	North via Appleby Line
2609	17	AM Out	York	North via Appleby Line

Zone	Trips	Peak/Dir	Region	Route
8950	42	PM out	Brant	South via Appleby Line
8915	17	PM in	Brantford	South via Appleby Line
8915	17	AM Out	Brantford	South via Appleby Line
4001	49	Am in	Halton	East via Upper Middle
4001	64	PM out	Halton	East via Upper Middle
4001	43	PM in	Halton	East via Upper Middle
4004	60	Am in	Halton	East via Upper Middle
4004	14	PM out	Halton	East via Upper Middle
4005	18	PM out	Halton	East via Upper Middle
4005	18	PM in	Halton	East via Upper Middle
4005	27	AM Out	Halton	East via Upper Middle
4007	23	Am in	Halton	South via Appleby Line
4007	23	PM out	Halton	South via Appleby Line
4008	11	Am in	Halton	South via Appleby Line
4008	11	AM Out	Halton	South via Appleby Line
4012	18	PM out	Halton	South via Appleby Line
4012	44	PM in	Halton	South via Appleby Line
4024	11	PM in	Halton	North via Appleby Line
4024	28	AM Out	Halton	North via Appleby Line
4027	14	PM in	Halton	North via Appleby Line
4027	23	AM Out	Halton	North via Appleby Line
4030	19	PM in	Halton	South via Appleby Line
4030	19	AM Out	Halton	South via Appleby Line
4036	18	PM in	Halton	North via Appleby Line
4039	31	Am in	Halton	North via Appleby Line
4039	72	PM out	Halton	North via Appleby Line
4041	53	Am in	Halton	South via Appleby Line
4041	10	PM out	Halton	South via Appleby Line
4041	12	PM in	Halton	South via Appleby Line
4041	12	AM Out	Halton	South via Appleby Line
4042	49	PM out	Halton	South via Appleby Line
4042	40	PM in	Halton	South via Appleby Line
4044	14	PM in	Halton	East via Upper Middle
4045	16	Am in	Halton	North via Appleby Line
4045	16	PM out	Halton	North via Appleby Line
4045	23	PM in	Halton	North via Appleby Line
4050	13	PM out	Halton	South via Appleby Line
4051	8	AM Out	Halton	South via Appleby Line
4052	12	Am in	Halton	South via Appleby Line
4052	12	PM out	Halton	South via Appleby Line
4053	71	PM out	Halton	South via Appleby Line
4053	55	PM in	Halton	South via Appleby Line
4053	26	AM Out	Halton	South via Appleby Line
4055	115	Am in	Halton	South via Appleby Line
4055	111	PM out	Halton	South via Appleby Line
4057	79	Am in	Halton	South via Appleby Line
4057	120	PM out	Halton	West via UMR
4057	99	PM in	Halton	West via UMR
4057	45	AM Out	Halton	West via UMR

4058	16	PM in	Halton	West via UMR
4058	16	AM Out	Halton	West via UMR
4059	46	Am in	Halton	West via UMR
4059	57	PM out	Halton	West via UMR
4059	39	PM in	Halton	South via Appleby Line
4059	10	AM Out	Halton	South via Appleby Line
4060	68	Am in	Halton	South via Appleby Line
4060	24	PM out	Halton	South via Appleby Line
4060	13	PM in	Halton	South via Appleby Line
4060	29	AM Out	Halton	South via Appleby Line
4062	103	Am in	Halton	South via Appleby Line
4062	67	PM out	Halton	South via Appleby Line
4063	67	PM in	Halton	South via Appleby Line
4063	55	AM Out	Halton	South via Appleby Line
4064	62	Am in	Halton	South via Appleby Line
4064	32	PM out	Halton	South via Appleby Line
4065	50	PM in	Halton	South via Appleby Line
4065	9	AM Out	Halton	South via Appleby Line
4066	14	PM out	Halton	South via Appleby Line
4066	46	PM in	Halton	South via Appleby Line
4067	32	PM out	Halton	South via Appleby Line
4067	19	PM in	Halton	South via Appleby Line
4068	25	PM out	Halton	South via Appleby Line
4068	18	AM Out	Halton	South via Appleby Line
4069	32	Am in	Halton	South via Appleby Line
4069	32	PM in	Halton	South via Appleby Line
4069	24	AM Out	Halton	South via Appleby Line
4070	23	Am in	Halton	South via Appleby Line
4070	46	PM out	Halton	South via Appleby Line
4070	22	PM in	Halton	South via Appleby Line
4071	64	Am in	Halton	South via Appleby Line
4071	79	PM out	Halton	South via Appleby Line
4071	10	PM in	Halton	South via Appleby Line
4072	54	Am in	Halton	South via Appleby Line
4072	79	PM out	Halton	South via Appleby Line
4072	53	PM in	Halton	South via Appleby Line
4074	4	Am in	Halton	South via Appleby Line
4074	77	PM out	Halton	South via Appleby Line
4074	4	AM Out	Halton	South via Appleby Line
4075	28	Am in	Halton	South via Appleby Line
4075	22	PM out	Halton	South via Appleby Line
4076	119	Am in	Halton	South via Appleby Line
4076	188	PM out	Halton	South via Appleby Line
4077	54	Am in	Halton	South via Appleby Line
4077	91	PM out	Halton	South via Appleby Line
4077	14	PM in	Halton	South via Appleby Line
4077	38	AM Out	Halton	South via Appleby Line
4078	211	Am in	Halton	South via Appleby Line
4078	89	PM out	Halton	South via Appleby Line
4078	231	PM in	Halton	South via Appleby Line

4078	190	AM Out	Halton	South via Appleby Line
4079	183	Am in	Halton	South via Appleby Line
4079	347	PM out	Halton	South via Appleby Line
4079	204	PM in	Halton	South via Appleby Line
4079	61	AM Out	Halton	South via Appleby Line
4080	95	Am in	Halton	South via Appleby Line
4080	75	PM out	Halton	South via Appleby Line
4080	205	PM in	Halton	South via Appleby Line
4080	83	AM Out	Halton	South via Appleby Line
4081	13	PM out	Halton	South via Appleby Line
4081	9	PM in	Halton	South via Appleby Line
4081	42	AM Out	Halton	South via Appleby Line
4082	14	Am in	Halton	South via Appleby Line
4082	60	PM in	Halton	South via Appleby Line
4082	20	AM Out	Halton	South via Appleby Line
4083	295	Am in	Halton	West via UMR
4083	225	PM out	Halton	West via UMR
4083	182	PM in	Halton	West via UMR
4083	152	AM Out	Halton	West via UMR
4084	189	Am in	Halton	West via UMR
4084	276	PM out	Halton	West via UMR
4084	277	PM in	Halton	West via UMR
4084	156	AM Out	Halton	West via UMR
4085	80	Am in	Halton	West via UMR
4085	40	PM out	Halton	West via UMR
4085	88	PM in	Halton	West via UMR
4085	20	AM Out	Halton	West via UMR
4086	20	Am in	Halton	West via UMR
4087	85	PM out	Halton	West via UMR
4087	21	AM Out	Halton	West via UMR
4088	58	Am in	Halton	West via UMR
4088	80	PM out	Halton	West via UMR
4088	81	PM in	Halton	West via UMR
4088	84	AM Out	Halton	West via UMR
4089	76	Am in	Halton	West via UMR
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4090	19	PM in	Halton	West via UMR
4091	13	Am in	Halton	West via UMR
4091	22	PM out	Halton	West via UMR
4091	27	AM Out	Halton	West via UMR
4093	19	PM out	Halton	West via UMR
4094	10	PM in	Halton	West via UMR
4097	8	Am in	Halton	West via UMR
4103	31	Am in	Halton	West via UMR
4108	30	Am in	Halton	West via UMR
4108	30	PM out	Halton	West via UMR
4110	24	Am in	Halton	West via UMR
4110	34	PM out	Halton	West via UMR

4110	22	PM in	Halton	West via UMR
4110	22	AM Out	Halton	South via Appleby Line
4119	20	Am in	Halton	South via Appleby Line
4119	20	PM out	Halton	South via Appleby Line
4119	24	AM Out	Halton	South via Appleby Line
4120	14	Am in	Halton	South via Appleby Line
4120	14	PM out	Halton	South via Appleby Line
4120	9	PM in	Halton	South via Appleby Line
4120	9	AM Out	Halton	South via Appleby Line
4124	11	PM out	Halton	South via Appleby Line
4124	22	AM Out	Halton	South via Appleby Line
4125	28	PM in	Halton	South via Appleby Line
4125	28	AM Out	Halton	South via Appleby Line
4126	19	PM in	Halton	South via Appleby Line
4147	9	PM in	Halton	South via Appleby Line
4186	33	Am in	Halton	South via Appleby Line
4186	33	PM out	Halton	South via Appleby Line
4186	62	PM in	Halton	South via Appleby Line
4186	19	AM Out	Halton	South via Appleby Line
4188	21	AM Out	Halton	South via Appleby Line
4189	71	Am in	Halton	South via Appleby Line
4189	132	PM out	Halton	South via Appleby Line
4189	74	PM in	Halton	South via Appleby Line
4189	40	AM Out	Halton	South via Appleby Line
4190	142	Am in	Halton	South via Appleby Line
4190	9	PM out	Halton	South via Appleby Line
4190	13	PM in	Halton	South via Appleby Line
4190	101	AM Out	Halton	South via Appleby Line
4191	19	Am in	Halton	South via Appleby Line
4191	19	PM out	Halton	South via Appleby Line
5045	26	Am in	Hamilton	South via Appleby Line
5089	59	Am in	Hamilton	South via Appleby Line
5,098	101	Am in	Hamilton	South via Appleby Line
5105	45	Am in	Hamilton	South via Appleby Line
5109	22	Am in	Hamilton	South via Appleby Line
5111	46	Am in	Hamilton	South via Appleby Line
5115	29	Am in	Hamilton	South via Appleby Line
5154	18	Am in	Hamilton	South via Appleby Line
5158	36	Am in	Hamilton	South via Appleby Line
5163	43	Am in	Hamilton	South via Appleby Line
5183	38	Am in	Hamilton	South via Appleby Line
5207	22	Am in	Hamilton	South via Appleby Line
5212	26	Am in	Hamilton	South via Appleby Line
5223	18	Am in	Hamilton	South via Appleby Line
5230	15	Am in	Hamilton	South via Appleby Line
5232	89	Am in	Hamilton	South via Appleby Line
5233	69	Am in	Hamilton	South via Appleby Line
5238	28	Am in	Hamilton	South via Appleby Line
5248	30	Am in	Hamilton	South via Appleby Line
5249	26	Am in	Hamilton	South via Appleby Line

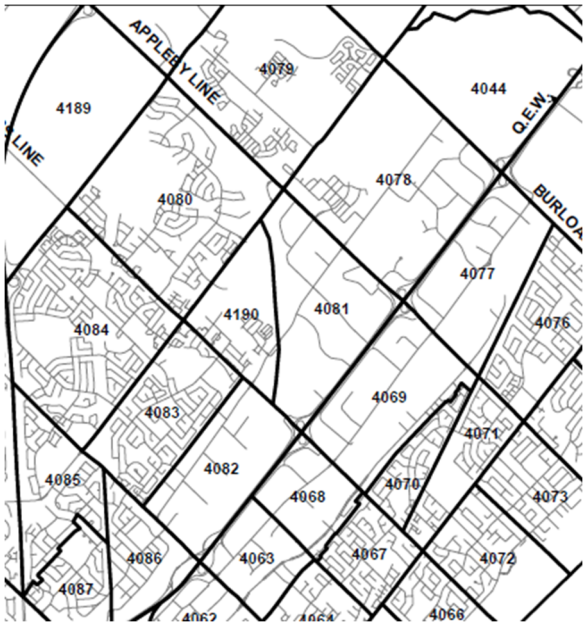
5030	14	PM out	Hamilton	South via Appleby Line
5045	52	PM out	Hamilton	South via Appleby Line
5061	17	PM out	Hamilton	South via Appleby Line
5065	45	PM out	Hamilton	South via Appleby Line
5066	65	PM out	Hamilton	South via Appleby Line
5069	56	PM out	Hamilton	South via Appleby Line
5072	16	PM out	Hamilton	South via Appleby Line
5084	66	PM out	Hamilton	South via Appleby Line
5089	67	PM out	Hamilton	South via Appleby Line
5094	43	PM out	Hamilton	South via Appleby Line
5140	21	PM out	Hamilton	South via Appleby Line
5142	42	PM out	Hamilton	South via Appleby Line
5144	46	PM out	Hamilton	South via Appleby Line
5148	24	PM out	Hamilton	South via Appleby Line
5149	15	PM out	Hamilton	South via Appleby Line
5150	7	PM out	Hamilton	South via Appleby Line
5151	35	PM out	Hamilton	South via Appleby Line
5154	18	PM out	Hamilton	South via Appleby Line
5158	36	PM out	Hamilton	South via Appleby Line
5163	43	PM out	Hamilton	South via Appleby Line
5180	38	PM out	Hamilton	South via Appleby Line
5183	38	PM out	Hamilton	South via Appleby Line
5194	13	PM out	Hamilton	South via Appleby Line
5200	34	PM out	Hamilton	South via Appleby Line
5203	15	PM out	Hamilton	South via Appleby Line
5212	26	PM out	Hamilton	South via Appleby Line
5219	15	PM out	Hamilton	South via Appleby Line
5230	27	PM out	Hamilton	South via Appleby Line
5,232	156	PM out	Hamilton	South via Appleby Line
5237	15	PM out	Hamilton	South via Appleby Line
5241	42	PM out	Hamilton	South via Appleby Line
5244	69	PM out	Hamilton	South via Appleby Line
5249	26	PM out	Hamilton	South via Appleby Line
5250	43	PM out	Hamilton	South via Appleby Line
5008	19	PM in	Hamilton	South via Appleby Line
5075	52	PM in	Hamilton	South via Appleby Line
5108	12	PM in	Hamilton	South via Appleby Line
5119	12	PM in	Hamilton	South via Appleby Line
5168	30	PM in	Hamilton	South via Appleby Line
5193	12	PM in	Hamilton	South via Appleby Line
5194	13	PM in	Hamilton	South via Appleby Line
5197	28	PM in	Hamilton	South via Appleby Line
5198	27	PM in	Hamilton	South via Appleby Line
5200	27	PM in	Hamilton	South via Appleby Line
5135	27	AM Out	Hamilton	South via Appleby Line
5142	13	AM Out	Hamilton	South via Appleby Line
5161	69	AM Out	Hamilton	South via Appleby Line
5193	12	AM Out	Hamilton	South via Appleby Line
5198	16	AM Out	Hamilton	South via Appleby Line
6351	18	Am in	Niagara	South via Appleby Line

6031	12	PM out	Niagara	South via Appleby Line
6071	30	PM out	Niagara	South via Appleby Line
6198	3	PM out	Niagara	South via Appleby Line
6312	38	PM in	Niagara	South via Appleby Line
6090	48	AM Out	Niagara	South via Appleby Line
6174	35	AM Out	Niagara	South via Appleby Line
6362	38	AM Out	Niagara	South via Appleby Line
3192	20	Am in	Peel	North via Appleby Line
3602	33	Am in	Peel	North via Appleby Line
3610	24	Am in	Peel	North via Appleby Line
3645	71	Am in	Peel	North via Appleby Line
3678	18	Am in	Peel	North via Appleby Line
3683	10	Am in	Peel	North via Appleby Line
3719	12	Am in	Peel	North via Appleby Line
3854	9	Am in	Peel	North via Appleby Line
3192	20	PM out	Peel	North via Appleby Line
3337	15	PM out	Peel	North via Appleby Line
3,367	112	PM out	Peel	North via Appleby Line
3499	10	PM out	Peel	North via Appleby Line
3610	24	PM out	Peel	North via Appleby Line
3615	14	PM out	Peel	North via Appleby Line
3634	10	PM out	Peel	North via Appleby Line
3678	18	PM out	Peel	North via Appleby Line
3683	10	PM out	Peel	North via Appleby Line
3714	33	PM out	Peel	North via Appleby Line
3719	12	PM out	Peel	North via Appleby Line
3864	71	PM out	Peel	North via Appleby Line
3428	11	PM in	Peel	North via Appleby Line
3605	20	PM in	Peel	North via Appleby Line
3612	32	PM in	Peel	North via Appleby Line
3613	11	PM in	Peel	North via Appleby Line
3615	12	PM in	Peel	North via Appleby Line
3627	29	PM in	Peel	North via Appleby Line
3633	9	PM in	Peel	North via Appleby Line
3634	10	PM in	Peel	North via Appleby Line
3699	18	PM in	Peel	North via Appleby Line
3711	44	PM in	Peel	North via Appleby Line
3816	45	PM in	Peel	North via Appleby Line
3835	34	PM in	Peel	North via Appleby Line
3854	20	PM in	Peel	North via Appleby Line
3605	20	AM Out	Peel	North via Appleby Line
3612	32	AM Out	Peel	North via Appleby Line
3613	11	AM Out	Peel	North via Appleby Line
3633	9	AM Out	Peel	North via Appleby Line
3724	46	AM Out	Peel	North via Appleby Line
3816	45	AM Out	Peel	North via Appleby Line
3854	20	AM Out	Peel	North via Appleby Line
3862	17	AM Out	Peel	North via Appleby Line
8653	12	PM out	Simcoe	North via Appleby Line
175	30	Am in	Toronto	South via Appleby Line

307	14	Am in	Toronto	South via Appleby Line
344	11	Am in	Toronto	South via Appleby Line
77	63	PM out	Toronto	South via Appleby Line
122	28	PM out	Toronto	South via Appleby Line
177	25	PM out	Toronto	South via Appleby Line
290	6	PM out	Toronto	South via Appleby Line
295	11	PM out	Toronto	South via Appleby Line
307	14	PM out	Toronto	South via Appleby Line
374	14	PM out	Toronto	South via Appleby Line
16	19	PM in	Toronto	North via Appleby Line
42	15	PM in	Toronto	North via Appleby Line
53	64	PM in	Toronto	North via Appleby Line
89	38	PM in	Toronto	North via Appleby Line
204	19	PM in	Toronto	North via Appleby Line
350	18	PM in	Toronto	North via Appleby Line
371	11	PM in	Toronto	North via Appleby Line
603	12	PM in	Toronto	North via Appleby Line
35	16	AM Out	Toronto	North via Appleby Line
89	38	AM Out	Toronto	North via Appleby Line
290	15	AM Out	Toronto	North via Appleby Line
332	28	AM Out	Toronto	North via Appleby Line
350	18	AM Out	Toronto	North via Appleby Line
7458	31	Am in	Waterloo	North via Appleby Line
7262	18	PM out	Waterloo	North via Appleby Line
7339	24	PM out	Waterloo	North via Appleby Line
7361	75	PM out	Waterloo	North via Appleby Line
7442	11	PM out	Waterloo	North via Appleby Line
7458	31	PM out	Waterloo	North via Appleby Line
7353	24	PM in	Waterloo	North via Appleby Line
8315	44	Am in	Wellington	North via Appleby Line
2096	38	PM in	York	North via Appleby Line
2111	15	PM in	York	North via Appleby Line
2140	11	AM Out	York	North via Appleby Line
2253	9	AM Out	York	North via Appleby Line
2609	17	AM Out	York	North via Appleby Line

TTS

Zone of subject site = 4081



AM Inbound

Mon Jun 21 2021 14:41:19 GMT-0400 (Eastern Daylight Time) - Run Time: 3002ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest
Table: No. of trips made by person - n_pers_trip

RowG:
ColG:(4081)
TblG:(0-99)

Filters:
Start time of trip - start_time In 700-900

Trip 2016
Table: 1

,1
175,30
307,14
3192,20
3602,33
3610,24
3645,71
3678,18
3683,10
3719,12
3854,9
4041,53
4045,16
4055,63
4057,34
4059,34
4060,24
4062,42
4064,32
4069,32
4070,23
4071,64
4072,54
4074,4
4075,16
4076,92
4077,47
4078,95
4079,40
4080,25
4083,162
4084,110
4085,40
4086,20
4089,44
4091,13
4103,31
4108,30
4119,20
4120,7
4189,54
4190,42
4191,19
5045,26
5089,59
5098,101
5105,45
5109,22
5111,46
5115,29
5154,18
5158,36
5163,43
5183,38
5207,22

5212,26
5223,18
5230,15
5232,89
5238,28
5248,30
5249,26
6351,18
7458,31
8315,44
8817,37

PM Inbound

Mon Jun 21 2021 14:41:55 GMT-0400 (Eastern Daylight Time) - Run Time: 3197ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest
Table: No. of trips made by person - n_pers_trip

RowG:
ColG:(4081)
TblG:(0-99)

Filters:
Start time of trip - start_time In 1500-1800

Trip 2016
Table: 1

,1
371,11
3612,20
3699,18
3835,34
4001,43
4027,14
4036,18
4057,33
4065,41
4066,46
4070,22
4072,31
4078,73
4079,55
4084,224
4085,20
4088,11
4089,14
4189,13
4190,13
5008,19
5075,52
5200,27

AM Out

Mon Jun 21 2021 14:42:17 GMT-0400 (Eastern Daylight Time) - Run Time: 3300ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig
Table: No. of trips made by person - n_pers_trip

RowG:
ColG:(4081)
TblG:(0-99)

Filters:
Start time of trip - start_time In 700-900

Trip 2016
Table: 1

,1
3612,20
3724,46
4027,11
4068,18
4074,4
4078,18
4084,57
4085,20
4089,18
4124,22
5161,69

6090,48
6174,35

PM out

Mon Jun 21 2021 14:42:44 GMT-0400 (Eastern Daylight Time) - Run Time: 3207ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig
Table: No. of trips made by person - n_pers_trip

RowG:
ColG:(4081)
TblG:(0-99)

Filters:
Start time of trip - start_time In 1500-1800

Trip 2016
Table: 1

,1
77,63
122,28
290,6
307,14
374,14
3192,20
3367,112
3499,10
3610,24
3615,14
3678,18
3683,10
3714,33
3719,12
3864,71
4001,15
4039,41
4041,10
4042,49
4045,16
4053,12
4055,67
4057,76
4059,46
4060,24
4064,32
4067,14
4070,46
4071,42
4072,79
4075,22
4076,112
4077,61
4078,37
4079,173
4080,35
4083,13
4084,157
4085,40
4087,75
4088,11
4089,116
4091,22
4093,19
4108,30
4119,20
4120,7
4124,11
4189,70
4190,9
4191,19
5030,14
5045,52
5065,45
5066,65
5069,56
5084,66
5089,67
5140,21
5142,42
5144,46
5148,24
5150,7
5151,35
5154,18
5158,36
5163,43
5183,38
5194,13
5200,34
5212,26

5219,15
5230,27
5232,122
5237,15
5241,42
5244,69
5249,26
5250,43
6031,12
6071,30
6198,3
7262,18
7339,24
7361,75
7442,11
7458,31
8653,12
8950,9

Zone	Trip	Direciton	Region	Route
4001	43	PM IN	Halton	East via Upper Middle Road
4001	15	PM OUT	Halton	East via Upper Middle Road
4076	92	AM IN	Halton	East via Upper Middle Road
4077	47	AM IN	Halton	East via Upper Middle Road
4077	61	PM OUT	Halton	East via Upper Middle Road
4078	95	AM IN	Halton	East via Upper Middle Road
4078	73	PM IN	Halton	East via Upper Middle Road
4078	18	AM OUT	Halton	East via Upper Middle Road
4078	37	PM OUT	Halton	East via Upper Middle Road
4079	40	AM IN	Halton	East via Upper Middle Road
4079	55	PM IN	Halton	North via Appleby
4080	25	AM IN	Halton	North via Appleby
4080	35	PM OUT	Halton	North via Appleby
4103	31	AM IN	Halton	North via Appleby
4108	30	AM IN	Halton	North via Appleby
4108	30	PM OUT	Halton	North via Appleby
4119	20	AM IN	Halton	North via Appleby
4119	20	PM OUT	Halton	North via Appleby
4120	7	AM IN	Halton	North via Appleby
4120	7	PM OUT	Halton	North via Appleby
4124	22	AM OUT	Halton	North via Appleby
4124	11	PM OUT	Halton	North via Appleby
4189	54	AM IN	Halton	North via Appleby
4189	13	PM IN	Halton	North via Appleby
4189	70	PM OUT	Halton	North via Appleby
4190	42	AM IN	Halton	North via Appleby
4190	13	PM IN	Halton	North via Appleby
4190	9	PM OUT	Halton	North via Appleby
4191	19	AM IN	Halton	North via Appleby
4191	19	PM OUT	Halton	North via Appleby
3192	20	AM IN	Peel	North via Appleby
3192	20	PM OUT	Peel	North via Appleby
3367	112	PM OUT	Peel	North via Appleby
3499	10	PM OUT	Peel	North via Appleby
3602	33	AM IN	Peel	North via Appleby
3610	24	AM IN	Peel	North via Appleby
3610	24	PM OUT	Peel	North via Appleby
3612	20	PM IN	Peel	North via Appleby
3612	20	AM OUT	Peel	North via Appleby
3615	14	PM OUT	Peel	North via Appleby
3645	71	AM IN	Peel	North via Appleby
3678	18	AM IN	Peel	North via Appleby
3678	18	PM OUT	Peel	North via Appleby
3683	10	AM IN	Peel	North via Appleby
3683	10	PM OUT	Peel	North via Appleby
3699	18	PM IN	Peel	North via Appleby
3714	33	PM OUT	Peel	North via Appleby

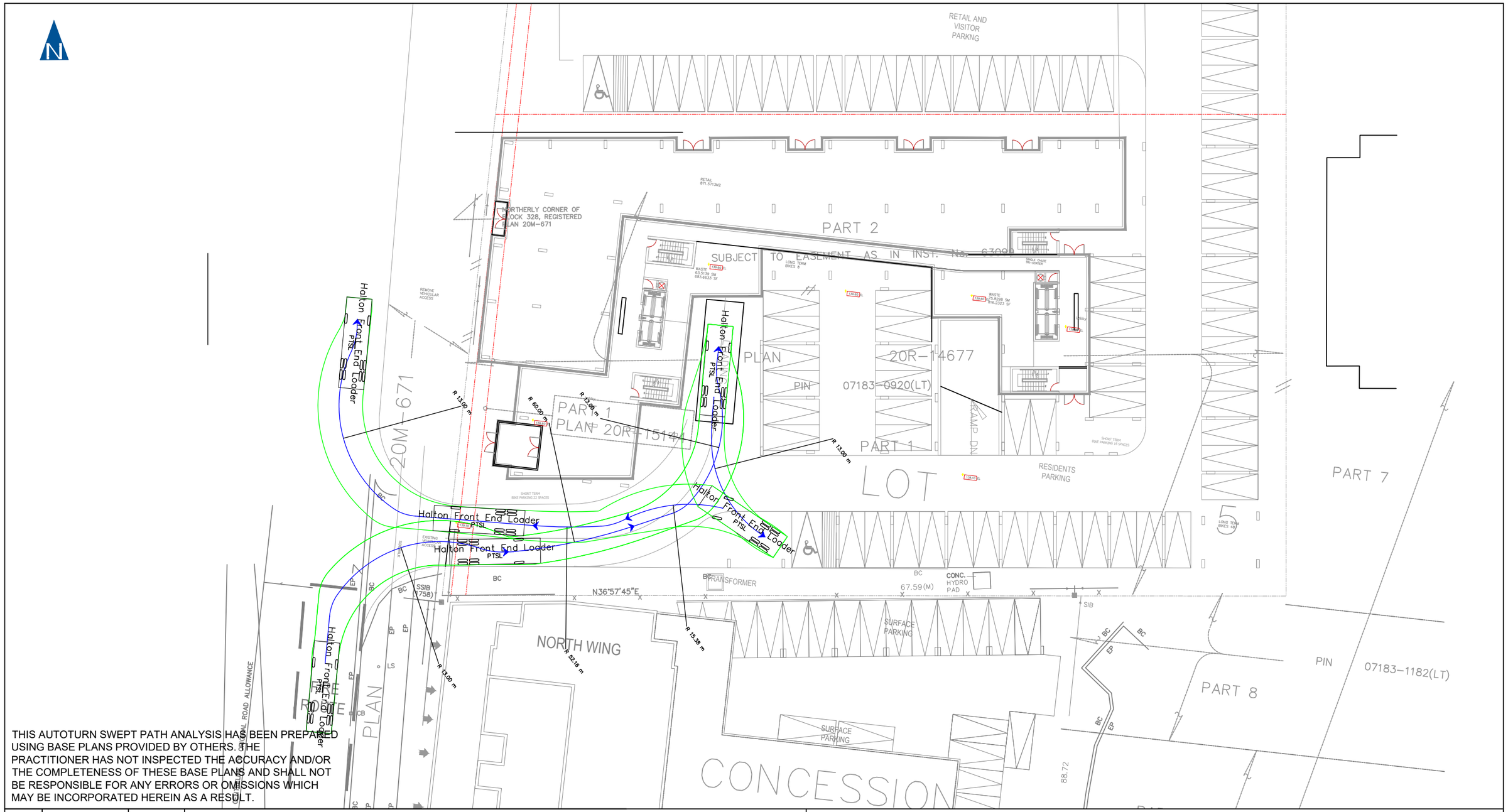
3719	12	AM IN	Peel	North via Appleby
3719	12	PM OUT	Peel	North via Appleby
3724	46	AM OUT	Peel	North via Appleby
3835	34	PM IN	Peel	North via Appleby
3854	9	AM IN	Peel	North via Appleby
3864	71	PM OUT	Peel	North via Appleby
8653	12	PM OUT	Simcoe	North via Appleby
77	63	PM OUT	Toronto	North via Appleby
122	28	PM OUT	Toronto	North via Appleby
175	30	AM IN	Toronto	North via Appleby
290	6	PM OUT	Toronto	North via Appleby
307	14	AM IN	Toronto	North via Appleby
307	14	PM OUT	Toronto	North via Appleby
371	11	PM IN	Toronto	North via Appleby
374	14	PM OUT	Toronto	North via Appleby
4076	112	PM OUT	Halton	South via Appleby
4079	173	PM OUT	Halton	South via Appleby
4083	162	AM IN	Halton	West via UMR
4084	110	AM IN	Halton	West via UMR
4084	224	PM IN	Halton	West via UMR
4084	157	PM OUT	Halton	West via UMR
4089	116	PM OUT	Halton	West via UMR
4027	14	PM IN	Halton	East via Upper Middle Road
4027	11	AM OUT	Halton	East via Upper Middle Road
4036	18	PM IN	Halton	North via Appleby
4039	41	PM OUT	Halton	North via Appleby
4041	53	AM IN	Halton	South via Appleby
4041	10	PM OUT	Halton	South via Appleby
4042	49	PM OUT	Halton	South via Appleby
4045	16	AM IN	Halton	South via Appleby
4045	16	PM OUT	Halton	South via Appleby
4053	12	PM OUT	Halton	South via Appleby
4055	63	AM IN	Halton	South via Appleby
4055	67	PM OUT	Halton	South via Appleby
4057	34	AM IN	Halton	South via Appleby
4057	33	PM IN	Halton	South via Appleby
4057	76	PM OUT	Halton	South via Appleby
4059	34	AM IN	Halton	South via Appleby
4059	46	PM OUT	Halton	South via Appleby
4060	24	AM IN	Halton	South via Appleby
4060	24	PM OUT	Halton	South via Appleby
4062	42	AM IN	Halton	South via Appleby
4064	32	AM IN	Halton	South via Appleby
4064	32	PM OUT	Halton	South via Appleby
4065	41	PM IN	Halton	South via Appleby
4066	46	PM IN	Halton	South via Appleby
4067	14	PM OUT	Halton	South via Appleby
4068	18	AM OUT	Halton	South via Appleby
4069	32	AM IN	Halton	South via Appleby

4070	23	AM IN	Halton	South via Appleby
4070	22	PM IN	Halton	South via Appleby
4070	46	PM OUT	Halton	South via Appleby
4071	64	AM IN	Halton	South via Appleby
4071	42	PM OUT	Halton	South via Appleby
4072	54	AM IN	Halton	South via Appleby
4072	31	PM IN	Halton	South via Appleby
4072	79	PM OUT	Halton	South via Appleby
4074	4	AM IN	Halton	South via Appleby
4074	4	AM OUT	Halton	South via Appleby
4075	16	AM IN	Halton	South via Appleby
4075	22	PM OUT	Halton	South via Appleby
4088	11	PM IN	Halton	West via UMR
4088	11	PM OUT	Halton	West via UMR
4089	44	AM IN	Halton	West via UMR
4089	14	PM IN	Halton	West via UMR
4089	18	AM OUT	Halton	West via UMR
4091	13	AM IN	Halton	West via UMR
4091	22	PM OUT	Halton	West via UMR
4093	19	PM OUT	Halton	South via Appleby
8950	9	PM OUT	Brant	South via Appleby
8817	37	AM IN	City of Pe	North via Appleby
5232	122	PM OUT	Hamilton	South via Appleby
5008	19	PM IN	Hamilton	South via Appleby
5030	14	PM OUT	Hamilton	South via Appleby
5045	26	AM IN	Hamilton	South via Appleby
5045	52	PM OUT	Hamilton	South via Appleby
5065	45	PM OUT	Hamilton	South via Appleby
5066	65	PM OUT	Hamilton	South via Appleby
5069	56	PM OUT	Hamilton	South via Appleby
5075	52	PM IN	Hamilton	South via Appleby
5084	66	PM OUT	Hamilton	South via Appleby
5089	59	AM IN	Hamilton	South via Appleby
5089	67	PM OUT	Hamilton	South via Appleby
5098	101	AM IN	Hamilton	South via Appleby
5105	45	AM IN	Hamilton	South via Appleby
5109	22	AM IN	Hamilton	South via Appleby
5111	46	AM IN	Hamilton	South via Appleby
5115	29	AM IN	Hamilton	South via Appleby
5140	21	PM OUT	Hamilton	South via Appleby
5142	42	PM OUT	Hamilton	South via Appleby
5144	46	PM OUT	Hamilton	South via Appleby
5148	24	PM OUT	Hamilton	South via Appleby
5150	7	PM OUT	Hamilton	South via Appleby
5151	35	PM OUT	Hamilton	South via Appleby
5154	18	AM IN	Hamilton	South via Appleby
5154	18	PM OUT	Hamilton	South via Appleby
5158	36	AM IN	Hamilton	South via Appleby
5158	36	PM OUT	Hamilton	South via Appleby

5161	69	AM OUT	Hamilton	South via Appleby
5163	43	AM IN	Hamilton	South via Appleby
5163	43	PM OUT	Hamilton	South via Appleby
5183	38	AM IN	Hamilton	South via Appleby
5183	38	PM OUT	Hamilton	South via Appleby
5194	13	PM OUT	Hamilton	South via Appleby
5200	27	PM IN	Hamilton	South via Appleby
5200	34	PM OUT	Hamilton	South via Appleby
5207	22	AM IN	Hamilton	South via Appleby
5212	26	AM IN	Hamilton	South via Appleby
5212	26	PM OUT	Hamilton	South via Appleby
5219	15	PM OUT	Hamilton	South via Appleby
5223	18	AM IN	Hamilton	South via Appleby
5230	15	AM IN	Hamilton	South via Appleby
5230	27	PM OUT	Hamilton	South via Appleby
5232	89	AM IN	Hamilton	South via Appleby
5237	15	PM OUT	Hamilton	South via Appleby
5238	28	AM IN	Hamilton	South via Appleby
5241	42	PM OUT	Hamilton	South via Appleby
5244	69	PM OUT	Hamilton	South via Appleby
5248	30	AM IN	Hamilton	South via Appleby
5249	26	AM IN	Hamilton	South via Appleby
5249	26	PM OUT	Hamilton	South via Appleby
5250	43	PM OUT	Hamilton	South via Appleby
6031	12	PM OUT	Niagara	South via Appleby
6071	30	PM OUT	Niagara	South via Appleby
6090	48	AM OUT	Niagara	South via Appleby
6174	35	AM OUT	Niagara	South via Appleby
6198	3	PM OUT	Niagara	South via Appleby
6351	18	AM IN	Niagara	South via Appleby
7262	18	PM OUT	Waterloo	South via Appleby
7339	24	PM OUT	Waterloo	South via Appleby
7361	75	PM OUT	Waterloo	South via Appleby
7442	11	PM OUT	Waterloo	South via Appleby
7458	31	AM IN	Waterloo	South via Appleby
7458	31	PM OUT	Waterloo	South via Appleby
8315	44	AM IN	Wellingtor	South via Appleby
4083	13	PM OUT	Halton	West via UMR
4084	57	AM OUT	Halton	West via UMR
4085	40	AM IN	Halton	West via UMR
4085	20	PM IN	Halton	West via UMR
4085	20	AM OUT	Halton	West via UMR
4085	40	PM OUT	Halton	West via UMR
4086	20	AM IN	Halton	West via UMR
4087	75	PM OUT	Halton	West via UMR

Appendix E

AutoTURN Assessment



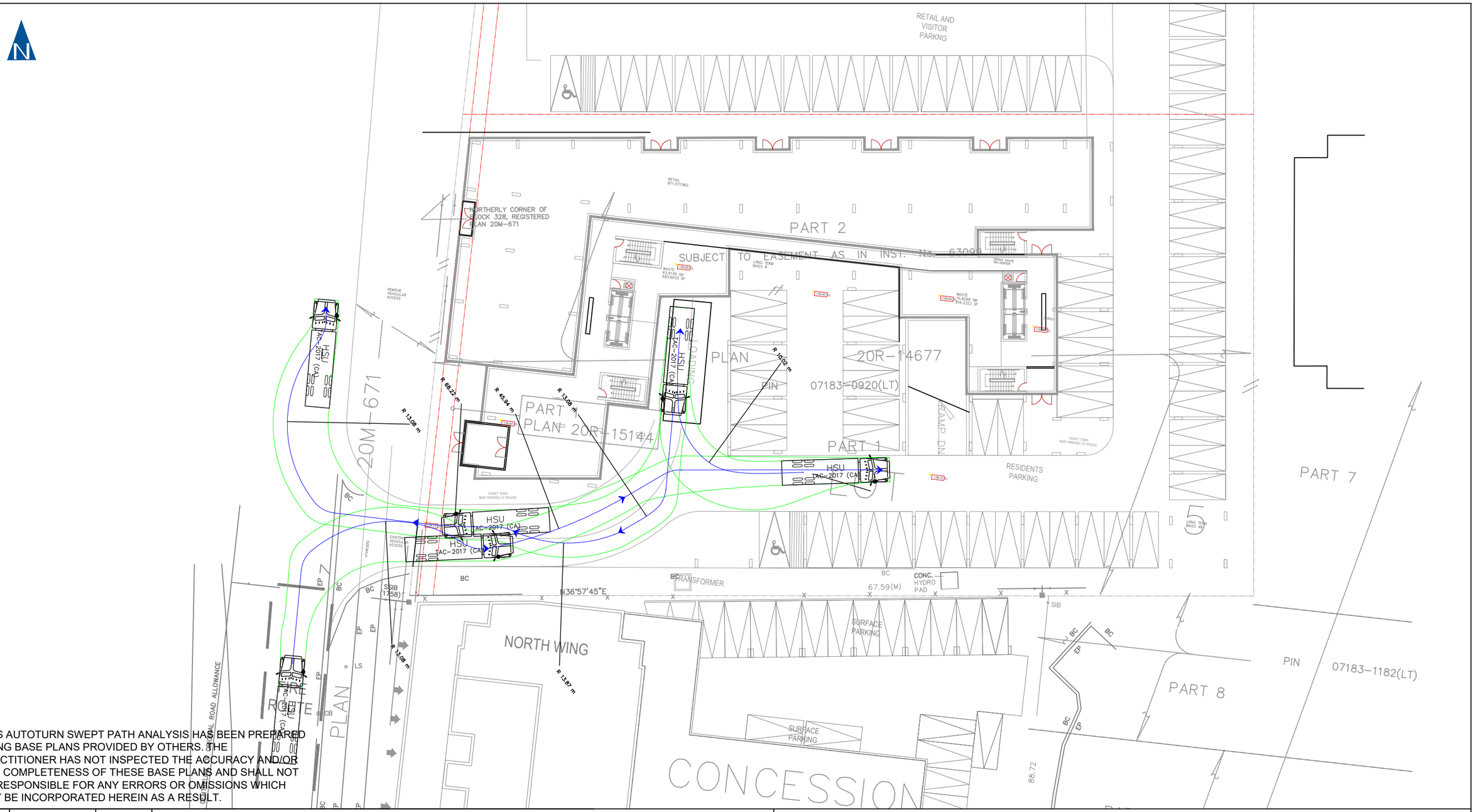
THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL

AUTOTURN ASSESSMENT
1989 APPLEBY LINE
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 220073	DATE: MAY 2022	SCALE: 1:400	DRAWING NO.:
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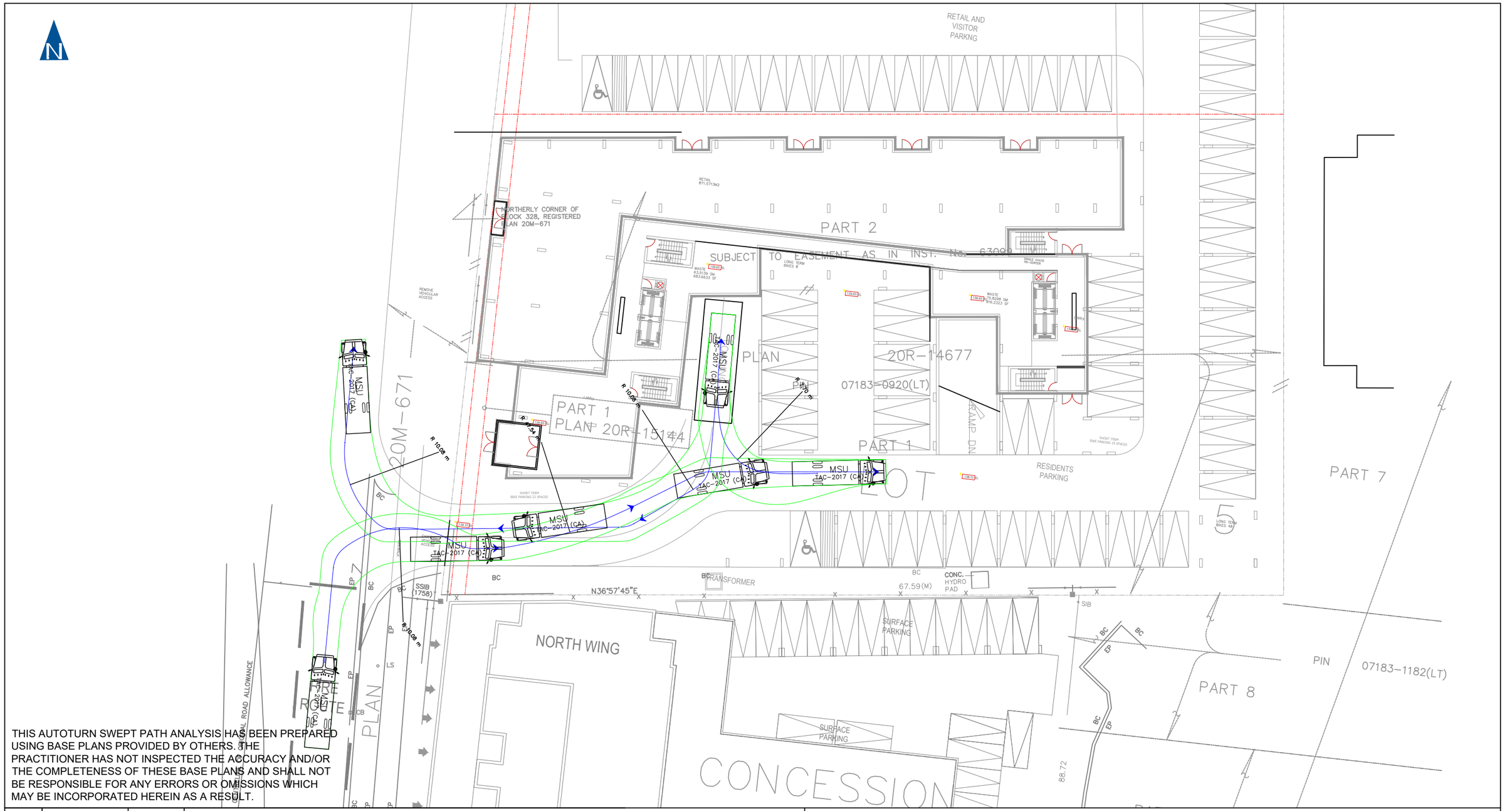
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NO.	DATE	INITIAL	REVISION DETAIL

AUTOTURN ASSESSMENT
1989 APPLEBY LINE
CITY OF BURLINGTON

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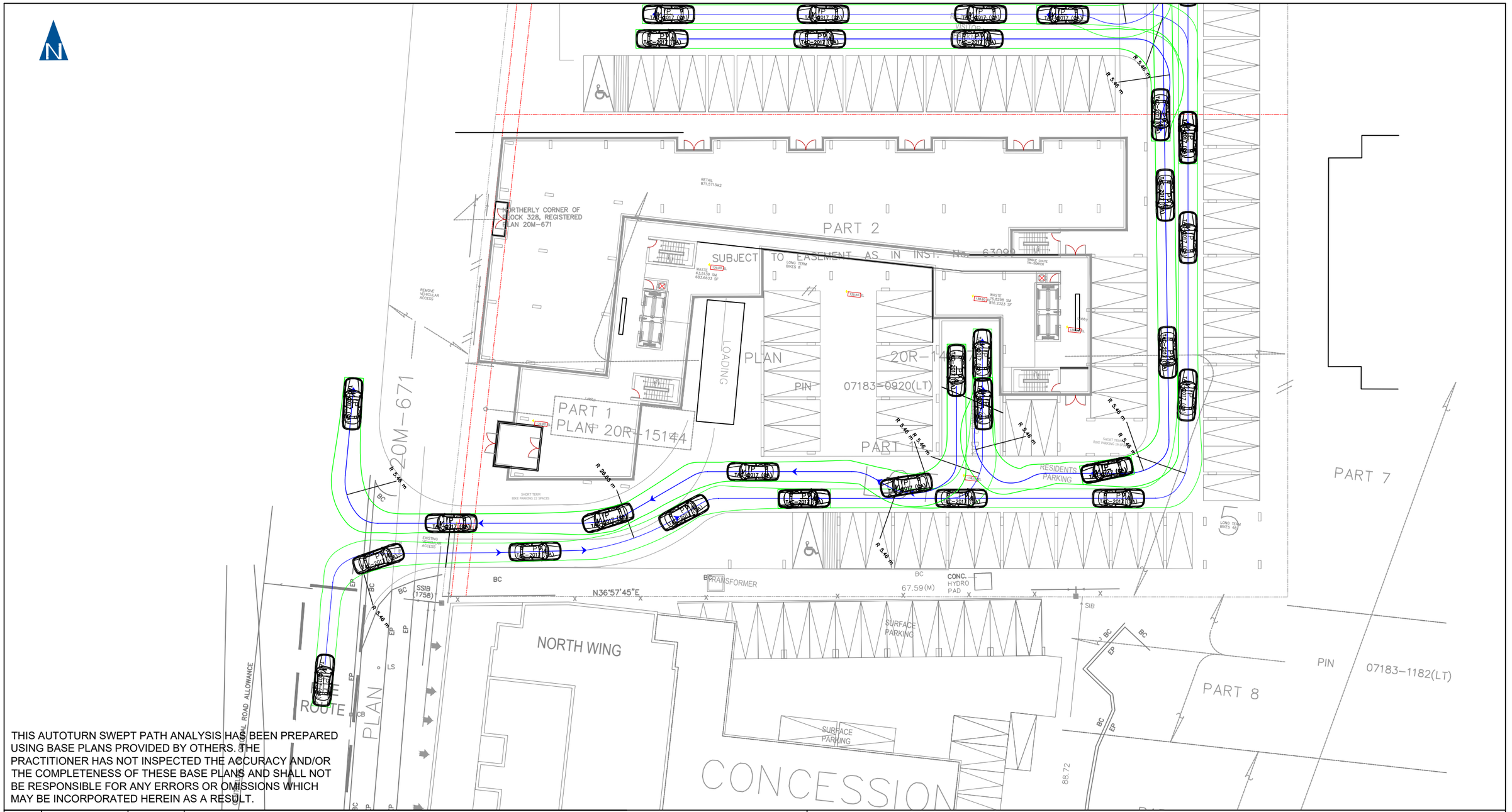
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NO.	DATE	INITIAL	REVISION DETAIL

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PROJECT NO.: 220073	DATE: MAY 2022	SCALE: 1:400	DRAWING NO.:
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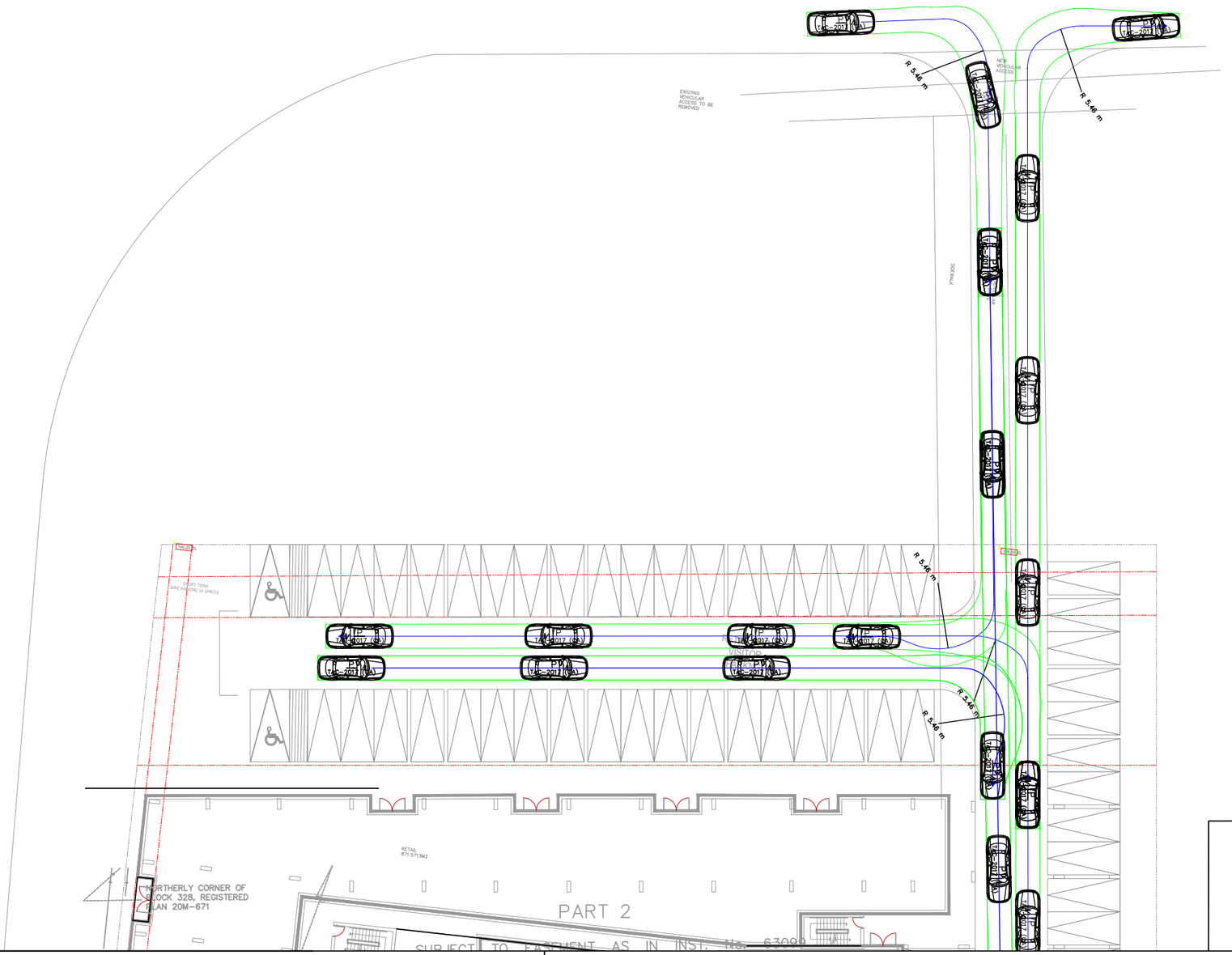
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NO.	DATE	INITIAL	REVISION DETAIL

AUTOTURN ASSESSMENT
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CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 220073	DATE: MAY 2022	SCALE: 1:400	DRAWING NO.:
DRAWN: SC	DESIGN: SC	CHECK: SC	004



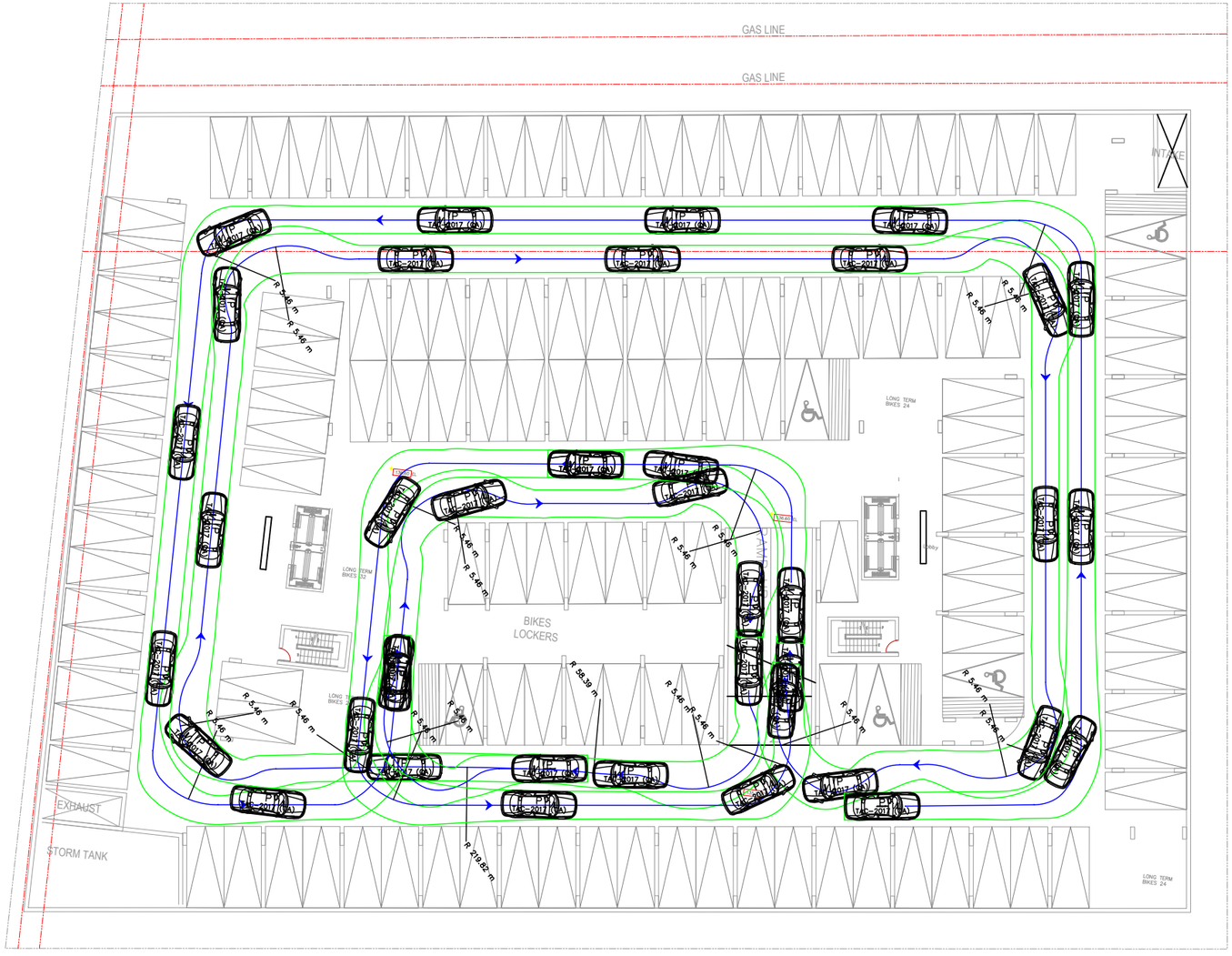
THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL

AUTOTURN ASSESSMENT
1989 APPLEBY LINE
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 220073	DATE: MAY 2022	SCALE: 1:400	DRAWING NO.:
DRAWN: SC	DESIGN: SC	CHECK: SC	005



P1 PARKING PLAN

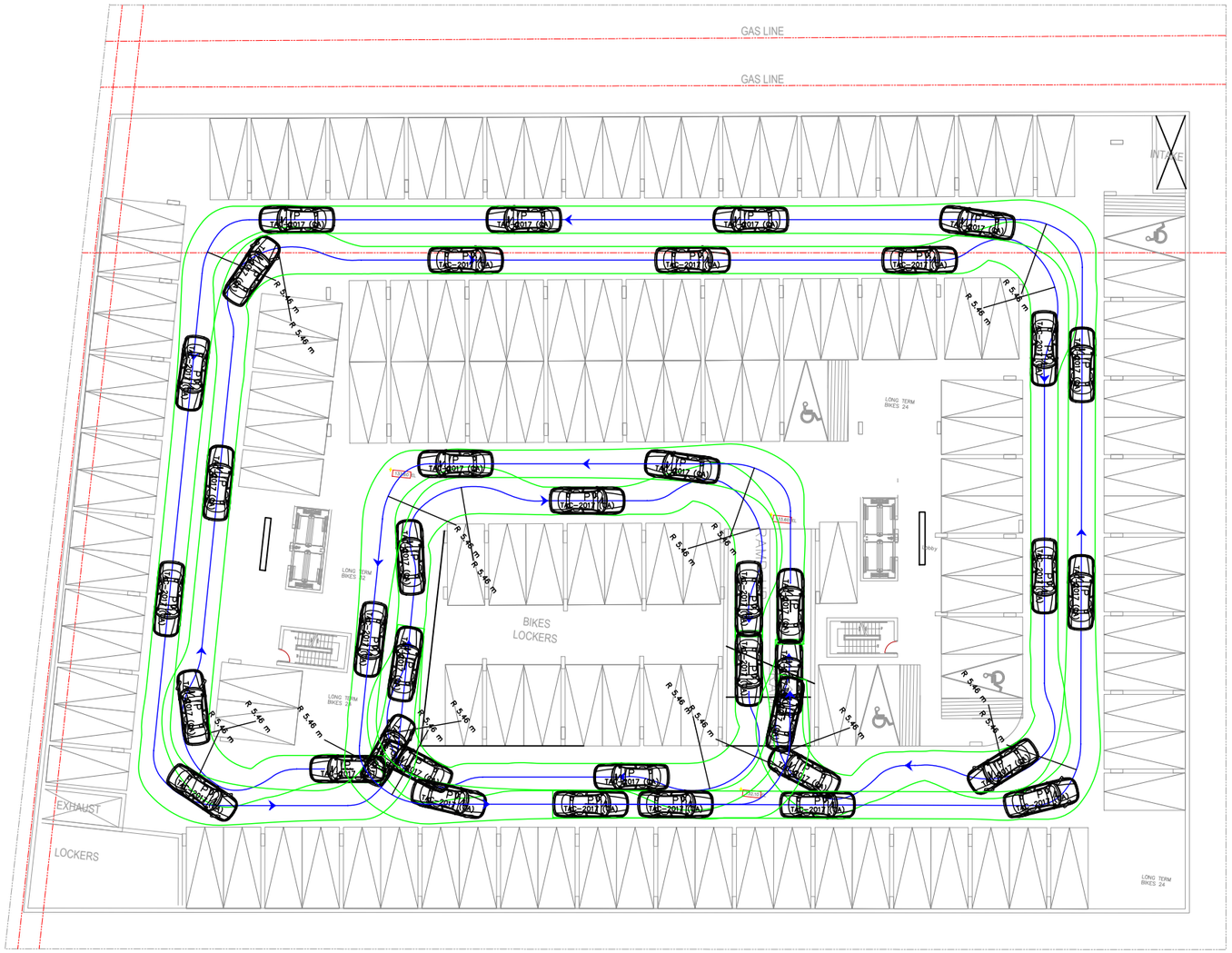
THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL

AUTOTURN ASSESSMENT
1989 APPLEBY LINE
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 220073	DATE: MAY 2022	SCALE: 1:400	DRAWING NO.:
DRAWN: SC	DESIGN: SC	CHECK: SC	006



P2 PARKING PLAN

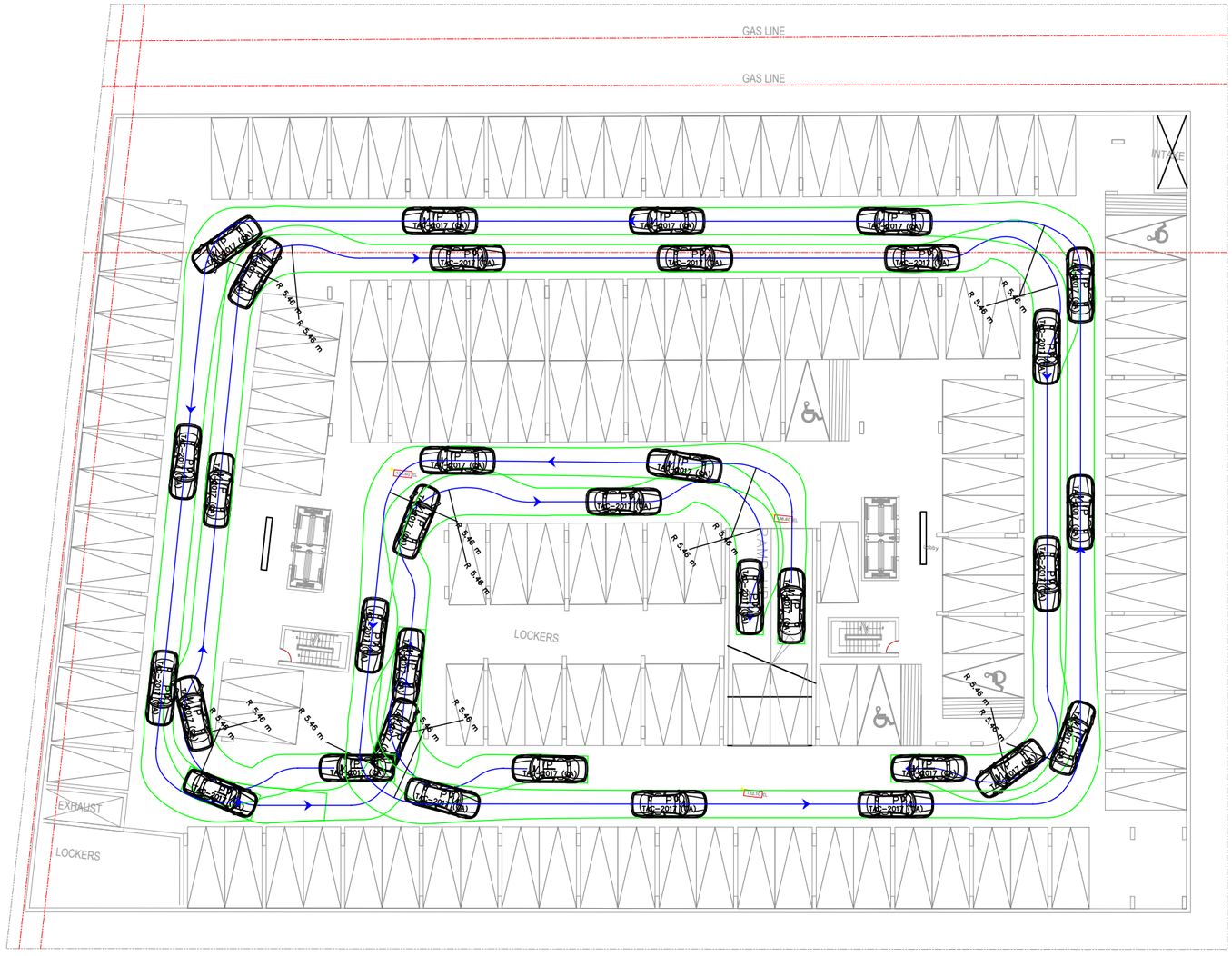
THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

NO.	DATE	INITIAL	REVISION DETAIL

AUTOTURN ASSESSMENT
1989 APPLEBY LINE
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

PROJECT NO.: 220073	DATE: MAY 2022	SCALE: 1:400	DRAWING NO.:
DRAWN: SC	DESIGN: SC	CHECK: SC	007



THIS AUTOTURN SWEPT PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

P3 PARKING PLAN

NO.	DATE	INITIAL	REVISION DETAIL

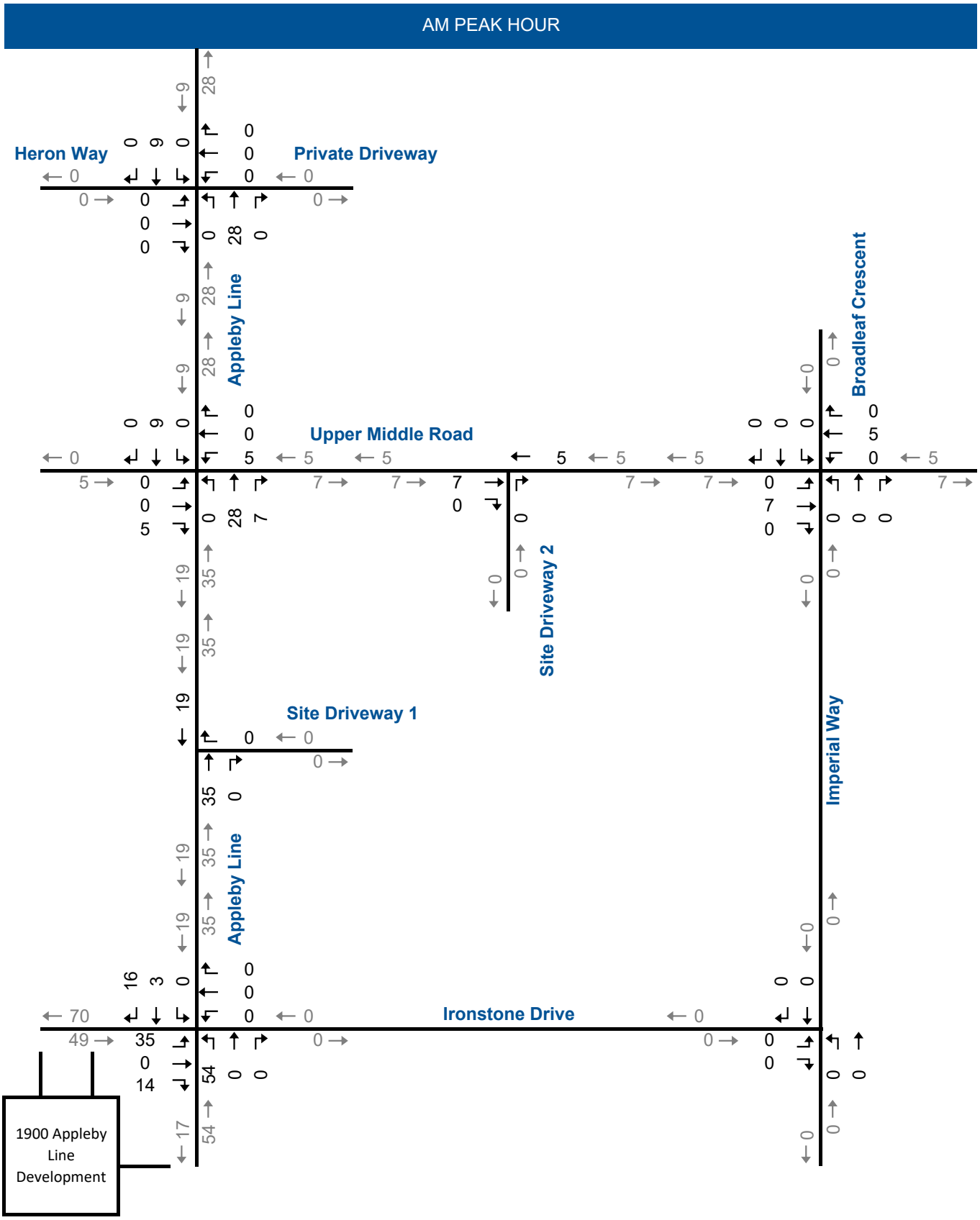
AUTOTURN ASSESSMENT
1989 APPLEBY LINE
CITY OF BURLINGTON

paradigm TRANSPORTATION SOLUTIONS LIMITED

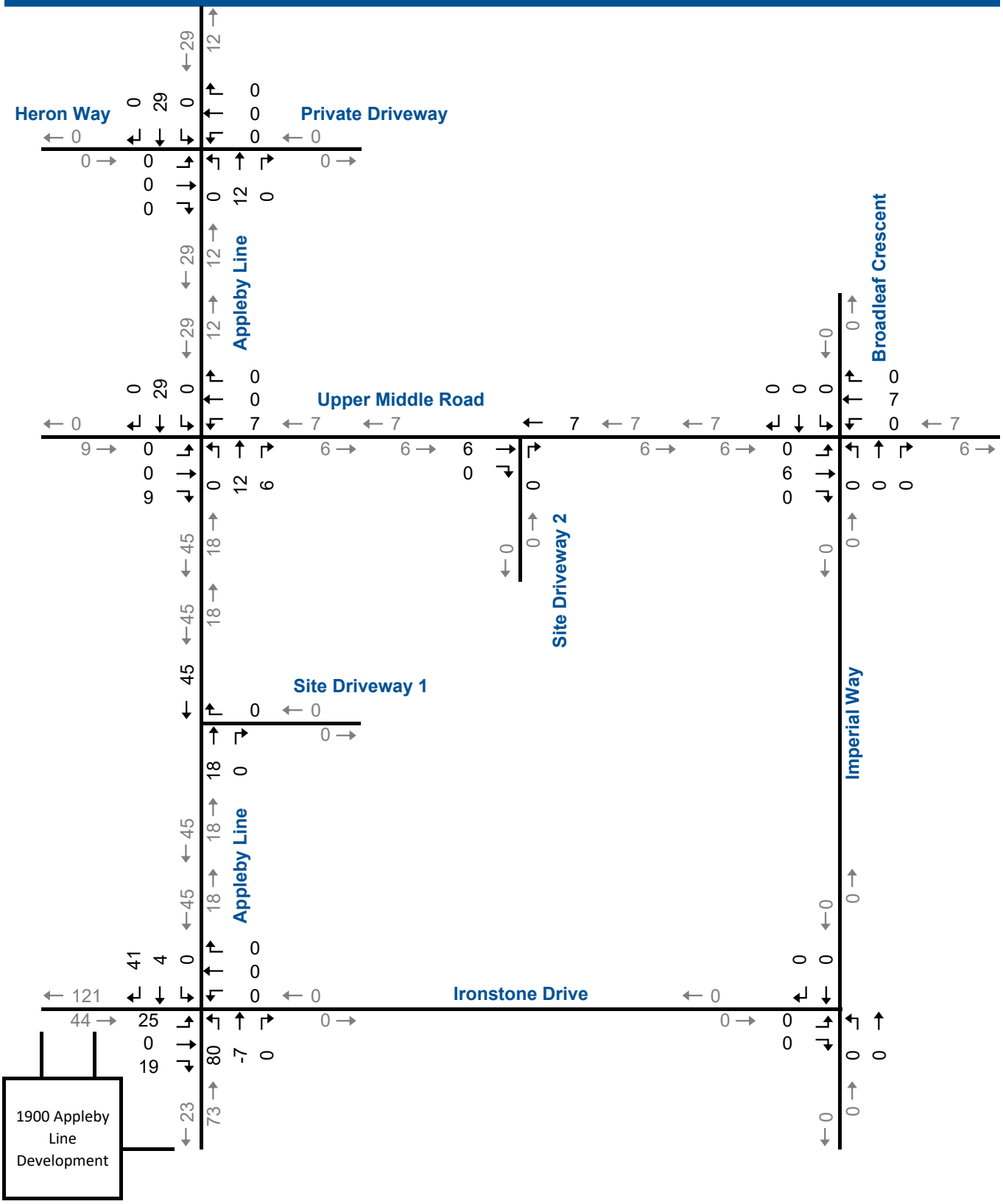
PROJECT NO.: 220073	DATE: MAY 2022	SCALE: 1:400	DRAWING NO.: 008
DRAWN: SC	DESIGN: SC	CHECK: SC	

Appendix F

Detailed Traffic Forecast


AM PEAK HOUR
Heron Way
Private Driveway
Appleby Line
Upper Middle Road
Broadleaf Crescent
Site Driveway 2
Site Driveway 1
Imperial Way
Appleby Line
Ironstone Drive
1900 Appleby Line Development

PM PEAK HOUR


Heron Way
Private Driveway
Appleby Line
Upper Middle Road
Broadleaf Crescent
Site Driveway 2
Site Driveway 1
Imperial Way
Appleby Line
Ironstone Drive
1900 Appleby Line Development

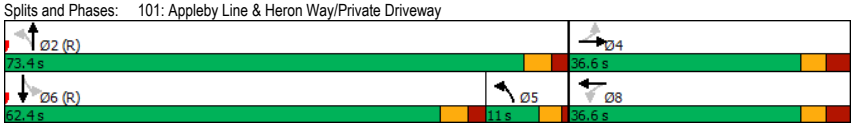
Appendix G

Background Traffic Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	98	6	7	2	75	1016	2	1423
Future Volume (vph)	98	6	7	2	75	1016	2	1423
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	36.6	36.6	36.6	36.6	11.0	73.4	62.4	62.4
Total Split (%)	33.3%	33.3%	33.3%	33.3%	10.0%	66.7%	56.7%	56.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	17.1	17.1		17.1	84.9	84.9	76.1	76.1
Actuated g/C Ratio	0.16	0.16		0.16	0.77	0.77	0.69	0.69
v/c Ratio	0.54	0.36		0.13	0.38	0.45	0.01	0.77
Control Delay	52.1	11.8		20.6	8.5	1.0	8.0	16.2
Queue Delay	0.0	0.0		0.0	0.0	0.1	0.0	3.0
Total Delay	52.1	11.8		20.6	8.5	1.1	8.0	19.2
LOS	D	B		C	A	A	A	B
Approach Delay		31.2		20.6		1.6		19.1
Approach LOS		C		C		A		B

Intersection Summary		
Cycle Length: 110		
Actuated Cycle Length: 110		
Offset: 82 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 100		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.77		
Intersection Signal Delay: 13.3	Intersection LOS: B	
Intersection Capacity Utilization 76.0%	ICU Level of Service D	
Analysis Period (min) 15		

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	116	31	82	1111	2	1674
v/c Ratio	0.54	0.36	0.13	0.38	0.45	0.01	0.77
Control Delay	52.1	11.8	20.6	8.5	1.0	8.0	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	3.0
Total Delay	52.1	11.8	20.6	8.5	1.1	8.0	19.2
Queue Length 50th (m)	22.6	1.6	1.9	2.2	3.1	0.1	125.8
Queue Length 95th (m)	38.4	16.5	10.0	m4.9	m13.5	1.2	193.2
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	377	511	443	215	2489	276	2168
Starvation Cap Reductn	0	0	0	0	398	0	0
Spillback Cap Reductn	0	12	0	0	0	0	377
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.23	0.07	0.38	0.53	0.01	0.93

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	6	100	7	2	19	75	1016	6	2	1423	117
Future Volume (vph)	98	6	100	7	2	19	75	1016	6	2	1423	117
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	1470			1553		1630	3225		1659	3128	
Flt Permitted	0.74	1.00			0.92		0.09	1.00		0.23	1.00	
Satd. Flow (perm)	1273	1470			1448		157	3225		400	3128	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	7	109	8	2	21	82	1104	7	2	1547	127
RTOR Reduction (vph)	0	91	0	0	18	0	0	0	0	0	4	0
Lane Group Flow (vph)	107	25	0	0	13	0	82	1111	0	2	1670	0
Confl. Peds. (#/hr)	3		2	2		3	1		5	5		1
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	2%	3%	0%	0%	5%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.6	14.6			14.6		84.9	82.9		73.3	73.3	
Effective Green, g (s)	17.1	17.1			17.1		84.9	84.9		75.3	75.3	
Actuated g/C Ratio	0.16	0.16			0.16		0.77	0.77		0.68	0.68	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	197	228			225		196	2489		273	2141	
v/s Ratio Prot		0.02					0.02	c0.34			c0.53	
v/s Ratio Perm	c0.08				0.01		0.30			0.01		
v/c Ratio	0.54	0.11			0.06		0.42	0.45		0.01	0.78	
Uniform Delay, d1	42.8	39.9			39.6		20.0	4.4		5.5	11.7	
Progression Factor	1.00	1.00			1.00		0.41	0.14		1.00	1.00	
Incremental Delay, d2	3.0	0.2			0.1		0.9	0.4		0.0	2.9	
Delay (s)	45.9	40.1			39.7		9.1	0.9		5.5	14.6	
Level of Service	D	D			D		A	A		A	B	
Approach Delay (s)		42.9			39.7			1.5			14.6	
Approach LOS		D			D			A			B	

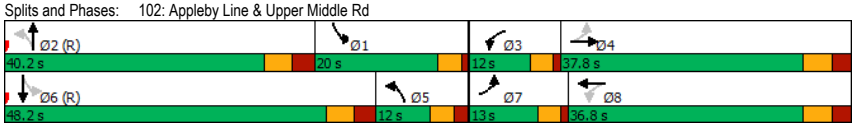
Intersection Summary				
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	76.0%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	154	742	209	242	143	767	275	1205
Future Volume (vph)	154	742	209	242	143	767	275	1205
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	13.0	37.8	12.0	36.8	12.0	40.2	20.0	48.2
Total Split (%)	11.8%	34.4%	10.9%	33.5%	10.9%	36.5%	18.2%	43.8%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	42.7	33.8	40.9	32.9	44.2	36.2	56.2	44.2
Actuated g/C Ratio	0.39	0.31	0.37	0.30	0.40	0.33	0.51	0.40
v/c Ratio	0.53	1.12	1.24	0.45	0.45	0.91	0.96	1.07
Control Delay	28.3	102.2	169.4	19.4	28.5	44.9	65.7	66.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3
Total Delay	28.3	102.2	169.4	19.4	28.5	44.9	65.7	73.5
LOS	C	F	F	B	C	D	E	E
Approach Delay		92.5		69.3		42.6		72.1
Approach LOS		F		E		D		E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 100 (91%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 70.5	Intersection LOS: E
Intersection Capacity Utilization 102.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	1112	227	455	155	923	299	1365
v/c Ratio	0.53	1.12	1.24	0.45	0.45	0.91	0.96	1.07
Control Delay	28.3	102.2	169.4	19.4	28.5	44.9	65.7	66.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3
Total Delay	28.3	102.2	169.4	19.4	28.5	44.9	65.7	73.5
Queue Length 50th (m)	24.1	~148.6	~47.9	27.3	8.5	104.9	51.9	~180.8
Queue Length 95th (m)	40.1	#191.8	#98.9	43.2	11.1	#143.1	m#94.3	#221.5
Internal Link Dist (m)		140.8		58.0		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	315	993	183	1014	348	1019	312	1274
Starvation Cap Reductn	0	0	0	0	0	0	0	21
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	1.12	1.24	0.45	0.45	0.91	0.96	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	742	281	209	242	177	143	767	82	275	1205	51
Future Volume (vph)	154	742	281	209	242	177	143	767	82	275	1205	51
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1612	3117		1614	2988		3101	3076		1598	3164	
Flt Permitted	0.35	1.00		0.13	1.00		0.12	1.00		0.13	1.00	
Satd. Flow (perm)	600	3117		223	2988		376	3076		219	3164	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	807	305	227	263	192	155	834	89	299	1310	55
RTOR Reduction (vph)	0	35	0	0	121	0	0	7	0	0	3	0
Lane Group Flow (vph)	167	1077	0	227	334	0	155	916	0	299	1362	0
Confl. Peds. (#/hr)	9		21	21		9	10		11	11		10
Heavy Vehicles (%)	3%	1%	2%	3%	2%	5%	4%	6%	9%	4%	4%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	40.3	31.4		38.5	30.5		40.7	33.7		56.2	41.7	
Effective Green, g (s)	40.3	33.8		38.5	32.9		42.7	36.2		56.2	44.2	
Actuated g/C Ratio	0.37	0.31		0.35	0.30		0.39	0.33		0.51	0.40	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	301	957		179	893		344	1012		312	1271	
v/s Ratio Prot	0.04	0.35		c0.09	0.11		0.03	0.30		c0.14	c0.43	
v/s Ratio Perm	0.16			c0.35			0.14			0.35		
v/c Ratio	0.55	1.13		1.27	0.37		0.45	0.90		0.96	1.07	
Uniform Delay, d1	25.1	38.1		31.7	30.4		45.5	35.3		37.4	32.9	
Progression Factor	1.00	1.00		0.96	0.95		0.93	0.91		0.80	0.67	
Incremental Delay, d2	2.2	69.9		156.8	0.5		0.9	12.5		30.7	42.8	
Delay (s)	27.3	108.0		187.3	29.4		43.1	44.6		60.5	64.7	
Level of Service	C	F		F	C		D	D		E	E	
Approach Delay (s)		97.5			81.9			44.4			64.0	
Approach LOS		F			F			D			E	

Intersection Summary

HCM 2000 Control Delay	71.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	44	948	47	0	1695
Future Volume (Veh/h)	0	44	948	47	0	1695
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	48	1030	51	0	1842
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.65	0.92			0.92	
vC, conflicting volume	1976	540			1081	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	855	319			908	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			100	
cM capacity (veh/h)	193	621			684	

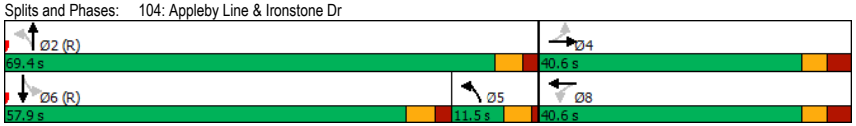
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	48	687	394	921	921
Volume Left	0	0	0	0	0
Volume Right	48	0	51	0	0
cSH	621	1700	1700	1700	1700
Volume to Capacity	0.08	0.40	0.23	0.54	0.54
Queue Length 95th (m)	2.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.3	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		54.2%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	44	17	73	38	82	833	37	1706
Future Volume (vph)	44	17	73	38	82	833	37	1706
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	40.6	40.6	40.6	40.6	11.5	69.4	57.9	57.9
Total Split (%)	36.9%	36.9%	36.9%	36.9%	10.5%	63.1%	52.6%	52.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	15.8	15.8	15.8	15.8	86.2	86.2	77.0	77.0
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.78	0.78	0.70	0.70
v/c Ratio	0.51	0.41	0.56	0.52	0.51	0.37	0.12	0.84
Control Delay	60.5	15.3	57.7	18.2	33.3	4.5	2.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	60.5	15.3	57.7	18.2	33.3	4.5	2.5	6.7
LOS	E	B	E	B	C	A	A	A
Approach Delay		28.4		30.8		7.0		6.6
Approach LOS		C		C		A		A

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 104 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	48	117	79	169	89	920	40	1896
v/c Ratio	0.51	0.41	0.56	0.52	0.51	0.37	0.12	0.84
Control Delay	60.5	15.3	57.7	18.2	33.3	4.5	2.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	60.5	15.3	57.7	18.2	33.3	4.5	2.5	6.7
Queue Length 50th (m)	10.2	3.6	16.9	8.3	3.7	26.5	1.0	42.5
Queue Length 95th (m)	22.0	19.3	31.5	27.7	20.6	45.7	m1.4	m49.6
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	222	535	331	584	176	2472	327	2254
Starvation Cap Reductn	0	0	0	0	0	0	0	51
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	0.22	0.22	0.24	0.29	0.51	0.37	0.12	0.86

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	17	91	73	38	118	82	833	14	37	1706	39
Future Volume (vph)	44	17	91	73	38	118	82	833	14	37	1706	39
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.89		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1537	1410		1656	1501		1554	3152		1523	3216	
Flt Permitted	0.41	1.00		0.57	1.00		0.06	1.00		0.29	1.00	
Satd. Flow (perm)	669	1410		997	1501		99	3152		466	3216	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	18	99	79	41	128	89	905	15	40	1854	42
RTOR Reduction (vph)	0	85	0	0	110	0	0	1	0	0	1	0
Lane Group Flow (vph)	48	32	0	79	59	0	89	919	0	40	1895	0
Confl. Peds. (#/hr)	2		5	5		2	2		10	2		10
Heavy Vehicles (%)	8%	6%	7%	0%	0%	3%	7%	5%	15%	9%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.3	13.3		13.2	13.2		85.7	84.4		74.3	74.3	
Effective Green, g (s)	15.8	15.8		15.8	15.8		86.2	86.2		76.1	76.1	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.78	0.78		0.69	0.69	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	96	202		143	215		158	2470		322	2224	
v/s Ratio Prot		0.02			0.04		c0.03	0.29			c0.59	
v/s Ratio Perm	0.07			c0.08			0.41			0.09		
v/c Ratio	0.50	0.16		0.55	0.28		0.56	0.37		0.12	0.85	
Uniform Delay, d1	43.5	41.3		43.8	42.0		29.5	3.6		5.7	12.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.31	0.36	
Incremental Delay, d2	4.1	0.4		4.6	0.7		4.5	0.4		0.1	0.4	
Delay (s)	47.5	41.7		48.4	42.7		34.1	4.1		1.8	5.0	
Level of Service	D	D		D	D		C	A		A	A	
Approach Delay (s)		43.4			44.5			6.7			4.9	
Approach LOS		D			D			A			A	

Intersection Summary					
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.79				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	89.8%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1074	25	0	628	0	24
Future Volume (Veh/h)	1074	25	0	628	0	24
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1167	27	0	683	0	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked			0.71		0.73	0.71
vC, conflicting volume			1194		1522	597
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			460		773	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			780		244	771

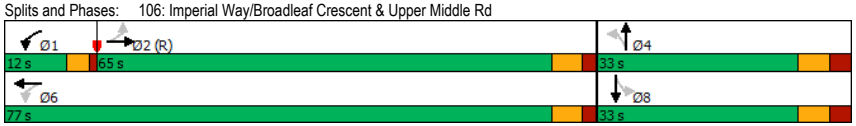
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	778	416	342	342	26
Volume Left	0	0	0	0	0
Volume Right	0	27	0	0	26
cSH	1700	1700	1700	1700	771
Volume to Capacity	0.46	0.24	0.20	0.20	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.8
Control Delay (s)	0.0	0.0	0.0	0.0	9.8
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.8
Approach LOS					A

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	43.1%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	1049	56	570	26	0	4	2
Future Volume (vph)	5	1049	56	570	26	0	4	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	65.0	65.0	12.0	77.0	33.0	33.0	33.0	33.0
Total Split (%)	59.1%	59.1%	10.9%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	81.8	81.8	92.6	90.6	8.9	10.9		10.9
Actuated g/C Ratio	0.74	0.74	0.84	0.82	0.08	0.10		0.10
v/c Ratio	0.01	0.50	0.15	0.23	0.28	0.32		0.13
Control Delay	1.8	2.0	2.4	2.4	54.2	2.7		27.6
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0		0.0
Total Delay	1.8	2.1	2.4	2.4	54.2	2.7		27.6
LOS	A	A	A	A	D	A		C
Approach Delay		2.1		2.4		14.3		27.6
Approach LOS		A		A		B		C

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 48 (44%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 3.2		Intersection LOS: A	
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	1187	61	620	28	97	19
v/c Ratio	0.01	0.50	0.15	0.23	0.28	0.32	0.13
Control Delay	1.8	2.0	2.4	2.4	54.2	2.7	27.6
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	2.1	2.4	2.4	54.2	2.7	27.6
Queue Length 50th (m)	0.1	16.9	1.5	11.2	6.1	0.0	1.3
Queue Length 95th (m)	m0.1	m17.0	4.0	18.6	15.3	0.0	8.5
Internal Link Dist (m)		94.2		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	529	2369	418	2658	293	492	354
Starvation Cap Reductn	0	289	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.57	0.15	0.23	0.10	0.20	0.05

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1049	43	56	570	0	26	0	89	4	2	12
Future Volume (vph)	5	1049	43	56	570	0	26	0	89	4	2	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1622	3186		1660	3228		1585	1391			1458	
Flt Permitted	0.42	1.00		0.20	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	712	3186		348	3228		1243	1391			1355	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1140	47	61	620	0	28	0	97	4	2	13
RTOR Reduction (vph)	0	2	0	0	0	0	0	87	0	0	12	0
Lane Group Flow (vph)	5	1185	0	61	620	0	28	10	0	0	7	0
Confl. Peds. (#/hr)	20		24	24		20	7		5	5		7
Heavy Vehicles (%)	0%	3%	13%	0%	3%	7%	4%	0%	5%	0%	0%	9%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	78.5	78.5		88.1	88.1		8.9	8.9			8.9	
Effective Green, g (s)	81.0	81.0		90.6	90.6		8.9	10.9			10.9	
Actuated g/C Ratio	0.74	0.74		0.82	0.82		0.08	0.10			0.10	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	524	2346		383	2658		100	137			134	
v/s Ratio Prot		c0.37		0.01	c0.19			0.01				
v/s Ratio Perm	0.01			0.12			c0.02				0.01	
v/c Ratio	0.01	0.51		0.16	0.23		0.28	0.07			0.05	
Uniform Delay, d1	3.8	6.1		2.7	2.1		47.5	45.0			44.9	
Progression Factor	0.40	0.31		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	0.1		0.2	0.0		1.5	0.2			0.2	
Delay (s)	1.5	1.9		2.9	2.2		49.1	45.2			45.1	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		1.9			2.2			46.0			45.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	5.2	HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio	0.45					
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		10.0		
Intersection Capacity Utilization	59.5%	ICU Level of Service		B		
Analysis Period (min)	15					

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	35	19	38	42	47	29
Future Volume (vph)	35	19	38	42	47	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	21	41	46	51	32

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	59	87	83
Volume Left (vph)	38	41	0
Volume Right (vph)	21	0	32
Hadj (s)	-0.02	0.19	-0.11
Departure Headway (s)	4.3	4.3	4.0
Degree Utilization, x	0.07	0.10	0.09
Capacity (veh/h)	811	813	877
Control Delay (s)	7.6	7.8	7.4
Approach Delay (s)	7.6	7.8	7.4
Approach LOS	A	A	A

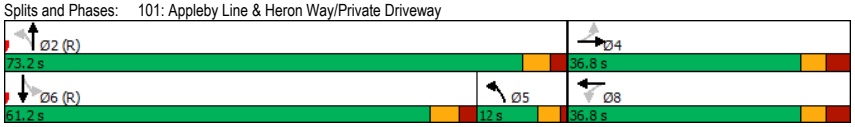
Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	22.1%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	193	19	6	6	131	1663	22	1194
Future Volume (vph)	193	19	6	6	131	1663	22	1194
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	36.8	36.8	36.8	36.8	12.0	73.2	61.2	61.2
Total Split (%)	33.5%	33.5%	33.5%	33.5%	10.9%	66.5%	55.6%	55.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	25.3	25.3		25.3	76.7	76.7	64.7	64.7
Actuated g/C Ratio	0.23	0.23		0.23	0.70	0.70	0.59	0.59
v/c Ratio	0.71	0.29		0.09	0.65	0.80	0.38	0.82
Control Delay	51.8	10.4		18.3	15.1	3.8	37.5	23.7
Queue Delay	0.0	0.0		0.0	0.0	0.7	0.0	0.3
Total Delay	51.8	10.4		18.3	15.1	4.5	37.5	24.0
LOS	D	B		B	B	A	D	C
Approach Delay		36.3		18.3		5.2		24.2
Approach LOS		D		B		A		C

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 98 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 86.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	210	125	31	142	1826	24	1524
v/c Ratio	0.71	0.29	0.09	0.65	0.80	0.38	0.82
Control Delay	51.8	10.4	18.3	15.1	3.8	37.5	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	0.3
Total Delay	51.8	10.4	18.3	15.1	4.5	37.5	24.0
Queue Length 50th (m)	43.7	3.7	2.5	6.9	31.7	2.7	134.4
Queue Length 95th (m)	64.9	17.5	9.6	m6.5	m43.1	#16.5	#216.1
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	382	522	448	218	2270	63	1862
Starvation Cap Reductn	0	0	0	0	166	0	0
Spillback Cap Reductn	0	1	0	0	0	0	59
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.24	0.07	0.65	0.87	0.38	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	19	96	6	6	16	131	1663	17	22	1194	208
Future Volume (vph)	193	19	96	6	6	16	131	1663	17	22	1194	208
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88			0.93		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1655	1508			1538		1662	3254		1662	3147	
Flt Permitted	0.74	1.00			0.94		0.09	1.00		0.06	1.00	
Satd. Flow (perm)	1284	1508			1465		156	3254		108	3147	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	21	104	7	7	17	142	1808	18	24	1298	226
RTOR Reduction (vph)	0	80	0	0	13	0	0	1	0	0	11	0
Lane Group Flow (vph)	210	45	0	0	18	0	142	1825	0	24	1513	0
Confl. Peds. (#/hr)	4		6	6		4	8		9	9		8
Heavy Vehicles (%)	0%	0%	0%	14%	0%	0%	0%	2%	0%	0%	3%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.8	22.8			22.8		76.7	74.7		62.7	62.7	
Effective Green, g (s)	25.3	25.3			25.3		76.7	76.7		64.7	64.7	
Actuated g/C Ratio	0.23	0.23			0.23		0.70	0.70		0.59	0.59	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	295	346			336		218	2268		63	1851	
v/s Ratio Prot		0.03					0.05	c0.56			0.48	
v/s Ratio Perm	c0.16				0.01		0.41			0.22		
v/c Ratio	0.71	0.13			0.05		0.65	0.80		0.38	0.82	
Uniform Delay, d1	39.0	33.6			33.0		30.9	11.5		12.0	18.0	
Progression Factor	1.00	1.00			1.00		0.47	0.23		1.00	1.00	
Incremental Delay, d2	7.9	0.2			0.1		0.6	0.3		16.6	4.1	
Delay (s)	46.9	33.8			33.1		15.0	2.9		28.6	22.1	
Level of Service	D	C			C		B	A		C	C	
Approach Delay (s)		42.0			33.1			3.8			22.2	
Approach LOS		D			C			A			C	

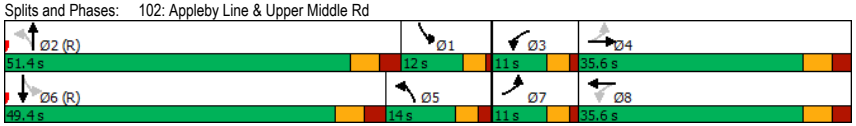
Intersection Summary				
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	86.7%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	182	364	85	655	370	1307	210	883
Future Volume (vph)	182	364	85	655	370	1307	210	883
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	11.0	35.6	11.0	35.6	14.0	51.4	12.0	49.4
Total Split (%)	10.0%	32.4%	10.0%	32.4%	12.7%	46.7%	10.9%	44.9%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	39.4	33.8	38.6	31.6	57.4	47.4	53.4	45.4
Actuated g/C Ratio	0.36	0.31	0.35	0.29	0.52	0.43	0.49	0.41
v/c Ratio	1.17	0.64	0.44	1.11	0.96	1.08	1.22	0.90
Control Delay	151.7	29.2	26.7	97.6	66.1	74.3	150.9	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Total Delay	151.7	29.2	26.7	97.6	66.1	74.3	150.9	24.2
LOS	F	C	C	F	E	E	F	C
Approach Delay		57.5		91.9		72.6		44.7
Approach LOS		E		F		E		D

Intersection Summary		
Cycle Length: 110		
Actuated Cycle Length: 110		
Offset: 108 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 115		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.22		
Intersection Signal Delay: 67.0	Intersection LOS: E	
Intersection Capacity Utilization 110.1%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	658	92	1061	402	1500	228	1182
v/c Ratio	1.17	0.64	0.44	1.11	0.96	1.08	1.22	0.90
Control Delay	151.7	29.2	26.7	97.6	66.1	74.3	150.9	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Total Delay	151.7	29.2	26.7	97.6	66.1	74.3	150.9	24.2
Queue Length 50th (m)	~38.2	54.3	13.6	~138.7	31.3	~201.0	~47.7	92.0
Queue Length 95th (m)	#86.1	75.5	25.6	#181.8	#61.2	#242.1	m#73.6	#141.4
Internal Link Dist (m)		140.8		58.3		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	169	1035	208	954	419	1388	187	1311
Starvation Cap Reductn	0	0	0	0	0	0	0	30
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.64	0.44	1.11	0.96	1.08	1.22	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	364	241	85	655	321	370	1307	73	210	883	204
Future Volume (vph)	182	364	241	85	655	321	370	1307	73	210	883	204
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1646	3049		1567	3129		3193	3215		1646	3132	
Flt Permitted	0.13	1.00		0.23	1.00		0.09	1.00		0.10	1.00	
Satd. Flow (perm)	221	3049		381	3129		298	3215		165	3132	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	198	396	262	92	712	349	402	1421	79	228	960	222
RTOR Reduction (vph)	0	99	0	0	54	0	0	3	0	0	18	0
Lane Group Flow (vph)	198	559	0	92	1007	0	402	1497	0	228	1164	0
Confl. Peds. (#/hr)	16		14	14		16	14		29	29		14
Heavy Vehicles (%)	1%	1%	2%	6%	0%	0%	1%	2%	9%	1%	3%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	38.4	31.4		35.6	30.0		53.1	44.1		50.1	42.1	
Effective Green, g (s)	38.4	33.8		35.6	32.4		55.1	46.6		50.1	44.6	
Actuated g/C Ratio	0.35	0.31		0.32	0.29		0.50	0.42		0.46	0.41	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	167	936		183	921		412	1361		182	1269	
v/s Ratio Prot	c0.08	0.18		0.03	0.32		0.09	0.47		c0.09	0.37	
v/s Ratio Perm	c0.34			0.14			0.40			c0.48		
v/c Ratio	1.19	0.60		0.50	1.09		0.98	1.10		1.25	0.92	
Uniform Delay, d1	32.4	32.3		27.6	38.8		41.8	31.7		47.8	30.9	
Progression Factor	1.00	1.00		0.90	0.95		0.89	0.87		0.60	0.53	
Incremental Delay, d2	128.3	1.6		2.0	57.5		32.1	54.0		138.4	7.9	
Delay (s)	160.7	33.9		27.0	94.4		69.3	81.6		167.3	24.4	
Level of Service	F	C		C	F		E	F		F	C	
Approach Delay (s)		63.2			89.0			79.0			47.5	
Approach LOS		E			F			E			D	

Intersection Summary

HCM 2000 Control Delay	70.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	53	1697	67	0	1209
Future Volume (Veh/h)	0	53	1697	67	0	1209
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	58	1845	73	0	1314
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.81	0.70			0.70	
vC, conflicting volume	2538	959			1918	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	785	98			1462	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			100	
cM capacity (veh/h)	267	660			322	

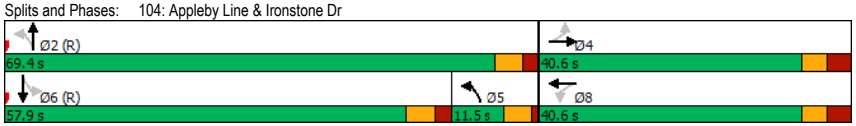
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	58	1230	688	657	657
Volume Left	0	0	0	0	0
Volume Right	58	0	73	0	0
cSH	660	1700	1700	1700	1700
Volume to Capacity	0.09	0.72	0.40	0.39	0.39
Queue Length 95th (m)	2.3	0.0	0.0	0.0	0.0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.0	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		63.5%	ICU Level of Service	B
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	93	44	27	42	180	1574	88	1117
Future Volume (vph)	93	44	27	42	180	1574	88	1117
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	40.6	40.6	40.6	40.6	11.5	69.4	57.9	57.9
Total Split (%)	36.9%	36.9%	36.9%	36.9%	10.5%	63.1%	52.6%	52.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	18.5	18.5	18.5	18.5	83.5	83.5	72.0	72.0
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.76	0.76	0.65	0.65
v/c Ratio	0.69	0.43	0.19	0.55	0.64	0.71	0.94	0.61
Control Delay	65.8	18.0	39.7	42.7	27.1	10.0	74.7	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	65.8	18.0	39.7	42.7	27.1	10.0	74.7	4.1
LOS	E	B	D	D	C	B	E	A
Approach Delay		37.4		42.3		11.7		9.0
Approach LOS		D		D		B		A

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 89.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	101	148	29	151	196	1759	96	1282
v/c Ratio	0.69	0.43	0.19	0.55	0.64	0.71	0.94	0.61
Control Delay	65.8	18.0	39.7	42.7	27.1	10.0	74.7	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	65.8	18.0	39.7	42.7	27.1	10.0	74.7	4.1
Queue Length 50th (m)	21.7	9.4	5.7	27.4	10.1	91.7	7.1	27.4
Queue Length 95th (m)	38.2	26.2	13.6	44.8	#29.4	158.2	m#35.7	m44.1
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	289	581	297	524	304	2464	102	2117
Starvation Cap Reductn	0	0	0	0	0	0	0	124
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.25	0.10	0.29	0.64	0.71	0.94	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	44	92	27	42	97	180	1574	44	88	1117	63
Future Volume (vph)	93	44	92	27	42	97	180	1574	44	88	1117	63
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.90		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1636	1545		1658	1535		1629	3243		1662	3230	
Flt Permitted	0.50	1.00		0.51	1.00		0.16	1.00		0.09	1.00	
Satd. Flow (perm)	869	1545		894	1535		279	3243		155	3230	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	48	100	29	46	105	196	1711	48	96	1214	68
RTOR Reduction (vph)	0	83	0	0	17	0	0	1	0	0	2	0
Lane Group Flow (vph)	101	65	0	29	134	0	196	1758	0	96	1280	0
Confl. Peds. (#/hr)	8		4	4		8	9		14	14		9
Heavy Vehicles (%)	1%	0%	1%	0%	0%	1%	2%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0		15.9	15.9		83.0	81.7		70.2	70.2	
Effective Green, g (s)	18.5	18.5		18.5	18.5		83.5	83.5		72.0	72.0	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.76	0.76		0.65	0.65	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	146	259		150	258		303	2461		101	2114	
v/s Ratio Prot		0.04			0.09		0.04	c0.54			0.40	
v/s Ratio Perm	c0.12			0.03			0.45			c0.62		
v/c Ratio	0.69	0.25		0.19	0.52		0.65	0.71		0.95	0.61	
Uniform Delay, d1	43.1	39.7		39.3	41.7		19.8	7.0		17.4	10.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.40	0.27	
Incremental Delay, d2	13.2	0.5		0.6	1.9		4.7	1.8		57.6	0.8	
Delay (s)	56.3	40.2		40.0	43.6		24.5	8.8		64.6	3.7	
Level of Service	E	D		D	D		C	A		E	A	
Approach Delay (s)		46.8			43.0			10.4			7.9	
Approach LOS		D			D			B			A	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.90				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	89.3%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	622	25	0	1061	0	24
Future Volume (Veh/h)	622	25	0	1061	0	24
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	676	27	0	1153	0	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked					0.92	
vC, conflicting volume			703		1266	352
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			703		1109	352
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	96
cM capacity (veh/h)			890		187	645

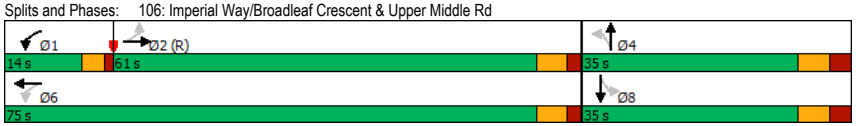
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	451	252	576	576	26
Volume Left	0	0	0	0	0
Volume Right	0	27	0	0	26
cSH	1700	1700	1700	1700	645
Volume to Capacity	0.27	0.15	0.34	0.34	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.0
Control Delay (s)	0.0	0.0	0.0	0.0	10.8
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.8
Approach LOS					B

Intersection Summary				
Average Delay		0.1		
Intersection Capacity Utilization		35.2%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	537	86	1053	18	0	3	2
Future Volume (vph)	26	537	86	1053	18	0	3	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	61.0	61.0	14.0	75.0	35.0	35.0	35.0	35.0
Total Split (%)	55.5%	55.5%	12.7%	68.2%	31.8%	31.8%	31.8%	31.8%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	85.7	85.7	96.0	94.7	8.5	10.5		10.5
Actuated g/C Ratio	0.78	0.78	0.87	0.86	0.08	0.10		0.10
v/c Ratio	0.08	0.28	0.15	0.41	0.22	0.17		0.11
Control Delay	2.8	2.3	1.9	2.8	53.1	0.8		28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	2.8	2.3	1.9	2.8	53.1	0.8		28.7
LOS	A	A	A	A	D	A		C
Approach Delay		2.3		2.7		11.7		28.7
Approach LOS		A		A		B		C

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 58 (53%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 3.2		Intersection LOS: A	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	675	93	1154	20	76	16
v/c Ratio	0.08	0.28	0.15	0.41	0.22	0.17	0.11
Control Delay	2.8	2.3	1.9	2.8	53.1	0.8	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	2.3	1.9	2.8	53.1	0.8	28.7
Queue Length 50th (m)	0.9	12.0	2.3	26.2	4.3	0.0	1.1
Queue Length 95th (m)	m1.3	m14.1	5.3	38.8	12.3	0.0	8.0
Internal Link Dist (m)		94.0		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	332	2437	659	2798	302	646	382
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.28	0.14	0.41	0.07	0.12	0.04

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	537	84	86	1053	8	18	0	70	3	2	10
Future Volume (vph)	26	537	84	86	1053	8	18	0	70	3	2	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00			1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1643	3119		1614	3251		1509	1432			1476	
Flt Permitted	0.25	1.00		0.37	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	425	3119		634	3251		1187	1432			1374	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	584	91	93	1145	9	20	0	76	3	2	11
RTOR Reduction (vph)	0	6	0	0	0	0	0	70	0	0	10	0
Lane Group Flow (vph)	28	669	0	93	1154	0	20	6	0	0	6	0
Confl. Peds. (#/hr)	20		29	29		20	1		5	5		1
Heavy Vehicles (%)	0%	3%	3%	2%	2%	13%	10%	0%	2%	0%	0%	8%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	80.4	80.4		90.1	90.1		6.9	6.9			6.9	
Effective Green, g (s)	82.9	82.9		92.6	92.6		6.9	8.9			8.9	
Actuated g/C Ratio	0.75	0.75		0.84	0.84		0.06	0.08			0.08	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	320	2350		606	2736		74	115			111	
v/s Ratio Prot		0.21		0.01	c0.35			0.00				
v/s Ratio Perm	0.07			0.12			c0.02				0.00	
v/c Ratio	0.09	0.28		0.15	0.42		0.27	0.05			0.05	
Uniform Delay, d1	3.6	4.3		1.6	2.1		49.1	46.7			46.7	
Progression Factor	0.52	0.48		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.2		0.1	0.1		2.0	0.2			0.2	
Delay (s)	2.1	2.2		1.7	2.2		51.1	46.9			46.9	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		2.2			2.2			47.7			46.9	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	4.7	HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio	0.41					
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		10.0		
Intersection Capacity Utilization	58.4%	ICU Level of Service		B		
Analysis Period (min)	15					

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	35	40	37	42	83	63
Future Volume (vph)	35	40	37	42	83	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	43	40	46	90	68

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	81	86	158
Volume Left (vph)	38	40	0
Volume Right (vph)	43	0	68
Hadj (s)	-0.22	0.12	-0.26
Departure Headway (s)	4.2	4.4	3.9
Degree Utilization, x	0.09	0.10	0.17
Capacity (veh/h)	811	799	897
Control Delay (s)	7.6	7.9	7.7
Approach Delay (s)	7.6	7.9	7.7
Approach LOS	A	A	A

Intersection Summary				
Delay	7.7			
Level of Service	A			
Intersection Capacity Utilization	30.8%	ICU Level of Service		A
Analysis Period (min)	15			

Appendix H

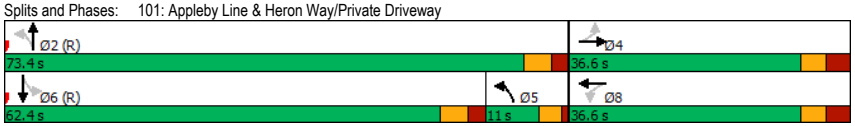
Total Traffic Operations

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	98	6	7	2	75	1063	2	1439
Future Volume (vph)	98	6	7	2	75	1063	2	1439
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	36.6	36.6	36.6	36.6	11.0	73.4	62.4	62.4
Total Split (%)	33.3%	33.3%	33.3%	33.3%	10.0%	66.7%	56.7%	56.7%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	17.1	17.1		17.1	84.9	84.9	76.1	76.1
Actuated g/C Ratio	0.16	0.16		0.16	0.77	0.77	0.69	0.69
v/c Ratio	0.54	0.36		0.13	0.39	0.47	0.01	0.78
Control Delay	52.1	12.0		20.6	7.6	0.9	8.0	16.5
Queue Delay	0.0	0.0		0.0	0.0	0.1	0.0	4.6
Total Delay	52.1	12.0		20.6	7.6	1.0	8.0	21.1
LOS	D	B		C	A	A	A	C
Approach Delay		31.3		20.6		1.4		21.1
Approach LOS		C		C		A		C

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 88 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 14.1 — Intersection LOS: B
Intersection Capacity Utilization 76.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBL	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	116	31	82	1162	2	1691
v/c Ratio	0.54	0.36	0.13	0.39	0.47	0.01	0.78
Control Delay	52.1	12.0	20.6	7.6	0.9	8.0	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	4.6
Total Delay	52.1	12.0	20.6	7.6	1.0	8.0	21.1
Queue Length 50th (m)	22.6	1.8	1.9	1.9	1.7	0.1	128.5
Queue Length 95th (m)	38.4	16.7	10.0	m4.2	m11.6	1.2	197.6
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	377	510	443	212	2489	260	2168
Starvation Cap Reductn	0	0	0	0	357	0	0
Spillback Cap Reductn	0	13	0	0	0	0	404
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.23	0.07	0.39	0.55	0.01	0.96

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	6	100	7	2	19	75	1063	6	2	1439	117
Future Volume (vph)	98	6	100	7	2	19	75	1063	6	2	1439	117
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	1470			1553		1630	3225		1659	3128	
Flt Permitted	0.74	1.00			0.92		0.09	1.00		0.21	1.00	
Satd. Flow (perm)	1273	1470			1448		152	3225		375	3128	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	7	109	8	2	21	82	1155	7	2	1564	127
RTOR Reduction (vph)	0	90	0	0	18	0	0	0	0	0	4	0
Lane Group Flow (vph)	107	26	0	0	13	0	82	1162	0	2	1687	0
Confl. Peds. (#/hr)	3		2	2		3	1		5	5		1
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	2%	3%	0%	0%	5%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.6	14.6			14.6		84.9	82.9		73.3	73.3	
Effective Green, g (s)	17.1	17.1			17.1		84.9	84.9		75.3	75.3	
Actuated g/C Ratio	0.16	0.16			0.16		0.77	0.77		0.68	0.68	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	197	228			225		192	2489		256	2141	
v/s Ratio Prot		0.02					0.02	c0.36			c0.54	
v/s Ratio Perm	c0.08				0.01		0.31			0.01		
v/c Ratio	0.54	0.11			0.06		0.43	0.47		0.01	0.79	
Uniform Delay, d1	42.8	39.9			39.6		20.7	4.5		5.5	11.9	
Progression Factor	1.00	1.00			1.00		0.33	0.10		1.00	1.00	
Incremental Delay, d2	3.0	0.2			0.1		0.8	0.3		0.1	3.0	
Delay (s)	45.9	40.1			39.7		7.8	0.8		5.6	14.9	
Level of Service	D	D			D		A	A		A	B	
Approach Delay (s)		42.9			39.7			1.3			14.9	
Approach LOS		D			D			A			B	

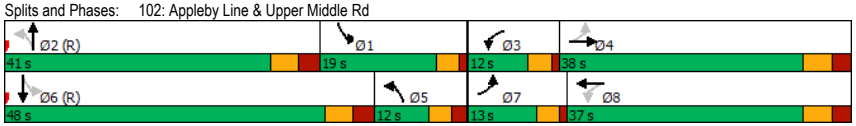
Intersection Summary				
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	76.4%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	154	753	214	242	148	814	280	1216
Future Volume (vph)	154	753	214	242	148	814	280	1216
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	13.0	38.0	12.0	37.0	12.0	41.0	19.0	48.0
Total Split (%)	11.8%	34.5%	10.9%	33.6%	10.9%	37.3%	17.3%	43.6%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	42.9	34.0	41.1	33.1	45.0	37.0	56.0	44.0
Actuated g/C Ratio	0.39	0.31	0.37	0.30	0.41	0.34	0.51	0.40
v/c Ratio	0.53	1.13	1.27	0.45	0.46	0.95	1.07	1.09
Control Delay	28.0	106.6	182.3	19.2	28.5	49.5	97.2	71.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1
Total Delay	28.0	106.6	182.3	19.2	28.5	49.5	97.2	77.6
LOS	C	F	F	B	C	D	F	E
Approach Delay		96.5		74.4		46.6		81.2
Approach LOS		F		E		D		F

Intersection Summary		
Cycle Length: 110		
Actuated Cycle Length: 110		
Offset: 108 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 115		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.27		
Intersection Signal Delay: 76.1	Intersection LOS: E	
Intersection Capacity Utilization 104.1%	ICU Level of Service G	
Analysis Period (min) 15		

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	1131	233	455	161	992	304	1377
v/c Ratio	0.53	1.13	1.27	0.45	0.46	0.95	1.07	1.09
Control Delay	28.0	106.6	182.3	19.2	28.5	49.5	97.2	71.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1
Total Delay	28.0	106.6	182.3	19.2	28.5	49.5	97.2	77.6
Queue Length 50th (m)	24.0	~152.5	~50.7	27.1	8.0	115.6	~62.1	~184.8
Queue Length 95th (m)	40.0	#195.7	#102.3	42.8	11.1	#158.9	m#105.5	#225.2
Internal Link Dist (m)		140.8		58.0		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	317	999	183	1020	349	1040	285	1268
Starvation Cap Reductn	0	0	0	0	0	0	0	19
Spillback Cap Reductn	0	0	0	0	0	0	0	101
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	1.13	1.27	0.45	0.46	0.95	1.07	1.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	753	288	214	242	177	148	814	98	280	1216	51
Future Volume (vph)	154	753	288	214	242	177	148	814	98	280	1216	51
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1612	3115		1614	2988		3101	3068		1598	3164	
Flt Permitted	0.35	1.00		0.13	1.00		0.11	1.00		0.11	1.00	
Satd. Flow (perm)	602	3115		221	2988		368	3068		180	3164	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	818	313	233	263	192	161	885	107	304	1322	55
RTOR Reduction (vph)	0	37	0	0	121	0	0	9	0	0	2	0
Lane Group Flow (vph)	167	1094	0	233	334	0	161	983	0	304	1375	0
Confl. Peds. (#/hr)	9		21	21		9	10		11	11		10
Heavy Vehicles (%)	3%	1%	2%	3%	2%	5%	4%	6%	9%	4%	4%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	40.5	31.6		38.7	30.7		41.5	34.5		56.0	41.5	
Effective Green, g (s)	40.5	34.0		38.7	33.1		43.5	37.0		56.0	44.0	
Actuated g/C Ratio	0.37	0.31		0.35	0.30		0.40	0.34		0.51	0.40	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	962		179	899		344	1031		285	1265	
v/s Ratio Prot	0.04	0.35		c0.09	0.11		0.03	0.32		c0.15	c0.43	
v/s Ratio Perm	0.16			c0.36			0.15			0.40		
v/c Ratio	0.55	1.14		1.30	0.37		0.47	0.95		1.07	1.09	
Uniform Delay, d1	24.9	38.0		31.6	30.3		45.6	35.7		39.3	33.0	
Progression Factor	1.00	1.00		0.96	0.95		0.89	0.87		0.84	0.66	
Incremental Delay, d2	2.2	74.7		170.0	0.5		0.9	18.1		62.0	48.4	
Delay (s)	27.1	112.7		200.2	29.2		41.6	49.1		95.1	70.2	
Level of Service	C	F		F	C		D	D		F	E	
Approach Delay (s)		101.7			87.1			48.1			74.7	
Approach LOS		F			F			D			E	

Intersection Summary

HCM 2000 Control Delay	77.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	33	1030	43	0	1718
Future Volume (Veh/h)	0	33	1030	43	0	1718
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	36	1120	47	0	1867
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.66	0.89			0.89	
vC, conflicting volume	2077	584			1167	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	885	293			947	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			100	
cM capacity (veh/h)	189	628			643	

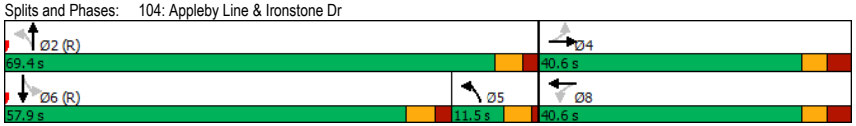
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	36	747	420	934	934
Volume Left	0	0	0	0	0
Volume Right	36	0	47	0	0
cSH	628	1700	1700	1700	1700
Volume to Capacity	0.06	0.44	0.25	0.55	0.55
Queue Length 95th (m)	1.5	0.0	0.0	0.0	0.0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.1	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	79	17	118	56	136	867	37	1709
Future Volume (vph)	79	17	118	56	136	867	37	1709
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	40.6	40.6	40.6	40.6	11.5	69.4	57.9	57.9
Total Split (%)	36.9%	36.9%	36.9%	36.9%	10.5%	63.1%	52.6%	52.6%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	20.6	20.6	20.6	20.6	81.4	81.4	69.9	69.9
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.74	0.74	0.64	0.64
v/c Ratio	0.67	0.37	0.69	0.52	0.90	0.41	0.15	0.94
Control Delay	65.1	12.2	59.3	22.1	83.8	6.6	4.2	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Total Delay	65.1	12.2	59.3	22.1	83.8	6.6	4.2	10.6
LOS	E	B	E	C	F	A	A	B
Approach Delay		33.1		36.8		17.0		10.4
Approach LOS		C		D		B		B

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 94.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	132	128	195	148	957	40	1918
v/c Ratio	0.67	0.37	0.69	0.52	0.90	0.41	0.15	0.94
Control Delay	65.1	12.2	59.3	22.1	83.8	6.6	4.2	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Total Delay	65.1	12.2	59.3	22.1	83.8	6.6	4.2	10.6
Queue Length 50th (m)	18.2	3.8	27.2	17.1	19.2	36.2	1.4	68.1
Queue Length 95th (m)	33.8	18.8	44.7	36.5	#61.7	62.7	m1.9	m67.4
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	228	541	331	578	165	2333	273	2041
Starvation Cap Reductn	0	0	0	0	0	0	0	20
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	0.38	0.24	0.39	0.34	0.90	0.41	0.15	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	17	105	118	56	123	136	867	14	37	1709	55
Future Volume (vph)	79	17	105	118	56	123	136	867	14	37	1709	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.90		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1537	1405		1656	1523		1554	3152		1523	3211	
Flt Permitted	0.42	1.00		0.57	1.00		0.05	1.00		0.27	1.00	
Satd. Flow (perm)	685	1405		997	1523		89	3152		431	3211	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	18	114	128	61	134	148	942	15	40	1858	60
RTOR Reduction (vph)	0	91	0	0	88	0	0	1	0	0	1	0
Lane Group Flow (vph)	86	41	0	128	107	0	148	956	0	40	1917	0
Confl. Peds. (#/hr)	2		5	5		2	2		10	2		10
Heavy Vehicles (%)	8%	6%	7%	0%	0%	3%	7%	5%	15%	9%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.1	18.1		18.0	18.0		80.9	79.6		68.1	68.1	
Effective Green, g (s)	20.6	20.6		20.6	20.6		81.4	81.4		69.9	69.9	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.74	0.74		0.64	0.64	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	128	263		186	285		165	2332		273	2040	
v/s Ratio Prot		0.03			0.07		c0.06	0.30			c0.60	
v/s Ratio Perm	0.13			c0.13			0.60			0.09		
v/c Ratio	0.67	0.16		0.69	0.38		0.90	0.41		0.15	0.94	
Uniform Delay, d1	41.6	37.4		41.7	39.1		37.1	5.3		8.1	18.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.38	0.32	
Incremental Delay, d2	13.0	0.3		10.1	0.8		41.4	0.5		0.1	1.2	
Delay (s)	54.6	37.7		51.8	39.9		78.4	5.9		3.2	7.1	
Level of Service	D	D		D	D		E	A		A	A	
Approach Delay (s)		44.4			44.6			15.6			7.0	
Approach LOS		D			D			B			A	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.88				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	94.0%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1115	16	0	633	0	59
Future Volume (Veh/h)	1115	16	0	633	0	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1212	17	0	688	0	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked			0.71		0.72	0.71
vC, conflicting volume			1229		1564	614
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			501		822	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			751		226	768

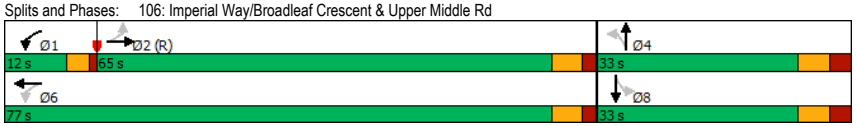
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	808	421	344	344	64
Volume Left	0	0	0	0	0
Volume Right	0	17	0	0	64
cSH	1700	1700	1700	1700	768
Volume to Capacity	0.48	0.25	0.20	0.20	0.08
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.2
Control Delay (s)	0.0	0.0	0.0	0.0	10.1
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.1
Approach LOS					B

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	44.6%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	1061	61	575	26	0	4	2
Future Volume (vph)	5	1061	61	575	26	0	4	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	65.0	65.0	12.0	77.0	33.0	33.0	33.0	33.0
Total Split (%)	59.1%	59.1%	10.9%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	81.8	81.8	92.6	90.6	8.9	10.9		10.9
Actuated g/C Ratio	0.74	0.74	0.84	0.82	0.08	0.10		0.10
v/c Ratio	0.01	0.54	0.17	0.24	0.28	0.32		0.13
Control Delay	2.0	2.1	2.6	2.4	54.2	2.8		27.6
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0		0.0
Total Delay	2.0	2.3	2.6	2.4	54.2	2.8		27.6
LOS	A	A	A	A	D	A		C
Approach Delay		2.3		2.4		14.3		27.6
Approach LOS		A		A		B		C

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 56 (51%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 3.3		Intersection LOS: A	
Intersection Capacity Utilization 62.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	1268	66	625	28	97	19
v/c Ratio	0.01	0.54	0.17	0.24	0.28	0.32	0.13
Control Delay	2.0	2.1	2.6	2.4	54.2	2.8	27.6
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	2.3	2.6	2.4	54.2	2.8	27.6
Queue Length 50th (m)	0.1	18.7	1.6	11.3	6.1	0.0	1.3
Queue Length 95th (m)	m0.1	m19.0	4.3	18.8	15.3	0.0	8.5
Internal Link Dist (m)		94.2		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	526	2330	392	2658	293	491	354
Starvation Cap Reductn	0	254	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.61	0.17	0.24	0.10	0.20	0.05

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1061	106	61	575	0	26	0	89	4	2	12
Future Volume (vph)	5	1061	106	61	575	0	26	0	89	4	2	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1622	3131		1661	3228		1585	1391			1458	
Flt Permitted	0.41	1.00		0.18	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	708	3131		313	3228		1243	1391			1355	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1153	115	66	625	0	28	0	97	4	2	13
RTOR Reduction (vph)	0	4	0	0	0	0	0	87	0	0	12	0
Lane Group Flow (vph)	5	1264	0	66	625	0	28	10	0	0	7	0
Confl. Peds. (#/hr)	20		24	24		20	7		5	5		7
Heavy Vehicles (%)	0%	3%	13%	0%	3%	7%	4%	0%	5%	0%	0%	9%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	78.5	78.5		88.1	88.1		8.9	8.9			8.9	
Effective Green, g (s)	81.0	81.0		90.6	90.6		8.9	10.9			10.9	
Actuated g/C Ratio	0.74	0.74		0.82	0.82		0.08	0.10			0.10	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	521	2305		357	2658		100	137			134	
v/s Ratio Prot		c0.40		0.01	c0.19			0.01				
v/s Ratio Perm	0.01			0.14			c0.02				0.01	
v/c Ratio	0.01	0.55		0.18	0.24		0.28	0.07			0.05	
Uniform Delay, d1	3.8	6.4		3.0	2.1		47.5	45.0			44.9	
Progression Factor	0.44	0.31		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	0.1		0.3	0.0		1.5	0.2			0.2	
Delay (s)	1.7	2.1		3.3	2.2		49.1	45.2			45.1	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		2.1			2.3			46.0			45.1	
Approach LOS		A			A			D			D	

Intersection Summary					
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.49				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	62.2%	ICU Level of Service		B	
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	35	19	38	42	47	97
Future Volume (vph)	35	19	38	42	47	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	21	41	46	51	105

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	59	87	156
Volume Left (vph)	38	41	0
Volume Right (vph)	21	0	105
Hadj (s)	-0.02	0.19	-0.31
Departure Headway (s)	4.4	4.4	3.8
Degree Utilization, x	0.07	0.11	0.17
Capacity (veh/h)	775	799	922
Control Delay (s)	7.7	7.9	7.6
Approach Delay (s)	7.7	7.9	7.6
Approach LOS	A	A	A

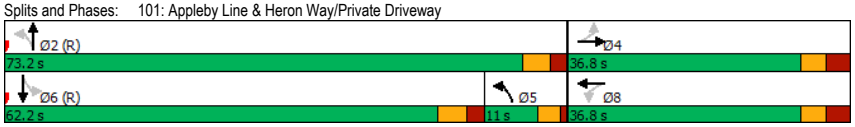
Intersection Summary				
Delay	7.7			
Level of Service	A			
Intersection Capacity Utilization	30.8%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	193	19	6	6	131	1686	22	1245
Future Volume (vph)	193	19	6	6	131	1686	22	1245
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	36.8	36.8	36.8	36.8	11.0	73.2	62.2	62.2
Total Split (%)	33.5%	33.5%	33.5%	33.5%	10.0%	66.5%	56.5%	56.5%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	25.3	25.3		25.3	76.7	76.7	65.7	65.7
Actuated g/C Ratio	0.23	0.23		0.23	0.70	0.70	0.60	0.60
v/c Ratio	0.71	0.29		0.09	0.72	0.82	0.38	0.83
Control Delay	51.8	10.4		18.3	16.7	4.4	36.6	23.9
Queue Delay	0.0	0.0		0.0	0.0	0.6	0.0	0.4
Total Delay	51.8	10.4		18.3	16.7	5.0	36.6	24.3
LOS	D	B		B	B	A	D	C
Approach Delay		36.3		18.3		5.8		24.5
Approach LOS		D		B		A		C

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 98 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 87.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	210	125	31	142	1851	24	1579
v/c Ratio	0.71	0.29	0.09	0.72	0.82	0.38	0.83
Control Delay	51.8	10.4	18.3	16.7	4.4	36.6	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.6	0.0	0.4
Total Delay	51.8	10.4	18.3	16.7	5.0	36.6	24.3
Queue Length 50th (m)	43.7	3.7	2.5	8.0	26.3	2.7	140.5
Queue Length 95th (m)	64.9	17.5	9.6	m6.9	m37.6	#16.4	#226.5
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	382	522	448	197	2270	63	1892
Starvation Cap Reductn	0	0	0	0	139	0	0
Spillback Cap Reductn	0	2	0	0	0	0	66
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.24	0.07	0.72	0.87	0.38	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	19	96	6	6	16	131	1686	17	22	1245	208
Future Volume (vph)	193	19	96	6	6	16	131	1686	17	22	1245	208
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88			0.93		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1655	1508			1538		1662	3254		1662	3150	
Flt Permitted	0.74	1.00			0.94		0.08	1.00		0.06	1.00	
Satd. Flow (perm)	1284	1508			1465		143	3254		107	3150	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	21	104	7	7	17	142	1833	18	24	1353	226
RTOR Reduction (vph)	0	80	0	0	13	0	0	1	0	0	10	0
Lane Group Flow (vph)	210	45	0	0	18	0	142	1850	0	24	1569	0
Confl. Peds. (#/hr)	4		6	6		4	8		9	9		8
Heavy Vehicles (%)	0%	0%	0%	14%	0%	0%	0%	2%	0%	0%	3%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.8	22.8			22.8		76.7	74.7		63.7	63.7	
Effective Green, g (s)	25.3	25.3			25.3		76.7	76.7		65.7	65.7	
Actuated g/C Ratio	0.23	0.23			0.23		0.70	0.70		0.60	0.60	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	295	346			336		196	2268		63	1881	
v/s Ratio Prot		0.03					0.05	c0.57			0.50	
v/s Ratio Perm	c0.16				0.01		0.46			0.23		
v/c Ratio	0.71	0.13			0.05		0.72	0.82		0.38	0.83	
Uniform Delay, d1	39.0	33.6			33.0		32.1	11.7		11.5	17.8	
Progression Factor	1.00	1.00			1.00		0.43	0.26		1.00	1.00	
Incremental Delay, d2	7.9	0.2			0.1		1.2	0.3		16.6	4.5	
Delay (s)	46.9	33.8			33.1		14.9	3.3		28.1	22.3	
Level of Service	D	C			C		B	A		C	C	
Approach Delay (s)		42.0			33.1			4.2			22.4	
Approach LOS		D			C			A			C	

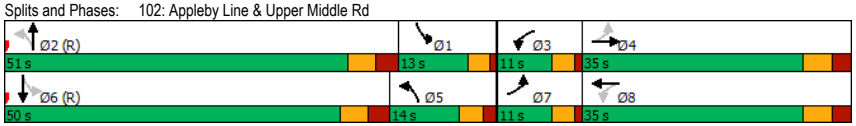
Intersection Summary				
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	87.4%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	182	386	92	655	374	1330	228	916
Future Volume (vph)	182	386	92	655	374	1330	228	916
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	11.0	35.0	11.0	35.0	14.0	51.0	13.0	50.0
Total Split (%)	10.0%	31.8%	10.0%	31.8%	12.7%	46.4%	11.8%	45.5%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	38.0	31.0	38.0	31.0	57.0	47.0	55.0	46.0
Actuated g/C Ratio	0.35	0.28	0.35	0.28	0.52	0.43	0.50	0.42
v/c Ratio	1.14	0.73	0.56	1.13	0.98	1.12	1.23	0.92
Control Delay	141.1	33.3	33.2	105.9	68.6	90.4	155.7	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Total Delay	141.1	33.3	33.2	105.9	68.6	90.4	155.7	25.4
LOS	F	C	C	F	E	F	F	C
Approach Delay		57.2		99.7		85.8		47.4
Approach LOS		E		F		F		D

Intersection Summary		
Cycle Length: 110		
Actuated Cycle Length: 110		
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 115		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.23		
Intersection Signal Delay: 73.8	Intersection LOS: E	
Intersection Capacity Utilization 112.4%	ICU Level of Service H	
Analysis Period (min) 15		

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	697	100	1061	407	1542	248	1218
v/c Ratio	1.14	0.73	0.56	1.13	0.98	1.12	1.23	0.92
Control Delay	141.1	33.3	33.2	105.9	68.6	90.4	155.7	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Total Delay	141.1	33.3	33.2	105.9	68.6	90.4	155.7	25.4
Queue Length 50th (m)	~35.7	60.3	15.0	~141.0	32.3	~212.3	~55.8	105.0
Queue Length 95th (m)	#83.5	82.8	27.6	#183.7	m#62.8	#254.9	m#81.2	#173.7
Internal Link Dist (m)		140.8		58.3		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	173	959	177	936	416	1375	201	1328
Starvation Cap Reductn	0	0	0	0	0	0	0	35
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.73	0.56	1.13	0.98	1.12	1.23	0.94

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	386	255	92	655	321	374	1330	88	228	916	204
Future Volume (vph)	182	386	255	92	655	321	374	1330	88	228	916	204
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1646	3049		1568	3129		3193	3207		1646	3135	
Flt Permitted	0.14	1.00		0.17	1.00		0.09	1.00		0.09	1.00	
Satd. Flow (perm)	242	3049		276	3129		296	3207		159	3135	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	198	420	277	100	712	349	407	1446	96	248	996	222
RTOR Reduction (vph)	0	101	0	0	55	0	0	5	0	0	17	0
Lane Group Flow (vph)	198	596	0	100	1006	0	407	1537	0	248	1201	0
Confl. Peds. (#/hr)	16		14	14		16	14		29	29		14
Heavy Vehicles (%)	1%	1%	2%	6%	0%	0%	1%	2%	9%	1%	3%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	35.6	28.6		35.6	28.6		53.5	44.5		52.5	43.5	
Effective Green, g (s)	35.6	31.0		35.6	31.0		55.5	47.0		52.5	46.0	
Actuated g/C Ratio	0.32	0.28		0.32	0.28		0.50	0.43		0.48	0.42	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	167	859		171	881		412	1370		197	1311	
v/s Ratio Prot	c0.08	0.20		0.04	c0.32		0.09	0.48		c0.10	0.38	
v/s Ratio Perm	0.31			0.15			0.41			c0.50		
v/c Ratio	1.19	0.69		0.58	1.14		0.99	1.12		1.26	0.92	
Uniform Delay, d1	34.1	35.3		28.3	39.5		42.1	31.5		47.2	30.2	
Progression Factor	1.00	1.00		0.91	0.95		0.88	0.90		0.66	0.52	
Incremental Delay, d2	128.3	3.1		4.7	76.8		33.7	62.4		138.6	7.4	
Delay (s)	162.5	38.4		30.5	114.4		70.7	90.7		169.6	23.2	
Level of Service	F	D		C	F		E	F		F	C	
Approach Delay (s)		65.8			107.1			86.5			48.0	
Approach LOS		E			F			F			D	

Intersection Summary

HCM 2000 Control Delay	77.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	35	1771	75	0	1263
Future Volume (Veh/h)	0	35	1771	75	0	1263
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	1925	82	0	1373
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.82	0.65			0.65	
vC, conflicting volume	2652	1004			2007	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	667	0			1463	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	321	701			296	

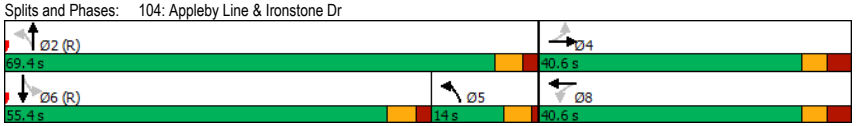
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	38	1283	724	686	686
Volume Left	0	0	0	0	0
Volume Right	38	0	82	0	0
cSH	701	1700	1700	1700	1700
Volume to Capacity	0.05	0.75	0.43	0.40	0.40
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0
Control Delay (s)	10.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.4	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		65.7%	ICU Level of Service C
Analysis Period (min)		15	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	118	44	82	55	260	1615	88	1121
Future Volume (vph)	118	44	82	55	260	1615	88	1121
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	40.6	40.6	40.6	40.6	14.0	69.4	55.4	55.4
Total Split (%)	36.9%	36.9%	36.9%	36.9%	12.7%	63.1%	50.4%	50.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	21.9	21.9	21.9	21.9	80.1	80.1	66.1	66.1
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.73	0.73	0.60	0.60
v/c Ratio	0.77	0.42	0.51	0.54	0.96	0.76	1.30	0.69
Control Delay	68.3	14.6	48.2	40.0	72.9	13.4	197.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	68.3	14.6	48.2	40.0	72.9	13.4	197.9	6.0
LOS	E	B	D	D	E	B	F	A
Approach Delay		37.7		42.8		21.4		18.9
Approach LOS		D		D		C		B

Intersection Summary		
Cycle Length: 110		
Actuated Cycle Length: 110		
Offset: 8 (7%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle: 150		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.30		
Intersection Signal Delay: 23.1	Intersection LOS: C	
Intersection Capacity Utilization 91.9%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	128	169	89	173	283	1803	96	1331
v/c Ratio	0.77	0.42	0.51	0.54	0.96	0.76	1.30	0.69
Control Delay	68.3	14.6	48.2	40.0	72.9	13.4	197.9	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	68.3	14.6	48.2	40.0	72.9	13.4	197.9	6.0
Queue Length 50th (m)	27.5	9.0	18.1	31.6	27.8	113.6	~28.7	41.4
Queue Length 95th (m)	45.8	25.7	31.9	48.6	#91.4	195.9	m#40.0	m52.3
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	280	591	289	527	296	2362	74	1933
Starvation Cap Reductn	0	0	0	0	0	0	0	85
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.29	0.31	0.33	0.96	0.76	1.30	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	44	111	82	55	104	260	1615	44	88	1121	104
Future Volume (vph)	118	44	111	82	55	104	260	1615	44	88	1121	104
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.90		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1637	1533		1658	1548		1630	3244		1662	3212	
Flt Permitted	0.49	1.00		0.50	1.00		0.14	1.00		0.07	1.00	
Satd. Flow (perm)	843	1533		869	1548		232	3244		124	3212	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	48	121	89	60	113	283	1755	48	96	1218	113
RTOR Reduction (vph)	0	97	0	0	14	0	0	1	0	0	5	0
Lane Group Flow (vph)	128	72	0	89	159	0	283	1802	0	96	1326	0
Confl. Peds. (#/hr)	8		4	4		8	9		14	14		9
Heavy Vehicles (%)	1%	0%	1%	0%	0%	1%	2%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.4	19.4		19.3	19.3		79.6	78.3		64.3	64.3	
Effective Green, g (s)	21.9	21.9		21.9	21.9		80.1	80.1		66.1	66.1	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.73	0.73		0.60	0.60	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	167	305		173	308		296	2362		74	1930	
v/s Ratio Prot		0.05			0.10		c0.09	0.56			0.41	
v/s Ratio Perm	c0.15			0.10			0.61			c0.78		
v/c Ratio	0.77	0.24		0.51	0.51		0.96	0.76		1.30	0.69	
Uniform Delay, d1	41.6	37.0		39.3	39.3		26.4	9.1		22.0	14.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.32	0.29	
Incremental Delay, d2	18.7	0.4		2.6	1.5		40.2	2.4		177.3	1.1	
Delay (s)	60.4	37.4		41.9	40.8		66.6	11.5		184.2	5.4	
Level of Service	E	D		D	D		E	B		F	A	
Approach Delay (s)		47.3			41.1			19.0			17.4	
Approach LOS		D			D			B			B	

Intersection Summary

HCM 2000 Control Delay	21.9	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	1.14				
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	91.9%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	658	44	0	1068	0	67
Future Volume (Veh/h)	658	44	0	1068	0	67
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	715	48	0	1161	0	73
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked					0.92	
vC, conflicting volume			763		1320	382
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			763		1165	382
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	88
cM capacity (veh/h)			845		172	616

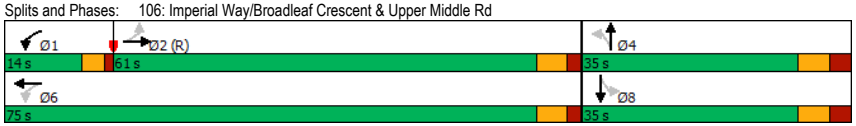
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	477	286	580	580	73
Volume Left	0	0	0	0	0
Volume Right	0	48	0	0	73
cSH	1700	1700	1700	1700	616
Volume to Capacity	0.28	0.17	0.34	0.34	0.12
Queue Length 95th (m)	0.0	0.0	0.0	0.0	3.2
Control Delay (s)	0.0	0.0	0.0	0.0	11.6
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.6
Approach LOS					B

Intersection Summary				
Average Delay		0.4		
Intersection Capacity Utilization		35.4%	ICU Level of Service	A
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	547	93	1060	18	0	3	2
Future Volume (vph)	26	547	93	1060	18	0	3	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	61.0	61.0	14.0	75.0	35.0	35.0	35.0	35.0
Total Split (%)	55.5%	55.5%	12.7%	68.2%	31.8%	31.8%	31.8%	31.8%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	82.8	82.8	96.0	94.7	8.5	10.5		10.5
Actuated g/C Ratio	0.75	0.75	0.87	0.86	0.08	0.10		0.10
v/c Ratio	0.09	0.33	0.17	0.41	0.22	0.17		0.11
Control Delay	3.0	2.5	2.1	2.8	53.1	0.8		28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	3.0	2.5	2.1	2.8	53.1	0.8		28.7
LOS	A	A	A	A	D	A		C
Approach Delay		2.5		2.7		11.7		28.7
Approach LOS		A		A		B		C

Intersection Summary			
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 60 (55%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 3.2		Intersection LOS: A	
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	760	101	1161	20	76	16
v/c Ratio	0.09	0.33	0.17	0.41	0.22	0.17	0.11
Control Delay	3.0	2.5	2.1	2.8	53.1	0.8	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	2.5	2.1	2.8	53.1	0.8	28.7
Queue Length 50th (m)	1.0	13.4	2.5	26.4	4.3	0.0	1.1
Queue Length 95th (m)	m1.3	m15.8	5.6	39.2	12.3	0.0	8.0
Internal Link Dist (m)		94.0		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	317	2309	615	2798	302	642	382
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.33	0.16	0.41	0.07	0.12	0.04

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	547	152	93	1060	8	18	0	70	3	2	10
Future Volume (vph)	26	547	152	93	1060	8	18	0	70	3	2	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00			1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1643	3054		1618	3251		1509	1432			1476	
Flt Permitted	0.24	1.00		0.34	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	422	3054		573	3251		1187	1432			1374	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	595	165	101	1152	9	20	0	76	3	2	11
RTOR Reduction (vph)	0	12	0	0	0	0	0	70	0	0	10	0
Lane Group Flow (vph)	28	748	0	101	1161	0	20	6	0	0	6	0
Confl. Peds. (#/hr)	20		29	29		20	1		5	5		1
Heavy Vehicles (%)	0%	3%	3%	2%	2%	13%	10%	0%	2%	0%	0%	8%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	79.0	79.0		90.1	90.1		6.9	6.9			6.9	
Effective Green, g (s)	81.5	81.5		92.6	92.6		6.9	8.9			8.9	
Actuated g/C Ratio	0.74	0.74		0.84	0.84		0.06	0.08			0.08	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	312	2262		573	2736		74	115			111	
v/s Ratio Prot		0.24		0.02	c0.36			0.00				
v/s Ratio Perm	0.07			0.13			c0.02				0.00	
v/c Ratio	0.09	0.33		0.18	0.42		0.27	0.05			0.05	
Uniform Delay, d1	4.0	4.9		1.7	2.1		49.1	46.7			46.7	
Progression Factor	0.55	0.48		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.2		0.1	0.1		2.0	0.2			0.2	
Delay (s)	2.4	2.5		1.8	2.2		51.1	46.9			46.9	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		2.5			2.2			47.7			46.9	
Approach LOS		A			A			D			D	

Intersection Summary				
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.41			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	35	40	37	42	83	138
Future Volume (vph)	35	40	37	42	83	138
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	43	40	46	90	150

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	81	86	240
Volume Left (vph)	38	40	0
Volume Right (vph)	43	0	150
Hadj (s)	-0.22	0.12	-0.38
Departure Headway (s)	4.3	4.4	3.8
Degree Utilization, x	0.10	0.11	0.25
Capacity (veh/h)	764	783	924
Control Delay (s)	7.8	8.0	8.1
Approach Delay (s)	7.8	8.0	8.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.0		
Level of Service	A		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

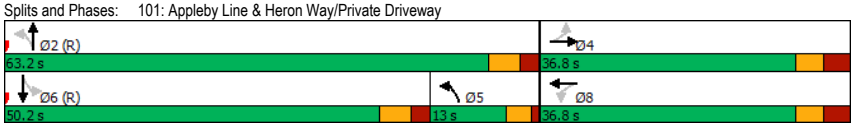
Appendix I

Total Traffic Operations – Capital Improvements

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	98	6	7	2	75	1063	2	1439
Future Volume (vph)	98	6	7	2	75	1063	2	1439
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	36.8	36.8	36.8	36.8	13.0	63.2	50.2	50.2
Total Split (%)	36.8%	36.8%	36.8%	36.8%	13.0%	63.2%	50.2%	50.2%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	16.3	16.3		16.3	75.7	75.7	65.3	65.3
Actuated g/C Ratio	0.16	0.16		0.16	0.76	0.76	0.65	0.65
v/c Ratio	0.51	0.35		0.12	0.32	0.33	0.01	0.58
Control Delay	46.0	10.7		18.6	10.4	1.8	9.0	11.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	10.7		18.6	10.4	1.8	9.0	11.9
LOS	D	B		B	B	A	A	B
Approach Delay		27.7		18.6		2.4		11.9
Approach LOS		C		B		A		B

Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 86 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 62.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	116	31	82	1162	2	1691
v/c Ratio	0.51	0.35	0.12	0.32	0.33	0.01	0.58
Control Delay	46.0	10.7	18.6	10.4	1.8	9.0	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	10.7	18.6	10.4	1.8	9.0	11.9
Queue Length 50th (m)	20.2	1.2	1.8	2.9	9.5	0.1	68.0
Queue Length 95th (m)	35.1	15.4	9.3	m7.4	19.2	1.2	98.2
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	417	555	489	265	3506	250	2939
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.21	0.06	0.31	0.33	0.01	0.58

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	6	100	7	2	19	75	1063	6	2	1439	117
Future Volume (vph)	98	6	100	7	2	19	75	1063	6	2	1439	117
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	1470			1553		1630	4634		1659	4494	
Flt Permitted	0.74	1.00			0.92		0.10	1.00		0.22	1.00	
Satd. Flow (perm)	1273	1470			1447		178	4634		382	4494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	7	109	8	2	21	82	1155	7	2	1564	127
RTOR Reduction (vph)	0	91	0	0	18	0	0	0	0	0	6	0
Lane Group Flow (vph)	107	25	0	0	13	0	82	1162	0	2	1685	0
Confl. Peds. (#/hr)	3		2	2		3	1		5	5		1
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	2%	3%	0%	0%	5%	4%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.8	13.8			13.8		75.7	73.7		62.5	62.5	
Effective Green, g (s)	16.3	16.3			16.3		75.7	75.7		64.5	64.5	
Actuated g/C Ratio	0.16	0.16			0.16		0.76	0.76		0.64	0.64	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	207	239			235		239	3507		246	2898	
v/s Ratio Prot		0.02					0.02	c0.25			c0.37	
v/s Ratio Perm	c0.08				0.01		0.23			0.01		
v/c Ratio	0.52	0.10			0.06		0.34	0.33		0.01	0.58	
Uniform Delay, d1	38.3	35.6			35.4		11.9	3.9		6.3	10.1	
Progression Factor	1.00	1.00			1.00		0.68	0.36		1.00	1.00	
Incremental Delay, d2	2.2	0.2			0.1		0.7	0.2		0.1	0.9	
Delay (s)	40.4	35.8			35.5		8.7	1.6		6.4	10.9	
Level of Service	D	D			D		A	A		A	B	
Approach Delay (s)		38.0			35.5			2.1			10.9	
Approach LOS		D			D			A			B	

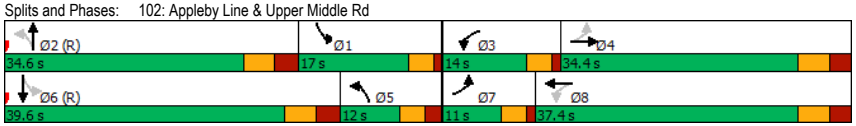
Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	154	753	214	242	148	814	280	1216
Future Volume (vph)	154	753	214	242	148	814	280	1216
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	11.0	34.4	14.0	37.4	12.0	34.6	17.0	39.6
Total Split (%)	11.0%	34.4%	14.0%	37.4%	12.0%	34.6%	17.0%	39.6%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	37.4	30.4	43.4	33.4	38.6	30.6	47.6	35.6
Actuated g/C Ratio	0.37	0.30	0.43	0.33	0.39	0.31	0.48	0.36
v/c Ratio	0.47	1.15	1.00	0.29	0.42	0.73	1.01	0.85
Control Delay	23.3	110.0	81.1	13.3	25.0	29.3	78.1	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	110.0	81.1	13.3	25.0	29.3	78.1	24.8
LOS	C	F	F	B	C	C	E	C
Approach Delay		98.9		36.3		28.7		34.4
Approach LOS		F		D		C		C

Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 94 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 50.7		Intersection LOS: D	
Intersection Capacity Utilization 99.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	167	1131	233	455	161	992	304	1377
v/c Ratio	0.47	1.15	1.00	0.29	0.42	0.73	1.01	0.85
Control Delay	23.3	110.0	81.1	13.3	25.0	29.3	78.1	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	110.0	81.1	13.3	25.0	29.3	78.1	24.8
Queue Length 50th (m)	20.5	~139.2	32.1	14.5	6.9	66.7	~42.0	93.6
Queue Length 95th (m)	35.1	#181.8	#82.6	23.1	11.0	50.6	#98.1	103.6
Internal Link Dist (m)		140.8		58.0		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	359	986	234	1562	384	1364	302	1622
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	0.47	1.15	1.00	0.29	0.42	0.73	1.01	0.85

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	753	288	214	242	177	148	814	98	280	1216	51
Future Volume (vph)	154	753	288	214	242	177	148	814	98	280	1216	51
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.91		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1610	3117		1614	4294		3101	4409		1598	4546	
Flt Permitted	0.48	1.00		0.13	1.00		0.14	1.00		0.16	1.00	
Satd. Flow (perm)	814	3117		219	4294		449	4409		275	4546	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	818	313	233	263	192	161	885	107	304	1322	55
RTOR Reduction (vph)	0	40	0	0	128	0	0	15	0	0	5	0
Lane Group Flow (vph)	167	1091	0	233	327	0	161	977	0	304	1372	0
Confl. Peds. (#/hr)	9		21	21		9	10		11	11		10
Heavy Vehicles (%)	3%	1%	2%	3%	2%	5%	4%	6%	9%	4%	4%	13%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	35.0	28.0		41.0	31.0		35.1	28.1		46.1	33.1	
Effective Green, g (s)	35.0	30.4		41.0	33.4		37.1	30.6		46.1	35.6	
Actuated g/C Ratio	0.35	0.30		0.41	0.33		0.37	0.31		0.46	0.36	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	340	947		229	1434		378	1349		298	1618	
v/s Ratio Prot	0.03	c0.35		c0.10	0.08		0.03	0.22		c0.13	c0.30	
v/s Ratio Perm	0.14			0.31			0.12			c0.34		
v/c Ratio	0.49	1.15		1.02	0.23		0.43	0.72		1.02	0.85	
Uniform Delay, d1	23.6	34.8		25.4	24.0		38.7	30.9		33.1	29.7	
Progression Factor	1.00	1.00		0.89	0.92		0.88	0.85		0.71	0.66	
Incremental Delay, d2	1.1	80.8		63.9	0.2		0.8	3.3		53.1	4.9	
Delay (s)	24.7	115.6		86.6	22.3		34.7	29.6		76.5	24.5	
Level of Service	C	F		F	C		C	C		E	C	
Approach Delay (s)		103.9			44.1			30.3			33.9	
Approach LOS		F			D			C			C	

Intersection Summary

HCM 2000 Control Delay	53.4	HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio	1.09				
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	99.5%	ICU Level of Service		F	
Analysis Period (min)	15				

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	33	1030	43	0	1718
Future Volume (Veh/h)	0	33	1030	43	0	1718
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	36	1120	47	0	1867
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.76	0.94			0.94	
vC, conflicting volume	1766	397			1167	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	383	134			953	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	452	837			673	

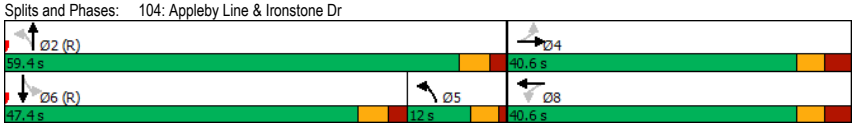
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	448	448	271	622	622	622
Volume Left	0	0	0	0	0	0	0
Volume Right	36	0	0	47	0	0	0
cSH	837	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.26	0.26	0.16	0.37	0.37	0.37
Queue Length 95th (m)	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.5	0.0			0.0		
Approach LOS	A						

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	79	17	118	56	136	867	37	1709
Future Volume (vph)	79	17	118	56	136	867	37	1709
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	40.6	40.6	40.6	40.6	12.0	59.4	47.4	47.4
Total Split (%)	40.6%	40.6%	40.6%	40.6%	12.0%	59.4%	47.4%	47.4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag		Lead	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	19.2	19.2	19.2	19.2	72.8	72.8	60.8	60.8
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.73	0.73	0.61	0.61
v/c Ratio	0.63	0.36	0.65	0.51	0.75	0.29	0.15	0.68
Control Delay	55.7	11.0	51.5	20.0	52.5	5.5	4.0	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	11.0	51.5	20.0	52.5	5.5	4.0	4.2
LOS	E	B	D	C	D	A	A	A
Approach Delay		28.6		32.5		11.8		4.2
Approach LOS		C		C		B		A

Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 78.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	132	128	195	148	957	40	1918
v/c Ratio	0.63	0.36	0.65	0.51	0.75	0.29	0.15	0.68
Control Delay	55.7	11.0	51.5	20.0	52.5	5.5	4.0	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	11.0	51.5	20.0	52.5	5.5	4.0	4.2
Queue Length 50th (m)	16.3	3.0	24.3	15.2	13.7	20.8	1.2	27.6
Queue Length 95th (m)	30.7	17.3	40.8	33.7	#48.4	35.5	m2.0	m41.7
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	262	586	375	626	198	3298	268	2806
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.23	0.34	0.31	0.75	0.29	0.15	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	17	105	118	56	123	136	867	14	37	1709	55
Future Volume (vph)	79	17	105	118	56	123	136	867	14	37	1709	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.90		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1537	1405		1657	1523		1554	4529		1523	4615	
Flt Permitted	0.44	1.00		0.59	1.00		0.07	1.00		0.27	1.00	
Satd. Flow (perm)	716	1405		1026	1523		114	4529		441	4615	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	18	114	128	61	134	148	942	15	40	1858	60
RTOR Reduction (vph)	0	92	0	0	88	0	0	1	0	0	2	0
Lane Group Flow (vph)	86	40	0	128	107	0	148	956	0	40	1916	0
Confl. Peds. (#/hr)	2		5	5		2	2		10	2		10
Heavy Vehicles (%)	8%	6%	7%	0%	0%	3%	7%	5%	15%	9%	3%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.7	16.7		16.6	16.6		72.3	71.0		59.0	59.0	
Effective Green, g (s)	19.2	19.2		19.2	19.2		72.8	72.8		60.8	60.8	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.73	0.73		0.61	0.61	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	137	269		196	292		198	3297		268	2805	
v/s Ratio Prot		0.03			0.07		c0.06	0.21			0.42	
v/s Ratio Perm	0.12			c0.12			c0.48			0.09		
v/c Ratio	0.63	0.15		0.65	0.37		0.75	0.29		0.15	0.68	
Uniform Delay, d1	37.1	33.6		37.3	35.1		23.4	4.7		8.5	13.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.31	0.25	
Incremental Delay, d2	8.7	0.3		7.6	0.8		14.3	0.2		0.5	0.6	
Delay (s)	45.8	33.9		44.9	35.9		37.6	4.9		3.2	3.9	
Level of Service	D	C		D	D		D	A		A	A	
Approach Delay (s)		38.6			39.5			9.3			3.9	
Approach LOS		D			D			A			A	

Intersection Summary					
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.74				
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	78.0%	ICU Level of Service		D	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1115	16	0	633	0	59
Future Volume (Veh/h)	1115	16	0	633	0	59
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1212	17	0	688	0	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked					0.99	
vC, conflicting volume			1229		1450	412
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1229		1432	412
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	89
cM capacity (veh/h)			563		124	589

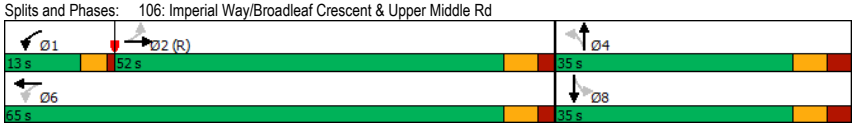
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	485	485	259	229	229	229	64
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	17	0	0	0	64
cSH	1700	1700	1700	1700	1700	1700	589
Volume to Capacity	0.29	0.29	0.15	0.13	0.13	0.13	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.9
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.9
Approach LOS							B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	5	1061	61	575	26	0	4	2
Future Volume (vph)	5	1061	61	575	26	0	4	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	52.0	52.0	13.0	65.0	35.0	35.0	35.0	35.0
Total Split (%)	52.0%	52.0%	13.0%	65.0%	35.0%	35.0%	35.0%	35.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	75.6	75.6	85.7	84.4	8.8	10.8		10.8
Actuated g/C Ratio	0.76	0.76	0.86	0.84	0.09	0.11		0.11
v/c Ratio	0.01	0.37	0.16	0.16	0.26	0.29		0.12
Control Delay	2.6	2.4	2.6	2.0	48.2	2.1		25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	2.6	2.4	2.6	2.0	48.2	2.1		25.4
LOS	A	A	A	A	D	A		C
Approach Delay		2.4		2.1		12.5		25.4
Approach LOS		A		A		B		C

Intersection Summary			
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 54 (54%), Referenced to phase 2:EBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 3.1		Intersection LOS: A	
Intersection Capacity Utilization 51.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	1268	66	625	28	97	19
v/c Ratio	0.01	0.37	0.16	0.16	0.26	0.29	0.12
Control Delay	2.6	2.4	2.6	2.0	48.2	2.1	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.6	2.4	2.6	2.0	48.2	2.1	25.4
Queue Length 50th (m)	0.1	15.2	1.6	7.3	5.5	0.0	1.1
Queue Length 95th (m)	m0.2	m15.2	4.2	11.8	14.1	0.0	8.0
Internal Link Dist (m)		94.2		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	522	3407	430	3915	348	565	411
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.37	0.15	0.16	0.08	0.17	0.05

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1061	106	61	575	0	26	0	89	4	2	12
Future Volume (vph)	5	1061	106	61	575	0	26	0	89	4	2	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1626	4502		1660	4638		1586	1392			1459	
Flt Permitted	0.40	1.00		0.19	1.00		0.75	1.00			0.91	
Satd. Flow (perm)	691	4502		326	4638		1244	1392			1340	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1153	115	66	625	0	28	0	97	4	2	13
RTOR Reduction (vph)	0	6	0	0	0	0	0	88	0	0	12	0
Lane Group Flow (vph)	5	1262	0	66	625	0	28	9	0	0	7	0
Confl. Peds. (#/hr)	20		24	24		20	7		5	5		7
Heavy Vehicles (%)	0%	3%	13%	0%	3%	7%	4%	0%	5%	0%	0%	9%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	70.2	70.2		79.8	79.8		7.2	7.2			7.2	
Effective Green, g (s)	72.7	72.7		82.3	82.3		7.2	9.2			9.2	
Actuated g/C Ratio	0.73	0.73		0.82	0.82		0.07	0.09			0.09	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	502	3272		376	3817		89	128			123	
v/s Ratio Prot		c0.28		c0.01	0.13			0.01				
v/s Ratio Perm	0.01			0.13			c0.02				0.01	
v/c Ratio	0.01	0.39		0.18	0.16		0.31	0.07			0.06	
Uniform Delay, d1	3.8	5.2		2.0	1.8		44.1	41.5			41.4	
Progression Factor	0.53	0.43		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	0.0		0.2	0.0		2.0	0.2			0.2	
Delay (s)	2.0	2.2		2.2	1.8		46.1	41.7			41.6	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		2.2			1.9			42.7			41.6	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	4.9	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.35				
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	51.5%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	35	19	38	42	47	97
Future Volume (vph)	35	19	38	42	47	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	21	41	46	51	105

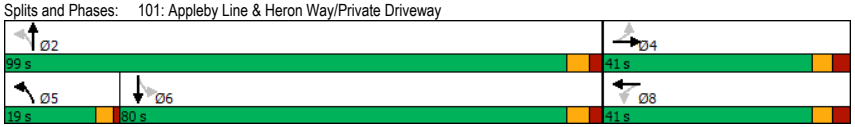
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	59	87	156
Volume Left (vph)	38	41	0
Volume Right (vph)	21	0	105
Hadj (s)	-0.02	0.19	-0.31
Departure Headway (s)	4.4	4.4	3.8
Degree Utilization, x	0.07	0.11	0.17
Capacity (veh/h)	775	799	922
Control Delay (s)	7.7	7.9	7.6
Approach Delay (s)	7.7	7.9	7.6
Approach LOS	A	A	A

Intersection Summary				
Delay	7.7			
Level of Service	A			
Intersection Capacity Utilization	30.8%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	193	19	6	6	131	1686	22	1245
Future Volume (vph)	193	19	6	6	131	1686	22	1245
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	36.5	36.5	36.5	36.5	11.0	28.0	28.0	28.0
Total Split (s)	41.0	41.0	41.0	41.0	19.0	99.0	80.0	80.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	13.6%	70.7%	57.1%	57.1%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.0	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	3.2	1.0	2.3	2.3	2.3
Lost Time Adjust (s)	-2.5	-2.5		-2.5	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	27.4	27.4		27.4	95.2	95.2	81.4	81.4
Actuated g/C Ratio	0.21	0.21		0.21	0.73	0.73	0.62	0.62
v/c Ratio	0.72	0.31		0.10	0.57	0.54	0.21	0.56
Control Delay	62.6	13.0		23.9	17.8	9.3	20.0	16.0
Queue Delay	0.0	0.0		0.0	0.0	0.7	0.0	0.0
Total Delay	62.6	13.0		23.9	17.8	10.1	20.0	16.0
LOS	E	B		C	B	B	B	B
Approach Delay		44.1		23.9		10.6		16.1
Approach LOS		D		C		B		B

Intersection Summary			
Cycle Length: 140			
Actuated Cycle Length: 130.6			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 101: Appleby Line & Heron Way/Private Driveway



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	210	125	31	142	1851	24	1579
v/c Ratio	0.72	0.31	0.10	0.57	0.54	0.21	0.56
Control Delay	62.6	13.0	23.9	17.8	9.3	20.0	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	62.6	13.0	23.9	17.8	10.1	20.0	16.0
Queue Length 50th (m)	53.4	4.6	3.1	10.3	73.6	2.6	81.5
Queue Length 95th (m)	81.8	21.2	11.6	27.4	109.7	11.2	128.0
Internal Link Dist (m)		107.5	43.2		150.0		98.8
Turn Bay Length (m)	70.0			25.0		15.0	
Base Capacity (vph)	393	501	427	307	3411	115	2834
Starvation Cap Reductn	0	0	0	0	1094	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.25	0.07	0.46	0.80	0.21	0.56

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	19	96	6	6	16	131	1686	17	22	1245	208
Future Volume (vph)	193	19	96	6	6	16	131	1686	17	22	1245	208
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88			0.93		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1654	1507			1537		1662	4676		1659	4523	
Flt Permitted	0.80	1.00			0.94		0.11	1.00		0.11	1.00	
Satd. Flow (perm)	1387	1507			1463		188	4676		186	4523	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	21	104	7	7	17	142	1833	18	24	1353	226
RTOR Reduction (vph)	0	82	0	0	13	0	0	1	0	0	14	0
Lane Group Flow (vph)	210	43	0	0	18	0	142	1850	0	24	1565	0
Confl. Peds. (#/hr)	4		6	6		4	8		9	9		8
Heavy Vehicles (%)	0%	0%	0%	14%	0%	0%	0%	2%	0%	0%	3%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.8	24.8			24.8		93.2	93.2		79.4	79.4	
Effective Green, g (s)	27.3	27.3			27.3		93.2	95.2		81.4	81.4	
Actuated g/C Ratio	0.21	0.21			0.21		0.71	0.73		0.62	0.62	
Clearance Time (s)	6.5	6.5			6.5		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	290	315			306		244	3411		116	2821	
v/s Ratio Prot		0.03					0.04	c0.40			0.35	
v/s Ratio Perm	c0.15				0.01		c0.37			0.13		
v/c Ratio	0.72	0.14			0.06		0.58	0.54		0.21	0.55	
Uniform Delay, d1	48.1	42.0			41.3		10.4	7.9		10.6	14.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.7	0.2			0.1		3.5	0.6		4.0	0.8	
Delay (s)	56.7	42.2			41.4		13.9	8.5		14.6	14.9	
Level of Service	E	D			D		B	A		B	B	
Approach Delay (s)		51.3			41.4			8.9			14.9	
Approach LOS		D			D			A			B	

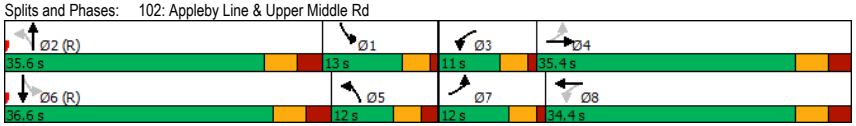
Intersection Summary				
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	130.5	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	71.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	182	386	92	655	374	1330	228	916
Future Volume (vph)	182	386	92	655	374	1330	228	916
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	8.0	7.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)	11.0	34.4	11.0	34.4	12.0	34.5	11.0	34.5
Total Split (s)	12.0	35.4	11.0	34.4	12.0	35.6	13.0	36.6
Total Split (%)	12.6%	37.3%	11.6%	36.2%	12.6%	37.5%	13.7%	38.5%
Yellow Time (s)	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
All-Red Time (s)	1.0	2.7	1.0	2.7	2.0	2.8	1.0	2.8
Lost Time Adjust (s)	0.0	-2.4	0.0	-2.4	-1.0	-2.5	0.0	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	39.2	32.8	36.6	29.6	40.4	32.4	42.4	33.4
Actuated g/C Ratio	0.41	0.35	0.39	0.31	0.43	0.34	0.45	0.35
v/c Ratio	0.93	0.60	0.41	0.71	0.97	0.98	1.05	0.75
Control Delay	68.9	21.7	21.1	27.9	71.9	49.3	108.6	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	21.7	21.1	27.9	71.9	49.3	108.6	29.5
LOS	E	C	C	C	E	D	F	C
Approach Delay		32.2		27.3		54.0		42.9
Approach LOS		C		C		D		D

Intersection Summary			
Cycle Length: 95			
Actuated Cycle Length: 95			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 41.8		Intersection LOS: D	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 102: Appleby Line & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	697	100	1061	407	1542	248	1218
v/c Ratio	0.93	0.60	0.41	0.71	0.97	0.98	1.05	0.75
Control Delay	68.9	21.7	21.1	27.9	71.9	49.3	108.6	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	21.7	21.1	27.9	71.9	49.3	108.6	29.5
Queue Length 50th (m)	23.3	44.1	11.1	56.8	23.7	~107.4	~36.3	72.7
Queue Length 95th (m)	#65.4	63.6	21.2	72.7	#55.6	#144.6	#85.1	90.4
Internal Link Dist (m)		140.8		58.3		89.5		150.0
Turn Bay Length (m)	45.0		120.0		80.0		40.0	
Base Capacity (vph)	213	1166	245	1533	421	1581	236	1622
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	0.93	0.60	0.41	0.69	0.97	0.98	1.05	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	386	255	92	655	321	374	1330	88	228	916	204
Future Volume (vph)	182	386	255	92	655	321	374	1330	88	228	916	204
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.91		0.97	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.95		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1646	3052		1567	4500		3192	4609		1646	4506	
Flt Permitted	0.13	1.00		0.26	1.00		0.13	1.00		0.13	1.00	
Satd. Flow (perm)	228	3052		421	4500		447	4609		230	4506	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	198	420	277	100	712	349	407	1446	96	248	996	222
RTOR Reduction (vph)	0	114	0	0	93	0	0	8	0	0	37	0
Lane Group Flow (vph)	198	583	0	100	968	0	407	1534	0	248	1181	0
Confl. Peds. (#/hr)	16		14	14		16	14		29	29		14
Heavy Vehicles (%)	1%	1%	2%	6%	0%	0%	1%	2%	9%	1%	3%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	38.4	30.4		33.6	28.0		36.1	29.1		39.1	30.1	
Effective Green, g (s)	38.4	32.8		33.6	30.4		38.1	31.6		39.1	32.6	
Actuated g/C Ratio	0.40	0.35		0.35	0.32		0.40	0.33		0.41	0.34	
Clearance Time (s)	4.0	6.4		4.0	6.4		5.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	211	1053		216	1440		410	1533		228	1546	
v/s Ratio Prot	c0.08	0.19		0.03	0.22		0.08	0.33		c0.10	0.26	
v/s Ratio Perm	c0.30			0.14			0.31			c0.34		
v/c Ratio	0.94	0.55		0.46	0.67		0.99	1.00		1.09	0.76	
Uniform Delay, d1	21.5	25.2		21.8	28.0		36.0	31.7		39.3	27.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	44.4	1.1		1.6	1.6		42.3	23.1		85.0	3.6	
Delay (s)	65.9	26.3		23.3	29.6		78.3	54.8		124.2	31.4	
Level of Service	E	C		C	C		E	D		F	C	
Approach Delay (s)		35.0			29.1			59.7			47.1	
Approach LOS		D			C			E			D	

Intersection Summary

HCM 2000 Control Delay	45.8	HCM 2000 Level of Service		D		
HCM 2000 Volume to Capacity ratio	0.99					
Actuated Cycle Length (s)	95.0	Sum of lost time (s)		16.0		
Intersection Capacity Utilization	90.8%	ICU Level of Service		E		
Analysis Period (min)	15					

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	35	1771	75	0	1263
Future Volume (Veh/h)	0	35	1771	75	0	1263
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	1925	82	0	1373
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			101			113
pX, platoon unblocked	0.87	0.84			0.84	
vC, conflicting volume	2424	683			2007	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	871	0			1533	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	252	911			361	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	770	770	467	458	458	458
Volume Left	0	0	0	0	0	0	0
Volume Right	38	0	0	82	0	0	0
cSH	911	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.45	0.45	0.27	0.27	0.27	0.27
Queue Length 95th (m)	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A						
Approach Delay (s)	9.1	0.0			0.0		
Approach LOS	A						

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		49.0%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	118	44	82	55	260	1615	88	1121
Future Volume (vph)	118	44	82	55	260	1615	88	1121
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	7.0	8.0	8.0	8.0
Minimum Split (s)	40.5	40.5	40.6	40.6	11.5	26.8	26.8	26.8
Total Split (s)	40.6	40.6	40.6	40.6	15.0	99.4	84.4	84.4
Total Split (%)	29.0%	29.0%	29.0%	29.0%	10.7%	71.0%	60.3%	60.3%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.5	3.7	3.7	3.7
All-Red Time (s)	3.2	3.2	3.3	3.3	1.0	2.1	2.1	2.1
Lost Time Adjust (s)	-2.5	-2.5	-2.6	-2.6	-0.5	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	25.6	25.6	25.6	25.6	95.7	95.7	80.7	80.7
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.74	0.74	0.62	0.62
v/c Ratio	0.81	0.45	0.54	0.52	0.91	0.52	0.76	0.46
Control Delay	83.0	25.1	58.4	42.7	47.8	8.6	59.3	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.0	25.1	58.4	42.7	47.8	8.6	59.3	14.1
LOS	F	C	E	D	D	A	E	B
Approach Delay		50.1		48.0		13.9		17.1
Approach LOS		D		D		B		B

Intersection Summary		
Cycle Length: 140		
Actuated Cycle Length: 129.3		
Natural Cycle: 120		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.91		
Intersection Signal Delay: 19.9	Intersection LOS: B	
Intersection Capacity Utilization 76.9%	ICU Level of Service D	
Analysis Period (min) 15		

Splits and Phases: 104: Appleby Line & Ironstone Dr



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	128	169	89	173	283	1803	96	1331
v/c Ratio	0.81	0.45	0.54	0.52	0.91	0.52	0.76	0.46
Control Delay	83.0	25.1	58.4	42.7	47.8	8.6	59.3	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.0	25.1	58.4	42.7	47.8	8.6	59.3	14.1
Queue Length 50th (m)	32.9	18.5	21.6	33.9	26.2	66.7	17.3	64.3
Queue Length 95th (m)	57.5	40.2	39.9	57.3	#76.4	104.2	#61.3	93.1
Internal Link Dist (m)		91.6		188.3		128.4		77.6
Turn Bay Length (m)	15.0		15.0		35.0		30.0	
Base Capacity (vph)	229	498	237	461	310	3450	127	2883
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	0.56	0.34	0.38	0.38	0.91	0.52	0.76	0.46

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	44	111	82	55	104	260	1615	44	88	1121	104
Future Volume (vph)	118	44	111	82	55	104	260	1615	44	88	1121	104
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.90		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1635	1533		1657	1547		1629	4660		1657	4613	
Flt Permitted	0.47	1.00		0.48	1.00		0.15	1.00		0.12	1.00	
Satd. Flow (perm)	809	1533		835	1547		261	4660		203	4613	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	48	121	89	60	113	283	1755	48	96	1218	113
RTOR Reduction (vph)	0	71	0	0	26	0	0	2	0	0	7	0
Lane Group Flow (vph)	128	98	0	89	147	0	283	1801	0	96	1324	0
Confl. Peds. (#/hr)	8		4	4		8	9		14	14		9
Heavy Vehicles (%)	1%	0%	1%	0%	0%	1%	2%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	23.1	23.1		23.0	23.0		93.9	93.9		78.9	78.9	
Effective Green, g (s)	25.6	25.6		25.6	25.6		94.4	95.7		80.7	80.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.73	0.74		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.6	6.6		4.5	5.8		5.8	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	160	303		165	306		306	3449		126	2879	
v/s Ratio Prot		0.06			0.10		c0.08	0.39			0.29	
v/s Ratio Perm	c0.16			0.11			c0.60			0.47		
v/c Ratio	0.80	0.32		0.54	0.48		0.92	0.52		0.76	0.46	
Uniform Delay, d1	49.4	44.4		46.6	46.0		15.4	7.1		17.4	12.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.1	0.6		3.4	1.2		32.3	0.6		34.6	0.5	
Delay (s)	73.5	45.1		49.9	47.2		47.7	7.7		52.0	13.3	
Level of Service	E	D		D	D		D	A		D	B	
Approach Delay (s)		57.3			48.1			13.1			15.9	
Approach LOS		E			D			B			B	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.91				
Actuated Cycle Length (s)	129.3	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	76.9%	ICU Level of Service		D	
Analysis Period (min)	15				

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	658	44	0	1068	0	67
Future Volume (Veh/h)	658	44	0	1068	0	67
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	715	48	0	1161	0	73
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	82			118		
pX, platoon unblocked					0.96	
vC, conflicting volume			763		1126	262
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			763		978	262
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			845		237	736

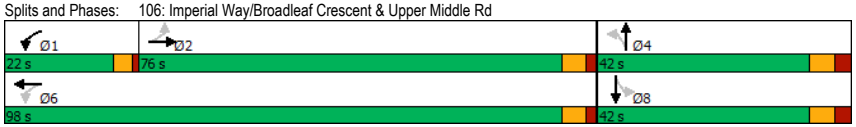
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	286	286	191	387	387	387	73
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	48	0	0	0	73
cSH	1700	1700	1700	1700	1700	1700	736
Volume to Capacity	0.17	0.17	0.11	0.23	0.23	0.23	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.4
Approach LOS							B

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		26.0%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	547	93	1060	18	0	3	2
Future Volume (vph)	26	547	93	1060	18	0	3	2
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		2	1	6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	1	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	8.0	8.0	7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	28.3	28.3	11.5	28.3	33.0	33.0	33.0	33.0
Total Split (s)	76.0	76.0	22.0	98.0	42.0	42.0	42.0	42.0
Total Split (%)	54.3%	54.3%	15.7%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	-2.5	-2.5	-2.5	-2.5	0.0	-2.0		-2.0
Total Lost Time (s)	3.5	3.5	1.5	3.5	7.0	5.0		5.0
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	75.5	75.5	88.6	87.3	8.4	10.4		10.4
Actuated g/C Ratio	0.74	0.74	0.86	0.85	0.08	0.10		0.10
v/c Ratio	0.10	0.24	0.17	0.29	0.21	0.15		0.11
Control Delay	5.8	4.5	2.1	2.2	49.3	0.7		26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	5.8	4.5	2.1	2.2	49.3	0.7		26.9
LOS	A	A	A	A	D	A		C
Approach Delay		4.6		2.2		10.8		26.9
Approach LOS		A		A		B		C

Intersection Summary		
Cycle Length: 140		
Actuated Cycle Length: 102.5		
Natural Cycle: 75		
Control Type: Semi Act-Uncoord		
Maximum v/c Ratio: 0.29		
Intersection Signal Delay: 3.6	Intersection LOS: A	
Intersection Capacity Utilization 48.9%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 106: Imperial Way/Broadleaf Crescent & Upper Middle Rd



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	760	101	1161	20	76	16
v/c Ratio	0.10	0.24	0.17	0.29	0.21	0.15	0.11
Control Delay	5.8	4.5	2.1	2.2	49.3	0.7	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	4.5	2.1	2.2	49.3	0.7	26.9
Queue Length 50th (m)	1.6	15.6	2.5	15.7	4.0	0.0	1.0
Queue Length 95th (m)	5.0	22.2	5.5	21.8	11.8	0.0	7.7
Internal Link Dist (m)		94.0		56.1		209.9	77.0
Turn Bay Length (m)	25.0		30.0		30.0		
Base Capacity (vph)	294	3234	700	4375	405	764	502
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.24	0.14	0.27	0.05	0.10	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	547	152	93	1060	8	18	0	70	3	2	10
Future Volume (vph)	26	547	152	93	1060	8	18	0	70	3	2	10
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.5	3.5		1.5	3.5		7.0	5.0			5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	0.98			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00			1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.85			0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1644	4392		1617	4672		1510	1432			1476	
Flt Permitted	0.23	1.00		0.34	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	401	4392		574	4672		1187	1432			1373	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	595	165	101	1152	9	20	0	76	3	2	11
RTOR Reduction (vph)	0	20	0	0	0	0	0	70	0	0	10	0
Lane Group Flow (vph)	28	740	0	101	1161	0	20	6	0	0	6	0
Confl. Peds. (#/hr)	20		29	29		20	1		5	5		1
Heavy Vehicles (%)	0%	3%	3%	2%	2%	13%	10%	0%	2%	0%	0%	8%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	73.0	73.0		84.1	84.1		6.8	6.8			6.8	
Effective Green, g (s)	75.5	75.5		86.6	86.6		6.8	8.8			8.8	
Actuated g/C Ratio	0.73	0.73		0.83	0.83		0.07	0.08			0.08	
Clearance Time (s)	6.0	6.0		4.0	6.0		7.0	7.0			7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	291	3191		574	3894		77	121			116	
v/s Ratio Prot		0.17		0.02	c0.25			0.00				
v/s Ratio Perm	0.07			0.13			c0.02				0.00	
v/c Ratio	0.10	0.23		0.18	0.30		0.26	0.05			0.05	
Uniform Delay, d1	4.2	4.7		1.6	1.9		46.2	43.7			43.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	0.2		0.1	0.0		1.8	0.2			0.2	
Delay (s)	4.8	4.8		1.7	2.0		48.0	43.9			43.9	
Level of Service	A	A		A	A		D	D			D	
Approach Delay (s)		4.8			1.9			44.7			43.9	
Approach LOS		A			A			D			D	

Intersection Summary					
HCM 2000 Control Delay	5.2	HCM 2000 Level of Service		A	
HCM 2000 Volume to Capacity ratio	0.29				
Actuated Cycle Length (s)	103.9	Sum of lost time (s)		10.0	
Intersection Capacity Utilization	48.9%	ICU Level of Service		A	
Analysis Period (min)	15				

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	35	40	37	42	83	138
Future Volume (vph)	35	40	37	42	83	138
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	43	40	46	90	150

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	81	86	240
Volume Left (vph)	38	40	0
Volume Right (vph)	43	0	150
Hadj (s)	-0.22	0.12	-0.38
Departure Headway (s)	4.3	4.4	3.8
Degree Utilization, x	0.10	0.11	0.25
Capacity (veh/h)	764	783	924
Control Delay (s)	7.8	8.0	8.1
Approach Delay (s)	7.8	8.0	8.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.0		
Level of Service	A		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		